

DEPARTMENT OF PUBLIC WORKS

SPECIFICATIONS

FOR

CONSTRUCTION OF

**POLICE HEADQUARTERS
WOMEN'S LOCKER RM REMODEL**

IN

CITY OF STOCKTON, CALIFORNIA

CITY PROJECT NO. P015035-A

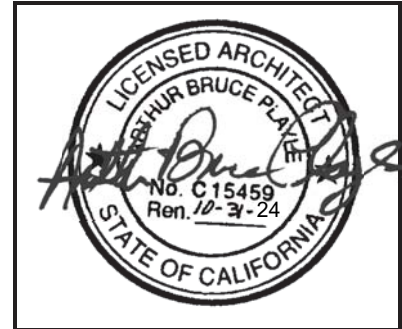
BID OPENING DATE: _____

SECTION 00 01 07

SEALS PAGE

1.1 DESIGN PROFESSIONALS OF RECORD

ARCHITECT
Bruce Playle
Indigo / Hammond +Playle, LLC
License #C15459



STRUCTURAL ENGINEER
Brad Rollins
Point 2 Structural Engineers, Inc.
License #S2837



MECHANICAL ENGINEER
Sean Tichenor
Peters Engineering
License #M31176



ELECTRICAL ENGINEER
Jesse Bastian
M. Neils Engineering, Inc.
License #E20229



END OF SECTION 00 01 07

This page intentionally left blank

SECTION 00 01 10
TABLE OF CONTENTS

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

- 00 01 07 - Seals Page
- 00 01 10 - Table of Contents
- 00 01 15 - List of Drawing Sheets
- Notice Inviting Bids
- Notice to Contractors
- Instructions to Bidders
- Bid Forms
- State Wage Rates
- Sample Construction Contract
- General Provisions (equivalent to City of Stockton Standard Specifications, 2016, see City website)
- Special Provisions (included herein)

TECHNICAL SPECIFICATIONS

DIVISION 01 -- GENERAL REQUIREMENTS

- 01 10 00 – Summary of Work
- 01 22 00 – Unit Prices
- 01 23 00 – Alternates
- 01 25 00 – Substitution Procedures
- 01 26 00 – Contract Modification Procedures
- 01 29 00 – Application for Payment and Conditional and Unconditional Waivers
- 01 30 00 - Administrative Requirements
- 01 32 16 - Construction Progress Schedule
- 01 35 53 - Security Procedures
- 01 40 00 - Quality Requirements
- 01 50 00 - Temporary Facilities and Controls
- 01 57 19 – Temporary Environmental Controls
- 01 60 00 – Product Requirements
- 01 61 16 - Volatile Organic Compound (VOC) Content Restrictions
- 01 70 00 - Execution and Closeout Requirements
- 01 74 19 - Construction Waste Management and Disposal
- 01 76 00 – Alteration Project Procedures
- 01 78 00 - Closeout Submittals

DIVISION 02 -- EXISTING CONDITIONS

- 02 41 00 – Demolition
- 02 83 00 - General Asbestos Requirements

City of Stockton Police HQ Women's Locker Rm Remodel

02 83 20 - Lead in Construction Requirements

02 83 30 - Other Hazardous Materials

DIVISION 03 -- CONCRETE

03 01 00 - Maintenance of Concrete

03 10 00 - Concrete Forming and Accessories

03 30 00 - Cast-in-Place Concrete

DIVISION 04 -- MASONRY

04 20 00 - Unit Masonry

DIVISION 05 -- METALS

05 12 00 – Structural Steel Framing

05 50 00 - Metal Fabrications

DIVISION 06 -- WOOD, PLASTICS, AND COMPOSITES

06 10 00 - Rough Carpentry

DIVISION 07 -- THERMAL AND MOISTURE PROTECTION

07 10 00 - Topical Moisture Vapor Emission System

07 92 00 - Joint Sealants

DIVISION 08 -- OPENINGS (NOT USED)

DIVISION 09 -- FINISHES

09 05 61 - Common Work Results for Flooring Preparation

09 21 16 - Gypsum Board Assemblies

09 30 00 - Tiling

09 51 00 - Acoustical Ceilings

09 65 00 - Resilient Flooring

09 67 23 - Resinous Flooring

09 78 00 – Decorative Fiberglass Reinforced Plastic (FRP) Wall Paneling

09 91 23 - Interior Painting

DIVISION 10 -- SPECIALTIES

10 14 00 - Signage

10 21 13.17 – Phenolic Toilet Compartments

10 28 00 – Toilet Accessories

10 51 13 – Metal Lockers

DIVISION 11 -- EQUIPMENT (NOT USED)

DIVISION 12 -- FURNISHINGS

12 36 00 - Countertops

DIVISION 13 -- SPECIAL CONSTRUCTION (NOT USED)

DIVISION 14 -- CONVEYING EQUIPMENT (NOT USED)

DIVISION 21 -- FIRE SUPPRESSION (NOT USED)

DIVISION 22 -- PLUMBING

22 01 00 - Operation and Maintenance of Plumbing
22 05 00 - Common Work Results for Plumbing
22 05 23 - General-Duty Valves for Plumbing
22 05 29 - Hangers and Supports for Plumbing Piping and Equipment
22 05 48 - Vibration and Seismic Controls for Plumbing Piping and Equipment
22 07 00 - Plumbing Insulation General Requirements
22 07 19 - Plumbing Piping Insulation
22 11 16 - Domestic Water Piping
22 11 19 - Domestic Water Piping Specialties
22 13 16 - Sanitary Waste and Vent
22 13 19 - Sanitary Waste Piping Specialties
22 40 00 - Plumbing Fixtures

DIVISION 23 -- HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)

23 01 00 - Operation and Maintenance of HVAC Systems
23 05 00 - Common Work Results for HVAC
23 05 30 - Hangers and Support for HVAC Ductwork
23 05 93 - Testing, Adjusting, and Balancing for HVAC
23 07 00 - HVAC Insulation
23 07 13 - Duct Insulation
23 31 13 - Metal Ducts
23 31 16 - Nonmetal Ducts
23 33 13 - Dampers
23 33 23 - Turning Vanes
23 33 43 - Flexible Connectors

DIVISION 26 -- ELECTRICAL

26 01 00 - General Requirements of Electrical Work
26 05 02 - Supporting from Building Structure
26 05 19 - Low-Voltage Electrical Power Conductors and Cables 600V
26 05 26 - Grounding and Bonding for Electrical Systems
26 05 29 - Hangers and Supports for Electrical Systems

City of Stockton Police HQ Women's Locker Rm Remodel

- 26 05 34 - Conduit
- 26 05 37 - Boxes
- 26 05 53 - Identification for Electrical Systems
- 26 09 23 - Lighting Control
- 26 27 26 - Wiring Devices
- 26 28 17 - Enclosed Circuit Breakers
- 26 28 18 - Enclosed Switches
- 26 50 10 – LED Lighting

APPENDICES

APPENDIX A - Hazardous Materials Inspection Report dated 10/24/17.

APPENDIX B - Hazardous Materials Inspection Report dated 08/08/18.

END OF SECTION

SECTION 00 01 15
LIST OF DRAWING SHEETS

GENERAL

G-001	COVER SHEET
G-101	OVERALL SITE PLAN
G-102	FIRE & LLIFE SAFETY PLAN - BASEMENT
G-103	FIRE & LLIFE SAFETY PLAN – FIRST FLOOR
G-104	ACCESSIBILITY DETAILS & SIGNAGE
G-201	CALGREEN NON-RESIDENTIAL CHECKLIST 1
G-202	CALGREEN NON-RESIDENTIAL CHECKLILST 2

STRUCTURAL

S1.0	TYPICAL NOTES
S1.1	TYPICAL DETAILS
S1.2	NON-STRUCTURAL METAL STUD WALL DETAILS
S2.0	BASEMENT & FOUNDATION PLAN

ARCHITECTURAL

A-001	OVERALL DEMOLITION BASEMENT FLOOR PLAN
A-002	OVERALL NEW BASEMENT FLOOR PLAN
A-101	ENLARGED DEMO FLOOR PLANS
A-102	ENLARGED NEW FLOOR PLANS
A-103	ENLARGED FINISH FLOOR & SLAB PLAN
A-201	ENLARGED DEMO REFLECTED CEILING PLANS
A-202	ENLARGED NEW REFLECTED CEILING PLANS
A-301	BUILDING SECTIONS
A-401	INTERIOR ELEVATIONS – WOMEN'S LOCKER RM
A-402	INTERIOR ELEVATIONS – TOILET 4 & 18
A-511	WALL TYPES
A-521	INTERIOR DETAILS
A-522	TYPICAL WALL & CEILING DETAILS

MECHANICAL

M-001	SYMBOLS & NOTES
M-100	OVERALL FLOOR PLAN - DEMOLITION
M-101	ENLARGED FLOOR PLAN - DEMOLITION
M-200	OVERAL FLOOR PLAN - MECHANICAL
M-201	ENLARGED FLOOR PLAN - MECHANICAL

PLUMBING

P-001	SYMBOLS & NOTES
P-100	OVERALL FLOOR PLANS – DEMO & NEW
P-101	ENLARGED WOMEN'S LOCKER SHOWER AND RESTROOM
P-102	ENLARGED TOILET 4 & TOILET 18

ELECTRICAL

E-0.1	SYMBOLS & NOTES
E-1.1	OVERALL BASEMENT FLOOR PLAN -ELECTRICAL

E-2.1	BASEMENT FLOOR PLANS - DEMOLITION & REMODEL ELECTRICAL
E-3.1	PARTIAL ONE-LINE POWER DIAGRAM AND PANEL SCHEDULE
E-4.1	ELECTRICAL DETAILS
E-5.1	TITLE 24 INDOOR LIGHTING COMPLIANCE FORMS
E-5.2	TITLE 24 INDOOR LIGHTING COMPLIANCE FORMS

END OF SECTION

**SECTION 00 72 13
SPECIAL PROVISIONS**

ARTICLE 0.1 – GENERAL

1.0 The Articles herein delete, change, or add to the City of Stockton Standard Specifications as specifically related to this Project. If not specifically identified as “Delete” or “Change”, the Articles herein are additions to the Standard Specifications.

- 1.0.1 Delete the following Sections and/or Articles of the City of Stockton Standard Specifications:
 - 1.0.1.1 Delete Article 5-1.02 Contract Components. Refer instead to Special Provisions Article 1 herein.
 - 1.0.1.2 Delete Article 5-1.26 Construction Surveys.
 - 1.0.1.3 Delete Section 19 through Section 100. Refer instead to the technical specification sections.

ARTICLE 1 - GENERAL TERMS AND DOCUMENTS (REPLACES SECTION 5-1.02)

1.1	Language	9
	1.1.1 Usage	
	1.1.2 General Definitions	
1.2	Documents Included by Reference	12
	1.2.1 General	
	1.2.2 Standards	
	1.2.3 Manufacturer's Requirements	
	1.2.4 Laws	
1.3	Document Interpretation and Correlation	13
	1.3.1 Complete Project	
	1.3.2 Complimentary Documents	
	1.3.3 Consistency	
	1.3.4 Dimensions	
	1.3.5 Subdivision of Work	
1.4	Discrepancies in Contract Documents	13
	1.4.1 Document Hierarchy	
	1.4.2 Discrepancies Within Documents	
1.5	Use of Documents	14
	1.5.1 Use and Copyrights	
	1.5.2 Electronic Documents	
1.6	Written Notice	14
1.7	Governing Law	14
1.8	Successors and Assigns	14
1.9	Rights and Remedies	14
	1.9.1 Duties and Obligations Cumulative	
	1.9.2 No Waiver	
1.10	Interest	15

ARTICLE 2 - THE OWNER (ADDED SECTION)

2.1	Definition	15
2.2	Information and Services Required of the Owner	15
	2.2.1 Financing and Funding	
	2.2.2. Permits and Fees	
	2.2.3 Not Used	
	2.2.4 Not Used	
	2.2.5 Site Survey	
	2.2.6 Geotechnical Reports	
	2.2.7 Project Information	
	2.2.8. Reasonable Promptness	
2.3	Owner's Rights	16

- 2.3.1 Stopping the Work
- 2.3.2 Carrying out the Work
- 2.3.3 Removal of the Contractor's Staff

ARTICLE 3 - THE CONTRACTOR (ADDED SECTION)

3.1	General	16
3.1.1	Definition	
3.1.2	Performance	
3.1.3	Obligations not Changed	
3.1.4	Use of Site	
3.1.5	Access to Work	
3.1.6	Working Hours	
3.1.7	Full Time Superintendent	
3.1.8	Daily Construction Reports	
3.1.9	Not Used	
3.2	Permits, Codes and Agency Requirements	17
3.2.1	Payment	
3.2.2	Compliance	
3.2.3	Responsibility	
3.3	Planning, Supervision, and Construction Procedure	18
3.3.1	Construction Means and Methods	
3.3.2	Examination of Work Already Performed	
3.3.3	Advance Notice to Inspectors	
3.3.4	Planning and Review of Field Conditions and Contract Documents	
3.3.5	Request for Information (RFI)	
3.3.6	Underground Utilities	
3.3.7	Observed Discrepancy	
3.3.8	Claims	
3.3.9	Non-Compliance	
3.4	Labor and Materials	19
3.4.1	Provision	
3.4.2	Protection of work and stored materials	
3.4.3	Taxes	
3.4.4	Discipline	
3.5	Documents and Samples at the Site	20
3.5.1	Copies of Documents	
3.5.2	As-Built Drawings	
3.6	Cutting and Patching	20
3.6.1	Scope	
3.6.2	Construction by Others	
3.6.3	Structural Members	
3.6.4	Subsequent Removal	
3.7	Clean Up	20
3.7.1	Contractors Responsibility	
3.7.2	Failure to Clean Up	
3.7.3	Abandoned Property	
3.8	Royalties, Patents and Copyrights	21
3.8.1	Payment and Indemnity	
3.8.2	Architects Review	
3.9	Indemnification	21
3.9.1	General	
3.9.2	No Limitation	

ARTICLE 4 – SUBCONTRACTORS (ADDED SECTION)

4.1 Definitions.....22
4.1.1 Subcontractor
4.1.2 Sub-subcontractor
4.1.3 Specialty Contractors
4.2 Substitution of Subcontractors22
4.2.1 Consent of Owners
4.2.2 Removal of Subcontractors
4.2.3 Replacement at No Cost
4.2.4 Subcontractual Relations
4.3 Contingent Assignment of Subcontractors23
4.4 Provide Subcontractor Information23
4.5 Provide Subcontractor Contracts23
4.6 Indemnity23
4.7 Joint and Several Liability24

ARTICLE 5 - SUBMITTALS, DEFERRED APPROVALS, AND SUBSTITUTIONS (ADDED SECTION)

5.1 General.....24
5.1.1 Shop Drawings
5.1.2 Product Data
5.1.3 Samples
5.1.4 Purpose of Submittals
5.1.5 Deferred Approval
5.1.6 No Work Until Approval
5.1.7 Owner's Property
5.1.8 Contractor Responsibilities
5.1.9 Deviations
5.2 Submission Process25
5.2.1 General
5.2.2 Schedule
5.2.3 Contractor Review
5.2.4 Architect Review
5.2.5 Review Comments
5.2.6 Deferred Approvals
5.3 Substitutions26
5.3.1 General
5.3.2 Prohibition Before Award
5.3.3 Side-by-Side Comparison
5.3.4 Agency Review
5.3.5 Contractor's Certification
5.3.6 "No Substitution"
5.3.7 "No Known Equal"
5.3.8 "Or Approved Equal"
5.4 Operation and Maintenance Manual27

ARTICLE 6 - TESTING AND INSPECTION (ADDED SECTION)

6.1 General27
6.1.1 Inspector
6.1.2 Not Used
6.1.3 Testing Lab
6.1.4 Access and Information
6.1.5 Scheduling of Tests and Inspections
6.1.6 Prompt Testing and Inspections
6.1.7 Additional Testing or Inspection
6.2 NOT USED.....28

6.3 NOT USED28
6.4 Payment for Tests and Inspections28
6.4.1 Re-Testing or Re-Inspection
6.4.2 Work Hours
6.4.3 Remote Testing or Inspection
6.4.4 Premature Testing
6.5 Uncovering of Work28
6.5.1 Uncovering Work for Required Inspections

ARTICLE 7 - THE ARCHITECT (ADDED SECTION)

7.1 General 29
7.1.1 Definition
7.1.2 Modification of Duties
7.1.3 Termination
7.2 Architect's Administration of the Contract29
7.2.1 Status
7.2.2 Site Visits
7.2.3 No Control Over Construction
7.2.4 Communications
7.2.5 Payment Applications
7.2.6 Rejection of Work
7.2.7 Interpretation
7.2.8 Response to RFI'S
7.2.9 Architect's Supplemental Instructions (ASI)
7.2.10 Changes

ARTICLE 8 - CONTRACT TIME AND SCHEDULE

8.1 Definitions30
8.1.1 Contract Time
8.1.2 Commencement
8.1.3 Days
8.1.4 Final Completion
8.1.5 Substantial Completion
8.1.6 Delay
8.2 Time of Completion.....31
8.2.1 General
8.2.2 Construction Period
8.3 Contractor's Construction Schedule31
8.3.1 General
8.3.2 Breakdown
8.3.3 Long-Lead Items
8.3.4 Submittals
8.3.5 Anticipated Rain Days for Project Location
8.3.6 Time Extensions for Adverse Weather
8.3.7 Failure to Provide Schedule
8.4 Progress and Completion32
8.4.1 Reasonable Schedule
8.4.2 No Commencement With Out Insurance
8.4.3 Expeditious Completion
8.4.4 Updates, Progress Payments
8.4.5 Float
8.4.6 Three-Week Look-Ahead Schedule
8.4.7 Schedule Consultant
8.5 Extensions of Time, Delays, and Related Costs32

- 8.5.1 General
- 8.5.2 Determination of Delay
- 8.5.3 Early Completion
- 8.5.4 Delays Caused by Contractor (Inexcusable Delays)
- 8.5.5 Liquidated Damages
- 8.5.6 Delays Caused by Owner (Compensable Delays)
- 8.5.7 Delays Beyond the Control of the Owner or Contractor (Excusable Delays)
- 8.5.8 Concurrent Delays

ARTICLE 9 - CHANGES IN THE WORK (ADDED SECTION)

9.1 General34

- 9.1.1 Methods of Execution
- 9.1.2 Agreeing Parties
- 9.1.3 No Changes Without Authorization
- 9.1.4 Prompt Implementation
- 9.1.5 Accounting Records

9.2 Minor Changes35

- 9.2.1 Minor Changes

9.3 Change Orders35

- 9.3.1 Definition
- 9.3.2 Determining Costs
- 9.3.3 Change Orders Final
- 9.3.4 When Effective

9.4 Proposed Change Order (PCO)35

- 9.4.1 Definition
- 9.4.2 Scope

9.5 Construction Change Directives (CCD).....36

- 9.5.1 Definition
- 9.5.2 Use of Construction Change Directive
- 9.5.3 Prompt Implementation
- 9.5.4 Recorded as Change Order

9.6 Adjustments in Contract Time36

- 9.6.1 Critical Path
- 9.6.2 Inclusion With Costs
- 9.6.3 No Reservation Allowed

9.7 Adjustments in Contract Sum36

- 9.7.1 Methods of Determining Cost
- 9.7.2 Allowable Costs
- 9.7.3 Cost Related to Time Extensions
- 9.7.4 Overhead and Profit

9.8 Time-and-Materials Method37

- 9.8.1 Costs
- 9.8.2 Labor
- 9.8.3 Material
- 9.8.4 Equipment Rental
- 9.8.5 Approved Costs
- 9.8.6 Daily Reports by Contractor

ARTICLE 10 - CLAIMS AND DISPUTES (ADDED SECTION)

10.1 General38

- 10.1.1 Claim
- 10.1.2 Backcharge
- 10.1.3 Time Limit on Claims
- 10.1.4 Continuing Contract Performance

- 10.1.5 Justification
- 10.1.6 Claims for Cost
- 10.1.7 Claims for Time or Delay
- 10.1.8 Claims for Adverse Weather
- 10.1.9 Claims for Unforeseen Conditions
- 10.1.10 Claims for Costs of Additional Professional Services
- 10.2 Auditing Procedures41**
 - 10.2.1. Owner Right to Audit
 - 10.2.2. Subcontractors
 - 10.2.3 Not Used
- 10.3 Review of Claims by Owner41**
 - 10.3.1 Decision of Owner
 - 10.3.2 Owner’s Review
 - 10.3.3 Documentation if Resolved
 - 10.3.4 Owner’s Written Decision
- 10.4 Dispute Resolution of Claims of \$375,000.00 or Less.....42**
 - 10.4.1 General
 - 10.4.2 Submission
 - 10.4.3 Time Limits Not Extended
- 10.5 Dispute Resolution of Claims in Excess of \$375,00042**
 - 10.5.1 Meet and Confer Conference
 - 10.5.2 Mediation
 - 10.5.3 Negotiations before Mediation
 - 10.5.4 Authorization
 - 10.5.5 Initiation of Mediation
 - 10.5.6 Request for Mediation
 - 10.5.7 Selection of Mediator
 - 10.5.8 Qualifications of a Mediator
 - 10.5.9 Vacancies
 - 10.5.10 Representation
 - 10.5.11 Time and Place of Mediation
 - 10.5.12 Identification of Matters in Dispute
 - 10.5.13 Authority of Mediator
 - 10.5.14 Privacy
 - 10.5.15 Confidentiality
 - 10.5.16 No Stenographic record
 - 10.5.17 Termination of Mediation
 - 10.5.18 Exclusion of Liability
 - 10.5.19 Interpretation and Application of These Mediation Provisions
 - 10.5.20 Expenses

ARTICLE 11 - PAYMENTS AND COMPLETION (ADDED SECTION)

- 11.1. Contract Sum..... 44**
- 11.2 Schedule of Values44**
 - 11.2.1 Submittal
 - 11.2.2 Owner Review
- 11.3 Application for Payment45**
 - 11.3.1 Procedure
 - 11.3.2 Payment for Material and Equipment
 - 11.3.3 Warranty of Title
- 11.4 Certificates for Payment46**
 - 11.4.1 Approval of Application for Payment
 - 11.4.2 Architect’s Review
- 11.5 Decisions to Withhold Payment46**
 - 11.5.1 Reasons to Withhold Payment

11.5.2 Reasons for Withholding Provided
11.5.3 Payment After Cure
11.6 Retainage47
11.6.1 General
11.6.2 Substitution of Securities
11.6.3 Payment of Retainage
11.7 Progress Payments48
11.7.1 Payments to Contractor
11.7.2 Payments to Subcontractors
11.7.3 Percentage of Completion or Payment Information
11.7.4 No Obligation of Owner for Subcontractor Payment
11.7.5 Payment to Suppliers
11.7.6 Payment not Constituting Approval or Acceptance
11.7.7 Joint Checks
11.8 Substantial Completion48
11.8.1 Definition
11.8.2 Contractors Notice
11.8.3 Inspections
11.8.4 Certificate of Substantial Completion
11.8.5 Commencement of Warranties
11.8.6 Completion of Punch List Work
11.8.7 Work Not Completed
11.8.8 Costs of Multiple Inspections
11.9 Partial Occupancy or Use49
11.9.1 Owner's Rights
11.9.2 Inspection Prior to Occupancy or Use
11.9.3 Occupancy is Not Acceptance
11.10 Final Completion and Final Payment50
11.10.1 Final Inspection
11.10.2 Final Payment

ARTICLE 12 - WARRANTY AND CORRECTION OF WORK (ADDED SECTION)

12.1 Warranty of Work51
12.2 Correction of Work51
12.2.1 Correction of Rejected Work
12.2.2 Removal of Nonconforming Work
12.2.3 Owner's Rights if Contractor Fails to Correct
12.2.4 Cost of Correcting the Work
12.3. Corrections after Substantial Completion51
12.3.1 Prompt Notification and Correction
12.3.2 Extension of Correction Period
12.3.3 No Time Limitation
12.4 Acceptance of Non-Conforming Work52

ARTICLE 13 - PROTECTION OF PERSONS AND PROPERTY (ADDED SECTION)

13.1 Safety Programs and Precautions52
13.1.1 General
13.1.2 Safety Program
13.1.3 Material Safety Data Sheets
13.2 Safety of Persons and Property52
13.2.1 Responsibility and Precautions
13.2.2 Remedy of Loss
13.2.3 Notices and Regulations
13.2.4 Safety Barriers and Safeguards

13.2.5 Structural Loading and Temporary Construction
13.2.6 Use of Explosives or Other Hazardous Methods
13.3 Hazardous Materials53
13.3.1 Discovery of Hazardous Materials
13.3.2 Hazardous Material Work Limitations
13.3.3 Indemnification by Owner for Hazardous Materials Not Caused by Contractor
13.3.4 Indemnification by Contractor for Hazardous Material Caused by Contractor
13.3.5 Terms of Hazardous Material Provision
13.4 Emergencies54
13.5 Trench Excavation54
13.5.1 Trenches Greater than Five Feet
13.5.2 No Tort Liability of Owner
13.5.3 No Excavation With Out Permits

ARTICLE 14 - INSURANCE AND BONDS (ADDED SECTION)

14.1 Contractor's Liability Insurance55
14.1.1 Additional Insured Endorsement Requirements
14.2 Waiver of Subrogation55

ARTICLE 15 - MISCELLANEOUS PROVISIONS OF LAW (ADDED SECTION)

15.1 Smoke Free Environment..... 55
15.2 Compliance with Health Order from City, County, or State..... 55

ARTICLE 16 - TERMINATION OR SUSPENSION OF THE CONTRACT (ADDED SECTION)

16.1 Termination by the Owner for Cause56
17.2.1 Grounds for Termination
17.2.2 Notice of Termination
17.2.3 Payments Withheld
17.2.4 Payments upon Completion
16.2 Termination or Suspension by the Owner for Convenience56
17.3.1 Suspension by Owner
16.3 Termination Due to Discovery of Unknown Conditions56
16.4 Mutual Termination for Convenience57

ARTICLE 1 - GENERAL TERMS AND DOCUMENTS

1.1 LANGUAGE

1.1.1 USAGE. The following applies to the language used in these Contract Documents:

1.1.1.1 Absence of Modifiers. In the interest of brevity, the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

1.1.1.2 Any. "Any" is used in its inclusive sense, meaning "any and all" or "any and every".

1.1.1.3 Article, Paragraph. Use of Article, Sub-article, Paragraph, and Subparagraph numbers are references to the respective portion of these Special Provisions unless otherwise stated.

1.1.1.4 As Shown, Etc. Where "as shown," "as indicated," "as detailed," or words of similar meaning are used, reference is made to the Drawings unless otherwise stated. Where "as directed," "as required," "as permitted," "as authorized," "as accepted," "as selected," or words of similar meaning are used, the direction, requirement, permission, authorization, approval, acceptance, or selection by Architect is intended unless otherwise stated.

1.1.1.5 Capitalization. Terms specifically defined in these Special Provisions are capitalized. Where these words are used without capitalization their meaning shall be the commonly accepted meaning for the context in which they are used.

1.1.1.6 Existing, (E), (e): Existing construction item or element, to remain or to be removed as may be indicated. Where no new or existing modifier word is used, Contractor will assume the item or element is included in the scope of work as new construction to be to be procured, provided, and installed by Contractor. Mutually exclusive with "New", see below.

1.1.1.7 Imperative Mood. Specifications and annotations on drawings are written in Imperative Mood and are to be interpreted as instructions to the Contractor. In the interest of brevity incomplete sentences are used. Omission of words or phrases such as "Contractor shall," "shall be," or words of similar meaning are used, are intentional. Omitted words or shall be supplied by inference.

1.1.1.8 Include. "Including" means "including but not limited to". "Include" is defined in the same non-limiting way.

1.1.1.9 New, (N), (n): New construction item or element, to be procured, provided, and installed by Contractor. Where no new or existing modifier word is indicated, Contractor will include in the scope of work as new construction to be to be procured, provided, and installed by Contractor. Mutually exclusive with "Existing", see above.

1.1.1.10 Plural. Words in the singular shall include the plural whenever applicable or the context so indicates.

1.1.1.11 Provide. "Provide" means "provided complete in place," that is, furnished, installed, tested, and ready for operation and use.

1.1.1.12 Technical Terminology. Unless otherwise stated in the Contract Documents, words which have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

1.1.2 GENERAL DEFINITIONS. These words have the following meaning when capitalized:

1.1.2.1 Authority Having Jurisdiction (AHJ). The City of Stockton.

1.1.2.2 Letters of Clarification. written documents furnished by the City before execution of the Contract for Construction, interpreting Drawings and/or Specifications or answering questions of intended bidders, and shall be incorporated in and are a part of the Contract Documents.

1.1.2.3 Architect Supplemental Instruction (ASI). A written and/or graphic instruction from the Architect which modifies the plans or specifications.

1.1.2.4 Architect, Architect-of-Record. A designated Owner Representative, the Architect is responsible for the design of the project, oversight of it during construction, and to make design intent interpretations during construction. Architect is the only party authorized to make changes to the drawings and technical specifications and is authorized to make certain decisions and provide direction during construction, including but not limited to ASI and FO, and as directed by Owner and the Project Engineer. This term also includes the various engineers-of-record on the project. See also Article 7 – The Architect.

1.1.2.5 Bidding Documents. Equivalent to the Procurement and Contracting Requirements, sometimes referred to Division 00.

1.1.2.6 Change Order Request (COR). A request by the Owner or designated Owner Representative to Contract for a change in the work and its resulting change in cost and time.

1.1.2.7 City. Same meaning as Owner, see “Owner, Owner’s Representative”.

1.1.2.8 Construction Manager (CM). A designated Owner Representative, the Construction Manager is responsible for coordinating project activities during construction, including facilitating the flow of information between the Contractor, the Architect and Engineers, the Owner, review agencies, etc. The CM is authorized to make certain decisions and provide direction during construction, and as directed by Owner and the Project Engineer.

1.1.2.9 Contract, Construction Contract. The Contract, or Construction Contract, is the agreement between the Owner and the Contractor and forms a basis for the Contract Documents (see following definition). The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a written Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind between the Architect and Contractor, between the Owner and any Subcontractor or Sub-subcontractor, or between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

1.1.2.10 Contract Documents. The Contract Documents consist of the following: the Construction Contract (sometimes referred to as the Agreement, or Agreement between Owner and Contractor) and any documents listed therein; City of Stockton Standard Specifications; Special Provisions; Project Manual including Technical Specifications; Drawings; Letters of Clarification issued prior to bid; Instructions To Bidders; Advertisement for Bids; Bid Form; List of Subcontractors; Non-Collusion Affidavit; Performance and Payment Bonds; and modifications issued after execution of the Contract including but not limited to Field Orders, Architectural Supplemental Instructions, Response to Requests for Information, Contract Change Directives, and Change Orders.

1.1.2.11 Contract Sum, Contract Price, Contract Amount. The total compensation for the work, including the amount indicated in the Contract and as may be amended by Contract Change Order.

1.1.2.12 Contract Time. The stipulated contract time, as amended only by Contract Change Order, between the Commencement Date identified in the Notice to Proceed and the substantial completion date identified in the Notice of Substantial Completion. See also Article 8 – Contract Time and Schedule.

1.1.2.13 Field Order (FO). A written and/or graphic directive from the Engineer which generally does not change the contract cost (sum) or contract time.

1.1.2.14 Final Completion. Written notice from the Owner to the Contractor that the work has been fully completed, all closeout documents and punchlist work has been completed to the satisfaction of the Owner, the City Council has accepted the projects as such, and notice has been recorded by the County Recorder. See also Article 8 – Contract Time and Schedule.

1.1.2.15 Drawings. Graphic and pictorial portions of the Contract Documents prepared by the Architect, showing the design, location, and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

1.1.2.16 Engineer, Project Engineer. City of Stockton project coordinator, see also "Owner, Owner's Representative".

1.1.2.17 Inspector-of-Record (IOR). A designated Owner Representative, the project inspector works under the supervision of the Engineer and City Building Official and at the direction of the Architect.

1.1.2.18 Materials or Products. When used in the capitalized form "materials" or "products" means materials, products, equipment, and other physical objects to be incorporated into the Work.

1.1.2.19 Modification. A written amendment to the Contract signed by both parties, a Change Order, a Construction Change Directive, or a written order for a minor change in the Work issued by the Architect.

1.1.2.20 Notice of Final Completion. Written notice from the Owner to the Contractor that the work has been recorded by the County Recorder. See also Final Completion. See also Article 8 – Contract Time and Schedule.

1.1.2.21 Notice to Proceed (NTP). Written notice from the Owner to the Contractor to proceed with the work, setting the date for commencement of Contract Time, otherwise known as the Date of Commencement.

1.1.2.22 Substantial Completion, Notice of Substantial Completion. Written notice from the Owner to the Contractor that the work is sufficiently complete in order that the Owner may take beneficial occupancy of the project. See also Article 8 – Contract Time and Schedule.

1.1.2.23 Owner, Owner's Representative. The City of Stockton and its designated representative. This term is same in meaning as Engineer, or Project Engineer, and may be used to also include any of the Owner's agents such as Architect, Construction Manager, and Inspector of Record. See also Article 2 – The Owner.

1.1.2.24 Plans. Same meaning as Drawings, see "Drawings".

1.1.2.25 Project. The total construction of which the Work performed in accordance with the Contract Documents may be the whole or a part and which may include construction by the Owner or by separate Contractors.

1.1.2.26 Project Manual. The volume usually assembled for the Work which may include, without limitation, the bidding requirements, sample forms, Conditions of the Contract, and Specifications.

1.1.2.27 Punchlist. List of items for correction, issued upon any intermediate or final inspection of the project by Owner, Inspector of Record, Architect, and their various representatives.

1.1.2.28 Record Documents. Record set of Plans and specifications including all Letters of Clarification, Architects Supplemental Instructions, Field Orders, Construction Change Directives, Change Orders, and minor adjustments made in the field during construction which would otherwise be undocumented. Record Documents are to be kept current at jobsite, this being a pre-requisite for processing monthly Payment Applications.

1.1.2.29 Schedule of Values. A document provided by Contractor for review by Engineer detailing the cost of the project, each line item inclusive of all markups and expense, and used as the basis for applications for payment.

1.1.2.30 Site. The "site" refers to the grounds of the Project as described in the Contract Documents and such adjacent lands as may be directly affected by the performance of the Work.

1.1.2.31 Specifications. The Specifications are that portion of the Contact Documents consisting of the written requirements for material, equipment, construction systems, instructions, quality assurance standards, workmanship, and performance of related services. See also Technical Specifications.

1.1.2.32 Submittal. When used in the capitalized form "Submittal" means product data, shop drawing, sample, or similar item or document required to be submitted to Architect for review.

1.1.2.33 Sum. Same as Contract Sum.

1.1.2.34 Technical Specifications. The Technical Specifications are that portion of the overall Specifications beginning with Division 01 - General Requirements through last applicable division, these sections being the responsibility of the Architect and its engineers.

1.1.2.35 Time. Same as Contract Time.

1.1.2.36 Warranty. Minimum one year warranty or as specified, commencing on the date of the Notice of Substantial Completion.

1.1.2.37 Work. The term "work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations, completed in a good and workmanlike manner. The Work may constitute the whole or a part of the Project.

1.2 DOCUMENTS INCLUDED BY REFERENCE

1.2.1 GENERAL. Where the Contract Documents require compliance with referenced documents not bound with the Contract Documents, the referenced documents shall have full force and effect as though printed in the Specifications, except where the specific Contract Document requirements are more stringent or exceed the requirements of the reference documents.

1.2.2 STANDARDS. Any reference to a standard of any society, institute, association, utility or governmental authority is a reference to the organization's standards, which are in effect at the date of the Contractor's proposal. If applicable standards are revised prior to completion of any part of the Work, the Contractor may, if acceptable to Architect, perform such Work in accordance with the revised standards. Architect will furnish, upon request, information as to how copies of the standards referred to may be obtained.

1.2.3 MANUFACTURER'S REQUIREMENTS. Reference to manufacturer's instructions, directions, or requirements shall mean the printed literature furnished by the manufacturer for use of that manufacturer's product or material under conditions similar to those found in the Work. Quality shall meet or exceed descriptions and representations made in manufacturer's promotional literature.

1.2.4 LAWS. Each and every provision of law required by law to be inserted in this Contract shall be deemed to be inserted herein, and the Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon application of either party the Contract shall be amended in writing to make such insertion or correction.

1.3 DOCUMENT INTERPRETATION AND CORRELATION

1.3.1 COMPLETE PROJECT. The Contract Documents are intended to include all items required for the proper execution and completion of the Work by the Contractor. The Work shall include any related construction or service not specifically called for, but necessary to complete Work called for, if that related Work or service is commonly associated with the Work called for and its inclusion is reasonably inferable from the Contract Documents.

1.3.2 COMPLIMENTARY DOCUMENTS. The Contract Documents are complimentary, and what is required by one shall be as binding as if required by all. In general, the Drawings show dimensions, position and scope of construction; and the Specifications set forth the quality of products, materials, and execution. Any Work called for in the Drawings and not mentioned in the Specifications, or vice versa, shall be performed as though fully set forth in both.

1.3.3 CONSISTENCY. Work not particularly detailed, identified, graphically represented, or specified shall be the same as similar parts that are detailed, identified, graphically represented or specified.

1.3.4 DIMENSIONS. Dimensions of Work shall not be determined by scale or rule or interpretation of electronic documents. Annotated dimensions shall be followed at all times. If Contractor believes that the annotated dimensions on drawings are not adequate for construction without scaling, contractor shall request clarification pursuant to Sub-Article 3.3.

1.3.5 SUBDIVISION OF WORK. Organization of the Specifications into divisions, Sections, and Articles, or naming or numbering of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

1.4 DISCREPANCIES IN CONTRACT DOCUMENTS

1.4.1 DOCUMENT HIERARCHY. In the event there is a discrepancy between any of the various Contract Documents the following rules shall apply in the order listed, without limiting Contractor's obligation to identify conflicts for resolution by the Architect in accordance with Sub-Article 3.3 and without limiting the Architect's right to interpret the documents:

1.4.1.1 Most recently released documents govern over previously released documents.

1.4.1.2 The Owner's Standard Specifications and Special Provisions govern over all other Contract Documents except in matters pertaining to the scope or quality of the Work which shall be governed by the Drawings and Specifications.

1.4.1.3 In case of discrepancy between the Drawings and Specifications, the Drawings shall govern in matters of quantity, the Specifications in matters of quality.

1.4.1.4 Each Contract Document shall govern in that subject or purpose for which it was specifically or primarily prepared.

1.4.2 DISCREPANCIES WITHIN DOCUMENTS. In case of discrepancy within the Drawings involving quantities or within the Specifications involving qualities, the greater quantity and the higher quality shall be provided. In the case of discrepancy within other documents, the more stringent requirement shall be applied.

1.5 USE OF DOCUMENTS

1.5.1 USE AND COPYRIGHTS. The Drawings, Specifications and other documents prepared on behalf of the Owner by the Architect and the Architect's consultants, including those in electronic format, and copies thereof are the property of the Owner and are furnished to the Contractor for use solely with respect to this Project. The Contractor may retain one record set. Neither the Contractor nor any Subcontractor, Sub-subcontractor or material or equipment supplier shall own or claim a copyright in the Drawings, Specifications and other documents prepared by the Architect or the Architect's consultants, and unless otherwise indicated the Architect and the Architect's consultants shall be deemed the authors of them and will retain all common law, statutory and other reserved rights, in addition to the copyrights. They are not to be used by the Contractor or any Subcontractor, Sub-subcontractor or material or equipment supplier on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' copyrights or other reserved rights.

1.5.2 ELECTRONIC DOCUMENTS. Any electronic version of the Contract Documents may vary significantly from the printed version due to manual edits of the printed versions related to agency review, revisions or Letters of Clarification, corruption of the electronic files or medium, or other causes. Electronic versions are not part of the contract documents. Any party attempting to make any use of electronic versions of contract documents on the Project shall assume full responsibility for any errors, omissions, or discrepancies with the Contract Documents therein.

1.6 WRITTEN NOTICE.

Any notice from one party to the other or otherwise under the Contract shall be in writing and shall be dated and signed by the party giving such notice or by a duly authorized representative of such party. Any such notice shall not be effective for any purpose unless served by personal delivery to a designated representative for this Project of the party for which it was intended or unless delivered at, or sent by registered or certified mail to, the last business address of the party for which it was intended, known to the party giving notice.

1.7 GOVERNING LAW

The Contract shall be governed by the law of the place where the Project is located.

1.8 SUCCESSORS AND ASSIGNS

The Owner and the Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to the other party hereto and to partners, successors, assigns, and legal representatives of such other party in respect to covenants, agreements, and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

1.9 RIGHTS AND REMEDIES

1.9.1 DUTIES AND OBLIGATIONS CUMULATIVE. Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

1.9.2 NO WAIVER. No action or failure to act by the Inspector, the Owner, the Architect or the Contractor shall constitute a waiver of a right or duty afforded them under the Contract Documents, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.

1.10 INTEREST

Payments due and unpaid under the Contract shall bear interest from the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

ARTICLE 2 - THE OWNER

2.1 DEFINITION

The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate a project manager who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Paragraph 7.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's designated project manager. Owner and City have the same meaning.

2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

2.2.1 FINANCING AND FUNDING. At the request of the Contractor, the Owner will, prior to execution of the Agreement and promptly from time to time thereafter, furnish to the Contractor reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract.

2.2.2 PERMITS AND FEES. Except for permits and fees, including those required under Paragraph 3.2.1, which are the responsibility of the Contractor under the Contract Documents, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for use or occupancy of permanent structures or for permanent changes to existing facilities.

2.2.3 TESTING LAB AND INSPECTION. Pursuant to Article 6 of these Special Provisions, the Owner will select and pay an independent testing laboratory to conduct tests and inspections required under California Code of Regulations, Title 24.

2.2.4 NOT USED.

2.2.5 SITE SURVEY. When required by the scope of the Project, the Owner will furnish a legal description and a land survey of the Site, giving, as applicable, grades and lines of streets, alleys, pavements, adjoining property, rights-of-way, easements, encroachments, zoning, deed restrictions, boundaries, and contours of the Site. Surveys needed to perform the work shall be provided by the Contractor.

2.2.6 GEOTECHNICAL REPORTS. Copies of such reports will be made available to the Contractor at no expense. Any such reports were generated for the purpose of aiding in the design of the project and are not a part of the Contract Documents. The Owner will make these documents available to the Contractor for reference only. Contractor is solely responsible for its conclusions

drawn from them. The Contractor may conduct its own geotechnical investigations at the site. At the Owner's request, the Contractor shall make available to the Owner the results of any such investigation.

2.2.7 PROJECT INFORMATION. Upon the request of the Contractor, Owner will make available such existing information regarding utility services and Site features, including existing construction, related to the Project as is available from Owner's records. Such information is not part of the contract documents and the Contractor is solely responsible for the conclusion drawn from such information. If any such information conflicts with information in the Contract Documents, or appears incorrect based upon Contractor's Site inspection or knowledge of the Project, Contractor shall notify the Architect per Sub-Article 3.3.

2.2.8 REASONABLE PROMPTNESS. Information or services under Owner's control will be furnished by the Owner with reasonable promptness to avoid delay in the orderly progress of the Work.

2.3 OWNER'S RIGHTS

2.3.1 STOPPING THE WORK. If the Contractor fails to correct nonconforming Work, as required by Sub-article 12.2, or persistently fails to carry out Work in accordance with the Contract Documents, the Owner by written order signed personally or by an agent specifically so empowered by the Owner in writing, may order the Contractor to stop the Work or any portion thereof, until the cause for such order has been eliminated. The right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Article 13.

2.3.2 CARRYING OUT THE WORK. If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a 3 day period after receipt of written notice or the time period expressly stated in the written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may correct such deficiencies without prejudice to other remedies the Owner may have. In such case, the Contractor will be back charged all costs associated with correcting such deficiencies, including compensation for additional professional and internally generated services and expenses made necessary by such default, neglect, or failure.

2.3.3 REMOVAL OF CONTRACTOR'S STAFF. Owner shall have the right, but not the obligation, to require the removal from the Project of any superintendent, staff member, agent, or employee of any Contractor, Subcontractor, material or equipment supplier, etc., for cause. See also under paragraph 3.1.7.

THE CONTRACTOR

3.1 GENERAL

3.1.1 DEFINITION. The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Contractor" means the Contractor or the Contractor's authorized representative.

3.1.2 PERFORMANCE. The Contractor shall perform the Work in accordance with the Contract Documents. Contractor shall do no additional work without Architect's clarifying instructions, approved Change Order or as otherwise set forth in Article 9.

3.1.3 OBLIGATIONS NOT CHANGED. The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the

Architect or Inspector, or by tests, inspections, or approvals required or performed by persons other than the Contractor.

- 3.1.4 USE OF SITE.** The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits, and the contract documents and shall not unreasonably encumber the site with materials or equipment.
- 3.1.5 ACCESS TO WORK.** The Contractor shall provide the Owner, the Architect, and Inspectors, access to the Work in preparation and progress wherever located. Contractor shall maintain site, including weatherization and dewatering, to allow performance of work and ready vehicular and pedestrian access to all portions of the site where work is scheduled.
- 3.1.6 WORKING HOURS.** Work shall be performed during regular working hours except in the event of an emergency. If required to keep project on schedule, work may be performed outside of regular working hours only with the advance written consent of the Owner.
- 3.1.7 FULL TIME SUPERINTENDENT.** The Contractor shall provide a competent, English-speaking superintendent and necessary assistants who shall be in attendance full-time at the Project Site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. City has the right of refusal of the Superintendent proposed for use by Contractor on this project. Contractor shall submit Superintendent qualifications, relevant experience, and references to the City for review and approval prior to Contractor appointment of Superintendent to the project. City retains the right of removal of the Superintendent based on substantive nonperformance as may be determined by City, Contractor to submit for City approval the qualifications of a substitute Superintendent as outlined above.
- 3.1.8 DAILY CONSTRUCTION REPORTS.** The Contractor shall deliver daily reports, on forms pre-approved by the Owner, to the Owner's Project Inspector, which shall contain all of the following:
- 3.1.8.1** Names of project and contractor.
 - 3.1.8.2** Weather, temperature, and unusual site conditions.
 - 3.1.8.3** A brief description of the day's work activities, including location, and any unusual problems.
 - 3.1.8.4** A list of any unforeseen conditions and unanticipated delays.
 - 3.1.8.5** A description of any problems that might affect progress, which shall relate to the Project Schedule.
 - 3.1.8.6** Labor quantities, by trade, including subcontractors.
 - 3.1.8.7** A list of all large equipment used on site, whether owned, leased, or rented.
- 3.1.9 NOT USED.**

3.2 PERMITS, CODES AND AGENCY REQUIREMENTS

- 3.2.1 PAYMENT.** The Contractor shall secure and pay for all permits and governmental fees, licenses, and inspections necessary for proper execution and completion of the Work which are customarily secured after execution of the Contract and are legally required by any authority having jurisdiction over the Project, except those identified as the Owner's responsibility in Sub-article 2.2. The Owner will reimburse the Contractor for permanent utility connection fees necessary for the completion of the Work. Proper documentation of fees shall be submitted through the Architect. No mark up shall be allowed the Contractor on these reimbursable charges. These reimbursable charges shall not be included in base bid.

- 3.2.2 COMPLIANCE.** The Contractor shall comply with and give notices required by any law, ordinance, rule, regulation, and lawful order of public authorities bearing on performance of the Work. Specific duties of the Contractor shall be in accordance with Title 24 of the California Code of Regulations and in compliance with the City of Stockton Community Workforce Training Agreement CWTA as described in the Construction Contract.
- 3.2.3 RESPONSIBILITY.** Contractor shall take responsibility and shall require Subcontractors to take responsibility for knowledge of the requirements of building codes and of utility companies and other agencies with jurisdictional authority at the Site, which knowledge is pertinent to the proper execution of the Work of this Contract. Any Work shown in the contract document that is not in compliance with such requirements shall be treated as an Observed Discrepancy per Article 3.3.7. No work shall be performed that is in violation of any applicable building code.

3.3 PLANNING, SUPERVISION AND CONSTRUCTION PROCEDURES

- 3.3.1 CONSTRUCTION MEANS AND METHODS.** The Contractor shall plan, supervise, and direct the Work using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, procedures, and coordinating all portions of the Work under the Contract, unless Contract Documents give other specific instructions concerning these matters. If any portion of the Project is performed by other contractors retained directly by the Owner, Contractor shall be responsible for the coordination and sequencing of its Work with that of the other contractors so as to avoid any impact on the Project Schedule pursuant to the requirements of Article 13.
- 3.3.2 EXAMINATION OF WORK ALREADY PERFORMED.** The Contractor shall be responsible for examination of portions of Work already performed under this Contract or other contracts to determine if such portions are suitable to receive subsequent work of this contract.
- 3.3.3 ADVANCE NOTICE TO INSPECTORS.** Contractor shall become familiar with testing and inspection requirements of the Contract Documents and notify Inspectors a sufficient time in advance of the work's readiness for required observation or inspection so that the Inspector may arrange for same.
- 3.3.4 PLANNING AND REVIEW OF FIELD CONDITIONS AND CONTRACT DOCUMENTS:** The Contractor shall take responsibility for planning and coordinating the Work to be performed by the Contractor and its various subcontractors, including identifying and rectifying potential conflicts in scheduling, access, and final installed position of each portion of the Work and including the preparation of required coordination drawings. Before starting each portion of the Work, the Contractor, together with the subcontractors who will perform that portion of the Work shall review the Site to observe and take field measurements of conditions which may affect the Work, make such investigation as they deem necessary to fully understand those conditions, and carefully study and compare the various Drawings and other Contract Documents with each other and with observed site conditions relative to that portion of the Work. These planning obligations shall be performed early enough to allow reasonable time for a response from the Architect to any RFI related to planning that portion of the Work.
- 3.3.5 REQUESTS FOR INFORMATION.** An RFI is a written request for information submitted in the form required by the Contract Documents. If the contractor is unsure of the meaning or requirements of the Contract Documents, discovers an unforeseen condition as described in Article 10.1, or believes additional information is required for the proper performance of the Work, Contractor shall prepare an RFI asking the Architect for clarification or direction. The response to an RFI shall not be interpreted as change in the Work resulting in a change in Contract Sum or Contract Time. RFI response is to Contractor's document and is not sealed by Architect. See Division 1 – General Requirements for certain other requirements as may apply.

- 3.3.6 UNDERGROUND UTILITIES.** It shall be solely the responsibility of the Contractor to timely notify all public and private utilities serving the Site prior to commencing work. The Contractor shall notify and receive clearance from any cooperative agency, such as Underground Service Alert. Refer to sub-article 10.1.9 regarding discovery of utility lines not shown in contract documents.
- 3.3.7 OBSERVED DISCREPANCY.** An Observed Discrepancy is defined as any existing or potential error, omission, inconsistency, ambiguity, violation of code requirements, lack of detail, or lack of explanation in the Contract Documents, or any inconsistency between the Contract Documents or the Record Drawings and site conditions, observed by the Contractor or its Subcontractors, material or equipment suppliers. Contractor shall require its Subcontractors, and material or equipment suppliers to immediately report all Observed Discrepancies. Contractor shall immediately report all Observed Discrepancies to Owner in an RFI. No Work that might be affected by an Observed Discrepancy shall be performed before receipt of Architect's response.
- 3.3.8 CLAIMS.** If the Contractor believes that additional cost or time is involved because of clarifications or instructions issued by the Owner in response to the Contractor's RFI's pursuant to this Sub-Article 3.3, Contractor may make Claim as provided in Article 10. Claim may be in the form of a Proposed Change Order (PCO) pursuant to Article 9.
- 3.3.9 NON-COMPLIANCE.** If the Contractor or its Subcontractors, employees, or agents performs any Work under the Contract Documents, without complying with the requirements of this Sub-Article 3.3, and that Work is subsequently corrected to comply with the Contract Documents, code requirements, or to properly coordinate with or integrate into adjacent Work, Contractor shall bear all costs arising therefrom including, the cost of correction and related professional services and inspection.

3.4 LABOR AND MATERIALS

- 3.4.1 PROVISION.** Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, material, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work whether temporary or permanent and whether or not incorporated or to be incorporated in the Work. The Contractor shall provide, and cause each Subcontractor to provide, competent and adequate staff as necessary for the proper administration, coordination, supervision, and superintendence of its portion of the Work; organize the procurement of all materials and equipment so that the materials and equipment will be available at the time they are needed for the Work; and keep an adequate force of skilled and fit workers on the job to complete the Work in accordance with all requirements of the Contract Documents.
- 3.4.2 PROTECTION OF WORK AND STORED MATERIALS.** The Contractor shall remove all mud, water, or other elements as may be required for the proper protection and prosecution of its Work. The Contractor shall at all times provide heat, coverings, and enclosures necessary to maintain adequate protection against weather so as to preserve the Work and stored Materials, free from moisture damage or other degradation due to exposure.
- 3.4.3 TAXES.** The Contractor shall pay sales, use and similar taxes on the Work of the Contractor which are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.
- 3.4.4 DISCIPLINE.** The Contractor shall enforce strict discipline and good order among the Contractor's employees, Subcontractors and other persons carrying out the Contract. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

3.5 DOCUMENTS AND SAMPLES AT THE SITE

- 3.5.1 COPIES OF DOCUMENTS.** The Contractor shall maintain at the Site for the Owner one applicable copy of Title 24 and record copy of the Drawings, Specifications, Letters of Clarification, Change Orders, and other modifications, in good order and marked currently to record changes and selections made during construction. In addition, the Contractor shall maintain at the Site approved Shop Drawings, Product Data, Samples, and similar required submittals. These documents shall be available to the Architect and the Owner's Inspector and shall be delivered to the Owner upon completion of the Work.
- 3.5.2 AS-BUILT REDLINE DRAWINGS.** The Contractor shall prepare and maintain on a current basis an accurate and complete set of As-Built drawings showing underground utilities, including low voltage lines with indications of As-Built depth and location from buildings or other permanent surface features. The Contractor shall also record any change in location from that shown in the Contract Documents, of any significant building component or system which will be concealed from view. Inspector shall have the authority to determine which changes in location are to be recorded. The Contractor shall update the As-Built drawings weekly. The Project Inspector will verify that record drawings are up-to-date and if they are not, the Project Inspector will not approve the current pay request. The As-Built drawings shall be kept at the Site and available for inspection by the Owner and the Architect. On completion of the Work and prior to Application for Final Payment, the Contractor shall provide one complete set of Record Drawings to the Owner, certifying them to be a complete and accurate reflection of the actual construction conditions of the Work.

3.6 CUTTING AND PATCHING

- 3.6.1 SCOPE.** The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly.
- 3.6.2 CONSTRUCTION BY OTHERS.** The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching, excavating, or otherwise altering such construction. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work. All cutting and patching shall be done promptly to avoid delay.
- 3.6.3 STRUCTURAL MEMBERS.** New or existing structural members and elements, including reinforcing bars and seismic bracing, shall not be cut, bored, or drilled except by written authority of the Architect or allowed in the Contract Documents. Work done contrary to such authority is at the Contractor's risk, subject to replacement at its own expense and without reimbursement under the Contract.
- 3.6.4 SUBSEQUENT REMOVAL.** Permission to patch any areas or items of nonconforming Work shall not constitute a waiver of the Owner's or the Architect's right to require complete removal and replacement of the areas of items of the Work if, in the opinion of the Architect or the Owner, the patching does not satisfactorily restore quality and appearance of the Work or does not otherwise conform to the Contract Documents.

3.7 CLEAN UP

- 3.7.1 CONTRACTORS RESPONSIBILITY.** The Contractor shall keep the Site and surrounding area free from accumulation of waste material and rubbish caused by operations under the Contract.

The Contractor shall remove from and about the Site the waste materials, rubbish, tools, construction equipment, machinery, and materials no longer required for the Work.

3.7.2 FAILURE TO CLEAN UP. If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so, and the cost thereof shall be backcharged to the Contractor.

3.7.3 ABANDONED PROPERTY. When directed by the Owner or the Architect, Contractor shall dismantle temporary structures, if any, and remove from the Site all construction and installation equipment, fences, scaffolding, surplus materials, rubbish, and supplies belonging to Contractor. If the Contractor does not remove the tools, equipment, machinery, and materials within 14 days of being so directed, then they shall be deemed abandoned, and the Owner can dispose of them for its own benefit in whatever way it deems appropriate.

3.8 ROYALTIES, PATENTS AND COPYRIGHTS

3.8.1 PAYMENT AND INDEMNITY. The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims of infringement of copyrights and patent rights and shall hold the Owner and the Architect harmless from loss on account thereof but shall not be responsible for such defense or loss when a particular design, process, or product of a particular manufacturer is required by the Contract Documents. However, if the Contractor has reason to believe the required design, process, or product is an infringement of a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

3.8.2 ARCHITECTS REVIEW. The review by the Architect of any method of construction, invention, appliance, process, article, device, or material of any kind shall be for its adequacy for the Work and shall not be an approval for the use by the Contractor in violation of any patent or other rights of any person or entity.

3.9 INDEMNIFICATION

3.9.1 GENERAL. To the fullest extent permitted by law, the Contractor shall defend, indemnify, and hold harmless the Owner, Architect, Architect's consultants, and their respective agents, employees, officers, and directors, from and against claims, damages, losses, and expenses (including, but not limited to attorneys' fees and costs including fees of consultants) arising out of or resulting from: performance of the Work (including, but not limited to) the Contractor's or its Subcontractor's use of the Site; the Contractor's or its Subcontractor's construction of the Project, or failure to construct the Project, or any portion thereof; the use, misuse, erection, maintenance, operation, or failure of any machinery or equipment including, but not limited to, scaffolds, derricks, ladders, hoists, and rigging supports, whether or not such machinery or equipment was furnished, rented, or loaned by any of the Indemnitees; or any act, omission, negligence, or willful misconduct of the Contractor or its Subcontractors or their respective agents, employees, material or equipment suppliers, invitees, or licensees but only to the extent caused in whole or in part by the acts or omissions of the Contractor, its Subcontractors, anyone directly or indirectly employed by any of them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity, which would otherwise exist as to a party, person, or entity described in this paragraph. Except as otherwise provided by law, the indemnification provisions above shall apply regardless of the existence or degree of fault of Indemnitees. The Contractor, however, shall not be obligated to indemnify Indemnitees for Claims arising from conduct delineated in Civil Code Section 2782.

- 3.9.2 NO LIMITATION.** The Contractor's obligation to indemnify and defend the Indemnities hereunder shall include, without limitation, any and all claims, damages, and costs: for injury to persons and property and death of any person; for breach of any warranty, express or implied; for failure of the Contractor to comply with any applicable governmental law, rule, regulation, or other requirement; and for products installed in or used in connection with the Work.

ARTICLE 4 - SUBCONTRACTORS

4.1 DEFINITIONS

- 4.1.1 SUBCONTRACTOR.** A Subcontractor is a person or entity, who has a contract with the Contractor to perform a portion of the Work at the Site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor.
- 4.1.2 SUB-SUBCONTRACTOR.** A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the Site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.
- 4.1.3 SPECIALTY CONTRACTORS.** If a Subcontractor is designated as a "Specialty Contractor" as defined in Section 7058 of the Business and Professions Code, all of the Work outside of that Subcontractor's specialty shall be performed in compliance with the Subletting and Subcontracting Fair Practices Act, Public Contract Code Sections 4100, et seq.

4.2 SUBSTITUTION OF SUBCONTRACTORS

- 4.2.1 CONSENT OF OWNER.** Contractor shall not substitute any person or entity as a Subcontractor in place of a Subcontractor listed in the original bid without written consent of Owner and only for those circumstances set forth under Public Contract Code Section 4107 or as otherwise provided by law.
- 4.2.2 REMOVAL OF SUBCONTRACTORS.** The Owner may direct the Contractor to remove and replace a Subcontractor for any of the reasons described in Public Contract Code Section 4107, subdivision (a), or for failure to perform in compliance with the Contract Documents.
- 4.2.3 REPLACEMENT AT NO COST.** Contractor shall replace any substituted or removed Subcontractor with a qualified Subcontractor acceptable to both the Owner and the Contractor with no increase in the Contract Sum or Time.
- 4.2.3.1** The awarding authority shall mail a written notice to the listed Subcontractor giving reasons for the proposed substitution. The listed Subcontractor shall have 5 working days from the date of such notice within which to file with the awarding authority written objections to the substitution.
- 4.2.3.2** Failure to file written objections pursuant to the provisions of this Paragraph 4.2.3 within the times specified herein shall constitute a waiver of objection to the substitution by the listed Subcontractor and, where the ground for substitution is an inadvertent clerical error, an agreement by the listed Subcontractor that an inadvertent clerical error was made.
- 4.2.3.3** If written objections are filed, the awarding authority shall give 5 days notice to the Contractor and to the listed Subcontractor of a hearing by the awarding authority on the Contractor's request for substitution as provided in Public Contract Code Section 4107. The determination by the awarding authority shall be final.

4.2.4 SUBCONTRACTUAL RELATIONS. By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all obligations and responsibilities, which the Contractor, by the Contract Documents, assumes toward the Owner and the Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and the Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where applicable, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound. Upon written request of the Subcontractor, the Contractor shall identify to the Subcontractor the terms and conditions of the proposed subcontract agreement, which may be at variance with the Contract Documents. Subcontractors shall similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

4.3 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner provided that: 1) Assignment is effective only after termination of the Contract with the Contractor by the Owner for cause pursuant to Article 17 and only for those subcontract agreements which the Owner accepts by notifying the Subcontractor in writing; and 2) Assignment is subject to the prior rights of the surety, if any, obligated under any bond relating to the Contract.

4.4 PROVIDE SUBCONTRACTOR INFORMATION

Within 5 days of the date that the Owner executes the Agreement, the Contractor shall provide the Owner with a typed list of all subcontractors (including those which need not be listed in the Bid), which shall include the following information: business name and mailing address; telephone and facsimile numbers; contractor's license type and number; name of contact person and portion of Work to be performed.

4.5 PROVIDE SUBCONTRACTOR CONTRACTS

If requested by Owner, Contractor shall, within 5 days of request, provide Owner with copies of signed contracts with all subcontractor (including those which need not be listed in the Bid), copies of bid proposals from all accepted sub-bidders, and copies of any Subcontractor bonds required by the Contract Documents or by the Contractor.

4.6 INDEMNITY

Contractor shall require the following language in each subcontract: Subcontractor shall defend, indemnify, and hold harmless the Owner, the Architect, and the Architect's consultants, and their respective agents, employees, officers, and directors from and against claims, damages, losses, and expenses, including, but not limited to, attorneys' fees and costs, (including consultants) arising out of or resulting from: performance of the Work (including, but not limited to) the Subcontractors' use of the Site; the Subcontractors' construction of the Project or failure to construct the Project or any portion thereof; the use, misuse, erection, maintenance, operation, or failure of any machinery or equipment, including, but not limited to, scaffolds, derricks, ladders, hoists, and rigging supports, whether or not such machinery or equipment was furnished, rented, or loaned by any of the

Indemnitees; or any act, omission, negligence, or willful misconduct of the Subcontractors or their respective agents, employees, material or equipment suppliers, invitees, or licensees but only to the extent caused in whole or in part by the acts or omissions of the Subcontractors, anyone directly or indirectly employed by any of them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity, which would otherwise exist as to a party, person, or entity described in this paragraph. Except as otherwise provided by law, the indemnification provisions above shall apply regardless of the existence or degree of fault of Indemnitees. The Subcontractor, however, shall not be obligated to indemnify Indemnitees for Claims arising from conduct delineated in Civil Code Section 2782.

4.7 JOINT AND SEVERAL LIABILITY

In the event more than one Subcontractor is connected with an accident or occurrence covered by this indemnification, then all such Subcontractors shall be jointly and severally responsible to each of the Indemnitees for indemnification, and the ultimate responsibility among such indemnifying Subcontractors for the loss and expense of any such indemnification shall be resolved without jeopardy to any Indemnitee. The provisions of the indemnity provided for herein shall not be construed to indemnify any Indemnitee for its own negligence if not permitted by law or to eliminate or reduce any other indemnification or right which any Indemnitee has by law or equity.

ARTICLE 5 - SUBMITTALS, DEFERRED APPROVALS, AND SUBSTITUTIONS

5.1 GENERAL

- 5.1.1 SHOP DRAWINGS.** Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work which requires additional information to, or greater detail than, that shown in the Drawings to properly coordinate with related Work and to ensure compliance with specified requirements. Considering adjacent Work and field conditions, the shop drawings shall provide all information not shown in the contract documents but required for coordination with related Work and proper fabrication and installation, of the illustrated Work.
- 5.1.2 PRODUCT DATA.** Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work
- 5.1.3 SAMPLES.** Samples are physical examples of materials, equipment or workmanship identical to that being proposed for inclusion in the Work and establish standards by which the Work will be judged.
- 5.1.4 PURPOSE OF SUBMITTALS.** Shop Drawings, Product Data, Samples and similar submittals are referred to as Submittals and are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work for which submittals are required by the Contract Documents the way by which the Contractor proposes to conform to the specified requirements and the design concept expressed in the Contract Documents. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals which are not required by the Contract Documents may be returned by the Owner without action.

- 5.1.5 DEFERRED APPROVAL.** A Deferred Approval is a portion of the Work that requires design by the Contractor before the Authority Having Jurisdiction's review process can be completed. A Deferred Approval consists of drawings, specifications, and/or calculations, prepared by, or under the supervision of, a qualified design professional, for approval by regulating agencies, at the expense of the Contractor. Once approved, a deferred approval will become part of the Contract Documents, but responsibility for design of that portion of the Work will remain with the Contractor.
- 5.1.6 NO WORK UNTIL APPROVAL.** The Contractor shall not perform any portion of the Work for which the Contract Documents require Submittal and review of Submittals until the respective Submittal review process is complete with final action is taken by the Architect.
- 5.1.7 OWNER'S PROPERTY.** All Submittals shall become the Owner's property.
- 5.1.8 CONTRACTOR RESPONSIBILITIES.** By approving and submitting a Submittal, Contractor represents that Contractor has verified that the Submittal is complete, and is not a substitution. Contractor further represents that Contractor has checked and coordinated the information contained in the submittals with related submittals and the requirements of the Contract Documents, has verified dimensions, and field conditions related thereto, or will do so in a timely manner to insure proper fitting of the work and avoidance of delay or additional costs. Contractor shall take responsibility for any delay or cost of professional services related to Submittals being returned for resubmittal and re-review, due to incompleteness, inaccuracy, or non-compliance with Contract Documents.
- 5.1.9 DEVIATIONS.** Application for deviations from the Contract Documents shall be in the form of an RFI, Substitution Request, or Change Order Request and shall not be made through the Submittal process. The Work shall be in accordance with approved Submittals except that the Contractor shall not be relieved of responsibility for errors, omissions, or deviations from requirements of the Contract Documents by the Architect's approval of Submittals, except for minor deviations documented as described in this Paragraph. Minor deviations necessary to resolve conflicts with manufacturers requirements, to accurately describe attributes of specified Materials, to properly integrate the specified Work into the Project, or similar deviations that would not affect Project quality, cost, or time, or conflict with adjacent Work, may be approved through the Submittal Process if the deviation is graphically highlighted in the Submittal and identified in writing with a description of the deviation.

5.2 SUBMISSION PROCESS

- 5.2.1 GENERAL.** Submittals shall be submitted in the format and number required in Division 1 of the specifications and in accordance with Contractor's progress schedule and the requirements of this Article.
- 5.2.2 SCHEDULE.** Contractor shall allow adequate time for preparation of Submittals, review and processing of subcontractor's Submittals and review by Owner, Architect and Architect's Consultants. Review times will vary depending on complexity and scope of Submittals and the potential for re-submittals. In any case, Contractor shall allow at least 30 days for Owner's Submittal review process. For Materials that must be purchased within the first 60 days of the contract time, request may be made for expedited review. Request for expedited review shall be in writing and shall include the all pertinent schedule information. Owner and Architect will make every reasonable effort to perform the expedited review in conformance with the schedule information provided. See Division 1 – General Requirements for certain other requirements as may apply.
- 5.2.3 CONTRACTOR REVIEW.** The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect, Submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work

or in the activities of the Owner or of separate contractors. Any Submittal that is incomplete, not marked as reviewed for compliance with the Contract Documents by the Contractor, or contains any deviation from the Contract Documents, except as allowed in Paragraph 5.1.9, may be returned without review.

5.2.4 ARCHITECT REVIEW. The Architect will review and take appropriate action upon the Contractor's Submittals but only for the limited purpose of checking for general conformance with specified requirements and the design concept expressed in the Contract Documents. Review of Submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, fitting with other Work, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsible of the Contractor as required by the Contract Documents. The Architect's action will be taken with such reasonable promptness, while allowing sufficient time in the Architect's professional judgment to permit adequate review. The Architect's review of the Contractor's Submittals shall not relieve the Contractor of the obligations under this Article or responsibility for errors in Submittals, for proper fitting of the Work, or from the necessity of furnishing any Work required by the Contract Documents, which may not be indicated on Submittals when reviewed. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate acceptance of an assembly of which the item is a component. See Division 1 – General Requirements for certain other requirements as may apply.

5.2.5 REVIEW COMMENTS. Contactor shall comply with Architects review comments. If resubmittal is required by Architect, the Contractor shall revise Submittal to respond to review comments and shall resubmit the required number of revised Submittals. Contractor shall direct specific attention in writing or on resubmitted Submittal to revisions other than those required by the Architect on previous submissions. In the absence of such written notice the Architect's approval of a resubmission shall not apply to such revisions. Professional services required for more than 1 re-review of required Submittals are subject to charge to the Contractor pursuant to Sub-article 10.4.

5.2.6 DEFERRED APPROVALS. Deferred approvals shall be submitted and processed as described above with the additional requirement for the Contractor to obtain approval from regulatory agencies. Communication between the reviewing agencies and the Contractor shall be through the Architect. Contractor and Contractor's design professional shall meet with the reviewing agency and take all other steps necessary to obtain approval of their design. Contractor shall allow adequate time for agency review. Delay due to agency's review of a Deferred Approval shall be the responsibility of the Contractor. Contractor is responsible for all costs associated with deferred approvals, including changes in Work scope or schedule caused by agency requirements. The requirements of the regulating agencies on a deferred approval shall take precedence over any previously issued Letters of Clarification, drawing or specification, with no change in contract sum or time. No progress payment will be approved on any Work subject to deferred approval until agency approval has been obtained.

5.3 SUBSTITUTIONS

5.3.1 GENERAL. Unless the specifications state that no substitution is permitted, whenever in the Contract Documents any specific article, device, equipment, product, material, fixture, patented process, form method, or type of construction is indicated or specified by name, make, trade name or catalog number, with or without the words "or equal" such specification shall be deemed to be used for the purpose of facilitating description of material, process or article desired and shall be deemed to be followed by the words "or equal." Substitution requests that do not comply with the requirements of this Article may be rejected without review. Products proposed for substitution must equal in all respects to the specified product and have no adverse affect on project cost or schedule. See Section 01 25 00 – Substitution Procedures for requirements.

- 5.3.2 Substitution proposals will not be considered prior to receiving bids.**
- 5.3.3 SIDE-BY-SIDE COMPARISON.** Substitution requests must be in writing and include a comparison of the salient feature and properties of specified product with those of the proposed substitution. If detailing of related or adjacent work must change to accommodate the proposed substitution, those details must be included in the comparison.
- 5.3.4 AGENCY REVIEW.** With the exception of deferred approvals, Products requiring specific approval from a regulatory agency regarding a structural, or other code requirement, may not be proposed for substitution until Contractor has obtained approval from the regulating agency of the Product for the intended use.
- 5.3.5 CONTRACTOR'S CERTIFICATION.** By proposing a substitution the Contractor certifies the following: That Contractor has determined that the proposed substitution is equal or superior in all respects to that specified, including durability and cost of maintenance; that the Contractor will take responsibility for any project delays or increase the costs related to the substitution; and that the Contractor will coordinate the installation of the substitution, if accepted, making such changes as may be required for the Work to be complete in all respects.
- 5.3.6 NO SUBSTITUTION.** The listings of products in the specifications for which no substitution is allowed may be followed by the words "no substitution".
- 5.3.7 NO KNOWN EQUAL.** Substitution requests for Products listed in the specifications, may be followed by the words "no known equal", and will not be considered after bidding unless the specified product has been discontinued, is in conflict with other portions of the Work, or the substitution would result in a credit or otherwise provide a tangible benefit to the Owner. Such request must be made in a timely manner to allow reasonable time for review without causing delay of the Work.
- 5.3.8 OR APPROVED EQUAL.** Substitutions for Products listed in the specifications, may be followed by the words "or equal", or "or approved equal", will be considered within the time frame allowed for the submittal of the specified product, provided reasonable time is allowed for review.

5.4 OPERATION AND MAINTENANCE MANUALS

At completion of project, Contractor shall furnish 3 complete sets of manuals containing the manufacturers' instructions for maintenance and operation of each item of equipment and apparatus furnished under the Contract Documents and any additional data specifically requested under the various Sections of the Specifications. The manuals shall be arranged by section number, consistent with the Project Manual, indexed, and placed in three-ring binders. Prior to submittal of Contractor's Application for Final Payment, and as a further condition to its approval by the Architect the Contractor shall certify that each manual is complete and accurate.

ARTICLE 6 - TESTING AND INSPECTION

6.1 GENERAL

- 6.1.1 INSPECTOR.** The Inspector is the person or persons selected by the Owner to provide special inspections consistent with requirements of Title 24, Part 1 of the California Code of Regulations or a person or persons from the City of Stockton Public Works Department performing inspection as required by that agency.
- 6.1.2 NOT USED.**

- 6.1.3 TESTING LAB.** The Testing Lab is that entity or entities selected by the Owner to perform testing and special inspections required under California Code of Regulations, Title 24. The provisions set forth for Testing Labs apply equally to Geotechnical Engineers providing inspection and testing services. Selection of the materials required to be tested shall be made by the laboratory or the Owner's representative and not by the Contractor.
- 6.1.4 ACCESS AND INFORMATION.** The Inspector shall have free access to any or all parts of the Work at any time. The Contractor shall furnish the Inspector such information as may be necessary to keep the Inspector fully informed regarding progress and manner of work and character of materials. Contractor shall coordinate closely and require its Subcontractor to coordinate closely with inspector to facilitate thorough and complete inspection and testing.
- 6.1.5 SCHEDULING OF TESTS AND INSPECTIONS.** Contractor shall schedule tests and inspection in advance and notify the Inspector at least 7 days prior to scheduled test or inspection that the Inspector may make the necessary arrangements. Contractor shall coordinate timing, location, and provide access for testing and inspection.
- 6.1.6 PROMPT TESTING AND INSPECTION.** Properly scheduled and noticed tests and inspections shall be performed promptly to avoid unreasonable delay in the Work.
- 6.1.7 ADDITIONAL TESTING OR INSPECTION.** If the Inspector, the Architect, the Owner, or public authority having jurisdiction determines that portions of the Work require testing beyond that required in the contract documents, Contractor shall schedule, coordinate, and provide access for the additional testing or inspection.

6.2 NOT USED

6.3 NOT USED

6.4 PAYMENT FOR TESTS AND INSPECTIONS.

Owner shall pay for testing and inspections performed by Inspector and Testing Lab except that the Contractor shall be backcharged for the following testing and inspection:

- 6.4.1 RETESTING OR RE-INSPECTION.** Testing or inspection required due to failure of portions of the Work to comply with requirements established by the Contract Documents.
- 6.4.2 WORK HOURS.** If inspection or testing is performed on Saturdays, Sundays, City holidays, or before or after regular work hours during the week, the Contractor shall reimburse the Owner for all inspection costs incurred during such hours.
- 6.4.3 REMOTE TESTING OR INSPECTION.** Any costs of inspection or testing incurred outside of a 50 mile radius from the Project Site or not located in a contiguous county to the Site, whichever distance is greater.
- 6.4.4 PREMATURE TESTING.** In the event the Contractor requests any test or inspection for the Project and inspection or testing cannot be performed or is delayed.

6.5 UNCOVERING OF WORK

- 6.5.1 UNCOVERING WORK FOR REQUIRED INSPECTIONS.** If a portion of the Work is covered contrary to the Inspector's request, the Owner's or Architect's request, or to requirements specifically expressed in the Contract Documents, it must, if required in writing by the Owner, be uncovered for the Owner's, Architect's and Inspector's observation and the Work replaced without change in the Contract Sum or Time.

ARTICLE 7 - THE ARCHITECT

7.1 GENERAL

- 7.1.1 DEFINITION.** The Architect is the person lawfully licensed to practice architecture or an entity lawfully practicing architecture identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Architect" means the Architect or the Architect's authorized representative, and shall include, where applicable, consultants under the Architect's direction and control.
- 7.1.2 MODIFICATION OF DUTIES.** Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner and Architect. Consent shall not be unreasonably withheld.
- 7.1.3 TERMINATION.** In the case of the termination of the Architect, the Owner shall appoint a new Architect. The status of the replacement Architect under the Contract Documents shall be that of the former Architect.

7.2 ARCHITECT'S ADMINISTRATION OF THE CONTRACT

- 7.2.1 STATUS.** The Architect will provide administration of the Contract as described in the Contract Documents and will provide consulting and advise to the Owner during construction, until final payment is due, and from time to time during the warranty period, subject to agreement between Owner and Architect. The Architect will advise and consult with the Owner. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified in writing in accordance with other provisions of The Agreement Between Owner and Architect. The Architect will have the responsibilities and authority established by law, including California Code of Regulations, Title 24, and shall have sole authority to make modifications to the plans and specifications portion of the contract documents.
- 7.2.2 SITE VISITS.** The Architect will visit the Site at intervals necessary in the judgment of the Architect or as otherwise agreed by the Owner and the Architect in writing, to become generally familiar with and to keep the Owner informed about the progress and quality of the portion of the Work Completed and to determine in general, if the Work is being performed in a manner indicating that the Work, when completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on Site inspections to check quality or quantity of the Work. On the basis of its on-site observations, the Architect will keep the Owner informed of the progress of the Work.
- 7.2.3 NO CONTROL OVER CONSTRUCTION.** The Architect shall not have control over, charge of, or be responsible for construction means, methods, techniques, schedules, sequences or procedures, or for safety precautions and programs in connection with the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect shall not have control over or charge of acts or omissions of the Contractor, Subcontractors, their agents or employees, or any other persons or entities performing or supplying portions of the Work.
- 7.2.4 COMMUNICATIONS.** Except as otherwise provided in the Contract Documents or when direct communications are warranted by special circumstances, the Owner and the Contractor shall communicate through the Architect. Where direct communication is necessary between the Owner and the Contractor, the Architect shall be promptly informed, and shall receive copies of all written communications. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material or equipment

suppliers shall be through the Contractor. Communication by and with separate contractors shall be through the Owner.

- 7.2.5 PAYMENT APPLICATIONS.** Pursuant to Article 11, based on the Architect's observations, the Contractor's Applications for Payment, the Architect will review and make recommendations to the Owner regarding the amounts due the Contractor on the Certificates for Payment.
- 7.2.6 REJECTION OF WORK.** In addition to the rights, duties, and obligations of the Inspector under Article 6, the Architect may reject Work which does not conform to the Contract Documents. When the Architect considers it necessary or advisable in order to achieve the intent of the Contract Documents, the Architect may recommend that the Owner require additional inspection or testing of the Work in accordance with Sub-article 6.5, whether or not such Work is fabricated, installed, or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons performing portions of the Work.
- 7.2.7 INTERPRETATION.** The Architect will interpret the Contract Documents and decide matters concerning performance of the Work under the requirements of the Contract Documents. The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the Contract Documents. Interpretations and decisions of the Architect will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both the Owner and the Contractor and will not show partiality to either. The Architect will not be liable for the result of interpretations or decisions so rendered in good faith.
- 7.2.8 RESPONSE TO RFI's.** The Architect will respond to RFI's with reasonable promptness, while allowing sufficient time in the Architect's professional judgment, to permit adequate review and evaluation of request. If the Architect's response will take longer than 14 calendar days, the Architect shall so notify the Contractor, with a copy to the Owner, estimating the time that will be required to respond. If the Architect's response to an RFI results in a change in the Work, then such change shall be effected by a written Change Order or Construction Change Directive. RFIs are contractor documents, not instruments of service of the Architect, thus Architect's response to RFI will not be sealed by the Architect.
- 7.2.9 ARCHITECT'S SUPPLEMENTAL INSTRUCTIONS (ASI).** The Architect may from time to time issue supplementary instructions consistent with the Contract Documents to clarify the intent of the contract documents. ASIs are instruments of service of the Architect, thus will be sealed by the Architect.
- 7.2.10 CHANGES.** The Architect will prepare Change Orders and Construction Change Directives and may authorize minor changes in the Work as provided in Article 9. Minor changes may be issue in the form of an ASI.

ARTICLE 8 - CONTRACT TIME AND SCHEDULE

8.1 DEFINITIONS

- 8.1.1 CONTRACT TIME.** Contract Time is the period of time, including approved adjustments, allotted in the Contract Documents for Substantial Completion of the Work.
- 8.1.2 COMMENCEMENT.** The Date of Commencement of the Work is the date established in the Agreement and stipulated in the Notice to Proceed regardless of the actions of the Contractor.

- 8.1.3 DAYS.** The term "day" as used in the Contract Documents shall mean working day unless otherwise specifically defined.
- 8.1.4 FINAL COMPLETION.** The date of Final Completion is the date established by the Notice of Completion recorded by the Owner at the County Offices.
- 8.1.5 SUBSTANTIAL COMPLETION.** The Date of Substantial Completion is the date certified by the City in accordance with Sub-article 11.8.
- 8.1.6 DELAY.** For the purposes of time extensions, change orders, and claims, a "delay" is a delay in the completion of the Project beyond the date set for Substantial Completion, or a delay that affects the critical path schedule in a way that cannot be mitigated by use of float or by a reasonable adjustment in the sequence of Work or manpower.

8.2 TIME OF COMPLETION

- 8.2.1 GENERAL.** Attention is directed to the provisions in Section 8-1.05, "Time," of the Caltrans Specifications and these Special Provisions. Unless otherwise stipulated, the contract for the performance of the Work and the furnishing of materials shall commence not more than ten (10) days from the Notice to Proceed date and shall be diligently prosecuted to Substantial Completion before the expiration of the working days specified in this section from the date of said commencement.
- 8.2.2 CONSTRUCTION PERIOD. The Contractor shall diligently prosecute the contract Work to Substantial Completion within 80 working days.** The days to finish the punch list, provided by the City, are included in the Original Working Days. Should the contractor choose to work on a Saturday, Sunday, or on a City Holiday recognized by the labor unions, the Contractor shall reimburse the City of Stockton the actual cost of engineering, inspection, testing, superintendent, and/or other overhead expenses, which are directly chargeable to the Contract. The approximate cost is \$100 per hour. Should such work be undertaken at the request of the City, reimbursement will not be required. Full compensation for conforming to the provisions in this section shall be considered as included in the prices paid for the various contract items of Work involved, and therefore no additional compensation will be allowed.

8.3 CONTRACTOR'S CONSTRUCTION SCHEDULE

- 8.3.1 GENERAL.** The Contractor, within 10 days of being awarded the Contract, shall submit for the Owner's and the Architect's information a Critical Path Method (CPM) schedule for the Work in network format, showing anticipated beginning and ending dates for all critical path activities and the logical connection between and among such activities. The schedule shall provide for the expeditious and practical execution of the Work, and shall comply with this Article 8 and any scheduling requirements of Division 01 – General Requirements of the Specifications.
- 8.3.2 BREAKDOWN.** No item on Contractor's CPM schedule shall exceed 15 working days in duration, unless approved by the Owner.
- 8.3.3 LONG LEAD ITEMS.** The Contractors and Subcontractors shall investigate and become aware of the amount of time required for the manufacture and delivery of all equipment and materials required to perform the Work under this Contract. Manufacture and delivery of long-lead items shall be shown separately on Schedule.
- 8.3.4 SUBMITTALS.** Schedule shall show preparation, review and approval of Submittals, and Deferred Approvals, consistent scheduling requirements of Paragraph 5.2.2 and Division 1 of the specifications. If allowed review time is exceeded because submittals must be revised and

resubmitted to obtain approval, any delay related to such re-submittal shall be the responsibility of the Contractor.

- 8.3.5 ANTICIPATED RAIN DAYS FOR PROJECT LOCATION.** Anticipated rain days for the Stockton area are based on Western Regional Climate Center Data for Stockton, CA.
- 8.3.6 TIME EXTENSIONS FOR ADVERSE WEATHER.** No time extension will be granted for anticipated rain days. Requests for time extensions for adverse weather must be documented by data substantiating that weather conditions were abnormal for the time of year, could not have been reasonably anticipated, and affected work on the critical path.
- 8.3.7 FAILURE TO PROVIDE SCHEDULE.** Failure of the Contractor to provide proper CPM schedules as required by this Article may, at the sole discretion of Owner, constitute grounds to withhold, in whole or in part, progress payments to the Contractor, or to reject without consideration, any claim for a time extension.

8.4 PROGRESS AND COMPLETION

- 8.4.1 REASONABLE SCHEDULE.** Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.
- 8.4.2 NO COMMENCEMENT WITHOUT INSURANCE.** The Contractor shall not knowingly, except by agreement or instruction of the Owner, in writing, commence operations on the Site or elsewhere prior to the effective date of insurance required by Article 15 to be furnished by the Contractor. The date of commencement of the Work shall not be changed by the effective date of such insurance.
- 8.4.3 EXPEDITIOUS COMPLETION.** Contractor shall proceed expeditiously with adequate forces and shall achieve Completion within the Contract Time. Contractor shall perform the Work in general accordance with the most recently submitted Schedule.
- 8.4.4 UPDATES, PROGRESS PAYMENTS.** Schedule shall be updated on a monthly basis, and at any significant change in the anticipated schedule of the Work, for review at the next regularly-scheduled site meeting with the Owner. Updated schedule shall be submitted with each application for payment.
- 8.4.5 FLOAT.** Difference between the earliest and latest allowable start or finish times for an activity. Either party responsible for an event or condition which delays the Project shall be entitled to take advantage of any remaining float in the Contractor's CPM Schedule.
- 8.4.6 THREE-WEEK LOOK-AHEAD SCHEDULE.** In addition to the monthly-updated CPM schedule, the Contractor shall prepare three-week look-ahead schedules and submit them to the Owner and Architect at the weekly site meetings. These schedules shall show all anticipated activities for each of the Work days within the 3 weeks immediately after the site meeting.
- 8.4.7 SCHEDULE CONSULTANT.** If Contractor falls more than 2 weeks behind the progression of Work shown on its original schedule, after use of contingency and adjustment for approved time extensions, the Owner may retain a scheduling consultant to prepare a recovery schedule for the Contractor's consideration, the cost to be deducted from the Contract balance. The Contractor shall cooperate with the scheduling consultant by providing all information requested, but shall not be bound to act in accordance with the schedule.

8.5 EXTENSIONS OF TIME, DELAYS, AND RELATED COSTS

- 8.5.1 GENERAL.** Contractor shall be granted reasonable time extension, by Change Order, for delays caused by Owner only pursuant to in this Sub-article 8.5 and for delays beyond the control of the Contractor only pursuant to Sub-article 8.5. Any costs incurred by the Contractor related to extensions of time shall be borne fully by the contractor except as specified in Sub-article 8.5. Because the Contractor has the right and responsibility to schedule the Work as it sees fit to meet the Contract requirements, and because the Contractor has the opportunity to accelerate or decelerate the pace of the Work, increase or decrease manpower, and change the sequence of the Work at will, any delay shall be assumed to be the Contractor's responsibility unless determined otherwise. The burden of proof shall be borne by the Contractor in establishing that any delay is either outside Contractor's control or caused by others. Such proof of delay must be based on the accepted CPM schedules submitted by the Contractor with complete documentation of the CPM logic and actual time involved, and must show that the delay affects Work on the critical path in a way that cannot be made up by use of available "float" in the schedule, a change in sequence, or a reasonable increase in manpower.
- 8.5.2 DETERMINATION OF DELAY.** Determination of delay and reasonable time extensions shall be made by Architect, pursuant to Paragraph 7.2.7.
- 8.5.3 EARLY COMPLETION.** Owner and Contractor stipulate that the Time for Completion established in the Agreement is a reasonable time within which to perform the Work. Regardless of the cause of a delay, the Contractor shall not pursue any claim against the Owner for damages incurred as a result of Contractor's inability to complete its Work in a shorter period than the Contract Time.
- 8.5.4 INEXCUSABLE DELAYS.** "Inexcusable Delay" means any delay in Substantial Completion of the Work beyond the expiration of the Contract Time caused by the Contractor, its employees, Subcontractors, Sub-subcontractors or material suppliers. An inexcusable delay shall not entitle the Contractor to an extension of Contract Time or an increase in Contract Sum but will subject the Contractor to liquidated damages. Delays that could have been avoided by diligent planning or coordination by the Contractor, including allowing adequate time for submittal review or other response from Architect or Owner or timely notice by the Contractor to the Architect or Owner of potential delays are Inexcusable Delays.
- 8.5.5 LIQUIDATED DAMAGES.** Liquidated damages are those damages which the Owner would suffer in the event of delay in occupancy include providing alternative facilities for staff, disruption of business activities, the inability to provide the expected quality of service, and potential increases in transportation, administrative, and staffing costs. Since it would be difficult to determine the actual value of the damages to the Owner resulting from a delay in occupancy, the Contractor and the Owner agree that the stated liquidated damages represent the parties' reasonable estimate of damages the Owner will incur if the Contractor fails to complete the Work within the time and in the manner provided for by the Contract Documents and that such liquidated damages do not constitute a penalty. Liquidated damages only represent damages pertaining to loss of use. The Owner retains the right to recover other actual and verifiable damages incurred as a result of a delay in Substantial Completion such as additional inspection or consultant costs.
- 8.5.5.1** Attention is directed to the provisions I Section 8-1.10, "Liquidated Damages," of the Caltrans Specifications and these Special Provisions. **The Contractor shall pay liquidated damages to the City of Stockton in the amount of \$3,200 (three thousand, two hundred dollars) per each and every calendar day that the Work, remains incomplete after expiration of the Contract Time.** Full compensation for conforming to the provisions of this section shall be considered as included in the prices paid for the various contract items of work involved, and no additional compensation will be allowed therefore.
- 8.5.6 COMPENSABLE DELAYS.**

8.5.6.1 General. "Compensable Delay" means any delay in the Substantial Completion of the Work beyond the expiration of Contract Time caused by wrongful acts or negligence of the Owner or Architect, or direction to suspend the Work, or Changes in the Work due to an act or omission of the Owner or Architect, which is unreasonable under the circumstances involved and not within the contemplation of the Contractor. A time extension will be granted for compensable delays.

8.5.6.2 Cost. If any allowance for Owner caused time extensions has been exhausted, Contractor may make claim for only the following direct onsite costs related to a Compensable Delay: daily cost of superintendent and other supervisory staff on site daily for the duration of the Project and during the delay; costs of leased temporary facilities on Site and necessary to the Work during the delay, based on actual receipts from the time period being claimed; and similar documented onsite costs resulting solely from the delay. All other costs are defined as overhead and are covered in Change Order markups. The direct onsite costs may be marked up a maximum of 15% to cover extended overhead.

8.5.6.3 Partial Responsibility. If the Owner and Contractor both contribute to a delay, a time extension will be granted for the full period of that delay without any change in Contract Sum.

8.5.7 EXCUSABLE DELAYS. "Excusable Delay" means any delay beyond the Substantial Completion of the Work beyond the expiration of Contract Time due to causes beyond the control and without the fault or the negligence of the Contractor or Owner, including: acts of a public enemy; acts of a governmental, utility or other agency having jurisdiction at the site; fire; flood; epidemic; quarantine restriction; freight embargo; strike; unforeseen conditions, or adverse weather of an unusually severe nature. Owner and Contractor agree to waive claims against each other and to bear their own costs related to such delays. In the event of an excusable delay there will be no change in Contract Sum and the Contract Time shall be extended by the documented number of days the Project is actually delayed. See Paragraphs 8.2.5 and 8.2.6 for definition of adverse weather.

8.5.8 CONCURRENT DELAYS

8.5.8.1 If Excusable Delays and/or Compensable Delays occur concurrently, the maximum time extension shall be the number of days from the beginning of the first delay to the end of the delay which ever ends last.

8.5.8.2 If an Inexcusable Delay occurs concurrently with a Compensable Delay or an Excusable Delay, the Contract Time shall be extended by the number of days that the delays are concurrent without any change in Contract Sum for that period.

ARTICLE 9 - CHANGES IN THE WORK

9.1 GENERAL

9.1.1 METHODS OF EXECUTION. Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or Field Order, or order for a Minor Change in the Work, subject to the limitations stated in this Article 9 and elsewhere in the Contract Documents.

9.1.2 AGREEING PARTIES. A Change Order shall be based upon agreement among the Owner, Contractor and Architect; a Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor; a minor change in the Work may be ordered by the Architect alone. Change Orders, Construction Change Directives, and minor changes in the Work can only be prepared and issued by the Architect.

- 9.1.3 NO CHANGES WITHOUT AUTHORIZATION.** There shall be no extra Work or change in the Work, without an executed Change Order, Construction Change Directive, or order by the Owner for a minor change in the Work as herein provided. There shall be no change in the Contract Sum, or the Contract Time without an executed Change Order, or Construction Change Directive. The Contractor shall be responsible for any cost or delay associated with any extra work, or correction thereof, performed outside of the above stated Contract modification process.
- 9.1.4 PROMPT IMPLEMENTATION.** Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work. Changes in the Work shall be performed under applicable provisions of the Contract Documents. Special Provisions and Division 1 of the Specifications apply to all changes.
- 9.1.5 ACCOUNTING RECORDS.** With respect to portions of the Work performed as Change Orders and Construction Change Directives the Contractor shall maintain cost-accounting records satisfactory to the Owner, which shall be available to the Owner on the same terms as any other books and records the Contractor is required to maintain under the Contract Documents.

9.2 MINOR CHANGES

- 9.2.1 MINOR CHANGES.** Owner will have authority to order minor changes in the Work not involving adjustment in the Contract Sum, an extension of the Contract Time, if such change is consistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and the Contractor. The Contractor shall carry out such written orders promptly.

9.3 CHANGE ORDERS

- 9.3.1 DEFINITION.** A Change Orders (CO), also known as a Contract Change Order (CCO), is a written instrument, prepared by the City, and signed by the Owner, the Contractor, and the Architect stating their agreement upon a change in the Work; the amount of the adjustment in the Contract Sum, if any; and the extent of the adjustment in the Contract Time, if any.
- 9.3.2 DETERMINING COSTS.** Methods used in determining adjustments to the Contract Sum may include those listed in Sub-article 9.8
- 9.3.3 CHANGE ORDERS FINAL.** All changes to Contract Sum and Contract Time related to a change in the Work shall be included in the same Change Order. Any time extensions caused by the change in Work shall be included. Any allowable costs or allowable time extensions not included shall be deemed waived.
- 9.3.4 WHEN EFFECTIVE.** Field Orders become effective and are binding when signed by the Owner and the Contractor, with no added cost or time after signed. Change Orders shall become effective when executed by the Owner, the Architect, and the Contractor. Change Orders are subject to approval by the Owner.

9.4 PROPOSED CHANGE ORDER (PCO)

- 9.4.1 DEFINITION.** A Proposed Change Order (PCO) is a written request prepared by the Contractor proposing a change in the Contract Sum or Contract Time. A PCO may be in response to a Change Order Request COR, a claim per Article 8, or a recommendation to improve the quality of the Work or reduce the cost of the Work. Overhead is not chargeable while Owner is waiting for the Contractor to develop a Preliminary Change Order.

- 9.4.2 SCOPE.** A PCO shall contain adequate information to enable Architect to perform a detailed evaluation of any proposed change in Contract Sum, Contract Time, or scope of Work. Costs shall be broken down into labor, material, equipment rental, and overhead and profit. Breakdown and detail shall be consistent with that required in Sub-article 9.9. Time requests must comply with Sub-article 9.7 and Article 8.

9.5 CONSTRUCTION CHANGE DIRECTIVES (CCD)

- 9.5.1 DEFINITION.** A Construction Change Directive (CCD) is a written order prepared by the City and signed by the Owner, directing a change in the Work prior to agreement on adjustment, in the Contract Sum or Contract Time, or both. The Owner may by CCD, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, with the Contract Sum and Contract Time being adjusted accordingly.
- 9.5.2 USE OF CONSTRUCTION CHANGE DIRECTIVE.** A CCD shall be used in the absence of total agreement on the terms of a CO. A CCD may be used to begin construction on a change in the Work before the cost of the change has been determined.
- 9.5.3 PROMPT IMPLEMENTATION.** Upon receipt of a CCD, the Contractor shall promptly proceed with the change in the Work involved and advise the Owner of the Contractor's agreement or disagreement with the method, if any, provided in the CCD for determining the proposed adjustment in the Contract Sum and the Contract Time or the method for determining them.
- 9.5.4 RECORDED AS CHANGE ORDER.** A CCD signed by the Contractor indicates the agreement of the Contractor therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

9.6 ADJUSTMENTS IN CONTRACT TIME

- 9.6.1 CRITICAL PATH.** Time extension will not be allowed unless the Contractor can document that the Work of the Change Order was on the critical path of the project schedule, and was scheduled and performed so as to minimize the impact on the overall schedule.
- 9.6.2 INCLUSION WITH COSTS.** Change Orders for additional cost shall include the change in Contract Time, if any, properly attributable to that change in the Work. The change in Contract Time shall be the number of days increase or decrease in the overall project schedule resulting solely from that change in the Work.
- 9.6.3 NO RESERVATION ALLOWED.** In no event will the Contractor be allowed to reserve its rights to assert a claim for time extension related to a Change Order after approval of that Change Order unless the Owner agrees in writing to allow such reservation.

9.7 ADJUSTMENTS IN CONTRACT SUM

- 9.7.1 METHODS OF DETERMINING COST.** The amount of the increase or decrease in the Contract Sum due to a change in the Work, if any, shall be determined in one or more of the following Methods:
- 9.7.1.1 Lump Sum.** Mutual acceptance of a lump sum itemized and supported by sufficient substantiating data to permit evaluation.
 - 9.7.1.2 Unit Price.** Unit prices stated in the Contractor's original bid, the Contract Documents, or subsequently agreed upon between the Owner and the Contractor.

9.7.1.3 Agreed Upon Method. Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee.

9.7.1.4 Time-and-Materials. As provide in Sub-article 9.8.

9.7.2 ALLOWABLE COSTS. Unless otherwise provided in the Contract Documents, costs for the purposes of Change Orders shall be limited to labor, materials, equipment rental, and approved costs, as defined in Sub-article 9.8 plus overhead and profit per Paragraph 9.7.4.

9.7.3 COST RELATED TO TIME EXTENSIONS. If a change in Work results in an increase in Contract Time, the costs of extended Contract Time such as additional temporary facilities rental shall not be included in the Change Order. Costs for extended Contract Time will be reconciled at Project closeout. Any approved costs for extended Contract Time will be deducted from Liquidated Damages due Owner, if any. See Sub-article 8.5 for allowable costs for extension in Contract Time.

9.7.4 OVERHEAD AND PROFIT:

9.7.4.1 Definition. Overhead and profit includes profit and all costs of doing business including off-site office expense, bonds, insurance, Special Provisions, supervision, small tools, and all other expenses not specifically included in labor, material, and equipment rental, and approved other costs, as described in Sub-article 9.8.

9.7.4.2 Limits. Contractor's overhead and profit shall not exceed 15% of the sum of labor, materials, equipment rental, and approved costs for any work performed directly by the Contractor. Contractor's overhead and profit Contractor shall not to exceed 8% of labor, materials, rentals, and overhead and profit of any work performed by a Subcontractor. Subcontractors' overhead and profit shall not exceed 15% of labor, materials, and rentals on Work performed directly by Subcontractor. In the event a change involves the work of Sub-Subcontractors, Subcontractor's total overhead and profit shall not exceed 5% and Sub-subcontractors overhead and profit shall not exceed 10%. No Contractor markup on Subcontractor or other markup is permitted. Overhead is not chargeable while Owner is waiting for the Contractor to develop a Preliminary Change Order. Overhead is limited to a maximum \$500 per day and only for additional days the Contractor is working on site.

9.7.4.3 Overhead and Profit on Credits. When both additions and credits are involved in a change, the allowance for overhead and profit shall be based on the net increase, if any, with respect to that change. The amount of credit to the Owner for a deletion or change which results in a net decrease in the Contract Sum shall be actual net cost, without overhead and profit, except as follows: credits on PCOs or CCDs issued in the first 21 days of Contract time shall include overhead and profit of 8% for Contractor and Subcontractors or documented overhead and profit from bid.

9.8 TIME-AND-MATERIALS METHOD

9.8.1 COSTS. Costs shall be determined by documentation of actual costs of labor, material, and equipment plus a percentage for overhead and profit per Paragraph 9.7.4.

9.8.2 LABOR. Labor will be the actual cost for wages paid to each worker for the work performed plus actual payments of payroll taxes, benefits, and other direct payroll burden paid. Payroll records shall be made available for documentation purposes. Labor classifications used shall be appropriate to the Work performed and are subject to approval of the Architect.

9.8.3 MATERIAL. Costs shall include taxes and delivery as documented by invoice. Only material actually incorporated into the Work or used in the performance of the Work will be included in costs. In absence of invoice, competitive market price at time of construction, as determined by Architect, shall be used. Materials used are subject to approval of Architect and or Inspector.

9.8.4 EQUIPMENT RENTAL. Costs shall include fuel and transportation costs as documented by invoice. In the absence of invoice, no payment for rental equipment will be made. No payment will be made for hand tools or small power tools or for power tools or equipment that are required to be on site to perform the original Work of the Contract at the time that the extra work is performed. Use of rental equipment is subject to approval of Inspector. Only rental time actually used and necessary for completion of extra Work, as determined by Inspector, will be included in costs.

9.8.5 APPROVED COSTS. Owner may approve other unusual or unforeseen costs not listed above on a case by case basis.

9.8.6 DAILY REPORTS BY CONTRACTOR:

9.8.6.1 General. At the close of each working day, the Contractor shall submit a daily report to the Inspector, on forms approved by the Owner, listing the following, together supporting documentation:

9.8.6.1.1 Labor. Show names of workers, classifications, and number of hours worked.

9.8.6.1.2 Materials. Describe and list quantities of materials used; provide delivery tags, packing lists or receipts.

9.8.6.1.3 Equipment Rental. Show type of equipment, size, identification number, and hours of operation, including, if applicable, loading and transportation; provide delivery tags or receipts.

9.8.6.1.4 Other Costs. Describe in such detail as the Owner may require.

9.8.6.2 NOT USED.

ARTICLE 10 - CLAIMS AND DISPUTES

10.1 GENERAL

10.1.1 CLAIM. A Claim is a demand or assertion by one of the parties seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and the Contractor arising out of or relating to the Contract Documents. Claims must be made by written notice. The responsibility to substantiate Claims shall rest with the party making the Claim.

10.1.2 BACKCHARGE. Backcharging is the process of withholding money otherwise due the Contractor in the amount of an expense or damage to Owner caused by the Contractor. If the amount of expense or damage is greater than the amount otherwise due the Contractor, Owner will invoice Contractor for the difference which shall be due upon resolution of claim.

10.1.3 TIME LIMITS ON CLAIMS. Claims by either party must be made within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later. Claims, by either party, must be made by written notice to both the Architect and the other party. If Contractor performs Work related to a claim prior to written notice of that claim for the cost of such Work, Contractor waives any right to assert such claim, except in the case of an emergency endangering life or property arising under Sub-article 14.4. Claims regarding Contract Sum or Contract Time are void if made after final payment.

- 10.1.4 CONTINUING CONTRACT PERFORMANCE.** Pending final resolution of a Claim including mediation, or litigation, unless otherwise agreed to in writing, the Contractor shall proceed diligently with performance of the Contract, and the Owner shall continue to make any undisputed payments in accordance with the Contract. However, Contractor shall not construct any Work related to the claim, if that construction could increase the amount of the claim, unless required to do so in writing by the Owner.
- 10.1.5 JUSTIFICATION.** If the Contractor believes additional cost or time is involved due to a written interpretation from the Architect, an order by the Owner to stop the Work other than as allowed by Paragraph 2.3.1, a written order for a minor change in the Work issued by the Architect, termination of the Contract by the Owner, the Owner's suspension of the Work, unknown condition, or other reasonable grounds, a claim shall be filed in accordance with the procedure established herein. Claims may be in the form of a PCO.
- 10.1.6 CLAIMS FOR COST.** Claims for construction related cost shall comply with Article 9. Claims for costs related to time extensions shall comply with Paragraph 10.1.7, below.
- 10.1.7 CLAIMS FOR TIME OR DELAY.** Claims for time extensions and related costs shall comply with Article 8 and Article 9. In the case of a continuing delay, only 1 written notice of claim is necessary.
- 10.1.8 CLAIMS FOR ADVERSE WEATHER.** If adverse weather conditions are the basis for a claim for additional time, such claim shall be documented by data substantiating that weather conditions were abnormal for the time of year, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction. The number of rain days that could reasonably be expected will be based on available historical weather data for the project location unless specifically enumerated in the Article 8.
- 10.1.9 CLAIMS FOR UNFORESEEN CONDITIONS.**
- 10.1.9.1** Consistent with Public Contract Code Section 7104 and Government Code Section 4215, as set forth in subparagraphs 10.1.9.2, and 10.1.9.3, below, if Contractor encounters physical conditions at the Site which are concealed, and which differ materially from those indicated in the Contract Documents or record documents provided by Owner, or are unknown conditions of an unusual nature, or which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, then the Contractor shall immediately notify the Owner per Sub-article 3.3 before conditions are disturbed. The Owner will promptly investigate such conditions, and per Sub-article 7.2, make a written determination as to whether conditions were unforeseeable and require a change in the Work. If appropriate, Owner will issue a CCD to accommodate or correct the condition. Claims by either party in opposition to such Architect's determination must be made within 10 days after the Owner has given notice of the decision.
- 10.1.9.2 PUBLIC CONTRACT CODE SECTION 7104.** Any public works Contract of a local public entity which involves digging trenches or other excavations that extend deeper than four feet below the surface shall contain a clause which provides the following:
- 10.1.9.2.1** That the Contractor shall promptly, and before the following conditions are disturbed, notify the local public entity, in writing, of any:
- (1) Material that the Contractor believes may be material that is hazardous waste, as defined in Section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law.

(2) Subsurface or latent physical conditions at the site differing from those indicated by information about the site made available to bidders prior to the deadline for submitting bids.

(3) Unknown physical conditions at the Site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in Work of the character provided for in the contract.

10.1.9.2.2 That the local public entity shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the contractor's cost of, or the time required for, performance of any part of the Work shall issue a Change Order under the procedures described in the Contract.

10.1.9.2.3 That, in the event that a dispute arises between the local public entity and the Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the Work, the Contractor shall not be excused from any scheduled completion date provided for by the Contract, but shall proceed with all Work to be performed under the Contract. The Contractor shall retain any and all rights provided either by Contract or by law which pertain to the resolution of disputes and protests between the contracting parties.

10.1.9.3 Government Code Section 4215. Government Code Section 4215 provides that the Owner assumes the responsibility for removal, relocation, and protection of utilities on the Site at the time of commencement of construction with respect to any such utility facilities which are not identified in the Drawings and Specification made part of the Contract Documents. The Contractor shall not be assessed for liquidated damages for delay in completion of the Project caused by failure of the Owner to provide for removal or relocation of such utility facilities. Owner shall compensate the Contractor for the costs of locating and repairing damage not due to the failure of the Contractor to exercise reasonable care, removing or relocating such utility facilities, and for equipment necessarily idle during such Work.

10.1.10 CLAIMS FOR COSTS OF ADDITIONAL PROFESSIONAL SERVICES. If at any time prior to final payment, through no fault of its own, the Owner find it necessary to secure additional professional services for any purpose, due to any act or omission of the Contractor, the Contractor shall be Backcharged by the Owner for any costs incurred for any such services. Such Backcharging shall be independent from any other Owner remedies. Additional services shall include, but shall not be limited to, the following:

10.1.10.1 Services made necessary by the default of the Contractor, defects or deficiencies in the Work, or failure of the Contractor to perform according to any provision of the Contract Documents.

10.1.10.2 Services in connection with evaluating untimely requests by the Contractor or substitutions of products, materials, equipment, or evaluating requests for substitutions which require revisions to Drawings, Specifications, or additional documentation, and making subsequent revisions to Drawings, Specifications, and providing other documentation required. This provision will not apply to the situation where the specified item is no longer manufactured or available.

10.1.10.3 Services in connection with evaluating requests for substitution of Subcontractors proposed by the Contractor.

10.1.10.4 Services for evaluating and processing claims submitted by the Contractor in connection with the Work outside the established Change Order process.

10.1.10.5 Services required by the failure of the Contractor to prosecute the Work in a timely manner in compliance within the specified Time of Completion.

10.1.10.6 Services in conjunction with the testing, adjusting, balancing and start-up of equipment other than the normal amount customarily associated for the type of Work involved.

10.1.10.7 Services in conjunction with more than 1 re-review of required submittals of Shop Drawings, Product Data, and Samples.

10.1.10.8 Services for processing an RFI when requested information is clearly shown in the Construction Documents or when an RFI is a request to deviate from the Contract Documents or is related to correcting a construction error.

10.1.10.9 Services in connection with more than 2 inspections for completion.

10.2 AUDITING PROCEDURES

10.2.1 OWNER RIGHT TO AUDIT. Upon written notice to Contractor, the Owner shall have the right to audit all records and documents of any nature whatsoever under the custody or control of the Contractor or Contractor's agents, Subcontractors, or representatives, which relate to the Project, including the bid phase. Contractor shall maintain these records for a period of 3 years after the Notice of Completion is issued and make them available to the Owner, the auditors or other representatives appointed by the Owner.

10.2.2 SUBCONTRACTORS. Contractor shall ensure that all Subcontractors maintain appropriate records relating to the Project. Contractor shall furnish records of any Subcontractors or other agents of Contractor to the Owner upon request. If the Owner requests records relating to a Subcontractor or other agent's involvement in the Project, such requests shall be processed through the Contractor. A Contractor's failure to abide by the provisions of this Article shall be deemed a material breach of the Contract and, upon the Owner's election, may be considered a default.

10.2.3 NOT USED.

10.3 REVIEW OF CLAIMS BY OWNER

10.3.1 DECISION OF OWNER. Claims, including those alleging an error or omission by the Architect, shall be referred initially to the Owner for action. A decision by the Owner shall be required as a condition precedent to mediation of a claim between the Contractor and the Owner as to all such matters arising prior to the date final payment is due. The decision by the Owner in response to a claim shall not be a condition precedent to mediation in the event: the position of Owner is vacant; the Owner has not received evidence or has failed to render a decision within agreed time limit; the Owner has failed to take action required under Paragraph 10.3.4 within 30 days after the claim is made; 45 days have passed after the Claim has been referred to the Owner; or the Claim relates to a Stop Notice Claim.

10.3.2 OWNER'S REVIEW. The Owner will review claims and take one or more of the following preliminary actions within 14 days of receipt of a claim: request additional supporting data from the claimant; reject the claim in whole or in part, stating reasons for rejection; recommend approval of the claim by the other party; or suggest a compromise. The Owner may also, but is not obligated to, notify the surety, if any, of the nature and amount of the claim.

10.3.3 DOCUMENTATION IF RESOLVED. If a claim has been resolved, the Owner will prepare or obtain appropriate documentation.

10.3.4 OWNER'S WRITTEN DECISION. If a claim has not been resolved after consideration of the foregoing and of other evidence presented by the parties or requested by the Owner or Architect, the Owner will approve or reject Claims by written decision, which shall state the reasons therefor and which shall notify the parties of any change in the Contract Sum or Contract Time or

both. The approval or rejection of a claim by the Owner shall be final and binding on the parties but subject to dispute resolution per Sub-Articles 10.4 and 10.5 below. The Contractor, without delaying the job, shall proceed with all Work to be performed under the Contract consistent with Owner's decision without prejudice to a final determination of the dispute.

10.4 DISPUTE RESOLUTION OF CLAIMS OF \$375,000.00 OR LESS

10.4.1 GENERAL. Notwithstanding any other provision herein, claims of \$375,000.00 or less shall be resolved pursuant to the alternative dispute resolution procedures set forth in Public Contract Code Section 20104, et seq. "claim" for this purpose means a separate demand by the Contractor for a time extension, payment of money or damages arising from Work done by or on behalf of the Contractor pursuant to the Contract, for which payment is expressly provided, or the Contractor is otherwise entitled to, or an amount the payment of which is disputed by the Owner.

10.4.2 SUBMISSION. The Contractor shall submit its claim of \$375,000.00 or less to the Owner in writing, within the time frames established under Paragraph 10.1.3, but no later than before the final payment is made. The Owner shall respond within the time provided by statute. If the Contractor disagrees with the response or the Owner fails to respond within the time permitted, the Contractor shall notify the Owner of the disagreement in writing within 15 days from the date of the response or expiration of the time permitted to respond and demand a meet-and-confer conference as detailed in Sub-article 10.5 below. The Owner shall schedule a meet-and-confer conference within 30 days of the demand. If not resolved at the meet-and-confer conference, then the claim shall be submitted to mediation pursuant to the procedures set forth in Sub-article 10.5 below. If the dispute is not resolved at the mediation, the Contractor may initiate a civil action as set forth in Public Contract Code Section 20104 et seq.

10.4.3 TIME LIMITS NOT EXTENDED. Nothing in Subdivision (a) of Public Contract Code Section 20104.2 shall extend the time limit or supersede the notice requirements provided in this Contract for filing claims by the Contractor.

10.5 DISPUTE RESOLUTION OF CLAIMS IN EXCESS OF \$375,000.00

10.5.1 MEET AND CONFER CONFERENCE. Following action by the Owner under Sub-article 10.3, the parties will attempt in good faith to resolve any controversy or claim arising out of or relating to this Agreement promptly by negotiations between senior executives of the parties who have authority to settle the controversy. The party disputing the Architect's action shall give the other party written notice of the dispute. Within 10 days after delivery of said notice, executives of both parties shall meet at a mutually acceptable time and place, and thereafter as often as they reasonably deem necessary, to exchange relevant information and to attempt to resolve the dispute. If the matter has not been resolved within 20 days of the disputing party's notice, or if the party receiving such notice will not meet within 10 days, either party may initiate mediation of the controversy as described below.

10.5.2 MEDIATION. As a condition precedent to the initiation of litigation and subsequent to the fulfillment of the claims procedures established in Paragraph 10.8.1 of this Article, disputes in excess of a total value of \$375,000.00 shall first be submitted to mediation pursuant to the procedures set forth herein.

10.5.3 NEGOTIATIONS BEFORE MEDIATION. Negotiations to resolve disputes before mediation is initiated are for settlement purposes only and are not binding.

10.5.4 AUTHORIZATION. In the event of a dispute or issue that cannot be resolved by negotiation, the Owner and the Contractor agree to attempt to resolve the matter by mediation. Said mediation is voluntary, non-binding, and intended to provide an opportunity for the parties to

evaluate each other's cases and arrive at a mutually agreeable solution. These provisions relating to voluntary mediation shall not be construed or interpreted as mandatory arbitration.

- 10.5.5 INITIATION OF MEDIATION.** Either party may initiate mediation by notifying the other party or parties in writing.
- 10.5.6 REQUEST FOR MEDIATION.** A Request for mediation shall contain a brief statement of the nature of the dispute or claim, and the names, addresses, and phone numbers of all parties to the dispute or claim, and those, if any, who will represent them in the mediation.
- 10.5.7 SELECTION OF MEDIATOR.** Within 14 days after execution of the Contract for Construction, the parties will meet-and-confer to select an appropriate mediator agreeable to all parties and 2 alternate mediators, who will serve for the entire project. If the parties cannot agree on a mediator, they hereby agree to accept a mediator appointed by a recognized association such as the American Arbitration Association.
- 10.5.8 QUALIFICATIONS OF A MEDIATOR.** Any mediator selected shall have expertise in the area of the dispute and be knowledgeable in the mediation process. No person shall serve as a mediator in any dispute in which that person has any financial or personal interest in the result of the mediation. Before accepting an appointment, the prospective mediator shall disclose any circumstances likely to create a presumption of bias or prevent a prompt meeting with the parties. Upon receipt of such information, the parties shall meet and confer and decide whether to select another mediator.
- 10.5.9 VACANCIES.** If any mediator shall become unable or unwilling to serve, the First Alternate mediator shall be selected unless the parties agree otherwise.
- 10.5.10 REPRESENTATION.** Any party may be represented by persons of its choice, who shall have full authority to negotiate. The names and addresses of such persons shall be communicated in writing to all parties and to the mediator.
- 10.5.11 TIME AND PLACE OF MEDIATION.** The mediator shall set the time of each mediation session. The mediation shall be held at any convenient location agreeable to the mediator and the parties, as the mediator shall determine. All reasonable efforts will be made by the parties and the mediator to schedule the first session within 30 days after initiation of mediation.
- 10.5.12 IDENTIFICATION OF MATTERS IN DISPUTE.** At least 10 days before the first scheduled mediation session, each party shall provide the mediator a brief memorandum setting forth its position with regard to the issues that need to be resolved. At the discretion of the mediator such memoranda may be mutually exchanged by the parties. At the first session, the parties will be expected to produce all information reasonably required for the mediator to understand the issue presented. The mediator may require each party to supplement such information.
- 10.5.13 AUTHORITY OF MEDIATOR.** The mediator does not have authority to impose a settlement on the parties but will attempt to assist the parties in reaching a satisfactory resolution of their dispute. The mediator is authorized to conduct joint and separate meetings with the parties and to make oral and written recommendations for settlement. Whenever necessary, the mediator may also obtain expert advice concerning technical aspects of the dispute, provided the parties agree and assume the expenses of obtaining such advice. Arrangements for obtaining such advice shall be made by the mediator or the parties, as the mediator shall determine. The mediator is authorized to end the mediation whenever, in the mediator's judgment, further efforts at mediation would not contribute to a resolution of the dispute between the parties.

- 10.5.14 PRIVACY.** Mediation sessions are private. The parties and their representatives may attend mediation sessions. Other persons may attend only with the permission of the parties and with the consent of the mediator.
- 10.5.15 CONFIDENTIALITY.** Confidential information disclosed to a mediator by the parties or by witnesses in the course of the mediation shall not be divulged by the mediator. All records, reports, or other documents received by a mediator while serving as mediator shall be confidential. The mediator shall not be compelled to divulge such records or to testify in regard to the mediation in any adversary proceeding or judicial forum. The parties shall maintain the confidentiality of the mediation and shall not rely on, or introduce as evidence in any arbitration, judicial, or other proceedings: views expressed or suggestions made by the other party with respect to the possible settlement of the dispute; statements made by the other party in the course of the mediation proceedings; proposals made or views expressed by the mediator; and whether the other party had or had not indicated willingness to accept a proposal for settlement made by the mediator.
- 10.5.16 NO STENOGRAPHIC RECORD.** There shall be no stenographic record of the mediation.
- 10.5.17 TERMINATION OF MEDIATION.** The mediation shall be terminated: by the execution of a Settlement Agreement by the parties; by a written declaration of the mediator to the effect that further efforts at mediation are no longer worthwhile; or by a written declaration of a party or parties to the effect that the mediation proceedings are terminated.
- 10.5.18 EXCLUSION OF LIABILITY.** No mediator shall be a necessary party in judicial proceedings related to the mediation. No mediator shall be liable to any party for any act or omission in connection with any mediation conducted hereunder.
- 10.5.19 INTERPRETATION AND APPLICATION OF THESE MEDIATION PROVISIONS.** The mediator shall interpret and apply these mediation provisions insofar as they relate to the mediator's duties and responsibility.
- 10.5.20 EXPENSES.** The expenses of witnesses for each party shall be paid by the party producing the witnesses. All other expenses of the mediation, including, required travel and other expenses of the mediator, the expenses of any witness called by the mediator, and the cost of any proofs or expert advice produced at the direct request of the mediator, shall be borne equally by all parties to the mediation.

ARTICLE 11 - PAYMENTS AND COMPLETION

- 11.1 CONTRACT SUM.** The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.
- 11.2 SCHEDULE OF VALUES**
- 11.2.1 SUBMITTAL.** Within 10 days of the Date of Commencement, on forms approved by the Architect, Contractor shall submit to the Architect a Schedule of Values allocated to various portions of the Work, broken down in the detail specified in Division 1 of the specifications. Each line item must include all markup and expense and no single line item may exceed 2% of the Contract Sum. Mandatory line items are as follows:
- 11.2.1.1** Record Drawings: \$25,000
 - 11.2.1.2** Warranties and Manuals: \$30,000

11.2.2 OWNER REVIEW. The Owner shall review all submissions received pursuant to Paragraph 5.2 and 11.2 in a timely manner. The submitted Schedule of Values, unless objected to by the Architect or Owner, shall be used as a basis for reviewing the Contractor's Applications for Payment.

11.3 APPLICATIONS FOR PAYMENT

11.3.1 PROCEDURE. On or before the date established in the Agreement, the Contractor shall submit to the Owner an itemized Application for Payment for operations completed in accordance with the Schedule of Values. Such application shall be supported by the following or such portion thereof as Owner requires:

- 11.3.1.1** The percentage of completion of the Contractor's Work by line item.
- 11.3.1.2** The additions to and subtractions from the Contract Price and Time.
- 11.3.1.3** A summary of the retentions (each Application shall provide for retention, as set out in Article 11.6, of the amount due until completion of the Work of the Contractor and Final Acceptance thereof by Owner).
- 11.3.1.4** A certification that as-built drawings are current.
- 11.3.1.5** Updated schedules as required in Article 8 above.
- 11.3.1.6** Contractor's certification that all required insurance is in full force and effect.
- 11.3.1.7** The amount paid to the date of the Application to the Contractor, to all its Subcontractors, and all others furnishing labor, material, or equipment for its Contract
- 11.3.1.8** The amount being requested with the Application for Payment by the Contractor on its own behalf and separately stating the amount requested on behalf of each of the Subcontractors and all others furnishing labor, material, and equipment under the Contract and the balance that will be due to each of such entities after said payment is made.
- 11.3.1.9** A statement showing all payments made by the Contractor for labor and materials on account of the Work covered in the preceding Application for Payment.
- 11.3.1.10** A conditional waiver and release upon progress payment from each Subcontractor, covering the Work for the current pay period; and an unconditional waiver and release upon progress payment from each Subcontractor, covering the Work for which payment has been received at least 10 days previous.
- 11.3.1.11** Material invoices, evidence of equipment purchases, rentals, and other support and details of cost as the Owner may require from time to time.

11.3.2 PAYMENT FOR MATERIALS AND EQUIPMENT. As the Contractor is required to order, obtain, and store materials and equipment sufficiently in advance of its Work at no additional cost or advance payment from Owner, to assure that there will be no delays, payment by the Owner for stored material shall be made only in unusual circumstances where the Architect specifically recommends, and Owner specifically approves, the payment in writing. If payments are to be made on account of materials and equipment not incorporated in the Work, but delivered and suitably stored at the Site or at some other location agreed upon in writing by the Owner, the payments shall be conditioned upon submission by the Contractor, Subcontractor, or vendor of bills of sale and such other documents satisfactory to the Architect and the Owner to establish the Owner's title to such materials or equipment free of all liens and encumbrances, and otherwise protect the Owner's interest, including, without limitation, provision of applicable insurance and transportation to the Site. All stored items shall be inventoried, specified by identification numbers (if applicable), released to the Owner by sureties of the Contractor and the Subcontractor and, if stored off-Site, stored only in a bonded warehouse.

11.3.3 WARRANTY OF TITLE. The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances in favor of the Contractor, Subcontractors, material and equipment suppliers, or other persons or entities making a claim by reason of having provided labor, materials, and equipment relating to the Work.

11.4 CERTIFICATES FOR PAYMENTS

11.4.1 APPROVAL OF APPLICATION FOR PAYMENT. The Architect will, within 7 days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Paragraph 11.5.1.

11.4.2 ARCHITECT'S REVIEW. The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data comprising the Application for Payment, that the Work has progressed to the point indicated and that, to the best of the Architect's knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, reviewed construction means, methods, techniques, sequences or procedures, reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

11.5 DECISIONS TO WITHHOLD PAYMENT

11.5.1 REASONS TO WITHHOLD PAYMENT. The Owner may decide to withhold payment in whole, or in part, to the extent reasonably necessary to protect the Owner if, in the Owner's opinion, the representations to the Owner required by Paragraph 11.4.2 cannot be made. The Owner may withhold payment, in whole, or in part, to such extent as may be necessary to protect the Owner from loss due to:

11.5.1.1 Defective Work not remedied.

11.5.1.2 Unsatisfactory prosecution of the Work by the Contractor.

11.5.1.3 Failure of the Contractor to prosecute the Work in a timely manner in compliance with established progress schedules and completion dates.

11.5.1.4 Reasonable doubt that the Work can be completed for the unpaid balance of Contract Sum or by the completion date.

11.5.1.5 Failure of the Contractor to submit on a timely basis, proper and sufficient documentation required by the Contract Documents, including, without limitation, monthly progress schedules, Shop Drawings, submittal schedules, Schedule of Values, Product Data and Samples, proposed product lists, executed Change Orders, verified reports, and update of Record Documents.

11.5.1.6 Breach of any provision of the Contract Documents.

11.5.1.7 Third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor.

11.5.1.8 The cost of professional services retained by the District in accordance with the provisions of Paragraph 10.1.10.

11.5.1.9 Failure to pay Subcontractors or material suppliers.

11.5.1.10 Failure to pay prevailing wages, by the Contractor or any Subcontractor.

11.5.1.11 Stop Notices filed, unless the Contractor at its sole expense provides a bond or other security satisfactory to the Owner in the amount of at least 125% of the claim, in a form satisfactory to the Owner, which protects the Owner against such claims.

11.5.1.12 Liquidated damages assessed against the Contractor.

11.5.1.13 Damage to the Owner, another Contractor, or Subcontractor.

11.5.1.14 Erroneous estimates by the Contractor of the value of the Work performed, or other false statements in an Application for Payment.

11.5.2 REASONS FOR WITHHOLDING PROVIDED. Upon request of the Contractor whose payment is deferred, the Contractor shall be given a written copy of Owner's reasons for withholding payment.

11.5.3 PAYMENT AFTER CURE. When the grounds for declining approval are removed, payment shall be made for amounts withheld because of them. No interest shall be paid on any retainage or amounts withheld due to the failure of the Contractor to perform in accordance with the terms and conditions of the Contract Documents.

11.6 RETAINAGE

11.6.1 GENERAL. Owner will retain 5% of approved payments to ensure performance under the Contract. The retention will be released once the project is completed.

11.6.2 SUBSTITUTION OF SECURITIES. In accordance with Section 22300 of the Public Contract Code, the Owner will permit the substitution of securities for any monies withheld by the Owner to ensure performance under the Contract. At the request and expense of the Contractor, securities equivalent to the amount withheld shall be deposited with the Owner, or with a state or federally chartered bank as the escrow agent, who shall then pay such monies to the Contractor. Upon satisfactory completion of the Contract, the securities shall be returned to the Contractor. Securities eligible for investment under this Paragraph shall include those listed in Government Code Section 16430, bank or savings and loan certificates of deposit, interest-bearing, demand-deposit accounts, standby letters of credit, or any other security mutually agreed to by the Contractor and the Owner. The Contractor shall be the beneficial Owner of any securities substituted for monies withheld and shall receive any interest thereon. The escrow agreement used for the purposes of this paragraph shall be substantially similar to the form set forth in Public Contract Code Section 22300.

11.6.3 PAYMENT OF RETAINAGE.

11.6.3.1 At Final Completion. Pursuant to Public Contract Code Section 7107 the retainage, less any amounts disputed by the Owner or which the Owner has the right to withhold, shall be paid after approval by the Owner of the Architect's Certificate of Payment referred to in Paragraph 11.10.1, and after the satisfaction of the conditions set forth in Sub-article 11.10, and within 60 days after the acceptance of the Work and recording of the Notice of Completion by Owner. No interest shall be paid on any retainage, or on any amounts withheld due to a failure of the Contractor to perform, in accordance with the

terms and conditions of the Contract Documents, except as provided to the contrary in any Escrow Agreement between the Owner and the Contractor pursuant to Public Contract Code Section 22300.

11.7 PROGRESS PAYMENTS

- 11.7.1 PAYMENTS TO CONTRACTOR.** Within 30 days after Owner has received an invoice, Contractor shall be paid a sum equal to 95% of the total certified for payment, less the aggregate of previous payments. The value of the Work completed shall be an estimate only, no inaccuracy or error in said estimate shall operate to release the Contractor, or any bondsman, from damages arising from such Work or from enforcing each and every provision of this Contract, and the Owner shall have the right subsequently to correct any error made in any estimate for payment. Payment will be allowed only for material incorporated into the work, or securely stored onsite. See Division 1 – General Requirements for certain pre-requisites for payment applications, as may apply.
- 11.7.2 PAYMENTS TO SUBCONTRACTORS.** No later than 10 days after receipt, pursuant to Business and Professions Code Section 7108.5, the Contractor shall pay to each Subcontractor, out of the amount paid to the Contractor on account of such Subcontractor's portion of the Work, the amount to which said Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of such Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner. Payment will be allowed only for material incorporated into the work, or securely stored onsite.
- 11.7.3 PERCENTAGE OF COMPLETION OR PAYMENT INFORMATION.** The Owner will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor, and action taken thereon by the Owner, on account of portions of the Work done by such Subcontractor.
- 11.7.4 NO OBLIGATION OF OWNER FOR SUBCONTRACTOR PAYMENT.** The Owner shall have no obligation to pay, or to see to the payment of, money to a Subcontractor except as may otherwise be required by law.
- 11.7.5 PAYMENT TO SUPPLIERS.** Payment to material or equipment suppliers shall be treated in a manner similar to that provided in Paragraphs 11.7.2, 11.7.3 and 11.7.4.
- 11.7.6 PAYMENT NOT CONSTITUTING APPROVAL OR ACCEPTANCE.** An approved Request for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.
- 11.7.7 JOINT CHECKS.** Owner shall have the right, if necessary for the protection of the Owner, to issue joint checks made payable to the Contractor and Subcontractors and/or material or equipment suppliers. The joint check payees shall be responsible for the allocation and disbursement of funds included as part of any such joint payment. In no event shall any joint check payment be construed to create any contract between the Owner and a Subcontractor of any tier, any obligation from the Owner to such Subcontractor, or rights in such Subcontractor against the Owner.

11.8 SUBSTANTIAL COMPLETION

- 11.8.1 DEFINITION:** Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

- 11.8.2 CONTRACTORS NOTICE:** When the Contractor considers, in consultation with the Inspector, that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, and the Inspector agrees that the Work is ready for inspection, the Contractor shall so notify the Owner in writing and include comprehensive list of minor items to be completed or corrected (Contractor's List). Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.
- 11.8.3 INSPECTIONS:** Upon receipt of the Contractor's list, the Owner and designated Owner's Representative, in the company of the Contractor, will make an inspection to determine whether the Work, or designated portion thereof, is substantially complete. If the Owner's inspection discloses that the Work is not complete enough for efficient documentation of the Punch List, the Contractor will be notified of which items of incomplete Work are preventing a complete inspection. The Contractor shall, before requesting another inspection, complete or correct such items and all items on the Contractors List. The Contractor shall then submit a request for an additional inspection by the Owner and to determine Completion. If the Owner's inspection discloses that the Work is complete enough for efficient documentation of the final Punch List, the Owner and designated Owner's Representative will complete the inspection of the Work.
- 11.8.4 CERTIFICATE OF SUBSTANTIAL COMPLETION.** If the inspection confirms that the Work is substantially complete, the City will prepare a Punch List and a Certificate of Substantial Completion which shall establish the responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and fix the time within which the Contractor shall finish all items on the Punch List. The Certificate of Substantial Completion shall be submitted to the Owner and the Contractor for their written acceptance of responsibilities assigned to them in such Notice.
- 11.8.5 COMMENCEMENT OF WARRANTIES.** Warranties required by the Contract Documents shall commence on the date of Substantial Completion or acceptance of the item of work in question by the Owner, whichever is later. Warranties are subject to extension per Article 12.
- 11.8.6 COMPLETION OF PUNCH LIST WORK.** Contractor shall, upon receipt of the City's Punch List, immediately initiate work on all items therein and complete the same within the time period allowed, not to exceed 30 days. Upon completion of the Work contained in the Punch List and any other non-conforming work discovered in the process, the Contractor shall notify the Owner and Architect that the Work is ready for final inspection and acceptance and shall submit to the Architect
- 11.8.7 WORK NOT COMPLETED.** Any Work remaining to be completed after date of Substantial Completion shall be completed within 30 days of that date. Owner reserves the right to either obtain quotes from other Contractors to complete any Work, or request the Architect to estimate the costs of construction by another Contractor to complete any Work. At the Owner's discretion, Owner may deduct from the final payment the value of the Work not completed within 30 days of Substantial Completion, based either on quotes from other Contractors or on the Architect's estimate of costs to complete that Work plus a reasonable allowance for architectural, engineering, inspection, and project management services necessary to administer the completion of the Work plus a reasonable allowance for other expenses incurred in completion of the Work..
- 11.8.8 COSTS OF MULTIPLE INSPECTIONS.** More than one request each under Paragraph 11.8.3 or 11.10.1 of the Owner or Architect to make inspections required resulting in Architect visiting Site, shall be considered an additional service of Architect, and all subsequent costs will be invoiced to Contractor and withheld from remaining payments.

11.9 PARTIAL OCCUPANCY OR USE

- 11.9.1 OWNER'S RIGHTS.** The Owner may occupy or use any completed or partially completed portion of the Work at any stage. The Owner and the Contractor shall agree in writing to the responsibilities assigned to each of them for payments, security, maintenance, heat, utilities, damage to the Work, insurance, the period for correction of the Work, reduction in amount per day of liquidated damages, and the commencement of warranties required by the Contract Documents. When the Contractor considers a portion complete, the Contractor shall prepare and submit a Punch List to the Owner as provided under Paragraph 11.8.
- 11.9.2 INSPECTION PRIOR TO OCCUPANCY OR USE.** Immediately prior to such partial occupancy or use, the Owner, the Contractor, and the Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.
- 11.9.3 OCCUPANCY IS NOT ACCEPTANCE.** Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of the Work not complying with the requirements of the Contract Documents.

11.10 FINAL COMPLETION AND FINAL PAYMENT

- 11.10.1 FINAL INSPECTION:** Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect and Owner will promptly make such inspection and, when the Architect and Owner find the Work acceptable under the Contract Documents and the Contract fully performed, the Architect shall issue a final Certificate of Payment stating that to the best of its knowledge, information, and belief, and on the basis of its observations, inspections, and all other data accumulated or received by the Architect in connection with the Work, such Work has been completed in accordance with the Contract Documents. Upon acceptance of the Work of the Contractor as fully complete the Owner shall record a Notice of Completion with the County Recorder, and the Contractor shall, upon receipt of payment from Owner, pay the amounts due Subcontractors.
- 11.10.2 FINAL PAYMENT.** Final payment shall be contingent on the following:
- 11.10.2.1** A full and final waiver or release of all Stop Notices in connection with the Work shall be submitted by Contractor, including a release of Stop Notice in recordable form, together with (to the extent permitted by law) a copy of the full and final waiver of all Stop Notices or a Stop Notice Release Bond from a surety acceptable to the Owner as defined by the Contract Documents, including a release of Stop Notice in recordable form, in connection with the Work obtained by Contractor from each person to receive a payment thereunder, which waivers of Stop Notice shall be in a form as approved by Owner.
 - 11.10.2.2** The Contractor shall have made all corrections to the Work which are required to remedy any defects therein, to obtain compliance with the Contract Documents or any requirements of applicable codes and ordinances, or to fulfill any of the orders or directions of Owner required under the Contract.
 - 11.10.2.3** The Contractor shall insure that each Subcontractor shall have delivered to the Contractor all written guarantees, warranties, applications, and bonds required by the Contract Documents for its portion of the Work.
 - 11.10.2.4** The Contractor shall deliver to the Owner final As-Built Redline drawings with the Contractor's certification of their accuracy, all guarantees, operation and maintenance instructions for equipment and apparatus, and other close-out submittals required by the Contract Documents. The documents, except the As-Built Redlines, shall be organized in a three-ring binder pursuant to the Contract Documents.
 - 11.10.2.5** Architect shall have issued a Final Certificate of Payment.
 - 11.10.2.6** The Contractor shall have removed all waste materials and rubbish from and about the Site, as well as all tools, construction equipment, machinery, surplus material, scaffolding equipment, and any other similar materials of the Contractor or any

Subcontractor, shall have cleaned, all glass surfaces, and shall have left the Work broom clean, except as otherwise provided in the Contract Documents.

ARTICLE 12 - WARRANTY AND CORRECTION OF WORK

12.1 WARRANTY OF WORK

The Contractor warrants to the Owner and Architect that material and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be rejected by the Architect or the Owner. The Contractor's warranty does not cover damage or defect caused by abuse, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

12.2 CORRECTION OF WORK

12.2.1 CORRECTION OF REJECTED WORK

The Contractor shall promptly correct Work rejected by the Architect or Owner or Work which does not conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed, or completed. Costs of correcting such rejected Work, including additional testing and inspections and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

12.2.2 REMOVAL OF NONCONFORMING WORK. The Contractor shall remove from the Site portions of the Work which are not in accordance with the requirements of the Contract Documents and are not corrected by the Contractor or accepted by the Owner.

12.2.3 OWNER'S RIGHTS IF CONTRACTOR FAILS TO CORRECT. If the Contractor fails to correct nonconforming Work within a reasonable time after receiving notice from the Owner, the Owner may correct it in accordance with Paragraph 2.3.2.

12.2.4 COST OF CORRECTING THE WORK. The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work which is not in accordance with the requirements of the Contract Documents.

12.3 CORRECTIONS AFTER SUBSTANTIAL COMPLETION

12.3.1 PROMPT NOTIFICATION AND CORRECTION. In addition to the Contractor's obligations under Sub-article 12.1, if within 1 year after the date for commencement of warranties established under Paragraph 11.8.5, or by terms of an applicable guarantee or warranty required by the Contract Documents, any Work is found to be not in accordance with the requirements of the Contract Documents, the Owner shall promptly notify the Contractor of the condition and the Contractor shall correct it promptly, unless the Owner has previously given the Contractor a written acceptance of such condition. If the Contractor fails to correct the nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Paragraph 2.3.2.

12.3.2 EXTENSION OF CORRECTION PERIOD. For Work requiring repair or discovered to not comply with Contract Documents after Substantial Completion, but before final completion, and for Work first performed after Substantial Completion, the 1 year correction period shall be extended by the period of time between Substantial Completion and the actual completion or correction of the Work. This obligation under this Paragraph 12.3.2 shall survive acceptance of the Work under the Contract and termination of the Contract.

12.3.3 NO TIME LIMITATION. Nothing contained in this Sub-article 12.3, or in guarantees or warranties required in the Specifications, shall be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents. Establishment of the time period of 1 year period for correction of Work as described in Paragraph 12.3.1 relates only to the specific obligation of the Contractor to correct the Work and has, for example, no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, or to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

12.4 ACCEPTANCE OF NONCONFORMING WORK

If the Owner prefers to accept Work which is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, if removal and correction are not required to meet Code requirements. If the Owner accepts the nonconforming Work, the Contract Sum shall be reduced an appropriate and equitable amount to be determined by the Architect. Such reduction shall be effective whether or not final payment has been made.

ARTICLE 13 - PROTECTION OF PERSONS AND PROPERTY

13.1 SAFETY PROGRAMS AND PRECAUTIONS

13.1.1 GENERAL. The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.

13.1.2 SAFETY PROGRAM. Contractor shall initiate a safety program and designate a responsible member of its organization whose duties shall include loss and accident prevention, and who shall have the responsibility and full authority to enforce the program. This person shall conduct regularly scheduled meetings with the representatives of the various Subcontractors employed to ensure that all employees understand and comply with the program. The safety program, in addition to normal legislative requirements of a safety program, will address the additional requirements to provide for the safety of anyone using the site, to separate the construction area from the remaining property, and to prohibit the use of school facilities by Contractor's employees unless specifically permitted otherwise.

13.1.3 MATERIAL SAFETY DATA SHEETS. The Contractor and each Subcontractor shall supply to their employees, and where site is occupied, to the Owner, copies of Material Safety Data Sheets (MSDS) for hazardous substances that may be used in the course of the Work, together with notice of actual hazardous substances to which employees may be exposed while performing Work and appropriate protective measures.

13.2 SAFETY OF PERSONS AND PROPERTY

13.2.1 RESPONSIBILITY AND PRECAUTIONS. The Contractor shall assume responsibility for and take continuous precautions for the safety of, and shall provide continuous protection to prevent damage, injury, or loss to:

13.2.1.1 Employees on the Work and other persons who may be affected thereby.

13.2.1.2 The Work, material, and equipment to be incorporated therein, whether in storage on or off the Site, under the care, custody, or control of the Contractor or the Contractor's Subcontractors or Sub subcontractors.

13.2.1.3 Other property at the Site or adjacent thereto such as trees, shrubs, lawns, walks, pavement, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

13.2.1.4 Owner's property, and the property of others potentially affected by the execution of the Work.

13.2.1.5 Notwithstanding other provisions in the Contract for Construction, the Contractor will comply with any pandemic (e.g. COVID, other) related orders and practices which may be in effect during construction. The cost of complying with such measures will be included in Contractor's scope and bid price, and will not be an allowed grounds for a cost change.

13.2.2 REMEDY OF LOSS. The Contractor shall remedy any such damage, injury, or loss, except such as may be solely due to, or caused by, agents or employees of the Owner, to the Owner's property, or the property of others arising in connection with operations under the Contract Documents (other than damage or loss insured under property insurance required by the Contract Documents).

13.2.3 NOTICES AND REGULATIONS. The Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on the safety of persons or property or their protection from damage, injury, or loss.

13.2.4 SAFETY BARRIERS AND SAFEGUARDS. The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations, and notifying owners and users of adjacent Sites and utilities.

13.2.5 STRUCTURAL LOADING AND TEMPORARY CONSTRUCTION. The Contractor shall not impose loading upon any part of the Work under construction or upon existing construction on or adjacent to the Site in excess of safe limits, or loading such as to result in damage to the Work. The design of temporary construction, including, hoisting equipment, cribbing, shoring, barricades, walkways, scaffolding and temporary bracing, is solely the responsibility of the Contractor. All such items shall conform with the requirements of governing codes and all laws, ordinances, rules, regulations, and orders of all authorities having jurisdiction. The Contractor shall obtain permits for, and procure any engineering or other design required for permits or to verify that temporary construction is adequate for the intended use and capable of safely accepting all loads that may be imposed upon them.

13.2.6 USE OF EXPLOSIVES OR OTHER HAZARDOUS METHODS. When use or storage of explosives, other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel. The Contractor shall notify the Owner at least 7 days before any detonation of explosives on site and before storing explosives or hazardous materials on Site. Location of storage shall be coordinated with the Owner and local fire authorities.

13.3 HAZARDOUS MATERIALS

13.3.1 DISCOVERY OF HAZARDOUS MATERIALS. In the event the Contractor encounters or suspects the presence on the Site material reasonably believed to be asbestos, polychlorinated biphenyl (PCB), or any other material defined as being hazardous by Section 25117 of the

California Health and Safety Code, which has not been rendered harmless, the Contractor shall immediately stop Work in the area affected and report the condition to the Owner and the Architect in writing, whether or not such material was generated by the Contractor or the Owner. The Work in the affected area shall not thereafter be resumed, without written agreement of the Owner and the Contractor. The Work in the affected area shall be resumed only in the absence of asbestos, polychlorinated biphenyl (PCB), or other hazardous material, or when it has been rendered harmless.

13.3.2 HAZARDOUS MATERIAL WORK LIMITATIONS. In the event that the presence of hazardous materials is suspected or discovered on the Site, the Owner shall retain a testing laboratory to determine the nature of the material encountered and whether corrective measures or remedial action is required. The Contractor shall not be required to perform, without consent, any Work in the affected area of the Site relating to asbestos, polychlorinated biphenyl (PCB), or other hazardous material, until any known or suspected hazardous material has been removed, or rendered harmless, or determined to be harmless by Owner, as certified by an independent testing laboratory and/or approved by the appropriate government agency.

13.3.3 INDEMNIFICATION BY OWNER FOR HAZARDOUS MATERIAL NOT CAUSED BY CONTRACTOR. In the event the presence of hazardous materials on the Project Site is not caused by the Contractor, Owner shall pay for all costs of testing and remediation, if any, and shall compensate Contractor for any additional costs incurred or Project delay in accordance with the applicable provisions of Article 9 herein. In addition, Owner shall defend, indemnify and hold harmless the Contractor and its agents, officers, directors and employees from and against any and all claims, damages, losses, costs and expenses incurred in connection with or arising out of, or relating to, the performance of the Work in the area affected by the hazardous material.

13.3.4 INDEMNIFICATION BY CONTRACTOR FOR HAZARDOUS MATERIAL CAUSED BY CONTRACTOR. In the event the hazardous materials on the Project Site is caused by the Contractor, the Contractor shall pay for all costs of testing and remediation, if any, and shall compensate the Owner for any additional costs incurred as a result of Contractor's generation of hazardous material on the Project Site. In addition, the Contractor shall defend, indemnify and hold harmless Owner and its agents, officers, and employees from and against any and all claims, damages, losses, costs and expenses incurred in connection with, arising out of, or relating to, the presence of hazardous material on the Project Site.

13.3.5 TERMS OF HAZARDOUS MATERIAL PROVISION. The terms of this Hazardous Material provision shall survive the completion of the Work and/or any termination of this Contract.

13.4 EMERGENCIES

In an emergency affecting the safety of persons or property, the Contractor shall take any action necessary, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Articles 8, 9, and 10.

13.5 TRENCH EXCAVATION

13.5.1 TRENCHES GREATER THAN 5 FEET. Pursuant to Labor Code Section 6705, if the Contract Sum exceeds \$25,000.00 and involves the excavation of any trench or trenches 5 feet or more in depth, the Contractor shall, in advance of excavation, submit to the Owner a detailed plan showing the design of shoring for protection from the hazard of caving ground during the excavation of such trench or trenches. Contractor shall have such plan prepared or reviewed and approved by a civil or structural engineer registered in the state of California at the Contractor's expense.

13.5.2 NO TORT LIABILITY OF OWNER. Pursuant to Labor Code Section 6705, nothing in this Sub-article 14.5 shall impose tort liability upon the Owner or any of its employees.

13.5.3 NO EXCAVATION WITHOUT PERMITS. The Contractor shall not commence any excavation work until it has secured all necessary permits including the required CAL OSHA excavation/shoring permit. Any permits shall be prominently displayed on the Site prior to the commencement of any excavation.

ARTICLE 14 - INSURANCE AND BONDS

14.1 CONTRACTOR'S LIABILITY INSURANCE

14.1.1 ADDITIONAL INSURED ENDORSEMENT REQUIREMENTS. The Contractor shall name, on any policy of insurance required by the Standard Specifications, the Architect as additional insured. Contractor shall require Subcontractors to name the Architect as additional insured. The Additional Insured Endorsement included on all such insurance policies shall state that coverage is afforded the additional insured with respect to claims arising out of operations performed by or on behalf of the insured. If the additional insured has other insurance which is applicable to the loss, such other insurance shall be on an excess or contingent basis. The amount of the insurer's liability shall not be reduced by the existence of such other insurance.

14.2 WAIVER OF SUBROGATION

The Owner, the Architect, and the Contractor each waive (to the extent permitted by law) any right to recover against the other for damages to the Work, any part thereof, or any and all claims arising by reason of any of the foregoing, but only to the extent that such damages and/or claims are covered by property insurance and only to the extent of such coverage (which shall exclude deductible amounts) by insurance actually carried by either the Owner, or any Contractor.

The provisions of this Sub-article 14.2 are intended to restrict each party to recovery against insurance carriers only to the extent of such coverage and waive fully and for the benefit of each, any rights and/or claims which might give rise to a right of subrogation in any insurance carrier. The Owner and the Contractor shall each obtain in all policies of insurance carried by either of them, a waiver by the insurance companies thereunder of all rights of recovery by way of subrogation for any damages or claims covered by the insurance.

ARTICLE 15 - MISCELLANEOUS PROVISIONS OF LAW

15.1 SMOKE-FREE ENVIRONMENT

The Contractor acknowledges that the Owner operates its facilities as a Smoke-Free Environment. Smoking is prohibited inside the building or within 25 feet of the building, regardless of the building's level of completion or enclosure. The Contractor shall notify all Subcontractors of this provision.

15.2 COMPLIANCE WITH HEALTH ORDER FROM CITY, COUNTY, OR STATE

The Contractor will comply with any pandemic (e.g. COVID, other) related orders and practices which may be in effect during construction. The cost of complying with such measures will be included in Contractors scope and bid price, and will not be an allowed grounds for a cost change.

ARTICLE 16 - TERMINATION OR SUSPENSION OF THE CONTRACT

16.1 TERMINATION BY THE OWNER FOR CAUSE

16.1.1 GROUNDS FOR TERMINATION. The Owner may terminate the Contract if the Contractor:

16.1.1.1 Persistently or repeatedly refuses or fails to supply enough properly skilled workers or proper materials.

16.1.1.2 Fails to make payment to Subcontractors for materials or labor.

16.1.1.3 Persistently disregards laws, ordinances, rules, regulations, or orders of a public authority having jurisdiction.

16.1.1.4 Otherwise is in substantial breach of a provision of the Contract Documents.

16.1.2 NOTIFICATION OF TERMINATION. When any of the above reasons exist, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, written notice of 7 days, terminate the Contract and may, subject to any prior rights of the surety:

16.1.2.1 Take possession of the Site and of all material, equipment, tools, and construction equipment and machinery thereon owned by the Contractor.

16.1.2.2 Accept assignment of subcontracts pursuant to Sub-article 4.4.

16.1.2.3 Complete the Work by whatever reasonable method the Owner may deem expedient.

16.1.3 PAYMENTS WITHHELD. If the Owner terminates the Contract for one of the reasons stated in Paragraph 17.2.1, the Contractor shall not be entitled to receive further payment until the Work is complete.

16.1.4 PAYMENTS UPON COMPLETION. If the unpaid balance of the Contract Sum exceeds costs of completing the Work, including compensation for professional services and expenses made necessary thereby, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor, or Owner, as the case may be, shall be certified by the Architect upon application. This payment obligation shall survive completion of the Contract.

16.2 TERMINATION OR SUSPENSION BY THE OWNER FOR CONVENIENCE

16.2.1 SUSPENSION BY OWNER. The Owner may, without cause, order the Contractor in writing to suspend, delay, or interrupt the Work in whole or in part for such period of time as the Owner may determine.

16.2.1.1 Adjustments. An equitable adjustment shall be made for increases in the cost of performance of the Contract, including profit on the increased cost of performance caused by suspension, delay, or interruption. No adjustment shall be made to the extent:

16.2.1.1.1 That performance is, was or would have been so suspended, delayed, or interrupted by another cause for which the Contractor is responsible.

16.2.1.1.2 That an equitable adjustment is made or denied under another provision of this Contract.

16.3 TERMINATION DUE TO DISCOVERY OF UNKNOWN CONDITIONS

The Owner reserves the right to terminate this Contract should the Owner determine not to proceed because of the discovery of any condition described in Sub-article 10.1.9 or Sub-article

14.3. The Contractor shall receive payment for all Work performed to the date of termination in accordance with the provisions of Article 11.

16.4 MUTUAL TERMINATION FOR CONVENIENCE

16.4.1.1 The Contractor and the Owner may mutually agree to terminate this Contract for convenience. The Contractor shall receive payment for all Work performed to the date of termination in accordance with the provisions of Article 11.

END SECTION

**SECTION 01 10 00
SUMMARY OF WORK**

PART 1 GENERAL

1.01 PROJECT

- A. Project Name: Stockton Police HQ Women's Locker Room Remodel.
- B. City's Name: City of Stockton.
- C. Architect's Name: Indigo | Hammond + Playle Architects, LLP.
- D. The Project consists of the alteration of basement locker, restrooms, and storage rooms at 22 East Market Street, Stockton CA 95202. See drawings for areas of work.

1.02 CONTRACT DESCRIPTION

- A. Contract Type: A single prime contract based on a Stipulated Price as described in the City of Stockton Construction Contract.

1.03 DESCRIPTION OF TENANT IMPROVEMENT WORK

- A. Scope of demolition and removal work is indicated on drawings and specified in Section 02 41 00.
- B. Base bid: Renovate the following of basement floor including Women's Locker Room 48 & 51, Women's Restroom 49 and Shower 50, complete including operational mechanical and electrical work, finishes, and including operational mechanical, plumbing and electrical work, finishes, and minor modifications to fire alarm and existing fire suppression system:
- C. Alternate No. 1: complete improvements in Toilet Rooms 4 and 18, Storage Room 41 and Closet 43. See Section 01 23 00 Alternates and plans for designation of work.
- D. Alter existing system and add new construction, keeping existing in operation occupied areas of Basement and all of 1st and 2nd floors.
- E. Alter existing systems and add new construction, keeping existing occupied areas in operation in portions of basement and all of 1st and 2nd floors.
- F. Hazardous Materials Abatement: in areas affected by new work.
- G. HVAC: alter existing system in Women's Locker, Restroom & Shower in areas of new work. Re
- H. Electrical Power and Lighting: Alter existing and add new construction in areas of work.
- I. Fire Suppression Sprinklers: minor modifications of existing systems in areas of work.
- J. Fire Alarm: minor modifications of existing systems in areas of work.
- K. Contractor shall move the following prior to start of work for later reinstallation by Contractor:
 - 1. All personnel lockers in Women's Locker Rooms will be relocated to second floor by Contractor. Contractor will move lockers back to Women's Locker Rooms when construction is complete and make final electrical connections for power.

1.04 WORK BY CITY

- A. Contractor will coordinate activities of all work controlled by the General Contractor and their forces with all work provided by the City and their respective vendors.
- B. Post Occupancy Janitorial Supplies and Services; City furnished, City Installed items.

1.05 CITY OCCUPANCY

- A. City intends to occupy the Project by the date stated in the Agreement as the contract completion date.
- B. City intends to occupy portions of the basement, 1st and 2nd floor during construction for the conduct of normal operations. All occupied areas to remain accessible and operational at all times.
- C. Cooperate with City to minimize conflict and to facilitate City's operations.

- D. Schedule the Work to accommodate City occupancy. Contractor to provide access to Police for daily operations to all occupied areas in basement.

1.06 CONTRACTOR USE OF SITE AND PREMISES

- A. Construction Operations: Limited to portion of parking lot off Center Street on west side of building.
 - 1. Primary entry point into building will be from exterior door on west side of building within secure parking lot near Office 142 with primary access to basement from Stair 2.
 - 2. Secondary access will be given to south stair into basement within secure parking lot with prior approval with written notice.
- B. Arrange use of site and premises to allow:
 - 1. City occupancy.
 - 2. Use of site and premises by the public.
- C. Provide access to and from site as required by law and by City:
 - 1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
 - 2. Do not obstruct roadways, sidewalks, or other public ways without permit.
- D. Utility Outages and Shutdown:
 - 1. Limit disruption of utility services to hours the building is unoccupied.
 - 2. Do not disrupt or shut down life safety systems, including but not limited to fire sprinklers and fire alarm system, without five (5) notice to City and authorities having jurisdiction.
 - 3. Computer Room 58 shall have no loss or disruption in service.
 - 4. Contractor shall give the City a minimum of five (5) business days written notice in advance of any need to shut off existing utility service or to effect equipment interruptions. The City will set exact time and duration for shutdown, and will assist Contractor with shutdown. Work required to reestablish utility services shall be performed by the Contractor.
 - 5. Prevent accidental disruption of utility services to other facilities.

1.07 WORK SEQUENCE

- A. Construct Work in the general sequence within the contract time required by the Contract Documents, Special Provisions and City of Stockton Standard Specifications and in the general progression indicated below. Note that protection of areas of the building to be occupied during construction is required and as made necessary by the work sequence.
- B. Coordinate construction schedule and operations with City.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

**SECTION 01 23 00
ALTERNATES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Description of Alternates.
- B. Procedures for pricing Alternates.
- C. Documentation of changes to Contract Price and Contract Time.

1.02 RELATED REQUIREMENTS

- A. Instructions to Bidders: Information on award of bid as relates to acceptance of Alternates.
- B. Bid Form: Information how to insert Alternate amounts on Bid Form.
- C. Standard Specifications and Section - 00 72 13 Special Provisions: Additional payment and modification procedures.

1.03 ACCEPTANCE OF ALTERNATES

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at City's option. Accepted Alternates will be identified in the Owner-Contractor Agreement.
- B. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at City's option. Accepted Alternates will be identified in the Construction Contract between the City and the Contractor.
- C. Coordinate related work and modify surrounding work to integrate the Work of each Alternate.

1.04 SCHEDULE OF ALTERNATES

- A. Costs Included in Alternates: Cost of complete installation of each alternate item including all subcontractor cost, Contractor's own cost, taxes, delivery, services related to the selection and specification of each item, and inclusive of all markups. Work excluded from the alternates is work described in the Base Bid.
- B. Base Bid: The Base Bid scope of work includes all work in basement, excluding the alternate item description for the Alternate below. The Alternate Item is in addition to the Base Bid Item and is mutually exclusive with the Base Bid scope of work and with one another. Together, the Base Bid scope of work and the Alternates form the scope of work for the complete project. Any work required by the drawings and specifications not listed below or shown on the plans and specifications as part of any Alternate is included in the Basic Bid scope of work.
- C. **ALTERNATE NO. 1 - ADD ROOMS TOILET 4, TOILET 18, STORAGE 41 AND CLOSET 43:**
 - 1. Work included in this Alternate: This alternate work includes complete improvements in Toilet 4, Toilet 18, Storage 41, and Closet 43. See box notes on plans.
 - 2. This work is to be completed within the contract time stated in the bid documents. No additional contract time is allowed for completion of this alternate.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

**SECTION 01 22 00
UNIT PRICES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Measurement and payment criteria applicable to Work performed under a unit price payment method.
- B. Defect assessment and non-payment for rejected work.

1.02 RELATED REQUIREMENTS

- A. Instructions to Bidders: Instructions for preparation of pricing for Unit Prices.
- B. Section 01 29 00 - Application for Payment: Additional payment and modification procedures.

1.03 MEASUREMENT OF QUANTITIES

- A. Measurement methods delineated in the individual specification sections complement the criteria of this section. In the event of conflict, the requirements of the individual specification section govern.
- B. Assist by providing necessary equipment, workers, and survey personnel as required.
- C. Measurement by Weight: Concrete reinforcing steel, rolled or formed steel or other metal shapes will be measured by handbook weights. Welded assemblies will be measured by handbook or scale weight.
- D. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness.
- E. Measurement by Area: Measured by square dimension using mean length and width or radius.
- F. Linear Measurement: Measured by linear dimension, at the item centerline or mean chord.

1.04 DEFECT ASSESSMENT

- A. Replace Work, or portions of the Work, not complying with specified requirements.
- B. If, in the opinion of Architect, it is not practical to remove and replace the Work, Architect will direct one of the following remedies:
 - 1. The defective Work may remain, but the unit price will be adjusted to a new unit price at the discretion of Architect.
 - 2. The defective Work will be partially repaired to the instructions of the Architect, and the unit price will be adjusted to a new unit price at the discretion of Architect.
- C. If, in the opinion of City, it is not practical to remove and replace the Work, City will direct one of the following remedies:
 - 1. The defective Work may remain, but the unit price will be adjusted to a new unit price at the discretion of City.
 - 2. The defective Work will be partially repaired to the instructions of the City, and the unit price will be adjusted to a new unit price at the discretion of City.
- D. The individual specification sections may modify these options or may identify a specific formula or percentage price reduction.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

This page intentionally left blank

**SECTION 01 25 00
SUBSTITUTION PROCEDURES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Procedural requirements for proposed substitutions.

1.02 RELATED REQUIREMENTS

- A. Special Provisions: Restrictions on timing of substitution requests.
- B. Section 01 22 00 - Unit Prices, for additional unit price requirements.
- C. Section 01 30 00 - Administrative Requirements: Submittal procedures, coordination.
- D. Section 01 60 00 - Product Requirements: Fundamental product requirements, product options, delivery, storage, and handling.
- E. Section 01 61 16 - Volatile Organic Compound (VOC) Content Restrictions: Restrictions on emissions of indoor substitute products.
- F. Special Provisions 2-1.48 - Substitutions.

1.03 DEFINITIONS

- A. Substitutions: Changes from Contract Documents requirements proposed by Contractor to materials, products, assemblies, and equipment.
 - 1. Substitutions for Cause: Proposed due to changed Project circumstances beyond Contractor's control.
 - a. Unavailability.
 - b. Regulatory changes.
 - 2. Substitutions for Convenience: Proposed due to possibility of offering substantial advantage to the Project.
 - a. Substitution requests offering advantages solely to the Contractor will not be considered.
 - 3. Substitution requests will not be considered prior to receiving bids, see Special Provisions.

1.04 REFERENCE STANDARDS

- A. CSI/CSC Form 13.1A - Substitution Request (After the Bidding/Negotiating Phase) Current Edition.

1.05 SUBSTITUTIONS OF MATERIALS AND EQUIPMENT

- A. Catalog numbers and specific brands or trade names followed by the designation "or equal" are used in conjunction with material and equipment required by the Specifications to establish the standards of quality, utility, and appearance required. Substitutions which are equal in quality, utility, and appearance to those specified may be reviewed subject to the provisions under this section.
- B. Wherever more than one manufacturer's product is specified, the first-named product is the basis for the design used in the work and the use of alternative- named manufacturers' products or substitutes may require modifications in that design. If such alternatives are proposed by Contractor and are approved by the City and/or the Architect, Contractor shall assume all costs required to make necessary revisions and modifications of the design resulting from the substitutions requested by the Contractor.
- C. When materials and equipment are specified by first manufacturer's name and product number, second manufacturer's name and "or approved equal," supporting data for the second product, if proposed by Contractor, shall be submitted in accordance with the requirements for substitutions.
- D. If the City and/or Architect, in reviewing proposed substitute materials and/or equipment, require revisions or corrections to be made to or additional supplemental supporting data to be

resubmitted, Contractor shall promptly do so. If any proposed substitution is judged by the City and/or Architect to be unacceptable, the specified material or equipment shall be provided.

- E. Samples may be required. Tests required by the City and/or Architect for the determination of quality and utility shall be made at the expense of Contractor, with acceptance of the test procedure first given by the City.
- F. In reviewing the supporting data submitted for substitutions, the City and/or Architect will use for purposes of comparison all the characteristics of the specified material or equipment as they appear in the manufacturer's published data even though all the characteristics may not have been particularly mentioned in the Contract Documents. If more than two (2) submissions of supporting data are required, the cost of reviewing the additional supporting data shall be borne by Contractor, and the City will deduct the costs from the Contract Price.

1.06 SUBSTITUTION PROVISIONS

- A. Cost and Time Considerations: Substitutions will not be considered unless a net reduction in Contract Sum or Contract Time results to City's benefit, including redesign costs, life cycle costs, plan check and permit fees, changes in related Work, and overall performance of building systems.
- B. Determination of acceptance: Architect and City's Representative will determine the acceptability of proposed substitutions for "or equal" item(s) using Substitution Request form. See Section 00 66 00. The determination by the Architect regarding functional performance and aesthetic quality shall be final.
- C. Non-Acceptance: If a proposed substitution is not accepted, Contractor shall immediately include provisions for the specified product.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

- A. Substitution proposals will not be considered prior to bidding. Upon award, all requests for substitutions shall be made within 35 days of Notice to Proceed using procedures defined in Division 1 requirements and in Special Provisions.
- B. A Substitution Request for products, assemblies, materials, and equipment constitutes a representation that the submitter:
 - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product, equipment, assembly, or system.
 - 2. Agrees to provide the same warranty for the substitution as for the specified product.
 - 3. Agrees to coordinate installation and make changes to other work that may be required for the work to be complete, with no additional cost to City.
 - 4. Waives claims for additional costs or time extension that may subsequently become apparent.
- C. A Substitution Request for specified installer constitutes a representation that the submitter:
 - 1. Has acted in good faith to obtain services of specified installer, but was unable to come to commercial, or other terms.
- D. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents. Burden of proof is on proposer.
 - 1. Note explicitly any non-compliant characteristics.
- E. Content: Include information necessary for tracking the status of each Substitution Request, and information necessary to provide an actionable response.
 - 1. Forms indicated in the Project Manual are adequate for this purpose, and must be used.
- F. Limit each request to a single proposed substitution item.

3.02 SUBSTITUTION PROCEDURES DURING CONSTRUCTION

- A. Architect will consider requests for substitutions as described in paragraph 3.01A.

- B. Submit request for Substitution for Cause within 14 days of discovery of need for substitution, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.
- C. Submit request for Substitution for Convenience immediately upon discovery of its potential advantage to the project, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.
 - 1. In addition to meeting general documentation requirements, document how the requested substitution benefits the City through cost savings, time savings, greater energy conservation, or in other specific ways.
 - 2. Document means of coordinating of substitution item with other portions of the work, including work by affected subcontractors.
 - 3. Bear the costs engendered by proposed substitution of:
 - a. City's compensation to the Architect for any required redesign, time spent processing and evaluating the request.
- D. Substitutions will not be considered under one or more of the following circumstances:
 - 1. When they are indicated or implied on shop drawing or product data submittals, without having received prior approval.
 - 2. Without a separate written request.
 - 3. When acceptance will require revisions to Contract Documents.

3.03 RESOLUTION

- A. Architect may request additional information and documentation prior to rendering a decision. Provide this data in an expeditious manner.

3.04 ACCEPTANCE

- A. Accepted substitutions change the work of the Project. They will be documented and incorporated into work of the project by Change Order, Construction Change Directive, Architectural Supplementary Instructions, or similar instruments provided for in the Conditions of the Contract.

3.05 CLOSEOUT ACTIVITIES

- A. See Section 01 78 00 - Closeout Submittals, for closeout submittals.
- B. Include completed Substitution Request Forms as part of the Project record. Include both approved and rejected Requests.

SUBSTITUTION REQUEST FORM

(Submit one form for each separate item or unit.)

TO: _____

PROJECT: _____

CONTRACTOR: _____

SUBCONTRACTOR/SUPPLIER: _____

DRAWING SHEET REFERENCE/DETAIL NO: _____

The undersigned bidder submits for consideration the following equipment or material instead of the specified item for the above project:

<u>SECTION</u>	<u>PARAGRAPH</u>	<u>SPECIFIED ITEM</u>
—	—	_____
—	—	_____

Proposed Substitution: _____

For products specified by reference standard: Select any product meeting that standard.

For products specified by naming one or more products or manufacturer:

1. Select products of any named manufacturer meeting specifications.
2. For any product or manufacturer that is not specifically named, submit information required herein and in Section 0160 00, "Product Substitution Procedures." Contractor incorporates by reference the representations and warranties set forth in Section 01 70 00.

Attach manufacturer's literature, including complete technical data and laboratory test results, if applicable. Explain why proposed substitution is a true equivalent to specified item.

Include complete information on changes to Drawings and Specification that the proposed substitution will require for its proper installation. Fill in the blanks below:

1. Does the substitution affect dimensions shown on Drawings?

2. What effect does the substitution have on other contractors, trades, or suppliers?

3. What are the differences between the proposed substitution and the specified item? If proposed substitution has a color or pattern, provide a color board showing proposed substitution in relation to the other adjacent colors and patterns.

4. Manufacturers' guarantees and warranties of the proposed and specified items are: ___ Same ___ Different ___. (If different, explain. Attached additional sheet if necessary.)

5. What effect does the substitution have on maintenance requirements?

The undersigned Bidder certifies that the function, appearance, and quality of the proposed substitution are equivalent or superior to those of the specified item and will not require redesign or modification to the design intent of the project.

END OF SECTION

This page intentionally left blank

**SECTION 01 26 00
CONTRACT MODIFICATION PROCEDURES**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Construction Documents and general provisions of the Agreement Between City and Contractor, including General Provisions, Special Provisions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing contract modifications.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Section 01 25 00 - Product Substitution Procedures
 - 2. Section 01 29 00 - Payment Procedures
 - 3. Section 01 32 16 - Scheduling of Work
 - 4. Section 01 33 00 - Submittals

1.03 REQUESTS FOR INFORMATION

- A. Definition: A request seeking one of the following:
 - 1. An interpretation, amplification, or clarification of some requirement of Contract Documents arising from inability to determine from them the exact material, process, or system to be installed; or when the elements of construction are required to occupy the same space (interference); or when an item of work is described differently at more than one place in the Contract Documents.
- B. Whenever possible, request clarifications at the next appropriate project progress meeting, with response entered into meeting minutes, rendering unnecessary the issuance of a formal RFI.
- C. Preparation: Prepare an RFI immediately upon discovery of a need for interpretation of the Contract Documents. Failure to submit a RFI in a timely manner is not a legitimate cause for claiming additional costs or delays in execution of the work.
 - 1. Prepare a separate RFI for each specific item.
 - 2. Prepare in a format and with content acceptable to City.
- D. Reason for the RFI: Prior to initiation of an RFI, carefully study all Contract Documents to confirm that information sufficient for their interpretation is definitely not included.
 - 1. Include in each request Contractor's signature attesting to good faith effort to determine from the Contract Documents information requiring interpretation.
 - 2. Unacceptable Uses for RFIs: Do not use RFIs to request the following:
 - a. Approval of submittals (use procedures specified elsewhere in this section).
 - b. Approval of substitutions (see Section - 01 60 00 - Product Requirements)
 - c. Changes that entail change in Contract Time and Contract Sum (comply with provisions of the Conditions of the Contract).
 - 3. Improper RFIs: Requests not prepared in conformance to requirements of this section, and/or missing key information required to render an actionable response. They will be returned without a response, with an explanatory notation.
- E. Content: Include identifiers necessary for tracking the status of each RFI, and information necessary to provide an actionable response.
 - 1. Official Project name and number, and any additional required identifiers established in Contract Documents.
 - 2. City's, Architect's, and Contractor's names.
 - 3. Discrete and consecutive RFI number, and descriptive subject/title.
 - 4. Issue date, and requested reply date.
 - 5. Reference to particular Contract Document(s) requiring additional information/interpretation. Identify pertinent drawing and detail number and/or specification section number, title, and paragraph(s).

6. Annotations: Field dimensions and/or description of conditions which have engendered the request.
 7. Contractor's suggested resolution: A written and/or a graphic solution, to scale, is required in cases where clarification of coordination issues is involved, for example; routing, clearances, and/or specific locations of work shown diagrammatically in Contract Documents. If applicable, state the likely impact of the suggested resolution on Contract Time or the Contract Sum.
- F. Attachments: Include sketches, coordination drawings, descriptions, photos, submittals, and other information necessary to substantiate the reason for the request.
- G. RFI Log: Prepare and maintain a tabular log of RFIs for the duration of the project.
1. Indicate current status of every RFI. Update log promptly and on a regular basis.
 2. Note dates of when each request is made, and when a response is received.
 3. Highlight items requiring priority or expedited response.
- H. Review Time: Architect will respond and return RFIs to Contractor within seven calendar days of receipt. For the purpose of establishing the start of the mandated response period, RFIs received after 12:00 noon will be considered as having been received on the following regular working day.
1. Response period may be shortened or lengthened for specific items, subject to mutual agreement, and recorded in a timely manner in progress meeting minutes.
- I. Responses: Content of answered RFIs will not constitute in any manner a directive or authorization to perform extra work or delay the project. If in Contractor's belief it is likely to lead to a change to Contract Sum or Contract Time, promptly issue a notice to this effect, and follow up with an appropriate Change Order request to City.

1.04 MINOR CHANGES IN THE WORK

- A. The Architect, with a copy to the City's Representative, will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Price or Contract Time, on the "Architect's Supplemental Instructions" Form as requested by the City.

1.05 PROPOSAL REQUEST

- A. Architect/City-Initiated Requests For Proposals: The City, through the Architect, will issue a detailed description of proposed changes in the Work to the General Contractor with a copy to the Project Manager that will require adjustment to the Contract Price and / or Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications. Such requests shall be on a Request for Proposal form as required by the City.
1. The Request for Proposal is issued for information only. Do not consider them as an instruction either to stop work in progress or to execute the proposed change.
 2. Within ten (10) business days of receipt of a Request for Proposal, submit a Change Order Proposal with the required information necessary to execute the change to the Project Manager with a copy to the City's Representative and the Architect for the Architect's/City's review.
 - a. Include a list of quantities of products required and unit costs, with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include a statement indicating the effect the proposed change in the Work will have on the Contract Time.
 - d. The Agency is tax exempt. All Contractors and their Subcontractors services provided under this Contract with the City of Stockton will not be exempt from taxes. All sales taxes and any other agency fees are to be identified by line item with the Change Order Proposal.
 - e. Dollar values shown on the Schedule of Values shall not be the governing (or deciding) final amounts for change orders involving either additional charges or deletions.

1.06 CHANGE ORDER PROPOSAL

- A. When either a Request for Information from the General Contractor or a Request for Proposal from the Architect/City results in conditions that may require modifications to the Contract, the General Contractor may propose changes by submitting a Proposed Change Order to the Project Manager with a copy to the City's Representative and the Architect in a format as required by the City. These forms shall also include Proposed Change Order Worksheets as required by the City.
 - 1. Include statements outlining the reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Price and / or the Contract Time.
 - 2. Include a list of quantities of products required and unit costs, with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities as directed by the Division 00 General Conditions of the Contract for Construction.
 - 3. Indicate applicable delivery charges, equipment rental, and amounts of trade discounts.
 - 4. Comply with requirements in Section 01 25 13 Product Substitution Procedures if the proposed change requires an equal or substitution of one product or system for a product or system specified.
- B. Change Order Request: Use Proposed Change Order and Proposed Change Order Worksheets of a format acceptable to the City. City's approval of format is required prior to submission of first Proposed Change Order.
- C. A Proposed Change Order cannot be submitted without either prior submission of a Request for Information from the General Contractor or as a response to a Request for Proposal submitted by the Architect or City.
- D. Any Proposed Change Order submitted without a prior submittal of a Request for Information or as a response to a Request for Proposal will be immediately rejected and returned to the General Contractor.

1.07 FIELD ORDER DIRECTIVE

- A. Field Order Directive (FOD): When the City and the General Contractor disagree on the terms of a Proposed Change Order, then the Architect, through the Project Manager, with a copy to the City's Representative may issue a Field Order Directive on a Field Order Directive Form as authorized by the City. The Field Order Directive instructs the General Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 - 1. The Field Order Directive contains a complete description of the change in the Work. It also designates the method to be followed to determine the change in the Contract Price and / or Contract Time.
 - 2. General Contractor must proceed with the Work once a Field Order Directive is issued.
 - 3. The change in the Contract Price and / or Contract Time resulting from the issuance of a Field Order Directive will be based on Time & Material or Unit Prices.
 - 4. Issuance of Field Order Directive does not guarantee payment for the Work described in the Field Order Directive.
- B. Documentation: The Project Manager shall maintain detailed records on a time and material basis of work required by the Field Order Directive.
 - 1. After completion of the change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.
 - 2. The final value shall be negotiated based on the supporting data to determine the value of the work.

1.08 CHANGE ORDER PROCEDURES

- A. Upon the City's approval of a General Contractor's Proposed Change Order, the Project Manager with a copy to the City's Representative will issue a Change Order for signatures of the Architect, City, and the General Contractor on a Change Order Form as required by the City.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF DOCUMENT

SECTION 01 29 00
APPLICATION FOR PAYMENT AND CONDITIONAL AND UNCONDITIONAL WAIVER RELEASE
FORM

PART 1 - GENERAL

1.01 RELATED SECTIONS

- A. General Provisions
- B. Special Provisions
- C. Section 01 70 00 - Closeout Procedures
- D. Section 01 78 00 - Operation and Maintenance Data, Warranties, Project Record Documents.

1.02 SECTION INCLUDES

- A. This Section specifies administrative and procedural requirements governing the following:
 - 1. Schedule of Values
 - 2. Application for Payment

1.03 SCHEDULE OF VALUES

- A. Submit the initial Schedule of Values to the City Engineer and the Architect at least 7 days before the initial Application for Payment. Update the Schedule of Values and resubmit to incorporate any comments from the City Engineer and the Architect prior to beginning the payment application process.
- B. Format the Schedule of Values shall be the AIA Document G703 - Continuation Sheet (current version).
- C. Use the Construction Specification Institute (CSI) Masterformat 2014 Edition and the Table of Contents of this Project Manual as a guide to determine the organization of division names and numbers.
- D. Within each CSI division, include:
 - 1. For each subcontract within each division, provide an itemized listing of subcontractor name, description of work, and contract amount.
 - 2. For each item of work performed by the Contractor as self-performed work, provide a line item description of the work, the dollar amount allocated, and the actual amount expended.
 - 3. For each item of work performed by the Contractor as self-performed work, provide a line item description of the work, the dollar amount allocated, and the actual amount expended.
 - 4. Provide a line item cost allocation for General Conditions cost including one line item for direct reimbursable expenses, one line item for hourly payroll, one line item for supervisory / management payroll, and one line item for Overhead Percentage. For each line item, provide the actual amount expended. No line item can exceed 2% of total construction cost.
- E. Changes in the cost allocation of the Contractor's self-performed work or General Conditions cost shall be approved in writing by the City Engineer and Architect before being submitted as additional line items in an Application for Payment. Any approved changes shall be explicitly noted as such on the revised AIA G703 for with each Application for Payment. Include a copy of the City's written approval of such changes as back-up to each Application for Payment.
- F. Provide a separate line item for each Change Order to the Contract. Do not allocate cost of change order to CSI divisions.

1.04 APPLICATIONS FOR PAYMENT

- A. Use AIA Document G702 - Application and Certificate for Payment and AIA G703 - Continuation Sheet as the form for the Application for Payment. Complete every entry on the form including the notarization and execution by authorized persons.
- B. Submit Applications for Payment on a monthly basis.

- C. Transmit two executed copies of each Application to the City Engineer and one executed copy to the Architect. One copy to the City shall be complete including all waivers of lien and other attachments required by the Contract Documents.
- D. Transmit each copy with a transmittal form listing attachments, and recording appropriate information related to the application in a manner acceptable to the City Engineer and the Architect.
- E. Submit waivers of lien from subcontractors for the period of construction covered by the current application.
- F. Submit certification that Record Drawing mark-ups are updated through the current pay period per the requirements of Section 01 78 00.
 - 1. Record Drawings must be verified and documented by the City Engineer prior to submitting the Application for Payment.

1.05 INITIAL APPLICATION FOR PAYMENT

- A. In addition to the requirements in paragraph 1.04, submit within 30 days of execution of the Agreement, documentation of all components of the labor compliance requirement of the City of Stockton. Documentation shall consist of copies of invoices for insurance premiums, employee records showing vacation time accrued, and other direct evidence of payment or actual costs incurred.
- B. In addition to the requirements in paragraph 1.04, submit within 30 days of execution of the Agreement a completed Proposed Subcontractor Designation Form.
- C. Approval of the Initial Application for Payment shall be contingent on complete and correct submittal of all the above identified information.

1.06 APPLICATION FOR PAYMENT AT TIME OF SUBSTANTIAL COMPLETION

- A. In addition to the requirements of paragraph 1.04, submit the following with the Application for Payment at the time of Substantial Completion.
 - 1. Temporary Use and Occupancy Permit for the project.
 - 2. Executed Substantial Completion Certificate including attached punch list of incomplete items.

1.07 FINAL APPLICATION FOR PAYMENT

- A. The Contractor shall complete the requirements of Section 01 78 00 - Closeout Procedures before submitting the Final Application for Payment.
- B. In addition to the requirements of paragraph 1.04, submit the following with the Final Application for Payment.
 - 1. Operations and Maintenance Manuals and Warranties as required in Section 01 78 00.
 - 2. Record Drawings as required in Section 01 78 00.
 - 3. All required final Release of Lien forms.

1.08 PART 2 - PRODUCTS (NOT USED)

1.09 PART 3 - EXECUTION (NOT USED)

END OF DOCUMENT

**SECTION 01 30 00
ADMINISTRATIVE REQUIREMENTS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Schedule of Submittals.
- B. Preconstruction meeting.
- C. Site mobilization meeting.
- D. Progress meetings.
- E. Construction progress schedule.
- F. Contractor's daily reports.
- G. Progress photographs.
- H. Coordination drawings.
- I. Submittals for review, information, and project closeout.
- J. Number of copies of submittals.
- K. Submittal procedures.

1.02 RELATED REQUIREMENTS

- A. General Provisions, including, but not limited to contract components, control of work and materials and measurement and payment.
- B. Special Provisions: Dates for applications for payment.
- C. Section 01 32 16 - Construction Progress Schedule: Form, content, and administration of schedules.
- D. Section 01 60 00 - Product Requirements: General product requirements.
- E. Section 01 70 00 - Execution and Closeout Requirements: Additional coordination requirements.
- F. Section 01 78 00 - Closeout Submittals: Project record documents; operation and maintenance data; warranties and bonds.
- G. Section 01 91 13 - General Commissioning Requirements: Additional procedures for submittals relating to commissioning.
 - 1. Where submittals are indicated for review by both Architect and the Commissioning Authority, submit one extra and route to Architect first, for forwarding to the Commissioning Authority.
 - 2. Where submittals are not indicated to be reviewed by Architect, submit directly to the Commissioning Authority; otherwise, the procedures specified in this section apply to commissioning submittals.

1.03 CITY ENGINEER

- A. The terms "Engineer" or "City Engineer" or "Project Coordinator" is defined as the City Engineer of the City of Stockton acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties delegated to them.
- B. City Engineer: The City Engineer (Engineer) is a term of equivalency for the Construction Manager who serves as City Representative on this project. The City Engineer of the City of Stockton acting either directly or through properly authorized agents, such agent.
- C. Cooperate with the City Engineer in allocation of mobilization areas of site; for field offices and sheds, for building access, traffic, and parking facilities.
- D. During construction, coordinate use of site and facilities through the City Engineer.
- E. Comply with City Engineer's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.

- F. Comply with instructions of the City Engineer for use of temporary utilities and construction facilities. Responsibility for providing temporary utilities and construction facilities is identified in Section 01 10 00 - Summary of Work.
- G. Coordinate field engineering and layout work under instructions of the City Engineer.
- H. Make the following types of submittals to Architect through the City Engineer:
 - 1. Requests for Interpretation.
 - 2. Requests for substitution.
 - 3. Shop drawings, product data, and samples.
 - 4. Test and inspection reports.
 - 5. Design data.
 - 6. Manufacturer's instructions and field reports.
 - 7. Applications for payment and change order requests.
 - 8. Progress schedules.
 - 9. Coordination drawings.
 - 10. Correction Punch List and Final Correction Punch List for Substantial Completion.
 - 11. Closeout submittals.
 - 12. Other as may be identified in the City of Stockton Standard Specifications or Special Provisions. .

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 SCHEDULE OF SUBMITTALS

- A. A submittal schedule shall be issued by the Contractor within 10 calendar days from the date the Notice of Award and prior to Pre-Construction Meeting. It is the Contractor's responsibility to read through the Technical Specifications within this Project Manual and identify any submittals required within those Sections. The Contractor shall then list all of those required submittals within a schedule formatted per below.
- B. The following submittals are required to be submitted prior to Pre-Constuction meeting:
 - 1. Baseline Schedule.
 - 2. Schedule of Submittals.
 - 3. Hazardous Materials Pre-Start Submittals, see Section 01 11 00.
 - 4. Safety Program, see Section 01 35 53.
 - 5. Waste Management Plan.
 - 6. Contractor Personal Information forms for all contractor personnel and all subcontractors who will be onstie for security cleanance screening.
- C. Refer to Section 01 78 00 for Closeout Submittals.
- D. Refer to Sections of the specifications in this Project Manual for details of the requirements for each submittal listed.
- E. Schedule to include the following:
 - 1. Organization and submittal numbering based on Section numbers.
 - 2. Description of submittal.
 - 3. Identification of critical submittals and long lead items. Some critical submittals may already be identified by the design team. Confirm that these are critical submittals.
 - 4. The date the item will be submitted.
 - 5. The date approval is required (allow 10 days minimum for review of each submittal).
 - 6. The date delivery of the material or equipment is necessary for completion of the work in accordance with the Project Schedule.
- F. The Architect shall review the Schedule of Submittals within ten (10) calendar days of its submittal and return to the Contractor with any proposed adjustments.
- G. Submittal Window: Schedule of Submittals shall show all project submittals being issued by the Contractor within 35 calender days of Contract Execution.

3.02 PRECONSTRUCTION "KICK-OFF" MEETING

- A. City Engineer will schedule the pre-construction meeting with the Contractor following an award of contract and prior to commencement of construction.
- B. The Contractor shall submit a baseline schedule of construction to the City Engineer prior to the pre-construction meeting. Construction schedule shall be approved before any construction may commence.
- C. See Section 3.01 below for submittals required to be submitted prior to pre-construction meeting.
- D. Attendance Required:
 - 1. City Engineer.
 - 2. Architect.
 - 3. Contractor's Superintendent.
 - 4. Major subcontractors.
 - 5. Inspector-of-record.
- E. Agenda:
 - 1. Execution of City-Contractor Agreement.
 - 2. Submission of executed bonds and insurance certificates.
 - 3. Distribution of Contract Documents.
 - 4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
 - 5. Submission of initial Submittal schedule.
 - 6. Designation of personnel representing the parties to Contract and .
 - 7. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
 - 8. Scheduling.
 - 9. Critical Work Sequence.
 - 10. Major equipment deliveries and priorities.
 - 11. Inspection procedures.
 - 12. Security procedures.
- F. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, City, participants, and those affected by decisions made.

3.03 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the work at maximum bi-monthly intervals.
- B. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
- C. Attendance Required: Job superintendent, major Subcontractors and suppliers, City, Architect, Project Coordinator, as appropriate to agenda topics for each meeting.
 - 1. Contractor.
 - 2. City.
 - 3. Architect.
 - 4. Contractor's superintendent.
 - 5. Major subcontractors.
 - 6. Inspector-of-record.
- D. Agenda:
 - 1. Review minutes of previous meetings.
 - 2. Review of work progress.
 - 3. Field observations, problems, and decisions.
 - 4. Identification of problems that impede, or will impede, planned progress.
 - 5. Review of submittals schedule and status of submittals.
 - 6. Review of RFIs log and status of responses.

7. Review of off-site fabrication and delivery schedules.
8. Maintenance of progress schedule.
9. Corrective measures to regain projected schedules.
10. Planned progress during succeeding work period.
11. Coordination of projected progress.
12. Maintenance of quality and work standards.
13. Effect of proposed changes on progress schedule and coordination.
14. Other business relating to work.

3.04 CONSTRUCTION PROGRESS SCHEDULE - SEE SECTION 01 32 16

- A. The Contractor shall submit a baseline schedule of construction the City Engineer prior to the pre-construction meeting. Construction schedule shall be approved before any construction may commence.
- B. Contractor shall provide the Engineer a two-week look-ahead schedule in all weekly construction progress meetings.
- C. Submit updated schedule with each Application for Payment.

3.05 DAILY CONSTRUCTION REPORTS

- A. Include only factual information. Do not include personal remarks or opinions regarding operations and/or personnel.
- B. Prepare a daily construction report recording the following information concerning events at Project site and project progress:
 1. Date.
 2. High and low temperatures, and general weather conditions.
 3. List of subcontractors at Project site.
 4. List of separate contractors at Project site.
 5. Approximate count of personnel at Project site.
 6. Material deliveries.
 7. Safety, environmental, or industrial relations incidents.
 8. Meetings and significant decisions.
 9. Stoppages, delays, shortages, and losses. Include comparison between scheduled work activities (in Contractor's most recently updated and published schedule) and actual activities. Explain differences, if any. Note days or periods when no work was in progress and explain the reasons why.
 10. Directives and requests of Authority(s) Having Jurisdiction (AHJ).
 11. Testing and/or inspections performed.
 12. List of verbal instruction given by City and/or Architect.
 13. Signature of Contractor's authorized representative.

3.06 PROGRESS PHOTOGRAPHS

- A. Submit photographs with each application for payment, taken not more than 3 days prior to submission of application for payment.
- B. Photography Type: Digital; electronic files.
- C. Provide photographs of site and construction throughout progress of work produced by an experienced photographer, acceptable to Architect.
- D. In addition to periodic, recurring views, take photographs of each of the following events:
 1. Completion of site clearing.
 2. Excavations in progress.
 3. Foundations in progress and upon completion.
 4. Structural framing in progress and upon completion.
 5. Enclosure of building, upon completion.
- E. Digital Photographs: 24 bit color, minimum resolution of 1024 by 768, in JPG format; provide files unaltered by photo editing software.
 1. Delivery Medium: via e-mail or cloud site..

2. File Naming: Include project identification, date and time of view, and view identification.

3.07 COORDINATION DRAWINGS

- A. Provide information required by City Engineer for preparation of coordination drawings.
- B. Review drawings prior to submission to Architect.

3.08 SUBMITTAL SCHEDULE

- A. Submit to Architect for review a schedule for submittals in tabular format.
 1. Submit at the same time as the preliminary schedule specified in Section - 01 32 16 - Construction Progress Schedule.
 2. Coordinate with Contractor's construction schedule and schedule of values.

3.09 SUBMITTALS FOR REVIEW

- A. All submittals to be issued in order established by Submittal Schedule described above within 35 days of award of contract.
- B. Submit to Architect for review for the limited purpose of checking for compliance with information given and the design concept expressed in Contract Documents.
- C. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 78 00 - Closeout Submittals.

3.10 SUBMITTALS FOR INFORMATION

- A. When the following are specified in individual sections, submit them for information:
 1. Design data.
 2. Certificates.
 3. Test reports.
 4. Inspection reports.
 5. Manufacturer's instructions.
 6. Manufacturer's field reports.
 7. Other types indicated.
- B. Submit for Architect's knowledge as contract administrator or for City.

3.11 SUBMITTALS FOR PROJECT CLOSEOUT

- A. Submit Correction Punch List for Substantial Completion.
- B. Submit Final Correction Punch List for Substantial Completion.
- C. When the following are specified in individual sections, submit them at project closeout:
 1. Project record documents.
 2. Operation and maintenance data.
 3. Warranties.
 4. Bonds.
 5. Other types as indicated.
- D. Submit for City's benefit during and after project completion.

3.12 NUMBER OF COPIES OF SUBMITTALS

- A. Electronic Documents: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.
- B. Refer to submittal requirements as may be identified in in the City of Stockton Standard Specifications or Special Provisions.

3.13 SUBMITTAL PROCEDURES

- A. General Requirements:
 1. Use a separate transmittal for each item.
 2. Sequentially identify each item. For revised submittals use original number and a sequential numerical suffix.

3. Identify: Project; Contractor; subcontractor or supplier; pertinent drawing and detail number; and specification section number and article/paragraph, as appropriate on each copy.
 4. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the work and Contract Documents.
 - a. Submittals from sources other than the Contractor, or without Contractor's stamp will not be acknowledged, reviewed, or returned.
 5. Schedule submittals to expedite the Project, and coordinate submission of related items.
 - a. For each submittal for review, allow 10 days excluding delivery time to and from the Contractor.
 - b. For sequential reviews involving Architect's consultants, City, or another affected party, allow an additional 7 days.
 - c. For sequential reviews involving approval from authorities having jurisdiction (AHJ), in addition to Architect's and City Engineer's approval, allow an additional 30 days.
 6. Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work.
 7. Provide space for Contractor, City Engineer and Architect review stamps.
 8. When revised for resubmission, identify all changes made since previous submission.
 9. Distribute reviewed submittals. Instruct parties to promptly report inability to comply with requirements.
 10. Incomplete submittals will not be reviewed, unless they are partial submittals for distinct portion(s) of the work, and have received prior approval for their use.
- B. Product Data Procedures:
1. Submit only information required by individual specification sections.
 2. Collect required information into a single submittal.
 3. Do not submit (Material) Safety Data Sheets for materials or products.
- C. Shop Drawing Procedures:
1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting Contract Documents and coordinating related work.
 2. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.
- D. Samples Procedures:
1. Transmit related items together as single package.
 2. Identify each item to allow review for applicability in relation to shop drawings showing installation locations.
- E. All submittals for the Project must be submitted within 35 days of the Notice of Award, or sooner if indicated by the requirements of Contractor's Project Schedule.
- F. The Contractor shall pay the full cost of the Architect's time and materials billing for submittals requiring revision for resubmission more than twice and as identified in the Special Provisions.

3.14 SUBMITTAL REVIEW

- A. Submittals for Review: Architect and City Engineer will review each submittal, and approve, or take other appropriate action.
- B. Submittals for Information: Architect and City Engineer will acknowledge receipt and review. See below for actions to be taken.
- C. Architect's actions will be reflected by marking each returned submittal using virtual stamp on electronic submittals.
- D. Architect's and consultants' actions on items submitted for review:
 1. Authorizing purchasing, fabrication, delivery, and installation:
 - a. "Approved", or language with same legal meaning.
 - b. "Approved as Noted, Resubmission not required", or language with same legal meaning.

- 1) At Contractor's option, submit corrected item, with review notations acknowledged and incorporated.
 - c. "Approved as Noted, Resubmit for Record", or language with same legal meaning.
 2. Not Authorizing fabrication, delivery, and installation:
 - a. "Revise and Resubmit".
 - 1) Resubmit revised item, with review notations acknowledged and incorporated.
 - 2) Non-responsive resubmittals may be rejected.
 - b. "Rejected".
 - 1) Submit item complying with requirements of Contract Documents.
- E. Architect's and consultants' actions on items submitted for information:
1. Items for which no action was taken:
 - a. "Received" - to notify the Contractor that the submittal has been received for record only.
 2. Items for which action was taken:
 - a. "Reviewed" - no further action is required from Contractor.

END OF SECTION

This page intentionally left blank

**SECTION 01 32 16
CONSTRUCTION PROGRESS SCHEDULE**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Scheduling of Work under this Contract shall be performed by Contractor in accordance with requirements of this Section and Special Provisions of the Contract.
 - 1. Development of schedule, cost and resource loading of the schedule, monthly payment requests, and project status reporting requirements of the Contract shall employ computerized Critical Path Method ("CPM") scheduling ("CPM Schedule") format.
 - 2. CPM Schedule shall be cost loaded based on Schedule of Values as approved by City.
 - 3. Submit schedules and reports as specified in the Special Provisions.
- B. Upon Award of Contract, Contractor shall immediately commence development of Initial and Original CPM Schedules to ensure compliance with CPM Schedule submittal requirements.

1.02 RELATED SECTIONS

- A. General Provisions: Definitions of standard start and working day.
- B. Special Provisions: Contract time and liquidated damages.
- C. Section 01 10 00 - Summary of Work: Work sequence.
- D. Section 01 30 00 - Administration Requirements: Construction progress schedule.

1.03 REFERENCE STANDARDS

- A. M-H (CPM) - CPM in Construction Management - Project Management with CPM 2015.

1.04 SUBMITTALS

- A. A baseline schedule shall be submitted to the City Engineer prior to the pre-construction meeting and approved before any construction may commence.
- B. The construction schedule shall be based on the normal business hours of the site being 7:00 am to 4:00 pm Monday through Friday. Any scheduling of work outside of this time frame must be coordinated and approved by the Site and the City prior to being scheduled. Contractor shall make every effort to schedule the appropriate workforce to accomplish all work within this timeframe and within the milestones provided below.
- C. The Construction Schedule shall be continuously updated, and an updated schedule shall be submitted with each application for progress payment. Each revised schedule shall indicate the work actually accomplished during the previous period and the schedule for completion of the remaining work.
- D. Submit updated schedule with each Application for Payment.

1.05 QUALITY ASSURANCE

- A. Contractor shall employ experienced scheduling personnel qualified to use the latest version of Primavera or Microsoft Project. Experience level required is set forth below. Contractor may employ such personnel directly or may employ a consultant for this purpose.
 - 1. The written statement shall identify the individual who will perform CPM scheduling.
 - 2. Capability and experience shall be verified by description of construction projects on which individual has successfully applied computerized CPM.
 - 3. Required level of experience shall include at least two (2) projects of similar nature and scope with value not less than three fourths (3/4) of the Total Bid Price of this Project. The written statement shall provide contact persons for referenced projects with current telephone and address information.
- B. City reserves the right to approve or reject Contractor's scheduler or consultant at any time. City reserves the right to refuse replacing of Contractor's scheduler or consultant, if City believes replacement will negatively affect the scheduling of Work under this Contract.

1.06 SCHEDULE FORMAT

- A. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 GENERAL

- A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
- B. Identify each item by specification section number.
- C. Progress Schedule shall be based on and incorporate milestones and completion dates specified in Contract Documents.
- D. Overall time of completion and time of completion for each milestone shown on Progress Schedule shall adhere to times in the Contract, unless an earlier (advanced) time of completion is requested by Contractor and agreed to by City. Any such agreement shall be formalized by a Change Order.
 - 1. City is not required to accept an early completion schedule, i.e., one that shows an earlier completion date than the Contract Time.
 - 2. Contractor shall not be entitled to extra compensation in event agreement is reached on an earlier completion schedule and Contractor completes its Work, for whatever reason, beyond completion date shown in its early completion schedule but within the Contract Time.
 - 3. A schedule showing the work completed in less than the Contract Time, and that has been accepted by City, shall be considered to have
 - a. Project Float. The Project Float is the time between the scheduled completion of the work and the Completion Date. Project Float is a resource available to both City and the Contractor.
- E. Ownership Project Float: Neither the City nor Contractor owns Project Float.
 - 1. The Project owns the Project Float. As such, liability for delay of the Completion Date rests with the party whose actions, last in time, actually cause delay to the Completion Date.
 - 2. For example, if Party A uses some, but not all of the Project Float and Party B later uses remainder of the Project Float as well as additional time beyond the Project Float, Party B shall be liable for the time that represents a delay to the Completion Date.
 - 3. Party A would not be responsible for the time since it did not consume the entire Project Float and additional Project Float remained; therefore, the Completion Date was unaffected by Party A.
- F. Progress Schedule shall be the basis for evaluating job progress, payment requests, and time extension requests. Responsibility for developing Contract CPM Schedule and monitoring actual progress as compared to Progress Schedule rests with Contractor.
- G. Failure of Progress Schedule to include any element of the Work, or any inaccuracy in Progress Schedule, will not relieve Contractor from responsibility for accomplishing the Work in accordance with the Contract. City's acceptance of schedule shall be for its use in monitoring and evaluating job progress, payment requests, and time extension requests and shall not, in any manner, impose a duty of care upon City, or act to relieve Contractor of its responsibility for means and methods of construction.
- H. Software: Software shall be compatible with Windows operating system.
 - 1. Contractor shall transmit contract file to City on compact disk at times requested by City.
- I. Transmit each item under the form approved by City.
 - 1. Identify Project with City Contract number and name of Contractor.
 - 2. Provide space for Contractor's approval stamp and City's review stamps.

3. Submittals received from sources other than Contractor will be returned to the Contractor without City's review.
- J. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.
- K. Provide separate schedule of submittal dates for shop drawings, product data, and samples, owner-furnished products, products identified under Allowances, and dates reviewed submittals will be required from Architect. Indicate decision dates for selection of finishes.
- L. Indicate delivery dates for owner-furnished products.
- M. Provide legend for symbols and abbreviations used.

3.02 PRELIMINARY SCHEDULE

- A. Preliminary or "baseline" CPM Schedule submitted for review prior to the pre-construction meeting. Construction schedule must be approved before any construction may commence.
- B. Indicate detailed plan for the Work to be completed in first ninety (90) days of the Contract; details of planned mobilization of plant and equipment; sequence of early operations; procurement of materials and equipment. Show Work beyond ninety (90) calendar days in summary form.
- C. Initial CPM Schedule shall be time scaled.
- D. Initial CPM Schedule shall be cost and resource loaded. Accepted cost and resource loaded schedule will be used as basis for monthly progress payments until acceptance of the Original CPM Schedule. Use of Initial CPM Schedule for progress payments shall not exceed ninety (90) calendar days.
- E. City and Contractor shall meet to review and discuss the Initial CPM Schedule within five (5) business days after it has been submitted to City.
 1. City's review and comment on the schedule shall be limited to Contract conformance (with sequencing, coordination, and milestone requirements).
 2. Contractor shall make corrections to schedule necessary to comply with Contract requirements and shall adjust schedule to incorporate any missing information requested by City. Contractor shall resubmit Initial CPM Schedule if requested by City.
- F. If, during the first ninety (90) days after Notice to Proceed, the Contractor is of the opinion that any of the Work included on its Initial CPM Schedule has been impacted, the Contractor shall submit to City a written Time Impact Evaluation ("TIE") in accordance with Article 1.12 of this Section. The TIE shall be based on the most current update of the Initial CPM Schedule.

3.03 CPM SCHEDULE

- A. Submit a detailed proposed Original CPM Schedule presenting an orderly and realistic plan for completion of the Work in conformance with requirements as specified herein.
- B. Progress Schedule shall include or comply with the following requirements:
 1. Time scaled, cost and resource (labor and major equipment) loaded CPM schedule.
 2. No activity on schedule shall have duration longer than fifteen (15) calendar days, with exception of submittal, approval, fabrication and procurement activities, unless otherwise approved by City.
 - a. Activity durations shall be total number of actual work days required to perform that activity.
 3. The start and completion dates of all items of Work, their major components, and milestone completion dates, if any, and required testing or inspections.
 4. City furnished materials and equipment, if any, identified as separate activities.
 5. Activities for maintaining Project Record Documents.
 6. Dependencies (or relationships) between activities.
 7. Processing/approval of submittals and shop drawings for all material and equipment required per the Contract. Activities that are dependent on submittal acceptance or material delivery shall not be scheduled to start earlier than expected acceptance or delivery dates.

- a. Include time for submittals, re-submittals, and reviews by City.
 - 1) Coordinate with accepted schedule for submission of Shop Drawings, samples, and other submittals.
- b. Contractor shall be responsible for all impacts resulting from re- submittal of Shop Drawings and submittals.
8. Procurement of major equipment, through receipt and inspection at jobsite, identified as separate activity.
 - a. Include time for fabrication and delivery of manufactured products for the Work.
 - b. Show dependencies between procurement and construction.
9. Activity description; what Work is to be accomplished and where. Specify areas based on portion of building or grid line.
10. The total cost of performing each activity shall be the total of labor, material, and equipment, excluding overhead and profit of Contractor. Overhead and profit of the General Contractor shall be shown as a separate activity in the schedule. Sum of cost for all activities shall equal total Contract value.
11. Resources required (labor and major equipment) to perform each activity.
12. Responsibility code for each activity corresponding to Contractor or Subcontractor responsible for performing the Work.
13. Identify the activities which constitute the controlling operations or critical path. No more than twenty-five (25%) of the activities shall be critical or near critical. Near critical is defined as float in the range of one (1) to ten (10) days.
14. Twenty (20) workdays for developing punch list(s), completion of punch- list items, and final clean up for the Work or any designated portion thereof. All other activities shall be completed prior to this period.
15. Interface with the work of other contractors, City, and agencies such as, but not limited to, utility companies.
16. Show detailed Subcontractor Work activities. In addition, furnish copies of Subcontractor schedules upon which CPM was built.
 - a. Also furnish for each Subcontractor, as determined by City, submitted on Subcontractor letterhead, a statement certifying that Subcontractor concurs with Contractor's Original CPM Schedule and that Subcontractor's related schedules have been incorporated, including activity duration, cost and resource loading.
 - b. Subcontractor schedules shall be independently derived and not a copy of Contractor's schedule.
 - c. In addition to Contractor's schedule and resource loading, obtain from electrical, mechanical, and plumbing Subcontractors, and other Subcontractors as required by City, productivity calculations common to their trades, such as units per person day, feet of pipe per day per person, feet of wiring per day per person, and similar information.
 - d. Furnish schedule for Contractor / Subcontractor CPM schedule meetings which shall be held prior to submission of Original CPM schedule to City. City shall be permitted to attend scheduled meetings as an observer.
17. Activity durations shall be in Work days.
18. Submit with the schedule a list of anticipated non Work days, such as weekends and holidays. The Progress Schedule shall exclude in its Work day calendar all non Work days on which Contractor anticipates critical Work will not be performed.

3.04 UPDATING SCHEDULE

- A. Adjustments to Original CPM Schedule: Contractor shall have adjusted the Original CPM Schedule submittal to address all review comments from original CPM Schedule review meeting and resubmit network diagrams and reports for City's review. Original "baseline" schedule must be approved by City before any construction may commence.
- B. City, within ten (10) days from date that Contractor submitted the revised schedule, will either:
 1. Accept schedule and cost and resource loaded activities as submitted, or
 2. Advise Contractor in writing to review any part or parts of schedule which either do not meet Contract requirements or are unsatisfactory for City to monitor Project's progress,

resources, and status or evaluate monthly payment request by Contractor.

- C. City may accept schedule with conditions that the first monthly CPM Schedule update be revised to correct deficiencies identified.
- D. When schedule is accepted, it shall be considered the "Original CPM Schedule" which will then be immediately updated to reflect the current status of the work.
- E. City reserves right to require Contractor to adjust, add to, or clarify any portion of schedule which may later be discovered to be insufficient for monitoring of Work or approval of partial payment requests. No additional compensation will be provided for such adjustments, additions, or clarifications.
- F. Acceptance of Contractor's schedule by City will be based solely upon schedule's compliance with Contract requirements.
 - 1. By way of Contractor assigning activity durations and proposing sequence of Work, Contractor agrees to utilize sufficient and necessary management and other resources to perform work in accordance with the schedule.
 - 2. Upon submittal of schedule update, updated schedule shall be considered "current" CPM Schedule.
 - 3. Submission of Contractor's schedule to City shall not relieve Contractor of total responsibility for scheduling, sequencing, and pursuing Work to comply with requirements of Contract Documents, including adverse effects such as delays resulting from ill timed Work.
- G. Submittal of Original CPM Schedule, and subsequent schedule updates, shall be understood to be Contractor's representation that the Schedule meets requirements of Contract Documents and that Work shall be executed in sequence indicated on the schedule.
- H. Contractor shall distribute Original CPM Schedule to Subcontractors for review and written acceptance, which shall be noted on Subcontractors' letterheads to Contractor and transmitted to City for the record.

3.05 MONTHLY CPM SCHEDULE UPDATE SUBMITTALS

- A. Following acceptance of Contractor's Original CPM Schedule, Contractor shall monitor progress of Work and adjust schedule each month to reflect actual progress and any anticipated changes to planned activities.
 - 1. Each schedule update submitted shall be complete, including all information requested for the Original CPM Schedule submittal.
 - 2. Each update shall continue to show all Work activities including those already completed. These completed activities shall accurately reflect "as built" information by indicating when activities were actually started and completed.
- B. A meeting will be held on approximately the twenty fifth (25th) of each month to review the schedule update submittal and progress payment application.
 - 1. At this meeting, at a minimum, the following items will be reviewed: Percent (%) complete of each activity; Time Impact Evaluations for Change Orders and Time Extension Request; actual and anticipated
 - a. activity sequence changes; actual and anticipated duration changes; and actual and anticipated Contractor delays.
 - 2. These meetings are considered a critical component of overall monthly schedule update submittal and Contractor shall have appropriate personnel attend. At a minimum, these meetings shall be attended by Contractor's General Superintendent and Scheduler.
 - 3. Contractor shall plan on the meeting taking no less than four (4) hours.
- C. Within five (5) working days after monthly schedule update meeting, Contractor shall submit the updated CPM Schedule update.
- D. Within five (5) work days of receipt of above noted revised submittals, City will either accept or reject monthly schedule update submittal.
 - 1. If accepted, percent (%) complete shown in monthly update will be basis for Application for Payment by the Contractor. The schedule update shall be submitted as part of the Contractor's Application for Payment.

2. If rejected, update shall be corrected and resubmitted by Contractor before the Application for Payment is submitted.
- E. Neither updating, changing or revising of any report, curve, schedule, or narrative submitted to City by Contractor under this Contract, nor City's review or acceptance of any such report, curve, schedule or narrative shall have the effect of amending or modifying in any way the Completion Date or milestone dates or of modifying or limiting in any way Contractor's obligations under this Contract.

3.06 SCHEDULE REVISIONS

- A. Updating the Schedule to reflect actual progress shall not be considered revisions to the Schedule. Since scheduling is a dynamic process, revisions to activity durations and sequences are expected on a monthly basis.
- B. To reflect revisions to the schedule, the Contractor shall provide City with a written narrative with a full description and reasons for each Work activity revised. For revisions affecting the sequence of work, the Contractor shall provide a schedule diagram which compares the original sequence to the revised sequence of work. The Contractor shall provide the written narrative and schedule diagram for revisions two (2) working days in advance of the monthly schedule update meeting.
- C. Schedule revisions shall not be incorporated into any schedule update until the revisions have been reviewed by City. City may request further information and justification for schedule revisions and Contractor shall, within three (3) days, provide City with a complete written narrative response to City's request.
- D. If the Contractor's revision is still not accepted by City, and the Contractor disagrees with City's position, the Contractor has seven (7) calendar days from receipt of City's letter rejecting the revision to provide a written narrative providing full justification and explanation for the revision. The Contractor's failure to respond in writing within seven (7) calendar days of City's written
 1. rejection of a schedule revision shall be contractually interpreted as acceptance of City's position, and the Contractor waives its rights to subsequently dispute or file a claim regarding City's position.
- E. At City's discretion, the Contractor can be required to provide Subcontractor certifications of performance regarding proposed schedule revisions affecting said Subcontractors.

3.07 RECOVERY SCHEDULE

- A. If the Schedule Update shows a completion date twenty-one (21) calendar days beyond the Contract Completion Date, or individual milestone completion dates, the Contractor shall submit to City the proposed revisions to recover the lost time within seven (7) calendar days. As part of this submittal, the Contractor shall provide a written narrative for each revision made to recapture the lost time. If the revisions include sequence changes, the Contractor shall provide a schedule diagram comparing the original sequence to the revised sequence of work.
- B. The revisions shall not be incorporated into any schedule update until the revisions have been reviewed by City.
- C. If the Contractor's revisions are not accepted by City, City and the Contractor shall follow the procedures in paragraph 1.09.C, 1.09.D and 1.09.E above.
- D. At City's discretion, the Contractor can be required to provide Subcontractor certifications for revisions affecting said Subcontractors.

3.08 TIME IMPACTS EVALUATION ("TIE") FOR CHANGE ORDERS, AND OTHER DELAYS

- A. When Contractor is directed to proceed with changed Work, the Contractor shall prepare and submit within fourteen (14) calendar days from the Notice to Proceed a TIE which includes both a written narrative and a schedule diagram depicting how the changed Work affects other schedule activities. The schedule diagram shall show how the Contractor proposes to incorporate the changed Work in the schedule and how it impacts the current schedule-update critical path. The Contractor is also responsible for requesting time extensions based on the TIE's impact on the critical path. The diagram must be tied to the main sequence of schedule activities to enable City to evaluate the impact of changed Work to the scheduled critical path.

- B. Contractor shall be required to comply with the requirements of Paragraph 1.09.A for all types of delays such as, but not limited to, Contractor/Subcontractor delays, adverse weather delays, strikes, procurement delays, fabrication delays, etc.
- C. Contractor shall be responsible for all costs associated with the preparation of TIEs, and the process of incorporating them into the current schedule update. The Contractor shall provide City with four (4) copies of each TIE.
- D. Once agreement has been reached on a TIE, the Contract Time will be adjusted accordingly. If agreement is not reached on a TIE, the Contract Time may be extended in an amount City allows, and the Contractor may submit a claim for additional time claimed by contractor.

3.09 TIME EXTENSIONS

- A. The Contractor is responsible for requesting time extensions for time impacts that, in the opinion of the Contractor, impact the critical path of the current schedule update. Notice of time impacts shall be given in accord with the General Conditions.
- B. Where an event for which City is responsible impacts the projected Completion Date, the Contractor shall provide a written mitigation plan, including a schedule diagram, which explains how (e.g., increase crew size, overtime, etc.) the impact can be mitigated. The Contractor shall also include a detailed cost breakdown of the labor, equipment, and material the Contractor would expend to mitigate City-caused time impact. The Contractor shall submit its mitigation plan to City within fourteen (14) calendar days from the date of discovery of the impact. The Contractor is responsible for the cost to prepare the mitigation plan.
- C. Failure to request time, provide TIE, or provide the required mitigation plan will result in Contractor waiving its right to a time extension and cost to mitigate the delay.
- D. No time will be granted under this Contract for cumulative effect of changes.
- E. City will not be obligated to consider any time extension request unless the Contractor complies with the requirements of Contract Documents.
- F. Failure of the Contractor to perform in accordance with the current schedule update shall not be excused by submittal of time extension requests.
- G. If the Contractor does not submit a TIE within the required fourteen (14) calendar days for any issue, it is mutually agreed that the Contractor does not require a time extension for said issue.

3.10 WEEKLY SCHEDULE REPORT

- A. At the Weekly Progress Meeting, the Contractor shall provide and present a time-scaled three (3) week look-ahead schedule that is based and correlated by activity number to the current schedule (i.e., Initial, Original CPM, or Schedule Update).

3.11 DAILY CONSTRUCTION REPORTS

- A. On a daily basis, Contractor shall submit a daily activity report to City for each workday, including weekends and holidays when worked. Contractor shall develop the daily construction reports on a computer-generated database capable of sorting daily Work, manpower, and manhours by Contractor, Subcontractor, area, sub-area, and Change Order Work. Upon request of City, furnish computer disk of this data base. Obtain City's written approval of daily construction report data base format prior to implementation. Include in report:
 - B. Project name and Project number.
 - C. Contractor's name and address.
 - D. Weather, temperature, and any unusual site conditions.
 - E. Brief description and location of the day's scheduled activities and any special problems and accidents, including Work of Subcontractors. Descriptions shall be referenced to CPM scheduled activities.
 - F. Worker quantities for its own Work force and for Subcontractors of any tier.
 - G. Equipment, other than hand tools, utilized by Contractor and Subcontractors.

3.12 PERIODIC VERIFIED REPORTS

- A. Contractor shall complete and verify construction reports on a form prescribed by the City of Stockton and file reports as requested by the City during the preceding month; at the completion of the Contract; at the completion of the Work; at the suspension of Work for a period of more than one (1) month; whenever the services of Contractor or any of Contractor's Subcontractors are terminated for any reason; and at any time a special verified report is required by the City of Stockton.

END OF SECTION

SECTION 01 35 53
SECURITY PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Security measures including entry control, personnel identification, and miscellaneous restrictions.

1.02 RELATED REQUIREMENTS

- A. Section 01 10 00 - Summary: use of premises and occupancy.
- B. Section 01 50 00 - Temporary Facilities and Controls: Temporary lighting.

1.03 PROTECTION

- A. Continuously maintain protection as necessary to protect the Work, as a whole and in part, and adjacent property and improvements from accidents, injuries, or damage.
- B. Provide and maintain in good condition all protective measures required to adequately protect the public from hazards resulting from the Work and to exclude unauthorized persons from the Work. When regulated by Building Code, Cal OSHA, or other authority, such legal requirements for protection shall be considered as minimum requirements. Be responsible for the protection in excess of such minimum requirements as required.

1.04 CONTROL OF SITE

- A. Ensure that no alcohol, firearms, weapons, or controlled substance enters or is used at the Site. Immediately remove from the Site and terminate the employment of any employee found in violation of this provision.

1.05 SITE SECURITY

- A. As part of the Work included within the Contract Price, Contractor shall take and be fully responsible for all reasonably required measures to protect and maintain the security of persons, existing facilities and property at the Site, including without limitation preventing theft, loss, vandalism, graffiti, and improper concealment of personal property of the City and all persons lawfully present on the Site, and including times where workers are not present on the Site. Contractor's measures shall include, at a minimum, installing a temporary chain-link fence with locking gate surrounding the Site if so instructed by the Engineer.
- B. No claim shall be made against City by reason of any act of an employee or trespasser, and Contractor shall repair all damage to City's property resulting from Contractor's failure to provide adequate security measures.
- C. Contractor shall maintain a lock on the Construction access gate at all times.
- D. Contractor shall supply additional security fencing, barricades, lighting, and other security measures as required to protect and control the Site.
- E. Contractor shall coordinate and cooperate with City of Stockton's security program. The Contractor personnel who will be working on the project must pass Level 2 background checks and submit information on City's forms, examples following. They must work during police department regular business hours (mon – Fri 0800 – 1700, unless otherwise allowed or required by Construction Documents) and must pass the following level 2 checks: local record check, warrants check, and RAP (for purposes of "Building Security"). In order to run the computer checks involved, the contractor must provide the full name and date of birth of those persons who will be working either in the building or on site no later than 2 weeks prior to work commencing. The Records Supervisor will contact the Contractor and advise them of the status of their employees (approved or unapproved). Unapproved employees will not be allowed access to the police department building or site. Approved individuals will be provided with photo identification that must be worn in a visible manner while on the job. These IDs must be returned to the Stockton Police Department at the end of the project.

1.06 SAFETY PROGRAM

- A. Fifteen (15) Days prior to the start of the Work, Contractor shall submit a Safety Program. Comply with the Safety Program and all applicable federal, state, and local regulation codes, rules, law and ordinances.
- B. Receipt and/or review of the Safety Program by City, Engineer, or City's representative shall not relieve Contractor of any responsibility for complying with all applicable safety regulations.
- C. It is essential that Contractor and each Subcontractor implement an effective and vigorous Safety and Health Program to cover their respective portions of the Work. Subject to Contractor's overall responsibility for Project safety, it shall be understood that the full responsibility for providing a safe place to work with respect to their respective portions of the Work rests with each individual Contractor and Subcontractor.
- D. Safety Program components:
 - 1. Injury and Illness Prevention Program (IIPP): Conforming to the General Industrial Safety Orders (CCR Title 8, Division 1, Chapter 4, Subchapter 7, Section 3203), and the California Labor Code (Section 6401.7).
 - 2. Site-Specific Health and Safety Plan (HSP): Describing health and safety procedures that shall be implemented during the Work in order to ensure safety of the public and those performing the Work. Follow the guidelines for a HSP listed in f29 C.F.R. 1910.120.
- E. The wearing of hard hats shall be mandatory at all times for personnel on Site. Supply sufficient hard hats to equip properly all employees and visitors.
- F. Whenever an exposure exists, appropriate personal protective equipment (PPE) shall be used by all affected personnel. Supply PPE to all personnel under Contractor's direction.

1.07 SAFETY REQUIREMENTS

- A. Standards: Maintain the Project in accordance with state and local safety and insurance standards.
- B. Hazards Control:
 - 1. Store volatile wastes in covered metal containers and remove from premises daily.
 - 2. Prevent accumulation of wastes that create hazardous conditions.
 - 3. Provide adequate ventilation during use of volatile or noxious substances.
- C. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
 - 1. Do not burn or bury rubbish or waste material on the Site.
 - 2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 - 3. Do not dispose of wastes into streams or waterways.
- D. Provide accident information on the forms provided by Contractor. This information shall be provided on the same day as the occurrence of said incident.

1.08 SITE SAFETY OFFICER

- A. Designate one of Contractor's staff as "Site Safety Officer" whose duties shall include the responsibility for enforcing the environmental protection provisions of the Contract Documents including safety and health, the requirements of the Occupational Safety and Health Act, and other applicable federal, state, and local standards.
- B. Submit for review to City Engineer the intended traffic flow plan, security plan, program for temporary structures, housecleaning plan, demolition program, and environmental safety and health plan. After review by City, the implementation and enforcement of these plans shall become the responsibility of the Site Safety Officer. Any changes in the plans shall be requested by Contractor through the Site Safety Officer for written concurrence by City.

1.09 ENTRY CONTROL

- A. Restrict entrance of persons and vehicles into Project site and existing facilities.
- B. Allow entrance only to authorized persons with proper identification.

- C. Maintain log of workers and visitors, make available to City on request.
- D. City will control entrance of persons and vehicles related to City's operations.

1.10 PERSONNEL IDENTIFICATION

- A. Provide identification badge to each person authorized to enter premises. Contractor and all subcontractors will need to pass a security clearance screening by the Stockton Police Department which will include fingerprinting and a copy of a current state issued identification (e.g. driver's license). See form following for to be used for security clearance screening.
- B. Badge To Include: Name of individual, photo head shot, assigned number, expiration date and company logo.
- C. The City retains the right to refuse project access to any construction personnel and the contractor shall be responsible for identifying a suitable replacement.
- D. Require return of badges at expiration of their employment on the Work.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

(CONTRACTOR PERSONAL INFORMATION FORM FOLLOWING)



**STOCKTON POLICE DEPARTMENT
CONTRACTOR PERSONAL INFORMATION
FOR
POLICE HQ WOMEN'S LOCKER RM. REMODEL
PROJECT (PW 1535-A)**

NAME	
ADDRESS	
CONTACT #	
DATE OF BIRTH	
DRIVERS LIC. #	
EMPLOYER	
SUPERVISOR	
SUPERVISOR CONTACT #	

PHOTOCOPY OF DRIVERS LICENCE

This page intentionally left blank

**SECTION 01 40 00
QUALITY REQUIREMENTS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Submittals.
- B. Quality assurance.
- C. References and standards.
- D. Testing and inspection agencies and services.
- E. Control of installation.
- F. Defect Assessment.

1.02 RELATED REQUIREMENTS

- A. General Provisions: Definition and terms, control of work, control of materials, measurement and payment.
- B. Section 01 21 00 - Allowances: Allowance for payment of testing services.
- C. Section 01 30 00 - Administrative Requirements: Submittal procedures.

1.03 REFERENCE STANDARDS

- A. The Work is governed by requirements of Title 24, California Code of Regulations ("CCR"), and the Contractor shall keep a copy of these available at the job Site for ready reference during construction.
- B. IAS AC89 - Accreditation Criteria for Testing Laboratories 2020.

1.04 OBSERVATION AND SUPERVISION:

- A. The City and Architect or their appointed representatives will review the Work and the Contractor shall provide facilities and access to the Work at all times as required to facilitate this review. Administration by the Architect and any consulting Structural Engineer will be in accordance with applicable regulations, including, without limitation, CCR, Part 1, Title 24, Section 4-341.
- B. One or more Building Department Inspector(s), herein referred to as Inspector will observe the work in accordance with CCR, Part 1, Title 24, Sections 4-333(b) and 4-342:
 - 1. The Inspector shall have access to the Work wherever it is in preparation or progress for ascertaining that the Work is in accordance with the Contract Documents and all applicable code sections. The Contractor shall provide facilities and access as required and shall provide assistance for sampling or measuring materials.
 - 2. The Inspector will notify the City and Architect and call the attention of the Contractor to any observed failure of Work or material to conform to Contract Documents.
 - 3. The Inspector shall observe and monitor all testing and inspection activities required.
- C. The Contractor shall conform with all applicable laws as indicated in the Contract Documents, including, without limitation, to CCR, Part 1, Title 24, Section 4-343. The Contractor shall supervise and direct the Work and maintain a competent superintendent on the job who is authorized to act in all matters pertaining to the Work. The Contractor's superintendent shall also inspect all materials, as they
 - 1. arrive, for compliance with the Contract Documents. Contractor shall reject defective Work or materials immediately upon delivery or failure of the Work or material to comply with the Contract Documents. The Contractor shall submit verified reports as indicated in the Contract Documents, including, without limitation, the Specifications and as required by Part 1, Title 24, Section 4-336.

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements and Special Provisions section 5-1.18, for submittal procedures.

- B. Design Data: Submit for Architect's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents, or for City's information.
- C. Test Reports: After each test/inspection, promptly submit two copies of report to Architect and to Contractor.
 - 1. Include:
 - a. Date issued.
 - b. Project title and number.
 - c. Name of inspector.
 - d. Date and time of sampling or inspection.
 - e. Identification of product and specifications section.
 - f. Location in the Project.
 - g. Type of test/inspection.
 - h. Date of test/inspection.
 - i. Results of test/inspection.
 - j. Compliance with Contract Documents.
 - k. When requested by Architect, provide interpretation of results.
- D. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Architect, in quantities specified for Product Data.
 - 1. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
 - 2. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.
- E. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the City's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
- F. Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for City.
 - 1. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents.

1.06 QUALITY ASSURANCE

- A. Testing Agency Qualifications:
 - 1. Prior to start of work, submit agency name, address, and telephone number, and names of full time registered Engineer and responsible officer.
 - 2. Submit copy of report of laboratory facilities inspection made by NIST Construction Materials Reference Laboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.
 - 3. Qualification Statement: Provide documentation showing testing laboratory is accredited under IAS AC89.
- B. Testing agencies and tests shall be in conformance with the General Documents and the requirements of Part 1, Title 24, Section 4- 335.
- C. Testing and inspection in connection with earthwork shall be under the direction of the City's consulting soils engineer, if any, referred to hereinafter as the "Soils Engineer".
- D. Testing and inspection of construction materials and workmanship shall be performed by a qualified laboratory, referred to hereinafter as the "Testing Laboratory." The Testing Laboratory shall be under direction of an engineer registered in the State of California, shall conform to requirements of ASTM E329, and shall be employed by or in contract with the City.

1.07 REFERENCES AND STANDARDS

- A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with

requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

- B. Comply with reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.
- C. Obtain copies of standards where required by product specification sections.
- D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.
- E. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.
- F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Architect shall be altered from Contract Documents by mention or inference otherwise in any reference document.

1.08 TESTING AND INSPECTION AGENCIES AND SERVICES

- A. City will employ services of an independent testing agency to perform certain specified testing; payment for cost of services will be derived from allowance specified in Section 01 21 00; see Section 01 21 00 and applicable sections for description of services included in allowance.
- B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.
- C. The Contractor shall be responsible for notifying the City and Inspector of all required tests and inspections. Contractor shall notify the City and Inspector at least seventy-two hours (72) hours in advance of performing any Work requiring testing or inspection.
- D. The Contractor shall provide access to Work to be tested and furnish incidental labor, equipment, and facilities to facilitate all inspections and tests.
- E. The City will pay for first inspections and tests required by the "CCR", and other inspections or tests that the City and/or the Architect may direct to have made, including the following principal items:
 - 1. Tests and observations for earthwork and paving.
 - 2. Tests for concrete mix designs, including tests of trial batches.
 - 3. Tests and inspections for structural steel work.
 - 4. Field tests for framing lumber moisture content.
 - 5. Additional tests directed by the City that establish that materials and installation comply with the Contract Documents.
 - 6. Test and observation of welding and expansion anchors.
- F. The City may at its discretion, pay and back charge the Contractor for:
 - 1. Retests or re-inspections, if required, and tests or inspections required due to Contractor error or lack of required identifications of material.
 - 2. Uncovering of work in accordance with Contract Documents.
 - 3. Testing done on weekends, holidays, and overtime will be chargeable to the Contractor for the overtime portion.
 - 4. Testing done off Site.
- G. Testing and inspection reports and certifications:
 - 1. If initially received by Contractor, Contractor shall provide to each of the following a copy of the agency or laboratory report of each test or inspection or certification.
 - a. The City;
 - b. The Architect;
 - c. The Consulting Engineer, if any;
 - d. Other engineers on the Project, as appropriate;
 - e. The Inspector; and
 - f. The Contractor.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.
- D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Have work performed by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 TESTING AND INSPECTION

- A. Testing Agency Duties:
 - 1. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
 - 2. Perform specified sampling and testing of products in accordance with specified standards.
 - 3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 - 4. Promptly notify Architect and Contractor of observed irregularities or non-compliance of Work or products.
 - 5. Perform additional tests and inspections required by Architect.
 - 6. Submit reports of all tests/inspections specified.
- B. Limits on Testing/Inspection Agency Authority:
 - 1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 - 2. Agency may not approve or accept any portion of the Work.
 - 3. Agency may not assume any duties of Contractor.
 - 4. Agency has no authority to stop the Work.
- C. Contractor Responsibilities:
 - 1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
 - 2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
 - 3. Provide incidental labor and facilities:
 - a. To provide access to Work to be tested/inspected.
 - b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
 - c. To facilitate tests/inspections.
 - d. To provide storage and curing of test samples.
 - 4. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
 - 5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
 - 6. Arrange with City's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

- D. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Architect.
- E. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

3.03 DEFECT ASSESSMENT

- A. Replace Work or portions of the Work not complying with specified requirements.
- B. If, in the opinion of City, it is not practical to remove and replace the work, City will direct an appropriate remedy or adjust payment.

END OF SECTION

This page intentionally left blank

**SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Temporary utilities.
- B. Temporary telecommunications services.
- C. Temporary sanitary facilities.
- D. Temporary Controls: Barriers, enclosures, and fencing.
- E. Security requirements.
- F. Waste removal facilities and services.
- G. Project identification sign.
- H. Field offices.

1.02 TEMPORARY UTILITIES

- A. City will provide the following:
 - 1. Electrical power, consisting of connection to existing facilities.
 - 2. Water supply, consisting of use of existing facilities.
- B. Existing restroom facilities may not be used. Contractor to provide temporary restrooms in staging area.
- C. Contractor to exercise measures to conserve energy.

1.03 VENTILATION DURING CONSTRUCTION

- A. Contractor to provide and pay for temporary ventilation devices, energy and related service charges.
- B. Contractor shall provide and pay for maintenance and regular replacement of filters and worn or consumed parts of permanent ventilation system using for ventilation during construction.
- C. Immediately prior to Contract Completion review, Contractor shall change disposable filters and clean permanent filters of equipment used during construction.

1.04 TEMPORARY POWER AND LIGHTING

- A. Use of Permanent Power and Lighting Systems: Permanent power and lighting systems may be used during construction if adequate for construction activities. Contractor responsible for providing additional branch wiring or other means of temporary power as necessary to provide adequate power supply. Contractor shall pay all costs to establish temporary electric service if needed.
 - 1. Contractor shall maintain lighting and make routine repairs and replacements as necessary.
- B. Temporary Lighting: Provide temporary lighting as necessary for proper performance of construction activities and for inspection of the Work.
 - 1. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.
 - 2. Maintain lighting and provide routine repairs.
- C. Relamping: For permanent lighting used during construction, relamp all fixtures immediately prior to Contract Completion (punch list) review.

1.05 TELECOMMUNICATIONS SERVICES

- A. Provide, maintain, and pay for telecommunications services at time of project mobilization.

1.06 HEATING AND COOLING

- A. Use of Permanent Heating and Cooling Systems: Permanent heating and cooling equipment may be used. When basement HVAC systems are non-operational during construction, contractor is responsible for providing and paying for temporary heating and cooling.

1. Immediately prior to Contract Completion review, change disposable filters and clean permanent filters of equipment used during construction.
 2. Temperature Criteria: Maintain interior ambient temperature of minimum 50 degrees F and maximum 80 degrees F, unless otherwise specified or approved by City Engineer.
- B. Contractor shall provide and pay for operation, maintenance and regular replacement of filters and worn or consumed parts.

1.07 TEMPORARY WATER SERVICES

- A. Contractor shall locate and connect to existing water source for temporary construction water service. Contractor shall comply with the following:
1. Locate and connect to existing water source for temporary construction water service, as acceptable to City Engineer.
 2. Temporary water service piping, valves, fittings and meters shall comply with requirements of the serving water utility and California Plumbing Code (CPC).
- B. Use of Permanent Water System: Permanent water system may be used for construction water after completion, sterilization, testing and inspection of system and approval by City Engineer and authorities having jurisdiction.
- C. Use trigger-operated nozzles for water hoses, to avoid waste of water.

1.08 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.
- B. Use of existing facilities is not permitted.
- C. Maintain daily in clean and sanitary condition.
- D. At end of construction, return facilities to same or better condition as originally found.

1.09 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
- B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.
- C. Contractor shall obtain the Owner's written permission for locations and types of temporary barriers and enclosures, including fire-rated materials proposed for use, prior to their installation.
- D. Contractor shall provide and maintain temporary enclosures to prevent public entry and to protect persons using other buildings and portions of the Site and/or Premises, the public, and workers. Contractor shall also protect the Work and existing facilities from the elements, and adjacent construction and improvements, persons, and trees and plants from damage and injury from demolition and construction operations.
- E. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.
- F. Contractor shall provide site access to existing facilities for persons using other buildings and portions of the Site, the public, and for deliveries and other services and activities.

1.10 FENCING

- A. Provide 6 foot (1.8 m) high fence commercial grade chain link fence around construction site; equip with vehicular and pedestrian gates with locks.

1.11 INTERIOR ENCLOSURES

- A. Provide temporary partitions and ceilings as indicated to separate work areas from City occupied areas, to prevent penetration of dust and moisture into City occupied areas, and to prevent damage to existing materials and equipment.
- B. Construction: Framing and reinforced polyethylene sheet materials with closed joints and sealed edges at intersections with existing surfaces.

1.12 SECURITY - SEE SECTION 01 35 53

- A. Provide security and facilities to protect Work, existing facilities, and City's operations from unauthorized entry, vandalism, or theft.

1.13 VEHICULAR ACCESS AND PARKING

- A. Coordinate access and haul routes with governing authorities and City.
- B. Provide and maintain access to fire hydrants, free of obstructions.
- C. Provide means of removing mud from vehicle wheels before entering streets.
- D. Provide temporary parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking and coordinate with City.
- E. Existing parking areas within staging area may be used for construction parking. If additional parking is needed, coordinate with City.

1.14 WASTE REMOVAL

- A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.
- B. Provide containers with lids. Remove trash from site periodically.
- C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.
- D. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.15 PROJECT IDENTIFICATION

- A. Not required for this project.

1.16 FIELD OFFICES

- A. The City will provide office space on the first floor within the Police Building for contractor field offices. Trailer is not required but may be provided at contractor's option.
- B. Utilities: See paragraph 1.03 for use of utilities.
- C. See drawings for identification of contractor staging area.

1.17 TEMPORARY CONTROLS:

- A. Noise Control
 - 1. Contractor acknowledges that portions basement, 1st and 2nd floors will remain in operation during all or a portion of the Work period, and it shall take all reasonable precautions to minimize noise as required by applicable laws and the Contract Documents.
 - 2. Notice of proposed noisy operations, including without limitation, operation of pneumatic demolition tools, concrete saws, and other equipment, shall be submitted to the City a minimum of forty-eight (48) hours in advance of their performance.
- B. Noise and Vibration
 - 1. Equipment and impact tools shall have intake and exhaust mufflers.
 - 2. Contractor shall cooperate with City to minimize and/or cease the use of noisy and vibratory equipment if that equipment becomes objectionable by its longevity.
- C. Dust and Dirt
 - 1. Contractor shall conduct demolition and construction operations to minimize the generation of dust and dirt, and prevent dust and dirt from interfering with the progress of the Work and from accumulating in the Work and adjacent areas including, without limitation, occupied facilities.
 - 2. Contractor shall ensure that all hauling equipment and trucks carrying loads of soil or debris shall have their loads sprayed with water or covered with tarpaulins, and as otherwise required by local and state ordinance.

3. Contractor shall prevent dust and dirt from accumulating on walks, roadways, parking areas, and planting, and from washing into sewer and storm drain lines.

D. Water

1. Contractor shall not permit surface and subsurface water, and other liquids, to accumulate in or about the vicinity of the Premises. Should accumulation develop, Contractor shall control the water or other liquid, and suitably dispose of it by means of temporary pumps, piping, drainage lines, troughs, ditches, dams, or other methods.

E. Pollution

1. No burning of refuse, debris, or other materials shall be permitted on or in the vicinity of the Premises.
2. Contractor shall comply with applicable regulatory requirements and anti-pollution ordinances during the conduct of the Work including, without limitation, demolition, construction, and disposal operations.

F. Lighting

1. If portable lights are used after dark, all light must be located so as not to direct light into neighboring property.

G. Parking

1. Parking locations for Contractor and sub-contractor employees and company vehicles shall be designated by the City Engineer.

1.18 PUBLICITY RELEASES:

- A. Contractor shall not release any information, story, photograph, plan, or drawing relating information about the Project to anyone, including press and other public communications medium, including, without limitation, on website(s).

1.19 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, materials, prior to Date of Substantial Completion inspection.
- B. Clean and repair damage caused by installation or use of temporary work.
- C. Restore existing facilities used during construction to original condition.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

**SECTION 01 57 19
TEMPORARY ENVIRONMENTAL CONTROLS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Construction procedures to promote adequate indoor air quality during and after construction.
- B. Building flush-out after construction and before occupancy.

1.02 PROJECT GOALS

- A. Dust and Airborne Particulates: Prevent deposition of dust and other particulates in HVAC ducts and equipment.
 - 1. Cleaning of ductwork is not contemplated under this Contract.
 - 2. Contractor shall bear the cost of cleaning required due to failure to protect ducts and equipment from construction dust.
 - 3. Establish condition of existing ducts and equipment prior to start of alterations.
- B. Airborne Contaminants: Procedures and products have been specified to minimize indoor air pollutants.
 - 1. Furnish products meeting the specifications.
 - 2. Avoid construction practices that could result in contamination of installed products leading to indoor air pollution.

1.03 RELATED REQUIREMENTS

- A. Section 01 40 00 - Quality Requirements: Testing and inspection services.
- B. Section 01 61 16 - Volatile Organic Compound (VOC) Content Restrictions.
- C. Section 23 05 93 - Testing, Adjusting, and Balancing for HVAC: Testing HVAC systems for proper air flow rates, adjustment of dampers and registers, and settings for equipment.

1.04 REFERENCE STANDARDS

- A. SMACNA (OCC) - IAQ Guidelines for Occupied Buildings Under Construction 2007.

1.05 DEFINITIONS

- A. Adsorptive Materials: Gypsum board, acoustical ceiling tile and panels, carpet and carpet tile, fabrics, fibrous insulation, and other similar products.
- B. Contaminants: Gases, vapors, regulated pollutants, airborne mold and mildew, and the like, as specified.
- C. Particulates: Dust, dirt, and other airborne solid matter.
- D. Wet Work: Concrete, plaster, coatings, and other products that emit water vapor or volatile organic compounds during installation, drying, or curing.

1.06 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Indoor Air Quality Management Plan: Describe in detail measures to be taken to promote adequate indoor air quality upon completion; use SMACNA (OCC) as a guide.
 - 1. Submit within 35 calendar days of date of notice to proceed, or prior to significant demolition work whichever is sooner.
 - 2. Identify potential sources of odor and dust.
 - 3. Identify construction activities likely to produce odor or dust.
 - 4. Identify areas of project potentially affected, especially occupied areas.
 - 5. Evaluate potential problems by severity and describe methods of control.
 - 6. Describe construction ventilation to be provided, including type and duration of ventilation, use of permanent HVAC systems, types of filters and schedule for replacement of filters.
 - 7. Describe cleaning and dust control procedures.
- C. Interior Finishes Installation Schedule: Identify each interior finish that either generates odors, moisture, or vapors or is susceptible to adsorption of odors and vapors, and indicate air

handling zone, sequence of application, and curing times.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Low VOC Materials: See other sections for specific requirements for materials with low VOC content.

PART 3 EXECUTION

3.01 CONSTRUCTION PROCEDURES

- A. Prevent the absorption of moisture and humidity by adsorptive materials by:
 - 1. Sequencing the delivery of such materials so that they are not present in the building until wet work is completed and dry.
 - 2. Delivery and storage of such materials in fully sealed moisture-impermeable packaging.
 - 3. Provide sufficient ventilation for drying within reasonable time frame.
- B. Begin construction ventilation at start of construction.
- C. If extremely dusty or dirty work must be conducted inside the building, shut down HVAC systems for the duration; remove dust and dirt completely before restarting systems.
- D. When working in a portion of an occupied building, prevent movement of air from construction area to occupied area.
- E. Use of HVAC equipment and ductwork for ventilation during construction is not permitted:
 - 1. Provide temporary ventilation equivalent to 1.5 air changes per hour, minimum.
 - 2. Exhaust directly to outside.
 - 3. Seal HVAC air inlets and outlets immediately after duct installation.
- F. Do not store construction materials or waste in mechanical or electrical rooms.
- G. Prior to use of return air ductwork without intake filters clean up and remove dust and debris generated by construction activities.
 - 1. Inspect duct intakes, return air grilles, and terminal units for dust.
 - 2. Clean plenum spaces, including top sides of lay-in ceilings, outsides of ducts, tops of pipes and conduit.
 - 3. Clean tops of doors and frames.
 - 4. Clean mechanical and electrical rooms, including tops of pipes, ducts, and conduit, equipment, and supports.
 - 5. Clean return plenums of air handling units.
 - 6. Remove intake filters last, after cleaning is complete.
- H. Do not perform dusty or dirty work after starting use of return air ducts without intake filters.
- I. Use other relevant recommendations of SMACNA (OCC) for avoiding unnecessary contamination due to construction procedures.

3.02 BUILDING FLUSH-OUT

- A. Contractor's Option: Either full continuous flush-out OR satisfactory air contaminant testing is required, not both.
- B. Perform building flush-out before occupancy.
- C. Do not start flush-out until:
 - 1. All construction is complete.
 - 2. HVAC systems have been tested, adjusted, and balanced for proper operation.
 - 3. Inspection of inside of return air ducts and terminal units confirms that cleaning is not necessary.
 - 4. New HVAC filtration media have been installed.
- D. Building Flush-Out: Operate all ventilation systems at normal flow rates with 100 percent outside air until a total air volume of 14,000 cubic feet per square foot (4500 cubic meters per square meter) of floor area has been supplied.

Stockton Police HQ Women's Locker Room Remodel

1. Obtain City's concurrence that construction is complete enough before beginning flush-out.
 2. Maintain interior temperature of at least 60 degrees F (15 degrees C) and interior relative humidity no higher than 60 percent.
 3. If additional construction involving materials that produce particulates or any of the specified contaminants is conducted during flush-out, start flush-out over.
 4. If interior spaces must be occupied prior to completion of the flush-out, supply a minimum of 25 percent of the total air volume prior to occupancy, and:
 - a. Begin ventilation at least three hours prior to daily occupancy.
 - b. Continue ventilation during all occupied periods.
 - c. Provide minimum outside air volume of 0.30 cfm per square foot (0.0015 cu m/s/sq m) or design minimum outside air rate, whichever is greater.
- E. Install new HVAC filtration media after completion of flush-out and before occupancy or further testing.

END OF SECTION

This page intentionally left blank

**SECTION 01 60 00
PRODUCT REQUIREMENTS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Re-use of existing products.
- B. Transportation, handling, storage and protection.
- C. Product option requirements.
- D. Substitution limitations.
- E. Procedures for City-supplied products.
- F. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 RELATED REQUIREMENTS

- A. Section 01 10 00 - Summary of Work: Identification of City-supplied products.
- B. Section 01 25 00 - Substitution Procedures: Substitutions made during procurement and/or construction phases.
- C. Section 01 61 16 - Volatile Organic Compound (VOC) Content Restrictions: Requirements for VOC-restricted product categories.
- D. Section 01 74 19 - Construction Waste Management and Disposal: Waste disposal requirements potentially affecting product selection, packaging and substitutions.

1.03 SUBMITTALS

- A. Proposed Products List: Submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
 - 1. Submit within 10 calendar days from the date the Notice of Award.
- B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- C. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
 - 1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS

- A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by Contract Documents.
- B. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the City, or otherwise indicated as to remain the property of the City, become the property of the Contractor; remove from site.
- C. Plumbing fixtures and toilet accessories in Men's Restroom 23 shall be salvaged and returned to City.

2.02 NEW PRODUCTS

- A. Provide new products unless specifically required or permitted by Contract Documents.
- B. Use of products having any of the following characteristics is not permitted:
 - 1. Made using or containing CFC's or HCFC's.
 - 2. Made of wood from newly cut old growth timber.
 - 3. Containing lead, cadmium, or asbestos.

- C. Where other criteria are met, Contractor shall give preference to products that:
 - 1. If used on interior, have lower emissions, as defined in Section 01 61 16.
 - 2. If wet-applied, have lower VOC content, as defined in Section 01 61 16.

2.03 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.04 MAINTENANCE MATERIALS

- A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.
- B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTION LIMITATIONS

- A. See Section 01 25 00 - Substitution Procedures.

3.02 OWNER-SUPPLIED PRODUCTS

- A. See Section 01 10 00 - Summary of Work for identification of City-supplied products.

3.03 TRANSPORTATION AND HANDLING

- A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.
- B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.
- C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- D. Transport and handle products in accordance with manufacturer's instructions.
- E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.
- H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.04 STORAGE AND PROTECTION

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication. See Section 01 74 19.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.
- E. For exterior storage of fabricated products, place on sloped supports above ground.
- F. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.

- G. Comply with manufacturer's warranty conditions, if any.
- H. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- I. Prevent contact with material that may cause corrosion, discoloration, or staining.
- J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

This page intentionally left blank

SECTION 01 61 16
VOLATILE ORGANIC COMPOUND (VOC) CONTENT RESTRICTIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Requirements for Indoor-Emissions-Restricted products.
- B. Requirements for VOC-Content-Restricted products.
- C. Requirement for installer certification that they did not use any non-compliant products.

1.02 RELATED REQUIREMENTS

- A. Section 01 30 00 - Administrative Requirements: Submittal procedures.
- B. Section 01 40 00 - Quality Requirements: Procedures for testing and certifications.
- C. Section 01 57 19 - Temporary Environmental Controls: Procedures and testing.
- D. Section 01 60 00 - Product Requirements: Fundamental product requirements, substitutions and product options, delivery, storage, and handling.

1.03 DEFINITIONS

- A. Indoor-Emissions-Restricted Products: All products in the following product categories, whether specified or not:
 - 1. Interior paints and coatings applied on site.
 - 2. Interior adhesives and sealants applied on site, including flooring adhesives.
 - 3. Flooring.
 - 4. Composite wood.
 - 5. Products making up wall and ceiling assemblies.
 - 6. Thermal and acoustical insulation.
- B. VOC-Content-Restricted Products: All products in the following product categories, whether specified or not:
 - 1. Interior paints and coatings applied on site.
 - 2. Interior adhesives and sealants applied on site, including flooring adhesives.
- C. Interior of Building: Anywhere inside the exterior weather barrier.
- D. Adhesives: All gunnable, trowelable, liquid-applied, and aerosol adhesives, whether specified or not; including flooring adhesives, resilient base adhesives, and pipe jointing adhesives.
- E. Sealants: All gunnable, trowelable, and liquid-applied joint sealants and sealant primers, whether specified or not; including firestopping sealants and duct joint sealers.
- F. Inherently Non-Emitting Materials: Products composed wholly of minerals or metals, unless they include organic-based surface coatings, binders, or sealants; and specifically the following:
 - 1. Concrete.
 - 2. Clay brick.
 - 3. Metals that are plated, anodized, or powder-coated.
 - 4. Glass.
 - 5. Ceramics.
 - 6. Solid wood flooring that is unfinished and untreated.

1.04 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency current edition.
- B. ASTM D3960 - Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings 2005 (Reapproved 2018).
- C. CAL (CDPH SM) - Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions From Indoor Sources Using Environmental Chambers 2017, v1.2.
- D. CARB (ATCM) - Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products; California Air Resources Board current edition.

- E. CARB (SCM) - Suggested Control Measure for Architectural Coatings; California Air Resources Board 2007.
- F. CHPS (HPPD) - High Performance Products Database Current Edition at www.chps.net/.
- G. CRI (GLP) - Green Label Plus Testing Program - Certified Products Current Edition.
- H. SCAQMD 1113 - Architectural Coatings 1977 (Amended 2016).
- I. SCAQMD 1168 - Adhesive and Sealant Applications 1989 (Amended 2017).
- J. SCS (CPD) - SCS Certified Products Current Edition.
- K. UL (GGG) - GREENGUARD Gold Certified Products Current Edition.

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: For each VOC-restricted product used in the project, submit evidence of compliance.
- C. Installer Certifications Regarding Prohibited Content: Require each installer of any type of product (not just the products for which VOC restrictions are specified) to certify that either 1) no adhesives, joint sealants, paints, coatings, or composite wood or agrifiber products have been used in the installation of installer's products, or 2) that such products used comply with these requirements.

1.06 QUALITY ASSURANCE

- A. Indoor Emissions Standard and Test Method: CAL (CDPH SM), using Standard Private Office exposure scenario and the allowable concentrations specified in the method, and range of total VOC's after 14 days.
 - 1. Wet-Applied Products: State amount applied in mass per surface area.
 - 2. Paints and Coatings: Test tinted products, not just tinting bases.
 - 3. Evidence of Compliance: Acceptable types of evidence are the following;
 - a. Current UL (GGG) certification.
 - b. Current SCS (CPD) Floorscore certification.
 - c. Current SCS (CPD) Indoor Advantage Gold certification.
 - d. Current listing in CHPS (HPPD) as a low-emitting product.
 - e. Current CRI (GLP) certification.
 - f. Test report showing compliance and stating exposure scenario used.
 - 4. Product data submittal showing VOC content is NOT acceptable evidence.
 - 5. Manufacturer's certification without test report by independent agency is NOT acceptable evidence.
- B. VOC Content Test Method: 40 CFR 59, Subpart D (EPA Method 24), or ASTM D3960, unless otherwise indicated.
 - 1. Evidence of Compliance: Acceptable types of evidence are:
 - a. Report of laboratory testing performed in accordance with requirements.
- C. Composite Wood Emissions Standard: CARB (ATCM) for ultra-low emitting formaldehyde (ULEF) resins.
 - 1. Evidence of Compliance: Acceptable types of evidence are:
 - a. Current SCS "No Added Formaldehyde (NAF)" certification; www.scs-certified.com.
 - b. Report of laboratory testing performed in accordance with requirements.
 - c. Published product data showing compliance with requirements.
- D. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.

PART 2 PRODUCTS

2.01 MATERIALS

- A. All Products: Comply with the most stringent of federal, State, and local requirements, or these specifications.

- B. Indoor-Emissions-Restricted Products: Comply with Indoor Emissions Standard and Test Method, except for:
 - 1. Composite Wood, Wood Fiber, and Wood Chip Products: Comply with Composite Wood Emissions Standard or contain no added formaldehyde resins.
 - 2. Inherently Non-Emitting Materials.
- C. VOC-Content-Restricted Products: VOC content not greater than required by the following:
 - 1. Adhesives, Including Flooring Adhesives: SCAQMD 1168 Rule.
 - 2. Joint Sealants: SCAQMD 1168 Rule.
 - 3. Paints and Coatings: Each color; most stringent of the following:
 - a. 40 CFR 59, Subpart D.
 - b. SCAQMD 1113 Rule.
 - c. CARB (SCM).

PART 3 EXECUTION

3.01 FIELD QUALITY CONTROL

- A. City reserves the right to reject non-compliant products, whether installed or not, and require their removal and replacement with compliant products at no extra cost to City.
- B. Additional costs to restore indoor air quality due to installation of non-compliant products will be borne by Contractor.

END OF SECTION

This page intentionally left blank

**SECTION 01 70 00
EXECUTION AND CLOSEOUT REQUIREMENTS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Examination, preparation, and general installation procedures.
- B. Requirements for alterations work, including selective demolition.
- C. Cutting and patching.
- D. Cleaning and protection.
- E. Demonstration and instruction of City personnel.
- F. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.

1.02 RELATED REQUIREMENTS

- A. Section 01 10 00 - Summary of Work: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated materials.
- B. Section 01 30 00 - Administrative Requirements: Submittals procedures, Electronic document submittal service.
- C. Section 01 40 00 - Quality Requirements: Testing and inspection procedures.
- D. Section 01 50 00 - Temporary Facilities and Controls: Temporary exterior enclosures.
- E. Section 01 74 19 - Construction Waste Management and Disposal: Additional procedures for trash/waste removal, recycling, salvage, and reuse.
- F. Section 01 78 00 - Closeout Submittals: Project record documents, operation and maintenance data, warranties, and bonds.
- G. Section 01 91 13 - General Commissioning Requirements: Contractor's responsibilities in regard to commissioning.

1.03 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
 - 1. Structural integrity of any element of Project.
 - 2. Integrity of weather exposed or moisture resistant element.
 - 3. Efficiency, maintenance, or safety of any operational element.
 - 4. Visual qualities of sight exposed elements.
 - 5. Work of City or separate Contractor.

1.04 QUALIFICATIONS

- A. For demolition work, employ a firm specializing in the type of work required.

1.05 PROJECT CONDITIONS

- A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- B. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.
 - 1. Provide dust-proof enclosures to prevent entry of dust generated outdoors.
 - 2. Provide dust-proof barriers between construction areas and areas continuing to be occupied by City.
- C. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.

1.06 COORDINATION

- A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Notify affected utility companies and comply with their requirements.
- C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- F. Coordinate completion and clean-up of work of separate sections.
- G. After City occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of City's activities.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.
- C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 LAYING OUT THE WORK

- A. Promptly notify Architect of any discrepancies discovered.

- B. Promptly report to Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
- C. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect.
- D. Periodically verify layouts by same means.
- E. Maintain a complete and accurate log of control and survey work as it progresses.

3.04 GENERAL INSTALLATION REQUIREMENTS

- A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.05 ALTERATIONS

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
 - 1. Verify that construction and utility arrangements are as indicated.
 - 2. Report discrepancies to Architect before disturbing existing installation.
 - 3. Beginning of alterations work constitutes acceptance of existing conditions.
- B. Remove existing work as indicated and as required to accomplish new work.
 - 1. Remove items indicated on drawings.
 - 2. Relocate items indicated on drawings.
 - 3. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
 - 4. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.
- C. Services (Including but not limited to HVAC, Plumbing, Fire Protection, and Electrical):
Remove, relocate, and extend existing systems to accommodate new construction.
 - 1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
 - 2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
 - 3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
 - a. Disable existing systems only to make switchovers and connections; minimize duration of outages.
 - b. Provide temporary connections as required to maintain existing systems in service.
 - 4. Verify that abandoned services serve only abandoned facilities.
 - 5. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.
- D. Protect existing work to remain.
 - 1. Prevent movement of structure; provide shoring and bracing if necessary.
 - 2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
 - 3. Repair adjacent construction and finishes damaged during removal work.

- E. Adapt existing work to fit new work: Make as neat and smooth transition as possible.
- F. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.
- G. Refinish existing surfaces as indicated:
 - 1. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.
 - 2. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.
- H. Clean existing systems and equipment.
- I. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.
- J. Do not begin new construction in alterations areas before demolition is complete.
- K. Comply with all other applicable requirements of this section.

3.06 CUTTING AND PATCHING

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. See Alterations article above for additional requirements.
- C. Perform whatever cutting and patching is necessary to:
 - 1. Complete the work.
 - 2. Fit products together to integrate with other work.
 - 3. Provide openings for penetration of mechanical, electrical, and other services.
 - 4. Match work that has been cut to adjacent work.
 - 5. Repair areas adjacent to cuts to required condition.
 - 6. Repair new work damaged by subsequent work.
 - 7. Remove samples of installed work for testing when requested.
 - 8. Remove and replace defective and non-complying work.
- D. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
- E. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- F. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
- G. Restore work with new products in accordance with requirements of Contract Documents.
- H. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- I. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 84 00, to full thickness of the penetrated element.
- J. Patching:
 - 1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
 - 2. Match color, texture, and appearance.
 - 3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

3.07 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.08 PROTECTION OF INSTALLED WORK

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- G. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

3.09 DEMONSTRATION AND INSTRUCTION

- A. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment location.
- B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
- C. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of Owner's personnel.

3.10 ADJUSTING

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.11 FINAL CLEANING

- A. Use cleaning materials that are nonhazardous.
- B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.
- D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- E. Clean filters of operating equipment.
- F. Clean site; sweep paved areas, rake clean landscaped surfaces.
- G. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.12 CLOSEOUT PROCEDURES

- A. Make submittals that are required by governing or other authorities.

- B. Accompany City Engineer on preliminary inspection to determine items to be listed for completion or correction in the Contractor's Correction Punch List for Contractor's Notice of Substantial Completion.
- C. Notify Architect when work is considered ready for Architect's Substantial Completion inspection.
- D. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's Substantial Completion inspection.
- E. Conduct Substantial Completion inspection and create Final Correction Punch List containing Architect's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Architect.
- F. Correct items of work listed in Final Correction Punch List and comply with requirements for access to City-occupied areas.
- G. Notify Architect when work is considered finally complete and ready for Architect's Substantial Completion final inspection.
- H. Complete items of work determined by Architect listed in executed Certificate of Substantial Completion.

END OF SECTION

**SECTION 01 74 19
CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Administrative and procedural requirements for the following:
 - 1. Salvaging non-hazardous construction waste.
 - 2. Recycling non-hazardous construction waste.
 - 3. Disposing of non-hazardous construction waste.
- B. City required form for waste management.

1.02 WASTE MANAGEMENT REQUIREMENTS

- A. City requires that this project generate the least amount of trash and waste possible.
- B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.
- C. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.
- D. Required Recycling, Salvage, and Reuse: The following may not be disposed of in landfills or by incineration:
 - 1. Aluminum and plastic beverage containers.
 - 2. Corrugated cardboard.
 - 3. Wood pallets.
 - 4. Clean dimensional wood.
 - 5. Metals, including packaging banding, metal studs, sheet metal, structural steel, piping, reinforcing bars, door frames, and other items made of steel, iron, galvanized steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.
- E. Contractor shall submit periodic Waste Disposal Reports; all landfill disposal, incineration, recycling, salvage, and reuse must be reported regardless of to whom the cost or savings accrues; use the same units of measure on all reports.
- F. Contractor shall develop and follow a Waste Management Plan designed to implement these requirements.
- G. Methods of trash/waste disposal that are not acceptable are:
 - 1. Burning on the project site.
 - 2. Burying on the project site.
 - 3. Dumping or burying on other property, public or private.
 - 4. Other illegal dumping or burying.
- H. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, state and local requirements, pertaining to legal disposal of all construction and demolition waste materials.

1.03 RELATED REQUIREMENTS

- A. Instructions to Bidders.
- B. Section 01 10 00 - Summary of Work: List of items to be salvaged from the existing building for relocation in project or for City.
- C. Section 01 30 00 - Administrative Requirements: Additional requirements for project meetings, reports, submittal procedures, and project documentation.
- D. Section 01 50 00 - Temporary Facilities and Controls: Additional requirements related to trash/waste collection and removal facilities and services.
- E. Section 01 60 00 - Product Requirements: Waste prevention requirements related to delivery, storage, and handling.
- F. Section 01 70 00 - Execution and Closeout Requirements: Trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.

1.04 DEFINITIONS

- A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.
- B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.
- C. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.
- D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.
- E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.
- F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.
- G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.
- H. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
- I. Return: To give back reusable items or unused products to vendors for credit.
- J. Reuse: To reuse a construction waste material in some manner on the project site.
- K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.
- L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.
- M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.
- N. Toxic: Poisonous to humans either immediately or after a long period of exposure.
- O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.
- P. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Construction and Demolition Recycling Plan: After receiving a Notice to Proceed, the contractor is required to complete and submit a Construction/Demolition (C&D) Recycling Plan. The contractor must submit the C&D Plan to the City of Stockton Public Works Department, Solid Waste & Recycling Division, 22 E. Weber Avenue, Room 301, Stockton, CA 95202.
- C. Construction and Demolition Debris Recycling Report: within 60 days after completion of the construction or demolition project, the contractor must submit the Construction / Demolition (C&D) recycling report. The completed form must be accompanied by the official weight tags or disposal receipts, verifying the information provided in the report. The C&D Report, together with all weight tickets and receipts, must then be submitted to the City of Stockton Public Works Department, Solid Waste & Recycling Division, 22 E. Weber Avenue, Room 301, Stockton, CA 95202.
- D. Submit Waste Management Plan within 10 calendar days after receipt of Notice of Award of Bid and prior to Preconstruction Meeting, whichever occurs sooner; submit projection of all trash and waste that will require disposal and alternatives to landfilling.
- E. Waste Management Plan: Include the following information:
 - 1. Analysis of the trash and waste projected to be generated during the entire project construction cycle, including types and quantities.

2. Landfill Options: The name, address, and telephone number of the landfill(s) where trash/waste will be disposed of, the applicable landfill tipping fee(s), and the projected cost of disposing of all project trash/waste in the landfill(s).
 3. Landfill Alternatives: List all waste materials that will be diverted from landfills by reuse, salvage, or recycling.
 4. Meetings: Describe regular meetings to be held to address waste prevention, reduction, recycling, salvage, reuse, and disposal.
 5. Materials Handling Procedures: Describe the means by which materials to be diverted from landfills will be protected from contamination and prepared for acceptance by designated facilities; include separation procedures for recyclables, storage, and packaging.
 6. Transportation: Identify the destination and means of transportation of materials to be recycled; i.e. whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler.
- F. Waste Disposal Reports: Submit at specified intervals, with details of quantities of trash and waste, means of disposal or reuse, and costs; show both totals to date and since last report.
1. Submit updated Report with each Application for Progress Payment; failure to submit Report will delay payment.
 2. Submit Report on a form acceptable to City.
 3. Landfill Disposal: Include the following information:
 - a. Identification of material.
 - b. Amount, in tons or cubic yards (cubic meters), of trash/waste material from the project disposed of in landfills.
 - c. State the identity of landfills, total amount of tipping fees paid to landfill, and total disposal cost.
 - d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
 4. Recycled and Salvaged Materials: Include the following information for each:
 - a. Identification of material, including those retrieved by installer for use on other projects.
 - b. Amount, in tons or cubic yards (cubic meters), date removed from the project site, and receiving party.
 - c. Transportation cost, amount paid or received for the material, and the net total cost or savings of salvage or recycling each material.
 - d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
 - e. Certification by receiving party that materials will not be disposed of in landfills or by incineration.
 5. Material Reused on Project: Include the following information for each:
 - a. Identification of material and how it was used in the project.
 - b. Amount, in tons or cubic yards (cubic meters).
 - c. Include weight tickets as evidence of quantity.
 6. Other Disposal Methods: Include information similar to that described above, as appropriate to disposal method.
- G. Waste Reduction Calculations: Before request for final payment, submit copies of calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.
- H. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
- I. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- J. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

- K. Landfill Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

1.06 WASTE MANAGEMENT PLAN

- A. General: Develop plan consisting of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.
- B. Waste Identification: Indicate anticipated types and quantities of site-clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
 - 1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
 - 2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
 - 3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
 - 4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
 - 5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
 - 6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.

PART 2 PRODUCTS

2.01 PRODUCT SUBSTITUTIONS

- A. See Section 01 60 00 - Product Requirements for substitution submission procedures.
- B. For each proposed product substitution, submit the following information in addition to requirements specified in Section 01 60 00:
 - 1. Relative amount of waste produced, compared to specified product.
 - 2. Cost savings on waste disposal, compared to specified product, to be deducted from the Contract Price.
 - 3. Proposed disposal method for waste product.
 - 4. Markets for recycled waste product.

PART 3 EXECUTION

3.01 WASTE MANAGEMENT PROCEDURES

- A. See Section 01 30 00 for additional requirements for project meetings, reports, submittal procedures, and project documentation.
- B. See Section 01 50 00 for additional requirements related to trash/waste collection and removal facilities and services.
- C. See Section 01 60 00 for waste prevention requirements related to delivery, storage, and handling.
- D. See Section 01 70 00 for trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.

3.02 WASTE MANAGEMENT PLAN IMPLEMENTATION

- A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract. Job site is to be cleaned up every day.

1. Comply with Section 01 50 00: Temporary Facilities and Controls for operation, termination, and removal requirements.
- B. Manager: Designate an on-site person or persons responsible for instructing workers and overseeing and documenting results of the Waste Management Plan.
- C. Communication: Distribute copies of the Waste Management Plan to job site foreman, each subcontractor, City, and Architect.
- D. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.
 1. Distribute waste management plan to everyone concerned within 3 days of receiving the approved returned submittal.
 2. Distribute waste management plan to entities when they first begin work on site. Review plan procedures and locations established for salvage, recycling, and disposal.
- E. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 1. Designate and label specific areas of Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
 2. Comply with Section 01 50 00: Temporary Facilities and Controls for controlling dust and dirt, environmental protection, and noise control.
- F. Meetings: Discuss trash/waste management goals and issues at project meetings.
 1. Prebid meeting.
 2. Preconstruction meeting.
 3. Regular job-site meetings.
- G. Facilities: Provide specific facilities for separation and storage of materials for recycling, salvage, reuse, return, and trash disposal, for use by all contractors and installers.
 1. Provide containers as required.
 2. Provide adequate space for pick-up and delivery and convenience to subcontractors.
 3. Keep recycling and trash/waste bin areas neat and clean and clearly marked in order to avoid contamination of materials.
- H. Hazardous Wastes: Separate, store, and dispose of hazardous wastes according to applicable regulations.
- I. Recycling: Separate, store, protect, and handle at the site identified recyclable waste products in order to prevent contamination of materials and to maximize recyclability of identified materials. Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials.
- J. Reuse of Materials On-Site: Set aside, sort, and protect separated products in preparation for reuse.
- K. Salvage: Set aside, sort, and protect products to be salvaged for reuse off-site.

END OF SECTION

This page intentionally left blank

**SECTION 01 76 00
ALTERATION PROJECT PROCEDURES**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

- A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
 - 1. General Provisions.
 - 2. Special Provisions.

PART 2 - PRODUCTS

2.01 PRODUCTS FOR PATCHING AND EXTENDING WORK:

- A. New Materials: As specified in the Contract Documents including, without limitation, in the Specifications, Contractor shall match existing products, conditions, and work for patching and extending work.
 - 1. Type and Quality of Existing Products: Contractor shall determine by inspection, by testing products where necessary, by referring to existing conditions, and to the Work as a standard.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Contractor shall verify that demolition is complete and that areas are ready for installation of new Work.
- B. By beginning restoration Work, Contractor acknowledges and accepts the existing conditions.

3.02 PREPARATION

- A. Contractor shall cut, move, or remove items as necessary for access to alterations and renovation Work. Contractor shall replace and restore these at completion.
 - 1. Contractor shall remove unsuitable material not as salvage unless otherwise indicated in the Contract Documents. Unsuitable material may include, without limitation, rotted wood, corroded metals, and deteriorated masonry and concrete. Contractor shall replace materials as specified for finished Work.
 - 2. Contractor shall remove debris and abandoned items from all areas of the Site and from concealed spaces.
 - 3. Contractor shall prepare surface and remove surface finishes to provide for proper installation of new Work and finishes.
 - 4. Contractor shall close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity. Contractor shall insulate ductwork and piping to prevent condensation in exposed areas. Contractor shall insulate building cavities for thermal and/or acoustical protection, as detailed.

3.03 INSTALLATION

- A. Contractor shall coordinate Work of all alternations and renovations to expedite completion and to accommodate City occupancy.
- B. Designated Areas and Finishes: Contractor shall complete all installations in all respects, including operational, mechanical work and electrical work.
- C. Contractor shall remove, cut, and patch Work in a manner to minimize damage and to provide a means of restoring Products and finishes to original or specified condition.
- D. Contractor shall refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material, with a neat transition to adjacent finishes.
- E. Contractor shall install products as specified in the Contract Documents, including without limitation, the Specifications.

3.04 TRANSITIONS:

- A. Where new Work abuts or aligns with existing, Contractor shall perform a smooth and even transition. Patched Work must match existing adjacent work in texture and appearance.
 - 1. When finished surfaces are cut so that a smooth transition with new Work is not possible, Contractor shall terminate existing surface along a straight line at a natural line of division and make a recommendation for resolution to the City and the Architect for review and approval.

3.05 ADJUSTMENTS

- A. Where removal of partitions or walls results in adjacent spaces becoming one, Contractor shall rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.
- B. Where a change of plane of 1/4 inch or more occurs, Contractor shall submit a recommendation for providing a smooth transition to the City and the Architect for review and approval.
- C. Contractor shall trim existing doors as necessary to clear new floor finish and refinish trim as required.
- D. Contractor shall fit Work at penetrations of surfaces.

3.06 REPAIR OF DAMAGED SURFACES

- A. Contractor shall patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.
- B. Contractor shall repair substrate prior to patching finish.

3.07 CULTIVATED AREAS AND OTHER SURFACE IMPROVEMENTS:

- A. Cultivated or planted areas and other surface improvements which are damaged by actions of the Contractor shall be restored by Contractor to their original condition or better, where indicated.
- B. Contractor shall protect and replace, if damaged, all existing guard posts, barricades, and fences.
- C. Contractor shall give special attention to avoid damaging or killing trees, bushes and/or shrubs on the Premises and/or identified in the Contract Documents, including without limitation, the Drawings.

3.08 FINISHES

- A. Contractor shall finish surfaces as specified in the Contract Documents, including without limitations, the provisions of all Divisions of the Specifications.
- B. Contractor shall finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, Contractor shall refinish entire surface to nearest intersections.

3.09 CLEANING:

- A. Contractor shall continually clean the Site and the Premises as indicated in the Contract Documents, including without limitation, the provisions in the Standard Specifications and the Special Provisions.

END OF SECTION

**SECTION 01 78 00
CLOSEOUT SUBMITTALS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Final Cleaning and Adjusting.
- B. Project Record Documents.
- C. Operation and Maintenance Data.
- D. Warranties and bonds.

1.02 RELATED REQUIREMENTS

- A. Section 01 30 00 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.
- B. Section 01 70 00 - Execution and Closeout Requirements: Contract closeout procedures.
- C. Individual Product Sections: Specific requirements for operation and maintenance data.
- D. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

- A. Project Record Documents: Submit documents to Architect with claim for final Application for Payment.
- B. Operation and Maintenance Data:
 - 1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect will review draft and return one copy with comments.
 - 2. For equipment, or component parts of equipment put into service during construction and operated by City, submit completed documents within ten days after acceptance.
 - 3. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect comments. Revise content of all document sets as required prior to final submission.
 - 4. Submit two sets of revised final documents in final form within 10 days after final inspection.
- C. Warranties and Bonds:
 - 1. For equipment or component parts of equipment put into service during construction with City's permission, submit documents within 10 days after acceptance.
 - 2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
 - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 FINAL CLEANING

- A. Contractor shall execute final cleaning prior to final inspection.
- B. Contractor shall clean interior and exterior glass and surfaces exposed to view; remove temporary labels, tape, stains, and foreign substances, polish transparent and glossy surfaces, wax and polish new vinyl floor surfaces, vacuum carpeted and soft surfaces.
- C. Contractor shall clean equipment and fixtures to a sanitary condition.
- D. Contractor shall replace filters of operating equipment.
- E. Contractor shall clean debris from roofs, gutters, down spouts, and drainage systems.
- F. Contractor shall clean Site, sweep paved areas, and rake clean landscaped surfaces.

- G. Contractor shall remove waste and surplus materials, rubbish, and construction facilities from the Site.

3.02 ADJUSTING

- A. Contractor shall adjust operating products and equipment to ensure smooth and unhindered operation

3.03 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Addenda.
 - 3. Change Orders and other modifications to the Contract.
- B. Ensure entries are complete and accurate, enabling future reference by City.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Record Drawings:
 - 1. Legibly mark each item to record actual construction including:
 - a. Measured depths of foundations in relation to finish first floor datum.
 - b. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - c. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - d. Field changes of dimension and detail.
 - e. Details not on original Contract drawings.
 - f. References to related Shop Drawings and modifications.
 - 2. Contractor will provide one set of Record Drawings to Owner.
 - 3. Contractor shall submit all required documents to Owner and/or Architect prior to or with its final Application for Payment.

3.04 OPERATION AND MAINTENANCE DATA

- A. Source Data: For each product or system, list names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
- B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.
- D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.05 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

- A. For Each Product, Applied Material, and Finish.
- B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.
- C. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

3.06 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

- A. For Each Item of Equipment and Each System:
 - 1. Description of unit or system, and component parts.
 - 2. Identify function, normal operating characteristics, and limiting conditions.
 - 3. Include performance curves, with engineering data and tests.

4. Complete nomenclature and model number of replaceable parts.
- B. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.
- C. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.
- D. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- E. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- F. Provide servicing and lubrication schedule, and list of lubricants required.
- G. Include manufacturer's printed operation and maintenance instructions.
- H. Include sequence of operation by controls manufacturer.
- I. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- J. Provide control diagrams by controls manufacturer as installed.
- K. Additional Requirements: As specified in individual product specification sections.

3.07 ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS

- A. Assemble operation and maintenance data into durable manuals for City's personnel use, with data arranged in the same sequence as, and identified by, the specification sections.
- B. Where systems involve more than one specification section, provide separate tabbed divider for each system.
- C. Binders: Commercial quality, 8-1/2 by 11 inch (216 by 280 mm) three D side ring binders with durable plastic covers; 2 inch (50 mm) maximum ring size. When multiple binders are used, correlate data into related consistent groupings.
- D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.
- E. Project Directory: Title and address of Project; names, addresses, and telephone numbers of Architect, Consultants, Contractor and subcontractors, with names of responsible parties.
- F. Tables of Contents: List every item separated by a divider, using the same identification as on the divider tab; where multiple volumes are required, include all volumes Tables of Contents in each volume, with the current volume clearly identified.
- G. Dividers: Provide tabbed dividers for each separate product and system; identify the contents on the divider tab; immediately following the divider tab include a description of product and major component parts of equipment.
- H. Text: Manufacturer's printed data, or typewritten data on 20 pound paper.
- I. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- J. Arrangement of Contents: Organize each volume in parts as follows:
 1. Project Directory.
 2. Table of Contents, of all volumes, and of this volume.
 3. Operation and Maintenance Data: Arranged by system, then by product category.
 - a. Source data.
 - b. Operation and maintenance data.
 - c. Field quality control data.
 - d. Photocopies of warranties and bonds.

3.08 WARRANTIES AND BONDS

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with City's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.
- B. Verify that documents are in proper form, contain full information, and are notarized.
- C. Co-execute submittals when required.
- D. Retain warranties and bonds until time specified for submittal.
- E. Manual: Bind in commercial quality 8-1/2 by 11 inch (216 by 279 mm) three D side ring binders with durable plastic covers.
- F. Cover: Identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor and equipment supplier; and name of responsible company principal.
- G. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item.
- H. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

END OF SECTION

**SECTION 02 41 00
DEMOLITION**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Selective demolition of building elements for alteration purposes including removal of hazardous materials.

1.02 RELATED REQUIREMENTS

- A. Section 01 10 00 - Summary of Work: Limitations on Contractor's use of site and premises.
- B. Section 01 10 00 - Summary of Work: Sequencing and staging requirements.
- C. Section 01 10 00 - Summary of Work: Description of items to be removed by City.
- D. Section 01 10 00 - Summary of Work: Description of items to be salvaged or removed for re-use by Contractor.
- E. Section 01 50 00 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.
- F. Section 01 57 13 - Temporary Erosion and Sediment Control.
- G. Section 01 60 00 - Product Requirements: Handling and storage of items removed for salvage and relocation.
- H. Section 01 70 00 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.
- I. Section 01 74 19 - Construction Waste Management and Disposal: Limitations on disposal of removed materials; requirements for recycling.

1.03 REFERENCE STANDARDS

- A. 29 CFR 1926 - Safety and Health Regulations for Construction Current Edition.
- B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations 2022.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Site Plan: Showing:
 - 1. Areas for temporary construction and field offices.
- C. Demolition Plan: Submit demolition plan as specified by OSHA and local authorities.
 - 1. Indicate extent of demolition, removal sequence, bracing and shoring, and location and construction of barricades and fences.
 - 2. Identify demolition firm and submit qualifications.
 - 3. Include a summary of safety procedures.
- D. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

PART 2 PRODUCTS -- NOT USED

PART 3 EXECUTION

3.01 SCOPE

- A. No site work is included under this project.
- B. Remove portions of existing building within area of work as identified on drawings.
- C. Remove other items indicated, for relocation.

3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

- A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.

1. Obtain required permits.
 2. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
 3. Provide, erect, and maintain temporary barriers and security devices.
 4. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
 5. Do not close or obstruct roadways or sidewalks without permit.
 6. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
 7. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.
- B. Do not begin removal until receipt of notification to proceed from City.
- C. Do not begin removal until built elements to be salvaged or relocated have been removed.
- D. Do not begin removal until vegetation to be relocated has been removed and specified measures have been taken to protect vegetation to remain.
- E. Protect existing structures and other elements that are not to be removed.
1. Provide bracing and shoring.
 2. Prevent movement or settlement of adjacent structures.
 3. Stop work immediately if adjacent structures appear to be in danger.
- F. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.
- G. If hazardous materials are discovered during removal operations, stop work and notify Architect and City; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.
- H. Perform demolition in a manner that maximizes salvage and recycling of materials.
1. Comply with requirements of Section 01 74 19 - Waste Management.
 2. Dismantle existing construction and separate materials.
 3. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.

3.03 EXISTING UTILITIES

- A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.
- D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to City.
- E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to City.
- F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
- G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.
- H. Prepare building demolition areas by disconnecting and capping utilities outside the demolition zone; identify and mark utilities to be subsequently reconnected, in same manner as other utilities to remain.

3.04 SELECTIVE DEMOLITION FOR ALTERATIONS

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
 - 1. Verify that construction and utility arrangements are as indicated.
 - 2. Report discrepancies to Architect before disturbing existing installation.
 - 3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.
- B. Separate areas in which demolition is being conducted from other areas that are still occupied.
 - 1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 50 00 in locations indicated on drawings.
 - 2. Provide sound retardant partitions of construction indicated on drawings in locations indicated on drawings.
- C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
- D. Remove existing work as indicated and as required to accomplish new work.
 - 1. Remove items indicated on drawings.
- E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, and Electrical):
Remove existing systems and equipment as indicated.
 - 1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.
 - 2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
 - 3. Verify that abandoned services serve only abandoned facilities before removal.
 - 4. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification.
- F. Protect existing work to remain.
 - 1. Prevent movement of structure; provide shoring and bracing if necessary.
 - 2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
 - 3. Repair adjacent construction and finishes damaged during removal work.
 - 4. Patch as specified for patching new work.

3.05 DEBRIS AND WASTE REMOVAL

- A. Remove debris, junk, and trash from site.
- B. Remove from site all materials not to be reused on site; comply with requirements of Section 01 74 19 - Waste Management.
- C. Leave site in clean condition, ready for subsequent work.
- D. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

This page intentionally left blank

SECTION 02 83 00

GENERAL ASBESTOS REQUIREMENTS

SECTION 1 – DEFINITIONS

1. Abatement - Procedures beyond a special operations and maintenance program to control fiber release from asbestos-containing materials. Includes removal, encapsulation, enclosure, repair.
2. ACGIH - American Conference of Governmental Industrial Hygienists
3. AHERA - Asbestos Hazard Emergency Response Act (40 CFR 763)
4. AIHA - American Industrial Hygiene Association
5. Air Filtration Device - A portable exhaust system equipped with HEPA filtration and capable of maintaining a constant low velocity air flow into contaminated areas from adjacent uncontaminated areas. At a minimum, the air intake for the air filtration device, must have a pre-filter on it which can be changed within the containment area.
6. Airlock - A system for permitting ingress and egress with minimum air movement between a contaminated area and an uncontaminated area. The airlock shall consist of a minimum of two curtained Z-flap doorways separated by a distance of at least three (3) feet such that one passes through one doorway into the airlock, allowing the doorway sheeting to overlap and close off the opening before proceeding through the second doorway, thereby preventing flow-through contamination.
7. Air Monitoring - The process of measuring the fiber content of a known volume of air collected during a specific period of time. The procedure normally utilized for asbestos follows the NIOSH Standard Analytical Method for Asbestos in Air Method 7400. For clearance air monitoring, transmission electron microscopy methods may be utilized for detection of smaller fibers and specific fiber identification.
8. Air Sampling Professional - The professional contracted or employed by the Owner to supervise and/or conduct air monitoring and analysis schemes. The air sampling professional must be a Cal/OSHA Certified Asbestos Consultant or Certified Site Surveillance Technician. This individual shall not be affiliated in any way other with the contractor performing the abatement work.
9. Ambient Air - The air outside buildings and structures or the air as it normally exists in a space prior to abatement.
10. Amended Water - Water to which a surfactant has been added.
11. ANSI - American National Standards Institute
12. Approval/Acceptance - A written means of approving/accepting a product, containment set-up, work practice. Approval/Acceptance by HMS, Inc. Project Manager may be given verbally, if followed in written format. Failure of HMS, Inc. Project Manager to address an issue either verbally or in writing does not imply Approval/Acceptance.
13. Asbestos - Means the asbestiform varieties of serpentine (chrysotile), riebeckite (crocidolite), cummingtonite grunerite (amosite), anthophyllite, actinolite, and tremolite.
14. Asbestos-Containing Construction Material (ACCM) - Cal/OSHA term used to describe

construction materials that contain asbestos in amounts greater than one-tenth of one percent (0.1%) either alone or mixed with fibrous or non-fibrous materials. With the exception of waste issues, for the purposes of this contract the terms ACM and ACCM shall be interchangeable.

15. Asbestos-Containing Material (ACM) - Term used by Cal/OSHA, and U.S. EPA to include any material containing more than one-percent (1%) asbestos. With the exception of waste issues, for the purposes of this contract the terms ACM and ACCM shall be interchangeable.
16. Asbestos-Containing Hazardous Waste - Materials defined by the State of California to be packaged, labeled, transported, and disposed of as an asbestos hazardous waste. This includes all friable asbestos-containing material over one-percent (1%) asbestos. This also includes all asbestos-containing material containing less than one-percent asbestos for which one or more bulk samples have not been point counted and found to contain less than one-percent (1%) asbestos.
17. Asbestos-Containing Waste Material - Asbestos-containing material or asbestos-contaminated objects requiring disposal.
18. Asbestos Project Manager - An individual who is qualified by virtue of experience and education, designated as the Owner's representative and responsible for overseeing the asbestos abatement portion of the project. This person is generally the same as the HMS, Inc. Project Manager.
19. ASTM - American Society for Testing and Materials
20. Authorized Visitor - The Owner (and any designated representative) and any representative of a regulatory or other agency having jurisdiction over the project.
21. Bidder - A duly licensed and accredited asbestos contractor who has submitted a bid. If bid walk is mandatory, bidder must attend the walk-in order for bid to be considered responsive.
22. Cal/OSHA - California Division of Occupational Safety and Health. Acronym of DOSH is interchangeable with this term.
23. Certified Industrial Hygienist (CIH) - An industrial hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene.
24. Cleaning Barriers - Cleaning barriers are used in addition to critical barriers and are primarily to aid in the decontamination of the area after the completion of asbestos removal work. Cleaning barriers are normally comprised of plastic sheeting placed over non-asbestos-containing surfaces (e.g. walls, floors, ceilings, casework, etc.), and asbestos-containing surfaces not scheduled for removal, in the regulated area.
25. Clean Room - An uncontaminated area or room which is a part of the worker decontamination enclosure system with provisions for storage of workers' street clothes and clean protective equipment. Also, the term includes uncontaminated area or room of a Waste Transfer Airlock.
26. Competent Person - The Contractor's employee who meets the requirements of and is responsible for the activities of the Competent Person as described in Title 8 CCR 1529. The includes but is not limited to an individual who has current AHERA Contractor/Supervisor accreditation and has the responsibility and authority to ensure that the Contractor's employees comply with the contract documents and all relevant Cal/OSHA regulations.
27. Containment - The temporary isolation of the work area from the rest of the building to prevent escape of asbestos fibers.
28. Contract Documents - Written contractual agreements between the Owner and the Contractor that

pertain to the work on this project.

29. Contractor - The Contractor is the person or entity identified as such in the Contract Documents; references to "Contractor" include the Contractor's authorized representative.
30. Contractor/Supervisor - A person who successfully completed an initial U.S. EPA and/or state-approved five-day AHERA-accreditation course and who has maintained that training through approved annual refresher training, and possesses current and valid AHERA-accreditation documentation as an AHERA-accredited Contractor/Supervisor
31. Cal/OSHA Class I, II, III, or IV Work- Work classes described in 8 CCR 1529 that describe different levels of asbestos work.
32. Critical Barrier - Critical Barriers used to restrict water and air flow. Critical Barriers are the barriers placed over openings in the walls and ceilings of a work area in order to ensure that airborne fibers cannot escape the work area via these openings. The Contractor will construct impermeable barriers at all exits or openings, including doorways, duct chases, mechanical shafts, elevator shafts, floor openings, drains, and the like, so that all possible exit or entrance routes are effectively barricaded and sealed. Unless otherwise specified in the Contract documents, critical barriers shall be constructed of at least one layer of 6-mil thick poly.
33. Critical Barrier Negative Pressure Test - Required test for negative pressure with only critical barriers and air filtration units installed. This test must be conducted prior to the installation of cleaning barriers but may be conducted with or without the decontamination unit in place.
34. Curtained Doorway, Z-Flapped - A device to allow ingress or egress from one room to another while permitting minimal air movement between spaces (such as the various rooms of the decontamination chamber). Each Curtained Doorway will consist of three sheets of poly. The first barrier will be a sheet of poly covering the entire passage and taped to the ceiling, walls, and floor. This sheet will be slit vertically in order for the workers to pass through it. Another sheet of poly will cover the first sheet but be taped only to the ceiling (or top of the first barrier) and down one wall. The third sheet of poly will be placed on the opposite side of the slit poly from the second sheet. The third sheet of poly will be attached in a similar manner as the second sheet except the wall attachment will be to the opposite wall. Each barrier must be weighted at the bottom in order to ensure that it will lay flat against the slit sheet opening should the negative pressure system fail. Please see diagram:
35. Decontamination Enclosure System - (Also known as Decon or Waste Transfer Decon) A series of connected rooms designed for the decontamination of workers and equipment that is separated from the work area and from each other by z-flapped curtained doorways. This unit shall be constructed with at least two layers of six-mil poly for the floors, walls, and ceiling. The floor of the dirty room shall consist of two layers of six-mil poly plus a third layer of poly, four-mil or thicker, to be used as a removable drop layer. Drop layer is to be removed as needed, but not less than daily. All decontamination enclosure systems used for worker entry and exit shall be equipped with a shower. At no time shall z-flaps of Decontaminations Enclosure System chambers be taped, held or otherwise blocked open.
36. DOP - Dioctylphthalate particles which are normally used as an agent for testing the efficiency of HEPA filters.
37. Demolition - The wrecking or taking out of any load-supporting structural member, casework, items or surfaces of a facility together with any related handling operations and disposal.
38. Dust or Debris - Material visible to the HMS, Inc. Project Manager. Dust and debris may be contaminated with asbestos, and may affect the asbestos work practices, containment or clearance air samples required on this project, whether contaminated with asbestos or not.
39. Encapsulant, Bridging/Penetrating - A liquid material which can be applied to asbestos-containing

material to control the possible release of asbestos fibers from a material either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant).

40. Encapsulant, Lock-down - A liquid product designed to mist the air within a contained area after the containment has passed visual clearance by the HMS, Inc. Project Manager. Lock-down encapsulant is designed to bind asbestos fibers together and to create a tacky surface causing non-visible asbestos fibers, settling out of the air, to adhere to containment poly.
41. U.S. EPA - U.S. Environmental Protection Agency
42. Equipment Decontamination Enclosure System - That portion of a decontamination enclosure system designed for controlled transfer of materials and equipment into or out of the work area, consisting of a clean room, washroom and holding area.
43. Equipment Room - A contaminated area or room which is part of the worker/equipment decontamination enclosure system with provisions for storage of contaminated clothing and equipment.
44. Exterior of Containment HEPA Filtered Pressure Differential Unit - An air-purifying unit positioned outside, rather than inside the regulated work area. The face, or filter portion of the unit is integrated within the work area, and the remainder of the unit (housing, wheels, rivets, control panel, etc.) is located outside of the work area. This allows filters on the air intake to be changed from within the regulated area but access to the machine itself is available to those outside the area. Pressure differential units which pass DOP testing across the HEPA filter, but fail at rivets, control panels, wheels, etc. may be used in this fashion as long as the failure point of the unit can remain on the exterior of containment while the face of the unit and filters are inside containment.
45. Facility - Any institutional, commercial or industrial structure, installation, or building.
46. Facility Component - Any item (pipe, duct, boiler, tank, reactor, turbine, furnace, etc.) at or in a facility, any portion of a facility or any structural member in or at a facility.
47. Federal OSHA or OSHA - Federal Occupational Safety and Health Administration.
48. Fixed object - A piece of equipment or furniture in the work area which cannot be removed, or will not be removed by Owner's decision, from the work area.
49. Friable asbestos - Asbestos-containing material which, when dry, can be crumbled to dust by hand pressure.
50. Glovebag Technique - A method with limited applications for removing small amounts of friable asbestos-containing materials from ducts, short piping runs, valves, joints, elbows, and other non-planar surfaces. The glovebag assembly is a manufactured or fabricated device consisting of a glovebag (typically constructed of 6 mil transparent polyethylene or polyvinylchloride plastic), two inward projecting long sleeves, an internal tool pouch, and an attached, labeled receptacle for asbestos waste. The glovebag is constructed and installed in such a manner that it surrounds the object or material to be removed and contains all asbestos fibers released during the process. Glovebags must meet the specification requirements for glovebags as listed in 8 CCR 1529. All workers who are permitted to use the glovebag technique must be highly trained, experienced and skilled in this method. All techniques and procedures employed by the contractor shall be approved by the HMS, Inc. Project Manager.
51. HVAC - Heating, ventilation and air conditioning system.
52. HEPA Filter - A high efficiency particulate air filter capable of removing particles 0.3 microns in diameter from an air stream with 99.97% efficiency.
53. HEPA Vacuum - A vacuum system equipped with HEPA filtration.

54. HMS, Inc. Project Manager - An individual, employed by (or sub contracted to) Hazard Management Services, Inc., who is qualified by virtue of experience and education, designated as the Owner's representative and responsible for overseeing the asbestos abatement, and/or other activities.
55. Holding Area - A clean space where clean supplies and equipment are stored before being placed into containment. Also, a contaminated space, adjacent to a shower or equipment washing chamber, where dirty equipment or packaged waste is stored prior to removal from containment.
56. Lock-down - To mist the air and to wet surfaces with an agent designed to bind asbestos fibers together and to create a tacky surface causing non-visible asbestos fibers, settling out of the air, to adhere to containment poly.
57. Magnehelic Gauge - Instrument for measuring the static air-pressure differential across a barrier.
58. Manometer - See "Magnehelic gauge". This project requires at least one properly calibrated and fully functioning recording manometer.
59. Mil - An abbreviation for millimeter. Generally used when referring to the thickness of plastic (poly) sheeting used to contain the regulated area.
60. Mini-Enclosures - Mini-enclosures may be used where glovebag setups are not feasible. The use of them must be approved by the HMS, Inc. Project Manager. Mini-enclosures shall be constructed of six-mil polyethylene (attached with tape and/or glue to walls and floors) and shall be small enough for a maximum of two workers who can enter the enclosure one time, complete the abatement exercise, pass out the containerized debris and exit. The workers shall have available a change room contiguous to the work area where they can remove their coveralls prior to leaving the area.

Monitoring - May include:
 - a) Visual inspection for the presence of visible emissions; or
 - b) Air monitoring performed in accordance with accepted methods;
 - c) Collecting core samples of encapsulated or bridged materials.
 - d) Collecting other bulk samples during and following abatement.
 - e) Sampling substrata following abatement.
 - f) Inspection of abatement contractor's, and contractor's employees, work practices for compliance to these and other specifications and applicable regulations.
61. Movable object - An unattached piece of equipment or furniture in the work area which can be removed from the work area.
62. NVLAP - National Voluntary Laboratory Accreditation Program.
63. NESHAP - The National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61, Nov. 20, 1990)
64. NIOSH - The National Institute for Occupational Safety and Health
65. Outside Air - The air outside of containment. See also Ambient Air.
66. Owner - The Owner includes the individual or entity that owns the property and, unless otherwise stated, the Owner's authorized representatives, including the HMS, Inc. Project Manager, the Owner's Board of Trustees and the Owner's officers, employees, agents and representatives.

67. PCM - Phase contrast microscopy according to NIOSH Method 7400A.
68. Poly - Polyethylene sheeting.
69. Pre-start Meeting - Meeting held before the beginning of the project in which final details of the project are discussed and Contractor provides Project Monitor with pre-job submittal packet.
70. Prior experience - Experience required of the contractor on asbestos projects of similar nature and scope to ensure capability of performing the asbestos abatement in a satisfactory manner. Similarities shall be in areas related to material composition, project size, abatement methods required, number of employees and the engineering, work practice and personal protection controls required.
71. Regulated Area - An area established by a contractor to demarcate areas where the contractor's employees may conduct Class 1, 2, or 3 work as described in 8 CCR 1529 or airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed, the permissible exposure limit. Additionally, "regulated area" means any measure used to restrict access to an area where personnel impacting asbestos-containing materials are required to wear respiratory protection and/or protective clothing by the project specifications, or applicable regulations, regardless of airborne asbestos concentration levels.
72. Regulations - shall include all relevant federal, state, and local regulations including but not limited to:
 - a. U.S. Environmental Protection Agency Regulations for Asbestos (Title 40, Code of Federal Regulations, Part 61, Subparts A & B)
 - b. Title 8, Chapter 4, Subchapters 1 through 21, California Administrative Code, General Industry Safety orders, Section 5208 "Asbestos" or the applicable sections of the Federal Asbestos Regulations. Cal/OSHA Construction Safety Orders, Section 1529.
 - c. "Asbestos Hazard Emergency Response Act", U. S. Environmental Protection Agency, 40 CFR, Part 763. Final Rule and Notice.
 - d. Applicable local county Air Pollution Control Districts and Air Quality Management Districts or other local NESHAPs Enforcement.
73. Removal - The stripping of any asbestos-containing materials from surfaces, substrates or components of a facility. As per various regulations, the ground is considered a substrate.
74. Regulated Area- An area where asbestos-containing materials are going to be disturbed and may release asbestos fibers into the air and whose entrances have been posted. A regulated area is required for all Class I, II, or III work as described in 8 CCR 1529 or whenever the work may release asbestos in concentrations over the OSHA Permissible Exposure Limit (PEL) or Excursion Limit.
75. Renovation - Altering in any way one or more facility components.
76. Scope of Work - Job specific information and specifications used in combination with these Asbestos General Requirements. If conflicts exist between the Scope of Work and these specifications, the stricter requirement will be enforced unless the conflict is specifically addressed in writing in the Scope of Work for this project.
77. Shower Room - A room between the clean room and the equipment room in the decontamination enclosure with hot and cold or warm running water controllable at the tap and suitably arranged for

complete showering during decontamination. The shower room must be equipped with an overflow pan to contain water splashed, leaked or spilled out of the shower unit.

78. Staging Area - The secured area outside of containment where clean equipment and supplies are stored. Waste must not be stored within the staging area unless placed within an additional lockable container or area approved by the HMS, Inc. Project Manager.
79. Strip - To take off friable asbestos materials from any part of a facility.
80. Structural Member - Any load-supporting member of a facility, such as beams and load-supporting walls or any non-load-supporting member, such as ceilings and non-load supporting walls.
81. Submittals - Pre, in-progress and post job documents submitted by contractor to Owner's representative as indicated in General Requirements and Bidding Requirements.
82. Surfactant - A chemical wetting agent added to water to improve penetration.
83. Temporary Enclosure System - A system by where the regulated work area is isolated from the rest of the building or structure in a manner that prevents the escape of airborne asbestos fibers. Also see "Containment"
84. TEM - Transmission Electron Microscopy according to AHERA specifications for Level II analysis on all AHERA projects. Non-AHERA projects may employ other levels of TEM analysis.
85. Visible Emissions - Any emissions, whether containing particulate asbestos material or not, that are visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.
86. Waste Load-out/Transfer System - A decontamination system utilized for transferring containerized waste from inside to outside of the work area. A series of three connected rooms used for the load-out of asbestos-containing materials that have been properly containerized. The waste loadout chamber system shall normally consist of three connected chambers adjacent to the work area. Each chamber shall be constructed with at least two layers of six-mil thick poly for the floors, walls, and ceiling. The chamber located closest to the work area is known as the dirty chamber, and in addition to the two layers of six-mil thick poly on the floor, shall also have a third layer of poly, four-mil or thicker, to be used as a removable drop layer. The drop layer is to be removed as needed but at least daily. The chamber located closest to the outside the work area is known as the clean chamber. See Section 15 for proper use of waste Load-out/Transfer System.
87. Wet cleaning - The process of eliminating asbestos contamination and visible dust and debris from building surfaces and objects by using cloths, mops, or other utensils which have been dampened with water and afterwards thoroughly decontaminating them or disposing of them as asbestos contaminated waste.
88. Work area - Designated rooms, spaces, or areas of the project in which asbestos abatement actions are to be undertaken or which may become contaminated as a result of such abatement actions. A contained work area or temporary enclosure is a work area that is isolated from the rest of the facility by the use of critical barriers and cleaning barriers, a decontamination system, and additional means of signs and barriers to reduce access by unauthorized persons. A contained work area is a work area which has been sealed, polyed, and equipped with a decontamination enclosure system. The work area includes all decontamination chambers, waste transfer system and the abatement area. A non-contained work area is an isolated or controlled-

access work area which has not had poly installed nor been equipped with a decontamination enclosure system.

- 89. Worker - A person who successfully completed an initial U.S. EPA and/or state-approved four-day
- 90. AHERA-accreditation course and who has maintained that training through approved annual refresher training and possesses current and valid AHERA-accreditation documentation as an AHERA-accredited asbestos worker.

SECTION 2 - NOTIFICATIONS, SUBMISSIONS, POSTINGS

2.1 SITE INVESTIGATIONS

By submitting a bid to the primary contractor, and being listed by the primary contractor as the sub-contractor for asbestos related work, the asbestos abatement contractor acknowledges that they have investigated and satisfied themselves as to:

- A) the conditions affecting the work, including but not limited to, physical conditions of the site which may bear upon site access, handling, and storage of tools and materials, access to water, electric, or other utilities, or otherwise affect performance of required activities
- B) the character and quality of all surface and subsurface materials or obstacles to be encountered, in so far as, this information is reasonably ascertainable from an inspection of the site, including exploratory work done by the District or a designated consultant, as well as, information presented in drawings and specifications included with this contract. Any failure by the asbestos abatement contractor to acquaint themselves with available information will not relieve them from the responsibility for estimating properly the difficulty or cost of successfully performing the work. The District is not responsible for any conclusions or interpretations made by the asbestos abatement contractor on the basis of the information made available by the District.

2.2 NOTIFICATION

Prior to commencement of work the Contractor shall send notices of the work to be completed to the agencies listed below with a copy of each to be provided to the Owner or its representative at the pre-start meeting.

For compliance with 40 CFR part 61.146 of Subpart M, send notice at least ten (10) working days prior to start of work to the all of the following appropriate agencies:

EPA, Region 9 Asbestos Program Enforcement 75 Hawthorne Street San Francisco, CA 94105	Chief Compliance Division California Air Resources Board P.O. Box 2815 Sacramento, CA 95812 (for non-EPA delegated counties)
San Joaquin Air Pollution Control District (SJVAPCD) or Local Air Quality Management District (AQMD)	

For compliance with 8 CCR 1529 and 8 CCR 5203, send written notice at least one day prior to start of work to:

State of California

Department of Occupational Safety and Health
District Office

These notices shall include, at a minimum, the name and address of the contractor, the name and address of the worksite, the type of work to be done including the percent asbestos content of the material, the methods used to prevent migration of the fibers, personal protective measures, the number of his workers involved, any union representation of the workers and the methods of disposal including the names and EPA numbers of both the certified hauler and the waste disposal site. The notices shall also include start and finish dates. Changes in start and completion dates shall be reported immediately to the proper agency. Use forms provided by agency whenever possible.

2.31A PRESTART SUBMITTALS - CONTRACTOR

- A. Contractor shall provide a copy of the notification for NESHAP compliance along with a receipt of fees paid.
- B. Contractor shall provide a copy of the notification for Cal/OSHA compliance along with the fax confirmation receipt.
- C. Contractor Notification to Local Hospital, Police, and Fire Department
- D. Contractor shall provide a copy of their active CSLB License with Asbestos Certification.
- E. Contractor shall provide a copy of their active Cal/OSHA (DOSH) registration.
- F. The asbestos abatement contractor shall submit a statement, signed by an officer of the company, containing the following information:
 - 1. A record of any citations issued by Federal, State, or Local regulatory agencies within the last 3 years, relating to asbestos abatement activity. Include projects, dates, and resolutions.
 - 2. A list of penalties incurred through non-compliance with asbestos abatement project specifications, including liquidated damages, overruns in scheduled time limitations, and resolutions.
 - 3. Situations in which an asbestos-related contract has been terminated including projects, dates, and reasons for terminations.
 - 4. A list of any asbestos-related legal proceedings/claims in which the Contractor (or employees scheduled to participate in this project) has participated or is currently involved. Include descriptions or role, issue, and resolution to date.
- G. Submit copies of insurance certificates which meet requirements as outlined below:
 - 1. Contractor shall purchase and maintain insurance that will protect them from claims that may arise out of or result from the activities under this Contract, whether those activities are performed by the asbestos abatement contractor, by any subcontractor, or by anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable.
 - 2. Contractor shall submit proof of coverage for the asbestos abatement contractor and subcontractors under the Worker's Compensation insurance system of the State of California or other similar benefit acts.

City of Stockton Police HQ Women's Locker Rm Remodel

3. Contractor shall submit a certificate of general liability insurance protecting against liability for bodily injury and property damage arising from the asbestos abatement contractor's activities under this contract.

Such certificate of insurance must contain the following provisions:

- (a) The limit of liability shall not be less than \$1,000,000.00 per occurrence for bodily injury and property damage liability combined.
- (b) The Owner, Owner's Agents, and Hazard Management Services, Inc. (HMS, Inc.) must be named as additional insured, but only in respect to liability arising or resulting from activities under this contract.
- (c) In the event of cancellation of the insurance policy, the Owner and HMS, Inc. shall be given thirty days advance written notice.
- (d) The insurance certificate must state that the insurance includes liability coverage for asbestos abatement work.

H. Copy of Contractor's Bonding for Project

- I. Submit proof satisfactory to the Owner that required permits have been acquired applicable to the project being performed and specific to the project site and location. If no city, county, or other permits for parking, waste bin location, or variances for scheduled work hours are required, this should be stated in writing and submitted to the Owner.
- J. Submit Subcontractors information or statement that subcontractors will not be required or used during this project. This statement should also include that if it becomes necessary to use a subcontractor during this project that the subcontractor will not be allowed to perform work until all required documentation has been submitted for review by the Owner or HMS, Inc., and the Contractor receives written approval for use of the subcontractor on this project.
- K. Submit a complete list of all rented equipment, or equipment expected to be rented from an outside contractor for use in "Regulated Areas," "Work Areas," or "Containments," where the equipment may be exposed to elevated levels of airborne asbestos. If no equipment is to be rented a statement should be submitted stating no rental equipment will be used on the project. The statement should also include that, if it becomes necessary to use rented equipment, written statements from each rental company will be provided to the Owner prior to its use, indicating the rental company's acknowledgment that the equipment is provided for and may be used in areas where airborne levels of asbestos may be present.
- L. Submit emergency and non-emergency telephone numbers for the appropriate Police, Hospital, and Fire Departments. This list of numbers shall also include the name, pager or cell phone numbers of the onsite supervisor and his immediate company supervisor.
- M. Submit detailed written directions from the project site to the medical facility to be used in case of an emergency. Also include a map which sufficiently shows the route to be taken from the site to the designated medical facility.
- N. Submit written emergency procedures pertinent to the work to be performed and which can be implemented by site personnel if the need arises.
- O. Submit detailed information on preparation of work area, personal protective equipment, employee experience, training and assigned responsibilities during the project. Also list decontamination procedures for personnel, work area and equipment, abatement methods and procedures, required air monitoring program, procedures for handling and disposing of waste materials and procedures for final

decontamination and cleanup.

- P. Submit a detailed work schedule. The schedule shall have, as a minimum, the work area and the day/month for beginning and terminating work in each work area. During progress of work, it shall be the Contractor's responsibility to keep the schedule current and up to date.
- Q. Submit to the Owner shop drawings, on projects where requested in the Scope of Work, for layout and construction of decontamination enclosure systems and barriers for isolation of the work area as detailed in this specification and required by applicable regulations.
- R. Submit Material Safety Data Sheets (MSDS) for any and all applicable materials, supplies, etc. These documents must be legible and completely reveal information required to be communicated to the Contractor's employees, visitors, and Owner Representatives.
- S. Submit manufacturers' certifications that high efficiency particulate air (HEPA) vacuums, pressure differential units and other local exhaust ventilation equipment conform to ANSI Z9.2-79.

Submit manufacturer's documentation pertaining to the capability of waste water filters to filter particles of 1.0 micron in size.

- T. Submit name of laboratory/person to be used for Phase Contrast Microscopy (PCM) analysis and copy of current NVLAP Certificate of Accreditation (if applicable), and most recent NIOSH Proficiency Analytical Testing Program results.
- U. Submit a written statement that OSHA monitoring will be performed for all asbestos-related activities performed during this project. This statement must be on company letterhead, dated, include name of the site or project being worked on, and signed by an authorized agent of the company performing the asbestos-related work.
- V. With the Owner's representative, inspect the premises wherein all abatement and abatement related activities will occur and submit a statement signed by both, agreeing on building and fixture condition prior to the commencement of work.
- W. Submit a copy of the Contractor's Injury and Illness Prevention Program
- X. Submit a copy of written Respiratory Protection Program

2.31B PRE-START SUBMITTALS-CONTRACTOR WASTE DOCUMENTATION

Section 7, C.

- 1. Submit copy of waste transporters Department of Toxic Substances Control, Hazardous Waste Transporter Registration if hazardous asbestos-containing waste is to be removed during the project. If hazardous asbestos-containing waste will not be generated submit the name, address, and registration information for the waste hauler to be used for transporting the waste.

Section 7, D.

- 1. Submit documentation listing the name and site address of the waste facility designated to receive asbestos-containing waste generated during this project. This documentation shall also include the EPA identification number, and a copy of the current permit authorizing the waste facility to accept and dispose of asbestos-containing waste.

2.31C PRE-START SUBMITTALS-WORKER CERTIFICATIONS (SECTION 5, LETTER B)

City of Stockton Police HQ Women's Locker Rm Remodel

1. Submit documentation satisfactory to the Owner that the Contractor's employees, including foremen, supervisor, and any other company personnel or agents who may be exposed to airborne asbestos fibers or who may be responsible for any aspects of abatement activities, have received required US EPA AHERA training.
2. Submit documentation from physician that all employees or agents who may be exposed to airborne asbestos in excess of background levels, action level, or the PEL have been provided with an opportunity to be medically monitored to determine whether they are physically capable of working while wearing the respirator required without suffering adverse health effects. In addition, document that personnel have received medical monitoring as required by Cal/OSHA regulations. The Contractor must be aware of and provide information to the examining physician about unusual conditions in the workplace environment (e.g., high temperatures, humidity, chemical contaminants) that may impact on the employee's ability to perform work activities.
3. Submit documentation of respirator fit-testing for all Contractor employees and agents who must enter any work area where asbestos-containing materials may or will be impacted. This fit-testing shall be in accordance with qualitative or quantitative procedures as required by OSHA regulations or be quantitative in nature. Documentation pertaining to NIOSH approvals for all respiratory protective devices utilized on site shall also be included.
4. Submit each of the following and other pre-abatement documents required above, unless exempted in the scope of work or the bidding requirements, prior to the start of abatement. This list is to be used a checklist only and specific requirements are outlined in Sections 2.31a, b, and c of the General Requirements.

2.31B CHECKLIST

- _____ Name and number of transporters
- _____ Name and EPA number of Waste Sites

2.31C CHECKLIST

- _____ Training records - AHERA (Supervisor and worker)*
- _____ Respiratory fit tests for each employee*
- _____ Medical records for each employee*

Note *No contractor worker will be allowed inside containment prior to verification of AHERA, respirator and medical documentation. This verification must either be onsite or faxed to HMS, Inc.'s office prior to entry.

2.32 PRESTART SUBMITTALS - OWNER

Owner shall provide to the Contractor prior to commencement of work:

- a. Any available pre-abatement air sampling data to Contractor.

- b. List of Owner's employees/agents who will or may require worksite access.
- c. Data on equipment access protection and/or shutdown procedures.

2.4 SUBMITTALS DURING THE WORK PROCESS

The following documentation shall be submitted to the HMS, Inc. Project Manager:

- A. The contractor shall submit daily- a copy of the worker roster identifying all employees onsite and the hours worked.
- B. The contractor shall submit daily - a copy of a one-page summary of job progress. This summary must include a brief description of the work completed at the site(s), number of employees, and any issues that arose. This summary is in addition to the daily documentation required to be submitted by OSHA and AHERA regulations and other HMS, Inc. specifications.
- C. The contractor shall submit daily - copies of work site entry/exit logbooks with information on worker and visitor access.
- D. The contractor shall submit daily - copies of the air-differential manometer readings
- E. The contractor shall submit results of air sampling data collected during the course of the abatement including OSHA compliance air monitoring results. Contractor shall submit sample results within 72 hours of collection of the samples for samples to be considered valid indicators of employee exposures within containment. Lack of valid exposure assessments may, at HMS, Inc. Project Manager's discretion, result in the contractor being required to raise worker personal protection levels.
- F. Submit weekly copy of on-site safety meeting documentation. Each safety meeting must be signed by all employees working on the project for that week.
- G. Proof of DOP or equivalent (Challenge) testing of HEPA-filtered units
- H. Contractor shall submit copies of any Regulatory Agency Inspection/Enforcement Documents
- I. Accident Report Forms
- J. Other Contract Documents as required by Scope of Work
- K. Construction Meeting Minutes

2.41 SUBMITTALS DURING THE WORK PROCESS-WASTE DISPOSAL (SECTION 7)

- A. The contractor shall submit copies of all transport manifests, Land Ban Certifications, trip tickets, weights and disposal receipts for all asbestos hazardous waste materials.

- B. The contractor shall submit copies of all transport manifests, trip tickets, weights and disposal receipts for all asbestos non-hazardous waste materials.

2.5 CLEAN-ROOM AREA POSTINGS

Postings may be in a prominent area adjacent to the clean room but must be visible to workers entering and exiting the containment.

List of persons authorized to enter restricted area. The list shall include, among others, the following names with addresses and phone numbers:

Contractor	Testing Laboratory
Air-sampling Professional	Owner's representatives
Asbestos Project Manager	Any other designated by the Owner
Regulatory Agency Personnel	

1. A copy of the daily entry/exit log book shall be maintained in the clean room area of the worker decontamination system and provided to the HMS, Inc. Project Manager weekly or as otherwise requested.
2. Telephone numbers, other than 911, of all emergency response personnel shall be prominently posted in the clean change area and equipment room. The locations of the nearest telephones shall be indicated on a map or diagram.
3. Written emergency procedures shall be posted in the clean room.
4. Written entry/exit procedures shall be posted in the clean room and equipment room. (See Section 9)
5. All of the contractor's personnel and area air sampling results shall be posted in the clean room area within 72 hours of collection, unless otherwise noted.
6. A copy of the CAL-OSHA and EPA or Local APCD notification shall be posted in the clean room area.
7. A CAL-OSHA Information poster and a CAL-OSHA Construction Site poster shall be posted in the clean room area.
8. Copies of Material Safety Data Sheets (MSDS) for all materials onsite shall be posted in the clean room area. Bag out/load out/waste transfer procedures must be listed in writing at the load out exit.
9. A copy of the contractor's written Respiratory Protection Program shall be posted in the clean room.

2.6 JOB SITE DOCUMENTS

The following shall be available at each job site:

1. List of all AHERA-accredited workers and supervisors entering the regulated area.
2. An updated list of all contractor and subcontractor employees who have worked on this job.
3. All contract specifications, Scope of Work, addendums, change orders, etc.. Contractor competent person must sign a document stating he has full knowledge of the Scope of Work and contract specifications.
4. Written Injury and Illness Prevention Program.
5. Training records.
6. Medical records.
7. Written Respiratory Protection Program
8. Fit Tests for all contractor employees

2.7 PROJECT CLOSE-OUT DOCUMENTATION AND SUBMITTALS

The Contractor shall generate a demolition "as built" drawing detailing all walls, floors, ceilings, mechanical items, plumbing, wiring and structural components which were removed, to what extent each of these items was removed (e.g. entire wall demolished from floor to ceiling), and in what areas. The contractor must provide this drawing to the Owner and HMS, Inc. at the conclusion of the interior asbestos abatement activities when required in the Scope of Work or requested by HMS, Inc. or Owner. Digital pictures of remaining conditions would be helpful but are not required.

Unless submitted during the project, the Contractor shall submit the following post-job submittals to the Owner within thirty (30) days of the completion of asbestos abatement work.

- _____ Copies of revised notifications to regulatory agencies.
- _____ Receipts and weight tickets from the landfill operator acknowledging the Contractor's delivery of wastes and including dates, container types and quantities, and tarred weights of material delivered, and all appropriate signatures.
- _____ A copy of the worker/visitor log showing the following for all persons entering the work area: date, name, social security number, entering and leaving times, company or agency represented, and reason for entry. The contractor's time records will not be accepted in lieu of a worker/visitor log. Include a signed cover sheet certifying that the copy is a complete copy of the log from the job.
- _____ Copies of all accident reports submitted during the course of work.
- _____ A copy of worker exposure monitoring results collected in compliance with Cal/OSHA regulations (Title 8 CCR, Section 1529) including daily/representative/full-shift/breathing-zone air samples and 30-minute

- _____ excursion samples. Include a cover sheet signed by an authorized representative of the testing laboratory performing the work, indicating that the data is complete and accurate.
- _____ If applicable, a copy of the asbestos waste documentation showing dates, times, manifest numbers, quantities of wastes, types of containers removed from the work area, the hauler, and the signature of the recorder.
- _____ A Land Disposal Restrictions Notification and Certification.
- _____ Completed Uniform Hazardous Waste and Non-Hazardous Waste forms including information required for the Waste Shipment Record.
- _____ A complete record of the air filtration devices used certifying DOP testing (if performed) and printed record, indicating continuous operation and documenting differential air pressure.
- _____ All submittals required before, during, or after the project that have not been submitted must be received by HMS, Inc. prior to HMS, Inc. signing off on contractor's final payment or pay retention release.
- _____ Copies of Prevailing Wage Certification Records (unless project is not a prevailing wage project)

SECTION 3 - SITE SECURITY

1. The regulated area shall be restricted to authorized, trained personnel wearing appropriate personal protective equipment.
2. If required in the Scope of Work and whenever an entire building is placed under containment, the work area(s) under construction must be isolated from the remainder of the property and/or adjacent properties with temporary chain link fencing. This fencing does not eliminate or reduce plywood barrier requirements for any portion of containment that exists on exteriors of buildings. Temporary fencing must be supported at least once every section of fencing by concrete block or equivalent.
3. Unless exempted in the Scope of Work any portion of containment on the exterior of the buildings must be protected by a burglar resistant, lockable plywood structure. This structure must have a roof and be at least 8 feet tall. This plywood barrier must be solid plywood and be constructed in a manner sufficient to withstand expected weather conditions (i.e. wind, rain, etc.). A soffit overhang may be used for the roof of this structure, barrier walls must extend completely up to soffit overhang ceiling.
4. Entry into the work area by unauthorized individuals shall be reported immediately to the Owner by the Contractor.
5. A log book shall be maintained in the clean room area of the worker decontamination system. Anyone who enters the work areas must record name, affiliation, time in, and time out for

each entry. A copy of the daily log shall be provided to the HMS, Inc. Project Manager daily or as otherwise requested.

6. Access to the work area shall be through a worker decontamination system. All other means of access (doors, windows, hallways, etc.) shall be blocked or locked so as to prevent entry to or exit from the work area. The only exceptions for this rule are the waste loadout air-lock, and emergency exits in case of fire or accident.
7. Emergency exits shall NOT be locked; however, they shall be sealed with polyethylene sheeting and tape until needed. These emergency exits shall be clearly designated. They shall also have a razor knife permanently in place to facilitate emergency exit.
8. Contractor should have control of site security during abatement operations, in order to protect work efforts and equipment. During off-hours access to the abatement area shall be restricted by a lockable entry.
9. Contractor will have Owner's assistance in the enforcement of restricted access by Owner's employees.
10. Storage of asbestos containing debris, hazardous or not, will be such that access to it is limited to the contractor. Lockable bins shall be utilized, and they shall be locked at all times except when loading occurs. No soft covers will be allowed for any storage bins.
11. All Owner policies and procedures regarding site security and safety shall be strictly adhered to by the Contractor.
12. Keys and/or lock combinations to all lockable enclosures and waste bins must be provided to the HMS, Inc. Project Manager prior to the start of abatement.

SECTION 4 - EMERGENCY PLANNING

1. Emergency planning and procedures shall be developed by the Contractor prior to abatement initiation and agreed to by Contractor and Owner.
2. Emergency procedures shall be established and presented to all employees and the HMS, Inc. Project Manager prior to the beginning of any work. A written emergency plan must be posted.
3. Emergency planning shall include written notification of police, fire, and emergency medical personnel of planned abatement activities, work schedule and layout of work area, particularly barriers that may affect response capabilities. Emergency planning shall include considerations of fire, explosion, toxic atmospheres, electrical hazards, slips, trips and falls, and heat related injury. A copy of the written Injury and Illness Prevention Program shall be on the work site.
4. Employees shall be trained in evacuation procedures in the event of workplace emergencies. Telephone numbers of all emergency response personnel shall be prominently posted in the clean change area and equipment room, along with the locations of the nearest telephone

indicated on a map or diagram.

5. At least two fire extinguishers shall be present on site. At least one fire extinguisher shall be present outside of the containment and at least one fire extinguisher shall be present inside containment. Additional extinguishers shall be distributed according to Cal/OSHA requirements or as identified in the Scope of Work.
6. An emergency blast horn shall be placed inside of any containment comprising more than a single building space for emergency evacuation in the event of a fire or other emergency.
7. If required in the Scope of Work, a means of radio communication shall be established between inside and outside of containment whenever a containment has a section(s) not directly visible from a clear-sight view window. This requirement may be met through walkie talkies or by wired communication systems. HMS, Inc. project monitor is to be given a communication device tied into communication system used by the contractor's crew.
8. The contractor shall clearly mark emergency egress routes in brightly colored spray paint, tape, or equivalent, within the containment area. When required by the specification, or deemed necessary by the HMS, Inc. Project Manager, the contractor shall station flashlights throughout the work area to be used in the advent of an electrical power outage. Tools that can be used to cut containment poly must be placed at each emergency egress location.
9. Emergency exit signs, and arrows painted, taped or otherwise marked shall be located approximately three feet from the floor level. This will make signs visible for standing workers as well as workers required to crawl to emergency egress location.
10. In the event of a power and/or water interruption all abatement work, other than cleanup of debris on the ground, is to stop. Work disturbing asbestos cannot continue until the power and/or water is restored or the Project Manager authorizes emergency procedures
11. During hot working conditions, such as in an attic space during summer, or in containments where live steam or hot water lines are exposed, special attention must be given to the possibility of heat stress and burns.
12. In the case of fire, or other life-threatening situations, all decontamination requirements are null and void. Immediate preservation of life takes precedence over decontamination requirements.
13. If emergency personnel (fire, police, paramedics, etc.) are called to the project site, they must be informed of the fact that the project is an asbestos abatement project and whether containment has been established and/or breached.

SECTION 5. PRE-START MEETING (See also Section 2)

1. The successful Bidder, his on-site supervisory personnel, and Air Sampling Professional (if applicable), representatives of the Owner, Owner's Asbestos Project Manager, and other individuals as necessary shall be present at a pre-start meeting **TIME AND PLACE AS NOTED IN THE SCOPE OF WORK OR TO BE DETERMINED.**

2. Responsibility for notification of building occupants regarding impending activity shall be determined at this meeting.
3. At this meeting the Contractor shall provide all required submittals, as indicated in Section 2, Part 2.31a, b, and c.
4. The Contractor's supervisory personnel must be given a complete copy of the Scope of Work and attached abatement specifications (including these Asbestos General Requirements) and must be familiar with them prior to the pre-start meeting. Delays caused by an onsite contractor foreman not being familiar with the requirements of these specifications will not extend the Contractor's completion date.
5. In addition, contractor shall be prepared to provide detailed information on preparation of work area, personal protective equipment, employee experience, training and assigned responsibilities during the project. Contractor must also be prepared to discuss decontamination procedures for personnel, work area and equipment, abatement methods and procedures, required air monitoring program, procedures for handling and disposing of waste materials and procedures for final decontamination and cleanup. A sequence of work and performance schedule, procedures for dealing with heat stress and emergency procedures shall also be submitted.
6. If applicable, a detailed work-area-by-work-area schedule must be submitted at this time. The schedule shall have, at a minimum, the work area and the day/month for beginning and terminating work in each work area. During progress of work, it shall be the contractor's responsibility to keep the schedule current and up to date.

SECTION 6. MATERIALS AND EQUIPMENT

6.1 Contractor Equipment and Supplies

1. Deliver all consumable materials in the original packages, containers or bundles bearing the name of the manufacturer and brand name (where applicable). These must be approved by the Owner. Polyethylene (Poly) sheeting, 4-mil thick for walls and 6-mil thick for floors and all other uses, shall be provided in widths selected to minimize the frequency of joints.
2. All poly shall be flame-retardant, fire-rated poly. This includes all poly used for decon setups whether or not they are erected inside of the building.
3. Polyethylene sheeting utilized for worker decontamination enclosure shall be opaque white or black in color and each layer shall be a minimum of 6-mil thick. At least two layers shall be required. Modesty barriers are to be erected whenever and wherever the HMS, Inc. Project Manager determines one is needed.
4. Disposal bags shall be of 6-mil polyethylene with labels required by OSHA, DOT, Department of Toxic Substance Control regulations.

City of Stockton Police HQ Women's Locker Rm Remodel

5. Disposal drums shall be metal or fiber board with locking ring tops to be used only if required and/or allowed by selected dumpsite.
6. Stick-on labels as per DOHS and OSHA requirements for disposal drums shall be provided.
7. Warning signs as required by OSHA shall be provided and posted per regulations.
8. Surfactant (wetting agent) shall be a 50/50 mixture of polyoxyethylene ether and polyoxethylene ester or equivalent, mixed and used according to the manufacturer's directions.
9. A sufficient quantity of pressure differential units equipped with HEPA filtration and operated in accordance with ANSI Z9.2-79 and EPA guidance document EPA 560/5-83-002 Guidance for Controlling Friable Asbestos-Containing Materials in Buildings, Appendix F: Recommended Specifications and Operating Procedures for the Use of Negative Pressure Systems for Asbestos Abatement, shall be utilized so as to meet the requirements of Section 12 of this specification.
10. All HEPA filtration equipment must be tested with DOP or an equivalent testing agent (see Section 12).
11. The contractor will provide adequate number of respirators for the work force. These respirators will include, when specified:
 - a. Full face piece supplied air respirators with HEPA-filtered disconnects operated in positive pressure or pressure demand mode.
 - b. Full face piece, tight-fitting, powered air-purifying respirators with HEPA-filters,
 - c. Half mask or full-face respirators with HEPA filters.
12. All respirators shall be NIOSH-approved and be equipped with supplies for immediate replacement of defective parts.
13. Contractor shall provide full-body disposable protective clothing, including head, body, and foot coverings, such as Tyvek, or equivalent, to all workers and authorized visitors in sizes adequate to accommodate movement without tearing. No street clothes, unless excepted by Scope of Work or other portions of this specification are allowed to be worn under disposable protective clothing.
14. The Contractor shall provide additional safety equipment (e.g., hard hats, eye protection, safety shoes, disposable PVC gloves), as necessary to all workers and authorized visitors.
15. Non-skid footwear shall be provided to all abatement workers.
16. A sufficient supply of scaffolds, ladders, lifts and hand tools (e.g., scrapers, wire cutters, brushes, utility knives, wire saws, etc.) shall be provided as needed. Only fiberglass ladders shall be used within the work area. Wooden ladders and wooden handled tools shall not be allowed within the work area.

City of Stockton Police HQ Women's Locker Rm Remodel

17. Rubber dustpans and rubber squeegees shall be provided for cleanup.
18. A sufficient supply of HEPA-filtered vacuum systems shall be available.
19. The HMS, Inc. Project Manager may require the use of additional equipment if he feels the number or amount of certain items or materials is not sufficient.
20. Vacuums and pressure differential units shall arrive on site sealed and free of debris. Pre-filters of all pressure differential units must be new and unused.
21. All product data sheets and all Material Safety Data sheets (MSDS) shall be submitted for all products and materials prior to their use on the job site.
22. All contractor equipment and supplies must arrive on site clean and dust free. Equipment must be inspected and accepted by HMS, Inc. Project Manager as it arrives onsite. Any equipment covered with dust (no matter the source of dust), plaster debris, multiple layers of encapsulant and/or spray glue, or any other debris will not be accepted. Chipped and/or rusted equipment will not be accepted even if it is to be used outside of containment. Delays caused by a lack of clean equipment will not extend Contractor's schedule.
23. Equipment rejected due to a lack of cleanliness must be removed from Owner's grounds in order to be cleaned. Dirty equipment wrapped in plastic will not be acceptable.
24. The decision of the Owner, HMS, Inc. Project Manager or the Owner's representative on all equipment and supplies shall be final.

6.2 Rental Equipment and Supplies

1. Any equipment rented and delivered to the site for the purpose of conducting asbestos abatement work must be accompanied with documentation verifying that the rental agency has been notified and acknowledges receipt of notification that the equipment being rented will be used for asbestos abatement work. This documentation must be submitted to the HMS, Inc. Project Manager prior to the equipment being delivered to the job site. Rental equipment, including scaffolding, will be held to the same standard of cleanliness as all other equipment on this project.
2. All rented equipment must be inspected and accepted by HMS, Inc. Project Manager as it arrives onsite. Any equipment covered with dust (no matter the source of dust), plaster debris, multiple layers of encapsulant and/or spray glue, or any other debris will not be accepted. Delays caused by a lack of clean equipment will not extend Contractor's schedule. Equipment rejected due to a lack of cleanliness must be removed from Owner's grounds in order to be cleaned. Dirty equipment wrapped in plastic will not be acceptable.
3. The HMS, Inc. Project Manager must be informed 24 hours prior to the delivery of any rental equipment.
4. The decision of the Owner, HMS, Inc. Project Manager or the Owner's representative on all rental equipment and supplies shall be final.

SECTION 7. WORK SITE FACILITIES

1. The Owner shall provide sanitary facilities for abatement personnel outside of the enclosed work area. To use these facilities all workers shall wear normal street clothes including pants and shirts. No bathing suits or disposable coveralls are allowed to be worn to use the sanitary facilities.
2. At no-time will workers be allowed to exit the containment area, once abatement has begun disturbing asbestos, without showering prior to entering the clean chamber of the decon. (Exception to this may be made, at HMS, Inc. project manager's discretion, for Project Manager and Contractor's supervisor for conducting a clearance visual during which the HMS, Inc. Project Manager may allow street clothes to be worn under disposable overalls).
3. At no time shall workers exit the clean room/changing area wearing anything other than street clothes, including pants and shirt.
4. The Owner shall provide water for construction purposes, unless stated otherwise in the Scope of Work. Contractor shall connect to existing Owner system.
5. The Owner shall provide the electrical source. Contractor is responsible for all connections and disconnection of electrical power. All electrical power supplied to the containment area must be ground fault interrupter protected. Loss of power due to contractor activities will require contractor to supply electrical power at his own expense.
6. The Owner or its representative shall specify the waste water discharge location and location of waste bins. The owner, when applicable, shall specify acceptable routes of travel.
7. The Contractor shall be required to place footing materials of sufficient thickness, strength, and size under the casters, footings, and/or runners of waste bin(s) to prevent damage of property surfaces. The contractor is responsible for all damages to Owner's property caused by the delivery, placement, or removal of a waste bin. Damaged property shall be repaired to equal or better condition than was present prior to the activity causing the damage. This may be amended in scope of work for this project.
8. The Owner shall specify on-site parking areas, if available, and access to the site.

SECTION 8. RESPIRATORY PROTECTION

1. All respiratory protection shall be provided to workers in accordance with the submitted written respiratory protection program, which includes all items as required by OSHA. This program shall be posted in the clean room of the worker decontamination enclosure system or adjacent to the clean room.
2. The Contractor shall ensure that all workers entering the regulated area where appropriate respiratory protection. Respiratory protection provided workers shall be in accordance with 8 CCR 1529, and 8 CCR 5144 and the respiratory protection program submitted by the Contractor. This program shall be available at the worksite.

3. The HMS, Inc. Project Manager, his or her onsite representative, or the Owner or their representative may deny access to the regulated area to anyone who, in the final judgement of the HMS, Inc. Project Manager, is not properly wearing adequate respiratory protection for the project conditions. This includes but is not limited to those wearing unidentified respirators, those with improperly sealed respirators, those wearing respirators in an improper manner such as over their protective suit hood, or in any other fashion judged by the HMS, Inc. Project Manner to be improper or inadequate to protect the individual from the airborne asbestos at the project site.
4. The Contractor shall provide each worker needing respiratory protection with his or her own, individually identified, NIOSH-approved respirator. At a minimum, these respirators will be equipped with a P-100 series HEPA filter. The Contractor shall provide additional filter types if that becomes necessary for specific hazards discovered on the job site or if required in the contract documents.
5. The Contractor shall ensure that all workers use the respirator in compliance with the manufacturer's instructions for proper use and care of that product.
6. Workers must perform positive and negative respirator seal checks each time a respirator is put on, provided the respirator design so permits.
7. The Contractor shall ensure that those workers wearing powered air purifying respirators test the air flow rate according to the frequency and methods specified by the manufacturer.
- 8.
9. Workers shall be given, at least, a qualitative fit test in accordance with procedures detailed in the Cal/OSHA requirements for all respirators to be used on this abatement project. An appropriately administered quantitative fit test may be substituted for the qualitative fit test.
10. The Contractor shall ensure and provide written records to the HMS, Inc. Project Manager that all workers wearing tight-fitting respirators have been appropriately fit tested in accordance with the requirements of 8 CCR 5144.
11. The Contractor shall ensure that nothing interferes with the seal of the respirator to the face of the worker. This includes but is not limited to facial hair, clothing, protective clothing, equipment or anything else that comes between the respirator and the face of the worker.
12. Use of any respirator must be in compliance with the manufacturer's instructions for proper use and care of that product.
13. The Contractor shall ensure that workers wear respirators underneath protective clothing
14. Workers conducting any work that may create an airborne release of asbestos must wear appropriate respiratory protection. This includes but is not limited to the pre-cleaning of asbestos contamination off of furniture, equipment and floors, and the set-up of contaminated work areas.
15. The judgement of the HMS, Inc. Project Manager shall be final if there is a disagreement between the Owner and the Contractor regarding the need for wearing or the type of personal protection required..

City of Stockton Police HQ Women's Locker Rm Remodel

16. In no event will a negative exposure assessment be allowed to lower respiratory protection, from that listed in the Scope of Work or required by regulation in the absence of an NEA, prior to the start of a project. Air samples used for negative exposure assessments created after the project has started must be from work conducted under this contract.

Minimum Respiratory Protection for OSHA Class I Work

1. Unless specified differently in the contract documents, the Contractor's employees conducting Class I work will wear tight-fitting, full-face powered-air purifying respirators for all Class I work that will take more than one hour to complete. They must wear a minimum of a half-face negative air-purifying respirator for Class I work lasting less than one hour. Contract documents may require additional respiratory protection, such as the use of supplied air respirator systems if, in the opinion of the HMS, Inc. Project Manager, the airborne asbestos levels are expected to exceed one fiber per cubic centimeter of air (1 f/cc).
2. After work has begun, if the Contractor wishes to lower respiratory protection requirements, such as for glovebag or other work, he or she must demonstrate to the HMS, Inc. Project Manager that personal air sampling results from that project prove that airborne fibers levels are below the Cal/OSHA Permissible Exposure Limit. The Project Manager will normally require sampling results used for this purpose to include several days of sampling taken during the work expected to generate the highest airborne levels.
3. The Project Manager will have final authority regarding whether or not the respiratory protection may be reduced below the need for powered-air purifying respirators.
4. Unless stated otherwise in the contract documents, for the purposes of respiratory protection, Class I work will include the removal of materials such as gypsum board surfaces that are covered with a texturing or skim coat material that contains over one percent asbestos.

Minimum Respiratory Protection for Class II and III Work Practices

1. Unless specified differently in the contract documents, the Contractor's employees conducting Class II or III work will wear a minimum of half-face, air-purifying respirators. Contract documents may require additional respiratory protection, such as the use of full-face air-purifying respirators or powered-air-purifying respirators.
2. After work has begun, if a Contractor wishes to lower respiratory protection requirements, he or she must demonstrate to the HMS, Inc. Project Manager that personal air sampling results from that project prove that airborne fibers levels are below the limit of quantification for the phase contrast microscopy method. The Project Manager will normally require sampling results used for this purpose to include several days of sampling taken during the work expected to generate the highest expected airborne levels. The Project Manager will have final authority regarding whether or not the respiratory protection may be reduced or eliminated. For example, the HMS, Inc. Project Manager may require personal samples be analyzed by TEM before determining that asbestos does not pose an airborne health risk.

Respiratory Protection for All Work Classes and Unclassified Work

City of Stockton Police HQ Women's Locker Rm Remodel

1. Respiratory protection will always be required if thermal system or surfacing materials are disturbed or if any asbestos-containing materials will not be removed substantially intact.
2. The HMS, Inc. Project Manager has full authority to raise the level of respiratory protection required for access to the regulated area if in his or her judgement additional respiratory protection is required. For example, if personal air sample results collected by either the Contractor or HMS, Inc. indicate higher than expected levels, the Project Manager is authorized to increase the level of required respiratory protection. The HMS, Inc. Project Manager will determine if the increased respiratory protection is due to new, unexpected developments such as the discovery of new materials, or if the increase is due to the Contractor failing to follow good work practices. The judgement on this matter by the HMS, Inc. Project Manager will be final.
3. The Owner is not responsible for increased costs or delays resulting from the need to increase respiratory protection should the reason for the increased respiratory protection be due to the Contractor's failure to adequately utilize wet work methods and/or the prompt cleanup of debris.
4. The Contractor may only implement respiratory protection changes after receiving written approval for the change from the HMS, Inc. Project Manager.
5. Waste transport and disposal personnel must wear at least half-face, air-purifying respirators when handling intact sealed bags. Powered-air purifying respirators must be worn if waste containers spill, break, or in any other fashion require a Class I work cleanup be performed.
6. The contractor shall comply with the respiratory protection requirements listed in 8 CCR 1529 until that date that 8 CCR 5144 includes assigned protection factors for all respirators. The following list of respirators and their assigned "protection factors" shall be the criteria for the selection of respiratory protection.

RESPIRATOR SELECTION	PROTECTION FACTOR
Half-mask air purifying respirator equipped with high efficiency particulate air (HEPA) filter - P-100	10
Full-face air purifying respirator equipped with HEPA filter - P-100	10
Full-face, powered air purifying respirators equipped with HEPA filter - P-100	1,000
Type C continuous flow supplied air	1,000
Full facepiece, supplied air respirator operated in pressure demand mode	1,000
Full facepiece, supplied air respirator operated in pressure demand mode, equipped with an auxiliary positive pressure self-contained	1,000

breathing apparatus	
---------------------	--

7. Workers shall be provided, as a minimum, with personally issued and marked respirators equipped with high efficiency particulate air (HEPA) filters approved by NIOSH to be worn in the designated work area and/or whenever a potential exposure to asbestos exists. Owner or its representative may refuse entry to the work area to a worker with an unidentified respirator.
8. Sufficient filters shall be provided for replacement as required by the workers or applicable regulations. Disposable respirators shall not be used.
9. No worker shall be exposed to levels estimated to be greater than 0.01 f/cc inside their respirator as determined by the protection factor of the respirator worn and the work area fiber levels.
10. Whenever type C respirator protection is used, compressed air systems shall be designed to provide air volumes and pressures to accommodate respirator manufacturer specifications. The compressed air system shall have a reservoir of adequate capacity to allow the escape of all respirator wearers from contaminated areas in the event of compressor failure.
11. Compressors must meet the requirements of 29 CFR 1910.134(d).
12. Location of compressors must be approved by Owner for exhaust and noise considerations.
13. Compressors must have an in-line carbon monoxide monitor and periodic inspection of carbon monoxide monitors must be documented. Documentation of adequacy of compressed air systems/respiratory protection systems must be retained on site. This documentation will include a list of compatible components with the maximum number and type of respirators that may be used with the system. Periodic testing of compressed air shall insure that systems provide air of sufficient quality (Grade D breathing air). Documentation of this testing, including a description of the process used to perform the test and results of each test must be submitted to the HMS, Inc. Project Manager weekly.
14. Whenever powered air-purifying respirator protection is used, a sufficient supply of replacement batteries and HEPA filter cartridges shall be provided to the workers. At least one spare fully charged battery must be available on-site for each PAPR in use. The flow rate delivered to the face piece shall be checked and recorded by the Contractor on the sheet provided by the HMS, Inc. Project Manager each time a worker dons the respirator. Written respiratory protection program must detail how this testing is to be performed by each employee or the onsite supervisor. The Contractor shall ensure that the flow rate for PAPRs meets the requirements listed in 8 CCR 1544 regarding tight- and loose-fitting respirators as appropriate. The Contractors shall also ensure that PAPRs are worn, checked and maintained according to the directions of the manufacturer.
15. During encapsulation operations or usage of other organic base aerosols (e.g. spray glue, expanding foam, etc.) workers shall be provided with combination organic vapor/HEPA filter respirator cartridges.

SECTION 9. PERSONNEL PROTECTION REQUIREMENT AND TRAINING

1. Prior to commencement of abatement activities all personnel who will be required to enter the work area or handle containerized asbestos containing materials must have received adequate training in accordance with the OSHA, EPA AHERA and NESHAP regulations.

2. Special on-site training on equipment and procedures unique to this job site shall be performed by the Contractor as required by law or recommended by the equipment manufacturer.
3. The Contractor shall provide training in emergency response and evacuation procedures.
4. See Section 8 for respiratory protection requirements.
5. Disposable clothing, including head, foot and full body protection, shall be provided in sufficient quantities and adequate sizes for all workers and authorized visitors. Damaged coveralls shall be immediately repaired or replaced.
6. Hard hats, protective eye-wear, proper protective gloves, rubber boots and/or other footwear shall be provided by the Contractor as required for workers and authorized visitors. Safety shoes may be required for some activities.
7. Contractor personnel shall not wear street clothes or clothes of any type underneath the protective disposable clothing. Upon exiting the work area, no items worn in the work area, such as clothing, personal protective gear, footwear, or hair coverings will be allowed to be worn past the shower of the decontamination unit. Contractor worker(s) have the option of wearing disposable undergarments underneath protective clothing, or they may be nude underneath the protective disposable clothing.
8. Each time the worker(s) enter the work area they will don new disposable clothing and undergarments. Street clothes (including underwear and shoes) shall not be allowed inside the work area, except during visual clearance activities.
9. The HMS, Inc. Project Manager may use personal judgement to allow authorized personal to wear street clothes under protective clothing during the construction of final visual or other short-duration visits into the regulated area during times which asbestos is not being disturbed and gross debris is not present. In these situations, approved by the HMS, Inc. Project Manager, the authorized person shall deposit the protective clothing on the dirty side of the decontamination system and may proceed through the shower and clean room wearing the clothes they wore under their protective clothing.

SECTION 10. WORKER DECONTAMINATION ENCLOSURE SYSTEMS (WASTE TRANSFER DECON)

1. Worker decontamination enclosure systems shall be provided at all locations where workers will enter or exit the work area. One system at a single location for each contained work area is preferred. Enclosure systems may be constructed out of metal, wood or plastic support as appropriate. Plans for construction, including materials and layout, shall be submitted as shop drawings and approved, in writing, by the Owner or its representative prior to work initiation. Detailed descriptions of portable, prefabricated units, if used, must be submitted for the Owner's approval. The worker decontamination enclosure system shall consist of at least a clean room, a shower room, and an equipment room. All decontamination units shall have, at least, two layers of 6-mil polyethylene sheeting.
2. Unless stated otherwise in the Scope of Work, all decontamination units, pressure differential units, and other portions of containment outside the building shall be covered with a 2"x 4" wood studs and 1/2" plywood enclosure for security. Pressure differential units shall be secured as necessary to the building or ground. Exhaust openings shall have metal grates to prevent objects from being put into

the exhaust openings. Pressure differential exhaust shall be exhausted to an area acceptable to HMS, Inc. Project Manager and mounted through a solid surface, such as plywood. Entry and exit from all airlocks and decontamination enclosure system chambers shall be through doorways designed to restrict air movement between chambers when not in use.

3. Each decontamination chamber shall have, at least, a four-inch lip of poly from the floor up the wall to prevent possible transfer of water and debris between chambers. Excess plastic at the corners of this floor is to be fitted to the sides of the chamber by folding plastic and taping, as opposed to cutting away excess poly and taping seams. In addition to this four-inch lip of poly the shower chamber shall have an overflow pan, in which the shower unit sits, that is capable of holding two inches of water. The filter system and any hose connections transferring contaminated water shall be located in a secondary containment, such as a metal pan. Any leakage shall be double-bagged or re-filtered.
4. The dirty side shall have an extra layer of 6-mil polyethylene sheeting on the floor as a "drop cloth" and it shall be replaced at least daily.
5. The clean room shall be sized and equipped to adequately accommodate the work crew and personal protection equipment. Minimum size of clean and dirty chambers shall be three feet by three feet, minimum size may be increased by requirements in the Scope of Work. Lighting, heat and electricity shall be provided as necessary for comfort. This space shall not be used for storage of tools, equipment or materials (except as specifically designated), nor as office space.
- 6.
7. Shower room shall contain one or more operable showers as necessary to adequately accommodate workers, minimum of one shower for every ten (or portion thereof) workers. The shower enclosure shall be constructed to ensure against leakage of any kind. In addition, the shower shall be a separate unit from the decon walls. The shower unit cannot be made from poly. Metal or hard plastic is acceptable. An adequate supply of soap, shampoo and towels shall be supplied by the Contractor and available at all times. Shower water shall be drained, collected and filtered through a system with at least 1.0-micron particle size collection capability.
8. The shower pan in the shower chamber shall be, at least, 3' x 3' in size. The shower chamber shall be constructed so that no water from the shower can spray out of the chamber, nor any water run down the sides of the poly and miss the pan. The shower chamber dimensions shall be determined by the size of the shower pan but are not to be smaller than 3' wide by 3' long by 7' tall.
9. Abatement work will be stopped if decon is not kept in acceptable condition.
10. Storage or consumption of food and/or beverages shall not be permitted inside the containment or within any of the decontamination chambers. Food or drink consumption within containment will result in the abatement worker(s) dismissal from the site for the duration of the project.

SECTION 11. WORKPLACE ENTRY AND EXIT PROCEDURES

1. All workers and authorized personnel shall enter the work area through the worker decontamination enclosure system.
2. All personnel who enter the work area must sign the entry log, located in the clean room.

City of Stockton Police HQ Women's Locker Rm Remodel

3. All personnel, before entering the work area, shall read and be familiar with all posted regulations, personal protection requirements (including workplace entry and exit procedures) and emergency procedures. A sign-off sheet shall be used to acknowledge that these have been reviewed and understood by all personnel prior to entry.
4. All personnel shall proceed first to the clean room (or area), remove all clothes and don appropriate respiratory protection and disposable coveralls, head covering and foot covering. Hard hats, eye protection and gloves shall also be worn, as appropriate. Clean respirators and protective clothing shall be provided and utilized by each person for each separate entry into the work area.
5. Personnel wearing designated personal protective equipment shall proceed from the clean room through the shower room and equipment room to the main work area.
6. Before leaving the work area all personnel shall remove gross contamination from the outside of respirators and protective clothing by brushing and/or wet-wiping procedures. (Small HEPA vacuums with brush attachments may be utilized for this purpose.) Each person shall clean bottoms of protective footwear in the walk-off pan just prior to entering the equipment room.
7. Personnel shall proceed to equipment room where they remove all protective equipment except respirators. Deposit disposable clothing into appropriately labeled containers for disposal. All clothing items, including underwear or hair coverings must be removed and disposed of prior to entering the shower.
8. Reusable, contaminated footwear shall be stored in the equipment room when not in use in the work area. This footwear shall be cleaned prior to being removed from the work area. Placing footwear in two 6 mil poly bags is sufficient for moving from one containment to another, but not for moving from one site to another. Contaminated footwear shall remain within the equipment room for the duration of the project. Cleaned footwear may be removed from containment, but must be approved by HMS, Inc. Project Manager.
9. Still wearing respirators, personnel shall proceed to the shower area, clean the outside of the respirators and the exposed face area under running water prior to removal of respirator, then shower and shampoo to remove residual asbestos contamination. Various types of respirators will require slight modification of these procedures.
10. After showering and drying off, proceed to the clean room and don clean disposable clothing if there will be later re-entry into the work area, or street clothes if it is the end of the work shift.
11. These procedures shall be posted in the clean room and equipment room.

SECTION 12. DIFFERENTIAL AIR PRESSURE SYSTEMS (See also Section 13)

12.1 Negative Pressure Requirements

1. Negative pressure shall be maintained at -0.04" water differential at all times during abatement activities, including entry/exit and bag out procedures. Contractor shall assign crew members to determine cause of loss of pressure any time containment's negative pressure drops below -0.04" water differential. All work will be stopped in any containment for which the negative pressure drops

City of Stockton Police HQ Women's Locker Rm Remodel

below -0.025" water differential, until problem is resolved, and pressure returns to -0.04" water differential or better.

2. In the event that containment cannot be brought up to -0.04" water differential, abatement contractor must increase number of negative pressure differential units until 10 air changes per hour is taking place. If this fails to raise negative pressure to acceptable levels, contractor may request in writing a reduction in negative pressure requirements. If HMS, Inc. project manager agrees that contractor has tried all possible remedies, HMS, Inc. project manager may grant reduction in negative pressure requirement. HMS, Inc. project manager is under no obligation to grant this request.
3. All negative pressure units installed, but not operating, must be sealed at both the exhaust location and the intake of the machine. This will prevent back draft which could allow asbestos fiber contamination from the HEPA filter.

12.2 DOP (or equivalent) Testing

1. Contractor shall provide differential air pressure systems for each work area in accordance with Appendix J of EPA "Guidance for Controlling Asbestos-Containing Materials in Buildings," EPA 560/5-85-024.
2. All HEPA filtered systems used on this project shall be tested and certified by an independent company, approved in advance by HMS, Inc., on-site and prior to use. All vacuums and pressure differential units shall meet A NSI Z9.2, using an appropriate testing agent. Documentation of these tests shall be provided to the HMS, Inc. Project Manager prior to the use of any HEPA system.
3. DOP, or equivalent, testing must be conducted on-site, unless stated otherwise in the Scope of Work. All HEPA filtered units, including but not limited to, vacuums, air pressure differential units, and make-up air filters must be tested onsite. Testing of air pressure differential units must include testing of the wheel attachments, control panel, and seam and rivets of the housing, as well as the HEPA filter itself. A unit which passes DOP testing across the filter, but which fails testing for any component of the housing may be certified as an "Exterior of Containment HEPA Filtered Unit" only.
4. All HEPA equipped equipment to be used on the project must be delivered to the site empty of all debris, clean and free of dust, and in full operating condition. Covering dirty units with poly, other than the HEPA filter surface, will not be acceptable.
5. DOP or equivalent testing must be conducted by an independent testing company approved in advance by HMS, Inc. Contractors may not test their own equipment.
6. DOP or equivalent testing is required when any HEPA filters are changed.
7. All HEPA filtered machines, including but not limited to vacuums and negative pressure differential machines, shall be utilized in the manner in which they were DOP tested.
8. Any negative pressure unit turned upside down, or on its side, must be returned to an upright position and re-DOP tested. Negative pressure units shall not be used on this project while laid

on their side or upside down.

9. In case of a power outage, contractor must seal exhaust ducts against back draft into containment.
10. All negative air units will have the filter sealed with poly and tape before being shutdown to prevent back draft.

12.3 Differential Pressure Recording Instruments

1. Differential air pressure shall be continuously monitored by Contractor using a recording instrument, Dwyer Instrument Co., "Photohelic Gauge" or equivalent, connected to an appropriate circular chart recorder or a comparable recorder that maintains a record of dates, times and pressure differentials. The location of the pressure measurement tap shall be approved in advance by the HMS, Inc. Project Manager. During the operation of the unit, circular charts shall be collected on a daily basis, dated, and signed by an OSHA Competent Person present on site. Pressure differential shall be checked a minimum of every hour during the work shift by a person familiar with the operation of the pressure-differential-filtration units, as well as the recording device. Each check shall be documented with a time and date notation on the circular chart and "Manometer Readings" form along with the initials of the person performing the check. A copy of the circular chart record shall be submitted to the HMS, Inc. Project Manager on a daily basis. The circular chart shall record time, date, pressure differential, coordinates, and location.
2. In the event the manometer recording mechanism fails, the Contractor shall be responsible for manually recording the pressure differential at fifteen (15) minute intervals. The log shall be kept until the recording device is operational. The log shall be provided to the HMS, Inc. Project Manager on a daily basis.
3. The "Manometer Readings" form shall be a record of dates and times of pressure readings and instrument stability.
4. Connect recording instrument to an audible alarm which will activate at pressure differential of 0.025 inches water gauge air pressure. Defective or non-operating instrumentation may require temporary stoppage of work until instrumentation is replaced.
5. For larger projects at least one manometer station shall be in place for each 25,000 square feet of containment space.

12.4 Differential Pressure System

1. Exhaust air shall be vented only to the exterior of the building at locations approved by the Owner unless otherwise noted or directed in the Scope of Work or by arrangement with the HMS, Inc. Project Manager. Such outlets shall not be near or adjacent to other building intake vents or louvers or at entrances to building. Openings made in the enclosure system to accommodate these units shall be made air-tight with tape and/or caulking as needed. They shall NOT be exhausted into occupied areas of the building. Twelve-inch (12") extension ducting shall be used to reach from the work area to the outside when required. Careful installation by the contractor, air monitoring by HMS, Inc. and daily inspections by the contractor shall be done to ensure that the ducting does not release fibers into uncontaminated building areas.

2. The work area shall have a differential air pressure of -0.04 inches water differential whenever the work is being performed including removal, gross clean-up, encapsulation of surfaces, bag-out operations and worker entry and exit procedures. If pressure differential ever drops below -0.025 inches water differential, all work, other than cleanup of waste on the floor of containment, must be halted until reason for pressure differential drop has been determined and corrected.
3. Only unused pre-manufactured, reinforced flex ducting shall be used within the containment area for exhausting of filtered air. Contractor may not construct ducting using poly or other materials.
4. All interior of containment air pressure differential units and flex ducting must be wrapped in poly during all abatement activities. This poly wrap is to be removed after "finish detail" work has been completed, but prior to clearance visual.
5. Flex ducting must be supported by solid surface at point of exit from containment. This may require contractor to install plywood, or similar, structure for exhaust point.

SECTION 13. EXECUTION

13.1 Execution

1. Contractor and Owner shall investigate the work area and agree (in writing, if necessary) on the pre-abatement condition of the work area.
2. Contractor shall post danger signs meeting the OSHA specifications at locations and approaches to locations where airborne concentrations of asbestos may exceed ambient background levels.
3. When electrical supply within area of abatement poses a hazard, contractor, in conjunction with the Owner, shall shut down and lock out electric power to all work areas. Contractor shall provide temporary power and lighting sources, ensure safe installation (including ground faulting) of temporary power sources and equipment by complying with all applicable electrical code requirements and OSHA requirements for temporary electrical systems. Contractor shall have a licensed electrician shut down and lock out electric power, and setup temporary power and lighting sources. All cost of electricity shall be paid for by the Owner unless specified differently in the Scope of Work. Cost for set-up of temporary power is the responsibility of the abatement contractor unless specified differently in the Scope of Work.
4. When plumbing is required to be altered or becomes damaged, contractor shall have a licensed plumber disconnect and cap all water as necessary within the work area. Water shall be provided by the Owner from a location near the work area, but not necessarily within the work area.
5. Shut down and lock out all heating, ventilating and air-conditioning-system (HVAC) components that are in, supply, or pass through the work area. Seal all intake and exhaust vents in the work area with tape and 6-mil polyethylene within the work area (interior) and on the exterior of the building. Also seal any seams in system components that pass through the work area.
6. Pre-clean all fixed objects in all work areas using HEPA-filtered vacuums and/or wet-cleaning techniques as appropriate or deemed necessary by the HMS, Inc. Project Manager. Careful

City of Stockton Police HQ Women's Locker Rm Remodel

attention must be paid to machinery behind grills or gratings where access may be difficult but contamination significant. After pre-cleaning, enclose fixed objects in 6-mil polyethylene sheeting and seal securely in place with tape.

7. Pre-clean all surfaces in all work areas using HEPA filtered vacuums and/or wet cleaning methods as appropriate. Do not disturb asbestos-containing materials during the pre-cleaning phase.
8. Unless otherwise stated in the Scope of Work or by agreement with the HMS, Inc. Project Manager all non-asbestos-containing materials left in the work area shall be covered by two layers of 6-mil polyethylene sheeting. If any non-asbestos containing materials become contaminated with asbestos during removal activities these materials shall be disposed of as asbestos-containing materials by the Contractor. The HMS, Inc. Project Manager shall determine the friability of these materials prior to disposal. These materials shall be manifested appropriately.
9. Contractor shall seal all windows, doorways, elevator openings, corridor entrances, drains, ducts, grills, grates, diffusers, skylights and other openings between the work area and uncontaminated areas outside of the work area. These openings must be sealed with 6-mil polyethylene sheeting and tape. These protective layers shall be in addition to the two polyethylene layers on floors, ceilings and walls. These openings are referred to as critical barriers. Seal all cracks in critical barrier areas with tape, caulk, or foam prior to sealing critical barriers.
10. A critical barrier only, negative pressure check shall be required prior to the set-up of interior containment. Prior to the Contractor covering critical barriers with additional layers of wall, floor, or ceiling poly, the installation and integrity of critical barrier seals must be approved by the HMS, Inc. Project Manager. Wall, floor and ceiling poly installed prior to the critical barrier negative pressure check shall be removed by the Contractor if deemed required by the HMS, Inc. Project Manager in order to properly test critical barriers.
11. All items attached to asbestos-containing materials and items which cannot be removed without disturbing asbestos-containing materials shall be removed by the Contractor after establishment of containment and negative pressure. If these items are to be "saved and returned" or "reused" by the Owner, the Contractor must remove and clean them without damage. These items must be cataloged using the attached "Return Item Inventory Sheet" provided by HMS, Inc.
12. Contractor shall cover floors in the work area with polyethylene sheeting. Floor shall be covered with a minimum of two layers of 6-mil polyethylene sheeting. Plastic shall be sized to minimize seams. A distance of at least six (6) feet between seams is sufficient. DO NOT locate any seams at wall/floor joints. Floor sheeting shall extend at least twelve inches (12") up the sidewalls of the work area. Sheeting shall be installed in a fashion so as to prevent slippage between successive layers of material. A layer of 10-mil polyethylene sheeting and/or plywood may be required by the HMS, Inc. Project Manager to protect certain flooring materials -- carpets, hardwood floors, tiles, etc. At no time will wall or ceiling materials be permitted to be dropped onto unprotected floors. This includes areas where the floor surfaces contain asbestos.
13. Contractor shall cover walls in the work area with polyethylene sheeting. Walls shall be covered with a minimum of two layers of 4-mil polyethylene sheeting. Plastic shall be sized to minimize seams. Seams shall be staggered and separated by a distance of at least six feet (6'). DO NOT locate any seams at wall/floor joints. Wall sheeting shall overlap floor sheeting by at least twelve

- inches (12") beyond the wall/floor joint to provide a better seal against water damage and for pressure differential maintenance. Wall sheeting shall be secured adequately to prevent it from falling away from the walls. This may require additional support/attachment when pressure differential systems are utilized.
14. Contractor shall cover ceilings in the work area with polyethylene sheeting. Ceilings shall be covered with a minimum of two layers of 4 mil polyethylene sheeting. Plastic shall be sized to minimize seams. Seams shall be staggered and separated by a distance of at least six feet (6'). DO NOT locate seams at wall/ceiling joints. Ceiling sheeting shall overlap wall sheeting by at least twelve inches (12") beyond the ceiling/wall joint to provide a better seal against water damage and for pressure differential maintenance. Ceiling sheeting shall be secured adequately to prevent it from falling away from the walls. This may require additional support/attachment when pressure differential systems are utilized.
 15. The contractor shall add clear sight windows in the containment walls at least 1' x 2' in size. The HMS, Inc. Project Manager will approve quantity and placement of these inspection windows. HMS, Inc. Project Manager has the right to require more clear sight windows or require placement of windows to be altered.
 16. The equipment room shall be used for storage of equipment and tools at the end of a shift after they have been decontaminated using a HEPA-filtered vacuum and/or wet-cleaning techniques as appropriate. A walk-off pan shall be located in the work area just outside the equipment room. A six-mil. disposal bag or a drum lined with a labeled 6-mil polyethylene bag for collection of disposable clothing shall be located in this room.
 - 17.
 18. Contractor shall obtain written containment visual clearance from HMS, Inc. Project Manager prior to the start of abatement in any and all containments.
 19. Contractor is not responsible for normal tape damage due to tape requirements for containment set-up, unless specifically mentioned in the Scope of Work. Contractor is responsible for excessive tape damage and damage from spray glue application, staples, nails, hooks, etc. installed to support containment.
 20. Install and initiate operation of pressure differential equipment as needed to maintain differential-air pressure of -0.040 inches of water. There shall be a sufficient number of differential air pressure units to maintain a minimum of four air changer per hour. All pressure differential units shall have pre-filters at the intake of the system which must be changeable from inside the containment area. Openings made in the enclosure system to accommodate these units shall be made airtight with tape and/or caulking as needed. They shall NOT be exhausted into occupied areas of the building. Twelve-inch (12") extension ducting shall be used to reach from the work area to the outside when required. Careful installation, air monitoring and daily inspections shall be done to ensure that the ducting does not release fibers into uncontaminated building areas.
 21. All flex ducting, protected by poly during abatement or not, pre-filters and intermediate filters shall be manifested and discarded as friable, hazardous asbestos-containing materials. A flex tube may be used for multiple containments on the same job as long as it is moved from one containment to another in two 6 mil poly bags
 22. Once the containment has been constructed and reinforced as necessary with pressure differential units in operation as required, the contractor shall test the enclosure for leakage utilizing smoke tubes. The containment shall be repaired or reconstructed as needed.

City of Stockton Police HQ Women's Locker Rm Remodel

23. All HEPA systems used on this project shall be tested and certified onsite by an independent company prior to use. (See section 12)
24. Contractor shall submit logs documenting filter changes for each pressure differential unit.
25. Contractor shall clearly identify and maintain emergency and fire exits from the work area.
26. Work shall not begin each day until:
 - a. Enclosure systems, or modifications thereof, have been designed and built by the contractor and each step approved by the APM. If design of containment is to be altered in any way, after it is approved by the HMS, Inc. Project Manager, a written explanation of how and why the containment is to be altered must be submitted to the HMS, Inc. Project Manager for approval.
 - b. Pressure-differential systems are functioning according to an acceptable design.
 - c. All pre-abatement submissions, notifications, postings and permits have been provided and are satisfactory to the Owner or its representative.
 - d. All equipment for abatement, clean-up and disposal is on hand.
 - e. All worker training (and AHERA certification) is completed and documented.
 - f. The contractor has installed all required clear transparent view ports made of plastic or equivalent, in the polyethylene wall so that activities can be visually monitored by the project manager from outside the containment. This window shall measure approximately 1' wide by 2' high. It shall be installed at a location approved by the HMS, Inc. Project Manager. It is recognized that viewing ports are not possible in all locations.
 - g. All pressure-differential units and vacuums have received and passed onsite DOP testing.
 - h. Contractor has at least one competent person at each site in which work is taking place.
 - i. All necessary documents and information have been posted or are on the work site.See Section 2.

13.2 Power Outage Procedures

The following procedures shall be followed in the event of a power outage (no matter the source of the outage):

1. Immediately stop abatement activities.
2. Wet all debris and/or friable materials within the containment.
3. Depart containment area as soon as reasonable. Shower out or use Hudson sprayers to decontaminate worker if shower is inoperable due to power outage.
4. Seal containment area including:
 - A. Decon units
 - B. Makeup air ports
 - C. Bag out chambers
 - D. Negative pressure air exhausts or inlets (must be sealed in a fashion that will allow for exhaust of air to occur when power is restored)
 - E. Re-establish APD before starting abatement
5. Contractors will be given credit against liquidated damages for all actual down time plus two hours

City of Stockton Police HQ Women's Locker Rm Remodel

for shut down procedures, decontamination procedures and start up, (total of 6 hours) unless power outage is attributable to abatement contractor actions.

If a generator is required in the specifications, made necessary due to extended power outages, or chosen to be used by the abatement contractor the following issues must be addressed:

- Generator must not violate any local noise ordinances nor disturb adjacent building occupants.
- Generator exhaust must not be allowed to contaminate the makeup air being pulled into the containment. It must, also, not be allowed to mix with HVAC air supplied to adjacent occupied buildings.

13.3 Work Schedule

1. A detailed work area by work area schedule must be submitted at the pre-start meeting. The schedule shall have, at a minimum, the work area and the day/month for beginning and terminating work in each work area. During progress of work, it shall be the contractor's responsibility to keep the schedule current and up to date.
2. Contractor's request to change this schedule must be submitted to HMS, Inc. in writing at least 48 hours prior to the proposed addition, deletion or change in hours of a work shift. This would include working more than one shift per day, working extra days in the week, changing work hours or work days, etc. If 48 hours notice is not given, the proposed work shift may be canceled by HMS, Inc. Project Manager. The Owner and/or HMS, Inc. Project Manager reserves the right to deny any changes in the work schedule.
3. If the contractor wishes to work on a Federal or State holiday, more than five days a week, or more than 9 hours a day, Contractor becomes responsible for cost of project management fees to cover extended hours. If contractor fails to appear onsite without notifying HMS, Inc. Project Manager 24 hours in advance, the contractor becomes responsible for all HMS, Inc. Project Manager travel fees, onsite time fees, and other associated project management fees for that day.

SECTION 14. REMOVAL PROCEDURES

1. Contractor shall wet all asbestos-containing material with an amended water solution using equipment capable of providing a fine spray mist, in order to reduce airborne-fiber concentrations when the material is disturbed. Saturate the material to the substrate; however, do not allow excessive water to accumulate in the work area. Keep all removed material wet enough to prevent fiber release until it can be containerized for disposal. Maintain high humidity in the work area by misting or spraying to assist in fiber settling and reduce airborne concentrations. Wetting procedures are not equally effective on all types of asbestos-containing materials but shall none-the-less be used in all cases.
2. Saturated asbestos-containing material shall be removed in manageable sections. Removed material should be containerized immediately (as soon as removed). Surrounding areas shall be periodically sprayed and maintained in a wet condition until visible material is cleaned up. Gross debris shall be cleaned up and bagged prior to any work stoppage, such as for breaks, lunch, end of each shift, or project shut down (voluntary or not).

City of Stockton Police HQ Women's Locker Rm Remodel

3. Material removed from building structures or components shall not be dropped or thrown onto unprotected floors at any time. Floors shall be covered with poly regardless if they are being removed after ceiling or walls. Material should be removed as intact sections or components whenever possible and carefully lowered to the floor.
4. Containers (6-mil polyethylene bags or drums) shall be sealed when full. Double bagging of waste material is necessary. Bags shall not be overfilled. They should be securely sealed to prevent accidental opening and leakage by tying tops of bags in an overhand knot or by taping in gooseneck fashion. Do not seal bags with wire or cord.
5. Drums shall be used to dispose of asbestos-containing waste with sharp-edged components (e.g., nails, screws, metal lath, tin sheeting). Waste must be double bagged and goose-necked within drums.
6. After completion of all stripping work, surfaces from which asbestos-containing materials have been removed shall be wet-brushed and sponged or cleaned by some equivalent method to remove all visible residue.
7. After the work area has been rendered free of visible residues (and verified clean by the APM), a thin coat of a satisfactory encapsulating agent shall be applied to lock-down non-visible fibers on all surfaces, in the work area including structural members, building components and plastic sheeting on walls, floors and covering non-removable items, to seal in non-visible residue. Unprotected flooring surfaces shall not be encapsulated unless otherwise noted in the Scope of Work or indicated by the HMS, Inc. Project Manager.
8. After asbestos-containing materials have been removed from floor surfaces. These floor surfaces shall be washed with a TSP solution, or similar detergent acceptable to the Client, follow-up flooring contractor, and HMS, Inc, Project Manager, prior to clearance air tests.

SECTION 15. WASTE CONTAINER PASS-OUT PROCEDURES

1. Asbestos-contaminated waste that has been containerized shall be transported out of the work area through the waste transfer airlock or through an approved pass-out arrangement.
2. Waste pass-out procedures shall utilize two teams of workers, an "inside" team and an "outside" team.
3. The inside team, wearing appropriate protective clothing and respirators for inside the work area, shall clean the outside, including bottoms, of properly labeled containers (bags, drums, or wrapped components) using HEPA vacuums and wet-wiping techniques and transport them into the waste container pass-out airlock. Provisions for spray cleaning exterior of bags, equipment, and removable items shall be present in the waste pass-out. Waste water from this operation shall be collected and filtered as required through a 1.0-micron filter. No worker from the inside team shall further exit the work area through this airlock.
4. The three-chamber system is utilized in the following manner. Workers inside the work area place

the waste in the initial waste container, which is usually a bag. They then rinse the bag and seal it. They hand it to a worker in the dirty chamber room who inspects the bag and, if it is clean, places it in the secondary waste container. The secondary container is either another bag or a lined rigid-wall container such as a barrel or box. The worker then seals the secondary container and may attach the proper labeling. The worker places the container in the middle chamber. The worker in the clean chamber then reaches in and lifts the container into the clean chamber. The worker inspects it and if not already labeled, attaches the proper labels. The worker then passes the container to the outside worker who transports the container either to the waste transport vehicle or to a holding area. At no time shall z-flaps of transfer system chambers be taped, held or otherwise blocked open. The Contractor must not allow more than one poly airlock doorway to be open at any one time. This prevents a tunnel system and a breakdown in the isolation of the work area. Negative pressure must be maintained during all waste load-out activities.

5. The contract documents or the HMS, Inc. Project Manager may in allow a one or two chamber system to be used for some projects, as long as the liability to the client, in the judgment of the HMS, Inc. Project Manager is not increased. As with a three-chamber system, in a one or two chamber system, the Contractor may never allow more than one poly air flap doorway to be open at any one time. For example, a one chamber system would function in the following manner. Workers in the work area rinse and seal the initial waste container. They hand the initial container to a worker in the load-out chamber. That worker verifies that the container is clean and then places it into the secondary container which will be either another bag or lined ridged-wall container depending on the specifications. The load-out worker then seals the container and applies the appropriate labels. The sealed, labeled container is then passed to the outside workers who transport it to the waste transport container or holding area.
6. The exit from this airlock shall be secured to prevent unauthorized entry.

SECTION 16. CLEAN-UP PROCEDURE AND VISUAL CLEARANCE CRITERIA

16.1 Clean-up Procedure

1. Remove and containerize all visible accumulations of asbestos-containing material and asbestos-contaminated debris utilizing rubber dust pans and rubber squeegees to move material around. DO NOT use metal shovels to pick up or move accumulated waste. Special care shall be taken to minimize damage to floor sheeting.
2. Wet-clean all surfaces in the work area using rags, mops and sponges as appropriate. (Note: Some HEPA vacuums might not be wet-dry vacuums.) To pick up excess water and gross wet debris, a wet-dry shop vacuum with HEPA filter may be used.
3. Airless sprayers and water hoses shall not be used in a "power washing" fashion on any surfaces.
4. Contractor shall remove each cleaned layer of polyethylene sheeting from walls and floors. Windows, doors, HVAC system vents and all other critical barriers shall remain sealed. The pressure differential units shall remain in continuous operation. Decontamination enclosure systems shall remain in place and be utilized.

City of Stockton Police HQ Women's Locker Rm Remodel

5. Remove all containerized waste from the work area.
6. Decontaminate all tools and equipment and remove at the appropriate time in the cleaning sequence.
7. Contractor shall clean work area and conduct pre-clearance visual. Once pre-visual has been passed by contractor, contractor shall allow dust to settle within containment for 24 hours, then return and re-clean by HEPA-vacuuming and/or wet-cleaning all objects and surfaces in the work area again. At this point HMS, Inc. will conduct the final visual. If final visual fails, contractor must reclean area until final visual passes. Once final visual is passed, contractor will be instructed to encapsulate the containment area, unless encapsulation of containment has been disallowed in the Scope of Work or material specific specification.
8. Contractor may request a reduction in the 24-hour waiting period, if personal samples collected during the abatement work and detail clean-up work have shown fiber levels below the PEL. Reduction of waiting period must be made in writing, accompanied by personal sample results from this project. Contractor must acknowledge that reduction in waiting period may result in failed clearance air samples and that retaking and re-analyzing these air samples will be at the contractor's expense. Reduction in waiting time will be at the discretion of the HMS, Inc. Project Manager and client.

16.2 Visual Clearance Criteria:

1. The Contractor shall perform a pre-final visual of the removal area and adjacent surfaces prior to requesting that the Owner's representative conduct a final visual inspection. The pre-final visual performed by the Contractor shall verify that all materials have been completely removed from the work area, and that the work area meets the requirements specified in Section 17.
2. Upon completion of the pre-final visual inspection by the Contractor a final visual of the containment area will be performed by the Owner's representative. The HMS, Inc. Project Manager will determine the clearance criteria for the project. At a minimum, no three-dimensional debris shall be left within the work area; all poly shall be wet wiped so that no visible dust or debris is left; the decontamination chambers shall be clean of all debris; the waste transfer area shall be clean of all debris; all equipment and supplies shall be clean of all debris. The Contractor shall not be released to encapsulate the containment until receiving written acceptance by the Owner's representative stating the removal area and the containment have met the criteria of the Owner's representative for completeness of removal and cleanliness of the containment barriers and surfaces.
3. When required, clearance air sampling shall be performed following the requirements specified in Section 17 after encapsulation of the containment has taken place and a sufficient amount of time has passed to allow the encapsulant to dry. The Owner shall determine the method of analysis to be used based on the amount and type of material removed within a containment. If at a K through 12 school site and the quantity of Asbestos-Containing Material (ACM) exceeds 160 square feet or 260 linear feet, analysis of air samples must be by transmission electron microscopy (TEM) per US EPA AHERA regulations.

City of Stockton Police HQ Women's Locker Rm Remodel

4. The HMS, Inc. Project Manager will conduct the final visual inspection of the work area for visible residue. If any accumulation of residue is observed, it will be assumed to be asbestos and the 24-hour settling period/cleaning cycle will be repeated.
5. Additional cleaning cycles shall be provided by the contractor, as necessary, at no cost to the Owner until the specified clean criteria have been met.
6. HMS, Inc. Project Manager has final say on whether or not an area meets these requirements.
7. Following the satisfactory completion of clearance-air monitoring, remaining barriers may be removed and properly discarded as non-asbestos containing waste. If contamination exists behind these critical barriers, additional cleaning and air monitoring may be required.
8. Final visual will be conducted by at least one HMS, Inc. Project Manager. HMS, Inc. may supply additional personnel for inspection in order both to speed the inspection and to more thoroughly inspected the containment areas.
9. Owner, contractor and HMS, Inc. Project Manager shall jointly review the work area and make a damage assessment, after clearance air samples have passed and containment has been torn down.

SECTION 17. CLEARANCE AIR MONITORING

1. Following the completion of clean-up operations, the contractor shall notify the HMS, Inc. Project Manager in writing that work areas are ready for final visual inspection. This notification is to be made only after contractor foreman has made a visual inspection of his own.
2. After the HMS, Inc. Project Manager has given a final written approval of the clean-up operations, the contractor shall proceed to "lock-down" the containment area with an encapsulant. Exception to this is for containments that are not to be encapsulated prior to clearance air testing according to the Scope of Work (i.e. floor tile only projects).
3. Owner shall then arrange for an Air Monitoring Professional to sample the air in the work area for airborne fiber concentrations. Clearance-air monitoring shall proceed 24 hours after lock-down or when the area is dry, whichever is later.
4. Contractor may request a reduction in the 24-hour waiting period, if personal samples collected during the abatement work and detail clean-up work have shown fiber levels below the PEL. Reduction of waiting period must be made in writing, accompanied by personal sample results from this project. Contractor must acknowledge that reduction in waiting period may result in failed, or overloaded (with encapsulant) clearance air samples and that retaking and re-analyzing these air samples will be at the contractor's expense. Reduction in waiting time will be at the discretion of the HMS, Inc. Project Manager and the Owner.
5. Air samples will be taken using the "aggressive" air sampling techniques described in the AHERA regulations unless noted differently in the Scope of Work for non-AHERA sites. In the case aggressive samples cannot be collected (e.g. in a dirt floor area) this will be noted in the Project

Manager's notes.

6. If PCM analysis is used for clearance air samples, all clearance samples at all locations shall indicate a fiber concentration of less than or equal to 0.01 f/cc for release of the work area.
7. If TEM analysis is to be used for clearance air samples, then the clearance criteria shall be the same as AHERA, unless otherwise specified in the Scope of Work.
8. Areas exceeding these levels shall be re-cleaned and, if appropriate, re-encapsulated at no additional cost to the owner. All areas where clearance air samples fail will be re-tested.
9. The contractor shall be responsible for all subsequent air sampling costs if air samples fail to meet clearance criteria levels. This cost includes four hours of time for HMS, Inc. personnel to collect the air samples and the cost of laboratory analysis.

Roof Removal: No clearance air monitoring required. Only a visual inspection of the roof for roofing debris will be provided.

Tar-like Pipe Wrap Removal: This non-friable material will only be removed by cutting the clean ends of the pipe it is insulating. No clearance air monitoring required.

TSI Removal: When removal is less than three linear feet within a single glovebag (or similar) containment, no clearance air monitoring will be required.

Regardless of the method used, when removal exceeds three linear feet within a single containment clearance air monitoring will be performed prior to the removal of the containment barriers.

Drywall Removal: Regardless of the asbestos content, when the quantity of drywall removed exceeds 3 square feet, clearance air monitoring will be performed prior to the removal of the containment barriers.

VFT & Mastic Removal: When the quantity removed exceeds 3 square feet, clearance air monitoring will be performed prior to the removal of the containment barriers.

SECTION 18. MONITORING

1. Owner reserves the right to perform air and performance (contractor work practices, housekeeping, record keeping, etc.) monitoring at any time.
2. Contractor shall conduct personal air monitoring in accord with OSHA regulations. Results shall be made available to the HMS, Inc. Project Manager within 72 hours of collection. Hard copies of

these results shall be supplied to HMS, Inc. Project Manager within 7 days of collection. Failure to supply these sample results in the specified time may cause work to be stopped until all delinquent results have been submitted. Loss of contractor work time because of noncompliance of the provisions of this paragraph will not extend the date for work completion.

3. Owner may take air samples prior to, during, and after the project. Work shall not be considered complete until all air sampling has been completed and satisfactory levels have been obtained. "Satisfactory levels" shall be those established by AHERA, unless more stringent requirements have been identified in the Scope of Work, General Specifications, General Requirements, or other Project Specifications.
4. In areas where soil contamination may be present, soil samples must meet specified criteria in Scope of Work prior to clearance air samples collection.
5. Owner, or HMS, Inc. Project Manager, shall be authorized to issue a STOP WORK order whenever Contractor's work or protective measures are not in accord with published regulations or contract specifications.

SECTION 19. DISPOSAL PROCEDURES

19.1 Disposal Procedures

1. Waste transport and disposal personnel must wear at least half mask HEPA-cartridge type respirators when handling intact sealed bags.
2. Disposal bags shall be of 6-mil polyethylene, pre-printed with labels as required by California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) regulations.
3. Disposal drums shall be plastic, metal or fiber board with locking ring tops. If heavy duty card board boxes are allowed in the Scope of Work, they may replace the barrels. Cardboard boxes must be sturdy enough not to be deformed or compromised by the weight of the materials disposed within them.
4. All containers, including bags and barrels or boxes must be labeled the same as the ACM waste disposal bags.
5. All waste shall be double bagged in 6-mil polyethylene bags and goose-necked. These bags will then be placed into disposal drums as described above.
- 6.
7. Contractor shall provide stick-on labels for disposal containers that meet the Cal/OSHA, NESHAPS, and DTSC requirements for hazardous and non-hazardous waste container labeling.
8. All waste bags shall have visibly damp materials but shall not contain loose water. In the event loose water is discovered within a waste bag, it shall be absorbed with kitty litter, saw dust or similar product prior to the bag being sealed.

City of Stockton Police HQ Women's Locker Rm Remodel

9. All asbestos waste, hazardous or not, shall be manifested. Non-hazardous waste shall be manifested on a non-hazardous waste manifest.
10. All waste containers (barrels or boxes) shall be sealed in a manner that allows them to be opened for inspection of sealed bags within by HMS Project Manager, Regulatory personnel and Dumpsite personnel.
11. Waste placed into boxes or barrels at the project site must be disposed of within the same boxes and barrels at the dumpsite. Removal of waste from these boxes and barrels is not allowed. As the work progresses, to prevent exceeding available storage capacity onsite, sealed and labeled containers of asbestos-containing waste shall be removed and transported to the prearranged disposal location.
12. Disposal must occur at an authorized site in accordance with regulatory requirements of NESHAPS and applicable State and Local guidelines and regulations, including the California State Environmental Protection Agency, Toxic Substances Control Division regulations.
13. Transport vehicles shall be marked with the sign prescribed by NESHAPS regulations during loading and unloading to warn people of the presence of asbestos.
14. All dump receipts, trip tickets, waste manifests, NESHAP Waste Shipment Record (WSR) and other documentation of disposal shall be delivered to the Owner, for the Owner's records. The WSR is not required if the cubic yards of asbestos-containing waste is indicated on the Waste Manifest. The manifest should be signed by the Owner, the hauler, and the Disposal Site Operator as the responsibility for the material changes hands. If a second hauler is employed, his name, address, telephone number and signature should also appear on the form. The WSR, if used, shall be signed by the Owner or its agent and the disposal site operator.
15. All manifests shall have asbestos waste identified as: "RQ, Asbestos, 9, NA2212, III". This requirement may be changed as new regulations are issued. See "Waste Disposal" requirements at end of "General Requirements".
16. All manifests shall be accompanied by a "Notice and Certification". A signed copy of this must be provided to the Owner or Owner's agent.

19.2 Transportation to the Landfill

1. Once drums, bags and wrapped components have been removed from the work area, they shall be loaded into an enclosed (solid walls, ceiling and floor) truck or dumpster, which has been lined with 6-mil polyethylene (walls and floor).
2. When moving containers, utilize hand trucks, carts and proper lifting techniques to avoid back injuries. Trucks with lift gates are helpful for raising drums during truck loading.

City of Stockton Police HQ Women's Locker Rm Remodel

3. Personnel loading asbestos-containing waste shall be protected by disposable clothing including head, body and foot protection and, at a minimum, half-facepiece, air-purifying, dual cartridge respirators equipped with high-efficiency filters. Any debris or residue observed on containers or surfaces outside of the work area resulting from clean-up or disposal activities shall be immediately cleaned up using HEPA filtered vacuum equipment and/or wet methods as appropriate.
4. No waste containers shall be onsite which contain other hazardous waste, or hazardous waste from another owner. Waste from multiple sites of the same owner within the same waste container is acceptable; however, it must be manifested separately.
5. If contractor is storing waste from various sites of one owner, all transportation vehicles shall be covered by the same regulations as the dumpster or truck being used to haul the waste to the dump. If equipment or supplies are to be left in vehicles during hauling of waste to dumpster or truck, waste and equipment/supplies must be separated by a solid (wood or metal) barrier which has been sealed as a critical barrier. A poly wall barrier is not sufficient.
6. Dumpster truck or storage bin must be locked at all times except when being filled.
7. It is the contractor's responsibility to see that all dumpsters, trucks, and storage bins arrive onsite completely free from debris.
8. The contractor shall provide a weight receipt that identifies the net weight of the material being discarded.

19.3 Disposal at the Landfill

1. Upon reaching the landfill, trucks are to approach the dump location as closely as possible for unloading of the asbestos-containing waste.
2. Bags, drums, barrels and components shall be inspected as they are off-loaded at the disposal site. Material in damaged containers shall be re-packed in empty drums or bags as necessary. (Local requirements may not allow the disposal of asbestos waste in drums. Check with appropriate agency and institute appropriate alternative procedures.)
3. Waste containers shall be placed on the ground at the disposal site, not pushed or thrown out of the trucks (weight of wet material could rupture containers).
4. Personnel off-loading containers at the disposal site shall wear protective equipment consisting of disposable head, body and foot protection and, at a minimum, half-facepiece, air-purifying, dual cartridge respirators equipped with high-efficiency filters.
5. Following the removal of all containerized waste, the truck cargo area shall be decontaminated using HEPA vacuums and/or wet methods to meet the no visible residue criteria. Polyethylene sheeting shall be removed and discarded, along with contaminated cleaning materials and protective clothing, in bags or drums at the disposal site.

SECTION 20. SPECIFIC PROCEDURES AND REQUIREMENTS

City of Stockton Police HQ Women's Locker Rm Remodel

NOTE: All Specific Procedures and Requirements listed in Section 20 shall be reviewed by the contractor along with the Scope of Work issued for the project. If any perceived conflicts are present between the Scope of Work and these specifications or within the General Requirements specification itself, the contractor shall ask for a written interpretation from the HMS, Inc. Project Manager prior to submission of his bid. If conflicts in the "Scope of Work" and this specification or with the General Requirements specification itself are discovered after the start of abatement, the more stringent specification and/or requirements will be enforced. The HMS, Inc. Project Manager shall make the determination as to what which requirements and/or specifications are more stringent.

20.1 General Repair of Damaged Thermal System Insulation (TSI) Procedures

Where TSI has been damaged, and it is feasible to repair the small nicks, cuts, and exposed ends, the following procedures shall be performed:

1. Contractor shall establish a regulated area according to the requirements of 8 CCR1529 and as enhanced by this specification and the Scope of Work, including but not limited to the posting of the area and allowing on authorized personnel into the work area.
2. Piece of 4-6 mil poly sheeting shall be placed directly under the area to be worked to collect any fallen debris or repair compound.
3. Half-masks and disposable suits (at a minimum) shall be used during this work.
4. The area shall be restricted to those personnel involved in the work, so posting of the accesses is required. In some cases, poly shall be used to cover the access points.
5. A HEPA-vacuum must be in the immediate area to pre-clean any debris observed surrounding the damaged section, or in the event of a mishap.

If work is performed indoors, the ventilation system shall be off in the areas worked in to prevent fiber distribution. Ventilation supply and exhaust ducts shall be covered with poly sheeting.

6. It will be necessary to remove small sections of other insulation material, such as fiberglass, if debris from the damaged pipe wrap has contaminated it.
7. If appropriate, contractor shall HEPA-vacuums the damaged section will collect all loose, hanging, friable insulation material prior to any further repair work.
8. Very small cracks, holes, nicks, and cuts can be repaired with only joint compound or with a single layer of wettable cloth and appropriate bridging encapsulant. Larger sections of damaged pipe wrap, particularly where pipe hangers or metal channel have damaged the insulation, will require at least two layers of wettable cloth.
9. Where the pipe wrap cannot be removed completely from penetrations in the walls, floors, or ceilings, the pipe wrap shall be removed at least one inch into the opening and sealed with a bridging encapsulant to grade. The Contractor may choose to fill large gaps with fiberglass insulation, prior to sealing with the encapsulant.

City of Stockton Police HQ Women's Locker Rm Remodel

10. All of the Contractor's materials, including poly sheeting, tape, joint compound, etc. shall be removed at the completion of the work performed.

20.2 Glovebag Technique Requirements

Where the glovebag technique is specified for removal of Thermal System Insulation (TSI), or in those areas where the Contractor opts to use glovebags, all of the following conditions must be met:

1. The Contractor shall develop a regulated area that meets the requirements of 8 CCR 1529 regarding posting and limited access.
2. The Contractor shall follow the procedures recommended by the manufacturer of the glovebags, and the specifications required by Federal OSHA and Cal/OSHA regulations
3. All critical openings within the regulated area shall be sealed prior to set up of the containment.
4. At least one layer of 6 mil poly must be used to contain the abatement area.
5. Stationary objects in the immediate area of the room which cannot be removed from the work area must be covered with at least one layer of 4 mil poly sheeting after being pre-cleaned.
6. A minimum three stage decontamination unit with a shower shall be contiguous with the containment for areas requiring removal of more than 6 linear feet of TSI, or 10 square feet of surfacing material.
7. Negative pressure shall be established and a circular graph recording manometer shall be attached to the containment per Section 13.
8. A HEPA-filtered vacuum shall be in the immediate area for use in conjunction with the bags or in case of a spill.
9. Glovebags may not be used on surfaces where temperatures exceed 150 degrees Fahrenheit.
10. Glovebags may be used only once and may not be moved or slid for removal of a second section of TSI.
11. At least two persons shall perform Class I glovebag removal as defined by Federal and Cal/OSHA.
12. Before beginning the operation, loose and friable material adjacent to the glovebag operation shall be wrapped and sealed in two layers of 6 mil poly sheeting or otherwise rendered intact.
13. Where the system uses an attached waste bag, such bag shall be connected to a collection bag using a hose or other materials which shall withstand pressure of ACM waste and water without losing its integrity.
14. The Contractor shall apply a sufficient volume of amended water to all pipe wrap scheduled for removal while it is enclosed in the glovebag.

City of Stockton Police HQ Women's Locker Rm Remodel

15. A sliding valve or other device shall separate the waste bag from the hose to ensure no exposure when the waste bag is disconnected.
16. Prior to placement in the disposal bag, glovebags shall be collapsed by removing air within them using a HEPA-vacuum.
17. Upon detachment, the glovebag must be immediately placed into at least two 6 mil thick disposal bags. The disposal bags must be sealed using the "gooseneck" sealing technique.
18. Where pipes enter walls, floors, or ceilings which are not within the scope of the project, the pipe wrap shall be removed at least 1" into the structure and the pipe wrap end must be sealed with bridging encapsulant and/or wettable cloth.
19. If the Contractor chooses to use a Negative Pressure Glove Bag System, Negative Pressure Glove Box System, or Water Spray Process System in lieu of the traditional Glovebag System, the Contractor shall submit to Owner's agent/site representative detailed written procedures on those systems which will be used. In addition, air sampling data, generated by the Contractor, must be provided to Owner's agent/site representative. Owner's agent/site representative must provide prior approval to alternate techniques and approaches to those specifications detailed here.
20. The Contractor is responsible for salvage and decontamination of all pipe system supports, hangers, brackets, saddles, etc. These items shall be inventoried by the Contractor and verified by the Owner's agent/site representative before and after abatement. The Contractor will be responsible for replacement of any items lost or damaged.
21. The Contractor shall be responsible for ensuring the piping system remains adequately supported at all times. This may be achieved by readjusting existing hanger brackets as insulation is removed, or by other approved methods, such as inserting wood blocks to replace the thickness of the removed insulation.

20.3 Mini-Cube Enclosure Requirements

1. For the purposes of these specifications, "mini-cube enclosure", "mini-enclosure", and "mini-cube" are all used interchangeably and mean the same. The mini-cube enclosure is required to be constructed whenever small sections of walls, ceilings, or pipe insulation are to be removed for electrical, plumbing, mechanical, etc., work. The purpose is to create an enclosed and controlled work environment while removing asbestos or accessing an attic space which is contaminated.
2. Enclosure walls and floors must be constructed of at least two layers of fire-rated 6 mil poly sheeting. No visible holes, cracks, penetrations, etc. shall be within this enclosure. The upright frame shall be adjustable in order to butt the top of the enclosure to the wall or ceiling area. A single drop layer of 6 mil poly sheeting shall be put down and removed daily at the end of the work shift. For work involving removal of TSI by glovebag technique, only one layer of 6 mil poly sheeting is required for construction of the mini-enclosure. All mini-enclosures, mini-cubes, etc. must have a view port that allows the HMS, Inc. Project Manager to view the activities going on inside the regulated area. The placement, number, and size of the view port(s) must be acceptable to the HMS, Inc. Project Manager.

City of Stockton Police HQ Women's Locker Rm Remodel

3. At least two chambers shall be present, separated by flapped poly sheeting doors. The first chamber upon entrance will be called the "clean" chamber, while the second chamber will be called the "dirty" chamber.
4. Since the top of the enclosure must be open in the chamber where ceiling access will take place, special care must be taken prior to moving the enclosure. If the mini-enclosure is designed to be portable, the enclosure must be sealed at the top prior to being moved to the next location. This may be achieved by temporarily sealing the top of the chamber with poly and tape from the inside.
5. Dirty chamber must be sealed around work area in a fashion that creates an air-tight seal without causing damage to floor, walls, ceilings or other materials. This may be achieved by use of a pliable material, such as non-porous foam rubber, or other methods approved by the HMS, Inc. project manager. A tight seal must be maintained without damage to the remaining materials (this may be difficult if tape is used).
6. For access to an attic space, position the enclosure at the location to be worked. The enclosure must be butted up to the ceiling surface to form a semi-seal between the top of the enclosure and the ceiling. The enclosure can then be completely sealed to the ceiling, using tape. After a seal has been established, access into the ceiling can then proceed.
7. A HEPA vacuum shall be used to establish "negative pressure" or airflow into the enclosure. This shall be verified by using ventilation smoke tubes.
8. The following equipment and materials, at a minimum, must be present inside the mini-enclosure "dirty" chamber:
 - 6 mil poly bags with clean rags for cleaning.
 - Amended water in a Hudson-like sprayer for the rags.
 - Empty bag for disposal of items.
 - Flashlights or drop light as appropriate.
 - Personal Protective Equipment including extra suits in case of multiple entry/exits
 - Amended water in a properly labeled Hudson Sprayer
 - Daily change of 6 mil poly sheeting drop layer.Other tools needed to perform task.
9. The following equipment and materials, at a minimum, must be present inside of the mini-enclosure "clean" chamber:
 - Clean potable water in a Hudson-like sprayer which is labeled "Clean Potable Water Only". A new container must be designed for potable water only. No container used previously to hold liquids will be allowed. No open containers will be allowed.

City of Stockton Police HQ Women's Locker Rm Remodel

- Clean disposable shower or hand towels for drying hands, arms, and face.
 - 6 mil poly bags for disposal of towels and other items.
 - Any other tools the Contractor requires, such as tape, screwdrivers, etc.
10. The work area must be delineated with the proper barrier tape and the outside of the poly-flapped entry to the mini-cube must be posted with OSHA required warning signs for a regulated area.
 11. Clean disposable coveralls must be worn entering the mini-enclosure and must be removed prior to leaving the mini-enclosure. Depending upon the work being performed, the Contractor may choose to "double suit" in disposable coveralls. All workers shall use the Clean Room and its supplies for personal hygiene prior to exiting the enclosure.
 12. For work involving removal of more than 6 linear feet of TSI, or greater than 10 square feet of surfacing material (regardless of method to be used), a shower must be attached to the mini-cube enclosure and be contiguous with the work environment and comply with all other decontamination requirements in related sections of this specification .
 13. If there is removal of greater than 3 linear feet of TSI, or greater than 3 square feet of surfacing material (regardless of the method used), the enclosure must remain in place until a final visual is passed, and clearance air samples are collected by Owner's agent/site representative. Where work involves less than these quantities, only a visual inspection by Owner's agent/site representative will be required prior to removal of the mini-enclosure. Mini-enclosure shall be constructed in a fashion that will stay in place, remain intact and under negative pressure for numerous days while awaiting clearance air sample results.

20.4 Roofing Abatement Requirements

General Requirements

1. Except as amended here and in the Scope of Work, all other Sections of this Exhibit shall be followed.
2. The work shall be coordinated and scheduled when there are favorable weather conditions, such as, performing the abatement work when the forecast is for "clear skies" and no rain for three or more consecutive days. The Contractor shall remove only that amount of roofing material which can be reroofed or covered and secured from the weather.
3. Work may be halted at the discretion of the Owner's agent/site representative if wind conditions occur which can or does cause removed roofing materials to be blown off the roof area, or beyond the designated removal area perimeter. All roofing work shall be coordinated to allow other trades to work at the same time as long as their work is located in areas where contamination cannot occur. No cutting, sanding, grinding, or removal of any type will take place until all preparations for removal have been completed and inspected by the onsite project manager. This section may be amended in other sections of this specification for this project.

City of Stockton Police HQ Women's Locker Rm Remodel

4. The words "clear skies" are used as a means of indicating favorable weather conditions. These two words do not mean, nor are they intended to require skies be clear and free of clouds, fog, or other meteorological conditions which are not expected or forecast to produce measurable rain. The follow up requirement of no rain for three or more consecutive days is to help clarify the favorable weather condition requirement. The last sentence concerning the amount of roofing to be removed is to further instruct and direct the Contractor not to be over optimistic and create more open roof areas than can be reroofed, secured, or properly protected from weather in case the forecast changes unexpectedly or without warning.
5. All work hours at the site shall be determined by the Owner or as defined in other sections of this Exhibit. Unless otherwise stated, the buildings will be reoccupied each morning Monday through Friday.
6. All work shall be coordinated with the other trades involved on this project, with central coordination being primary between the abatement contractor and the General Contractor for the project. However, Owner's agent/site representative must be notified of projects in advance as stated in other sections of this Exhibit.
7. The Contractor shall provide all necessary equipment, tools, materials, lighting, labor, etc. to perform the work. Sufficient lighting shall be provided to illuminate the entire removal and transit areas for removal of roofing material, and for the final visual inspection by the Owner's agent/site representative if the work is to be performed at night.
8. All HEPA equipment to be used on the project must be delivered to the site empty of all debris, clean, free of dust, and in full operating condition. HEPA equipment to be used inside any building must have been DOP tested within the last 90 days. This DOP certification must be verified by Owner's agent/site representative prior to its use.
9. The Contractor shall provide worker safety according to all OSHA regulations (Title 8), including use of tie-offs, harnesses, and lanyards. Particular attention shall be given to the placement and securing of accesses (ladders, etc.) to the roof and for fall protection for those working near the perimeter of the roof.
10. All ladders used shall conform to Cal/OSHA requirements. The ladders shall extend at least three feet above the roof line and shall be tied off to the building to prevent them from sliding.

Contractor Responsibilities

1. The Contractor shall be responsible for securing all exposed roof surfaces, including any roof penetrations against weather after roofing materials have been removed. Protection of the roof must be made with an impermeable barrier to prevent water from entering the building structure.
2. The Contractor will be responsible for all clean-up and costs associated with the decontamination of occupied spaces in the event of contamination of an occupied space.
3. The Contractor is responsible for any contamination of the attic space above the existing ceilings inside the buildings caused by their work, except as noted specifically in the Scope of Work.

City of Stockton Police HQ Women's Locker Rm Remodel

4. The Contractor is responsible for damage to the roofing substrate and will be responsible for repair or replacement if damaged.
5. The Contractor is responsible for removal of all roofing layers and associated materials such as roofing nails, insulation, fiberboard, etc. down to the wood or metal substrate regardless of asbestos content, unless otherwise noted in the Scope of Work. Where it is unknown how many layers of roofing materials exist, it must be assumed that there are multiple roofing layers present. The Contractor may, upon request and approval by the Owner, collect core samples of any roof to be removed for the purpose of determining its depth and structure. If coring is conducted, it is the responsibility of the Contractor to repair the areas affected to industry standards using non-asbestos materials.
6. The Contractor is responsible for removing all roofing nails and driving in all nails used for securing the roofing substrate after roof material has been removed. The Contractor will not be required to remove silver paint or tar coating on conduit, roof jacks, heating, ventilation, and air conditioning (HVAC) equipment, flashings, etc. which will be reused by the Owner. Where flashing is to be reused, the Contractor shall carefully remove and save the flashing in an undamaged condition, unless otherwise required by the Owner. This section may be amended in the Scope of Work for this project.
7. The Contractor is responsible for removal and replacement of wood block or metal supports which may be present under conduit, gas lines, piping, HVAC units, ducting, etc. in order to perform the work. The Contractor is also responsible for temporarily installing wood blocks for any existing roof structures during the roofing removal, when it is necessary to remove existing support members to accomplish the work.
8. The Contractor is responsible for damage to all equipment and existing cables which are present on the roof. The Contractor is responsible for damage to electrical wiring, telephone lines, antenna wires, and other conduits which are present. An inspection for pre-existing conditions is the responsibility of the Contractor but may also be conducted by the Owner's representative.
9. The Contractor is responsible for obtaining all necessary permits to perform this work, including any local permits for work in the evening/night hours.
10. Standards of cleanliness for fluted metal decks located underneath asbestos-containing roofing materials. It is possible for the abatement crew to remove the asbestos-containing roofing materials without breaking through or removing the light grey insulation material beneath it. If removal of asbestos roofing materials is performed as described above, and the insulation material remains intact, District's agent/site representative can conduct a final visual for asbestos-containing debris. Once this inspection has been completed, and the requirement for no remaining asbestos-containing debris on the roof is met, the insulation layer is removed.
11. At this point, asbestos is no longer an issue, and District's agent/site representative will allow minor amounts of the non-asbestos debris to remain in the fluted areas of the deck. General cleaning of the flutes is conducted to a point where the amount of debris remaining is reduced to a minimal amount without having to completely clean or vacuum the flute channel.
12. The District is unaware of any potential hazard which could be caused by leaving some non-asbestos debris and does not consider it necessary to have the flute channels detailed beyond

City of Stockton Police HQ Women's Locker Rm Remodel

generally clean conditions. However, if the fiberboard layer is extensively damaged during removal of the asbestos-containing materials, and asbestos-containing roofing debris cannot be distinguished from non-asbestos containing roofing materials, all flutes shall be vacuumed and cleaned as set forth in the project specifications.

Owner Responsibilities

1. The Owner is responsible for closing all windows in the building where the asbestos roofing material will be removed. This must be done prior to the asbestos abatement contractor arriving onsite for the work shift, in order to prevent delays.
 - a. The Owner shall also be responsible for cutting or trimming back all trees and limbs which may impact the removal of the existing roofing materials.

General Roof Removal Instructions and Requirements

1. Removal of non-friable asbestos-containing roofing is designated as Class II work. Half-masks and disposable coveralls shall be used at a minimum by all workers, at all times, when within the regulated area.
2. No personnel will be allowed into the regulated area during actual removal work without proper respiratory and personal protective equipment. Work boots with hard soles are required to be worn by all abatement personnel. No athletic, street, or dress shoes are to be worn during work activities.
3. All roofing material shall be removed in an intact state to the extent feasible.
4. All roofing is to be removed wet by an amended water solution or encapsulant as necessary.
5. The abated roof area shall be HEPA vacuumed after roofing materials have been removed. Particular attention shall be directed at the flute channels of metal decks.

Pre-Abatement Preparation Requirements

1. The Contractor shall seal all air intakes associated with the HVAC units which are on or near the roof under abatement, and at adjacent HVAC units, particularly downwind from roofing removal activity. In addition, all louvers, window mounted fan systems, attic openings, etc., shall be sealed as critical barriers. The Contractor is responsible for sealing all HVAC openings as critical barriers using one layer of 6 mil poly. These critical barriers shall be installed at the beginning of each shift and removed at the end of each shift prior to reuse by the Owner. If the building will not be reoccupied daily, the barriers may stay in place.
2. The perimeter of the roof where removal is to be conducted, shall be posted with barrier tape at a distance of at least 20 feet from the edge of the removal area. This barrier tape will provide a buffer zone and assist in the restriction of non-abatement personnel.
3. Poly sheeting shall be placed on the ground directly below the work area or on the adjacent roof surfaces and cover an area extending out at least 10 feet. The Contractor shall secure the poly to the ground using tape, weights, or other means to secure the poly from being picked up by wind or becoming a trip hazard. The Contractor shall secure the poly to the adjacent roof surfaces with

tape, etc.

Waste Bins and Waste Bin Preparations

1. The Contractor is responsible for inspecting all waste bins delivered to the job site for load worthiness. The Owner's agent/site representative reserves the right to refuse any waste bin without any additional cost to the client, which upon examination, and in the opinion of the site representative, has a high probability of failure of doors, skids, walls, floors, or which contains other debris.
2. The Contractor shall be required to place footing materials of sufficient thickness, strength, and size under the casters, footings, and/or runners of waste bin(s) to prevent damage of property surfaces. The contractor is responsible for all damages to Owner's property caused by the delivery, placement, or removal of a waste bin. Damaged property shall be repaired to equal or better condition than was present prior to the activity causing the damage. This section may be amended in the Scope of Work for this project.
3. Unless the roofing material is carried or passed to the ground by hand, it shall be lowered to the ground via covered, dust-tight chute, crane, or hoist. All waste shall be sufficiently wetted with amended water to prevent fiber release. If fiber release cannot be prevented, then the chute and bin must be within a negative pressure enclosure. In no case shall roofing materials be dropped or thrown into trucks, bins or dumpsters from the roof without the protection of a dust tight chute or other means acceptable to the HMS, Inc. Project Manager.

Posting and Label Requirements for:

Regulated Area Entry Points and Waste Bin Perimeters

1. Access to regulated areas shall be posted as outlined by Cal/OSHA Title 8, 1529 (k)(7)(B) 1 and 2 with warning signs. Perimeters of waste bin(s) shall also be posted as outlined by Cal/OSHA Title 8, 1529 (k)(7)(B) 1 and 2 with barrier tape bearing the following information:

**DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING ARE
REQUIRED IN THIS AREA**

These postings are required to warn non-abatement personnel of the restricted access, and potential hazard which exists in the vicinity of the regulated areas and waste bin(s).

Building Perimeter at Ground Level

CAUTION in black letters on a solid yellow background.
DANGER in black letters on a solid red background.

DANGER ASBESTOS HAZARD in black letters on a solid red background.

Waste Material Containers

Waste material containers, including the "burrito wrapped" material, shall have warning labels affixed in accordance with Cal/OSHA Title 8, 1529 (k)(8)(A-D).

**DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD**

General Requirements for Creating Roof Penetrations

1. All roofing penetration cuts (if any) shall be at the direction of the primary contractors' Job Foreman and coordinated with Owner's agent/site representative as to the time of work. Any equipment to be used for the purposes of cutting, grinding, or sanding must meet or exceed all Cal/OSHA requirements regarding HEPA filtration and wetting/misting. Any equipment rented for the purpose of conducting asbestos work must be accompanied with documentation verifying that the rental agency has been notified and acknowledges receipt of notification that the equipment being rented will be used for asbestos related work. This documentation will be submitted to Owner's agent/site representative prior to the equipment being used on the job site.
2. The penetration area shall be surrounded by a 10-foot-wide section of at least 4 mil poly. This poly will help in the cleanup of small roofing material particles which may otherwise be mixed onto the surface of surrounding roof material. If the penetration is within 10 feet of the edge of the roof, poly shall be placed on the ground (or roof) directly below the work area. The Contractor shall secure the poly to the ground using tape, weights, or other means to secure the poly from wind and becoming a trip hazard.

Waste Disposal and Documentation Requirements

1. Roofing waste may be disposed as non-hazardous asbestos waste, in a landfill permitted to accept non-friable, non-hazardous asbestos roofing material. If the asbestos roofing material is currently friable, or becomes friable during its removal, it shall be disposed of in a landfill permitted to accept friable asbestos waste.
2. It is acceptable to dispose of bagged or sealed roofing waste into open topped dumpsters lined with a single layer of 6 mil poly sheeting. The Contractor shall completely enclose all roofing waste material commonly known as "burrito wrap" in the dumpster using 6 mil poly sheeting. Upon being lowered, unwrapped material shall be transferred to a closed receptacle in such a manner as to preclude the dispersion of dust. In addition to the 6-mil poly sheeting, the top of the dumpster shall be completely enclosed with a tarp which is secured to the vehicle for transport or storage onsite if left overnight. The type of material for the tarp shall meet all requirements for transport of hazardous materials.
3. The Contractor is required to provide to Owner's agent/site representative a copy of the "trip tickets" indicating the actual weight of waste material.

20.5 Vinyl Asbestos Floor Tile (VFT) Removal Requirements

Contractor shall conduct VFT and/or mastic removal within a regulated area as defined by 8 CCR 1529.

1. The doors, windows, and penetrations into the rooms shall be sealed with polyethylene. All ventilation systems shall be locked-out and sealed as critical barriers. An attached three stage decon with operational shower is required. The Scope of Work may require more chambers depending upon the project size.
2. Baseboards shall be removed if necessary to access all VFT. If baseboard mastic contains asbestos, baseboards are not to be disturbed prior to start of abatement.
3. Half-mask respirators, rubber boots, gloves, and disposable coveralls are to be used as a minimum for worker protection.
4. The VFT's must be double bagged in 6 mil poly bags. It is acceptable to place several bags of VFTs into a barrel lined with a second 6 mil poly bag.
5. All VFT's and mastic must be sufficiently wetted with amended water when being lifted off the floor.
6. The mastic layer may be removed either by solvent or wet buffing with a solvent. If a solvent is used, the negative air unit exhaust shall be directed downwind as much as possible, or a sufficient length of exhaust hose will be required to prevent re-entrainment of the vapors. Any solvents used for removing mastic shall be non-toxic low odor and non-flammable. A material safety data sheet for the solvent shall be provided and subject to approval by the project manager prior to use. MSDS must match solvent being used on the current jobsite.
7. During removal of the mastic with solvent or other organic based liquid, combination respiratory cartridges (organic vapor/HEPA) shall be worn to protect against asbestos and the solvent.
8. If floors are removed after walls and ceilings, full enclosure of the walls and ceiling with poly will be required, no matter what method of tile and mastic removal is used. If floors are removed prior to walls and ceilings which will eventually be removed as asbestos containing materials, then critical barriers and splash guards are all that will be required. All surfaces and materials not being removed as asbestos containing material must be covered with poly no matter which order floors walls and ceiling are abated.
9. Following removal of all floor tile and mastic, the contractor shall wash the floors thoroughly using a solution of trisodium phosphate (TSP) and water. Sufficient water shall be used for final rinsing of the floor for a clean finish.
10. If the removal of the floor mastic is on a wood substrate (or this technique is required in the scope of work), contractor is to use a mixture of the low odor mastic removal chemical and diatomaceous earth or (equivalent) to form a paste. Mix the paste to a consistency that will still be effective on the mastic and reduce the absorption of the chemical into the wood substrate, or seepage under casework and into concrete crevasses.
11. No bead blasting or shot blasting is allowed to be performed on these projects.

20.6 Drywall Removal Requirements

City of Stockton Police HQ Women's Locker Rm Remodel

1. Powered air purifying HEPA respirators, rubber boots, gloves, and disposable coveralls are to be used as a minimum for worker protection.
2. Shut down and lock out all heating, ventilating and air-conditioning-system (HVAC) components that are in, supply or pass through the work area. Seal all intake and exhaust vents in the work area with tape and two layers of 6-mil polyethylene within the work area (interior) and one layer of 6-mil poly on the exterior of the building. Also seal any seams in system components that pass through the work area. Remove all HVAC system filters and place in labeled 6-mil polyethylene bags for storing and eventual disposal as asbestos-contaminated waste.
3. The drywall must be double bagged and "goose-necked" in 6 mil poly bags. It is acceptable to place several "goose-necked" bags of drywall into a barrel lined with a second 6 mil poly bag that is "goose-necked".
4. All drywall must be sufficiently wetted with amended water when being removed.
5. Negative pressure shall be established, maintained and recorded. This shall be verified by using ventilation smoke tubes.
6. Contractor, in conjunction with the District/Owner, shall shut down and lock out electric power to all work areas. Contractor shall provide temporary power and lighting sources, ensure safe installation (including ground faulting) of temporary power sources and equipment by complying with all applicable electrical code requirements and OSHA requirements for temporary electrical systems. Contractor shall have a certified electrician shut down and lock out electric power, and setup temporary power and lighting sources. All cost for electric supply shall be paid for by the District/Owner.
7. Contractor shall have a certified plumber disconnect and cap all water and gas within the work area. Water shall be provided by the District from a location near the work area, but not within the work area.
8. All non-asbestos-containing materials left in the work area shall be covered by two layers of 6-mil polyethylene sheeting. If any non-asbestos containing materials become contaminated with asbestos during removal activities these materials shall be disposed of as asbestos-containing materials by the Contractor.
9. A critical barrier only, negative pressure check shall be required prior to the set-up of interior containment.
10. Cover floors in the work area with polyethylene sheeting. Floor shall be covered with a minimum of two layers of 6-mil polyethylene sheeting. Plastic shall be sized to minimize seams. A distance of at least six (6) feet between seams is sufficient. DO NOT locate any seams at wall/floor joints. Floor sheeting shall extend at least twelve inches (12") up the sidewalls of the work area. Sheeting shall be installed in a fashion so as to prevent slippage between successive layers of material. A layer of 10-mil polyethylene sheeting and/or plywood will be required to protect certain flooring materials -- carpets, hardwood floors, tiles, etc. At no time will wall or ceiling surfaces be permitted to be dropped onto unprotected floors. This includes areas where the floor surfaces contain asbestos.
11. Cover asbestos-containing walls in the work area with polyethylene sheeting if these walls are to remain or if these walls are non-asbestos containing and will remain. Walls shall be covered with a

City of Stockton Police HQ Women's Locker Rm Remodel

minimum of two layers of 4-mil polyethylene sheeting. Plastic shall be sized to minimize seams. Seams shall be staggered and separated by a distance of at least six feet (6'). DO NOT locate any seams at wall/floor joints. Wall sheeting shall overlap floor sheeting by at least twelve inches (12") beyond the wall/floor joint to provide a better seal against water damage and for pressure differential maintenance. Wall sheeting shall be secured adequately to prevent it from falling away from the walls. This may require additional support/attachment when pressure differential systems are utilized.

12. Cover asbestos -containing ceilings in the work area with polyethylene sheeting if they are to remain or if these ceilings are non-asbestos-containing and will remain. Ceilings shall be covered with a minimum of two layers of 4 mil polyethylene sheeting. Plastic shall be sized to minimize seams. Seams shall be staggered and separated by a distance of at least six feet (6'). DO NOT locate seams at wall/ceiling joints. Ceiling sheeting shall overlap wall sheeting by at least twelve inches (12") beyond the ceiling/wall joint to provide a better seal against water damage and for pressure differential maintenance. Ceiling sheeting shall be secured adequately to prevent it from falling away from the walls. This may require additional support/attachment when pressure differential systems are utilized.
13. If floor tile and drywall are to be removed within the same work area the floor tile and mastic shall be removed first, followed by the drywall removal. If the contractor wishes to submit a different removal work plan it shall be submitted prior to the beginning of the project. The HMS, Inc. Project Manager will review this work plan and respond in writing if it is accepted, or if it is accepted under condition of amendment.
14. Asbestos Abatement Contractor is required to remove nails, screws and/or other wall/ceiling material attachments.
15. Asbestos Abatement Contractor may remove studs with asbestos containing materials still attached, as long as they are to be removed, and are disposed of as asbestos-containing material.
16. Asbestos Abatement Contractor may not cut any sheer wall for any reason, without prior consent from the project Architect.
17. No damage will be permitted to studs that are to remain in place. Wall surfaces are to be peeled away, not pounded. The Contractor shall be financial responsible for any damage caused to studs.
18. Contractor is responsible for clean-up of all texturing and joint compound found on studs and rafter, as well as other surfaces behind, or inset into, the drywall materials.
19. Adhere to other requirements as stated in Sections 1-19, 21 and 22.
20. Following removal of all drywall, the contractor shall encapsulate the area with an encapsulate that is compatible with the reinstallation of wall and/or ceiling surfaces. The floors shall not be encapsulated unless otherwise noted in the Scope of Work, or stipulated by the HMS, Inc. Project Manager.

NOTE: All Specific Procedures and Requirements listed in Section 20 shall be reviewed by the contractor along with the Scope of Work issued for the project. If any perceived conflicts are present between the Scope of Work and these specifications or within the General Requirements specification itself, the contractor shall ask for a written interpretation from the HMS, Inc. Project Manager prior to submission of his bid. If conflicts in the "Scope of Work" and this specification, or with the General Requirements specification itself are

discovered after the start of abatement, the more stringent specification and/or requirements will be enforced. The HMS, Inc. Project Manager shall make the determination as to which requirements and/or specifications are more stringent. If the materials to be removed during the course of project do not relate to any of the procedures in Section 20 or multiple materials exist within the work area, the contractor shall follow those procedures outlined in Sections 1-19, 21 and 22.

SECTION 21. PATENTS AND PREVAILING WAGES

21.1 Patents

Contractor shall pay all royalties and license fees required for the performance of the work. Contractor shall defend suits or claims resulting from contractor's or any subcontractor's infringement of patent rights and shall indemnify Owner and Owner's representative from losses on account thereof.

21.2 Prevailing Wage Requirements

The asbestos abatement contractor is fully and totally responsible at all times for compliance with payment of prevailing wage rates pursuant to provisions of the California Labor Code, for compliance with Division 2, Part 7, Chapter 1, California Labor Code, including but not limited to Section 1776; and for compliance with California Labor Code, Section 1777.5 for all apprenticeable occupations.

SECTION 22. PERMITS AND FEES

If any permits are required to be issued for any of the Work to be performed by Contractor, Subcontractor(s) or Sub-subcontractor(s) as part of the Project, it shall be the sole responsibility of the Contractor to expeditiously obtain all such permits and any costs incurred by the Contractor in obtaining such Permits shall be included within the Contract Price.

END SECTION

SECTION 02 83 20
GENERAL LEAD REQUIREMENTS

These guidelines or specifications are provided for, and shall be followed by, the Contractor to minimize and control potential lead hazards during surface preparation or component removal, including demolition. All interior and exterior painted surfaces on this project contain various concentrations of lead unless noted on the paint inspection as ND or None Detected. All untested painted surfaces are presumed to be lead-based paints. Therefore, Cal/OSHA regulations apply during disturbance of any painted surface unless paint is noted on the paint inspection as ND or None Detected. Glossed ceramic tiles are known to contain high levels of lead at this site.

No Contractor shall begin work which will impact painted surfaces in a manner which will either expose a worker to possible lead containing dust, or create possible lead containing waste, until all required pre-construction documentation has been reviewed and written approval from Hazard Management Services, Inc. (HMS, Inc.) has been received. Any Contractor observed conducting such activities without having written approval from HMS, Inc. will be instructed to stop work. Work will not be allowed to resume until the aforementioned approval has been received by the Contractor.

Activities expected to disturb paint containing lead include, but are not limited to, painting preparation work, penetration of painted surfaces, demolition of painted surfaces, or removal of painted building components.

These specifications shall apply to all work related to preparation of all painted surfaces and to whole building component replacement which are painted.

1. Paint containing lead is defined as paint containing any detectable amount of lead.
2. Paint containing lead may only be disturbed by lead trained workers.
3. Worker training level will be determined by the work activity being conducted, work practices, and worker exposures.
4. Contractors conducting lead related construction work will be evaluated on a performance standard which includes, but is not limited to, cleanliness of work area, work practices as verified by exposure monitoring, containment set up, and ultimately, clean up of chips dust and debris.
5. Any work practice that creates paint chips, dust, or painted debris must be conducted within a containment.
6. Containments shall be designed and constructed to prevent visible dust or debris from escaping the work area.
7. Contractors strictly adhering to HMS, Inc.'s suggested work practices for paint preparation work, and exterior wall penetration/removal may begin work assuming the Cal/OSHA Permissible Exposure Limit (PEL) will not be exceeded.
8. Contractors not strictly conforming to suggested work practices must start work assuming the PEL will be exceeded.
9. Contractors must assume the action level 30 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) will be exceeded each time a new job task is conducted.

10. Contractors shall conduct personal air monitoring for each different work practice or activity that disturbs materials containing lead. Monitoring shall continue until all different job classifications have been shown not to expose workers to lead levels above the action level of 30 µg/m³.
11. Contractor may submit alternate work plans to HMS, Inc.'s suggested work practices. These alternate work plans must be approved by HMS, Inc. prior to their implementation.
12. The following work activities are prohibited on the project:
 - a. Open-flame burning or torching.
 - b. Machine sanding or grinding without a HEPA vacuum exhaust tool.
 - c. Un-contained hydro-blasting or high-pressure washing.
 - d. Abrasive blasting or sandblasting without a HEPA vacuum exhaust tool and outside of a negative pressure enclosure.
 - e. Heat guns operating above 1,100 °F.
 - f. Dry scraping (except for limited areas).
 - g. Use of methylene chloride based paint strippers.

Regulatory Levels of Lead in Paints

1. There are various agencies that regulate activities involving lead-containing paints and coatings. The following definitions should be discussed first to assist in the interpretation of the requirements that follow.
 - a. Housing and Urban Development (HUD) Guidelines Definition
2. HUD defines "lead-based paint" (LBP) as "any varnish, paint, stain or other applied coating that has 1 mg/cm² (or 5,000 ug/g by dry weight) or more of lead." The terms "leaded paint" and "lead-containing paint" are synonymous with "lead-based paint". 5,000 ug/g is equivalent to 5,000 parts per million (ppm), and equivalent to 0.50% by weight.
 - a. Consumer Products Safety Commission (CPSC) Definition
3. In 1978, the CPSC defined lead-paint as that having greater than 0.06% (600 ppm), with restrictions of use for residential housing, toys, and furniture.
 - a. California Occupational Safety and Health Administration (Cal/OSHA)
4. Cal/OSHA adopted HUD's definition for LBP, although they have **not** established minimum concentrations where their regulations do not apply. Cal/OSHA regulates all construction activities involving materials containing lead, including LBP. These regulations are found in Title 8 Section 1532.1, any disturbance to products containing lead come under the jurisdiction of Cal/OSHA requirements.

Requirements While Working With Materials Containing Lead

The following requirements and procedures shall apply during disturbance of any painted surface(s).

1. A written compliance plan must be provided to the Owner and include the following:
 - a. A description of equipment and materials, controls, crew size, job responsibilities, and operations and maintenance procedures for each activity in which lead is disturbed and potentially emitted.
 - b. A description of specific control methods (wet methods, engineering controls, etc.)
 - c. Technology considered in meeting the Cal/OSHA permissible exposure level (PEL).
 - d. Air monitoring data documenting sources of lead emissions.
 - e. A detailed implementation schedule for the compliance plan, including the schedule for inspections by a competent person.
 - f. A description of the lead work practice program which will be used to control worker exposures. This includes the use of protective work clothing, equipment, hygiene facilities and practices, and housekeeping practices.
 - i. Note: If the Contractor is found conducting lead related work not specifically mentioned and described in the compliance plan, the work will be stopped until a compliance plan including that work is submitted, reviewed, and approved by HMS, Inc.
2. For this project all workers who will significantly disturb painted surfaces are required to be Department of Health Services (DHS) "Certified Lead Workers", and the Supervisor of the project is required to be a DHS "Certified Lead Supervisor". Any worker who has received training and is in the process of being certified may submit for review a copy of an application to DHS for that certification. For this application to be considered, it must include completed and legible copies of:
 - a. Application for lead-related construction certification (2 pages) properly signed by the applicant.
 - b. An accredited DHS Course Completion Form.
 - c. Copy of method of payment to DHS required to accompany a valid application request.
3. The Contractor shall have a competent person (as defined by Cal/OSHA) onsite at all times to supervise and oversee all activities which may disturb materials containing lead, or are considered to be "Trigger Tasks" by Cal/OSHA. "Trigger Tasks" include, but are not limited to, manual demolition, scraping and sanding, using heat guns, power tool cleaning with or without dust collection systems, abrasive blasting, welding, cutting, torch burning, and debris clean-up.
 - a. The minimum training requirements for lead related work when the PEL is not exceeded can be found on the attached table at the end of this document.
4. Preparation of the work area at the site must be completed using 6-mil polyethylene (poly) sheeting placed over floors, asphalt, concrete, soil, vegetation, and other surfaces in the immediate work

City of Stockton Police HQ Women's Locker Rm Remodel

area.

5. For exterior work site preparation, one layer of 6-mil poly sheeting should be placed on the ground extending at least 10 feet beyond the perimeter of surfaces included in the work. Do not anchor ladder feet on top of plastic (puncture the plastic to anchor ladders securely to ground). For all other exterior painted surfaces, protect the poly sheeting with boards to prevent puncture from falling debris, nails, etc., if necessary. Secure the plastic to the side of the building with tape, or other anchoring system, so there is no gap between the plastic and the building. Weight all plastic sheets down using wooden two-by-fours or similar objects. Keep all windows within 20 feet of working surfaces closed, including windows of adjacent structures. If water blasting is to be performed raise edges of the plastic to create a catch basin to prevent runoff of contaminated water.
6. Erect barrier tape at a 20-foot perimeter around the working surfaces to prevent other people from entering the work area. Post Lead Warning Signs at the 20-foot perimeter.
7. Do not conduct exterior work if wind speeds are greater than 20 miles per hour. Work must stop and cleanup occur before rain begins.
8. Do not leave debris or poly sheeting out overnight if work is not completed. Keep all debris in a secured area until final disposal.
9. For interior work site preparation, one layer of 6-mil poly sheeting must be placed on the entire floor. The poly sheeting must be secured to the floor using tape so there is no gap between the floor and the wall. If individual rooms are being worked in, seal all doorways with a primitive airlock flap to prevent contamination of other areas of the building. Post Lead Warning Signs at the building exterior near main and all secondary entryways. All ventilation systems are to be turned off and sealed with poly sheeting. If furniture or other equipment are to remain in place, cover with a single layer of poly sheeting. All cleanup of the work area shall be performed using a HEPA vacuum and wet washing techniques.
10. Waste disposal of all materials is the responsibility of the Contractor. Careful planning of the work shall be made to minimize hazardous waste generated during the painting operation. Separation of waste streams is necessary, particularly separation of any loose paint chips or flakes from other construction debris. All waste streams must be identified by the Contractor before the work begins and separated during the course of the project to minimize costs of disposal.
11. Prior to disposal of waste products such as water, sand, paint chips, vacuum debris, and filters generated during surface preparation activities, the Contractor must conduct appropriate waste stream characterization testing and/or filtering. Once completed, the test analysis results must be submitted to HMS, Inc. for review. The Contractor may not remove or dispose of the identified materials from the job site until this review has been completed and the Contractor has been informed by HMS, Inc. of their concurrence that the materials have been properly tested, and meet the requirements allowing the materials to be classified as non-hazardous. This process does not apply to any waste assumed or determined to meet levels of lead requiring the waste to be disposed of as hazardous waste.
12. The Contractor is responsible for all costs associated with the removal, packing, loading, shipping, and disposal of lead containing waste generated during this project. The Contractor is also responsible for obtaining and properly completing any Uniform Hazardous Waste Manifests needed for the disposal of lead containing waste. However, the Contractor **SHALL NOT** sign any Uniform Hazardous Waste Manifests for the Owner.

City of Stockton Police HQ Women's Locker Rm Remodel

13. The Contractor **SHALL** contact HMS, Inc. in advance of the scheduled pick up time and date so the waste materials can be visually inspected for proper packing. At that time the HMS, Inspector will deliver the Uniform Hazardous Waste Manifest to the Owner so it can be properly signed by a Owner representative.
14. Personal protective equipment is required by the Contractor in accordance with Cal/OSHA regulations Title 8 Section 1532.1, including respiratory protection. At a minimum, half-face respirators with HEPA cartridges would be required during surface preparation, where there is manual scraping or sanding. If only water washing of the surfaces is performed, respiratory protection would not be required.
15. The Contractors are required to comply with all regulations in Title 8 Section 1532.1 Lead in Construction, Cal/EPA Title 22 for waste classification and disposal, and US EPA for lead work.
16. If scraping or sanding is to be performed, only wet scraping or wet sanding will be allowed, unless HEPA systems are used in conjunction with the operation.
17. Where abrasive blasting is performed by the Contractor, a negative pressure enclosure must be constructed using at a minimum 6 mil thick poly sheeting. The Contractor shall utilize "negative air machines", "hogs", "air filtration units", to establish a negative pressure within the work area. Sufficient make-up air ports shall be installed with flapped openings and pre-filters to assist in providing outside air for dilution of airborne particulate. The integrity of the negative pressure enclosure shall be maintained at all times during the abrasive blasting work to prevent fugitive emissions.
18. The Contractor is responsible for conducting personal air monitoring during disturbance of LBP to evaluate airborne exposures during performance of any work listed as a "Trigger Task". This sampling shall be in accordance with Cal/OSHA regulations found in Title 8 Section 1532.1, in order to determine worker exposure to lead and evaluate the effectiveness of the Contractor's "Compliance Work Plan".
 - a. Sample information must include (but is not restricted to) the individuals name wearing the sample, that individuals Social Security Number, date the sample was collected, identification by unique method of the area where the work is being performed, and identifying the work being performed. EXAMPLE: James Black, 444-22-555, 10/10/99, Bill Jackson Elementary School, Building H, Classroom 5, East covered walkway. Laboratory results shall be provided to HMS, Inc. within 72 hours of sample collection.
19. All HEPA equipped vacuums and pressure differential units to be used on this project during lead-containing paint operations shall be tested and meet ANSI requirements using DOP or an equivalent testing agent. This testing must take place within 10 calendar days prior to their use and after replacement of any HEPA filter removed from previously tested equipment. Copies of all certifications must be provided to HMS, Inc. prior to use of the equipment.
20. The Contractor shall submit to HMS, Inc. copies of recent (performed within the previous 12 months or less) blood sampling and analysis test results of lead (BLL) and zinc protoporphyrin (ZPP) levels for all workers who will be performing any "Trigger Tasks" with regards to lead-containing paints as outlined earlier in this specification.
21. The Contractor shall submit to HMS, Inc. copies of medical evaluations and respiratory fit test records received within the last 12 months. The Contractor is responsible for maintaining current documents and resubmitting copies to HMS, Inc. for any worker who's documents expire during

City of Stockton Police HQ Women's Locker Rm Remodel

the project. Any worker observed on a job site which either is not approved to conduct work by HMS, Inc. or has been approved but documentation pertaining to training, medical evaluation, or respiratory fit testing has expired will be instructed to stop work until these documents are received by HMS, Inc. and the worker is approved to perform lead-containing paint related work.

22. Decontamination procedures shall be established by the Contractor depending upon the airborne concentrations of lead, and shall include requirements for change rooms, showers, eating facilities, and hand washing.
23. Prior to whole building components being removed, loose peeling and flaking paint must first be either removed from the component surfaces or stabilized. Any paint flakes generated during this work must be separated into appropriate waste streams and handled as a hazardous waste, or as deemed appropriate based on results of proper analytical testing results.
24. The Contractor shall document daily activities performed which are classified as "Trigger Tasks". The information recorded must include (but is not be restricted to) the name(s) of all workers performing the tasks and their Social Security Number, date of the work activity, location of work, and identifying the work being performed. EXAMPLE: James Black, 444-22-555, 10/10/99, Bill Jackson Elementary School, Building H, Classroom 5, East covered walkway, wet sanding of cabinets, walls, trim, etc. Copies of these documents will be submitted to HMS, Inc. every 10 working days for review.

Requirements While Performing Power Washing of Exterior Building Surfaces

1. For the purposes of this procedure power washing is defined as: The use of a low pressure "Power Washer" to rinse/wash stable painted or coated surfaces to remove dust, dirt, grime, and other foreign matter in preparation for re-painting. In no circumstance is this to be construed as water blasting, and is not intended nor shall be used to remove lead-containing paints or coatings from surfaces. Areas of loose, peeling, cracking, or unstable coatings shall be prepared for re-painting using the appropriate methods and personnel protective equipment as specified by Federal and Cal/OSHA regulations, and this specification.
2. Prior to performing power wash operations the Contractor must obtain either an SCL - Letter Permit, or an SCP - Class II Wastewater Discharge Permit for Disposal of Surface Cleaning Wastewater from Sacramento County's Water Quality Division; Industrial Waste Section, and adhere to the permit requirements. Copies of these permit applications have been attached to this Exhibit (Required for work in Sacramento County only).
3. Where power washing of exterior surfaces of buildings coated with lead-containing paint(s) or seal coats is specified, or in those areas where the Contractor opts to use power washing to prepare surfaces, all of the following conditions must be met prior to uncontrolled washing without waste water control/collection measures.
 - a. The Contractor in conjuncture with the Owner's Representative shall select test areas typical of the surfaces to be power washed, these shall be approximately 100 square feet each.
 - b. The Contractor shall construct containments for the test areas that are designed to capture and collect all wash water and any paint chips generated during the assessment. No waste water resulting from power washing operations may be allowed to drain into any storm drain as required by the State of California at any time. Appropriate measures for sealing and protecting storm drains from accidental discharge must be performed during the initial test and all subsequent power wash operations.

- c. The Contractor shall proceed with washing the test area surfaces utilizing the same methods, work practices, and procedures to be used in preparing the main body of the building. The Contractor shall follow the procedures recommended by the manufacturer of the power washing equipment and all requirements of the Cal/OSHA regulations. Work shall be halted if the washing process causes delamination of paint (if present) from the test area surfaces. Modifications to the methods and work practices shall be made prior to resumption of power washing, these modifications must be approved by the Owner's Representative prior to their implementation.
 - d. The Contractor shall perform employee exposure monitoring in accord with OSHA regulations during the test area washing procedure. In addition, air sampling data generated by the contractor must be provided to the Owner's Representative.
 - e. Employee protective measures such as disposable clothing and respirators will not be required as power washing is not a listed lead related task by OSHA, and in all likelihood will not cause exposures to employees of airborne lead above the action level of 30($30 \mu\text{g}/\text{m}^3$) calculated as an eight hour time weighted average (TWA).
 - f. At the completion of test area surface preparation, representative samples shall be collected of the waste water by the Owner's Representative and analyzed to determine the lead content.
 - g. The decision to allow power washing without waste water control/collection measures will be based on the analytical results indicating the levels of lead in the test area waste water samples.
4. When test area waste water results show lead levels do not exceed allowable limits the Contractor will be given instructions to proceed with power washing. Waste water produced from general power washing operations which does not contain chips of paint may be allowed to soak into the ground below the area being washed. If the area located below or around the surface to be washed does not allow for absorption into the ground the water must be directed toward an area on the property that will allow the water to drain into a sanitary sewer inlet or onto surrounding property soils. The Owner's Representative must provide prior approval to alternate techniques and approaches to those requirements detailed here.
 5. It is the responsibility of the Contractor to perform power wash activities as specified in this specification and the permit application (Permit required for Sacramento County only).

Submittal Requirements

The following documents shall be provided to HMS, Inc. prior to, during, and at the completion of the work.

LEAD-RELATED WORK PRE-CONSTRUCTION SUBMITTALS

1. _____ Current Training Records for Lead
 - A. _____ Lead-Related Construction Training (General Construction)

City of Stockton Police HQ Women's Locker Rm Remodel

- B. _____ Lead-Related Construction Certification by DHS or
_____ Copy of Application for Lead Certification to DHS
 - C. _____ At least 1 Supervisor Must be Included in Documentation
Submitted for B if Surface Preparation of Building Surfaces Require
Sanding
2. _____ Written Compliance Plan
 3. _____ Written Respiratory Protection Program
 4. _____ Current Worker Related Documentation
 - A. _____ Copies of Recent BLL and ZPP Analysis Reports for Workers
(Performed Within Previous 12 Months)
 - B. _____ Medical Evaluation Stating Employee is Cleared for Respirator
Use (Performed Within the Previous 12 Months)
 - C. _____ Respiratory Fit Tests for Each Employee (Current by OSHA and
Cal/OSHA Standards)
 5. _____ Written Notification to Cal/OSHA for Disturbance of Greater than 100
Square Feet of Building Materials Assumed to Have Lead in Paint Greater Than
5,000 ppm. **(This will be required for all work, since lead testing of all
building components impacted by this project has not been conducted.)**
 6. _____ SCL letter Permit or a SCP Class II Wastewater Discharge Permit for
Disposal of Surface Cleaning Wastewater (Sacramento County Requirement)

LEAD-RELATED INTERIM CONSTRUCTION SUBMITTALS

1. _____ Waste Stream Characterization Testing Results (prior to removal of waste from the site and generated during work impacting materials containing lead. This does not include whole architectural components.)
2. _____ Exposure Assessment (Air Monitoring) Results of Employees Performing "Trigger Tasks" (Within 72 Hours of Sample Collection)
3. _____ DOP Testing Documentation
4. _____ Contractor's Daily Documentation Records Pertaining to Work Classified as "Trigger Tasks" (Within 10 Working Days of the end of a Days Shift)
5. _____ Worker Documentation for New Workers Assigned to the Project or Workers With Documentation on File Which Expired During the Project

LEAD-RELATED POST CONSTRUCTION SUBMITTALS

Contractor shall provide the following post-construction submittals to the Owner through the designated channels within thirty (30) days of completion of lead-related work.

1. _____ Completed Uniform Hazardous Waste forms for lead waste disposal (if applicable with reference in the final letter that all waste forms have been submitted to the Owner through proper channels).
2. _____ Letter stating that all documentation has been submitted to the Owner through proper channels, or stating the Contractor and their sub-contractors did not generate LBP waste during the performance of their work.

Note: Any item on this list submitted during the course of the project and received by HMS, Inc. will not need to be submitted again, unless specifically requested.

Job Description	Work Practices Required	Training Required	Containment Required	Worker Protection	Personal Air Sampling Required	Clearances Required* (SECTION 01421)
Paint Preparation w/o power washing	Wet methods or HEPA exhausted abrasive methods	Supervisor DHS Cert. Workers: 2 to 4 hours unless LBP, then DHS Cert.	Barrier tape & minimum 6 mil plastic on all ground surfaces	2 mask respirator w/ HEPA cartridges and disposable coveralls	Yes, until exposure levels are shown to be below PEL	Visual only
Paint Preparation w/ power washing only	Containment of water run-off	Supervisor DHS Cert. Workers: 2 to 4 hours	Barrier tape, minimum 6 mil plastic or landscape fabric on soil & water containment / filtration**	disposable coveralls	No, but area air sampling may be conducted by project monitor	Visual only
Stucco Penetration / Removal	Wet methods	Small job: 2 to 4 hours Full shift job: Supervisor DHS Cert. Workers: 2 to 4 hours unless LBP, then DHS Cert.	Barrier tape & minimum 6 mil plastic on all ground surfaces	2 mask respirator w/ HEPA cartridges and disposable coveralls	Yes, until exposure levels are shown to be below PEL	Visual only
Intact Building Component Removal	No production of paint chips, no saw cutting of components	2 hours	Barrier tape & minimum 6 mil plastic on all soil or vegetation covered surfaces. (interior work may require additional containment)	None	Yes, until exposure levels are shown to be below PEL	Visual only

Building Component Removal requiring saw cutting	HEPA filtered power cutting tools	4 hours	Barrier tape & minimum 6 mil plastic on all ground surfaces (interior work may require additional containment)	2 mask respirator w/ HEPA cartridges and disposable coveralls	Yes, until exposure levels are shown to be below PEL	Visual only
--	-----------------------------------	---------	--	---	--	-------------

* Level of clearances required assumes no major violation of standard work practices or job site cleanliness occurred during project.

** Landscape fabric may only be used where power washing is used to remove only dust, dirt, spider webs, etc., from the building surfaces which have intact paint, and is not intended to be used when the paint is loose, peeling, flaking, or blistering. Power washing of the building surfaces with loose, peeling flaking, or blistering paint that is released, shall be performed with a minimum of 6 mil plastic on all ground surfaces below the work area to contain and collect all water and paint particulate. NO WATER MAY GO INTO STORM DRAINS

This table is not inclusive of all job descriptions to be conducted on this project. It is included here merely as an example of the requirements for some of the job descriptions expected to be performed during this project.

Containment and worker protection levels may be reduced, once personal air sampling has been conducted and exposure levels are known to be below the PEL and action levels set by Cal/OSHA.

SECTION 02 83 30
OTHER HAZARDOUS MATERIALS

POLYCHLORINATED BIPHENYLS (PCB's) LIGHT BALLAST HANDLING PROCEDURES

The Contractor may be instructed to remove light fixtures which contain light ballasts during demolition/ renovation activities specified in the contract documents. These light ballasts typically contain PCBs in the oil used as coolant and lubricant. Any ballast containing PCBs is to be considered a "Hazardous Waste", and the Contractor is responsible for ensuring personnel who perform PCB related work (inspection, removal, clean-up) are trained and qualified to do so. All workers must also follow current OSHA regulations including 29 CFR 1910.120 and 8 CCR 5192, as well as other applicable federal, state and local laws and regulations.



PCB Light Ballasts

All light ballasts manufactured through 1978 are magnetic ballasts which contain PCBs. Installation of ballasts manufactured prior to 1978 continued for several more years. As a result, it can be expected that any building constructed before 1980 which has not had a complete lighting retrofit is likely to have PCB containing ballasts. Therefore, unless the ballast is electronic (this type is PCB free), determined by testing not to contain PCBs, or the manufacturers label on the ballast states "No PCBs", it is assumed all light ballasts on this site contain PCB's, and must therefore be handled as a hazardous waste by the Contractor. The Contractor may have other options for disposal of any light ballasts found not to contain PCB's.



Light Ballast Inspection

Contractor should disconnect all power and de-energize all electrical equipment to be impacted prior to performing inspection of electrical devices scheduled for removal or replacement. This de-energizing should be performed by or under the supervision of a licensed electrician. Contractor shall inspect each ballast prior to its removal to determine if the ballast is leaking, if oily residue is present on the exterior of the ballast or the ballast has been damaged resulting in a leak. Upon discovering and prior to removal of any oil coated, leaking, or damaged ballast Contractor shall contact Owners representative to discuss work procedures, waste requirements, etc.

Handling Work Practices of Undamaged Light Ballasts

Handling of ballasts shall be consistent with existing ballast conditions. While a ballast may not initially indicate any damage or leakage to be present, it may become damaged or begin to leak for any number of reasons during the removal and handling process. Any skin contact will probably constitute overexposure to PCBs since they are easily absorbed through the skin. It is recommended any personnel who will perform PCB related work should at a minimum wear protective clothing, including chemically-resistant gloves, goggles, boots, and disposable coveralls.

Handling Work Practices of Damaged Light Ballasts

Handling of damaged ballasts shall be performed in a manner consistent with existing and current federal, state and local laws and regulations. Clean-up of spills, or contaminated surfaces will require the use of specifically trained and properly protected personnel utilizing state of the art work practices, removal equipment, and materials. The Owners representative must be notified prior to the performance of this type of work.

PCB Containing Waste

City of Stockton Police HQ Women's Locker Rm Remodel

All PCB containing light ballasts, removed by the Contractor, shall be placed in leak tight approved containers (metal barrels) until they are removed from the site by a waste transporter permitted to haul hazardous materials. Barrels must not be loaded in excess of their approved capacity. For most barrels this is 750 pounds. No other materials except, a sufficient amount of absorbent packing material, shall be included with the light ballasts.

The Contractor should contact their waste hauler prior to the start of work for information pertaining to recommendations or the waste haulers stated requirements for packing PCB containing ballasts. However, at a minimum, the absorbent packing material should be added to the bottom of the waste barrel prior to the first ballast. Absorbent packing material should then be added intermittently as necessary to encase the ballasts as the waste barrel is being filled. When the waste barrel is filled, or no more light ballasts will be added, additional absorbent packing material should be added to completely cover the ballasts and the container then sealed.

Contractor is also responsible for appropriate labeling of waste barrels and securing of lids to meet federal and/or state requirements while being stored on the site.

All leaking or damaged ballasts must be handled in accordance with federal and state disposal requirements and shall be separated from undamaged ballasts in preparation for incineration at an appropriately licensed facility.

The Contractor is responsible for all costs associated with the removal, packing, loading, shipping, and disposal of each barrel of waste generated during this project. The Contractor is also responsible for obtaining and properly completing any Uniform Hazardous Waste Manifests needed for the disposal of PCB waste. However, the Contractor **SHALL NOT** sign any Uniform Hazardous Waste Manifests for the Owner.

UNIVERSAL WASTE LAMP HANDLING PROCEDURES

The Contractor may be instructed to remove light fixtures which contain lamps which are designated as "Universal Waste" during demolition/renovation activities specified in the contract documents. If the Contractor is instructed to remove such fixtures the following handling procedures shall be followed.



Universal Wastes

Universal wastes are hazardous wastes that are more common and pose a lower risk to people and the environment than other hazardous wastes. Federal and State regulations identify universal wastes. The regulations, called the "Universal Waste Rule," are in the California Code of Regulations (CCR), title 22, division 4.5, chapter 23.



Universal Waste Lamps

Universal Waste Lamp, also referred to as "lamp" is defined as the bulb or tube portion of an electric lighting device. A lamp is specifically designed to produce radiant energy, most often in the ultraviolet, visible, and infra-red regions of the electromagnetic spectrum. Examples of common universal waste electric lamps include, but are not limited to, fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps. Any lamp which is not spent and has been designated to be reused is not classified as a waste and does not meet the requirements of a hazardous waste or a universal waste.



Mercury-added lamps

Mercury-added lamps (effective February 9, 2004): Fluorescent tubes and several other types of lamps

(not incandescent light bulbs) contain a small amount of mercury that is necessary for their operation. Currently, most fluorescent lamps contain enough mercury to be a hazardous waste.

Universal Waste Lamp Disposal

Spent lamps typically contain concentrations of mercury exceeding the established Total Threshold Limit Concentration and/or the Soluble Threshold Limit Concentration values. Therefore, these lamps must be sent to an authorized recycle facility, or to a universal waste consolidator for shipment to an authorized recycling facility.

At a minimum the lamps must be packaged in boxes/packages/containers which are structurally sound, adequate to prevent breakage, and compatible with the content of the lamps. These packages must remain closed and be free of damage which could cause leakage under reasonably foreseeable conditions.

Each container shall be labeled or marked clearly with one of the following phrases: "Universal Waste-Lamp(s)," or "Waste Lamp(s)." or "Used Lamp(s)".

Documentation in the form of a log, invoice, manifest, bill of lading or other shipping document is required to be submitted to HMS, Inc. for each shipment of waste from the project site. This documentation shall include: name and address of generator and address of site waste is generated on, quantity of lamps to be shipped, date of shipment, name and address of hauler, and name and address of waste facility receiving the waste.

Hazardous Waste Designation

Any lamp which is not designated for recycling or continued use in a different fixture for which the lamp is manufactured for use in must be handled, managed, and disposed of as a hazardous waste in accordance with Cal/EPA Title 22. Since all spent lamps are required to be recycled the Owner will not approve of the disposal of lamps as hazardous without consultation and review of the specific circumstances which warrant this change in designation.

MERCURY SWITCHES

Thermostat switches that contain mercury are considered a hazardous waste if removed and disposed. Where the contract requires removal of thermostat switches, the contractor shall follow all requirements for packaging and disposal of these mercury containing wastes.

SMOKE DETECTORS WHICH MAY CONTAIN A RADIOACTIVE ELEMENT

The Contractor shall be responsible for the removal of any and all smoke detectors which may contain a radioactive element, which may be present in any building or corridor prior to the demolition of any building included in this project. These types of detectors are easily identified by reviewing the label which is usually found on the back of the detector. Older units may display the international radiation symbol (three bladed propeller) and the radioactive content. Newer units state the radioactive content and their Nuclear Regulatory Agency (NRC) license number.

The Contractor shall be responsible for contacting the manufacturer of any smoke detector with a radioactive element present to determine their return policies. The California Department of Toxic Substance Control (DTSC) has stated that it is a condition of the manufacturers NRC license that they must accept returned units for disposal. The Contractor shall be responsible for all costs associated with removing, packaging, and shipping of the detectors in compliance with the manufacturers policies and procedures.

Contractor shall submit to the Owner a letter from the manufacturer which includes the number of units received, date received, and acceptance of the shipment for disposal by that manufacturer.

Additional Waste Management Requirements

The Contractor is responsible for managing lamps in a manner which prevents release of any universal waste or component of a universal waste to the environment. The Contractor is also responsible for the immediate cleanup of materials (mercury or other hazardous constituents) released by a lamp broken during removal or otherwise damaged while being handled into a container or containers designed to accommodate the resulting waste and its contents.

The Contractor is responsible for training employees in proper handling, packaging, storing and labeling the universal waste, as well as, how to respond to releases (66273.13). This may be accomplished by providing employees written instructions or posting these instructions in the area where the universal waste lamps are being stored.

The Contractor is responsible for all costs associated with the removal, packing, loading, shipping, clean up and disposal of hazardous materials removed during this project, and any waste generated due to breakage during this project. The Contractor is also responsible for obtaining and properly completing any Uniform Hazardous Waste Manifests needed for the disposal of lamp waste. However, the Contractor **SHALL NOT** sign any Uniform Hazardous Waste Manifests for the Owner.

The following information shall be used when completing a Uniform Hazardous Waste Manifest used to dispose of hazardous waste generated at this site during this project.

Block #1 (Generator's US EPA ID No.)

Block #3 (Generator's Name and Address) and Block #4 (Generator's Phone Number)

Block #15 (Special Handling Instructions and Additional Information)

It **SHALL** be the responsibility of the Contractor to contact the Owner in advance of the scheduled pick up time and date, so the waste materials can be visually inspected for proper packing, and to have the Uniform Hazardous Waste Manifest properly signed by an Owner representative.

**SECTION 03 01 00
MAINTENANCE OF CONCRETE**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Cleaning of existing concrete surfaces.

1.02 RELATED REQUIREMENTS

- A. Section 03 30 00 - Cast-in-Place Concrete: Finishing of concrete surface to tolerance; floating, troweling, and similar operations; curing.

1.03 REFERENCE STANDARDS

- A. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement 2020.
- B. ASTM C33/C33M - Standard Specification for Concrete Aggregates 2018.
- C. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50 mm] Cube Specimens) 2021.
- D. ASTM C150/C150M - Standard Specification for Portland Cement 2021.
- E. ASTM C348 - Standard Test Method for Flexural Strength of Hydraulic-Cement Mortars 2021.
- F. ASTM C404 - Standard Specification for Aggregates for Masonry Grout 2018.
- G. ASTM C881/C881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete 2020a.
- H. ASTM C928/C928M - Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs 2020a.
- I. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete 2021.
- J. ICRI 310.2R - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair 2013.

1.04 QUALITY ASSURANCE

- A. Designer Qualifications: Design reinforcement splices under direct supervision of a Professional Structural Engineer experienced in design of this type of work and licensed in the State in which the Project is located.

PART 2 PRODUCTS

2.01 CLEANING MATERIALS

- A. Degreaser:
 - 1. Manufacturers:
 - a. Euclid Chemical Company; Euco Clean and Strip: www.euclidchemical.com/#sle.
 - b. L&M Construction Chemicals, Inc, a subsidiary of Laticrete International, Inc; CITREX: www.lmcc.com/#sle.
 - c. SpecChem, LLC; Orange Peel-Citrus Cleaner: www.specchemllc.com/#sle.
 - d. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Strippers and Cleaners for Removal of Existing Coatings:
 - 1. Manufacturers:
 - a. Nox-Crete, Inc; Deco-Strip Series: www.nox-crete.com/#sle.
 - b. Nox-Crete, Inc; Deco-Peel Series: www.nox-crete.com/#sle.
 - c. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 CEMENTITIOUS PATCHING AND REPAIR MATERIALS

- A. Manufacturers:
 - 1. Adhesives Technology Corporation: www.atcepoxy.com/#sle.
 - 2. ARDEX Engineered Cements: www.ardexamericas.com/#sle.

3. Dayton Superior Corporation: www.daytonsuperior.com/#sle.
 4. The QUIKRETE Companies: www.quikrete.com/#sle.
 5. W. R. Meadows, Inc: www.wrmeadows.com/#sle.
 6. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Bonding Slurry: Water-based latex admixture complying with ASTM C1059/C1059M, combined with Portland cement and sand in accordance with admixture manufacturer's instructions.
1. Admixture Manufacturers:
 - a. Euclid Chemical Company; AKKRO-7T: www.euclidchemical.com/#sle.
 - b. SpecChem, LLC; Strong Bond - Acrylic Bonder: www.specchemllc.com/#sle.
 - c. W. R. Meadows, Inc; Acry-lok: www.wrmeadows.com/#sle.
 - d. Substitutions: See Section 01 60 00 - Product Requirements.
- C. Cementitious Resurfacing Mortar: One- or two-component, factory-mixed, polymer-modified cementitious mortar designed for continuous thin-coat application.
1. In-place material resistant to freeze/thaw conditions.
 2. Mixed with water or latex type bonding agent in proportions as recommended by manufacturer.
 3. Recommended Thickness: Feather edge to 1/8 inch (Feather edge to 3 mm).
 4. Manufacturers:
 - a. ARDEX Engineered Cements; ARDEX Feather Finish: www.ardexamericas.com/#sle.
 - b. Euclid Chemical Company; THIN TOP SUPREME: www.euclidchemical.com/#sle.
 - c. SpecChem, LLC; Duo Patch: www.specchemllc.com/#sle.
 - d. W. R. Meadows, Inc; Meadow-Patch T2: www.wrmeadows.com/#sle.
 - e. Substitutions: See Section 01 60 00 - Product Requirements.
- D. Cementitious Repair Mortar, Trowel Grade: One- or two-component, factory-mixed, polymer-modified cementitious mortar.
1. In-place material resistant to freeze/thaw conditions.
 2. Mixed with water or latex type bonding agent in proportions as recommended by manufacturer.
 3. Dry Material: Complies with ASTM C928/C928M.
 4. Integral corrosion inhibitor.
 5. Manufacturers:
 - a. ARDEX Engineered Cements; ARDEX Feather Finish: www.ardexamericas.com/#sle.
 - b. Adhesives Technology Corporation; HARD-ROK JET PATCH: www.atcepoxy.com/#sle.
 - c. W. R. Meadows, Inc; Meadow-Crete GPS: www.wrmeadows.com/#sle.
 - d. Substitutions: See Section 01 60 00 - Product Requirements.
- E. Exterior Self-Leveling Concrete Topping: Portland cement-based; suitable as wear surface topping in exterior and wet locations as well as underlayment for applied materials.
1. Compressive Strength: 4300 pounds per square inch (30 MPa), minimum, at 28 days, when tested in accordance with ASTM C109/C109M, air cured.
 2. Flexural Strength: 1000 pounds per square inch (7 MPa), minimum, at 28 days, when tested in accordance with ASTM C348.
 3. Manufacturers:
 - a. ARDEX Engineered Cements; ARDEX K301: www.ardexamericas.com/#sle.
 - b. Kaufman Products Inc; SureFlow 042: www.kaufmanproducts.net/#sle.
 - c. Substitutions: See Section 01 60 00 - Product Requirements.

2.03 EPOXY PATCHING AND REPAIR MATERIALS

- A. Manufacturers:
1. Adhesives Technology Corporation: www.atcepoxy.com/#sle.
 2. Chase Construction Products: www.chasecorp.com/#sle.
 3. Dayton Superior Corporation: www.daytonsuperior.com/#sle.

4. Euclid Chemical Company: www.euclidchemical.com/#sle.
 5. W. R. Meadows, Inc: www.wrmeadows.com/#sle.
 6. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Epoxy Repair Mortar: Epoxy resin mixed with aggregate and other materials in accordance with manufacturer's instructions for purpose intended; comply with pot life and workability limits.
1. Manufacturers:
 - a. Adhesives Technology Corporation; Crackbond LR-321: www.atcepoxy.com/#sle.
 - b. ARDEX Engineered Cements; ARDEX BACA: www.ardexamericas.com/#sle.
 - c. W. R. Meadows, Inc; Rezi-Weld Gel Paste, Rezi-Weld Gel Paste State, Rezi-Weld 1000, Rezi-Weld LV, or Rezi-Weld LV State: www.wrmeadows.com/#sle.
 - d. Substitutions: See Section 01 60 00 - Product Requirements.
- C. Epoxy Injection Adhesive:
1. Manufacturers:
 - a. Adhesives Technology Corporation; Crackbond LR-321: www.atcepoxy.com/#sle.
 - b. Euclid Chemical Company; DURAL FAST SET LV: www.euclidchemical.com/#sle.
 - c. Kaufman Products Inc; SurePoxo HM, SurePoxo HMLV, SurePoxo HMLV Class B, or SurePoxo HMSLV: www.kaufmanproducts.net/#sle.
 - d. SpecChem, LLC; SpecPoxo 1000; www.specchemllc.com/#sle.
 - e. W. R. Meadows, Inc; Rezi-Weld LV, Rezi-Weld LV State, Rezi-Weld (IP), or Rezi-Weld Gel Paste: www.wrmeadows.com/#sle.
 - f. Substitutions: See Section 01 60 00 - Product Requirements.
- D. Epoxy Bonding Adhesive: Non-sag, two-component, 100 percent solids; recommended by manufacturer for purpose and conditions under which used.
1. Non-Load-Bearing Applications: ASTM C881/C881M Type I, II, III, IV, or V, whichever is appropriate to application.
 2. Manufacturers:
 - a. ARDEX Engineered Cements; ARDEX BACA: www.ardexamericas.com/#sle.
 - b. Adhesives Technology Corporation; Crackbond LR-321: www.atcepoxy.com/#sle.
 - c. Dayton Superior Corporation: www.daytonsuperior.com/#sle.
 - d. SpecChem, LLC; SpecPoxo 2000: www.specchemllc.com/#sle.
 - e. W. R. Meadows, Inc; Rezi-Weld Gel Paste: www.wrmeadows.com/#sle.
 - f. Substitutions: See Section 01 60 00 - Product Requirements.

2.04 ACCESSORIES

- A. Anchoring Adhesive: Self-leveling or non-sag as applicable.
1. Self-Leveling Polyester-Based Products:
 - a. W. R. Meadows, Inc; Poly-Grip: www.wrmeadows.com/#sle.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.
 2. Self-Leveling Epoxy Products:
 - a. Euclid Chemical Company; DURAL FAST SET LV: www.euclidchemical.com/#sle.
 - b. SpecChem, LLC; SpecPoxo 2000; www.specchemllc.com/#sle.
 - c. W. R. Meadows, Inc; Rezi-Weld 1000, Rezi-Weld (IP), or Rezi-Weld 3/2: www.wrmeadows.com/#sle.
 - d. Substitutions: See Section 01 60 00 - Product Requirements.
 3. Non-Sag Epoxy Products:
 - a. Euclid Chemical Company; DURAL FAST SET GEL: www.euclidchemical.com/#sle.
 - b. SpecChem, LLC; SpecPoxo 3000 or SpecPoxo 3000 FS: www.specchemllc.com/#sle.
 - c. W. R. Meadows, Inc; Rezi-Weld Gel Paste or Rezi-Weld Gel Paste State: www.wrmeadows.com/#sle.
 - d. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Portland Cement: ASTM C150/C150M, Type I, grey.
- C. Sand: ASTM C33/C33M or ASTM C404; uniformly graded, clean.

- D. Water: Clean and potable.
- E. Reinforcing Steel: ASTM A615/A615M Grade 40 (40,000 psi) (280 MPa) billet-steel deformed bars, unfinished.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work.
- B. Beginning of installation means acceptance of substrate.

3.02 PREPARATION

- A. Prepare concrete surfaces to be repaired according to ICRI 310.2R.

3.03 CLEANING EXISTING CONCRETE

- A. Clean concrete surfaces of dirt or other contamination using the gentlest method that is effective.
 - 1. Try the gentlest method first, then, if not clean enough, use a less gentle method taking care to watch for impending damage.
 - 2. Clean out cracks and voids using same methods.
- B. The following are acceptable cleaning methods, in order from gentlest to less gentle:
 - 1. Water washing using low-pressure, maximum of 100 psi, and, if necessary, brushes with natural or synthetic bristles.
 - 2. Increasing the water washing pressure to maximum of 400 psi.
 - 3. Adding detergent to washing water; with final water rinse to remove residual detergent.
 - 4. Steam-generated low-pressure hot-water washing.

END OF SECTION

**SECTION 03 10 00
CONCRETE FORMING AND ACCESSORIES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Formwork for cast-in place concrete, with shoring, bracing and anchorage.
- B. Openings for other work.
- C. Form accessories.
- D. Form stripping.

1.02 RELATED REQUIREMENTS

- A. Section 03 20 00 - Concrete Reinforcing.
- B. Section 03 30 00 - Cast-in-Place Concrete.
- C. Section 04 20 00 - Unit Masonry: Reinforcement for masonry.
- D. Section 05 12 00 - Structural Steel Framing: Placement of embedded steel anchors and plates in cast-in-place concrete.

1.03 REFERENCE STANDARDS

- A. ACI 117 - Specifications for Tolerances for Concrete Construction and Materials 2010 (Reapproved 2015).
- B. ACI 301 - Specifications for Structural Concrete 2016.
- C. ACI 318 - Building Code Requirements for Structural Concrete 2019, with Errata (2021).
- D. ACI 347R - Guide to Formwork for Concrete 2014, with Errata (2017).

1.04 QUALITY ASSURANCE

- A. Perform work of this section in accordance with Highways standards of the State of California.

PART 2 PRODUCTS

2.01 FORMWORK - GENERAL

- A. Provide concrete forms, accessories, shoring, and bracing as required to accomplish cast-in-place concrete work.
- B. Design and construct concrete that complies with design with respect to shape, lines, and dimensions.
- C. Comply with applicable state and local codes with respect to design, fabrication, erection, and removal of formwork.

2.02 WOOD FORM MATERIALS

- A. Form Materials: At the discretion of the Contractor.

2.03 FORMWORK ACCESSORIES

- A. Form Ties: Removable type, galvanized metal, fixed length, cone type, with waterproofing washer, free of defects that could leave holes larger than 1 inch (25 mm) in concrete surface.
- B. Form Release Agent: Capable of releasing forms from hardened concrete without staining or discoloring concrete or forming bugholes and other surface defects, compatible with concrete and form materials, and not requiring removal for satisfactory bonding of coatings to be applied.
- C. Embedded Anchor Shapes, Plates, Angles and Bars: As specified in Section 05 12 00.
- D. Waterstops: Preformed mineral colloid strips, 3/8 inch (9 mm) thick, moisture expanding.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions agree with drawings.

3.02 ERECTION - FORMWORK

- A. Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI 301.
- B. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads.

3.03 APPLICATION - FORM RELEASE AGENT

- A. Apply form release agent on formwork in accordance with manufacturer's recommendations.

3.04 INSERTS, EMBEDDED PARTS, AND OPENINGS

- A. Provide formed openings where required for items to be embedded in passing through concrete work.
- B. Locate and set in place items that will be cast directly into concrete.
- C. Coordinate with work of other sections in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other work.

3.05 FORM CLEANING

- A. Clean forms as erection proceeds, to remove foreign matter within forms.
- B. Clean formed cavities of debris prior to placing concrete.

3.06 FORMWORK TOLERANCES

- A. Construct formwork to maintain tolerances required by ACI 117, unless otherwise indicated.

3.07 FORM REMOVAL

- A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.

END OF SECTION

This page intentionally left blank

**SECTION 03 30 00
CAST-IN-PLACE CONCRETE**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Floors and slabs on grade.
- B. Concrete reinforcement.
- C. Joint devices associated with concrete work.
- D. Concrete curing.

1.02 RELATED REQUIREMENTS

- A. Section 03 10 00 - Concrete Forming and Accessories: Forms and accessories for formwork.
- B. Section 07 92 00 - Joint Sealants: Products and installation for sealants and joint fillers for saw cut joints and isolation joints in slabs.

1.03 REFERENCE STANDARDS

- A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete 1991 (Reapproved 2009).
- B. ACI 301 - Specifications for Structural Concrete 2016.
- C. ACI 302.1R - Guide to Concrete Floor and Slab Construction 2015.
- D. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete 2000 (Reapproved 2009).
- E. ACI 308R - Guide to External Curing of Concrete 2016.
- F. ACI 318 - Building Code Requirements for Structural Concrete 2019, with Errata (2021).
- G. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement 2020.
- H. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete 2018a.
- I. ASTM C33/C33M - Standard Specification for Concrete Aggregates 2018.
- J. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens 2021.
- K. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete 2021b.
- L. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete 2019.
- M. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete 2019.
- N. ASTM C881/C881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete 2020a.
- O. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete 2012.
- P. ASTM E1643 - Standard Practice for Selection, Design, Installation and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs 2018a.
- Q. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs 2017.
- R. NSF 61 - Drinking Water System Components - Health Effects 2020.
- S. NSF 372 - Drinking Water System Components - Lead Content 2020.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

- B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.
- C. Mix Design: Submit proposed concrete mix design.
 - 1. Indicate proposed mix design complies with requirements of ACI 301, Section 4 - Concrete Mixtures.
- D. Samples: Submit samples of underslab vapor retarder to be used.
- E. Test Reports: Submit report for each test or series of tests specified.
- F. Warranty: Submit manufacturer warranty and ensure forms have been completed in City's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

- A. Perform work of this section in accordance with ACI 301 and ACI 318.
- B. For slabs required to include moisture vapor reducing admixture (MVRA), do not proceed with placement unless manufacturer's representative is present for every day of placement.

1.06 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Slabs with Moisture Vapor Reducing Admixture (MVRA): Provide warranty to cover cost of flooring failures due to moisture migration from slabs for life of the concrete.
 - 1. Include cost of repair or removal of failed flooring, placement of topical moisture remediation system, and replacement of flooring with comparable flooring system.
 - 2. Provide warranty by manufacturer of MVRA matching terms of flooring adhesive or primer manufacturer's material defect warranty.
- C. Moisture Emission-Reducing Curing and Sealing Compound, Membrane-Forming: Provide warranty to cover cost of flooring delamination failures for 10 years.
 - 1. Include cost of repair or removal of failed flooring, remediation with a moisture vapor impermeable surface coating, and replacement of flooring with comparable flooring system.

PART 2 PRODUCTS

2.01 FORMWORK

- A. Comply with requirements of Section 03 10 00.

2.02 REINFORCEMENT MATERIALS

- A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi) (420 MPa).
 - 1. Type: Deformed billet-steel bars.
 - 2. Finish: Unfinished, unless otherwise indicated.
- B. Steel Welded Wire Reinforcement (WWR) at site flatwork only: Galvanized, plain type, ASTM A1064/A1064M.
 - 1. Form: Coiled Rolls.
 - 2. WWR Style: 4 x 8-W6 x W10 (102 x 203-MW39 x MW65).
- C. Reinforcement Accessories:
 - 1. Tie Wire: Annealed, minimum 16 gauge, 0.0508 inch (1.29 mm).
 - 2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.
 - 3. Provide stainless steel, galvanized, plastic, or plastic coated steel components for placement within 1-1/2 inches (38 mm) of weathering surfaces.

2.03 CONCRETE MATERIALS

- A. Cement: ASTM C150/C150M, Type I - Normal Portland type.
 - 1. Acquire cement for entire project from same source.
- B. Fine and Coarse Aggregates: ASTM C33/C33M.
 - 1. Acquire aggregates for entire project from same source.

- C. Fly Ash: ASTM C618, Class C or F.
- D. Calcined Pozzolan: ASTM C618, Class N.
- E. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.

2.04 ADMIXTURES

- A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
 - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
 - 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
 - 3. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.
- C. Non-Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, non-set accelerating, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. BASF Construction Chemicals - Building Systems; Rheocrete 222+.
 - b. Grace Construction Products, W. R. Grace & Co.; DCI-S.
 - c. Sika Corporation; FerroGard 901.
- D. Moisture Vapor Reducing Admixture (MVRA): Liquid, inorganic admixture free of volatile organic compounds (VOCs) and formulated to close capillary systems formed during curing to reduce moisture vapor emission and transmission with no adverse effect on concrete properties or finish flooring.
 - 1. Provide admixture in slabs to receive adhesively applied flooring.
 - 2. Manufacturers:
 - a. Barrier One, Inc; Barrier One Moisture Vapor Reduction Admixture: www.barrierone.com/#sle.
 - b. Hycrete, Inc; V1000: www.hycrete.com/#sle.
 - c. ISE Logik Industries, Inc; MVRA 900: www.iselogik.com/#sle.
 - d. Substitutions: See Section 01 60 00 - Product Requirements.

2.05 ACCESSORY MATERIALS

- A. Underslab Vapor Retarder:
 - 1. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations.
 - 2. Manufacturers:
 - a. Fortifiber Building Systems Group ; Moistop Ultra 10: www.fortifiber.com/#sle.
 - b. Intoplast Group; Barrier-Bac VB-250: www.barrierbac.com/#sle.
 - c. ISI Building Products; Viper II Platinum 8-mil (Class A): www.viper2.com/#sle.
 - d. W. R. Meadows, Inc; PERMINATOR Class A - 10 mils (0.25 mm): www.wrmeadows.com/#sle.
 - e. Substitutions: See Section 01 60 00 - Product Requirements.

2.06 BONDING AND JOINTING PRODUCTS

- A. Epoxy Bonding System:
 - 1. Manufacturers:
 - a. Adhesives Technology Corporation; Crackbond SLV-302, Crackbond LR-321, Crackbond LR-321 LPL, Ultrabond 2100 LPL, Ultrabond 2100, Ultrabond 1, Ultrabond 2, or Ultrabond HS200: www.atcepoxy.com/#sle.
 - b. W. R. Meadows, Inc; Rezi-Weld Gel Paste, Rezi-Weld Gel Paste State, Rezi-Weld 1000: www.wrmeadows.com/#sle.
 - c. Substitutions: See Section 01 60 00 - Product Requirements.

- B. Waterstops: Bentonite, complying with NSF 61 and NSF 372.
 - 1. Configuration: As indicated on drawings.
 - 2. Size: As indicated on drawings.
- C. Slab Isolation Joint Filler: 1/2 inch (13 mm) thick, height equal to slab thickness, with removable top section that will form 1/2 inch (13 mm) deep sealant pocket after removal.

2.07 CURING MATERIALS

- A. Curing and Sealing Compound, Moisture Emission-Reducing, Membrane-Forming: Liquid, membrane-forming, clear sealer, for application to newly-placed concrete; capable of providing adequate bond for flooring adhesives, initially and over the long term; with sufficient moisture vapor impermeability to prevent deterioration of flooring adhesives due to moisture emission.
 - 1. Use this product to cure and seal all new concrete on project to receive adhesively applied flooring.
 - 2. Comply with ASTM C309 and ASTM C1315 Type I Class A.
 - 3. VOC Content: Less than 100 g/L.
 - 4. Manufacturers:
 - a. Floor Seal Technology, Inc; VaporSeal 309 System: www.floorseal.com/#sle..
 - b. Substitutions: See Section 01 60 00 - Product Requirements.

2.08 CONCRETE MIX DESIGN

- A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
 - 1. Replace as much Portland cement as possible with fly ash, ground granulated blast furnace slag, silica fume, or rice hull ash as is consistent with ACI recommendations.
- B. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.
- C. Normal Weight Concrete:
 - 1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 3,000 pounds per square inch (20.7 MPa).
 - 2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
 - 3. Calcined Pozzolan Content: Maximum 10 percent of cementitious materials by weight.
 - 4. Water-Cement Ratio: Maximum 40 percent by weight.
 - 5. Total Air Content: 4 percent, determined in accordance with ASTM C173/C173M.
 - 6. Maximum Slump: 3 inches (75 mm).
 - 7. Maximum Aggregate Size: 5/8 inch (16 mm).

2.09 MIXING

- A. On Project Site: Mix in drum type batch mixer, complying with ASTM C685/C685M. Mix each batch not less than 1-1/2 minutes and not more than 5 minutes.
- B. Transit Mixers: Comply with ASTM C94/C94M.
- C. Adding Water: If concrete arrives on-site with slump less than suitable for placement, do not add water that exceeds the maximum water-cement ratio or exceeds the maximum permissible slump.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

- A. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning and applying bonding agent in according to bonding agent manufacturer's instructions.
 - 1. Use epoxy bonding system for bonding to damp surfaces, for structural load-bearing applications, and where curing under humid conditions is required.
- B. Interior Slabs on Grade: Install vapor retarder under interior slabs on grade. Comply with ASTM E1643. Lap joints minimum 6 inches (150 mm). Seal joints, seams and penetrations

watertight with manufacturer's recommended products and follow manufacturer's written instructions. Repair damaged vapor retarder before covering.

3.03 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS

- A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.
- B. Install welded wire reinforcement in maximum possible lengths, and offset end laps in both directions. Splice laps with tie wire.

3.04 PLACING CONCRETE

- A. Place concrete in accordance with ACI 304R.
- B. Place concrete for floor slabs in accordance with ACI 302.1R.
- C. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.05 SLAB JOINTING

- A. Locate joints as indicated on drawings.
- B. Anchor joint fillers and devices to prevent movement during concrete placement.
- C. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.

3.06 FLOOR FLATNESS AND LEVELNESS TOLERANCES

- A. Maximum Variation of Surface Flatness:
 - 1. Exposed Concrete Floors: 1/4 inch (6 mm) in 10 feet (3 m).
 - 2. Under Seamless Resilient Flooring: 1/4 inch (6 mm) in 10 feet (3 m).
- B. Correct the slab surface if tolerances are less than specified.
- C. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

3.07 CONCRETE FINISHING

- A. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
 - 1. Surfaces to Receive Thick Floor Coverings: "Wood float" as described in ACI 302.1R; thick floor coverings include ceramic tile with full bed setting system.
 - 2. Surfaces to Receive Thin Floor Coverings: "Steel trowel" as described in ACI 302.1R; thin floor coverings include carpeting, resilient flooring, seamless flooring, resinous matrix terrazzo, thin set quarry tile, and thin set ceramic tile.
 - 3. Other Surfaces to Be Left Exposed: Trowel as described in ACI 302.1R, minimizing burnish marks and other appearance defects.
- B. In areas with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains at 1:100 nominal.

3.08 CURING AND PROTECTION

- A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
 - 1. Normal concrete: Not less than seven days.
- C. Surfaces Not in Contact with Forms:
 - 1. Slabs and Floors To Receive Adhesive-Applied Flooring: Curing compounds and other surface coatings are usually considered unacceptable by flooring and adhesive manufacturers. If such materials must be used, either obtain the approval of the flooring and adhesive manufacturers prior to use or remove the surface coating after curing to flooring manufacturer's satisfaction.

2. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
3. Final Curing: Begin after initial curing but before surface is dry.

3.09 FIELD QUALITY CONTROL

- A. An independent testing agency will perform field quality control tests, as specified in Section 01 40 00 - Quality Requirements.
- B. Provide free access to concrete operations at project site and cooperate with appointed firm.
- C. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.
- D. Tests of concrete and concrete materials may be performed at any time to ensure compliance with specified requirements.
- E. Compressive Strength Tests: ASTM C39/C39M, for each test, mold and cure three concrete test cylinders. Obtain test samples for every 100 cubic yards (76 cu m) or less of each class of concrete placed.
- F. Slab Testing: Cooperate with manufacturer of specified moisture vapor reducing admixture (MVRA) to allow access for sampling and testing concrete for compliance with warranty requirements.

3.10 DEFECTIVE CONCRETE

- A. Test Results: The testing agency shall report test results in writing to Architect and Contractor within 24 hours of test.
- B. Defective Concrete: Concrete not complying with required lines, details, dimensions, tolerances or specified requirements.
- C. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.
- D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect for each individual area.

3.11 PROTECTION

- A. Do not permit traffic over unprotected concrete floor surface until fully cured.

END OF SECTION

**SECTION 04 20 00
UNIT MASONRY**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Concrete block.
- B. Mortar and grout.
- C. Reinforcement and anchorage.
- D. Accessories.

1.02 RELATED REQUIREMENTS

- A. Section 07 92 00 - Joint Sealants: Sealing control and expansion joints.

1.03 REFERENCE STANDARDS

- A. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement 2016.
- B. ASTM C91/C91M - Standard Specification for Masonry Cement 2012.
- C. ASTM C129 - Standard Specification for Nonloadbearing Concrete Masonry Units 2017.
- D. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar 2011.
- E. ASTM C150/C150M - Standard Specification for Portland Cement 2017.
- F. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes 2006 (Reapproved 2011).
- G. ASTM C270 - Standard Specification for Mortar for Unit Masonry 2014a.
- H. ASTM C404 - Standard Specification for Aggregates for Masonry Grout 2011.
- I. ASTM C476 - Standard Specification for Grout for Masonry 2016.
- J. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures 2016.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data for masonry units, fabricated wire reinforcement, mortar, and masonry accessories.

1.05 QUALITY ASSURANCE

- A. Comply with provisions of TMS 402/602, except where exceeded by requirements of Contract Documents.
- B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.
- B. Handle and store ceramic glazed masonry units in protective cartons or trays. Do not remove from protective packaging until ready for installation.

PART 2 PRODUCTS

2.01 CONCRETE MASONRY UNITS

- A. Concrete Block: Comply with referenced standards and as follows:
 - 1. Size: Standard units with nominal face dimensions of 16 by 8 inches (400 by 200 mm) and nominal depth of 8 inches (200 mm).
 - 2. Non-Loadbearing Units: ASTM C129.
 - a. Hollow block, match existing.

2.02 MORTAR AND GROUT MATERIALS

- A. Masonry Cement: ASTM C91/C91M, Type N.
- B. Portland Cement: ASTM C150/C150M, Type I.
- C. Hydrated Lime: ASTM C207, Type S.
- D. Mortar Aggregate: ASTM C144.
- E. Grout Aggregate: ASTM C404.
- F. Water: Clean and potable.

2.03 REINFORCEMENT AND ANCHORAGE

- A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi) (280 MPa), deformed billet bars; galvanized.

2.04 ACCESSORIES

- A. Joint Filler: Closed cell polyvinyl chloride; oversized 50 percent to joint width; self expanding; in maximum lengths available.
 - 1. Manufacturers:
 - a. Hohmann & Barnard, Inc: www.h-b.com/sle.
 - b. WIRE-BOND: www.wirebond.com/#sle.
 - c. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive masonry.
- B. Verify that related items provided under other sections are properly sized and located.
- C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

3.02 PREPARATION

- A. Direct and coordinate placement of metal anchors supplied for installation under other sections.
- B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

3.03 COURSING

- A. Establish lines, levels, and coursing indicated. Protect from displacement.
- B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
- C. Concrete Masonry Units:
 - 1. Bond: Running.
 - 2. Coursing: One unit and one mortar joint to equal 8 inches (200 mm).
 - 3. Mortar Joints: Concave.

3.04 PLACING AND BONDING

- A. Lay hollow masonry units with face shell bedding on head and bed joints, fully grout.
- B. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.
- C. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.
- D. Cut mortar joints flush where wall tile is scheduled or resilient base is scheduled.

3.05 REINFORCEMENT AND ANCHORAGE - GENERAL

- A. Unless otherwise indicated on drawings or specified under specific wall type, install horizontal reinforcement 16 inches (400 mm) on center.

- B. Place masonry reinforcement in first horizontal bond beam above and below openings. Extend minimum 24 inches (609 mm) each side of opening.

3.06 GROUTED COMPONENTS

- A. Lap splices minimum 24 bar diameters.
- B. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch (13 mm) of dimensioned position.
- C. Place and consolidate grout fill without displacing reinforcing.

3.07 CONTROL AND EXPANSION JOINTS

- A. Do not continue horizontal joint reinforcement through control or expansion joints.
- B. Install preformed control joint device in continuous lengths. Seal butt and corner joints in accordance with manufacturer's instructions.

3.08 TOLERANCES

- A. Maximum Variation from Alignment of Columns: 1/4 inch (6 mm).
- B. Maximum Variation From Unit to Adjacent Unit: 1/16 inch (1.6 mm).
- C. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft (6 mm/3 m) and 1/2 inch in 20 ft (13 mm/6 m) or more.

3.09 CUTTING AND FITTING

- A. Cut and fit for chases. Coordinate with other sections of work to provide correct size, shape, and location.

3.10 CLEANING

- A. Clean soiled surfaces with cleaning solution.

END OF SECTION

This page intentionally left blank

**SECTION 05 12 00
STRUCTURAL STEEL FRAMING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Structural steel framing members.
- B. Structural steel support members.

1.02 RELATED REQUIREMENTS

- A. Section 05 50 00 - Metal Fabrications: Steel fabrications affecting structural steel work.

1.03 REFERENCE STANDARDS

- A. AISC (MAN) - Steel Construction Manual 2017.
- B. AISC 303 - Code of Standard Practice for Steel Buildings and Bridges 2016.
- C. ASTM A36/A36M - Standard Specification for Carbon Structural Steel 2014.
- D. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2016a.
- E. ASTM A242/A242M - Standard Specification for High-Strength Low-Alloy Structural Steel 2013 (Reapproved 2018).
- F. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength 2014 (Editorial 2017).
- G. ASTM A992/A992M - Standard Specification for Structural Steel Shapes 2011 (Reapproved 2015).
- H. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination 2012.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings:
 - 1. Indicate profiles, sizes, spacing, locations of structural members, openings, attachments, and fasteners.
 - 2. Connections not detailed.
 - 3. Indicate welded connections with AWS A2.4 welding symbols. Indicate net weld lengths.
- C. Materials Test Reports: Submit independent test results or engineered performance analysis of structural thermal-break pad performance in bearing or slip-critical connections where shear and moment loads are applied.

1.05 QUALITY ASSURANCE

- A. Fabricate structural steel members in accordance with AISC (MAN) "Steel Construction Manual."
- B. Structural steel members designated as architecturally-exposed structural steel (AESS) to also comply with Section 05 12 13.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Steel Angles and Plates: ASTM A36/A36M.
- B. Rectangular HSS Shapes: ASTM A500 Grade B
- C. Structural Bolts and Nuts: Carbon steel, ASTM A307, Grade A and galvanized in compliance with ASTM A153/A153M Class C.

2.02 FABRICATION

- A. Shop fabricate to greatest extent possible.
- B. Continuously seal joined members by continuous welds. Grind exposed welds smooth.

2.03 FINISH

- A. Shop prime structural steel members. Do not prime surfaces that will be fireproofed, field welded, in contact with concrete, or high strength bolted.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that conditions are appropriate for erection of structural steel and that the work may properly proceed.

3.02 ERECTION

- A. Erect structural steel in compliance with AISC 303.
- B. Do not field cut or alter structural members without approval of Architect.

3.03 TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch (6 mm) per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch (6 mm).

3.04 FIELD QUALITY CONTROL

- A. Welded Connections: Visually inspect all field-welded connections and test at least 5 percent of welds using one of the following:

END OF SECTION

**SECTION 05 50 00
METAL FABRICATIONS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Shop fabricated steel items.

1.02 RELATED REQUIREMENTS

- A. Section 03 30 00 - Cast-in-Place Concrete: Placement of metal fabrications in concrete.
- B. Section 04 20 00 - Unit Masonry: Placement of metal fabrications in masonry.
- C. Section 05 12 00 - Structural Steel Framing: Structural steel column anchor bolts.
- D. Section 09 91 23 - Interior Painting: Paint finish.

1.03 REFERENCE STANDARDS

- A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel 2019.
- B. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless 2020.
- C. AWS D1.1/D1.1M - Structural Welding Code - Steel 2020.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.

PART 2 PRODUCTS

2.01 MATERIALS - STEEL

- A. Steel Sections: ASTM A36/A36M.
- B. Steel Tubing: ASTM A501/A501M hot-formed structural tubing.
- C. Pipe: ASTM A53/A53M, Grade B Schedule 40, black finish.
- D. Slotted Channel Framing: ASTM A653/A653M, Grade 33.
- E. Slotted Channel Fittings: ASTM A1011/A1011M.
- F. Bolts, Nuts, and Washers: ASTM A307, Grade A, plain.
- G. Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1, plain.
- H. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.
- I. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

2.02 FABRICATION

- A. Fit and shop assemble items in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- D. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.03 FABRICATED ITEMS

- A. Joist Hangers: Strap anchors, fabricated with sheet steel, 18 gauge, 0.0478 inch (1.21 mm) minimum base metal thickness; galvanized finish.

- B. Ledge Angles, Shelf Angles, Channels, and Plates Not Attached to Structural Framing: For support of metal decking; prime paint finish.
- C. Lintels: As detailed; prime paint finish.

2.04 FABRICATION TOLERANCES

- A. Squareness: 1/8 inch (3 mm) maximum difference in diagonal measurements.
- B. Maximum Offset Between Faces: 1/16 inch (1.5 mm).
- C. Maximum Misalignment of Adjacent Members: 1/16 inch (1.5 mm).
- D. Maximum Bow: 1/8 inch (3 mm) in 48 inches (1.2 m).
- E. Maximum Deviation From Plane: 1/16 inch (1.5 mm) in 48 inches (1.2 m).

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.

3.02 PREPARATION

3.03 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- C. Obtain approval prior to site cutting or making adjustments not scheduled.

3.04 TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch (6 mm) per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch (6 mm).
- C. Maximum Out-of-Position: 1/4 inch (6 mm).

END OF SECTION

**SECTION 06 10 00
ROUGH CARPENTRY**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Concealed wood blocking, nailers, and supports.

1.02 RELATED REQUIREMENTS

- A. Section 01 61 16 - Volatile Organic Compound (VOC) Content Restrictions.
- B. Section 03 30 00 - Cast-in-Place Concrete: Setting anchors in concrete.

1.03 REFERENCE STANDARDS

- A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2016a.
- B. PS 20 - American Softwood Lumber Standard 2020.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
 - 1. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
 - 2. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

- A. Sizes: Nominal sizes as indicated on drawings, S4S.
- B. Moisture Content: S-dry or MC19.
- C. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
 - 1. Lumber: S4S, No. 2 or Standard Grade.
 - 2. Boards: Standard or No. 3.

2.03 ACCESSORIES

- A. Fasteners and Anchors:
 - 1. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

3.02 BLOCKING, NAILERS, AND SUPPORTS

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
- B. In framed assemblies that have concealed spaces, provide solid wood fireblocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to code authorities may be used in lieu of

solid wood blocking.

- C. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.
- D. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.

3.03 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements, for additional requirements.

3.04 CLEANING

- A. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

**SECTION 07 10 00
TOPICAL MOISTURE VAPOR EMISSION SYSTEM**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, general provisions of the Contract, and other related construction documents such as Division 01, Division 03, and Division 09 specifications that apply to this Section.

1.02 SUMMARY

- A. Single-coat, fast-curing, 100% solids epoxy moisture management system.
 - 1. To be applied to existing concrete receiving resilient flooring.
- B. Related Sections include the following:
 - 1. Section 03 30 00, Cast-In-Place Concrete
 - 2. Division 09 Flooring Sections

1.03 REFERENCES

- A. ASTM 109M, Compressive Strength Air-Cure Only
- B. ASTM C348, Flexural Strength of Hydraulic-Cement Mortars
- C. ASTM E84, Surface Burning Characteristics of Building Materials
- D. ASTM 710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
- E. ASTM C1708 - 12 Standard Test Methods for Self-Leveling Mortars Containing Hydraulic Cements
- F. ASTM C1583 - Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension
- G. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials
- H. ASTM D1308 - Chemical Resistance of Finishes
- I. ASTM F3010 - Standard Practice for Two-Component, Resin Based Resin-Forming Moisture Mitigation Systems For Use Under Resilient Floor Coverings

1.04 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used. Include manufacturer's Material Safety Data Sheets.
- B. Qualification Data: For Installer

1.05 QUALITY ASSURANCE

- A. Installation of the Topical Moisture Mitigation System must be completed by an manufacturer approved applicator, using mixing equipment and tools approved by the manufacturer. Contact manufacturer for a list of approved installers.
- B. Manufacturer Experience: Products used for work in this section shall be manufactured by companies which have successfully specialized in production of this type of work for not less than 20 years. Contact Manufacturer Representative prior to installation.

1.06 WARRANTY

- A. Approved applicator must file a pre-installation checklist with the manufacturer and receive written confirmation of the approval to proceed in order to obtain the manufacturer warranty.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Deliver products in original packaging, labeled with product identification, manufacturer, batch number and shelf life.
- B. Store products in a dry area with temperature maintained between 50° and 85° F (10° and 29° C) and Protect from direct sunlight.
- C. Handle products in accordance with manufacturer's printed recommendations.

1.08 PROJECT CONDITIONS

- A. Do not install material below 50° F (10° C) surface and air temperatures. These temperatures must also be maintained during and for 48 hours after the installation of products included in this section. Concrete that utilize ACMS should not be allowed to freeze after the system is installed. Install quickly if substrate is warm and follow warm weather instructions available from the ARDEX Technical Service Department.

PART 2 - PRODUCTS

2.01 TOPICAL MOISTURE VAPOR EMISSION SYSTEM

- A. One-Coat Moisture Control System for Concrete to receive resilient flooring.

2.02 ACCEPTABLE PRODUCTS:

- A. Basic of Design: ARDEX MC™ RAPID; Manufactured by ARDEX Engineered Cements: 400 Ardex Park Drive, Aliquippa, Pa 15001 USA 724-203-5000
 - 1. Performance and Physical Properties: Meet or exceed the following values for material cured at 70° F+/-3°F (21° C+/-3°C) and 50% +/-5%relative humidity:
 - a. Application: Manual
 - 1) Material Requirements on CSP 3 Prepared Concrete: Mix and install as per manufacturers instructions at 14 mil thick
 - (a) Permeability (ASTM E96): <0.06 perms
 - (1) 14 pH solution (ASTM D1308): No effect
 - (2) Working Time: 20 minutes
 - (3) Pot Life: 20 minutes
 - (4) VOC: 19.9g/L, A+B (ASTM 2369)
 - (5) Walkable: Minimum of 4 hours
 - (6) Install Underlayment: Minimum 4 hours, maximum 24 hours
- B. Substitutions: See Section 01 60 00 - Product Requirements.

2.03 WATER

- A. Water shall be clean, potable, and sufficiently cool (not warmer than 70°F).

PART 3 - EXECUTION

3.01 PREPARATION

- A. The Concrete Subfloors: Prepare substrate in accordance with manufacturer's instructions.
 - 1. Mechanical preparation of the surface is required to obtain a minimum ICRI surface profile of 3 (CSP 3) brush blasting process after 3 day minimum.

3.02 APPLICATION

- A. Examine substrates and conditions under which materials will be installed. Do not proceed with installation until unsatisfactory conditions are corrected.
- B. Coordinate installation with adjacent work to ensure proper sequence of construction. Protect adjacent areas from contact due to mixing and handling of materials.
- C. Mixing: Comply with manufacturer's printed instructions and the following.
 - 1. Each individual 22 lb. unit contains separate, pre-measured quantities of hardener (Part B) and the resin (Part A). After opening each container, stir the individual components thoroughly as described in (2) below before blending. The hardening agent (Part B) is added to the resin (Part A).
 - 2. Pour all of the hardener into the resin portion and stir thoroughly for a minimum of 3 minutes using a low speed drill and an epoxy mixing paddle. Once mixed, pour some of the epoxy back into the hardener container, stir for 10 seconds, and then pour all of the contents back into the resin container. Mix for an additional 30 seconds before applying.
 - 3. Application: Comply with manufacturer's printed instructions and the following.
 - a. The required thickness for the system is dependent on application. Please refer to the technical data sheet for more information.

3.03 PROTECTION

- A. Prior to the installation of the finish flooring, the surface of the underlayment should be protected from abuse by other trades by the use of plywood, Masonite or other suitable protection course.

END OF SECTION

This page intentionally left blank

**SECTION 07 92 00
JOINT SEALANTS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Nonsag gunnable joint sealants.
- B. Self-leveling pourable joint sealants.
- C. Joint backings and accessories.

1.02 RELATED REQUIREMENTS

- A. Section 01 61 16 - Volatile Organic Compound (VOC) Content Restrictions: Additional requirements for sealants and primers.
- B. Section 07 10 00 - Topical Moisture Vapor Emission System.
- C. Section 08 71 00 - Door Hardware: Setting exterior door thresholds in sealant.
- D. Section 09 21 16 - Gypsum Board Assemblies: Sealing acoustical and sound-rated walls and ceilings.
- E. Section 09 30 00 - Tiling: Sealant between tile and plumbing fixtures and at junctions with other materials and changes in plane.
- F. Section 23 31 00 - HVAC Ducts and Casings: Duct sealants.
- G. Section 23 31 13: Metal Ducts: Duct sealants.

1.03 REFERENCE STANDARDS

- A. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer 2015.
- B. ASTM C834 - Standard Specification for Latex Sealants 2017.
- C. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications 2019.
- D. ASTM C920 - Standard Specification for Elastomeric Joint Sealants 2018.
- E. ASTM C1193 - Standard Guide for Use of Joint Sealants 2016.
- F. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants 2018.
- G. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants 2018.
- H. ASTM C1521 - Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints 2019 (Reapproved 2020).
- I. ASTM D2240 - Standard Test Method for Rubber Property--Durometer Hardness 2015 (Reapproved 2021).
- J. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers--Tension 2016 (Reapproved 2021).
- K. ASTM D695 - Standard Test Method for Compressive Properties of Rigid Plastics 2015.
- L. SWRI (VAL) - SWR Institute Validated Products Directory Current Edition.

1.04 SUBMITTALS

- A. Provide MSDS or other manufacturer documentation with disclosure of VOC content for all wet-applied products.
- B. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- C. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.
 - 1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
 - 2. List of backing materials approved for use with the specific product.

3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
 4. Substrates the product shall not be used on.
 5. Substrates for which use of primer is required.
 6. Substrates for which laboratory adhesion and/or compatibility testing is required.
 7. Installation instructions, including precautions, limitations, and recommended backing materials and tools.
 8. Sample product warranty.
 9. Certification by manufacturer indicating that product complies with specification requirements.
 10. SWRI Validation: Provide currently available sealant product validations as listed by SWRI (VAL) for specified sealants.
- D. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.
- E. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.
- F. Samples for Verification: Where custom sealant color is specified, obtain directions from Architect and submit at least two physical samples for verification of color of each required sealant.
- G. Sustainable Design Documentation: For sealants and primers, submit VOC content and emissions documentation as specified in Section 01 61 16.
- H. Installation Plan: Submit at least four weeks prior to start of installation.
- I. Preinstallation Field Adhesion Test Plan: Submit at least two weeks prior to start of installation.
- J. Field Quality Control Plan: Submit at least two weeks prior to start of installation.
- K. Preinstallation Field Adhesion Test Reports: Submit filled out Preinstallation Field Adhesion Test Reports log within 10 days after completion of tests; include bagged test samples and photographic records.
- L. Installation Log: Submit filled out log for each length or instance of sealant installed.
- M. Field Quality Control Log: Submit filled out log for each length or instance of sealant installed, within 10 days after completion of inspections/tests; include bagged test samples and photographic records, if any.

1.05 QUALITY ASSURANCE

- A. Maintain one copy of each referenced document covering installation requirements on site.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- C. Installer Qualifications: Company specializing in performing the work of this section and with at least three years of documented experience.
- D. Field Quality Control Plan:
1. Visual inspection of entire length of sealant joints.
 2. Non-destructive field adhesion testing of sealant joints, except interior acrylic latex sealants.
 - a. For each different sealant and substrate combination, allow for one test every 12 inches (305 mm) in the first 10 linear feet (3 linear m) of joint and one test every 24 inches (610 mm) thereafter.
 - b. If any failures occur in the first 10 linear feet (3 linear m), continue testing at 12 inches (305 mm) intervals at no extra cost to City.
 3. Field Quality Control Log Form: Show same data fields as on Preinstallation Field Adhesion Test Log, with known information filled out and lines for multiple tests per sealant/substrate combinations; include visual inspection and specified field testing; allow for possibility that more tests than minimum specified may be necessary.

- E. Field Adhesion Test Procedures:
 - 1. Allow sealants to fully cure as recommended by manufacturer before testing.
 - 2. Have a copy of the test method document available during tests.
 - 3. Record the type of failure that occurred, other information required by test method, and the information required on the Field Quality Control Log.
 - 4. If any combination of sealant type and substrate does not show evidence of minimum adhesion or shows cohesion failure before minimum adhesion, report results to Architect.
- F. Non-Destructive Field Adhesion Test: Test for adhesion in accordance with ASTM C1521, using Nondestructive Spot Method.
- G. Field Adhesion Tests of Joints: Test for adhesion using most appropriate method in accordance with ASTM C1521, or other applicable method as recommended by manufacturer.

1.06 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective work within a five year period after Date of Final Completion.
- C. Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal, exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. All adhesives/sealants wet-applied on site must meet the applicable chemical content requirements of SCAQMD Rule 1168, July 1, 2005.
- B. Non-Sag Sealants: Permits application in joints on vertical surfaces without sagging or slumping.
 - 1. Adhesives Technology Corporation: www.atcepoxy.com.
 - 2. BASF Construction Chemicals-Building Systems www.buildingsystems.basf.com.
 - 3. Bostik Inc: www.bostik-us.com.
 - 4. Dow Corning Corporation: www.dowcorning.com/construction/#sle.
 - 5. Hilti, Inc: www.us.hilti.com/#sle.
 - 6. Pecora Corporation: www.pecora.com.
 - 7. The QUIKRETE Companies: www.quikrete.com.
 - 8. Tremco Global Sealants: www.tremcosealants.com.
 - 9. Sherwin-Williams Company: www.sherwin-williams.com.
 - 10. W.R. Meadows, Inc: www.wrmeadows.com/sle.
 - 11. Substitutions: See Section 01 60 00 - Product Requirements.
- C. Self-Leveling Sealants: Pourable or self-leveling sealant that has sufficient flow to form a smooth, level surface when applied in a horizontal joint. By same manufacturer as above.
 - 1. Adhesives Technology Corporation: www.atcepoxy.com/#sle.
 - 2. BASF Construction Chemicals-Building Systems: www.buildingsystems.basf.com.
 - 3. Bostik Inc: www.bostik-us.com.
 - 4. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 JOINT SEALANT APPLICATIONS

- A. Scope:
 - 1. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
 - a. Joints between door, window, and other frames and adjacent construction.
 - b. In gaps at electrical outlets, wiring devices, piping, and other openings; between wall/ceiling and other construction.
 - c. Other joints indicated below.
 - 2. Do not seal the following types of joints.
 - a. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.

- b. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
 - c. Joints where installation of sealant is specified in another section.
 - d. Joints between suspended panel ceilings/grid and walls.
- B. Interior Joints: Use non-sag polyurethane sealant, unless otherwise indicated.
- 1. Wall and Ceiling Joints in Non-Wet Areas: Acrylic emulsion latex sealant.
 - 2. Wall and Ceiling Joints in Wet Areas: Non-sag polyurethane sealant for continuous liquid immersion.
 - 3. Floor Joints in Wet Areas: Non-sag polyurethane "non-traffic-grade" sealant suitable for continuous liquid immersion.
 - 4. Wall, Ceiling, and Floor Joints Where Tamper-Resistance is Required: Non-sag tamper-resistant silyl-terminated polyurethane sealant.
 - 5. Joints between Fixtures in Wet Areas and Floors, Walls, and Ceilings: Mildew-resistant silicone sealant; white.
 - 6. In Sound-Rated Assemblies: Acrylic emulsion latex sealant.
 - 7. Narrow Control Joints in Interior Concrete Slabs: Self-leveling epoxy sealant.
 - 8. Other Floor Joints: Self-leveling polyurethane "traffic-grade" sealant.
- C. Interior Wet Areas: Bathrooms, restrooms, and kitchens; fixtures in wet areas include plumbing fixtures, countertops, cabinets, and other similar items.
- D. Sound-Rated Assemblies: Walls and ceilings identified as "STC-rated", "sound-rated", or "acoustical".
- E. Areas Where Tamper-Resistance is Required: As indicated on drawings.

2.03 JOINT SEALANTS - GENERAL

- A. Sealants and Primers: Provide products with levels of volatile organic compound (VOC) content as indicated in Section 01 61 16.
- B. Colors: To match adjacent finish surfaces unless otherwise selected from Manufacturer's standard range by Architect.

2.04 NONSAG JOINT SEALANTS

- A. Non-Staining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
 - 1. Movement Capability: Plus and minus 35 percent, minimum.
 - 2. Non-Staining To Porous Stone: Non-staining to light-colored natural stone when tested in accordance with ASTM C1248.
 - 3. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.
 - 4. Hardness Range: 15 to 35, Shore A, when tested in accordance with ASTM C661.
 - 5. Color: Match adjacent finished surfaces.
 - 6. Service Temperature Range: Minus 20 to 180 degrees F (Minus 29 to 82 degrees C).
 - 7. Manufacturers:
 - a. Dow Chemical Company; DOWSIL 756 SMS Building Sealant: consumer.dow.com/en-us/industry/ind-building-construction.html/#sle.
 - b. Sika Corporation; Sikasil 728NS: www.usa-sika.com/#sle.
 - c. Tremco Commercial Sealants & Waterproofing; Spectrem 3: www.tremcosealants.com/#sle.
 - d. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
 - 1. Movement Capability: Plus and minus 25 percent, minimum.
 - 2. Hardness Range: 15 to 35, Shore A, when tested in accordance with ASTM C661.
 - 3. Color: Match adjacent finished surfaces.
 - 4. Cure Type: Single-component, neutral moisture curing
 - 5. Service Temperature Range: Minus 65 to 180 degrees F (Minus 54 to 82 degrees C).
 - 6. Manufacturers:

- a. Fortifiber Building Systems Group; Moistop Sealant: www.fortifiber.com/#sle.
 - b. Franklin International, Inc; Titebond 100% Silicone Sealant: www.titebond.com/#sle.
 - c. Dow Chemical Company; DOWSIL 999-A Building and Glazing Sealant: consumer.dow.com/en-us/industry/ind-building-construction.html/#sle.
 - d. Sherwin-Williams Company; Silicone Rubber All Purpose Sealant: www.sherwin-williams.com/#sle.
 - e. Sika Corporation; Sikasil 728NS: www.usa-sika.com/#sle.
 - f. Substitutions: See Section 01 60 00 - Product Requirements.
- C. Mildew-Resistant Silicone Sealant: ASTM C920, Grade NS, Uses M and A; single component, mildew resistant; not expected to withstand continuous water immersion or traffic.
1. Color: White.
 2. Manufacturers:
 - a. Sika Corporation; Sikasil GP: www.usa-sika.com/#sle.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.
- D. Epoxy Sealant: ASTM C920, Grade NS, Uses M and A; single or multi-component; not expected to withstand continuous water immersion or traffic.
1. Hardness Range: 65 to 75, Shore D, when tested in accordance with ASTM C661.
 2. Compressive Strength: 11,000 psi (76 MPa), when tested in accordance with ASTM D695.
 3. Color: Match adjacent finished surfaces.
 4. Manufacturers:
 - a. Pecora Corporation; DynaPoxy EP-1200 Two-Part Epoxy Security Sealant: www.pecora.com/#sle.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.
- E. Acrylic-Urethane Sealant: Water-based; ASTM C920, Grade NS, Uses M and A; single component; paintable; not expected to withstand continuous water immersion or traffic.
1. Movement Capability: Plus and minus 12-1/2 percent, minimum.
 2. Hardness Range: 15 to 40, Shore A, when tested in accordance with ASTM C661.
 3. Color: White.
 4. Manufacturers:
 - a. Franklin International, Inc; Titebond UA 920 Sealant: www.titebond.com/#sle.
 - b. Sherwin-Williams Company; Shermax Urethanized Elastomeric Sealant: www.sherwin-williams.com/#sle.
 - c. Substitutions: See Section 01 60 00 - Product Requirements.
- F. Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non-staining, non-bleeding, non-sagging; not intended for exterior use.
1. Color: Standard colors matching finished surfaces, Type OP (opaque).
 2. Grade: ASTM C834; Grade Minus 18 Degrees C (0 Degrees F).
 3. Manufacturers:
 - a. Franklin International, Inc; Titebond GREENchoice Acoustical Smoke & Sound Sealant: www.titebond.com/#sle.
 - b. Hilti, Inc; CP 572 Smoke and Acoustical Spray Sealant: www.us.hilti.com/#sle.
 - c. Sherwin-Williams Company; 950A Siliconized Acrylic Latex Caulk: www.sherwin-williams.com/#sle.
 - d. Specified Technologies Inc; Smoke N' Sound Acoustical Sealant: www.stifirestop.com/#sle.
 - e. Tremco Commercial Sealants & Waterproofing; Tremflex 834: www.tremcosealants.com/#sle.
 - f. Substitutions: See Section 01 60 00 - Product Requirements.

2.05 SELF-LEVELING SEALANTS

- A. Self-Leveling Silicone Sealant: ASTM C920, Grade P, Uses M and A; single or multicomponent, explicitly approved by manufacturer for traffic exposure when recessed below traffic surface; not expected to withstand continuous water immersion.

1. Movement Capability: Plus 100 percent, minus 50 percent, minimum.
2. Hardness Range: 0 to 15, Shore A, when tested in accordance with ASTM C661.
3. Color: Gray.
4. Manufacturers:
 - a. Dow Chemical Company; DOWSIL SL Parking Structure Sealant: consumer.dow.com/en-us/industry/ind-building-construction.html/#sle.
 - b. Pecora Corporation; Pecora 300 SL (Self-Leveling): www.pecora.com/#sle.
 - c. Pecora Corporation; Pecora 322 FC (Fast Cure): www.pecora.com/#sle.
 - d. Sika Corporation; Sikasil 728RCS: www.usa-sika.com/#sle.
 - e. Tremco Commercial Sealants & Waterproofing; Spectrem 900SL: www.tremcosealants.com/#sle.
 - f. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Self-Leveling Silyl-Terminated Polyether/Polyurethane (STPE/STPU) Sealant: ASTM C920, Grade P, Uses M and A; single component; explicitly approved by manufacturer for traffic exposure; not expected to withstand continuous water immersion.
 1. Movement Capability: Plus and minus 35 percent.
 2. Hardness Range: 30 to 55, Shore A, when tested in accordance with ASTM C661.
 3. Color: Gray.
- C. Rigid Self-Leveling Polyurethane Joint Filler: Two part, low viscosity, fast setting; intended for cracks and control joints not subject to significant movement.
 1. Hardness Range: Greater than 100, Shore A, and 50 to 80, Shore D, when tested in accordance with ASTM C661.
 2. Manufacturers:
 - a. ARDEX Engineered Cements; ARDEX ARDIFIX: www.ardexamericas.com/#sle.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.
- D. Flexible Polyurethane Foam: Single-component, gun grade, and low-expanding.
 1. Color: White.
 2. Manufacturers:
 - a. Tremco Commercial Sealants & Waterproofing; ExoAir Flex Foam: www.tremcosealants.com/#sle.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.
- E. Semi-Rigid Self-Leveling Epoxy Joint Filler: Epoxy or epoxy/polyurethane copolymer; intended for filling cracks and control joints not subject to significant movement; rigid enough to support concrete edges under traffic.
 1. Composition: Multi-component, 100 percent solids by weight.
 2. Durometer Hardness: Minimum of 85 for Type A or 35 for Type D, after seven days when tested in accordance with ASTM D2240.
 3. Color: Concrete gray.
 4. Joint Width, Minimum: 1/8 inch (3 mm).
 5. Joint Width, Maximum: 1/4 inch (6 mm).
 6. Joint Depth: Provide product suitable for joints from 1/8 inch (3 mm) to 2 inches (51 mm) in depth including space for backer rod.
 7. Manufacturers:
 - a. Dayton Superior Corporation: www.daytonsuperior.com/#sle.
 - b. Euclid Chemical Company; EUCCO 700: www.euclidchemical.com/#sle.
 - c. Nox-Crete Inc; DynaFlex 502: www.nox-crete.com/#sle.
 - d. W.R. Meadows, Inc; Rezi-Weld Flex: www.wrmeadows.com/#sle.
 - e. Substitutions: See Section 01 60 00 - Product Requirements.

2.06 ACCESSORIES

- A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.

1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type O - Open Cell Polyurethane.
 2. Type for Joints Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type B - Bi-Cellular Polyethylene.
 3. Open Cell: 40 to 50 percent larger in diameter than joint width.
 4. Closed Cell and Bi-Cellular: 25 to 33 percent larger in diameter than joint width.
 5. Manufacturers:
 - a. Nomaco, Inc: www.nomaco.com/#sle.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Preformed Extruded Silicone Joint Seal: Pre-cured low-modulus silicone extrusion, in sizes to fit applications indicated on drawings, combined with a neutral-curing liquid silicone sealant for bonding joint seal to substrates.
1. Size: 1 inch (25.4 mm) wide, in rolls 100 feet (30.5 m) long.
 2. Thickness: 0.78 inch (19.8 mm), with ridges along outside bottom edges for bonding area.
 3. Color: As selected by Architect..
 4. Durometer Hardness, Type A: 26 to 32, minimum, when tested in accordance with ASTM D2240.
 5. Tensile Strength: 218 psi (1.5 MPa), in accordance with ASTM D412.
 6. Elongation at Break: 554 percent, in accordance with ASTM D412.
 7. Manufacturers:
 - a. Tremco Commercial Sealants & Waterproofing; Spectrem Simple Seal: www.tremcosealants.com/#sle.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.
- C. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.
- D. Masking Tape: Self-adhesive, nonabsorbent, non-staining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.
- E. Joint Cleaner: Non-corrosive and non-staining type, type recommended by sealant manufacturer; compatible with joint forming materials.
- F. Primers: Type recommended by sealant manufacturer to suit application; non-staining.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that joints are ready to receive work.
- B. Verify that backing materials are compatible with sealants.
- C. Verify that backer rods are of the correct size.

3.02 PREPARATION

- A. Remove loose materials and foreign matter that shall impair adhesion of sealant.
- B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
- D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.
- E. Concrete Floor Joints That Will Be Exposed in Completed Work: Test joint filler in inconspicuous area to verify that it does not stain or discolor slab.

3.03 INSTALLATION

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C1193.
- C. Perform acoustical sealant application work in accordance with ASTM C919.

- D. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.
- E. Install bond breaker backing tape where backer rod cannot be used.
- F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.
- G. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.
- H. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.
- I. Concrete Floor Joint Filler: After full cure, shave joint filler flush with top of concrete slab.

3.04 FIELD QUALITY CONTROL

- A. Remove and replace failed portions of sealants using same materials and procedures as indicated for original installation.

3.05 POST-OCCUPANCY

- A. Post-Occupancy Inspection: Perform visual inspection of entire length of project sealant joints at a time that joints have opened to their greatest width; i.e. at low temperature in thermal cycle. Report failures immediately and repair.

END OF SECTION

**SECTION 09 05 61
COMMON WORK RESULTS FOR FLOORING PREPARATION**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. This section applies to floors identified in Contract Documents that are receiving the following types of floor coverings:
 - 1. Resilient tile and sheet.
 - 2. Resinous Flooring.
- B. Removal of existing floor coverings.
- C. Preparation of new and existing concrete floor slabs for installation of floor coverings.
- D. Testing of concrete floor slabs for relative humidity and alkalinity (pH).
- E. Remediation of concrete floor slabs due to unsatisfactory moisture or alkalinity (pH) conditions.
 - 1. Contractor shall perform all specified remediation of concrete floor slabs. If such remediation is indicated by testing agency's report and is due to a condition not under Contractor's control or could not have been predicted by examination prior to entering into the contract, a contract modification will be issued.
- F. Remedial floor coatings.
- G. Remediation of concrete floor slabs due to unsatisfactory moisture or pH conditions, prior to installation of adhesively applied floor coverings.

1.02 RELATED REQUIREMENTS

- A. Section 01 40 00 - Quality Requirements: Additional requirements relating to testing agencies and testing.
- B. Section 03 30 00 - Cast-in-Place Concrete: Moisture emission reducing curing and sealing compound for slabs to receive adhered flooring, to prevent moisture content-related flooring failures; to remain in place, not to be removed.
- C. Section 03 30 00 - Cast-in-Place Concrete: Limitations on curing requirements for new concrete floor slabs.
- D. Section 07 10 00 - Topical Moisture Vapor Emission System.

1.03 REFERENCE STANDARDS

- A. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring 2021.
- B. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes 2019a.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate scheduling of cleaning and testing, so that preliminary cleaning has been completed for at least 24 hours prior to testing.

1.05 SUBMITTALS

- A. Provide MSDS or other manufacturer documentation with disclosure of VOC content for all wet-applied products.
- B. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- C. Visual Observation Report: For existing floor coverings to be removed.
- D. Floor Covering and Adhesive Manufacturers' Product Literature: For each specific combination of substrate, floor covering, and adhesive to be used; showing:
 - 1. Moisture and pH limits and test method reports indicating compliance with specified performance requirements, performed by nationally recognized independent testing agency.
 - 2. Manufacturer's required bond/compatibility test procedure.

3. Manufacturer's qualification statement.
 4. Manufacturer's installation instructions.
 5. Specimen Warranty: Copy of warranty to be issued by coating manufacturer and certificate of Underwriter's coverage of warranty.
 6. Installer qualifications statement, certified by manufacturer.
 7. Warranty: Submit coating manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
- E. Testing Agency's Report:
1. Description of areas tested; include floor plans and photographs if helpful.
 2. Summary of conditions encountered.
 3. Moisture and alkalinity (pH) test reports.
 4. Copies of specified test methods.
 5. Recommendations for remediation of unsatisfactory surfaces.
 6. Include certification of accuracy by authorized official of testing agency.
 7. Submit report directly to City.
 8. Submit report not more than two business days after conclusion of testing.
- F. Adhesive Bond and Compatibility Test Report.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: At least 10 years' experience in production of moisture emission control coatings, documented by at least 5 project references.
- B. Installer Qualifications: Company specializing in performing work of the type specified in this section, trained by or employed by coating manufacturer, and able to provide at least 3 project references showing at least 3 years experience installing moisture emission coatings.
- C. Moisture and alkalinity (pH) testing shall be performed by an independent testing agency employed and paid by Contractor.
- D. Testing Agency Qualifications: Independent testing agency experienced in the types of testing specified.
1. Submit evidence of experience consisting of at least 3 test reports of the type required, with project Owner's project contact information.
 2. Digital "reader" and calibrated relative humidity sensors.
 - a. Factory-calibrated "smart sensors" using Touch-n-Sense technology, or equal.
 - b. NIST-traceable factory calibration.
 3. Wide range pH paper, and distilled or de-ionized water.
 4. Acceptable Testing Agencies:
 - a. Independent Floor Testing & Inspection, Inc. (IFTI): www.ifti.com/#sle.
 - b. Other testing agency approved by City.
- E. Contractor's Responsibility Relating to Independent Agency Testing:
1. Provide access for and cooperate with testing agency.
 2. Confirm date of start of testing at least 10 days prior to actual start.
 3. Allow at least 4 business days on site for testing agency activities.
 4. Achieve and maintain specified ambient conditions.
 5. Notify Architect when specified ambient conditions have been achieved and when testing will start.
- F. Remedial Coating Installer Qualifications: Company specializing in performing work of the type specified in this section, trained by or employed by coating manufacturer, and able to provide at least 3 project references showing at least 3 years' experience installing moisture emission coatings.

1.07 FIELD CONDITIONS

- A. Maintain ambient temperature in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 65 degrees F (18 degrees C) or more than 85 degrees F (30 degrees C).

- B. Maintain relative humidity in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 40 percent and not more than 60 percent.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Sensor Kit:
 - 1. Basis of Design: Rapid RH relative humidity and temperature sensor kit as manufactured by Wagner Meters (800-634-9961), or equal.
 - 2. pH test paper as manufactured by Micro Essential Laboratory, or equal.
- B. All paints and coatings wet-applied on site to the walls and ceilings must meet the VOC limits defined in the Green Seal standard GS-36, in effect October 19, 2000. All other paints and coatings must meet the applicable chemical content requirements of SCAQMD Rule 1113, January 1, 2004.
- C. Alternate Flooring Adhesive: Floor covering manufacturer's recommended product, suitable for the moisture and pH conditions present; low-VOC. In the absence of any recommendation from flooring manufacturer, provide a product recommended by adhesive manufacturer as suitable for substrate and floor covering and for conditions present.
- D. Remedial Floor Coating: Single- or multi-layer coating or coating/overlay combination intended by its manufacturer to resist water vapor transmission to degree sufficient to meet flooring manufacturer's emission limits, resistant to the level of alkalinity (pH) found, and suitable for adhesion of flooring without further treatment. See Section 07 10 00.

PART 3 EXECUTION

3.01 REMOVAL OF EXISTING FLOOR COVERINGS

- A. Comply with local, State, and Federal regulations and recommendations of RFCI Recommended Work Practices for Removal of Resilient Floor Coverings, as applicable to floor covering being removed.
- B. Dispose of removed materials in accordance with local, State, and federal regulations and as specified.
- C. See Hazardous Material Report and specifications.

3.02 CONCRETE SLAB PREPARATION

- A. Follow recommendations of testing agency.
- B. Perform following operations in the order indicated:
 - 1. Preliminary cleaning.
 - 2. Moisture vapor emission tests; 3 tests in the first 1000 square feet (100 square meters) and one test in each additional 1000 square feet (100 square meters), unless otherwise indicated or required by flooring manufacturer.
 - 3. Internal relative humidity tests; in same locations as moisture vapor emission tests, unless otherwise indicated.
 - 4. Alkalinity (pH) tests; in same locations as moisture vapor emission tests, unless otherwise indicated.
 - 5. Specified remediation, if required.
 - 6. Patching, smoothing, and leveling, as required.
 - 7. Other preparation specified.
 - 8. Adhesive bond and compatibility test.
 - 9. Protection.

3.03 INTERNAL RELATIVE HUMIDITY TESTING

- A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.
- B. Where this specification conflicts with the referenced test method, comply with the requirements of this section.

- C. Test in accordance with ASTM F2170 Procedure A and as follows.
- D. The minimum number of tests to be placed is equal to 3 in the first 1,000 sq. ft. and 1 per each additional 1,000 square feet.
- E. Utilizing a roto-hammer, drill test holes to a depth equal to 40% of the concrete thickness, i.e., 2" deep for a 5" thick slab. Hole diameter shall not exceed outside diameter of the probe by more than 0.04". Drilling operation must be dry.
- F. Vacuum and brush all concrete dust from test hole.
- G. Insert a relative humidity probe to the full depth of test hole. Place cap over probe.
- H. Permit the test site to acclimate, or equilibrate for 72 hours prior to taking relative humidity readings.
- I. Testing with electrical impedance or resistance apparatus may not be substituted for the specified ASTM test method, as the values determined are not comparable to the ASTM test values and do not quantify the moisture content sufficiently.
- J. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if any test value exceeds 75 percent relative humidity.
- K. Report: Report the information required by the test method.

3.04 ALKALINITY TESTING

- A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.
- B. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if alkalinity (pH) test value is over 10.

3.05 PREPARATION

- A. See individual floor covering section(s) for additional requirements.
- B. Comply with requirements and recommendations of floor covering manufacturer.
- C. Fill and smooth surface cracks, grooves, depressions, control joints and other non-moving joints, and other irregularities with patching compound.
- D. Do not fill expansion joints, isolation joints, or other moving joints.

3.06 ADHESIVE BOND AND COMPATIBILITY TESTING

- A. Comply with requirements and recommendations of floor covering manufacturer.

END OF SECTION

**SECTION 09 21 16
GYPSUM BOARD ASSEMBLIES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Performance criteria for gypsum board assemblies.
- B. Metal stud wall framing.
- C. Metal grid or channel ceiling framing.
- D. Acoustic insulation.
- E. Gypsum sheathing.
- F. Cementitious backing board.
- G. Gypsum wallboard.
- H. Suspended gypsum board ceilings.
- I. Joint treatment and accessories.

1.02 RELATED REQUIREMENTS

- A. Section 01 61 16 - Volatile Organic Compound (VOC) Content Restrictions.
- B. Section 06 10 00 - Rough Carpentry: Wood blocking product and execution requirements.
- C. Section 07 92 00 - Joint Sealants: Sealing acoustical gaps in construction other than gypsum board or plaster work.

1.03 REFERENCE STANDARDS

- A. AISI S100 - North American Specification for the Design of Cold-Formed Steel Structural Members 2016, with Supplement (2018).
- B. ANSI A108.11 - American National Standard Specifications for Interior Installation of Cementitious Backer Units 2018.
- C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2020.
- D. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board 2017.
- E. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members 2018.
- F. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products 2020.
- G. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board 2020.
- H. ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base 2019.
- I. ASTM C1288 - Standard Specification for Fiber-Cement Interior Substrate Sheets 2017.
- J. ASTM C1396/C1396M - Standard Specification for Gypsum Board 2017.
- K. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber 2016.
- L. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements 2009 (Reapproved 2016).
- M. ASTM E413 - Classification for Rating Sound Insulation 2016.
- N. GA-216 - Application and Finishing of Gypsum Panel Products 2016, with Errata.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

- B. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

- A. Provide completed assemblies complying with ASTM C840 and GA-216.
- B. Interior Partitions, Indicated as Acoustic: Provide completed assemblies with the following characteristics:
 - 1. Acoustic Attenuation: STC of 45-49 calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.

2.02 METAL FRAMING MATERIALS

- A. Manufacturers - Metal Framing, Connectors, and Accessories:
 - 1. ClarkDietrich: www.clarkdietrich.com/#sle.
 - 2. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Non-structural Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/120 at 5 psf (L/120 at 240 Pa).
 - 1. Studs: "C" shaped with knurled or embossed faces.
 - 2. Runners: U shaped, sized to match studs.
 - 3. Ceiling Channels: C-shaped.
- C. Partition Head To Structure Connections: Provide track fastened to structure with legs of sufficient length to accommodate deflection, for friction fit of studs cut short and fastened as indicated on drawings.
- D. Partition Head to Structure Connections: Provide mechanical anchorage devices that accommodate deflection using slotted holes, screws, and anti-friction bushings, preventing rotation of studs while maintaining structural performance of partition.
 - 1. Structural Performance: Maintain lateral load resistance and vertical movement capacity required by applicable code, when evaluated in accordance with AISI S100.
 - 2. Material: ASTM A653/A653M steel sheet, SS Grade 50/340, with G60/Z180 hot-dipped galvanized coating.
- E. Non-structural Framing Accessories:
 - 1. Ceiling Hangers: Type and size as specified in ASTM C754 for spacing required.
 - 2. Partial Height Wall Framing Support: Provides stud reinforcement and anchored connection to floor.
 - 3. Framing Connectors: ASTM A653/A653M G90 galvanized steel clips; secures cold rolled channel to wall studs for lateral bracing.
- F. Direct Suspension Systems: G40 galvanized steel grid system of main and cross tees, suspended from structure above.
 - 1. Products:
 - a. USG Corporation; DGLW Drywall Suspension System - Flat Ceilings: www.usg.com/#sle.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.
- G. Grid Suspension Systems: G40 galvanized steel grid system of main and cross tees, suspended from structure above.
 - 1. Indexed Support Bars: Designed for wall-to-wall system only.
 - 2. Products:
 - a. USG Corporation; DWSS Drywall Suspension System - Flat Ceilings: www.usg.com/#sle.
 - b. Armstrong Ceilings: www.armstrongceilings.com.
 - c. Substitutions: See Section 01 60 00 - Product Requirements.

2.03 BOARD MATERIALS

- A. Manufacturers - Gypsum-Based Board:
 - 1. USG Corporation: www.usg.com/#sle.
 - 2. American Gypsum: www.americangypsum.com.
 - 3. CertainTeed Corporation: www.certainteed.com.
 - 4. Georgia-Pacific Gypsum: www.gpgypsum.com
 - 5. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
 - 1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
 - 2. Thickness:
 - a. Vertical Surfaces: 5/8 inch (16 mm).
 - b. Ceilings: 1/2 inch (13 mm).
 - 3. Mold Resistant Paper Faced Products:
 - a. USG Corporation; USG Sheetrock Brand EcoSmart Panels Mold Tough Firecode X: www.usg.com/#sle.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.
- C. Backing Board For Wet Areas:
 - 1. Application: Surfaces behind tile in wet areas including shower ceilings and shower surrounds.
 - 2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
 - 3. ASTM Cement-Based Board: Non-gypsum-based, cementitious board complying with ASTM C1288.
 - a. Thickness: 1/2 inch (12.7 mm).
- D. Backing Board For Non-Wet Areas: Water-resistant gypsum backing board as defined in ASTM C1396/C1396M; sizes to minimum joints in place; ends square cut.
 - 1. Application: Vertical surfaces behind thinset tile, except in wet areas.
 - 2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
 - 3. Thickness: 5/8 inch (16 mm).
 - 4. Edges: Tapered.
- E. Ceiling Board: Special sag resistant gypsum ceiling board as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
 - 1. Application: Ceilings, unless otherwise indicated.
 - 2. Thickness: 1/2 inch (13 mm).
 - 3. Edges: Tapered.

2.04 GYPSUM WALLBOARD ACCESSORIES

- A. Acoustic Insulation: ASTM C665; preformed glass fiber, friction fit type, unfaced. Thickness: fill wall cavity.
- B. Acoustic Sealant: Acrylic emulsion latex or water-based elastomeric sealant; do not use solvent-based non-curing butyl sealant.
- C. Finishing Accessories: ASTM C1047, galvanized steel or rolled zinc, unless otherwise indicated.
 - 1. Types: As detailed or required for finished appearance.
 - 2. Special Shapes: In addition to conventional corner bead and control joints, provide U-bead at exposed panel edges.
- D. Beads, Joint Accessories, and Other Trim: ASTM C1047, rigid plastic, galvanized steel, or rolled zinc, unless otherwise indicated.
 - 1. Corner Beads: Low profile, for 90 degree outside corners.
- E. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that project conditions are appropriate for work of this section to commence.

3.02 FRAMING INSTALLATION

- A. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.
- B. Suspended Ceilings and Soffits: Space framing and furring members as indicated.
 - 1. Level ceiling system to a tolerance of 1/1200.
 - 2. Laterally brace entire suspension system.
 - 3. Install bracing as required at exterior locations to resist wind uplift.
- C. Wall Supported Ceilings: Space framing and furring members as indicated.
 - 1. Level ceiling system to a tolerance of 1/1200.
 - 2. Install indexed support bars when framing members spans exceed manufacturer's recommendations for the imposed loads; install at spacings recommended by manufacturer.
- D. Studs: Space studs at 16 inches on center (at 406 mm on center).
 - 1. Extend partition framing to structure where indicated and to ceiling in other locations.
 - 2. Partitions Terminating at Ceiling: Attach ceiling runner securely to ceiling track in accordance with manufacturer's instructions.
 - 3. Partitions Terminating at Structure: Attach top runner to structure, maintain clearance between top of studs and structure, and connect studs to track using specified mechanical devices in accordance with manufacturer's instructions; verify free movement of top of stud connections; do not leave studs unattached to track.
- E. Standard Wall Furring: Install at concrete walls scheduled to receive gypsum board, not more than 4 inches (100 mm) from floor and ceiling lines and abutting walls. Secure in place on alternate channel flanges at maximum 24 inches (600 mm) on center.
- F. Blocking: Install wood blocking for support of:
 - 1. Framed openings.
 - 2. Wall-mounted cabinets.
 - 3. Plumbing fixtures.
 - 4. Toilet partitions.
 - 5. Toilet accessories.
 - 6. Wall-mounted door hardware.

3.03 ACOUSTIC ACCESSORIES INSTALLATION

- A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.
- B. Acoustic Sealant: Install in accordance with manufacturer's instructions.

3.04 BOARD INSTALLATION

- A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Single-Layer Nonrated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.
- C. Cementitious Backing Board: Install over steel framing members and plywood substrate where indicated, in accordance with ANSI A108.11 and manufacturer's instructions.
- D. Installation on Metal Framing: Use screws for attachment of gypsum board except face layer of nonrated double-layer assemblies, which may be installed by means of adhesive lamination.

3.05 INSTALLATION OF TRIM AND ACCESSORIES

- A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.
- B. Corner Beads: Install at external corners, using longest practical lengths.

- C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials.

3.06 JOINT TREATMENT

- A. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
 - 1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
 - 2. Level 1: Wall areas above finished ceilings, whether or not accessible in the completed construction.
- B. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
 - 1. Feather coats of joint compound so that camber is maximum 1/32 inch (0.8 mm).

3.07 TOLERANCES

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet (3 mm in 3 m) in any direction.

END OF SECTION

This page intentionally left blank

**SECTION 09 30 00
TILING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Tile for wall applications.
- B. Ceramic accessories.
- C. Ceramic trim.

1.02 RELATED REQUIREMENTS

- A. Section 07 92 00 - Joint Sealants: Sealing joints between tile work and adjacent construction and fixtures.
- B. Section 09 05 61 - Common Work Results for Flooring Preparation: Concrete slab moisture and alkalinity testing and remediation procedures.
- C. Section 09 21 16 - Gypsum Board Assemblies: Tile backer board.
- D. Section 22 40 00 - Plumbing Fixtures: Shower receptor.

1.03 REFERENCE STANDARDS

- A. ANSI A108.1a - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar 2017.
- B. ANSI A108.1c - Contractor's Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland Cement Mortar 1999 (Reaffirmed 2021).
- C. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesives or Water Cleanable Tile-Setting Epoxy Adhesive 2019.
- D. ANSI A108.6 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy 1999 (Reaffirmed 2019).
- E. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework 2017.
- F. ANSI A118.1 - American National Standard Specifications for Dry-Set Cement Mortar 2019.
- G. ANSI A118.3 - American National Standard Specifications for Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy and Water Cleanable Tile-Setting Epoxy Adhesive 2013 (Revised).
- H. ANSI A118.4 - American National Standard Specifications for Modified Dry-Set Cement Mortar 2012 (Revised).
- I. ANSI A118.7 - American National Standard Specifications for High Performance Cement Grouts for Tile Installation 2010 (Reaffirmed 2016).
- J. ANSI A118.10 - American National Standard Specifications for Load Bearing, Bonded, Waterproof Membranes For Thin-Set Ceramic Tile And Dimension Stone Installation 2014.
- K. ANSI A137.1 - American National Standard Specifications for Ceramic Tile 2021.
- L. ASTM C373 - Standard Test Methods for Determination of Water Absorption and Associated Properties by Vacuum Method for Pressed Ceramic Tiles and Glass Tiles and Boil Method for Extruded Ceramic Tiles and Non-tile Fired Ceramic Whiteware Products 2018.
- M. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation 2019.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.

- C. Maintenance Materials: Furnish the following for City's use in maintenance of project.
 - 1. See Section 01 60 00 - Product Requirements, for additional provisions.
 - 2. Extra Tile: 1 percent of each size, color, and surface finish combination.
 - 3. Extra Grout: 1 bag each grout color.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications:
 - 1. Company specializing in performing tile installation, with minimum of five years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

1.07 FIELD CONDITIONS

- A. Do not install solvent-based products in an unventilated environment.
- B. Maintain ambient and substrate temperature above 50 degrees F (10 degrees C) and below 100 degrees F (38 degrees C) during installation and curing of setting materials.

PART 2 PRODUCTS

2.01 TILE

- A. These materials shall have the highest possible levels of recycled content.
- B. All adhesives/sealants wet-applied on site must meet the applicable chemical content requirements of SCAQMD Rule 1168, July 1, 2005.
- C. All paints and coatings wet-applied on site to the walls and ceilings must the VOC limits defined in Green Seal standard GS-36, in effect October 19, 2000. All other paints and coatings must meet the applicable chemical content requirements of SCAQMD Rule 1113, January 1, 2004.
- D. Basis of Design: See Finish Schedule A-103.
- E. Basis of Design Manufacturer: All products by the same manufacturer.
 - 1. Dal-Tile Corporation: www.daltile.com/#sle.
 - 2. Substitutions: See Section 01 60 00 - Product Requirements.
- F. Porcelain Tile: ANSI A137.1 standard grade.
 - 1. Moisture Absorption: 0 to 0.5 percent as tested in accordance with ASTM C373.
 - 2. Thickness: 3/8 inch (9.5 mm).
 - 3. Size: As indicated on drawings.
 - 4. Dynamic Coefficient of Friction: Not less than 0.42.
 - 5. Color(s): As indicated on drawings.
 - 6. Trim Units: Matching bullnose and cove base shapes in sizes coordinated with field tile.

2.02 TRIM AND ACCESSORIES

- A. Ceramic Trim: Matching bullnose, cove base, and cove ceramic shapes in sizes coordinated with field tile.
 - 1. Manufacturers: Same as for tile.

2.03 SETTING MATERIALS

- A. Provide setting and grout materials from same manufacturer.
- B. Latex-Portland Cement Mortar Bond Coat: ANSI A118.4 or ANSI A118.15.
- C. Epoxy Adhesive and Mortar Bond Coat: ANSI A118.3.
 - 1. Applications: Where indicated on drawings.
 - 2. Products:
 - a. Custom Building Products; EBM-Lite Epoxy Bonding Mortar: www.custombuildingproducts.com/#sle.
 - b. LATICRETE International, Inc; LATICRETE LATAPOXY 300 Adhesive: www.laticrete.com/#sle.
 - c. Merkrete, by Parex USA, Inc; Merkrete Pro Epoxy: www.merkrete.com/#sle.

- d. Substitutions: See Section 01 60 00 - Product Requirements.
- D. Dry-Set Portland Cement Mortar Bond Coat: ANSI A118.1.
- E. Mortar Bed Materials: Pre-packaged mix of Portland cement, sand, latex additive, and water.
 - 1. Products:
 - a. ARDEX Engineered Cements; A 38: www.ardexamericas.com/#sle.
 - b. LATICRETE International, Inc; LATICRETE 3701 Fortified Mortar Bed: www.laticrete.com/#sle.
 - c. Merkrete, by Parex USA, Inc; Merkrete Underlay C: www.merkrete.com/#sle.
 - d. Substitutions: See Section 01 60 00 - Product Requirements.

2.04 GROUTS

- A. Manufacturers:
 - 1. ARDEX Engineered Cements: www.ardexamericas.com.
 - 2. Custom Building Products: www.custombuildingproducts.com/#sle.
 - 3. LATICRETE International, Inc; LATICRETE PERMACOLOR Grout: www.laticrete.com/#sle.
 - 4. Merkrete, by Parex USA, Inc; Merkrete Duracolor Non-Sanded Color Grout: www.merkrete.com/#sle.
 - 5. Substitutions: See Section 01 60 00 - Product Requirements.
- B. High Performance Polymer Modified Grout: ANSI A118.7 polymer modified cement grout.
 - 1. Applications: Use this type of grout where indicated and where no other type of grout is indicated.
 - 2. Use sanded grout for joints 1/8 inch (3.2 mm) wide and larger; use unsanded grout for joints less than 1/8 inch (3.2 mm) wide.
 - 3. Color(s): As selected by Architect from manufacturer's full line.
 - 4. Products:
 - a. ARDEX Engineered Cements; ARDEX FL: www.ardexamericas.com/#sle.
 - b. Custom Building Products; Prism Color Consistent Grout: www.custombuildingproducts.com/#sle.
 - c. LATICRETE International, Inc; LATICRETE PERMACOLOR Grout: www.laticrete.com/#sle.
 - d. Merkrete, by Parex USA, Inc; Merkrete Pro Grout: www.merkrete.com/#sle.
 - e. Substitutions: See Section 01 60 00 - Product Requirements.

2.05 MAINTENANCE MATERIALS

- A. Tile Sealant: Gunnable, silicone, siliconized acrylic, or urethane sealant; moisture and mildew resistant type.
 - 1. Applications: Between tile and plumbing fixtures.
 - 2. Color(s): As selected by Architect from manufacturer's full line.
 - 3. Products:
 - a. ARDEX Engineered Cements; ARDEX SX: www.ardexamericas.com/#sle.
 - b. Custom Building Products; Commercial 100% Silicone Caulk: www.custombuildingproducts.com/#sle.
 - c. LATICRETE International, Inc; LATICRETE LATASIL: www.laticrete.com/#sle.
 - d. Merkrete, by Parex USA, Inc; Merkrete Colored Caulking: www.merkrete.com/#sle.
 - e. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Grout Sealer: Liquid-applied, moisture and stain protection for existing or new Portland cement grout.
 - 1. Composition: Water-based colorless silicone.
 - 2. Color(s): As selected by Architect from manufacturer's full line.
 - 3. Products:
 - a. Merkrete, by Parex USA, Inc; Merkrete Grout Sealer: www.merkrete.com/#sle.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.

2.06 ACCESSORY MATERIALS

- A. Waterproofing Membrane at shower: Specifically designed for bonding to cementitious substrate under thick mortar bed or thin-set tile; complying with ANSI A118.10.
 - 1. Fluid or Trowel Applied Type:
 - a. Products:
 - 1) ARDEX Engineered Cements; ARDEX 8+9: www.ardexamericas.com/#sle.
 - 2) LATICRETE International, Inc; LATICRETE HYDRO BAN: www.laticrete.com/#sle.
 - 3) Merkrete, by Parex USA, Inc; Merkrete Hydro Guard 2000: www.merkrete.com/#sle.
 - 4) USG Corporation; Durock Brand Liquid Waterproofing Membrane: www.usg.com/#sle.
 - 5) Substitutions: See Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that subfloor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive tile.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive tile.
- C. Verify that sub-floor surfaces are dust-free and free of substances that shall impair bonding of setting materials to sub-floor surfaces.
- D. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

- A. Protect surrounding work from damage.
- B. Vacuum clean surfaces and damp clean.
- C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.
- D. Prepare substrate surfaces for adhesive installation in accordance with adhesive manufacturer's instructions.

3.03 INSTALLATION - GENERAL

- A. Install tile, thresholds, and stair treads and grout in accordance with applicable requirements of ANSI A108.1a through ANSI A108.19, manufacturer's instructions, and TCNA (HB) recommendations.
- B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.
- C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.
- D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make grout joints without voids, cracks, excess mortar or excess grout, or too little grout.
- E. Form internal angles square and external angles bullnosed.
- F. Sound tile after setting. Replace hollow sounding units.
- G. Keep control and expansion joints free of mortar, grout, and adhesive.
- H. Prior to grouting, allow installation to completely cure; minimum of 48 hours.
- I. Grout tile joints unless otherwise indicated. Use standard grout unless otherwise indicated.
- J. At changes in plane and tile-to-tile control joints, use tile sealant instead of grout, with either bond breaker tape or backer rod as appropriate to prevent three-sided bonding.

3.04 INSTALLATION - SHOWERS WALLS

- A. At shower walls install in accordance with TCNA (HB) Method B412, over cementitious backer units with waterproofing membrane.
- B. Grout with standard grout as specified above.

3.05 INSTALLATION - WALL TILE

- A. Over cementitious backer units install in accordance with TCNA (HB) Method W223, organic adhesive.
- B. Over interior concrete and masonry install in accordance with TCNA (HB) Method W202, thin-set with dry-set or latex-Portland cement bond coat.

3.06 CLEANING

- A. Clean tile and grout surfaces.

3.07 PROTECTION

- A. Do not permit traffic over finished floor surface for 4 days after installation.

END OF SECTION

This page intentionally left blank

**SECTION 09 51 00
ACOUSTICAL CEILINGS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Suspended metal grid ceiling system.
- B. Acoustical units.

1.02 RELATED REQUIREMENTS

- A. Section 01 61 16 - Volatile Organic Compound (VOC) Content Restrictions.
- B. Section 08 31 00 - Access Doors and Panels: Access panels.
- C. Section 21 13 00 - Fire-Suppression Sprinkler Systems: Sprinkler heads in ceiling system.
- D. Section 26 51 00 - Interior Lighting: Light fixtures in ceiling system.
- E. Section 28 46 00 - Fire Detection and Alarm: Fire alarm components in ceiling system.

1.03 REFERENCE STANDARDS

- A. ASTM C635/C635M - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings 2017.
- B. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels 2019.
- C. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions 2020.
- D. ASTM E1264 - Standard Classification for Acoustical Ceiling Products 2019.
- E. UL (GGG) - GREENGUARD Gold Certified Products Current Edition.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.
- B. Do not install acoustical units until after interior wet work is dry.

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on suspension system components and acoustical units.
- C. Maintenance Materials: Furnish the following for City's use in maintenance of project.
 - 1. See Section 01 60 00 - Product Requirements, for additional provisions.
 - 2. Extra Acoustical Units: Quantity equal to 5 percent of total installed.

1.06 QUALITY ASSURANCE

- A. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- B. Acoustical Unit Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.07 FIELD CONDITIONS

- A. Maintain uniform temperature of minimum 60 degrees F (16 degrees C), and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Acoustic Tiles/Panels:
 - 1. Basis of Design: USG, www.usg.com
 - 2. Armstrong World Industries, Inc: www.armstrong.com.

3. CertainTeed Corporation: www.certainteed.com.
 4. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Suspension Systems:
1. Same as for acoustical units.

2.02 ACOUSTICAL UNITS

- A. Acoustical Units - General: ASTM E1264, Class A.
1. VOC Content: As specified in Section 01 61 16.
- B. Acoustical Tile: Painted mineral fiber, ASTM E1264 Type III, with the following characteristics:
1. Size: 24" x 48".
 2. Recycled Content: 81% minimum.
 3. Composition: wet-formed mineral fiber with acoustically transparent membrane.
 4. Light Reflectance: 0.90, determined in accordance with ASTM E1264.
 5. NRC Range: 0.75 to 0.90, determined in accordance with ASTM E1264.
 6. Ceiling Attenuation Class (CAC): not less than 35, determined in accordance with ASTM E1264.
 7. Edge: Fineline Bevel.
 8. Surface Color: Flat White.
 9. Texture: Smooth.
 10. Products:
 - a. USG "Mars High NRC ClimaPlus".

2.03 SUSPENSION SYSTEM(S)

- A. Metal Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with perimeter moldings, hold down clips, stabilizer bars, clips, and splices as required.
- B. Suspension System components shall comply with ASTM C635 and E580 Section 5.1:
1. Hanger and bracing wires shall be #12 gauge (0.106" diameter), soft annealed and galvanized steel wires with Class 1 coating. They may be used for up to and including 4' x 4' grid spacing along and attached to main runners. Splices are not permitted in any hanger wire.
 2. Main runners and cross runners along with their splices, intersection connectors, and expansion devices shall be designed and constructed to carry a mean ultimate test load of not less than 180 lbs. in compression and tension, in accordance with ASTM 580 Section 5.1.2.
- C. Exposed Steel Suspension System: Formed steel, commercial quality cold rolled; heavy-duty.
1. Profile: Tee; 9/16 inch (14 mm) wide face.
 2. Products:
 - a. USG "Donn Brand Centricitee DXT".

2.04 ACCESSORIES

- A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.
- B. Hanger Wire: 12 gauge, 0.08 inch (2 mm) galvanized steel wire.
- C. Galvanized metal studs, tracks and sheet steel shall conform to ASTM A653-11 material, or other equivalent ASTM listed materials in Section A2.1 of the AISI S100-07/S2-10; North American Specification for the Design of Cold-Formed Steel Structural Members with Supplement 2, dated 2010, with a minimum yield strength of 33 ksi for 43 mil (18 gauge) and lighter and minimum yield strength of 50 ksi for heavier gauges.
- D. Metal studs and tracks shall be of size, thickness and section properties shown on Tables 1-1, 1-2, and 1-3 of the AISI Manual, Cold-Formed Steel Design, 2008 edition.
- E. Electrical Metallic Tube (EMT) shall be ANSI C80.3/UL 797 Carbon Steel with G90 Galvanizing. EMT shall have minimum yield strength of ($F_y = 30$ ksi) and minimum ultimate strength of ($F_u = 48$ ksi).

- F. The following requirements shall also be met:
1. Sheet metal screws shall comply with ASTM C1513-10, ASME B18.6.4-98 (R2005) and ICC-ES AC 118 and allowable strength shall be based on information provided in CL1.31 and CL1.32. Penetration of screws through joined material shall not be less than three exposed threads.
 2. Welding shall be in accordance with AWS D1.3 using E60XX Series electrodes. Field welding shall have special inspection in accordance with 2013 CBC Section 1705A.2.
 3. Post-Installed Anchors (e.g. expansion anchors, screw anchors and power actuated fasteners) shall have inspection and testing in accordance with the 2013 CBC Sections 1705A.3 and 1913A.7. For qualification, design and use of post-installed anchors in concrete see the 2013 CBC Sections 1616A.1.19 and 1908A.1.1. Listing of current ICC-ES evaluation reports (or reports from other testing agencies acceptable to OSHPD) shall be required for fastener used.
 4. Power-Actuated Fasteners (PAF), Powder Driven Fasteners (PDF), Power-Actuated Pins (PDP) and Shot Pins all represent the same fastener and will hereafter be referenced to as power actuated fasteners (PAF). PAF's shall satisfy the current AC70-Acceptance Criteria for Fasteners Power-Driven into Concrete, Steel, and Masonry Elements and the 2013 CBC Section 1908A.1.1. Listing of current ICC-ES evaluation reports (or reports from other testing agencies acceptable to OSHPD) shall be required for fasteners used.
 5. For PAF installed in steel the fastener penetration shall have the entire pointed end of the fastener driven through the steel member.
- G. "Ceiling Wire" shall conform with galvanized soft annealed mild steel wire as defined in ASTM A641 (Class 1 coating) with 70 ksi minimum tensile strength:
1. Four (4) twists of wire within 1.5" develops the allowable load for the wire.
 2. Three (3) twists within 3" may be used to develop the maximum 50% of allowable load.
- H. Perimeter Moldings: Same metal and finish as grid.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that layout of hangers will not interfere with other work.

3.02 PREPARATION

- A. Install after major above-ceiling work is complete.
- B. Coordinate the location of hangers with other work.

3.03 INSTALLATION - SUSPENSION SYSTEM

- A. Install suspension system in accordance with ASTM C636/C636M, ASTM E580/E580M, and manufacturer's instructions and as supplemented in this section.
- B. Suspension System installation shall comply with ASTM C636 and E580 Section 5.2:
 1. Provide #12 gauge hanger wires at the ends of all main and cross runners within eight (8) inches of the support of within one-fourth (1/4) of the length of the end tee, whichever is less, for the perimeter of the ceiling area. Perimeter wires are not required when the length of the end tee is eight (8) inches or less.
 2. Ceiling grid members shall be attached to two (2) adjacent walls, in accordance with ASTM E580 Section 5.2.3. Ceiling grid members shall be at least 3/4 inch clear of other walls. If walls run diagonal to the ceiling grid system runners, one end of main and cross runners shall be free, and a minimum of 3/4 inch clear of the wall.
 3. The width of the perimeter supporting closure angle shall be not less than (2) inches.
 4. At the perimeter of the ceiling area where main or cross runners are not connected to the adjacent wall, provide interconnection between the runners at the free end to prevent lateral spreading. A metal strut or a #16 gauge wire with a positive mechanical connection to the runner may be used. Where the perpendicular distance from the wall to the first parallel runner is eight (8) inches or less, this interconnection is not required.

- C. Expansion Joints, Seismic Separations, and Penetrations:
1. Expansion joints shall be provided in the ceiling at the intersections of corridors and at junctions of corridors with lobbies or other similar areas.
 2. For ceiling areas exceeding 2500 square feet, a seismic separation joint shall be provided to divide the ceiling into areas not exceeding 2500 sq.ft.
 3. Penetrations through the ceiling for sprinkler heads and other similar devices that are not integrally tied to the ceiling system in the lateral direction shall have a two (2) inch oversized ring, sleeve or adapter through the ceiling tile to allow free movement of one (1) inch in all horizontal directions. A flexible sprinkler hose fitting that can accommodate one (1) inch of ceiling movement shall be permitted to be used in lieu of the oversized ring, sleeve or adapter. Such flexible sprinkler hose shall be adequately supported from soffit so as not to exceed the maximum tributary weight of the ceiling.
- D. Lateral Force Bracing:
1. Lateral force bracing is required in accordance with this section for all ceiling areas, UON. Exception: lateral force bracing may be omitted for suspended acoustical ceilings with a ceiling area of 144 sq. ft. or less, when perimeter support in accordance with ASTM E580 are provided and perimeter walls are designed to carry the ceiling lateral forces.
 2. Provide lateral force bracing assemblies consisting of a strut and four (4) #12 gauge bracing wires oriented 90 degrees from each other.
 3. Lateral force bracing assemblies shall be spaced in accordance with CL2.20 through CL2.22 and CL2.30 from each wall and at the edges of any change of elevation of the ceiling.
 4. The slope of bracing wires may be from 10 to 45 degrees but may not exceed 45 degrees from the plane of the ceiling and wires shall be taut.
 5. Struts shall be adequate to resist the vertical component induced by the bracing wires, and shall not be more than 1 (horizontal) in 6(vertical) out of plumb.
 6. Attachment of hanger and bracing wires:
 - a. Fasten #12 hanger wires with not less than three (3) tight turns in 3 inches. Hanger wire loops shall be tightly wrapped and sharply bent to prevent any vertical movement or rotation of the member within the loops.
 - b. Fasten #12 bracing wires with four (4) tight turns. Make all tight turns within a distance of 1 1/2 inches.
 - c. Hanger or bracing wire anchored to the structure shall be installed in such a manner that the direction of the anchor aligns as closely as possible with the direction of the wire.
 - d. Separate all ceiling hanger and bracing wires at least six (6) inches from all unbraced ducts, pipe conduits, etc.
 - e. Hanger wires shall not be attached to or bend around interfering material or equipment. Provide trapeze or other supplementary support members at obstructions to typical hanger spacing. Provide additional hangers, struts or braces as required at all ceiling breaks, soffits, or discontinuous areas.
 - f. Hanger wires that are more than 1 (horizontal) in 6 (vertical) out of plumb shall require project specific design.
 - g. When drilled-in concrete anchors or PAF are used in reinforced concrete for hanger wires, 1 out of 10 wire/anchor assemblies shall be field tested for 200 lbs. in tension. When drilled-in concrete anchors are used for bracing wires, 1 out of 2 wire/anchor assemblies shall be field tested for 440 lbs. in tension in the direction of the wire. PAF in concrete are not permitted for bracing wires.
- E. Ceiling Fixtures, Terminals, and Devices:
1. Ceiling panels shall not support any light fixtures, air terminals/grills, or other devices (referred to all by common term fixtures hereafter).
 2. All fixtures shall be mounted in a manner that will not compromise ceiling performance.
 3. All fixtures shall be attached to the suspended ceiling system by mechanical means, unless independently supported. The attachment device shall have the capacity of 100% of fixture weight acting in any direction. A minimum of two attachment devices are

- required for each fixture.
4. Surface-mounted fixtures shall be attached to the main runner with positive clamping devices made of material with a minimum 14 gauge wire. A No.12 gauge safety wire shall be attached between the clamping device and to the structure above. In no case shall the fixtures exceed the design capacity of the supporting members.
 5. All light fixtures weighting less than or equal to 10 lbs. shall have one No.12 gauge safety wire connected from fixture housing to the structure above it. It is not necessary for these safety wires to be taut.
 6. All fixtures weighting greater than 10 lbs. but less than or equal to 56 lbs. shall have two No.12 gauge safety wire connected from fixture housing to the structure above it. It is not necessary for these safety wires to be taut.
 7. All fixtures weighing greater than 56 lbs. shall be supported directly from the structure above by approved means.
 8. Pendant-hung fixtures shall be supported directly from the structure above using no less than No.9 gauge wire or an approved alternate support. The ceiling suspension system shall not provide any direct support.
 9. All recessed or drop-in fixtures shall be supported directly from fixture housing to the structure above with a minimum of two No.12 gauge wires located at diagonally opposite corners. Leveling or positioning of fixtures may be provided by the ceiling grid. Fixture support wires may be slightly loose to allow the fixture to sit in the grid system. Fixtures shall not be supported from main runners or cross runners if the weight of the fixtures causes total dead load to exceed the deflection capability of the ceiling suspension system.
- F. Additional Requirements:
1. Metal and other panels: metal panels and panels weighing more than 1/2 psf, other than mineral fiber acoustical tile, are to be positively attached to the ceiling suspension runners.
 2. Building Exit Ways: ceilings in exit ways shall be installed in accordance with Section 13.5.6.2.2(1) of ASCE 7-10 as amended by the 2013 CBC Section 1616A 1.20. Splices or intersection of runners shall be attached with through connectors such as pop rivets, screws, pins, plates with end tabs or other approved connectors.
- G. Sheet Metal Screws (SMS) General Notes:
1. The allowable strengths are based upon the AISI S100-07/S2-10 and are limited by actual tested strength of the screws in tension and shear.
 2. The allowable strengths are based upon the least of the average tested tensile strength and shear strengths tabulated from ICC ESR's 1976, 2196, 1730, 1408, and the Steel Stud Manufacturers Association (SSMA). Fastener types and sizes apply to non-proprietary fastener types and sizes, and does not endorse a specific manufacturer. Where proprietary fasteners are specified, no exceptions are taken to the use of manufacturer specific values that are based upon the AISI S100-07/S2-10, Section E4. All screw fasteners shall satisfy ICC-ES AC118 - Acceptance Criteria for Self Tapping Screw Fasteners.
 3. CL1.31 Table 1 represents allowable tension and shear strengths for non-proprietary sheet metal screws for steel to steel connections.
 4. CL1.31 Table 2 and CL1.32 Table 3 represent allowable tension and shear strengths that incorporate the effects of either one (1) or two (2) layers of 5/8" gypsum board between the fastener head and connecting steel material.
 5. In order to use the values in Tables 1, 2, and 3, the attachments shall be detailed in such a way as to avoid prying and the studs must be stabilized with full-depth blocking with continuous straps along the flanges or with backing bars.
 6. Penetration of screws through any joined material shall not be less than three (3) exposed threads.
 7. Steel thicknesses joined are assumed to be the same. If dissimilar thicknesses are being connected, the value for the thinner part joined shall be used.
 8. The minimum spacing between centers of fasteners shall not be less than 3 times the fastener diameter. The minimum edge distance from the center of a fastener to the edge of any part shall not be less than 1.5 times the fastener diameter. Where the end distance

is parallel to the force on the fastener, the nominal shear strength shall be limited by Section E4.3.2 of the AISI S100-07/S2-10.

9. Galvanized metal studs, track and sheet steel shall conform to ASTM A653-09a material (or other equivalent ASTM listed materials in the AISI S100-07/S2-10, Section A2.1) with a minimum yield strength of 33 ksi for 43 mil (18 ga) and lighter, and minimum yield strength of 50 ksi for 54 mil (16 ga) and heavier.
 10. Where values are not given, such combinations of screw sizes and material thickness are not recommended.
 11. If the attachment details result in prying with a moment arm not to exceed 1 5/8", the values in Table 4 may be used. If the attachment details result in prying with a moment arm that exceeds 1 5/8", the structural engineer of record shall determine the allowable values.
 12. Interaction of shear and tension shall be based on $T/T + V/V$ is less than or equal to 1.0.
 13. Refer to Note 6A on CL0.00 for additional sheet metal screw requirements.
- H. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.
- I. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
1. Use longest practical lengths.
- J. Suspension System, Non-Seismic: Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- K. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.
- L. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.
- M. Support fixture loads using supplementary hangers located within 6 inches (152 mm) of each corner, or support components independently.
- N. Do not eccentrically load system or induce rotation of runners.

3.04 INSTALLATION - ACOUSTICAL UNITS

- A. Install acoustical units in accordance with manufacturer's instructions.
- B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
- C. Fit border trim neatly against abutting surfaces.
- D. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.
- E. Cutting Acoustical Units:
 1. Make field cut edges of same profile as factory edges.
- F. Where round obstructions occur, provide preformed closures to match perimeter molding.
- G. Lay acoustical insulation for a distance of 48 inches (1219 mm) either side of acoustical partitions as indicated.
- H. Install hold-down clips on panels within 20 ft (6 m) of an exterior door.

3.05 TOLERANCES

- A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet (3 mm in 3 m).
- B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

END OF SECTION

**SECTION 09 65 00
RESILIENT FLOORING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Resilient sheet flooring.
 - 1. Sheet vinyl, slip resistant, antimicrobial (FL2); see drawings finish schedule Sheet A-103.
- B. Resilient tile flooring.
 - 1. Luxury vinyl tile (FL3); see drawings finish schedule Sheet A-103.
- C. Resilient base.
 - 1. Rubber base (B3); see drawings finish schedule Sheet A-103.
 - 2. Cove base (B2); see drawings finish schedule Sheet A-103.
- D. Installation accessories.

1.02 RELATED REQUIREMENTS

- A. Section 01 61 16 - Volatile Organic Compound (VOC) Content Restrictions.
- B. Section 03 30 00 - Cast-in-Place Concrete: Restrictions on curing compounds for concrete slabs and floors to receive adhesive-applied resilient flooring.
- C. Section 07 10 00 - Topical Moisture Vapor Emission System.
- D. Section 09 05 61 - Common Work Results for Flooring Preparation: Removal of existing floor coverings, cleaning, and preparation.
- E. Section 26 05 26 - Grounding and Bonding for Electrical Systems: Grounding and bonding of static control flooring to building grounding system.

1.03 REFERENCE STANDARDS

- A. ASTM F1066 - Standard Specification for Vinyl Composition Floor Tile 2004 (Reapproved 2018).
- B. ASTM F1861 - Standard Specification for Resilient Wall Base 2021.
- C. ASTM F1913 - Standard Specification for Vinyl Sheet Floor Covering Without Backing 2019.
- D. RFCI (RWP) - Recommended Work Practices for Removal of Resilient Floor Coverings 2011.

1.04 SUBMITTALS

- A. Provide MSDS or other manufacturer documentation with disclosure of VOC content for all wet-applied products.
- B. Product data shall be provided indicating the levels of post- and pre-consumer recycled content.
- C. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- D. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.
- E. Selection Samples: Submit manufacturer's complete set of color samples for Architect's initial selection.
- F. Certification: Prior to installation of flooring, submit written certification by flooring manufacturer and adhesive manufacturer that condition of subfloor is acceptable.
- G. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Upon receipt, immediately remove any shrink-wrap and check materials for damage and the correct style, color, quantity and run numbers.
- B. Store all materials off of the floor in an acclimatized, weather-tight space.

- C. Maintain temperature in storage area between 55 degrees F (13 degrees C) and 90 degrees F (72 degrees C).
- D. Protect roll materials from damage by storing on end.
- E. Do not double stack pallets.

1.06 FIELD CONDITIONS

- A. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F (21 degrees C) to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F (13 degrees C).

PART 2 PRODUCTS

2.01 SHEET FLOORING

- A. All adhesives/sealants wet-applied on site must meet the applicable chemical content requirements of SCAQMD Rule 1168, July 1, 2005.
- B. These materials shall have the highest possible levels of recycled content.
- C. Basis of Design: See Schedule A-103.
- D. Vinyl Sheet Flooring: Homogeneous without backing, with color and pattern throughout full thickness.
 - 1. Manufacturers:
 - a. Armstrong Flooring, Inc; Accolade Plus: www.armstrongflooring.com/#sle.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.
 - 2. Minimum Requirements: Comply with ASTM F1913.
 - 3. Thickness: 0.080 inch (2.0 mm) nominal.
 - 4. Seams: Heat welded.
 - 5. Integral covered base with non-metal edge band with cap strip.
 - 6. Basis of Design: Armstrong Medintone.
- E. Welding Rod: Solid bead in material compatible with flooring, produced by flooring manufacturer for heat welding seams, and in color matching field color.

2.02 TILE FLOORING

- A. Vinyl Composition Tile: Homogeneous, with color extending throughout thickness.
 - 1. Manufacturers:
 - a. Basis of Design: Armstrong World Industries, Inc; Natural Creations Classics: www.armstrong.com.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.
 - 2. Minimum Requirements: Comply with ASTM F1066, of Class corresponding to type specified.
 - 3. VOC Content Limits: As specified in Section 01 61 16.
 - 4. Thickness: .005 nominal inch (.127 mm).
 - 5. Wear Layer Thickness: .020" minimum. Complies with ASTM F410.
 - 6. Color: As indicated on drawings.
- B. See Architectural Finish Plans and Schedules.

2.03 RESILIENT BASE

- A. Resilient Base: ASTM F1861, Type TS rubber, vulcanized thermoset; top set Style B, Cove, and as follows:
 - 1. Manufacturers:
 - a. Roppe Corp: www.roppe.com.
 - b. Burke Flooring: www.burkeflooring.com/#sle.
 - c. Roppe Corp: www.roppe.com.
 - d. Substitutions: See Section 01 60 00 - Product Requirements.
 - 2. Height: per finish plans.
 - 3. Thickness: 0.125 inch (3.2 mm).

4. Finish: Satin.
5. Length: Roll.
6. Color: As indicated on drawings.
7. Accessories: Premolded external corners and internal corners.

2.04 ACCESSORIES

- A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.
- B. Primers, Adhesives, and Seam Sealer: Waterproof; types recommended by flooring manufacturer.
- C. Moldings, Transition and Edge Strips: Same material as flooring.
- D. Filler for Coved Base: Plastic.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.
- C. Cementitious Subfloor Surfaces: Verify that substrates are ready for resilient flooring installation by testing for moisture and alkalinity (pH).
 1. Obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.
- D. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

- A. Remove existing resilient flooring and flooring adhesives; follow the recommendations of RFCI (RWP).
- B. Remove subfloor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with subfloor filler to achieve smooth, flat, hard surface.
- C. Prohibit traffic until filler is fully cured.
- D. Clean substrate.
- E. Apply primer as required to prevent "bleed-through" or interference with adhesion by substances that cannot be removed.

3.03 INSTALLATION - GENERAL

- A. Starting installation constitutes acceptance of subfloor conditions.
- B. Install in accordance with manufacturer's written instructions.
- C. Adhesive-Applied Installation:
 1. Place copper grounding strip in conductive adhesive and apply additional adhesive to top side of strip before installing static control flooring. Allow strip to extend beyond flooring in accordance with static control flooring manufacturer's instructions. Refer to Section 26 05 26 for grounding and bonding to building grounding system.
 2. Fit joints and butt seams tightly.
 3. Set flooring in place, press with heavy roller to attain full adhesion.

3.04 INSTALLATION - SHEET FLOORING

- A. Lay flooring with joints and seams parallel to longer room dimensions, to produce minimum number of seams. Lay out seams to avoid widths less than 1/3 of roll width; match patterns at seams.
- B. Seams are prohibited in kitchens, toilet rooms, and custodial closets.
- C. Seal seams by heat welding where indicated.

- D. Coved Base: Install as detailed on drawings, using coved base filler as backing at floor to wall junction. Extend sheet flooring vertically to height indicated, and cover top edge with metal cap strip.

3.05 INSTALLATION - TILE FLOORING

- A. Mix tile from container to ensure shade variations are consistent when tile is placed, unless otherwise indicated in manufacturer's installation instructions.
- B. See Finish Plans for placement requirements.

3.06 INSTALLATION - RESILIENT BASE

- A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches (45 mm) between joints.
- B. Miter internal corners. At external corners, use premolded units. At exposed ends, use premolded units.
- C. Install base on solid backing. Bond tightly to wall and floor surfaces.
- D. Scribe and fit to door frames and other interruptions.

3.07 CLEANING

- A. Remove excess adhesive from floor, base, and wall surfaces without damage.
- B. Clean in accordance with manufacturer's written instructions.

3.08 PROTECTION

- A. Prohibit traffic on resilient flooring for 48 hours after installation.

END OF SECTION

**SECTION 09 67 23
RESINOUS FLOORING**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This section includes the following:
 - 1. Resinous flooring system as shown on the drawings and in schedules.
- B. Related sections include the following:
 - 1. Cast-in-Place Concrete, section 03 30 00.
 - 2. Concrete Curing, section 03 39 00.

1.03 SYSTEM DESCRIPTION

- A. The work shall consist of preparation of the substrate, the furnishing and application of a cementitious urethane based self-leveling seamless flooring system with decorative quartz aggregate broadcast and Epoxy broadcast and topcoats.
- B. The system shall have the color and texture as specified by the Owner with a nominal thickness of 1/4 inch. It shall be applied to the prepared area(s) as defined in the plans strictly in accordance with the Manufacturer's recommendations.
- C. Cove base (if required) to be applied where noted on plans and per manufacturers standard details unless otherwise noted

1.04 SUBMITTALS

- A. Product Data: Latest edition of Manufacturer's literature including performance data and installation procedures.
- B. Manufacturer's Material Safety Data Sheet (MSDS) for each product being used.
- C. Samples: A 3 x 3 inch square sample of the proposed system. Color, texture, and thickness shall be representative of overall appearance of finished system subject to normal tolerances.

1.05 QUALITY ASSURANCE

- A. The Manufacturer shall have a minimum of 10 years experience in the production, sales, and technical support of epoxy and urethane industrial flooring and related materials.
- B. The Applicator shall have experience in installation of the flooring system as confirmed by the manufacturer in all phases of surface preparation and application of the product specified.
- C. System shall be in compliance with requirements of United States Department of Agriculture (USDA), Food, Drug Administration (FDA), and local Health Department.
- D. System shall be in compliance with the Indoor Air Quality requirements of California section 01350 as verified by a qualified independent testing laboratory.
- E. A pre-installation conference shall be held between Applicator, Manufacturer, General Contractor and the City Engineer to review and clarification of this specification, application procedure, quality control, inspection and acceptance criteria and production schedule.

1.06 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Packing and Shipping
 - 1. All components of the system shall be delivered to the site in the Manufacturer's packaging, clearly identified with the product type and batch number.
- B. Storage and Protection
 - 1. The Applicator shall be provided with a dry storage area for all components. The area shall be between 60 F and 85 F, dry, out of direct sunlight and in accordance with the Manufacturer's recommendations and relevant health and safety regulations.

2. Copies of Material Safety Data Sheets (MSDS) for all components shall be kept on site for review by the Engineer or other personnel.
- C. Waste Disposal
1. The Applicator shall be provided with adequate disposal facilities for non-hazardous waste generated during installation of the system.

1.07 PROJECT CONDITIONS

- A. Site Requirements
1. Application may proceed while air, material and substrate temperatures are between 60 F and 85 F providing the substrate temperature is above the dew point. Outside of this range, the Manufacturer shall be consulted.
 2. The relative humidity in the specific location of the application shall be less than 85 % and the surface temperature shall be at least 5 F above the dew point.
 3. The Applicator shall ensure that adequate ventilation is available for the work area. This shall include the use of manufacturer's approved fans, smooth bore tubing and closure of the work area.
 4. The Applicator shall be supplied with adequate lighting equal to the final lighting level during the preparation and installation of the system.
- B. Conditions of new concrete to be coated with cementitious urethane material.
1. Concrete shall be moisture cured for a minimum of 3 days and have fully cured a minimum of 5 days
 2. in accordance with ACI-308 prior to the application of the coating system pending moisture tests.
 3. Concrete shall have a flat rubbed finish, float or light steel trowel finish (a hard steel trowel finish is neither necessary nor desirable).
 4. Sealers and curing agents should not to be used.
 5. Concrete shall have minimum design strength of 3.500 psi. and a maximum water/cement ratio of 0.45
 6. Concrete surfaces on grade shall have been constructed with a vapor barrier to protect against the effects of vapor transmission and possible delamination of the system.
- C. Safety Requirements
1. All open flames and spark-producing equipment shall be removed from the work area prior to commencement of application.
 - a. "No Smoking" signs shall be posted at the entrances to the work area.
 2. The Owner shall be responsible for the removal of foodstuffs from the work area.
 3. Non-related personnel in the work area shall be kept to a minimum.

1.08 WARRANTY

- A. Manufacturer shall warrant that material shipped to buyers at the time of shipment substantially free from material defects and will perform substantially to manufacturers published literature if used in accordance with the latest prescribed procedures and prior to the expiration date.

PART 2 - PRODUCTS

2.01 FLOORING

- A. Basis of Design: Dur-A-Flex, Inc, Hybri-Flex EQ (self leveling broadcast quartz), epoxy/aliphatic urethane topcoat seamless flooring system.
1. System Materials:
 - a. Topping: Dur-A-Flex, Inc, Poly-Crete MD resin, hardener and SL aggregate.
 - b. The broadcast aggregate shall be Dur-A-Flex, Inc. Q28 or Q11 quartz aggregate.
 - c. Broadcast: Dur-A-Flex, Inc. Dur-A-Glaze #4, epoxy based two-component resin.
 - d. Grout coat: Dur-A-Flex, Inc Dur-A-Glaze #4, epoxy-based, two-component resin.
 - e. Top coat: Dur-A-Flex, Inc. Armor Top aliphatic urethane two-component resin.
 - f. Sloping and Fill: Dur-A-Flex, Inc, DUR-A-TEX LM cement-based one-component acrylic polymer underlayment only at shower area.
 2. Patch Materials

- a. Shallow Fill and Patching: Use Dur-A-Flex, Inc. Poly-Crete MD (up to ¼ inch).
- b. Deep Fill and Sloping Material (over ¼ inch): Use Dur-A-Flex, Inc. Poly-Crete WR.

2.02 BASE

- A. Basis of Design: Dur-A-Glaze #4 Cove-Rez, thixotropic resinous covered base.

2.03 MANUFACTURER

- A. Dur-A-Flex, Inc., 95 Goodwin Street, East Hartford, CT 06108, Phone: (860) 528-9838, Fax: (860) 528-2802. Contact: Ken Schodron (559) 631-0829, kens@dur-a-flex.com
- B. Manufacturer of Approved System shall be single source and made in the USA.
- C. Substitutions: See Section 01 60 00 - Product Requirements.

2.04 PRODUCT REQUIREMENTS

- A. Topping: Poly-Crete SL
 - 1. Percent Reactive 100 %
 - 2. VOC 0 g/L
 - 3. Bond Strength to Concrete ASTM D 4541 400 psi, substrates fails
 - 4. Compressive Strength, ASTM C 579 9,000 psi
 - 5. Tensile Strength, ASTM D 638 2,175 psi
 - 6. Flexural Strength, ASTM D 790 5,076 psi
 - 7. Impact Resistance @ 125 mils, MIL D-3134, 160 inch lbs
 - a. No visible damage or deterioration
- B. Broadcast Coat: Dur-A-Glaze #4 Resin
 - 1. Percent Reactive, 100 %
 - 2. VOC <4 g/L
 - 3. Water Absorption, ASTM D 570 0.04%
 - 4. Tensile Strength, ASTM D 638 4000psi
 - 5. Coefficient of thermal expansion ASTM D 696, 2 x 10-5 in/in/F
 - 6. Flammability ASTM D-635 Self-Extinguishing
 - 7. Flame Spread/ NFPA 101 ASTM E-84 Class A
- C. Topcoat: Armor Top
 - 1. VOC 0 g/L
 - 2. 60 Degree Gloss ASTM D523 75+/-5
 - 3. Mixed Viscosity, (Brookfield 25oC) 500 cps
 - 4. Tensile strength, ASTM D 638 7,000 psi
 - 5. Abrasion Resistance, ASTM D4060 Gloss Satin
 - a. CS 17 wheel (1,000 g load) 1,000 cycles 4 8 mg loss with grit
 - 10 12 mg loss without grit
 - 6. Pot life @ 70o F 50% RH 2 hours
 - 7. Full Chemical resistance 7 days
- D. Sloping and Fill: Dur-A-TEX LM
 - 1. VOC 0 g/L
 - 2. Compressive Strength, ASTM C-109 6,000 psi
 - 3. Flexural Strength, ASTM C-348-02 28 days>1,200 psi
 - 4. Package Size 50 lbs./48 per pallet
 - 5. Coverage 50 SF at 1/8", 100 SF at 1/16"
 - 6. Shelf Life 6 months
 - Installed Wight 2.20 lbs. @1/4"
 - 7. Application Temperature Range 50 F to 95 F
 - 8. Cure time to apply DAF product 16 hours

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates, areas and conditions, with Applicator present, for compliance with requirements for maximum moisture content, installation tolerances and other conditions affecting flooring performance.
 - 1. Verify that substrates and conditions are satisfactory for flooring installation and comply with requirements specified.

3.02 PREPARATION

- A. General
 - 1. New and existing concrete surfaces shall be free of oil, grease, curing compounds, loose particles, moss, algae growth, laitance, friable matter, dirt, and bituminous products.
 - 2. Moisture Testing: Perform tests recommended by manufacturer and as follows.
 - a. Perform anhydrous calcium chloride test ASTM F 1869-98. Application will proceed only when the vapor/moisture emission rates from the slab is less than and not higher than 20 LBS/1,000 SF/24 HRS.
 - b. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum 99% relative humidity level measurement.
 - c. If the vapor drive exceeds 99% relative humidity or 20 lbs/1,000 sf/24 hrs then the Owner and/or Engineer shall be notified and advised of additional cost for the possible installation of a vapor mitigation system that has been approved by the manufacturer or other means to lower the value to the acceptable limit.
 - 3. Mechanical surface preparation
 - a. Shot blast all surfaces to receive flooring system with a mobile steel shot, dust recycling machine (Blastrac or equal). All surface and embedded accumulations of paint, toppings hardened concrete layers, laitance, power trowel finishes and other similar surface characteristics shall be completely removed leaving a bare concrete surface having a minimum profile of CSP 4-5 as described by the International Concrete Repair Institute.
 - b. Floor areas inaccessible to the mobile blast machines shall be mechanically abraded to the same degree of cleanliness, soundness and profile using diamond grinders, needle guns, bush hammers, or other suitable equipment.
 - c. Existing resinous floors should be ground smooth to remove topcoats and expose the urethane cement base.
 - d. Cracks and joints (non-moving) greater than 1/8 inch wide are to be chiseled or chipped-out and repaired per manufacturer's recommendations.
 - 4. At spalled or worn areas, mechanically remove loose or delaminated concrete to a sound concrete and patch per manufacturer's recommendations.

3.03 APPLICATION

- A. General
 - 1. The system shall be applied in five distinct steps as listed below:
 - a. Substrate preparation
 - b. Topping/overlay application with quartz aggregate broadcast.
 - c. Resin application with quartz aggregate broadcast.
 - d. Topcoat application
 - e. Second topcoat application.
 - 2. Immediately prior to the application of any component of the system, the surface shall be dry and any remaining dust or loose particles shall be removed using a vacuum or clean, dry, oil-free compressed air.
 - 3. The handling, mixing and addition of components shall be performed in a safe manner to achieve the desired results in accordance with the Manufacturer's recommendations.
 - 4. The system shall follow the contour of the substrate unless pitching or other leveling work has been specified by the Architect.

5. A neat finish with well-defined boundaries and straight edges shall be provided by the Applicator.
- B. Topping
1. The topping shall be applied as a self-leveling system as specified by the Architect. The topping shall be applied in one lift with a nominal thickness of 1/8 inch.
 2. The topping shall be comprised of three components, a resin, hardener and filler as supplied by the Manufacturer.
 3. The hardener shall be added to the resin and thoroughly dispersed by suitably approved mechanical means. SL Aggregate shall then be added to the catalyzed mixture and mixed in a manner to achieve a homogenous blend.
 4. The topping shall be applied over horizontal surfaces using 1/2 inch "v" notched squeegee, trowels or other systems approved by the Manufacturer.
 5. Immediately upon placing, the topping shall be degassed with a loop roller.
 6. Quartz aggregate shall be broadcast to excess into the wet material at the rate of 0.8 lbs/sf.
 7. Allow material to fully cure. Vacuum, sweep and/or blow to remove all loose aggregate.
- C. Existing Floor
- Existing resinous floors to receive new broadcast, grout coat, and topcoat to match new floor areas. Visible cold seams are not acceptable. Apply new broadcast, grout coat, and topcoat concurrent with new resinous floors.
- D. Broadcast
1. The broadcast coat resin shall be applied at the rate of 90 sf/gal (Q28) or 50 sf/gal (Q11).
 2. The broadcast coat shall be comprised of liquid components, combined at a ratio of 2 parts resin to 1 part hardener by volume and shall be thoroughly blended by mechanical means such as a high speed paddle mixer.
 3. Quartz aggregate shall be broadcast into the wet resin at the rate of 0.5 lbs/sf.
 4. Allow material to fully cure. Vacuum, sweep and/or blow to remove all loose aggregate.
- E. Grout coat
1. The grout coat shall be squeegee applied with a coverage rate of 90 sf/gal (Q28) or 50 sf/gal (Q11).
 2. The grout coat shall be comprised of liquid components, combined at a ratio of 2 parts resin to 1 part hardener by volume and shall be thoroughly blended by mechanical means such as a high speed paddle mixer.
 - a. 3. The grout coat will be back rolled and cross rolled to provide a uniform texture and finish.
- F. Topcoat
1. The topcoat shall be roller applied with a coverage rate of 500 sf/gal.
 2. The finished floor will have a nominal thickness of 1/4 inch.
- G. Underlayment
1. Skim Coating: Use a steel trowel to pull the material tight, forcing it into the surface while filling and smoothing minor voids and imperfections. If more build is required, float Dur-A-Tex LM back over itself placing and finishing the material as need to correct the substrate. Once the sheen flashes, ridges can be troweled down before the final set to avoid sanding or scraping.
 2. Ramping/Screeding: Place the mixed material immediately. Use a trowel for small ramps or screed for larger ones. Dur-A-Tex LM's unique consistency allows you to simply pull the tool over the material without the side to side (sawing) action normally required with other materials. This leaves a true plane that can be finished with a steel trowel once the sheen has flashed. Do not re-temper the surface with water when finishing.

3.04 FIELD QUALITY CONTROL

- A. Tests, Inspection
1. The following tests shall be conducted by the Applicator:
 - a. Temperature

- 1) Air, substrate temperatures and, if applicable, dew point.
- b. Coverage Rates
 - 1) Rates for all layers shall be monitored by checking quantity of material used against the area covered.

3.05 CLEANING AND PROTECTION

- A. Cure flooring material in compliance with manufacturer's directions, taking care to prevent their contamination during stages of application and prior to completion of the curing process.
- B. Remove masking. Perform detail cleaning at floor termination, to leave cleanable surface for subsequent work of other sections.

END OF SECTION

**SECTION 09 78 00
DECORATIVE FIBERGLASS REINFORCED PLASTIC (FRP) WALL WALL PANELING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Decorative fiberglass reinforced plastic (FRP) wall paneling.
- B. Accessories.

1.02 REFERENCE STANDARDS

- A. ASTM D256 - Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics 2010 (Reapproved 2018).
- B. ASTM D2583 - Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor 2013a.
- C. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber 2016.
- D. ASTM D5319 - Standard Specification for Glass-Fiber Reinforced Polyester Wall and Ceiling Panels 2017.
- E. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2021a.
- F. ISO 846 - Plastics - Evaluation of the action of microorganisms 2019.
- G. ISO 2812-1 - Paints and varnishes -- Determination of resistance to liquids -- Part 1: Immersion in liquids other than water 2017.
- H. NSF 35 - High Pressure Decorative Laminates for Surfacing Food Service Equipment 2020.

1.03 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit manufacturer's descriptive literature for each specified product. Include anchorage devices specific to project substrate types.
- C. Installer's qualification statement.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with at least five years of documented experience.
- B. Installer Qualifications: Company specializing in installing work of the type specified in this section, and with at least three years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to project site in manufacturer's original packaging, marked with manufacturer's product identification.
- B. Store panels flat, indoors, on a clean, dry surface. Remove packaging and allow panels to acclimate to room temperature for 48 hours prior to installation.
- C. Packaging Waste Management: See Section 01 74 19.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Decorative Fiberglass Reinforced Plastic (FRP) Wall Paneling:
 - 1. Marlite, Inc; Induro: www.marlite.com/#sle.
 - 2. Panolam Surface Systems; Panolam Duet Wall Panels: www.panolam.com/#sle.
 - 3. Substitutions: See Section 01 6000 - Product Requirements.

2.02 REGULATORY REQUIREMENTS

- A. Surface Burning Classification: Provide wall paneling assemblies meeting Class A when tested in accordance with ASTM E84.

2.03 DECORATIVE FRP WALL PANELING

- A. Type: Digitally-printed pattern images with manufacturer's standard scratch-resistant, UV-resistant protective coating.
 - 1. Panel Size: 4 by 8 feet (1.2 by 2.4 m).
 - 2. Panel Thickness: 0.075 inch (1.9 mm).
 - 3. Material: Fiberglass reinforced plastic (FRP), complying with ASTM D5319.
 - a. Scratch Resistance: Barcol hardness score greater than 25, when tested in accordance with ASTM D2583.
 - b. Impact Strength: Greater than 6 ft lb force per inch (320 J per m), when tested in accordance with ASTM D256.
 - c. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
 - d. Chemical Cleanability: Excellent chemical resistance to common cleaners and detergents when tested in accordance with ISO 2812-1.
 - e. Biological Resistance: Rating of 0, when tested in accordance with ISO 846.
 - 4. Panel Manufacturing Tolerances:
 - a. Thickness: Plus or minus ten percent.
 - b. Width and Length: 1/8 inch (3 mm) variation in panel lengths up to and including 12 feet (4 m).
 - c. Squareness: Not more than 1/8 inch (3 mm) out of square in any direction.
- B. Accessories:
 - 1. Trim:
 - a. Material: Extruded aluminum.
 - b. Color/Finish: [_____].
 - c. Divider Bars: Manufacturer's standard, matching and aligning with design pattern.
 - d. Inside Corner Trim: Standard angle.
 - e. Outside Corner Trim: Standard angle.
 - f. Edge Trim: Manufacturer's standard shape.
 - 2. Products:
 - a. Eagle Mouldings, Inc; Aluminum J-Caps and Channels: www.eagle-aluminum.com/#sle.
 - b. Substitutions: See Section 01 6000 - Product Requirements.
 - 3. Adhesive: Type recommended by panel manufacturer.
 - 4. Sealant: Type recommended by paneling manufacturer; clear.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions and substrate flatness before starting work.
- B. Verify that substrate surfaces for adhered items are clean and smooth.
 - 1. Test painted or wall covering surfaces for adhesion in inconspicuous area, as recommended by manufacturer.
- C. Start of installation constitutes acceptance of project conditions.

3.02 INSTALLATION

- A. Install panels in accordance with manufacturer's instructions.
- B. Apply adhesive to back side of panel using trowel recommended by adhesive manufacturer.
- C. Apply panels to wall with vertical joints plumb and horizontal joints level and pattern aligned with adjoining panels.
- D. Using a roller, apply pressure to panel face to ensure proper adhesion between surfaces.
- E. Install panels with manufacturer's recommended gaps for panel field and corner joints.
- F. Install trim with adhesive.
- G. Seal joints at wall base and between panels with approved sealant to prevent moisture intrusion.

H. Remove excess sealant after paneling is installed and prior to curing.

3.03 ADJUSTING

A. Replace paneling installed out of plumb and/or not aligned with adjacent panels or construction.

3.04 CLEANING

A. Clean panel faces using cleaning agents and methods recommended by manufacturer to remove soiling.

3.05 PROTECTION

A. Protect installed interior wall paneling from subsequent construction operations.

END OF SECTION

This page intentionally left blank

**SECTION 09 91 23
INTERIOR PAINTING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Field application of paints.
- C. Scope: Finish interior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.
- D. Do Not Paint or Finish the Following Items:
 - 1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - 3. Items indicated to remain unfinished.
 - 4. Fire rating labels, equipment serial number and capacity labels, bar code labels, and operating parts of equipment.
 - 5. Floors, unless specifically indicated.
 - 6. Glass.
 - 7. Concealed pipes, ducts, and conduits.

1.02 RELATED REQUIREMENTS

- A. Section 01 61 16 - Volatile Organic Compound (VOC) Content Restrictions.

1.03 REFERENCE STANDARDS

- A. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials 2020.
- B. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual Current Edition.
- C. SSPC-SP 1 - Solvent Cleaning 2015, with Editorial Revision (2016).
- D. SSPC-SP 6 - Commercial Blast Cleaning 2007.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide complete list of products to be used, with the following information for each:
 - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
 - 2. MPI product number (e.g. MPI #47).
 - 3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
- C. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches (216 by 279 mm) in size, illustrating range of colors available for each finishing product specified.
 - 1. Where sheen is specified, submit samples in only that sheen.
 - 2. Where sheen is not specified, submit each color in each sheen available.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F (7 degrees C) and a maximum of 90 degrees F (32 degrees C), in ventilated area, and as required by manufacturer's instructions.

1.07 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Provide lighting level of 80 ft candles (860 lx) measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Provide paints and finishes used in any individual system from the same manufacturer; no exceptions.
- B. Paints:
 - 1. Base Manufacturer: Kelly-Moore Paints: www.kellymoore.com.
 - 2. Sherwin-Williams Company: www.sherwin-williams.com/#sle.
- C. Primer Sealers: Same manufacturer as top coats.
- D. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 PAINTS AND FINISHES - GENERAL

- A. Paints and Finishes: Ready mixed, unless intended to be a field-catalyzed paint.
 - 1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
 - 2. Supply each paint material in quantity required to complete entire project's work from a single production run.
 - 3. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.
- B. Volatile Organic Compound (VOC) Content: Comply with Section 01 61 16.

2.03 PAINT SYSTEMS - INTERIOR

- A. Paint I-OP - Interior Surfaces to be Painted, Unless Otherwise Indicated: Including gypsum board, concrete, concrete masonry units, brick, wood, plaster, uncoated steel, shop primed steel, galvanized steel, aluminum, and acoustical ceilings.
 - 1. Two top coats and one coat primer.
 - 2. Top Coat(s): High Performance Architectural Interior Latex; MPI #138, 139, 140, or 141.
 - 3. Top Coat Sheen:
 - a. Flat: MPI gloss level 1; use this sheen for ceilings and other overhead surfaces.
 - b. Eggshell: MPI gloss level 3; use this sheen at all locations.
 - c. Semi-Gloss: MPI gloss level 5; use this sheen at door trim.
- B. Paint I-OP-MD-DT - Medium Duty Door/Trim: For surfaces subject to frequent contact by occupants, including metals and wood:
 - 1. Medium duty applications include doors, door frames, railings, handrails, guardrails, and balustrades.
 - 2. Two top coats and one coat primer.
 - 3. Top Coat(s): Interior Epoxy-Modified Latex; MPI #115 or 215.

2.04 PRIMERS

- A. Primers: Provide the following unless other primer is required or recommended by manufacturer of top coats.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.
- C. Test shop-applied primer for compatibility with subsequent cover materials.
- D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 - 1. Gypsum Wallboard: 12 percent.
 - 2. Plaster and Stucco: 12 percent.
 - 3. Masonry, Concrete, and Concrete Masonry Units: 12 percent.
 - 4. Interior Wood: 15 percent, measured in accordance with ASTM D4442.

3.02 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- D. Seal surfaces that might cause bleed through or staining of topcoat.
- E. Concrete:
- F. Masonry:
- G. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair.
- H. Aluminum: Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.
- I. Galvanized Surfaces:
 - 1. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.
- J. Ferrous Metal:
 - 1. Solvent clean according to SSPC-SP 1.
 - 2. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.
 - 3. Remove rust, loose mill scale, and other foreign substances using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP 6 "Commercial Blast Cleaning". Protect from corrosion until coated.
- K. Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.
- L. Wood Doors to be Field-Finished: Seal wood door top and bottom edge surfaces with clear sealer.

3.03 APPLICATION

- A. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".
- B. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- C. Apply each coat to uniform appearance in thicknesses specified by manufacturer.
- D. Sand wood and metal surfaces lightly between coats to achieve required finish.

- E. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- F. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements, for general requirements for field inspection.
- B. City will provide field inspection.

3.05 CLEANING

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.06 PROTECTION

- A. Protect finishes until completion of project.
- B. Touch-up damaged finishes after Substantial Completion.

3.07 SCHEDULE - PAINT SYSTEMS

- A. Concrete, Concrete Masonry Units (CMU), Concrete Block, Brick Masonry: Finish surfaces exposed to view.
 - 1. Interior: CI-OP-3L, semi-gloss.
- B. Gypsum Board: Finish surfaces exposed to view.
 - 1. Interior Ceilings and Bulkheads: GI-OP-3L, flat.
 - 2. Interior Walls: GI-OP-3A, semi-gloss.
- C. Wood: Finish surfaces exposed to view.
 - 1. Interior trim and frames: WI-OP-3A, semi-gloss.
- D. Steel Doors and Frames: Finish surfaces exposed to view; MI-OP-3A, gloss.
- E. Steel Fabrications: Finish surfaces exposed to view.

END OF SECTION

**SECTION 10 14 00
SIGNAGE**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Room and door signs.

1.02 RELATED REQUIREMENTS

- A. Division 26: Identification for electrical systems; exit signs required by code.

1.03 REFERENCE STANDARDS

- A. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines current edition.
- B. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design 2010.
- C. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's printed product literature for each type of sign, indicating sign styles, font, foreground and background colors, locations, overall dimensions of each sign.
- C. Signage Schedule: Provide information sufficient to completely define each sign for fabrication, including room number, room name, other text to be applied, sign and letter sizes, fonts, and colors.
 - 1. When room numbers to appear on signs differ from those on drawings, include the drawing room number on schedule.
 - 2. When content of signs is indicated to be determined later, request such information from City through Architect at least 2 months prior to start of fabrication; upon request, submit preliminary schedule.
 - 3. Submit for approval by City through Architect prior to fabrication.
- D. Samples: Submit two samples of each type of sign, of size similar to that required for project, illustrating sign style, font, and method of attachment.
- E. Selection Samples: Where colors are not specified, submit two sets of color selection charts or chips.
- F. Verification Samples: Submit samples showing colors specified.
- G. Manufacturer's Installation Instructions: Include installation templates and attachment devices.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Package signs as required to prevent damage before installation.
- B. Package room and door signs in sequential order of installation, labeled by floor or building.
- C. Store tape adhesive at normal room temperature.

1.06 FIELD CONDITIONS

- A. Do not install tape adhesive when ambient temperature is lower than recommended by manufacturer.
- B. Maintain this minimum temperature during and after installation of signs.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Flat Signs:
 - 1. Ellis & Ellis Sign Systems: www.ellissigns.com
 - 2. Mohawk Sign Systems, Inc: www.mohawksign.com.
 - 3. Seton Identification Products: www.seton.com/aec.
 - 4. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 SIGNAGE APPLICATIONS

- A. Accessibility Compliance: Signs are required to comply with ADA Standards and ICC A117.1 and applicable building codes, unless otherwise indicated; in the event of conflicting requirements, comply with the most comprehensive and specific requirements.
- B. Room and Door Signs (see drawing sheet G-104):
 - 1. Sign Type: Flat signs with engraved panel media as specified.
 - 2. Provide "tactile" signage, with letters raised minimum 1/32 inch (0.8 mm) and Grade II braille.
 - 3. Character Height: see drawings.
 - 4. Room Identifier Signs: Identify with room numbers to be determined later, not the numbers indicated on drawings.
 - 5. Toilet Rest Rooms: Identify with pictograms, the names "MEN" and "WOMEN", room numbers to be determined later, and braille.
- C. Interior Directional and Informational Signs (see drawing sheets A-551 & A-552):
 - 1. Sign Type: Same as room and door signs.
 - 2. Rated for exterior use where located outside.
- D. Other Signs: See signage details on Sheet G-104.

2.03 SIGN TYPES

- A. Flat Signs: Signage media without frame.
 - 1. Edges: Square.
 - 2. Corners: Square.
 - 3. Wall Mounting of One-Sided Signs: Tape adhesive.
- B. Color and Font: Unless otherwise indicated:
 - 1. Character Font: Helvetica, Arial, or other sans serif font.
 - 2. Character Case: Upper case only.
 - 3. Background Color: Clear.
 - 4. Character Color: Contrasting color.

2.04 TACTILE SIGNAGE MEDIA

- A. Engraved Panels: Laminated colored plastic; engraved through face to expose core as background color:
 - 1. Total Thickness: 1/16 inch (1.6 mm).

2.05 ACCESSORIES

- A. Tape Adhesive: Double sided tape, permanent adhesive.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that substrate surfaces are ready to receive work.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install neatly, with horizontal edges level.
- C. Locate signs and mount at heights indicated on drawings and in accordance with ADA Standards and ICC A117.1.
- D. Protect from damage until Final Completion; repair or replace damaged items.

END OF SECTION

**SECTION 10 21 13.17
PHENOLIC TOILET COMPARTMENTS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Compact Laminate (CL/Solid Phenolic).

1.02 RELATED REQUIREMENTS

- A. Section 05 50 00 - Metal Fabrications: Concealed steel support members.
- B. Section 06 10 00 - Rough Carpentry: Blocking and supports.
- C. Section 09 51 00 - Acoustical Tile Ceilings.
- D. Section 10 28 00 - Toilet and Shower Accessories.

1.03 REFERENCE STANDARDS

- A. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar 2015.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on panel construction, hardware, and accessories.
- C. Shop Drawings: Indicate partition plan, elevation views, dimensions, details of wall supports, door swings.

1.05 WARRANTY

- A. Manufacturer's Warranty(eries): Manufacturer's standard 25 year limited warranty for panels, doors, and stiles against breakage, corrosion, delamination, and defects in factory workmanship. Manufacturer's standard 1 year guarantee against defects in material and workmanship for stainless steel door hardware and mounting brackets.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Compact Laminate (CL/Solid Phenolic) Toilet Compartments:
 - 1. Bobrick Washroom Equipment, Inc., which is located at: 6901 Tujunga Ave.; North Hollywood, CA 91605-6213; Tel: 818-764-1000; Fax: 818-765-2700; Email:info@bobrick.com; Web:www.bobrick.com
 - 2. Substitutions: Section 01 60 00 - Product Requirements.

2.02 COMPACT LAMINATE (SOLID PHENOLIC), MOISTURE RESISTANT SUBSTRATE

- A. Toilet Compartments: Factory fabricated doors, pilasters, and divider panels made of solid phenolic core panels with integral melamine finish, floor-to-ceiling.
- B. Panels:
 - 1. Thickness: 1/2 inch (13 mm).
 - 2. Height: 58 inch (1473 mm).
- C. Compact Laminate (Solid Phenolic) Toilet Partitions: Bobrick DuraLineSeries.
- D. Design Type:
 - 1. Standard Height.
 - a. Door/Panel Height: 58 inches (147 cm).
 - b. Floor Clearance: 12 inches (30 cm).
- E. Privacy Style Partitions: No sightlines with gap-free interlocking doors and stiles routed 0.300 inches (7.6 mm) from the edge to allow for 0.175 inch (4.4 mm) overlap to prevent line-of-sight into the toilet compartment. Privacy strips fastened or adhered onto the partition material are not acceptable.
- F. Mounting Configuration:
 - 1. Floor-to-ceiling.

Stockton Police HQ Women's Locker Room Remodel

- a. Stile Standard Height: As required, 10 feet 0 inches (305 cm) maximum.
- G. Materials: Solidly fused plastic laminate with matte-finish melamine surfaces; integrally bonded colored face sheets and black phenolic-resin core.
- H. Edges: Black; brown edges not acceptable.
- I. Color: 0328 FH Brushed Aluminum.
- J. Fire Resistance:
 - 1. National Fire Protection Association/International Building Code Interior Wall and Ceiling Finish: Class B / Uniform Building Code: Class II.
 - a. Flame Spread Index (ASTM E 84): 30 for panels and stiles.
 - b. Smoke Developed Index (ASTM E 84): 55 for panels, 20 for stiles.
- K. Finished Thickness:
 - 1. Stiles and Doors: 3/4 inch (19 mm).
 - 2. Panels and Screens: 1/2 inch (13 mm).
- L. Stiles: Floor-anchored stiles furnished with expansion shields and threaded rods.
 - 1. Leveling Devices: 7 gauge, 3/16 inches (5 mm) thick, corrosion-resistant, chromate-treated, double zinc-plated steel angle leveling bar bolted to stile; furnished with 3/8 inch (10 mm) diameter threaded rods, hex nuts, lock washers, flat washers, spacer sleeves, expansion anchors, and shoe retainers.
 - 2. Stile Shoes: One-piece, 22 gauge (0.8 mm), 18-8, Type 304 stainless steel, 4 inch (102 mm) height; tops with 90 degree return to stile. One-piece shoe capable of adapting to 3/4 inch (19 mm) or 1 inch (25 mm) stile thickness and capable of being fastened (by clip) to stiles starting at wall line.
- M. Wall Posts: Pre-drilled for door hardware, 18-8, Type 304, 16 gauge (1.6 mm) stainless steel with satin finish; 1 inch (25 mm) x 1-1/2 inches (38 mm) x 58 inches high (1473 mm).
- N. Anchors: Expansion shields and threaded rods at floor connections as applicable. Threaded rods secured to supports above ceiling as applicable. Supports above ceiling furnished and installed as Work of Section 05 50 00 - Metal Fabrications.
- O. Hardware:
 - 1. Compliance: Operating force of less than 5 lb (2.25 kg).
 - 2. Emergency Access: Hinges, latch allow door to be lifted over keeper from outside compartment on inswing doors.
 - 3. Materials: 18-8, Type 304, heavy-gauge stainless steel with satin finish.
 - 4. Doorstops: Prevents inswinging doors from swinging out beyond stile; on outswing doors, doorstop prevents door from swinging in beyond stile.
 - 5. Fastening: Hardware is secured to door and stile with pin-in-head Torx stainless steel machine screws. Hinges, latch and optional door stops secured to door with pin-in-head Torx stainless steel machine screws into factory-installed, threaded brass inserts. Fasteners for hinges, latch and optional door stops secured directly into core not acceptable.
 - a. Threaded Brass Inserts: Factory-installed; withstand direct pull force exceeding 1500 lb (680 kg) per insert.
 - 6. Clothes Hooks: Projecting no more than 1-1/8 inch (29 mm) from face of door.
 - 7. Door Latch: Track of door latch prevents inswing doors from swinging out beyond stile; on outswing doors, door keeper prevents door from swinging in beyond stile; 16 gauge (1.6 mm) sliding door latch, 14 gauge (2 mm) keeper.
 - 8. Locking: Door locked from inside by sliding door latch into keeper.
 - 9. Hinge Type:
 - a. Full-Height Institutional Hinge.
 - 1) Hinges: 16 gauge (1.6 mm) stainless steel, self-closing, 3 section hinges.
 - 10. Mounting Brackets:
 - a. Standard concealed.
 - 1) Mounting Brackets: Mounted inside compartment; exposed brackets on exterior of compartment not acceptable with the exception of outswing doors.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify correct spacing of and between plumbing fixtures.
- C. Verify correct location of built-in framing, anchorage, and bracing.

3.02 INSTALLATION

- A. Install partitions secure, rigid, plumb, and level in accordance with manufacturer's instructions.
- B. Maintain 3/8 inch to 1/2 inch (9 mm to 13 mm) space between wall and panels and between wall and end pilasters.
- C. Attach panel brackets securely to walls using anchor devices.
- D. Attach panels and pilasters to brackets. Locate head rail joints at pilaster center lines.

3.03 TOLERANCES

- A. Maximum Variation From True Position: 1/4 inch (6 mm).
- B. Maximum Variation From Plumb: 1/8 inch (3 mm).

3.04 ADJUSTING

- A. Adjust and align hardware to uniform clearance at vertical edge of doors, not exceeding 3/16 inch (5 mm).
- B. Adjust hinges to position doors in partial opening position when unlatched. Return out-swinging doors to closed position.
- C. Adjust adjacent components for consistency of line or plane.

END OF SECTION

This page intentionally left blank

**SECTION 10 28 00
TOILET AND SHOWER ACCESSORIES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Commercial toilet accessories.
- B. Commercial shower accessories.
- C. Under-lavatory pipe supply covers.
- D. Electric hand/hair dryers.
- E. ADA changing bench.

1.02 RELATED REQUIREMENTS

- A. Section 09 21 16 - Gypsum board assemblies, coordination with blocking.
- B. Section 09 30 00 - Tiling: Tiling, coordination with layout and installation.
- C. Section 10 21 13 - Plastic Toilet Compartments.
- D. Division 26 - Common work for Electrical.

1.03 REFERENCE STANDARDS

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design 2010.
- B. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.
- C. ASTM A269/A269M - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service 2015a (Reapproved 2019).
- D. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2020.
- E. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar 2015.
- F. ASTM B456 - Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium 2017.
- G. ASTM C1036 - Standard Specification for Flat Glass 2021.
- H. ASTM C1503 - Standard Specification for Silvered Flat Glass Mirror 2018.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the work with the placement of internal wall reinforcement, concealed ceiling supports, and reinforcement of toilet partitions to receive anchor attachments.

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit data on accessories describing size, finish, details of function, and attachment methods.
- C. Manufacturer's Installation Instructions: Indicate special procedures and conditions requiring special attention.

1.06 QUALITY ASSURANCE

- A. Manufacturer: Provide products manufactured by a company with a minimum of 5 years successful experience manufacturing similar products.
- B. Single Source Requirements: To the greatest extent possible provide products from a single manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Commercial Toilet, Shower, and Bath Accessories:
 - 1. Bobrick: www.bobrick.com
 - 2. World Dryer: www.worlddryer.com
 - 3. Gojo: www.gojo.com
 - 4. Substitutions: Section 01 60 00 - Product Requirements.
- B. Under-Lavatory Pipe Supply Covers (T18):
 - 1. Plumberex Specialty Products, Inc: www.plumberex.com/#sle.
 - 2. Substitutions: Section 01 60 00 - Product Requirements.
- C. Electric Hand Dryers (T07):
 - 1. World Dryer: www.worlddryer.com
 - 2. Bobrick: www.bobrick.com
 - 3. American Dryer, Inc; ExtremeAir CPC: www.americandryer.com.
 - 4. Excel Dryer; Xlerator: www.exceldryer.com.
 - 5. Saniflow; Machflow M09ACS-UL: www.saniflowcorp.com.
 - 6. Substitutions: Section 01 60 00 - Product Requirements.
- D. Automated Paper Towel Dispenser (T08):
 - 1. Bobrick: www.bobrick.com
 - 2. Substitutions: Section 01 60 00 - Product Requirements.
- E. Soap Dispenser (T11):
 - 1. Gojo; TFX Touch Free Dispenser: www.gojo.com.
 - 2. Substitutions: Section 01 60 00 - Product Requirements.
- F. ADA Changing Bench (E01):
 - 1. Penco: www.pencoproducts.com.
 - 2. Substitutions: Section 01 60 00 - Product Requirements.

2.02 MATERIALS

- A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.
- B. Keys: Provide 4 keys for each accessory to City; master key lockable accessories.
- C. Stainless Steel Sheet: ASTM A666, Type 304.
- D. Stainless Steel Tubing: ASTM A269/A269M, Grade TP304 or TP316.
- E. Mirror Glass: Annealed float glass, ASTM C1036 Type I, Class 1, Quality Q2, with silvering, protective and physical characteristics complying with ASTM C1503.
- F. Adhesive: Two component epoxy type, waterproof.
- G. Fasteners, Screws, and Bolts: Hot dip galvanized; tamper-proof; security type.

2.03 FINISHES

- A. Stainless Steel: Satin finish, unless otherwise noted.
- B. Chrome/Nickel Plating: ASTM B456, SC 2, polished finish, unless otherwise noted.

2.04 COMMERCIAL TOILET ACCESSORIES

- A. Toilet Paper Dispenser (T-04): Double roll, surface mounted bracket type, stainless steel, theft resistant, heavy-duty spindles.
 - 1. Holds two rolls up to 5 1/4" diameter.
- B. Combination Towel Dispenser/Waste Receptacle (T08): Recessed flush with wall, stainless steel; seamless wall flanges, continuous piano hinges.
 - 1. Waste receptacle capacity: 12 gallons (45 liters).
 - 2. Products:
 - a. Substitutions: Section 01 60 00 - Product Requirements.

- C. Automated Soap Dispenser (T-11): foam soap dispenser, wall-mounted, with ABS plastic cover and window to gauge soap level.
 - 1. Products:
 - a. GOJO: www.gojo.com.
 - b. Substitutions: Section 01 60 00 - Product Requirements.
- D. Electric Hand Dryer: Recess Mounted
 - 1. Meet ADA and CBC requirements.
 - 2. Dimensions: 3.8 inch.D, 1.9 inch recessed in wall, 10 inch. W, 9.2 inch. H.
- E. Mirrors (T-05): Stainless steel channel frame, 1/4 inch (6 mm) thick annealed float glass; ASTM C1036.
 - 1. Frame: 0.05 inch (1.3 mm) angle shapes, with mitered and welded and ground corners, and tamperproof hanging system; Type-430 stainless steel finish.
 - 2. Mounting: Concealed wall hanger, galvanized steel construction. Incorporates upper and lower support members, which engage backplate louvers to keep mirror against wall.
 - 3. Size: as indicated on drawings.
- F. Seat Cover Dispenser (T-06): 20 gauge Stainless steel, surface-mounted, reloading by concealed opening at base, tumbler lock.
 - 1. Minimum capacity: 500 seat covers.
 - 2. Mounting: mount unit on wall or partition of toilet compartment with two screws at points indicated by an S.
- G. Grab Bars(T-01 & T-03): Stainless steel, nonslip grasping surface finish.
 - 1. Standard Duty Grab Bars:
 - a. Push/Pull Point Load: 250 pound-force (1112 N), minimum.
 - b. Dimensions: 1-1/4 inch (32 mm) outside diameter, minimum 0.05 inch (1.3 mm) wall thickness, exposed flange mounting, 1-1/2 inch (38 mm) clearance between wall and inside of grab bar.
 - c. Length and Configuration: As indicated on drawings.
 - d. Products:
 - 1) Bobrick: www.bobrick.com.
 - 2) Substitutions: Section 01 60 00 - Product Requirements.
- H. Under Lav Insulator (T-18): Fushion molded, flame & smoke insulation material with high gloss finish.
 - 1. Color: White.
 - 2. Meet ADA and CBC requirements.
- I. Vanity Shelf (T-13): Surface-Mounted, stainless steel finish.
 - 1. Dimensions: As indicated on drawings.
- J. Changing ADA bench (E-01): Hardwood bench with heavy duty pedestal, floor anchored.
 - 1. Color: Gray.
 - 2. Meet ADA and CBC requirements.
 - 3. Dimensions: 48"W x 20"D x 18"H

2.05 COMMERCIAL SHOWER AND BATH ACCESSORIES

- A. Shower Curtain Rod, ADA (T-12): Stainless steel tube, 1 inch outside diameter, 0.04 inch wall thickness, satin-finished, with [1 3/8"] inch outside diameter, minimum 0.04 inch thick satin-finished stainless steel flanges, for concealed mounting.
 - 1. Length: 60"
- B. Shower Curtain, ADA stall:
 - 1. Material: Opaque vinyl, 0.008 inch (0.2 mm) thick, matte finish, with antibacterial treatment, flameproof and stain-resistant.
 - 2. Shower rod integral with shower assembly; see Plumbing plans.
 - 3. Size: [70"W x 72"H] inches, hemmed edges.

- C. Folding Shower Seat (T-02): Wall-mounted recessed; welded tubular seat frame, structural support members, hinges and mechanical fasteners of Type 304 stainless steel, L-shaped, right hand seat.
 - 1. Seat: Phenolic or polymeric composite one-piece seat or seat slats, of white color.
 - 2. Size: ADA Standards compliant.
- D. Coat Hook (T-09): Heavy-duty stainless steel, single-prong, one-piece brass casting with stain nickel-plated finish with 12-gauge concealed wall plate, satin finish.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify exact location of accessories for installation.

3.02 PREPARATION

- A. Deliver inserts and rough-in frames to site for timely installation.
- B. Provide templates and rough-in measurements as required.

3.03 INSTALLATION

- A. Install accessories in accordance with manufacturers' instructions in locations indicated on drawings.
- B. Install plumb and level, securely and rigidly anchored to substrate.
- C. Mounting Heights: As required by accessibility regulations, unless otherwise indicated. See typical mounting height shown on drawings.

3.04 PROTECTION

- A. Protect installed accessories from damage due to subsequent construction operations.

END OF SECTION

**SECTION 10 51 13
METAL LOCKERS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Welded metal lockers.
- B. Metal tops and filler panels.

1.02 RELATED REQUIREMENTS

- A. Section 09 21 16 - Gypsum Board Assemblies: metal blocking and nailers.

1.03 REFERENCE STANDARDS

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design 2010.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements for submittal procedures.
- B. Product Data: Manufacturer's published data on locker construction, sizes, and accessories.
 - 1. Wired Access Control: Include power requirements and standard wiring diagrams for specified products.
- C. Shop Drawings: Indicate locker plan layout, numbering plan.
 - 1. Wired Access Control: Provide schematic system riser diagram indicating component interconnections. Include requirements for interface with other systems. Show tie in to existing lockers that will be retrofitted with power.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Engage an experienced manufacturer who is ISO 9001 certified for the design, production, installation and service of welded metal lockers. Furnish certification attesting ISO 9001 quality system registration.
- B. Installer Qualifications: Engage an experienced installer who is a manufacturer's authorized representative for the specified products for installing welded metal lockers.
- C. Minimum Qualifications: 1-year experience installing welded metal lockers of comparable size and complexity to specified project requirements.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect locker finish and adjacent surfaces from damage.
- B. Deliver materials in manufacturer's original packaging to protect from damage.
- C. Store materials in manufacturer's original packaging in accordance with manufacturer's instructions. Store Lockers indoors, protected from the elements and construction hazards.
- D. Handle materials in a manner that will protect the finished product.

1.07 PROJECT CONDITIONS

- A. Field Measurements: Verify quantities of welded metal locker units before fabrication. Indicate verified measurements on shop drawings. Coordinate fabrication and delivery to ensure no delay in progress of the work.
- B. Established Dimensions: Where field measurements cannot be made without delaying the work, establish dimensions and proceed with fabricating welded metal lockers units without field measurements. Coordinate construction to ensure actual dimensions correspond to established dimensions.

1.08 SEQUENCING AND SCHEDULING

- A. Schedule installation of specified welded metal lockers after finishing operations; including painting have been completed.
- B. Provide components, which must be built in at a time, which causes no delays general progress of the work.

1.09 WARRANTY

- A. Provide a written warranty, executed by Contractor, Installer, and Manufacturer, agreeing to repair or replace units, which fail in materials or workmanship within the established warranty period. This warranty shall be in addition to, and not a limitation of, other rights the Owner may have under General Condition's provisions of the Contract Documents.
- B. Welded Metal Lockers: Limited Lifetime Warranty: Subject to the terms in the written warranty, warrant the original purchaser exclusively that the locker frames manufactured by it will be free from defects in materials and workmanship for the lifetime of the locker.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Basis of Design: Spacesavers FreeStyle Personal Storage Welded Metal Lockers manufactured by Spacesaver Corporation, 1450 Janesville Avenue, Fort Atkinson, Wisconsin 53538-2798. Telephone: 800-492-3434. a. Local Contact: Systems & Space, Inc, 500 Boulder Court, Ste B, Pleasanton, CA 94566. Telephone 925-621-3646. Web. www.systemsnspace.com. Email: Matt Meyer#systemsnspace.com.
- B. Products by any other manufacturers will be considered provided they comply with technical requirements and match the specified product in layout, configuration, construction, appearance and finish, in accordance with the design concept and intent and must be approved by the City.
- C. Substitutions: See Section 01 60 00-Product Requirements.

2.02 WELDED METAL LOCKERS

- A. Basic Materials:
 - 1. General: Provide materials and quality of workmanship, which meets or exceeds established industry standards for products specified. Material thicknesses / gauges are manufacturer's option unless indicated otherwise.
- B. Accessibility: Design units indicated on drawings as 'accessible' to comply with ICC A117.1 and ADA Standards.
- C. Description:
 - 1. Finishes:
 - a. Fabricated Metal Components and Assemblies: All components to be painted with an electro-statically applied Powder Coat paint that can meet or exceed test requirements set out by ASTM standard D3451-06 Standard Guide for Testing Coating Powders and Powder Coatings. b. Sizes described in paragraph below.
 - b. Color: to match Men's Lockers recently purchased.
 - 2. Sizes:
 - a. Width: 15 inches.
 - b. Depth: 21 inches.
 - c. Height: 84 inches with 8" sloped top.
- D. Components:
 - 1. Welded Frame:
 - a. The welded frame shall consist of top, bottom, back, and sides constructed of a minimum of 18 - gauge 1.214 millimeters steel. All frame components shall be joined using resistance welding. Riveting of structural members will not be permitted.
 - b. Horizontal front flanges will be a minimum of 2 inches or 50.8 millimeters. Vertical front flanges will be a minimum of 1 inch or 25.4 millimeters. Horizontal and vertical flanges will overlap and be secured with a minimum 2 resistance welds per corner.
 - c. Corner gussets shall be welded in each of the four front corners of the locker for increased stiffness and rigidity.
 - d. Provide side panel lances evenly spaced on 3 inches or 76.2 millimeters centers. Lances to provide the flexibility of on-site, end-user reconfiguring/adding internal components anytime anywhere now or in the future.
 - e. Include Trim Fillers: Provide manufacturer's standard.
 - f. Continuous sloped top.

2. Accessories:
 - a. Hanger shelf combo.
 - b. Modular 12" shelf.
 - c. Coat rod.
 - d. Double Hook mounted to bottom of modular shelves.
 - e. Removable boot tray.
 - f. Body armor drying rack.
 - g. Mirror:
 - 1) Material - 0.0625 inch or 1.59 millimeter thick plastic with mirror surface on one side.
 - 2) 0.0625 inch or 1.59 millimeter thick flexible magnet attached to non-mirrored side.
 - 3) Size - 3.875 inches or 98.43 millimeters height and 5.875 inches or 149.23 millimeter width
3. Electrical: "FreeStyle" Personal Storage Locker Electrical Distribution System (EDS).
 - a. Provide a minimum of two (2) duplex receptacle electrical knock-outs per locker with 2 USB charging ports; to be used with a UL listed manufactured electrical wiring system as required.
 - b. UL listed manufactured electrical wiring system with plug-in-play component design.
 - c. Receptacles - 20 amp GFCI duplex receptacles.
4. One Piece Welded Doors:
 - a. Shall be formed from two pieces of minimum 18-gauge cold rolled steel box formed and welded together using modern GMAW techniques. One piece door with inner and outer door panels shall have a combined steel thickness of no less than .096 inches thick. Welded door design with inner panel optimizes structural integrity of locker door system over and above any single frame door design.
 - b. Exterior door panel shall be constructed with formed flanges and return flanges to add stiffness.
 - c. Internal door panel shall be constructed with formed flanges for added stiffness.
 - d. Multi-Tier inner door panels shall be full height.
 - e. Inner door panel height shall be minimum 70% of external door height.
 - f. One piece welded door frame shall consist of internal door panel nested inside exterior door panel and welded per the following requirements:
 - 1) Top/bottom. Exterior and Interior panels to be welded in a minimum of three (3) places with weld spacing not to exceed 6 inches or 152.4 millimeters between adjacent welds and 1 inch or 25.4 millimeters from any corner.
 - 2) Sides. Exterior and interior panels to be welded with spacing not to exceed 12 inches or 304.8 millimeters between adjacent welds and 1 inch or 25.4 millimeters from any corner.
 - g. Inner door panel to have peg board style hole pattern, allowing the attachment of Document Holder.
 - h. Inner door panel to have 4 inch or 101.6 millimeter rectangular slot centered towards the top of the locker and any standard peg board accessory.
 - i. External door panel shall have louvers to provide adequate air circulation throughout locker system.
 - 1) Louvered air vents shall be located at the bottom of the locker door to enhance circulation of mechanically extracted air from the bottom of the locker out of the top.
 - 2) Louvered air vents shall be approximately 3 inches or 76.2 millimeters in width and 0.75 inches or 19.05 millimeters in height and spaced on 1 inch or 25.4 millimeter centers.
 - j. All doors shall have neoprene silencers on each door for noise reduction.
 - k. Diamond Perforated Pattern:
 - 1) Single and Double door designs shall be available in diamond perforated pattern

- 2) Pattern is defined as 0.875 by 0.875 inch or 22.2 by 22.2 millimeter diamond perforations on 1.768 inch or 44.9 millimeter centers.
- l. Door torsional deflection shall not exceed 0.1875 inch or 4.76 millimeter with a 20 lb or 9.071 kilogram point load. (Test data to be provided by manufacturer upon request).
- m. Hinge:
 - 1) Provide 16 - gauge full length hinge for increased strength and security of locker system.
 - 2) Hinges to be welded to door frame with spot welds not to exceed 6 inch separation.
 - 3) Door assembly to be riveted to door frame on factory pre-established hole pattern.
- n. Locking Mechanism.
 - 1) Provide three locking options (all locking options have protective stainless steel cover plate for durability and scratch resistance):
 - (a) Padlock hasp only.
 - (b) Keyed lock with master and padlock hasp.
 - 2) Combination lock with master and padlock hasp.
 - (a) Keyed and combination locking mechanisms shall have the capability of locking automatically.
 - 3) Keyed and Combination locking mechanisms shall have master key override.
 - 4) Combination locking mechanism shall have user changeable preset combinations.
 - 5) Single door models: Provide three locking options as listed above.
- o. Provide louvered air vents in the bottom of the main locker door/s to allow mechanically extracted air to be pulled up through the locker system.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that prepared bases are in correct position and configuration.
- B. Verify that power is installed. See manufacturer drawings for recommended outlet or junction box placement. See electrical drawings.
- C. Examine Lockers scheduled to receive accessories with Installer present for compliance with requirements for installation tolerances and other conditions affecting performance of specified accessory items.
- D. Proceed with accessory installation only after unsatisfactory conditions have been corrected

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Place and secure on prepared base.
- C. Install lockers plumb and square.
- D. Install fittings if not factory installed.
- E. Secure lockers with anchor devices to suit substrate materials. Minimum Pullout Force: 100 lb.
- F. Bolt adjoining locker units together to provide rigid installation.
- G. Install end panels, filler panels, and sloped tops.
- H. Replace components that do not operate smoothly.

3.03 ADJUSTING

- A. Adjust all accessories to provide smoothly operating, visually acceptable installation.

3.04 CLEANING

- A. Clean locker interiors and exterior surfaces.

- B. Immediately upon completion of installation, clean components and surfaces. Remove surplus materials, rubbish and debris resulting from installation upon completion of work and leave areas of installation in neat, clean condition

3.05 PROTECTION

- A. Protect system against damage during remainder of construction period. Advise Owner of additional protection needed to ensure that system will be without damage or deterioration at time of substantial completion.

END OF SECTION

This page intentionally left blank

**SECTION 12 36 00
COUNTERTOPS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Wall-hung counters and vanity tops.

1.02 RELATED REQUIREMENTS

- A. Section 06 41 00 - Architectural Wood Casework.
- B. Section 22 40 00 - Plumbing Fixtures: Sinks.

1.03 REFERENCE STANDARDS

- A. ANSI A208.1 - American National Standard for Particleboard 2016.
- B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2021a.
- C. ISFA 2-01 - Classification and Standards for Solid Surfacing Material 2013.
- D. PS 1 - Structural Plywood 2009 (Revised 2019).

1.04 SUBMITTALS

- A. Submit manufacturer's printed statement or product data indicating that composite wood, agrifiber products and laminating adhesives contain no added urea formaldehyde (NAUF).
- B. Provide MSDS or other manufacturer documentation with disclosure of VOC content for all wet-applied products.
- C. Shop Drawings: Complete details of materials and installation .
- D. Selection Samples: For each finish product specified, color chips representing manufacturer's full range of available colors and patterns.
- E. Verification Samples: For each finish product specified, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.
- F. Test Reports: Chemical resistance testing, showing compliance with specified requirements.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing work of the type specified in this section, with not less than three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.07 FIELD CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 PRODUCTS

2.01 COUNTERTOPS

- A. Quality Standard: Premium Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.
- B. Solid Surfacing Countertops: Homogeneous quartz surfaces material.
 - 1. Solid Surfacing: Complying with ISFA 2-01 and NEMA LD 3; homogenous, non-porous and capable of being worked and repaired using standard woodworking tools; no surface coating; color and pattern consistent throughout thickness.
 - a. Manufacturers:
 - 1) Wilsonart; Solid Surface: www.wilsonart.com.

- 2) Dupont; Zodiaq: www.corian.com.
 - 3) Formica Corporation; Solid Surfacing: www.formica.com.
 - 4) Relang International, LLC; DURASEIN: www.duraseinusa.com.
 - 5) Substitutions: See Section 01 60 00 - Product Requirements.
- b. Surface Burning Characteristics: Flame spread index of 25, maximum; smoke developed index of 450, maximum; when tested in accordance with ASTM E84.
 - c. Thickness: 3 cm (1 1/8").
 - d. Color and Pattern: As indicated on drawings.
2. Back and End Splashes: Same sheet material, square top; minimum 4 inches (102 mm) high.

2.02 MATERIALS

- A. Plywood for Supporting Substrate: PS 1 Exterior Grade, A-C veneer grade, minimum 5-ply; minimum 3/4 inch (19 mm) thick; join lengths using metal splines.
- B. Particleboard for Supporting Substrate: ANSI A208.1 Grade 2-M-2, 45 pcf (20 kg/cu m) minimum density; minimum 3/4 inch (19 mm) thick; join lengths using metal splines.
- C. Adhesives: Chemical resistant waterproof adhesive as recommended by manufacturer of materials being joined.
- D. Joint Sealant: Mildew-resistant silicone sealant, white.

2.03 FABRICATION

- A. Fabricate tops and splashes in the largest sections practicable, with top surface of joints flush.
 1. Join lengths of tops using best method recommended by manufacturer.
 2. Fabricate to overhang fronts and ends of cabinets 1 inch (25 mm) except where top butts against cabinet or wall.
 3. Prepare all cutouts accurately to size; replace tops having improperly dimensioned or unnecessary cutouts or fixture holes.
- B. Provide back/end splash wherever counter edge abuts vertical surface unless otherwise indicated.
 1. Secure to countertop with concealed fasteners and with contact surfaces set in waterproof glue.
 2. Height: 4 inches (102 mm), unless otherwise indicated.
- C. Solid Surfacing: Fabricate tops and wall panels up to 144 inches (3657 mm) long in one piece; join pieces with adhesive sealant in accordance with manufacturer's recommendations and instructions.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Verify that wall surfaces have been finished and mechanical and electrical services and outlets are installed in proper locations.

3.02 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

- A. Install vanities in accordance with manufacturer's instructions and approved shop drawings
- B. Securely attach countertops to cabinets using concealed fasteners. Make flat surfaces level; shim where required.
- C. Seal joint between back/end splashes and vertical surfaces.

3.04 TOLERANCES

- A. Variation From Horizontal: 1/8 inch in 10 feet (3 mm in 3 m), maximum.
- B. Offset From Wall, Countertops: 1/8 inch (3 mm) maximum; 1/16 inch (1.5 mm) minimum.
- C. Field Joints: 1/8 inch (3 mm) wide, maximum.

3.05 CLEANING

- A. Clean countertops surfaces thoroughly.

3.06 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Date of Final Completion.

END OF SECTION

This page intentionally left blank

SECTION 22 01 00
OPERATION AND MAINTENANCE OF PLUMBING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. All levels of 22 00 00
- B. Preparations.
 - 1. Prior to data collection and compilation, prepare and submit in duplicate an outline of the proposed organization and content.
 - 2. Compilation: Prepare and collect data concurrently with construction progress. Compile per submitted outline.

PART 2 - PRODUCTS

2.01 OPERATION AND MAINTENANCE MANUALS

- A. Form of Submittals
 - 1. Prepare data in form of an instructional manual for use by Owner's personnel.
 - 2. Cover: Identify each volume with typed or printed title, "OPERATING AND MAINTENANCE INSTRUCTION". List:
 - a. Title of Project.
 - b. Provide indexed tabs.
 - c. Identify of separate structure as applicable.
 - d. Identity of general subject matter covered in the manual.
 - 3. Format:
 - a. PDF.
 - b. Text: Manufacturer's printed data.
 - c. Provide drawings as required

PART 3 - EXECUTION

3.01 OPERATION AND MAINTENANCE DATA

- A. General: Record data and operation and maintenance data are complimentary. Submittal items which may be required under both categories may be included only under one submittal if a statement to that effect is included in the other submittal.
- B. Quality Assurance
 - 1. Preparation of data shall be done by personnel.
 - a. Trained and experienced in maintenance and operation of described products.
 - b. Familiar with requirements of this Section.
- C. Content of Manual
 - 1. Table of contents for each volume, arranged in systematic order.
 - a. A list of each product required to be included, indexed to content of the volume.
 - b. List, with each product, name, address and telephone number of:
 - 1) Subcontractor or installer.
 - 2) Maintenance contractor, as appropriate.
 - 3) Identify area of responsibility of each.
 - 4) Local source of supply for parts and replacement
 - c. Identify each product by product name and other identifying symbols as set forth in Contract Documents.
 - 2. Product Data:
 - a. Include only those sheets which are pertinent to the specific product.

- b. Annotate each sheet to:
 - 1) Clearly identify specific product or part installed.
 - 2) Clearly identify data applicable to installation.
 - 3) Delete references to inapplicable information.
 - 3. Drawings:
 - a. Supplement product data with drawings as necessary to clearly illustrate.
 - 1) Relations of component parts of equipment and systems.
 - 2) Control and flow diagrams.
 - b. Coordinate drawings with information in Project Record Documents to assure correct illustration of completed installation
 - c. Do not use Project Record Documents as maintenance drawings.
 - 4. Additional information required to supplement product data for the particular installation.
 - a. Organize in consistent format under separate headings for different procedures.
 - b. Provide logical sequence of instructions for each procedure.
 - 5. Factory Authorized Start-Up Report.
 - a. Provide a factory start-up report for each piece of equipment. Contractor start-up reports, unless contractor is a factory authorized representative will not be allowed.
 - 6. Copy of each warranty, bond and service contract issued.
 - a. Provide information sheet for Owner's personnel, give:
 - 1) Proper procedures in event of failure.
 - 2) Instances which might affect validity of warranties or bonds.
- D. Manual for Equipment and Systems:
- 1. Submit one copy of complete manual in final form in PDF format.
 - 2. Content, for each unit of equipment and system, as appropriate.
 - a. Description of unit and component parts.
 - 1) Function normal operating characteristics, and limiting conditions
 - 2) Performance curves, engineering data and tests.
 - 3) Complete nomenclature and commercial number of replaceable parts.
 - b. Operating procedures:
 - 1) Start-up, break-in, routing and normal operating instructions.
 - 2) Regulation, control, stopping, shut-down and emergency instructions.
 - 3) Summer and winter operating instructions.
 - 4) Special operating instructions.
 - c. Maintenance Procedures:
 - 1) Routing operations.
 - 2) Guide to "trouble-shooting"
 - 3) Disassembly, repair and reassemble.
 - 4) Alignment, adjusting and checking.
 - d. Servicing and lubrication schedule.
 - 1) List lubricants required.
 - e. Manufacturer's printed operating and maintenance instructions.
 - f. Description of sequence of operation by control manufacturer.
 - g. Original manufacture's parts list, illustrations, assembly drawings and diagrams required for maintenance.
 - 1) Predicted life of parts subject to wear.
 - 2) Items recommended to be stocked as spare parts.
 - h. As-installed control diagrams by controls manufacturer.
 - i. Each contractor's coordination drawings:
 - 1) As-installed color-coded piping diagrams.
 - j. Charts of valve tag numbers, with location and function of each valve.
 - k. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.
 - l. Other data as required under pertinent sections of specifications.
 - 3. Content for each electric and electronic system, as appropriate.
 - a. Description of system and component parts.

- 1) Function, normal operating characteristics, and limiting conditions.
 - 2) Performance curves, engineering data and tests.
 - 3) Complete nomenclature and commercial number of replaceable parts.
 - b. Circuit directories of panel boards.
 - 1) Electric service.
 - 2) Controls.
 - 3) Communications
 - c. As-installed color coded wiring diagrams.
 - d. Operating procedures.
 - 1) Routing and normal operating instructions.
 - 2) Sequences required.
 - 3) Special operating instructions.
 - e. Maintenance procedures.
 - 1) Routine operations.
 - 2) Guide to "trouble shooting".
 - 3) Disassembly, repair and reassembly.
 - 4) Adjustment and checking.
 - f. Manufacturer's printed operating and maintenance instructions.
 - g. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.
 - h. Other data as required under pertinent sections of specifications.
 - i. Additional requirements for operating and maintenance data: Respective sections of Specifications.
- E. Submittal Schedule
1. Submit two copies of preliminary draft of proposed formats and outlines of contents prior to start of work.
 - a. Architect will review draft and return one copy with comments.
 2. Submit one copy of complete data in final form fifteen days prior to final inspection or acceptance.
 - a. Copy will be returned after final inspection or acceptance, with comments.
 3. Submit specified number of copies of approved data in final form 10 days after final inspection or acceptance.
- F. Instruction of Owner's Personnel.
1. Prior to final inspection or acceptance, fully instruct Owner's designated operating and maintenance personnel in operation, adjustment and maintenance of products, equipment and systems.
 2. Operating and maintenance manual shall constitute the basis of instruction.
 - a. Review contents of manual with personnel in full detail to explain all aspects of operations and maintenance.

END OF SECTION

This page intentionally left blank

**SECTION 22 05 00
COMMON WORK RESULTS FOR PLUMBING**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. This section applies to all Division 22 Plumbing Sections.

1.02 SUMMARY

- A. This section includes all plumbing (equipment, fixtures, pipe and fittings, specialties) inside the building(s) and outside the building(s) to the point of connection to site plumbing systems.
- B. Provide complete plumbing systems including:
 - 1. Service connections to existing on-site utilities, and stubs for future connection to equipment provided under the work of this Section or other Sections of the Specifications.
 - 2. All piping systems for conduction of cold water, heated water, soil, waste, fuel gas, and other fluids or gases as shown or specified for plumbing work.
 - 3. All valves, piping supports, piping penetration auxiliaries, piping protective coverings, piping, and other piping accessories as shown or specified for plumbing work.
 - 4. All plumbing equipment and auxiliary items as specified herein or shown on the drawings.
 - 5. All low voltage wiring for automatic fixtures as required.
- C. All chemicals utilized on site as part of coating, sealant, and other products shall not contain any chemical that is listed as part of Proposition 65 known carcinogens that are identified by NTP, IARC, and the USEPA California Proposition 65 chemical repository contractors are not allowed to bring these chemicals on any California Intel site.

1.03 RELATED SECTIONS

- A. Division 23 - HVAC
- B. Division 26 - Electrical Work

1.04 DRAWINGS AND SPECIFICATIONS

- A. For purposes of clearness and legibility, drawings are essentially diagrammatic and, although size and location of equipment are drawn to scale wherever possible, the Contractor shall make use of all data in all the contract documents and shall verify this information at building site.
- B. Information presented on Drawings and in the Specifications is based upon latest data available during their preparation. The Drawings and Specifications are for the assistance and guidance of the Contractor and exact locations, distances, levels, etc. will be governed by the structures and the site the contractor shall accept same with this understanding.
- C. The drawings indicate required size and points of termination of pipes, and suggest proper routes to conform to structure, avoid obstructions and preserve clearances. However, it is not intended that drawings indicate all necessary offsets, and it shall be the work of the Contractor to make the installation in such a manner as to conform to structure, avoid obstruction, preserve headroom and keep openings and passageways clear.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Contractor shall be responsible for delivery, storage, protection and placing of all equipment and materials.

- B. Equipment stored and installed at the job site shall be protected from dust, water or other damage. Cover all equipment stored exposed to weather.

1.06 STRUCTURAL REQUIREMENTS

- A. Structural members shall not be cut or modified in any manner without specific instructions from the structural engineer.

1.07 CODES AND SAFETY ORDERS

- A. All work and materials shall be in full accordance with the latest rules and regulations of the State Fire Marshall; the Safety Orders of the Division of Industrial Safety; the I.S.O. codes; latest edition of California Code of Regulations, Title 24, Part 6; the 2019 California Plumbing Code, Title 24, Part 5; the 2019 California Mechanical Code, Title 24, Part 4; the 2019 California Building Code, Title 24, Part 2, 2019 NFPA Codes, and other applicable laws and regulations. Nothing in the Drawings or Specifications shall be construed to permit work not conforming to these codes. Drawings and Specifications take precedence when work and materials called for exceed Code requirements.

1.08 INSTALLATION

- A. Manufacturer's Instructions:
 1. When specifications require that installation comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation.
 2. Perform work in accordance with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by specifications.
 3. Handle, install, connect, clean, condition and adjust products in strict accordance with such instructions and in conformity with specified requirements.
 4. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with the Engineer for further instructions.
 5. Do not proceed with work without clear understanding.

1.09 PERMITS AND FEES

- A. Obtain all permits and pay all required fees for permits and/or utility services. Inspections required during the course of construction shall be arranged as required. On completion of the work furnish the owners representative with certificates of inspection.

1.10 SITE CONDITIONS

- A. Assume all responsibility for damage to adjoining properties; and restore property to its original condition, should damage occur as a result of the work of this section. Contractor shall thoroughly familiarize himself with all site conditions. Should utilities not shown on the drawings be found during excavations, promptly notify the Architect for instructions as to further action. Failure to do so will make the Contractor liable for any and all damage thereto arising from his operations subsequent to discovery of such utilities not shown on plans.

1.11 SUBMITTALS

- A. General
 1. A submittal schedule shall be issued by the contractor within 15 days of award of the contract. This schedule shall allow for timely review and approval as required by the contract documents.
 2. These requirements apply only to substitutions, submittals, and shop drawings.

3. The contractor shall review all submittals prior to submission to the Architect. Submittals not reviewed by the contractor will be returned to the contractor and will not be reviewed.
4. Any deviations from specified requirements shall be clearly indicated in submittals.
5. Any errors in or omissions from submittals and any consequences of these are the responsibility of the Contractor.
6. Partial or incomplete submittals may be rejected as not complying with requirements; the Contractor shall be liable for any resultant consequences.
7. Delayed submittals may be rejected as not complying with requirements. Whether accepted or rejected, delayed submittals will not be considered justification for extension of contract time or similar relief.
8. Submittals not required or permitted by the Specifications but made at the option of the Contractor, will be returned without review unless accompanied with written valid justification.
9. Submittal items improperly included with those of another category (such as a proposed substitution included with shop drawing submittal) are not valid and will be returned without review.
10. Within 35 calendar days after award of the contract, and before fabrications and installation of any material or ordering of any materials, submit for approval six (6) copies of complete submittal data on specified and proposed substituted equipment and materials. Submittals shall list all materials proposed identified with drawing symbols and specific data on equipment such as arrangements, performance curves, sizes, capacity, motor locations, and other pertinent data. Check all submittals for conformance to the requirements of the Construction Documents before forwarding to the architect for each item. No consideration will be given to substitutions submitted past 35 day limit. The contractor shall be responsible for all quantities and errors and omissions of submittals. Furnish samples when requested.
11. Equipment and materials specified as part of the specifications and drawings are listed by two manufacturer's names. The first named manufacturer is the basis of design. The second named manufacturer has been determined to be an equivalent in quality or utility. The second named has not been specifically determined to conform to the first named in size, layout, electrical power, voltage, or impacts to building structure. The contractor is bound by all requirements for substitutes, as described below, for all second named manufacturers and equivalent equipment or products.
12. Each reviewed submittal will be marked to indicate review and directions as stated below.
13. Acceptance of a submittal does not relieve the Contractor of responsibility for omissions from the submittal or errors in the submittal.

B. Review

1. Submittals will be reviewed for general acceptability, not necessarily including all details. The engineers review is for general conformance with the design concept of the project and the information given in the contract documents. The contractor is solely responsible for confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating the work with that of other trades and performing all work in a safe and satisfactory manner. Corrections of comments made on this submittal during this review do not relieve contractor from compliance with the requirements of the contract documents or with its responsibilities listed herein.
 - a. Proposed substitutes will be judged not only for the acceptability of the items themselves, but also how they will be used under the conditions of the particular project.
 - b. Proposed substitutions will be judged also for compliance with qualifications and conditions stipulated in paragraph 1.13.
2. Each reviewed submittal will be marked to indicate review and directions as stated below.

- a. Acceptance of a substitute does not waive the specified requirements.
- b. Once a substitution is accepted, no revision or re-submittal may be made except for pressing and valid reason and after receipts of approval to do so.

C. Review Directions

1. The notation "No Exceptions Taken" indicates that no further submittal on the particular matter is required and that the Contractor may proceed with normally ensuing action. The notation may be applied to submittals on substitutions, shop drawings, record data, or operation and maintenance data. The submittal has only been reviewed for general conformance with the design concept of the Contract Documents. The contractor is responsible for the dimensions to be confirmed and correlated at the job site; information that pertains solely to the fabrication process or to the means and methods of construction; coordination of the work of all trades; and performing all work in a safe and satisfactory manner. This notation does not modify the contractor's duty to comply with the contract documents.
2. The notation "Make Corrections Noted" indicates that no further submittal on the particular matter is required, but the Contractor shall make all changes or corrections noted (but no others) before proceeding with normally ensuing action. The notation may be applied to submittals on substitutions or shop drawings (but usually not record data or operation and maintenance data).
3. The notation "Amend and Resubmit" indicates that the submittal is not accepted and must be revised, resubmitted, and reviewed again. In the case of submittal on substitutions and shop drawings so noted, the Contractor shall not proceed with any normally ensuing action until the resubmittal is reviewed. The notation may be applied to submittals on substitutions, shop drawings, record data, or operation and maintenance data.
4. The notation "Rejected - See Remarks" indicates that the submittal is not accepted and that resubmittal on the same subject matter is not allowed and will not be considered. The notation will be applied normally only to submittals on substitutions (usually not on shop drawings, record data, or operation and maintenance data).
5. The notation "Returned Without Review" indicates that the submittal or item has not been considered officially because it is either not proper, valid, required, or permitted by the Specifications and has no status or effect.

1.12 SHOP DRAWINGS

- A. The contractor is responsible for providing all shop drawings as described below so that the design professional has the opportunity to determine if the contractor understands the contract documents. It is not the purpose of shop drawings to assure that the contractor is meeting the requirements of the contract documents. Review and approval of a submittal neither extends nor alters any contractual obligation.
- B. Accompany all substituted equipment with shop drawings showing revised ductwork and/or piping layouts in order to ascertain that substituted equipment does not adversely affect layout or work of others. Shop Drawings: The following conditions apply to shop drawings:
 1. Shop drawings are not and do not become Contract Documents.
 2. Processed shop drawing submittals and any instructions or requirements noted thereon are a part of the work, but they may not be used as a means of increasing the scope of the work.
 3. If deviations, discrepancies, or conflicts between shop drawing submittals and the Contract Documents are discovered either prior to or after the submittals are processed, the Contract Document requirements shall govern.

1.13 SUBSTITUTIONS

- A. Whenever any equipment, material, or process is indicated or specified by patent of proprietary name and/or name of Manufacturer, in the Specifications and/or on the Drawings, it is understood that such specification is used to facilitate the description of the material and/or process and deemed to be followed by the words "or equal" unless noted "no substitute".
- B. Substitute equipment and materials shall be equal in all respects including quality, arrangement, utility, physical size, capacity, and performance to those specified. Approval of substitute material will not relieve the contractor from complying with the requirement of the Drawings and Specifications. The contractor shall be responsible and at his own expense, for any changes caused by proposed substitutions which affect other parts of his own work or the work of other contractors.
- C. The submittal of a proposed substitution shall clearly establish the following:
 - 1. The item can be transported into and installed in the intended space and in the manner shown.
 - 2. Required connections (electrical, piping, and other) can be properly made and adjoining work can be properly accomplished.
 - 3. The proposed substitute is similar to and of substance equal to that specified, is suited to the same use as that specified, and will perform the functions required by the design.
 - 4. Motors for proposed substitute equipment will have the same minimum differential between motor brake horsepower and motor nameplate horsepower as the specified equipment.
 - 5. All performance requirements shall be at least equal to the specified product or equipment including noise levels, cooling capacity, heating capacity, air flow quantity, etc.
- D. By submitting a proposed substitution, the Contractor agrees to the following:
 - 1. He will assume full responsibility for any and all modifications and necessary alterations arising from the use of the substitute item or material including all cost incurred by all other trades.
 - 2. He will assume full responsibility for any delay in the construction schedule resulting from the use of the substitution.
 - 3. He will prove harmless and indemnify the Owner and the Owner's design consultants from real or alleged damages that may result from the installation, use, or performance of a substitute material or product.
- E. The following conditions apply to substitutions:
 - 1. Submittals of substitutions are not and do not become part of the Contract Documents.
 - 2. Contractor shall not order, fabricate, use, or install any substitute product or procedure unless he has received acceptance of the substitute from the Engineer.
 - 3. Should the Contractor install any substitute product in violation of the above he shall remove it and install the specified product at his own expense.
 - 4. The Contractor shall provide a letter stating that all the above items shall apply to all substituted products and equipment.
 - 5. Any submittal for substituted equipment or product that does not clearly show that the substituted item is equal shall be marked rejected and no further submittal shall be allowed on the substituted item. Provide in submittal format documentation that the proposed item is exactly as specified in the contract documents.

1.14 GUARANTEE

- A. Guarantee all work for one year from date of acceptance, against all defects in material, equipment and workmanship including repair of damage to any part of the premises resulting

from leaks or other defects in material, equipment and workmanship. Guarantee shall be on form supplied by the owner's representative.

1.15 RECORD DRAWINGS

- A. Indicate on reproducible drawings the actual location of all ductwork, piping and equipment as the work progresses. Dimension locations of underground service mains and branches. Deliver the drawings to the architect at the completion of the job.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Shop drawings:
 - 1. Make all drawings to an appropriate scale, large enough to show all pertinent aspects of the item and the method of its connection into the work.
 - 2. Make each drawing sheet in a reproducible form such as a tracing, sepia, or Mylar transparency.
- B. Grouping: Combine submittals in logical groupings; for example, submit Shop Drawings grouped by Sections of the Specifications, arranged in the specified sequence.
- C. Shop Drawings: Four blue or black line prints of each for the Engineer.
- D. Content:
 - 1. Shop drawings may be:
 - a. Drawings or diagrams prepared by the Contractor, a supplier, a manufacturer, or other.
 - b. Typewritten data or descriptions.
 - c. Manufacturer's printed brochures, descriptions, charts, instructions, or data sheets.
- E. Timing: Submit all shop drawings prior to installation of any items included in submittal.

2.02 CORROSION PROOFING

- A. Corrosion Proofing / U.V. Protection: Products which will be installed outdoors, exposed to the weather, exposed to moisture, or other potentially damaging conditions shall be constructed to resist the effects of such exposure.
- B. Exterior casings shall have lapped or gasketed joints effectively sealed to prevent intrusion of moisture or other injurious substances.
- C. Casings, ducts, pipes, or product items shall be constructed of materials which are fully resistant to harmful substances they may normally contact, or (if ferrous) shall be galvanized after fabrication, or shall be fully protected from such substances by paint or other coating in appropriate thickness or number of coats.
- D. All bolts, nuts, screws, and washers shall be galvanized unless specified to be plated or unprotected.
- E. Any exposed plastic pipe must have a U.V. inhibitor.

2.03 MATERIAL AND EQUIPMENT

- A. All material and equipment shall be new, of the type, capacity and quality specified and free from defects. All materials and equipment shall be of the same brand or manufacturer throughout for each class of material or equipment wherever possible.

2.04 IDENTIFICATION

- A. Equipment: Black Phenolic Plates engraved with ½" high white letters. The equipment shall be identified by the mechanical equipment schedule tag numbers shown on the plans (ie. WH-1, CP-1). Coordinate identification numbers with electrical contractor to ensure that the disconnect switches and other electrical/mechanical equipment has consistent identification numbers.

2.05 MISCELLANEOUS EQUIPMENT AND MATERIALS

- A. Furnish and install miscellaneous equipment and materials required for the systems described whether or not specifically shown or specified.

PART 3 - EXECUTION

3.01 ACCESSIBILITY

- A. Do not install any equipment, valve, control, motor, filter, or any other device requiring maintenance or service in an inaccessible location or position. Install access doors as specified herein to render all such equipment serviceable whether specifically shown on the plans or not. Maintain code clearance to all equipment. Coordinate location of doors with lights, etc., and locate symmetrically with same.

3.02 PREPARATION

- A. Observations: Check all project drawings and specifications; report any discrepancies before proceeding with the work and in time to avoid unnecessary rework.
- B. Investigation: Examine the areas, conditions, and status of other work contiguous or connecting to the work to be performed; ensure that the time of installation is coordinated with other work.
- C. Interruptions of Service: Portions of this work may involve connection to existing work, facilities, or utilities ties and may require interrupting shutdowns of same. Carefully plan, coordinate and execute such work so that any interruptions will be kept to a minimum in time and occurrence. Submit request for shutdowns and make shutdowns only after receiving written approval from the Owner.
- D. Other: Correct any unsatisfactory conditions that may impede proper execution of the work. Ensure that all arrangements, personnel, materials, and tools are appropriate and adequate before proceeding.

3.03 INSTALLATION

- A. General:
 - 1. Material and equipment incorporated in the work shall be used or applied only for the purpose intended or specified.
 - 2. Install piping and ductwork and all equipment that requires access with minimum vertical and horizontal clearances required by OSHA for service.
 - 3. All mechanical systems such as ductwork, pipes and all other equipment shall have 2 inches minimum clearance.
 - 4. Do not proceed with work without clear understanding.
- B. Manufacturer's Instructions:
 - 1. When specifications require that installation comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation.
 - 2. Perform work in accordance with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by specifications.

3. Handle, install, connect, clean, condition and adjust products in strict accordance with such instructions and in conformity with specified requirements.
4. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with the Engineer for further instructions.
5. Do not proceed with work without clear understanding.

3.04 DEMOLITION

A. General

1. Procedures shall be determined by the contractor.
2. Demolition work shall not be commenced until all temporary work such as fences, barricades, and any required warning lights and apparatus are furnished and installed and as required by law, regulation, or ordinance, or elsewhere in this specification.
3. Demolition work shall proceed in such a manner as to minimize the spread of dust and flying particles and to provide safe working conditions for personnel.
4. Fires and explosives shall not be permitted.

B. Protection

1. Contractor shall conform to all Federal, State, and local ordinances related to the protection of the public and Contractor's personnel and the flow of traffic. Provide protection for persons and property throughout the progress of the work.
2. Existing work damaged by the contractor in the execution of this Contract shall be restored to former condition by the contractor to the satisfaction of the Owner without an increase in the Contract Sum and without an extension of the Contract Time.

C. Disposition of Materials

1. All materials and equipment not scheduled to be salvaged, including debris and all rejected salvaged materials, shall become the property of the Contractor and shall be disposed of off-site in a legal manner. Location of dump and length of haul shall be the contractor's responsibility.

3.05 LOCATION OF EQUIPMENT AND PIPING

- A. Where job conditions do not permit the installation of piping etc. in the location shown, it shall be brought to the engineer's attention immediately before fabrication of ductwork, piping, etc. and the relocation required shall be determined in a joint conference.
- B. The contractor will be held responsible for the relocating of any items installed without first obtaining the architect's or engineer's approval. Remove and relocate such items at The contractors expense as so directed by the architect or engineer.
- C. Where piping or ducting is left exposed within a room, run in vertical or horizontal planes. Maintain uniform spacing between parallel lines and/or adjacent wall, floor or ceiling surfaces.
- D. Horizontal runs of plumbing and/or electrical conduit suspended from ceilings shall provide for maximum clearance.
- E. Make minor changes in locations of equipment, piping, ducts, etc. from locations shown including minor offsets when directed by the engineer, at no additional cost to the owner.

3.06 CARE AND CLEANING

- A. Clean and adjust all equipment at completion of installation to provide operating conditions satisfactory to the engineer. Remove broken, damaged or defective parts; repair or replace as directed by engineer. Remove surface material and debris resulting from this work when directed.

3.07 EQUIPMENT AND CONTROL IDENTIFICATION

- A. Identify all equipment with permanently attached plates.
- B. Identify all controls and controllers except thermostats in finished areas.

3.08 PAINTING

- A. Painting is included under the Painting and Finishing Section. It shall be the responsibility of the Mechanical Contractor to properly protect all equipment and controls during painting operations and the Mechanical Contractor shall repair and/or replace any item damaged due to painting that was not properly protected.

3.09 ACCESS DOORS

- A. Provide access doors to all concealed equipment, valves, controls, etc. Locate doors where shown or to be coordinated and symmetrically located with lights, diffusers, etc. Access doors furnished by the mechanical contractor shall be installed by the general contractor.

3.10 OPERATION AND MAINTENANCE DATA

- A. General: Record data and operation and maintenance data are complementary. Submittal items which may be required under both categories may be included only under one submittal if a statement to that effect is included in the other submittal.
- B. Quality Assurance
 - 1. Preparation of data shall be done by personnel
 - a. Trained and experienced in maintenance and operation of described products.
 - b. Familiar with requirements of this Section.
 - c. Skilled as technical writer to the extent required to communicate essential data.
 - d. Skilled as draftsman competent to prepare required drawings.
- C. Form of Submittals
 - 1. Prepare data in form of an instructional manual for use by Owner's personnel.
 - a. Cover: Identify each volume with typed or printed title, "OPERATING AND MAINTENANCE INSTRUCTION". List:
 - b. Title of Project
 - c. Provide indexed tabs.
 - d. Identity of separate structure as applicable.
 - e. Identity of general subject matter covered in the manual.
 - 2. Format
 - a. PDF.
- D. Content of Manual
 - 1. Typewritten table of contents for each volume, arranged in systematic order.
 - a. Contractor, name of responsible principal, address and telephone number.
 - b. A list of each product required to be included, indexed to content of the volume.
 - c. List, with each product, name, address and telephone number of:
 - 1) Subcontractor or installer.
 - 2) Maintenance contractor, as appropriate.
 - 3) Identify area of responsibility of each.
 - 4) Local source of supply for parts and replacement.
 - 5) Identify each product by product name and other identifying symbols as set forth in Contract Documents.
 - 2. Product Data
 - a. Include only those sheets which are pertinent to the specific product.
 - b. Annotate each sheet to:
 - 1) Clearly identify specific product or part installed.

- 2) Clearly identify data applicable to installation.
- 3) Delete references to inapplicable information.
3. Drawings
 - a. Supplement product data with drawings as necessary to clearly illustrate.
 - 1) Relations of component parts of equipment and systems.
 - 2) Control and flow diagrams.
 - b. Coordinate drawings with information in Project Record Documents to assure correct illustration of completed installation.
 - c. Do not use Project Record Documents as maintenance drawings.
4. Supplement product data for the particular installation.
 - a. Organize in consistent format under separate headings for different procedures.
 - b. Provide logical sequence of instructions for each procedure.
5. Factory Authorized Start-Up Report.
 - a. Provide a factory start-up report for each piece of equipment. Contractor start-up reports, unless contractor is a factory authorized representative will not be allowed.
6. Copy of each warranty, bond and service contract issued.
 - a. Provide information sheet for Owner's personnel, give:
 - 1) Proper procedures in event of failure.
 - 2) Instances which might affect validity of warranties or bonds.
- E. Manual for Equipment and Systems
 1. Submit three copies of complete manual in final form.
 - a. Content, for each unit of equipment and system, as appropriate.
 - 1) Description of unit and component parts.
 - 2) Function, normal operating characteristics, and limiting conditions.
 - 3) Performance curves, engineering data and tests.
 - 4) Complete nomenclature and commercial number of replaceable parts.
 - 5) Operating procedures
 - 6) Start-up, break-in, routing and normal operating instructions.
 - 7) Regulation, control, stopping, shut-down and emergency instructions.
 - 8) Summer and winter operating instructions.
 - 9) Special operating instructions.
 - 10) Maintenance Procedures
 - 11) Routing operations
 - 12) Guide to "trouble-shooting".
 - 13) Disassembly, repair and reassembly.
 - 14) Alignment, adjusting and checking
 - 15) Servicing and lubrication schedule.
 - 16) List of lubricants required.
 - 17) Manufacturer's printed operating and maintenance instructions.
 - 18) Description of sequence of operation by control manufacturer.
 - 19) Original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance.
 - 20) Predicted life of parts subject to wear.
 - 21) Items recommended to be stocked as spare parts.
 - 22) As-installed control diagrams by controls manufacturer.
 - 23) Each contractor's coordination drawings.
 - 24) As-installed color coded piping diagrams.
 - 25) Charts of valve tag numbers, with location and function of each valve.
 - 26) List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.
 - 27) Other data as required under pertinent sections of specifications.
 - 28) Content, for each electric and electronic system, as appropriate.
 - 29) Description of system and component parts.
 - 30) Function, normal operating characteristics, and limiting conditions.

- 31) Performance curves, engineering data and tests.
- 32) Complete nomenclature and commercial number of replaceable parts.
- 33) Circuit directories of panel boards.
- 34) Electrical service.
- 35) Controls.
- 36) Communications
- 37) As-installed color coded wiring diagrams.
- 38) Operating procedures:
- 39) Routing and normal operating instructions.
- 40) Sequences required
- 41) Special operating instructions
- 42) Maintenance procedures
- 43) Routine operations
- 44) Guide to "trouble-shooting".
- 45) Disassembly, repair and reassembly.
- 46) Adjustment and checking.
- 47) Manufacturer's printed operating and maintenance instructions.
- 48) List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.
- 49) Other data as required under pertinent sections of specifications.
- 50) Additional requirements for operating and maintenance data: Respective sections of Specifications.

F. Submittal Schedule

1. Submit two copies of preliminary draft of proposed formats and outlines of contents prior to start of work.
 - a. Architect will review draft and return one copy with comments.
2. Submit one copy of complete data in final form fifteen days prior to final inspection or acceptance.
 - a. Copy will be returned after final inspection or acceptance, with comments.
3. Submit specified number of copies of approved data in final form 10 days after final inspection or acceptance.

G. Instruction of Owner's Personnel

1. Prior to final inspection or acceptance, fully instruct Owner's designated operating and maintenance personnel in operation, adjustment and maintenance of products, equipment and systems.
2. Operating and maintenance manual shall constitute the basis of instruction.
 - a. Review contents of manual with personnel in full detail to explain all aspects of operations and maintenance.

3.11 RECORD DATA

A. Compilation

1. Record and collect information concurrently with construction progress and date all entries; make drawing entries within 24 hours after occurrence of change or installation requiring recording. Any concealed work covered before recording data shall be uncovered as directed or as necessary to obtain data.
 - a. Record information on drawing prints using an erasable colored pencil (not ink or indelible pencil); describe clearly by note or graphic line as appropriate.
2. Locate any concealed work adequately to allow future access with reasonable ease and accuracy.
 - a. Identify the plan location of all stub outs, pipe lines, etc., which are buried or concealed in the structure, whether installed where shown on the contract drawings or in a

- different location; show actual field dimensions from column lines, wall lines, or other permanent reference lines or points.
- b. In many cases on the contract drawings, the arrangement of conduits, pipes, ducts, and similar items is shown schematically rather than as a precise scaled layout. Identify the actual location of these with horizontal and vertical dimensions. If such lines are exposed or readily accessible, omit dimensional identification.
 - c. When any work is installed of size, dimension, slope, or location different from that shown on the contract drawings, note the deviation on the Project Record set. If the variations are substantial or cannot be shown clearly on the record drawings, make a new drawing and attach to the Record set.
3. On other documents
- a. Where changes occur in specifications, clearly indicate same in ink, colored pencil, or rubber stamp.
 - b. Where installed equipment differs from that specified (e.g., by accepted substitution or change order) note in the specifications and include complete data on same.

3.12 OPERATION AND MAINTENANCE DATA

- A. Preparations: Prior to data collection and compilation, prepare and submit in duplicate an outline of the proposed organization and content.
- B. Compilation: Prepare and collect data concurrently with construction progress. Compile per submitted outline.
- C. See Section 22 01 00 Operation and Maintenance of Plumbing.

END OF SECTION

SECTION 22 05 23
GENERAL DUTY VALVES FOR PLUMBING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. All Division 22 Mechanical Sections.

1.02 SUMMARY

- A. See Section 22 05 00

1.03 RELATED SECTIONS

- A. Division 26: Electrical Work
- B. Division 23: HVAC

PART 2 - PRODUCTS

2.01 GENERAL

- A. Valves on systems operating over 100 psi shall be rated for 150 psi or higher as required.
- B. Shut-off service, domestic water
 - 1. Ball Valves:
 - a. Sizes 3" and smaller: Nibco T-585-SU, 400 psi rated, threaded or sweat ends, full port, teflon seat, quarter turn handle with stops, two-piece bronze body.

PART 3 - EXECUTION

3.01 GENERAL

- A. Valves shall be full size of line in which installed. Furnish discs suitable for service intended. All valves shall be properly packed and lubricated. Unions shall be placed adjacent to each threaded or soldered valve or equipment connection 2" and smaller. Install flanges at all valves with stems vertical wherever possible. Stems shall not be placed below horizontal.
- B. Install unions adjacent to each valve and at final connection to each piece of equipment.
- C. All shutoff valves in water lines shall be or ball valves, unless otherwise shown.
- D. Valves shall be provided with brass identification tags indicating service controlled. Tags may be omitted on lines exposed in equipment rooms where service is obvious.

END OF SECTION

SECTION 22 05 29
HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. All Division 23 Mechanical Sections.

1.02 SUMMARY

- A. Furnish and install all mechanical work shown on the drawings, specified herein, and as required for a complete and functional installation.
- B. This section includes materials and methods applicable to the work described in all Division 23 Mechanical Sections. Specific work requirements of individual Mechanical Sections take precedence if in conflict with requirements of this Section.

1.03 SUBMITTALS

- A. Submit proposed alternative methods of attachment for review and approval by the Engineer, prior to deviating from the requirements given below.
- B. For all seismic bracing systems, submit structural calculations and details prepared and signed by the Contractor's licensed engineer which include all resultant forces applied to the building structure. Do not overstress building structure. The maximum allowable loads are as indicated in 3.01 of this specification. The submittal data required does not require an analysis of the building structural members and their reaction to the loads of the piping. The submittal data needs to address attachment methods and shall include calculations indicating the forces that are applied to the building structure at the point of attachment. Calculations will be reviewed for compliance with design criteria, not for arithmetic.

1.04 RELATED SECTIONS

- A. Division 26: Electrical Work
- B. Division 23: HVAC

1.05 DRAWINGS AND SPECIFICATIONS

- A. Information presented on Drawings and in the Specifications is based upon latest data available during their preparation. The Drawings and Specifications are for the assistance and guidance of the Contractor and exact locations, distances, levels, etc. will be governed by the structures and the site the contractor shall accept same with this understanding.

PART 2 - PRODUCTS

2.01 HANGERS AND SUPPORTS

- A. B-Line, Superstrut, Tolco, Grinnell, or equal. Numbers are B-line.
- B. Finish: Electro-Chromate or hot dipped galvanized.
- C. Trapeze Suspension, for three or more pipes B-Line 1-5/8" width channel or a size suitable for load in accordance with manufacturer's published load ratings. No deflection to exceed 1/180 of a span.
- D. Trapeze Supporting Rods: Diameter sufficient to support the load with a safety factor of 5. Anchor rods securely to building structure. See part three for minimum sizes.
- E. Pipe Straps: copper coated for copper.

- F. Size: For insulated pipe - pipe hangers sized to allow pipe insulation to pass continuously through the hanger.
- G. Insulated Pipe Shields: Utilize isolated pipe supports at all insulated pipe hanger locations.
- H. Isolators: 319CT or Trisolator isolators at all hangers and clamps supporting un-insulated piping and tubing and at all points that pipe comes in contact with structure or other pipes.

PART 3 - EXECUTION

3.01 HANGERS AND SUPPORTS

- A. General: Support all piping so that it is firmly held in place by approved iron hangers and supports and special hangers as required or as scheduled on the drawings.
 - 1. Rigidly fasten hose faucets, and similar items at ends of pipe branches to the building construction near point of connection.
- B. Hanger Installation: On all insulated pipes, install the hangers on the outside of the pipe covering and not in contact with the pipe. Burning, welding, cutting, or drilling on any structural member may only be done if approved by the structural engineer. No valve or piece of equipment shall be used to support the weight of any pipe. Provide a hanger close to the point of change of direction of pipe run in either horizontal or vertical plane. Place supports and hangers for cast iron soil pipe as close as possible to joints; when hangers or supports do not come within one foot of a branch line fitting, install an additional hanger or support at the fitting. Protect insulation, when pipe is insulated, at each hanger with 180 degree, 18 gauge, 12 inch long G.I. Saddles.
- C. Hanger rods with C-clamp type structural attachment shall be equipped with retaining straps.
- D. Metallic Pipe Hanger Spacing and Rod Size Schedule:

Type of Pipe	Spacing		
Pipe Size	1/2" – 2"	2 1/2" – 5"	6" – 8"
Steel Pipe	*8' - 0"	10' - 0"	12' - 0"
Copper Tubing	5' - 0"	8' – 0"	10' – 0"
Cast Iron	Support at 8'- 0" intervals and on each side of and within 12" of joint.		
Rod Size:	3/8"	1/2"	5/8"

*1/2" gas piping shall be spaced 6' – 0" maximum

- E. Anchor pipe subject to expansion or contraction in a manner permitting strains to be evenly distributed.
- F. Methods of attachment and sizes shall conform to NFPA 13 and FM data sheet 2-8.
- G. All hangers and fasteners are subject to the approval of the Structural Engineer.
- H. Support fire-protection system piping independent of other piping.

END OF SECTION

This page intentionally left blank

**SECTION 22 05 48
VIBRATION & SEISMIC CONTROLS FOR PLUMBING PIPING**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. All Division 23 Mechanical Sections.

1.02 SUMMARY

- A. See 22 05 00

1.03 RELATED SECTIONS

- A. Division 26: Electrical Work.
- B. Division 23: HVAC.

1.04 SEISMIC RESISTANCE

- A. Furnish and install all systems, units, equipment, and parts to meet or exceed current applicable requirements for seismic resistance specified by codes, regulations, or agencies having jurisdiction. Include all supports, anchors, braces and other restraining devices required. All seismic restraints will meet the following site specific seismic design criteria:
 - 1. Seismic Design Category D, 2) Importance Factor, $I_p = 1.5$ and 3) $SDS = 0.857$
 - 2. Seismic restraints are the responsibility of the contractor.
- B. Design of seismic bracing shall meet requirements of CBC Chapter 16A & ASCE 7-10.

PART 2 - PRODUCTS

2.01 BRACING SYSTEMS

- A. Provide approved types as manufactured by Grinnell, Hilti or Tolco.

PART 3 - EXECUTION

3.01 SWAY BRACING

- A. Provide earthquake sway bracing in accordance with 2016 CBC Chapter 16, ASCE 7-10 & B-Line Seismic Design Manual. Review the Structural Engineering plans for specific details.

END OF SECTION

This page intentionally left blank

SECTION 22 07 00
PLUMBING INSULATION GENERAL REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. This Section describes insulation materials, methods, and applications for Mechanical Work, Special or specific details, applications, features, or methods may be described in work descriptions Sections or on the drawings.

1.02 RELATED DIVISIONS

- A. 22 00 00: Plumbing
- B. 23 00 00: HVAC

1.03 REFERENCES

- A. Thermal insulation materials shall meet the property requirements of one or more of the following specifications as applicable to the specific product or end use:
 - 1. American Society for Testing of Materials Specifications:
 - a. ASTM C 547, "Standard Specification for Mineral Fiber Pipe Insulation"
 - b. ASTM C 585, "Standard Practice for Inner and Outer Diameters of Rigid Thermal Insulation for Nominal Sizes of Pipe and Tubing (NPS System)"
 - c. ASTM C 1136, "Standard Specification for Flexible, Low Permeance Vapor Retarders for Thermal Insulation"

1.04 SYSTEM PERFORMANCE

- A. Insulation materials furnished should meet the minimum thickness requirements of National Voluntary Consensus Standard 90.1 (Latest edition), "Energy Efficient Design of New Buildings," of the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE).
- B. Insulation materials furnished and installed hereunder shall meet the fire hazard requirements of applicable building codes when tested in composite form per one of the following nominally equivalent test methods:
 - 1. American Society for Testing of Materials ASTM E 84
 - 2. Underwriters' Laboratories, Inc. UL 723, CAN/ULC-S102-M88
 - 3. National Fire Protection Association NFPA 255
- C. Molded pipe insulation shall be manufactured to meet ASTM C 585 for sizes required in the particular system.
- D. Molded fibrous glass pipe insulation shall comply with the requirements of ASTM C 547.

1.05 QUALITY ASSURANCE

- A. Qualifications of Installers: only a licensed firm employing installers specifically skilled and experienced in applying insulation to piping shall do Insulation work.
- B. Insulation materials and accessories furnished and installed hereunder shall, where required, be accompanied by manufacturers' current submittal or data sheets showing compliance with applicable specifications listed in above.
- C. Insulation materials, including all weather and vapor barrier materials, closures, hangers, supports, fitting covers, and other accessories, shall be furnished and installed in strict accordance with project drawings, plans, and specifications.
- D. Insulation materials and accessories shall be installed in a workmanlike manner by skilled and experienced workers who are regularly engaged in commercial insulation work.

E. Codes and Standards:

1. California Code of Regulations - Title 24.
2. National Fire Protection Association - 90A
3. Insulation applied to the exterior or interior surface of ducts, and the exterior surface of piping, shall be UL labeled with maximum flame-spread rating of 25 and maximum smoke- developed rating of 50 according to ASTM E 84, when tested as a composite installation including insulation, facing materials, and adhesives as normally applied.

1.06 DELIVERY AND STORAGE OF MATERIALS

- A. All of the insulation materials and accessories covered by this specification shall be delivered to the job site and stored in a safe, dry place with appropriate labels and/or other product identification.
- B. The contractor shall use whatever means are necessary to protect the insulation materials and accessories before, during, and after installation. No insulation material shall be installed that has become damaged in any way.
- C. If any insulation material has become wet because of transit or job site exposure to moisture or water, the contractor shall not install such material, and shall remove it from the job site. An exception may be allowed in cases where the contractor is able to demonstrate that wet insulation when fully dried out (either before installation or afterward following exposure to system operating temperatures) will provide installed performance that is equivalent in all respects to new, completely dry insulation. In such cases, consult the insulation manufacturer for technical assistance.

PART 2 - PRODUCTS

2.01 PLUMBING PIPING INSULATION – SEE 22 07 19

PART 3 - EXECUTION

3.01 APPLICATION/INSTALLATION

- A. Use the types and thickness of insulation specified in work description Sections.
- B. Apply insulations in accordance with the manufacturer's recommendations and with instructions specified herein or noted on the drawings.
- C. Install insulations only after the systems, items, and equipment have been installed and tested, inspected, and accepted. Exceptions: Slip-on piping insulation and equipment insulations installed at the factory.
- D. Fit insulation snugly to the item being insulated; butt all joints tightly with no voids, spaces, or thin spots.
- E. Seal all joints completely; where sealing tape is used, center the tape over the joint.
- F. Except where specified or necessary, do not use staples or fasteners which penetrate vapor barrier jackets or covers on cold systems or equipment; where such penetrating fasteners are used, seal each penetration completely to maintain the vapor barrier integrity. All penetrations of the ASJ and exposed ends of insulation shall be sealed with vapor barrier mastic. Vapor seals at butt joints shall be applied at every fourth pipe section joint and at each fitting to provide isolation of water incursion.
- G. Use adhesives, mastics, cements, sealants, and finishes undiluted unless specifically directed otherwise; apply per manufacturer's directions.
- H. Install outdoor jacketing or other specified weather proofing or finishing on all insulations outdoors.
- I. Install all indoor exposed insulation with extra care and finish neatly.
- J. Follow specified methods of installation unless alternative methods are submitted and approved.

3.02 FINISHING

- A. Finishes and Protection:
 - 1. Ensure that the exterior finish of all insulation is applied and complete as specified.
 - 2. Make ready for painting, or painted to match existing including color where specified for paint.
 - 3. Install all metal jackets or protective sheathing where specified.
- B. Repair, Touchup: Properly repair and touchup all dents, rips, tears, or other damage inflicted on jackets or exterior surfaces of insulation. Breaks or punctures in the vapor barrier of external insulation will not be accepted and must be repaired prior to project acceptance.

END OF SECTION

This page intentionally left blank

SECTION 22 07 19
PLUMBING PIPING INSULATION

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. A continuous intact vapor barrier is critical for all pipes conveying fluids at temperatures less than 75° F.
- B. All insulation material shall have a mold, humidity, and erosion resistant face that has met the requirements of 2016 CMC Standard No. 6-1.
- C. Insulation applied to the exterior surface of pipes located in buildings shall have a flame spread of no more than 25 and smoke developed rating of not more than 50.
- D. All requirements of Section 22 07 00 apply to this section.

PART 2 - PRODUCTS

2.01 IP-1 RIGID MOLDED SECTIONAL/INDOOR CONCEALED JACKET

- A. Regular shape (straight run).
 - 1. Molded sectional, factory fabricated of heavy density resin bonded fibrous glass, with integral factory applied all service jacket of Kraft paper/aluminum foil/glass fiber reinforcement.
 - 2. Insulation shall have a thermal conductivity k factor of 0.23 at 75° F mean temperature and be suitable for direct application and service on piping having operating surface temperatures of -60° to 450°F.
 - 3. Jacket shall:
 - a. Extend 1-1/2" (minimum) along one edge of longitudinal joint to form a sealing lap, which shall be faced inside with a paper protected pressure sensitive adhesive.
 - b. Have a permanence rating of 0.02 perm/in. and a Beach puncture resistance of 50 units;
 - c. Have an exterior suitable for painting with latex or water base paint.
 - 4. All insulation shall have composite (insulation, jacket, tape seal and adhesive used to adhere jacket to the insulation). Fire and Smoke Hazard ratings as tested under procedure ASTM E-84, NFPA 255 and UL 723, not exceeding Flame Spread of 25 and a Smoke Developed of 50. PVC fitting covers and accessories, such as adhesives, mastics, cements and cloth for fittings shall have the same component ratings.
 - 5. Paper laminate jackets shall be permanently flame and smoke resistant. Chemicals used for treating paper in jacket laminates shall not be water soluble and shall be unaffected by water and humidity.
 - 6. Fiberglass Schuler-Manville Micro-Lok, or equal.
- B. Irregular shape (fittings, flanges, valves, etc.)
 - 1. Fibrous glass of same density, thickness, and other properties or characteristics as the adjacent regular shape insulation either pre-molded or field forged to fit the item being insulated. The pre-molded insulation shall be provided with weather protection cover.

PART 3 - EXECUTION

3.01 PIPING APPLICATIONS

Note: Where multiple systems are listed, contractor has the option to choose.

- A. Domestic tempered water (TW) above grade/indoors
 - 1. Use System IP-1. (Rigid Molded Sectional/Indoor Jacket) with vapor barrier.
 - a. For temperatures 105 to 140° F, 1" thickness for pipes smaller than 1" diameter (R-value=7.7), 1-1/2" thickness for 1" diameter less than 1-1/2" diameter (R-value=12.5) and 1 ½" thickness for 1-1/2" pipe (R-value=12.5); 2" thickness for 2" diameter to 6" diameter (R-value=14.0).
- B. Domestic hot water (HW) above grade/indoors
 - 1. Use System IP-1. (Rigid Molded Sectional/Indoor Jacket) with vapor barrier.
 - a. For temperatures 105 to 140° F, 1" thickness for pipes smaller than 1" diameter (R-value=7.7), 1-1/2" thickness for 1" diameter less than 1-1/2" diameter (R-value=12.5) and 1 ½" thickness for 1-1/2" pipe (R-value=12.5); 2" thickness for 2" diameter to 6" diameter (R-value=14.0).

3.02 INSTALLATION

- A. Unless specifically excluded herein or on the drawings, insulate all parts of hot piping systems, flanges, valves, and pipe-mounted devices, except do not cover nameplates on devices.
- B. Install insulation in removable sections over unions, flanges, and line components or devices requiring periodic maintenance.
- C. Install insulation butted tightly to transitions such as insulated pipe shields, insulated pipe sleeves, equipment connections, etc.
- D. Install insulation on piping systems so that condensation will not occur. Insulate pipe supports where hanger is directly in contact with pipe up to the point of connection to the building structure. All piping shall be supported in such a manner that neither the insulation nor the vapor/weather barrier is compromised by the hanger or the effects of the hanger. In all cases, hanger spacing shall be such that the circumferential joint may be made outside the hanger.
- E. Treat equipment face piping as follows:
 - 1. Where piping is subject to condensation (domestic water systems, rain water leaders, condensate drains) and where installed above grade outdoors (either hot or cold systems) insulate piping completely to the point of equipment connection.
 - 2. Where not subject to condensation (hot systems) terminate insulation at the outlet side of the equipment shut-off valve, leaving the face piping un-insulated, 24" max, unless noted otherwise, except where exposed to outdoors.
- F. Install insulation materials with smooth and even surfaces. Insulate each continuous run of piping with full-length units of insulation, with single cut piece to complete run. Do not use cut pieces or scraps abutting each other. Butt insulation joints firmly to ensure complete, tight fit over all piping surfaces.
- G. Maintain the integrity of factory-applied vapor barrier jacketing on all pipe insulation, protecting it against puncture, tears or other damage. All staples used on cold pipe insulation shall be coated with suitable sealant to maintain vapor barrier integrity.
- H. Rigid Molded Sectional/Jacketed:
 - 1. Comply with applicable general instructions above.
 - 2. Apply to all hot water and piping (except where specified or noted otherwise) installed above grade indoors and outdoors, concealed or exposed.
 - 3. Seal all transverse joints (except at PVC fitting jackets) with circumferentially applied 3" (minimum) width tape of same material as the jacket, faced with the same adhesive as

the longitudinal lap, or seal with Hardcast 4" wide Type DT490-C mineral impregnated woven fiber tape (synthetic fiber indoors, cotton fiber outdoors) using Hardcast FTA-20 activator/adhesive applied by brush or roller. Seal transverse joints at PVC fittings jackets with color matching PVC tape and vapor barrier mastic adhesive.

4. Fittings and valves shall be insulated with pre-formed fiberglass fittings, fabricated sections of fiberglass pipe insulation, blanket insulation, or insulating cement. Thickness shall be equal to adjacent pipe insulation. Finish shall be with pre-formed PVC fitting covers or as otherwise specified on contract drawings.
5. Flanges, couplings and valve bonnets shall be covered with an oversized pipe insulation section sized to provide the same insulation thickness as on the main pipe section. An oversized insulation section shall be used to form a collar between the two insulation sections with low-density blanket insulation being used to fill gaps. Jacketing shall match that used on straight pipe sections. Rough-cut ends shall be coated with suitable weather or vapor resistant mastic as dictated by the system location and service.
6. On hot systems where fittings are to be left exposed, insulation ends should be beveled away from bolts for easy access.
7. Fit insulation terminations with Zeston, Snap Form, end cap jackets, or seal with Hardcast tape as specified above for joints.
8. On all piping (except equipment face piping) installed outdoors, install outdoor jacketing. Install aluminum sheet jacket with all joints turned down at 45° below horizontal; secure in place with non-corroding bands and/or blind rivets (do not puncture vapor barrier insulation jacket). On equipment face piping (including equipment shut-off valve) coat the insulation with ¼" thick Fosters 60-25 C.I. (weatherproofing) mastic reinforced with glass fabric and finished with two (2) coats of aluminum paint.
9. Penetrations
 - a. Extend piping insulation without interruption through walls, floors, and similar piping penetrations, except where otherwise specified.
- I. Closed Cell Polyolefin:
 1. Install pre-slit, pre-glued closed cell polyolefin foam pipe insulation as per manufacturer's recommendations. Seal all joints and seams with Fuse-Seal Gun or with Armstrong 520 adhesive or equal in accordance with manufacturer's written instructions. Fabricate fitting covers from polyolefin foam insulation using same procedure.
 2. Verify that work of this section may be installed in strict accordance with the original design, all pertinent codes and regulations, and all pertinent portions of the referenced standards.
 3. In the event of discrepancy, immediately notify the Architect.
 4. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.
- J. Install insulation in accordance with insulation manufacturer's instructions and as specified.
- K. Install faced insulation with facing to occupied room side. Install non-rated facing in contact with unexposed surface of finish materials.
- L. Do not install insulation over recessed light fixtures.
- M. Trim insulation neatly to fit spaces. Fit insulation into crevices, spaces at outlet boxes and similar penetrations.
- N. Maintain continuous foil faced vapor barrier. Provide fire resistive tape at all edges or penetrations of foil faced insulation, including batt ends.

END OF SECTION

This page intentionally left blank

SECTION 22 11 16
DOMESTIC WATER PIPING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Section 22 11 00, Facility Water Distribution applies to this section.

1.02 SUMMARY

- A. This section includes all plumbing (equipment, fixtures, pipe and fittings, specialties) inside the building(s) and outside the building(s) to the point of connection to site plumbing systems.
- B. Provide complete plumbing systems including:
 - 1. Service connections to existing on-site utilities, and stubs for future connection to equipment provided under the work of this Section or other Sections of the Specifications.
 - 2. All piping systems for conduction of cold water, heated water, soil, waste, fuel gas, and other fluids or gases as shown or specified for plumbing work.
 - 3. All valves, piping supports, piping penetration auxiliaries, piping protective coverings, piping, and other piping accessories as shown or specified for plumbing work.
 - 4. All plumbing equipment and auxiliary items as specified herein or shown on the drawings.

1.03 RELATED SECTIONS

- A. Section 22 05 00 - Plumbing
- B. Section 22 07 00 - Insulation

1.04 QUALITY ASSURANCE

- A. All plumbing fixtures and equipment shall comply with California Code of Regulations, Title 24, Part 6, latest edition.

1.05 REFERENCES

- A. Pipes and Tubes
 - 1. Hard Copper Tube: ASTM B88, Types L, water tube, drawn temper.
 - 2. Soft Copper Tube: ASTM B88, Types L, water tube, annealed temper.
- B. Fittings
 - 1. Wrought-Copper, Solder-Joint Pressure Fittings: ANSI B16.22.
 - 2. Cast-Copper-Alloy, Solder-Joint Pressure Fittings: ASME B16.18, ASTM B584.
 - 3. Cast-Copper-Alloy, Threaded -Joint Pressure Fittings: ANSI/ASME B16.15, ASTM B584.
 - 4. Bronze Flanges: ASME B16.24, Classes 150 and 300.
 - 5. Copper Unions: ASME B16.18, cast-copper-alloy body, hexagonal stock, with ball-and-socket joint, metal-to-metal seating surfaces, and solder-joint, threaded, or solder-joint and threaded ends. Threads complying with ASME B1.20.1.
- C. Joining Materials
 - 1. Solder Filler Metal: ASTM B32, alloys to suit system requirements.
 - 2. Brazing Filler Metals: AWS A5.8, alloys to suit system requirements.

1.06 STRUCTURAL REQUIREMENTS

- A. Structural members shall not be cut or modified in any manner without specific instructions from the structural engineer. Where possible, offset vents and pipes rising in walls, concealed above ceilings, below plates and rise through roof. Where this is not possible, install vents and pipes through plates as detailed on structural drawings.

1.07 SUBMITTALS

- A. Submit a general statement of materials and methods along with manufacturer's technical data and installation instructions for all equipment, fixtures, pipe and fittings, and plumbing specialties to be installed.
- B. Record Drawings: Per specification section 22 05 00 requirements.
- C. Operation and Maintenance Manuals: Per specification section 22 01 00 requirements.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Adapters: Wrought copper male adapters shall be used wherever it is necessary to connect copper tubing to a valve or "tee" having threaded connections.

2.02 PIPE, FITTING, AND JOINING MATERIALS

- A. Copper Water Pipe
 - 1. Pipe: Above grade, Type L hard drawn copper tubing per ASTM B-88, plain ends.
 - 2. Fittings: Solder type, wrought copper per ANSI Standard B16.22 or cast red bronze per ANSI Standard B16.18. Do not use T-drill.
 - 3. Unions: Solder type, cast red bronze.
 - 4. Joining Materials/Methods
 - a. Canfield, Silvabrite or equal lead free solder with a non-corrosive water based flux.
 - b. 15% silver brazing alloy, water based silver brazing flux. Silver content must be clearly identified on the brazing rod.
 - 5. Connections
 - a. Copper to dissimilar metals: dielectric connector.
 - b. Copper to threaded connections: cast brass adapters.

2.03 PIPE AND FITTING APPLICATIONS

- A. Inside Building (to 5'-0" outside building line).
 - 1. Water Piping: Above grade, Type L drawn temper, joining methods, soldered connections, below grade, Type K drawn temper copper tubing, joining methods, brazed connections.
 - 2. Plastic pipe and fittings shall not be used inside of buildings.

PART 3 - EXECUTION

3.01 PIPING

- A. Water Piping
 - 1. Run water piping generally level. No piping shall be installed to cause an unusual noise from the flow of water under normal conditions.
 - 2. Adapters: Wrought copper male adapters shall be used wherever it is necessary to connect copper tubing to a valve or tee having threaded connections.

3. Install Bare Metal Pipe Isolators: Stoneman "Trisolator", Superstrut "Cush-a-strip", Unistrut on all hot and cold domestic water piping.

3.02 FIELD QUALITY CONTROL

A. Water Sterilization

1. After installation and before installing valves or making final connections, flush or purge piping systems clean of foreign substances; use water to flush piping conducting liquids and compressed air to clear piping conducting gases.
2. After completing cold and heated water systems, disinfect in accordance with current requirements of U.S. Public Health Department. Use 50 parts per million of chlorine with 8 hour retention and flush to leave a residual no greater than supply source. Submit written certification of disinfecting completion by independent laboratory. After sterilization take at least one (1) water sample per floor and have analyzed for "E-coli" to submit test results.

3.03 PIPING TESTING: TESTING CRITERIA

System	Medium	Pressure	Duration
Water	Water	150 psig	4 hours

END OF SECTION

This page intentionally left blank

SECTION 22 11 19
DOMESTIC WATER PIPING SPECIALTIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Section 22 05 00 applies to this section.

1.02 SUMMARY

- A. This section includes all plumbing (equipment, fixtures, pipe and fittings, specialties) inside the building(s) and outside the building(s) to the point of connection to site plumbing systems.
- B. Provide complete plumbing systems including:
 - 1. Service connections to existing on-site utilities, and stubs for future connection to equipment provided under the work of this Section or other Sections of the Specifications.
 - 2. All piping systems for conduction of water as shown or specified for plumbing work.
 - 3. All valves, piping supports, piping penetration auxiliaries, piping protective coverings, piping, and other piping accessories as shown or specified for plumbing work.
 - 4. All plumbing equipment and auxiliary items as specified herein or shown on the drawings.

1.03 RELATED SECTIONS

- A. Section 22 05 00 - Plumbing
- B. Section 22 07 00 - Insulation

PART 2 - PRODUCTS

2.01 PIPING ACCESSORIES

- A. Unions
 - 1. Shall have the same pressure rating as pipe fittings.
- B. Check Valves
 - 1. Swing check, Class 125 Buna-N Disc, NIBCO or equal.
 - a. Sizes 2 inch and smaller: Fig. T-413; bronze body, threaded ends, plug type bonnet.
- C. Piping Penetration Auxiliaries
 - 1. Sleeves Below Slab or Grade: Metraseal model MS or equal with schedule 80 PVC sleeve. The seal shall be capable of withstanding a hydrostatic pressure of 20 psig. The seal shall be constructed of synthetic rubber with heavy-duty plastic pressure plates. All bolts and nuts shall be constructed of stainless steel.
 - 2. Escutcheons: Polished chrome plated brass or painted metal.

PART 3 - EXECUTION

3.01 EQUIPMENT

- A. Install equipment in accordance with the manufacturer's installation instructions, as specified herein, and as detailed on the drawings.

3.02 VALVES, UNIONS AND FLANGES

- A. Valves shall be full size of line in which installed. Furnish discs suitable for service intended. All valves shall be properly packed and lubricated. Unions shall be placed adjacent to each threaded or soldered valve or equipment connection 2" and smaller. Install flanges at all valves with stems vertical wherever possible. Stems shall not be placed below horizontal.
- B. Install unions adjacent to each valve and at final connection to each piece of equipment.
- C. Valves shall be provided with brass identification tags indicating service controlled. Tags may be omitted on lines exposed in equipment rooms where service is obvious.
- D. Cathodic Protection: Install insulated flanges or dielectric unions at points of connection between pipes and equipment as follows: (1) between copper or brass piping and steel or cast iron pipe. (2) Between copper or brass piping and any steel material. (3) Buried connections of copper or brass piping to steel or cast iron piping shall be protected with a polyvinyl tape wrap 10 mils thick, extending 5' each way from connection.
- E. Expansion: Install piping with sufficient offsets, loops, and/or swing-joints to allow for expansion and contraction. Anchor piping at equipment to restrain movement at those locations.
- F. Freeze Protection: Piping shall not be installed in a location subject to freezing conditions. All piping shall and must be installed on the "warm" side of building envelope insulation without exception. Where risers occur in outside walls, ensure that building insulation is adequate and intact. All piping must be drainable; provide drains required. All piping shall be run in or above heated portion of the building.

3.03 FIELD QUALITY CONTROL

- A. Water Sterilization
 - 1. After installation and before installing valves or making final connections, flush or purge piping systems clean of foreign substances; use water to flush piping conducting liquids and compressed air to clear piping conducting gases.
 - 2. After completing cold and heated water systems, disinfect in accordance with current requirements of U.S. Public Health Department. Use 50 parts per million of chlorine with 8 hour retention and flush to leave a residual no greater than supply source. Submit written certification of disinfecting completion by independent laboratory. After sterilization take at least one (1) water sample per floor and have analyzed for "E-coli" to submit test results.
- B. Piping Testing: Testing Criteria

System	Medium	Pressure	Duration
Water	Water	150 psig	4 hours

END OF SECTION

SECTION 22 13 16
SANITARY WASTE AND VENT PIPING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Section 22 05 00 applies to this section.

1.02 SUMMARY

- A. This section includes all plumbing (equipment, fixtures, pipe and fittings, specialties) inside the building(s) and outside the building(s) to the point of connection to site plumbing systems.
- B. Provide complete plumbing systems including:
 - 1. Service connections to existing on-site utilities, and stubs for future connection to equipment provided under the work of this Section or other Sections of the Specifications.
 - 2. All piping systems for conduction of soil, waste, and other fluids or gases as shown or specified for plumbing work.
 - 3. All valves, piping supports, piping penetration auxiliaries, piping protective coverings, piping, and other piping accessories as shown or specified for plumbing work.
 - 4. All plumbing equipment and auxiliary items as specified herein or shown on the drawings.

1.03 RELATED SECTIONS

- A. Section 22 05 00 - Plumbing
- B. Section 22 07 00 - Insulation

1.04 QUALITY ASSURANCE

- A. All plumbing fixtures and equipment shall comply with California Code of Regulations, Title 24, Part 6, latest edition.

1.05 REFERENCES

- A. Pipes and Tubes
 - 1. Copper Drainage Tube: ASTM B306, Type DWV, drawn temper.
 - 2. Hubless, Cast-Iron Soil Pipe: CISPI 301.
- B. Fittings
 - 1. Wrought-Copper, Solder-Joint Pressure Fittings: ANSI B16.22.
 - 2. Cast-Copper-Alloy, Solder-Joint Pressure Fittings: ASME B16.18, ASTM B584.
 - 3. Cast-Copper-Alloy, Threaded -Joint Pressure Fittings: ANSI/ASME B16.15, ASTM B584.
 - 4. Bronze Flanges: ASME B16.24, Classes 150 and 300.
 - 5. Copper Unions: ASME B16.18, cast-copper-alloy body, hexagonal stock, with ball-and-socket joint, metal-to-metal seating surfaces, and solder-joint, threaded, or solder-joint and threaded ends. Threads complying with ASME B1.20.1.
 - 6. Wrought-Copper, Solder-Joint, DWV Drainage Fittings: ASME B16.29.
 - 7. Cast-Copper-Alloy, Solder-Joint, DWV Drainage Fittings: ASME B16.23.
 - 8. Plastic Pipe Sleeves: ASTM C564 rubber for cast-iron soil pipe and ASTM F477 elastomeric seal.

- C. Joining Materials
 - 1. CISPI Couplings for Hubless, Cast-Iron Soil Pipe and Fittings: CISPI 310, having ASTM C564 neoprene sealing sleeve, with 300 series stainless-steel, corrugated shield-and-clamp assembly.
 - 2. Solder Filler Metal: ASTM B32, alloys to suit system requirements.
 - 3. Brazing Filler Metals: AWS A5.8, alloys to suit system requirements.
- D. Plastic Pipe Seals: ASTM F477, elastomeric gasket.

1.06 STRUCTURAL REQUIREMENTS

- A. Structural members shall not be cut or modified in any manner without specific instructions from the structural engineer. Where possible, offset vents and pipes rising in walls, concealed above ceilings, below plates and rise through roof. Where this is not possible, install vents and pipes through plates as detailed on structural drawings.

1.07 SUBMITTALS

- A. Submit a general statement of materials and methods along with manufacturer's technical data and installation instructions for all equipment, fixtures, pipe and fittings, and plumbing specialties to be installed.
- B. Record Drawings: Per specification section 22 05 00 requirements.
- C. Operation and Maintenance Manuals: Per specification section 22 05 00 requirements.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Adapters: Wrought copper male adapters shall be used wherever it is necessary to connect copper tubing to a valve or "tee" having threaded connections.

2.02 PIPE, FITTING, AND JOINING MATERIALS

- A. Hubless Cast-Iron/Sleeve-Clamped Joints
 - 1. Pipe: Service weight cast iron, hubless, with hot coal tar pitch coating inside and outside, per Cast-Iron Soil Pipe Institute Standard 301.
 - 2. Fittings: Hubless type, Tyler No-Hub Coupling, each matched with pipe and identified with the manufacturer's name or trademark, the Cast-Iron Soil Pipe Institute symbol, and the pipe size. Those for connections to other types of piping - approved cast-iron adapter/transition type.
 - 3. Joining Materials/Methods: Husky Series 4000 (Blue shield) or Mission HeavyWeight Orange shield) on pipes over 3", neoprene sleeve type conforming to ASTM C564 specifically designed for connecting hubless cast-iron pipe, coated with manufacturer's recommended lubricant before installing; four type 304 stainless steel band clamps with a type 305 stainless steel worm drive screw, and corrugated shield over sleeve; use standard no-hub couplings on pipe 3" and less
 - 4. Wedge lock joints at rainwater leaders to underground drain.
 - 5. Cleanout Plugs: Use Armitite Joint Seal compound No. 411, or Enterprise Commercial Thread-Seal.
- B. Copper DWV Pipe: DWV drainage tubing per ASTM B-306-86, plain ends for pipe 1 1/2" and larger.
 - 1. Fittings shall be solder type, wrought copper drainage fittings per ANSI Standard B16.29-86.

2. Joining Materials/Methods: Canfield, Silvabrite or equal lead free solder with a non-corrosive water based flux.
3. Connections:
 - a. Copper to dissimilar metals: dielectric connector.
 - b. Copper to threaded connections: cast brass adapters.

2.03 PIPE AND FITTING APPLICATIONS

- A. Inside Building (to 5'-0" outside building line).
 1. Soil, waste and vent piping
 - a. Below slab, service weight cast iron soil pipe and fittings, asphaltic coated for sizes 2 1/2" and smaller. Above floor from 6" above slab shall be galvanized steel pipe or service weight cast iron soil pipe and fittings, asphaltic coated for sizes 2 1/2" and smaller. Urinal waste shall be service weight cast iron soil pipe and fittings, asphaltic coated. Sizes 3" and larger shall be service weight cast iron soil pipe and fittings, asphaltic coated.
 - b. Fittings
 - 1) Contractor may use "No-Hub" "Husky" joints per manufacturers published instructions for installation. No-Hub fittings for waste and soil pipe shall be four band stainless steel type. Standard two band stainless steel band type may be used for vent piping.
 - c. As an alternate use, copper DWV Pipe.

PART 3 - EXECUTION

3.01 EQUIPMENT

- A. Install equipment in accordance with the manufacturer's installation instructions, as specified herein, and as detailed on the drawings.

3.02 PIPING

- A. Provide trenching and backfill for buried piping and install with the following minimum cover unless shown otherwise, cover is from top of pipe to finish grade.
 1. Sewer - 30"
- B. Sewer Piping: Run all horizontal sanitary piping inside of the building at a uniform grade of not less than 1/4" per foot unless otherwise noted on the drawings. Sewers shall have invert elevations as shown and slope uniformly between given elevations. All drainage piping shall be run as straight as possible and shall have long radius bends. All offsets shall be made at an angle of 45 degrees or less. All vent piping shall be graded so as to free itself quickly of any water or condensation. Where possible, groups of vent risers shall be jointed together with one enlarged outlet through roof.
 1. Install clean-outs of the same diameter of pipe in all horizontal soil and waste lines where indicated and at all points of change in direction and at base of all soil or waste drops. Locate clean outs not less than 18" from building construction so as to provide sufficient space for rodding. No horizontal runs of more than 100 feet shall be without clean-out.
 2. Clean-outs in floors shall be protected with a cover taped in place and removed at completion of concrete work.
 3. Provide trap at each inlet to sanitary sewer system. Provide trap primers where shown and as required by code.

3.03 VENT LOCATIONS

- A. Plumbing fixture vents have been combined wherever possible to minimize the number of roof penetrations.
- B. Roof penetrations have been coordinated with penetrations of other trades, etc.
- C. Plumbing contractor shall not shift or relocate vents through the roof or other penetrations from the locations shown without prior approval of the Architect.

3.04 FIELD QUALITY CONTROL

- A. Piping Testing:
 - 1. Testing Criteria

<u>System</u>	<u>Medium</u>	<u>Pressure</u>	<u>Duration</u>
Drainage and Vent	Water	10 ft water	15 minutes

END OF SECTION

SECTION 22 13 19
SANITARY WASTE PIPING SPECIALTIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Section 22 01 00 applies to this section.

1.02 SUMMARY

- A. This section includes all plumbing (equipment, fixtures, pipe and fittings, specialties) inside the building(s) and outside the building(s) to the point of connection to site plumbing systems.
- B. Provide complete plumbing systems including:
 - 1. Service connections to existing on-site utilities, and stubs for future connection to equipment provided under the work of this Section or other Sections of the Specifications.
 - 2. All piping systems for conduction of cold water, heated water, soil, waste, fuel gas, and other fluids or gases as shown or specified for plumbing work.
 - 3. All valves, piping supports, piping penetration auxiliaries, piping protective coverings, piping, and other piping accessories as shown or specified for plumbing work.
 - 4. All plumbing equipment and auxiliary items as specified herein or shown on the drawings.

1.03 RELATED SECTIONS

- A. Section 22 05 00 - Plumbing
- B. Section 22 07 00 - Insulation

PART 2 - PRODUCTS

2.01 PIPING ACCESSORIES

- A. Cleanouts: Zurn or equal
 - 1. Vertical: with polished bronze cover.
 - 2. Floor: with nickel-bronze cover, #56000-14, with carpet clean out marker in carpeted areas.
 - 3. Grade: C.I. with brass plug set in concrete.
 - 4. Use floor clean outs where located in walks.

2.02 PIPING PENETRATION AUXILLIARIES

- A. Sleeves Below Slab or Grade: Metraseal model MS or equal with schedule 80 PVC sleeve. The seal shall be capable of withstanding a hydrostatic pressure of 20 psig. The seal shall be constructed of synthetic rubber with heavy-duty plastic pressure plates. All bolts and nuts shall be constructed of stainless steel.
 - 1. Escutcheons: Polished chrome plated brass or painted metal.

PART 3 - EXECUTION

3.01 EQUIPMENT

- A. Install equipment in accordance with the manufacturer's installation instructions, as specified herein, and as detailed on the drawings.

3.02 VALVES AND FLANGES

- A. Valves shall be full size of line in which installed. Furnish discs suitable for service intended. All valves shall be properly packed and lubricated. Unions shall be placed adjacent to each threaded or soldered valve or equipment connection 2" and smaller. Install flanges at all valves with stems vertical wherever possible. Stems shall not be placed below horizontal.
- B. Valves shall be provided with brass identification tags indicating service controlled. Tags may be omitted on lines exposed in equipment rooms where service is obvious.
- C. Cathodic Protection: Install insulated flanges or dielectric unions at points of connection between pipes and equipment as follows: (1) between copper or brass piping and steel or cast iron pipe. (2) Between copper or brass piping and any steel material. (3) Buried connections of copper or brass piping to steel or cast iron piping shall be protected with a polyvinyl tape wrap 10 mils thick, extending 5' each way from connection.

3.03 FIELD QUALITY CONTROL

A. Piping Testing: Testing Criteria

System	Medium	Pressure	Duration
Drainage and Vent	Water	10 feet water	15 minutes

END OF SECTION

**SECTION 22 40 00
PLUMBING FIXTURES**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Section 22 05 00 applies to this section.

1.02 SUMMARY

- A. This section includes all plumbing fixtures.

1.03 RELATED SECTIONS

- A. Section 22 05 00 – Common Work Results for Plumbing
- B. Section 22 07 00 - Insulation

1.04 QUALITY ASSURANCE

- A. All plumbing fixtures and equipment shall comply with California Code of Regulations, Title 24, Part 6, latest edition.

1.05 SUBMITTALS

- A. Submit a general statement of materials and methods along with manufacturer's technical data and installation instructions for all equipment, fixtures, pipe and fittings, and plumbing specialties to be installed.
- B. Record Drawings: Per specification section 22 05 00 requirements.
- C. Operation and Maintenance Manuals: Per specification section 22 05 00 requirements.

PART 2 - PRODUCTS

2.01 GENERAL

- A. See fixture and equipment schedules on drawings.

PART 3 - EXECUTION

3.01 PLUMBING FIXTURES

- A. All fixtures shall be furnished as scheduled. All finished plumbing shall be accurately lined up and where batteries of fixtures occur, special care shall be taken with the roughing-in and finished plumbing.
- B. The number and position of all plumbing fixtures are shown on the plumbing drawings. Consult architectural drawings for the location dimensions and mounting heights of fixtures. Heights shall comply with the C.B.C., the latest handicapped requirement, and all ADA requirements.
- C. All water supplied to fixtures shall be provided with Speedway loose key compression shut-off stops. Combination fixtures shall have compression stop on each water supply fitting. Concealed stops shall be Crane 9H-313 or equal.
- D. Provide red brass pipe nipples for all stub-outs thru walls to fixtures or equipment. Do not use copper pipe for stub-outs.

- E. All finish for exposed metal trim on any fixture shall be polished chromium plated. This shall include wall flanges, nuts, and washers. Handles on all faucets and stops shall be of all metal, chromium plated. Porcelain caps secured with putty shall be provided and installed for all exposed bolt heads.
- F. All fixtures shall be properly and securely installed and supported as required and approved. Fixtures set against concrete walls shall be bolted thereto. Fixtures secured to partitions shall be securely bolted to the wall carrier fittings with foot supports, and shall be provided in types as required to suit the particular installation and fixture.
- G. Connection between fixtures and flanges on soil pipe shall be made absolutely gas tight and water tight with graphite type gaskets (wall hung fixture) or Fedar's closet setting compound (floor outlet fixtures). Rubber gaskets, or putty will not be permitted.
- H. Fixtures not having integral traps shall be provided with "P" traps of chromium plated solderless seamless brass with trap screw at bottom and connected to concealed waste in wall sanitary fittings. All trap tail pieces shall be 17 gauge minimum.
- I. Unions on waste pipes on fixture side of traps may be slip or flange joints with soft rubber or lead gaskets.
- J. All flush valves shall be tested and adjusted so that each fixture receives the proper amount of water. All faucets, hose bibbs, drinking fountains, etc., shall be properly regulated to the approval of the Architect.
- K. Comply with State handicapped requirements regarding flow control devices, fixture mounting heights, insulation of piping under fixtures, etc.
- L. Furnish and install stainless steel Hudee frames for counter mounted fixtures unless "Self-Rimming".
- M. Grout all voids between fixtures and adjacent surfaces with 100% white Dow Silicon sealant.
- N. All hot water fixtures except kitchen and janitors sinks to be provided with tempering valves set at 110F (unless served by tempered water systems).

END OF SECTION

**SECTION 23 01 00
OPERATION AND MAINTENANCE OF HVAC SYSTEMS**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

1.02 SUBMITTALS

- A. Preparations.
 - 1. Prior to data collection and compilation, prepare and submit in duplicate an outline of the proposed organization and content.
 - 2. Compilation: Prepare and collect data concurrently with construction progress. Compile per submitted outline.

PART 2 - PRODUCTS

2.01 OPERATION AND MAINTENANCE MANUALS

- A. Form of Submittals
 - 1. Prepare data in form of an instructional manual for use by Owner's personnel.
 - a. Cover: Identify each volume with typed or printed title, "OPERATING AND MAINTENANCE INSTRUCTION". List:
 - b. Title of Project.
 - c. Provide indexed tabs.
 - d. Identify of separate structure as applicable.
 - e. Identity of general subject matter covered in the manual.
 - 2. Format:
 - a. PDF.
 - 3. Provide description of product and major component parts of equipment.
 - 4. Provide indexed tabs.

PART 3 - EXECUTION

3.01 OPERATION AND MAINTENANCE DATA

- A. General: Record data and operation and maintenance data are complimentary. Submittal items which may be required under both categories may be included only under one submittal if a statement to that effect is included in the other submittal.
- B. Quality Assurance
 - 1. Preparation of data shall be done by personnel.
 - a. Trained and experienced in maintenance and operation of described products.
 - b. Familiar with requirements of this Section.
- C. Content of Manual
 - 1. Table of contents for each volume, arranged in systematic order.
 - a. A list of each product required to be included, indexed to content of the volume.
 - b. List, with each product, name, address and telephone number of:
 - 1) Subcontractor or installer.

- 2) Maintenance contractor, as appropriate.
 - 3) Identify area of responsibility of each.
 - 4) Local source of supply for parts and replacement.
 - c. Identify each product by product name and other identifying symbols as set forth in Contract Documents.
 2. Product Data:
 - a. Include only those sheets which are pertinent to the specific product.
 - b. Annotate each sheet to:
 - 1) Clearly identify specific product or part installed.
 - 2) Clearly identify data applicable to installation.
 - 3) Delete references to inapplicable information.
 3. Drawings:
 - a. Supplement product data with drawings as necessary to clearly illustrate.
 - 1) Relations of component parts of equipment and systems.
 - 2) Control and flow diagrams.
 - b. Coordinate drawings with information in Project Record Documents to assure correct illustration of completed installation
 - c. Do not use Project Record Documents as maintenance drawings.
 4. Written text, as required to supplement product data for the particular installation.
 - a. Organize in consistent format under separate headings for different procedures.
 - b. Provide logical sequence of instructions for each procedure.
 5. Factory Authorized Start-Up Report.
 - a. Provide a factory start-up report for each piece of equipment. Contractor start-up reports, unless contractor is a factory authorized representative will not be allowed.
 6. Copy of each warranty, bond and service contract issued.
 - a. Provide information sheet for Owner's personnel, give:
 - 1) Proper procedures in event of failure.
 - 2) Instances which might affect validity of warranties or bonds.
- D. Manual for Equipment and Systems:
1. Submit three copies of complete manual in final form.
 2. Content, for each unit of equipment and system, as appropriate.
 - a. Description of unit and component parts.
 - 1) Function normal operating characteristics, and limiting conditions
 - 2) Performance curves, engineering data and tests.
 - 3) Complete nomenclature and commercial number of replaceable parts.
 - b. Operating procedures:
 - 1) Start-up, break-in, routing and normal operating instructions.
 - 2) Regulation, control, stopping, shut-down and emergency instructions.
 - 3) Summer and winter operating instructions.
 - 4) Special operating instructions.
 - c. Maintenance Procedures:
 - 1) Routing operations.

Stockton Police HQ Women's Locker Room Remodel

- 2) Guide to "trouble-shooting"
- 3) Disassembly, repair and reassemble.
- 4) Alignment, adjusting and checking.
- d. Servicing and lubrication schedule.
 - 1) List lubricants required.
- e. Manufacturer's printed operating and maintenance instructions.
- f. Description of sequence of operation by control manufacturer.
- g. Original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance.
 - 1) Predicted life of parts subject to wear.
 - 2) Items recommended to be stocked as spare parts.
- h. As-installed control diagrams by controls manufacturer.
- i. Each contractor's coordination drawings:
 - 1) As-installed color-coded piping diagrams.
- j. Charts of valve tag numbers, with location and function of each valve.
- k. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.
- l. Other data as required under pertinent sections of specifications.
- m. Content for each electric and electronic system, as appropriate.
- n. Description of system and component parts.
 - 1) Function, normal operating characteristics, and limiting conditions.
 - 2) Performance curves, engineering data and tests.
 - 3) Complete nomenclature and commercial number of replaceable parts.
- o. Circuit directories of panel boards.
 - 1) Electric service.
 - 2) Controls.
 - 3) Communications
- p. As-installed color coded wiring diagrams.
- q. Operating procedures.
 - 1) Routing and normal operating instructions.
 - 2) Sequences required.
 - 3) Special operating instructions.
- r. Maintenance procedures.
 - 1) Routine operations.
 - 2) Guide to "trouble shooting".
 - 3) Disassembly, repair and reassembly.
 - 4) Adjustment and checking.
- s. Manufacturer's printed operating and maintenance instructions.
- t. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.
- u. Other data as required under pertinent sections of specifications.
- v. Additional requirements for operating and maintenance data: Respective sections of Specifications.

E. Submittal Schedule

1. Submit two copies of preliminary draft of proposed formats and outlines of contents prior to start of work.
2. Architect will review draft and return one copy with comments.
3. Submit one copy of complete data in final form fifteen days prior to final inspection or acceptance.
4. Copy will be returned after final inspection or acceptance, with comments.
5. Submit specified number of copies of approved data in final form 10 days after final inspection or acceptance.

F. Instruction of Owner's Personnel.

1. Prior to final inspection or acceptance, fully instruct Owner's designated operating and maintenance personnel in operation, adjustment and maintenance of products, equipment and systems
2. Operating and maintenance manual shall constitute the basis of instruction.
 - a. Review contents of manual with personnel in full detail to explain all aspects of operations and maintenance.

END OF SECTION

**SECTION 23 05 00
COMMON WORK RESULTS FOR HVAC**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. This section applies to all Division 23 Mechanical Sections.

1.02 SUMMARY

- A. Contractor shall verify with the Owner, the final locations for the thermostat and CO2 sensors, prior to installation and routing of any wiring.
- B. Furnish and install all mechanical work shown on the drawings, specified herein, and as required for a complete and functional installation.
- C. This section includes materials and methods applicable to the work described in all Division 23 Mechanical Sections. Specific work requirements of individual Mechanical Sections take precedence if in conflict with requirements of this Section.
- D. All chemicals utilized on site as part of coating, sealant, and other products shall not contain any chemical that is listed as part of Proposition 65 known carcinogens that are identified by NTP, IARC, and the USEPA California Proposition 65 chemical repository contractors are not allowed to bring these chemicals on any California Intel site.

1.03 RELATED SECTIONS

- A. Division 26 - Electrical Work
- B. Division 22 - Plumbing

1.04 DRAWINGS AND SPECIFICATIONS

- A. For purposes of clearness and legibility, drawings are essentially diagrammatic and, although size and location of equipment are drawn to scale wherever possible, the Contractor shall make use of all data in all the contract documents and shall verify this information at building site.
- B. Information presented on Drawings and in the Specifications is based upon latest data available during their preparation. The Drawings and Specifications are for the assistance and guidance of the Contractor and exact locations, distances, levels, etc. will be governed by the structures and the site the contractor shall accept same with this understanding.
- C. The drawings indicate required size and points of termination of pipes, and suggest proper routes to conform to structure, avoid obstructions and preserve clearances. However, it is not intended that drawings indicate all necessary offsets, and it shall be the work of the Contractor to make the installation in such a manner as to conform to structure, avoid obstruction, preserve headroom and keep openings and passageways clear.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Contractor shall be responsible for delivery, storage, protection and placing of all equipment and materials.
- B. Equipment stored and installed at the job site shall be protected from dust, water or other damage. Cover all equipment stored exposed to weather.

1.06 STRUCTURAL REQUIREMENTS

- A. Structural members shall not be cut or modified in any manner without specific instructions from the structural engineer.

1.07 SEISMIC RESISTANCE

- A. See Section 23 05 48.

1.08 CODES AND SAFETY ORDERS

- A. All work and materials shall be in full accordance with the latest rules and regulations of the State Fire Marshall; the Safety Orders of the Division of Industrial Safety; the I.S.O. codes; the 2019 California Plumbing Code, Title 24, Part 5; the 2019 California Mechanical Code, Title 24, Part 4; the 2019 California Building Code, Title 24, Part 2, 2019 NFPA Codes, and other applicable laws and regulations. Nothing in the Drawings or Specifications shall be construed to permit work not conforming to these codes. Drawings and Specifications take precedence when work and materials called for exceed Code requirements.

1.09 INSTALLATION

- A. Manufacturer's Instructions:
 - 1. When specifications require that installation comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation.
 - 2. Perform work in accordance with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by specifications.
 - 3. Handle, install, connect, clean, condition and adjust products in strict accordance with such instructions and in conformity with specified requirements.
 - 4. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with the Engineer for further instructions.
 - 5. Do not proceed with work without clear understanding.

1.10 PERMITS AND FEES

- A. Obtain all permits and pay all required fees for permits and/or utility services. Inspections required during the course of construction shall be arranged as required. On completion of the work furnish the owners representative with certificates of inspection.
- B. Include in bid all costs for gas service including meter, regulators and service line installed by a gas utility company or a gas utility company approved contractor.

1.11 SITE CONDITIONS

- A. Assume all responsibility for damage to adjoining properties; and restore property to its original condition, should damage occur as a result of the work of this section. Contractor shall thoroughly familiarize himself with all site conditions. Should utilities not shown on the drawings be found during excavations, promptly notify the Architect for instructions as to further action. Failure to do so will make the Contractor liable for any and all damage thereto arising from his operations subsequent to discovery of such utilities not shown on plans.

1.12 SUBMITTALS

- A. General
 - 1. A submittal schedule shall be issued by the contractor within 15 days of award of the contract. This schedule shall allow for timely review and approval as required by the contract documents.
 - 2. These requirements apply only to substitutions, submittals, and shop drawings.
 - 3. The contractor shall review all submittals prior to submission to the Architect. Submittals not reviewed by the contractor will be returned to the contractor and will not be reviewed.

4. Any deviations from specified requirements shall be clearly indicated in submittals.
5. Any errors in or omissions from submittals and any consequences of these are the responsibility of the Contractor.
6. Partial or incomplete submittals may be rejected as not complying with requirements; the Contractor shall be liable for any resultant consequences.
7. Delayed submittals may be rejected as not complying with requirements. Whether accepted or rejected, delayed submittals will not be considered justification for extension of contract time or similar relief.
8. Submittals not required or permitted by the Specifications but made at the option of the Contractor, will be returned without review unless accompanied with written valid justification.
9. Submittal items improperly included with those of another category (such as a proposed substitution included with shop drawing submittal) are not valid and will be returned without review.
10. Within 35 calendar days after award of the contract, and before fabrications and installation of any material or ordering of any materials, submit for approval six (6) copies of complete submittal data on specified and proposed substituted equipment and materials. Submittals shall list all materials proposed identified with drawing symbols and specific data on equipment such as arrangements, performance curves, sizes, capacity, motor locations, and other pertinent data. Check all submittals for conformance to the requirements of the Construction Documents before forwarding to the architect for each item. No consideration will be given to substitutions submitted past 35 day limit. The contractor shall be responsible for all quantities and errors and omissions of submittals. Furnish samples when requested.
11. Equipment and materials specified as part of the specifications and drawings are listed by two manufacturers names. The first named manufacturer is the basis of design. The second named manufacturer has been determined to be an equivalent in quality or utility. The second named has not been specifically determined to conform to the first named in size, layout, electrical power, voltage, or impacts to building structure. The contractor is bound by all requirements for substitutes, as described below, for all second named manufacturers and equivalent equipment or products.
12. Each reviewed submittal will be marked to indicate review and directions as stated below.
13. Acceptance of a submittal does not relieve the Contractor of responsibility for omissions from the submittal or errors in the submittal.

1.13 REVIEW

- A. Submittals will be reviewed for general acceptability, not necessarily including all details. The engineers review is for general conformance with the design concept of the project and the information given in the contract documents. The contractor is solely responsible for confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating the work with that of other trades and performing all work in a safe and satisfactory manner. Corrections of comments made on this submittal during this review do not relieve contractor from compliance with the requirements of the contract documents or with its responsibilities listed herein.
 1. Proposed substitutes will be judged not only for the acceptability of the items themselves, but also how they will be used under the conditions of the particular project.
 2. Proposed substitutions will be judged also for compliance with qualifications and conditions stipulated in paragraph 1.16.
- B. Each reviewed submittal will be marked to indicate review and directions as stated below.
 1. Acceptance of a substitute does not waive the specified requirements.

2. Once a substitution is accepted, no revision or resubmittal may be made except for pressing and valid reason and after receipts of approval to do so.

1.14 REVIEW DIRECTIONS

- A. The notation "No Exceptions Taken" indicates that no further submittal on the particular matter is required and that the Contractor may proceed with normally ensuing action. The notation may be applied to submittals on substitutions, shop drawings, record data, or operation and maintenance data. The submittal has only been reviewed for general conformance with the design concept of the Contract Documents. The contractor is responsible for the dimensions to be confirmed and correlated at the job site; information that pertains solely to the fabrication process or to the means and methods of construction; coordination of the work of all trades; and performing all work in a safe and satisfactory manner. This notation does not modify the contractor's duty to comply with the contract documents.
- B. The notation "Make Corrections Noted" indicates that no further submittal on the particular matter is required, but the Contractor shall make all changes or corrections noted (but no others) before proceeding with normally ensuing action. The notation may be applied to submittals on substitutions or shop drawings (but usually not record data or operation and maintenance data).
- C. The notation "Amend and Resubmit" indicates that the submittal is not accepted and must be revised, resubmitted, and reviewed again. In the case of submittal on substitutions and shop drawings so noted, the Contractor shall not proceed with any normally ensuing action until the resubmittal is reviewed. The notation may be applied to submittals on substitutions, shop drawings, record data, or operation and maintenance data.
- D. The notation "Rejected - See Remarks" indicates that the submittal is not accepted and that resubmittal on the same subject matter is not allowed and will not be considered. The notation will be applied normally only to submittals on substitutions (usually not on shop drawings, record data, or operation and maintenance data).
- E. The notation "Returned Without Review" indicates that the submittal or item has not been considered officially because it is either not proper, valid, required, or permitted by the Specifications and has no status or effect.

1.15 SHOP DRAWINGS

- A. The contractor is responsible for providing all shop drawings as described below so that the design professional has the opportunity to determine if the contractor understands the contract documents. It is not the purpose of shop drawings to assure that the contractor is meeting the requirements of the contract documents. Review and approval of a submittal neither extends nor alters any contractual obligation.
- B. Accompany all substituted equipment with shop drawings showing revised ductwork and/or piping layouts in order to ascertain that substituted equipment does not adversely affect layout or work of others. Shop Drawings: The following conditions apply to shop drawings:
 1. Shop drawings are not and do not become Contract Documents.
 2. Processed shop drawing submittals and any instructions or requirements noted thereon are a part of the work, but they may not be used as a means of increasing the scope of the work.
 3. If deviations, discrepancies, or conflicts between shop drawing submittals and the Contract Documents are discovered either prior to or after the submittals are processed, the Contract Document requirements shall govern.

1.16 SUBSTITUTIONS

- A. Whenever any equipment, material, or process is indicated or specified by patent of proprietary name and/or name of Manufacturer, in the Specifications and/or on the Drawings, it is understood that such specification is used to facilitate the description of the material and/or process and deemed to be followed by the words "or equal" unless noted "no substitute".
- B. Substitute equipment and materials shall be equal in all respects including quality, arrangement, utility, physical size, capacity, and performance to those specified. Approval of substitute material will not relieve the contractor from complying with the requirement of the Drawings and Specifications. The contractor shall be responsible and at his own expense, for any changes caused by proposed substitutions which affect other parts of his own work or the work of other contractors.
- C. The submittal of a proposed substitution shall clearly establish the following:
 - 1. The item can be transported into and installed in the intended space and in the manner shown.
 - 2. Required connections (electrical, piping, and other) can be properly made and adjoining work can be properly accomplished.
 - 3. The proposed substitute is similar to and of substance equal to that specified, is suited to the same use as that specified, and will perform the functions required by the design.
 - 4. Motors for proposed substitute equipment will have the same minimum differential between motor brake horsepower and motor nameplate horsepower as the specified equipment.
 - 5. All performance requirements shall be at least equal to the specified product or equipment including noise levels, cooling capacity, heating capacity, air flow quantity, etc.
- D. By submitting a proposed substitution, the Contractor agrees to the following:
 - 1. He will assume full responsibility for any and all modifications and necessary alterations arising from the use of the substitute item or material including all cost incurred by all other trades.
 - 2. He will assume full responsibility for any delay in the construction schedule resulting from the use of the substitution.
 - 3. He will prove harmless and indemnify the Owner and the Owner's design consultants from real or alleged damages that may result from the installation, use, or performance of a substitute material or product.
- E. The following conditions apply to substitutions:
 - 1. Submittals of substitutions are not and do not become part of the Contract Documents.
 - 2. Contractor shall not order, fabricate, use, or install any substitute product or procedure unless he has received acceptance of the substitute from the Engineer.
 - 3. Should the Contractor install any substitute product in violation of the above he shall remove it and install the specified product at his own expense.
 - 4. The Contractor shall provide a letter stating that all the above items shall apply to all substituted products and equipment.
 - 5. Any submittal for substituted equipment or product that does not clearly show that the substituted item is equal shall be marked rejected and no further submittal shall be allowed on the substituted item. Provide in submittal format documentation that the proposed item is exactly as specified in the contract documents.

1.17 GUARANTEE

- A. Guarantee all work for one year from date of acceptance, against all defects in material, equipment and workmanship including repair of damage to any part of the premises resulting from leaks or other defects in material, equipment and workmanship. Guarantee shall be on form supplied by the owner's representative.

1.18 RECORD DRAWINGS

- A. Indicate on reproducible drawings the actual location of all ductwork, piping and equipment as the work progresses. Dimension locations of underground service mains and branches. Deliver the drawings to the architect at the completion of the job.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Shop drawings:
 - 1. Make all drawings to an appropriate scale, large enough to show all pertinent aspects of the item and the method of its connection into the work.
 - 2. Make each drawing sheet in a reproducible form such a tracing, sepia, or Mylar transparency.
- B. Grouping: Combine submittals in logical groupings; for example, submit Shop Drawings grouped by Sections of the Specifications, arranged in the specified sequence.
- C. Shop Drawings: Four blue or black line prints of each for the Engineer.
- D. Content:
 - 1. Shop drawings may be:
 - a. Drawings or diagrams prepared by the Contractor, a supplier, a manufacturer, or other.
 - b. Typewritten data or descriptions.
 - c. Manufacturer's printed brochures, descriptions, charts, instructions, or data sheets.
- E. Timing: Submit all shop drawings prior to installation of any items included in submittal.

2.02 CORROSION PROOFING

- A. Corrosion Proofing / U.V. Protection: Products which will be installed outdoors, exposed to the weather, exposed to moisture, or other potentially damaging conditions shall be constructed to resist the effects of such exposure.
- B. Exterior casings shall have lapped or gasketed joints effectively sealed to prevent intrusion of moisture or other injurious substances.
- C. Casings, ducts, pipes, or product items shall be constructed of materials which are fully resistant to harmful substances they may normally contact, or (if ferrous) shall be galvanized after fabrication, or shall be fully protected from such substances by paint or other coating in appropriate thickness or number of coats.
- D. All bolts, nuts, screws, and washers shall be galvanized unless specified to be plated or unprotected.
- E. Any exposed plastic pipe must have a U.V. inhibitor.

2.03 MATERIAL AND EQUIPMENT

- A. All material and equipment shall be new, of the type, capacity and quality specified and free from defects. All materials and equipment shall be of the same brand or manufacturer throughout for each class of material or equipment wherever possible.

2.04 FILTERS

- A. A complete set of filters shall be supplied for use during the construction period. A complete set of new filters shall be installed before testing and balancing.

2.05 ACCESS DOORS

- A. Unless specified otherwise by the Architect, provide access doors of the following type:
 - 1. Concealed hinges, prime coated with rust-inhibitive paint, style of door to suit wall, ceiling, floor or roof construction and fire rating.
 - a. Milcor Type M
 - b. Milcor Type UFR, fire resistive type Underwriters Laboratory Class B, 1-1/2 hour rating meets UBC, IBCO and BOCA codes for two hour rated walls self latching with key lock, Elmdor/Stonman Type FR or equal.
 - 2. Minimum size; 18" by 18".
 - 3. Wall and ceiling access doors: Furnish as required for access to ducts, damper operators, duct mounted access panels, etc.; coordinate size and location to obtain access.
 - 4. See architectural drawings for further requirements.

2.06 MISCELLANEOUS EQUIPMENT AND MATERIALS

- A. Furnish and install miscellaneous equipment and materials required for the systems described whether or not specifically shown.

PART 3 - EXECUTION

3.01 PREPARATION

- A. General:
 - 1. Do not install any equipment, valve, control, motor, filter, or any other device requiring maintenance or service in an inaccessible location or position. Install access doors as specified herein to render all such equipment serviceable whether specifically shown on the plans or not. Maintain code clearance to all equipment. Coordinate location of doors with lights, etc., and locate symmetrically with same.
- B. Observations: Check all project drawings and specifications; report any discrepancies before proceeding with the work and in time to avoid unnecessary rework.
- C. Investigation: Examine the areas, conditions, and status of other work contiguous or connecting to the work to be performed; ensure that the time of installation is coordinated with other work.
- D. Interruptions of Service: Portions of this work may involve connection to existing work, facilities, or utilities ties and may require interrupting shutdowns of same. Carefully plan, coordinate and execute such work so that any interruptions will be kept to a minimum in time and occurrence. Submit request for shutdowns and make shutdowns only after receiving written approval from the Owner.
- E. Other: Correct any unsatisfactory conditions that may impede proper execution of the work. Ensure that all arrangements, personnel, materials, and tools are appropriate and adequate before proceeding.

3.02 INSTALLATION

- A. General:
 - 1. Material and equipment incorporated in the work shall be used or applied only for the purpose intended or specified.
 - 2. Install piping and ductwork and all equipment that requires access with minimum vertical and horizontal clearances required by OSHA for service.
 - 3. All mechanical systems such as ductwork, pipes and all other equipment shall have 2 inches minimum clearance.
 - 4. Do not proceed with work without clear understanding.

3.03 MANUFACTURER'S INSTRUCTIONS

- A. When specifications require that installation comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation.
- B. Perform work in accordance with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by specifications.
- C. Handle, install, connect, clean, condition and adjust products in strict accordance with such instructions and in conformity with specified requirements.
- D. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with the Engineer for further instructions.
- E. Do not proceed with work without clear understanding.

3.04 DEMOLITION

- A. General
 - 1. Procedures shall be determined by the contractor.
 - 2. Demolition work shall not be commenced until all temporary work such as fences, barricades, and any required warning lights and apparatus are furnished and installed and as required by law, regulation, or ordinance, or elsewhere in this specification.
 - 3. Demolition work shall proceed in such a manner as to minimize the spread of dust and flying particles and to provide safe working conditions for personnel.
 - 4. Fires and explosives shall not be permitted.

3.05 PROTECTION

- A. Contractor shall conform to all Federal, State, and local ordinances related to the protection of the public and Contractor's personnel and the flow of traffic/ Provide protection for persons and property throughout the progress of the work.
- B. Existing work damaged by the contractor in the execution of this Contract shall be restored to former condition by the contractor to the satisfaction of the Owner without an increase in the Contract Sum and without an extension of the Contract Time.

3.06 DISPOSITION OF MATERIALS

- A. All materials and equipment not scheduled to be salvaged, including debris and all rejected salvaged materials, shall become the property of the Contractor and shall be disposed of off site in a legal manner. Location of dump and length of haul shall be the contractor's responsibility.

3.07 LOCATION OF EQUIPMENT, PIPING AND DUCT WORK

- A. Where job conditions do not permit the installation of piping, ductwork, etc. in the location shown, it shall be brought to the engineer's attention immediately before fabrication of ductwork, piping, etc. and the relocation required shall be determined in a joint conference.
- B. The contractor will be held responsible for the relocating of any items installed without first obtaining the architect's or engineer's approval. Remove and relocate such items at The contractors expense as so directed by the architect or engineer.
- C. Where piping or ducting is left exposed within a room, run in vertical or horizontal planes. Maintain uniform spacing between parallel lines and/or adjacent wall, floor or ceiling surfaces.
- D. Horizontal runs of plumbing and/or electrical conduit suspended from ceilings shall provide for maximum clearance.
- E. Make minor changes in locations of equipment, piping, ducts, etc. from locations shown including minor offsets when directed by the engineer, at no additional cost to the owner.

3.08 CARE AND CLEANING

- A. Clean and adjust all equipment at completion of installation to provide operating conditions satisfactory to the engineer. Remove broken, damaged or defective parts; repair or replace as directed by engineer. Remove surface material and debris resulting from this work when directed.

3.09 PAINTING

- A. Painting is included under the Painting and Finishing Section. It shall be the responsibility of the Mechanical Contractor to properly protect all equipment and controls during painting operations and the Mechanical Contractor shall repair and/or replace any item damaged due to painting that was not properly protected.

3.10 ACCESS DOORS

- A. Provide access doors to all concealed equipment, valves, controls, etc. Locate doors where shown or to be coordinated and symmetrically located with lights, diffusers, etc. Access doors furnished by the mechanical contractor shall be installed by the general contractor.

3.11 ELECTRICAL REQUIREMENTS

- A. Provide working space around electrical equipment in compliance with the applicable Code and all Safety Orders.
- B. Coordinate the Mechanical Work with the Electrical Work to comply with the above. Furnish and set in place all motors and duct or pipe installed controls.
- C. Location of all new switches shall be verified with the architect or architect before roughing-in. Furnish necessary control diagrams and instruction for the proper installation of the controls.
- D. Assume responsibility for the proper supervision and testing of the controls for sequence of operation.
- E. Motors and control equipment shall conform to the Standards of the National Electrical Manufacturers Association.
- F. All equipment electrical characteristics shall be as noted on the drawings, or as specified. Verify before ordering any equipment.
- G. Before permitting operation of any equipment which is furnished, installed or modified under this contract, review all wiring connections that pertain to mechanical equipment or work, and verify that these connections are correct.

- H. Ascertain that the over-load protection devices installed are of the correct type, rating and setting to properly protect this equipment.

3.12 INSTRUCTION OF OWNER'S PERSONNEL

- A. Prior to final inspection or acceptance, fully instruct Owner's designated operating and maintenance personnel in operation, adjustment and maintenance of products, equipment and systems.
- B. Operating and maintenance manual shall constitute the basis of instruction.
 - 1. Review contents of manual with personnel in full detail to explain all aspects of operations and maintenance.

3.13 RECORD DATA

- A. Compilation
 - 1. Record and collect information concurrently with construction progress and date all entries; make drawing entries within 24 hours after occurrence of change or installation requiring recording. Any concealed work covered before recording data shall be uncovered as directed or as necessary to obtain data.
 - 2. Record information on drawing prints using an erasable colored pencil (not ink or indelible pencil); describe clearly by note or graphic line as appropriate.
- B. Locate any concealed work adequately to allow future access with reasonable ease and accuracy.
 - 1. Identify the plan location of all stub outs, pipe lines, etc., which are buried or concealed in the structure, whether installed where shown on the contract drawings or in a different location; show actual field dimensions from column lines, wall lines, or other permanent reference lines or points.
 - 2. In many cases on the contract drawings, the arrangement of conduits, pipes, ducts, and similar items is shown schematically rather than as a precise scaled layout. Identify the actual location of these with horizontal and vertical dimensions. If such lines are exposed or readily accessible, omit dimensional identification.
 - 3. When any work is installed of size, dimension, slope, or location different from that shown on the contract drawings, note the deviation on the Project Record set. If the variations are substantial or cannot be shown clearly on the record drawings, make a new drawing and attach to the Record set.
- C. On other documents
 - 1. Where changes occur in specifications, clearly indicate same in ink, colored pencil, or rubber stamp.
 - 2. Where installed equipment differs from that specified (e.g., by accepted substitution or change order) note in the specifications and include complete data on same.

END OF SECTION

SECTION 23 05 30
HANGERS AND SUPPORTS FOR HVAC DUCTWORK

PART 1 - GENERAL

1.01 SECTIONS INCLUDE

- A. General: Refer to Section 23 05 00, Mechanical - General.
- B. Work Included: Provide all ductwork and ductwork accessories, auxiliaries, and adjuncts for all and systems as specified or shown.
- C. Work Described Elsewhere: HVAC piping, equipment, and controls are specified in other HVAC Sections.

1.02 RELATED SECTIONS

- A. All Sections of Division 23.

PART 2 - PRODUCTS

2.01 GENERAL

- A. The contractor shall provide all miscellaneous metal to bridge between structural beams to provide connection for duct supports. As an alternate ductwork may be supported from the roof deck if approved by the owner and structural engineer.
- B. Rectangular Ducts (Horizontal):
 - 1. Up to 30" duct width: Two 1-1/4" wide 16 gauge galvanized steel straps bolted to opposite sides of duct and firmly secured to overhead construction. Each strap must also be turned and screwed to bottom of duct.
 - 2. 30" and greater duct width: Trapeze assembly comprised of Unistrut, Powerstrut, channel supported at each end by rod firmly secured to overhead construction; affix duct to channel with angle bracket on each side. Each strap must also be turned and screwed to bottom of duct.
 - a. 30" to 72" duct width: Use P-1000 channel, size as necessary, 3/8" diameter rods.
- C. Round Ducts (Horizontal):
 - 1. Up to 40" in diameter: Two (2) 1 - 1/2" wide 18 gauge galvanized steel straps, firmly secured to overhead construction and extending around the entire perimeter of the duct and secured to the duct. Provide bracing to prevent duct sway as specified above for rectangular duct.
 - 2. Ducts over 40" in diameter: All supports for round ductwork over 40" must be approved by the structural engineer.

PART 3 - EXECUTION

3.01 DUCTWORK SUPPORTS

- A. Supports
 - 1. Install ductwork in accordance with applicable details, SMACNA "Guidelines for Seismic Restraints of Mechanical Systems, latest edition." recommendations, manufacturer's recommendations, and best practice, coordinate all ductwork support connection with the Structural Engineer.
 - 2. Install ducts rigidly, securely, and air tight.
 - 3. Support ducts independently of ductwork - connected equipment and visa-versa.

4. Penetrations:
 - a. Description: All penetrations of walls separating shall have a minimum clearance of 1/2-inch and a maximum clearance of 3/4 inch.
 - b. Materials: A minimum 1.5 lbs/cu.ft. fiberglass insulations shall be used and a nonhardening caulking compound.
 - c. Installation: The opening around the penetration shall be filled loosely with the fiberglass insulation. The opening is then to be sealed airtight with the non-hardening caulking compound. Pipes, ducts, etc., shall be supported on either side of the wall with supports to roof structure.
5. Support of rectangular metal ducts:
6. Support per SMACNA or current local Mechanical Code whichever is more stringent.
7. Support of round metal ducts:
 - a. Support per SMACNA or current local Mechanical Code whichever is more stringent.

END OF SECTION

SECTION 23 05 93
TESTING, ADJUSTING AND BALANCING

PART 1 - GENERAL

1.01 SEE SECTION 23 05 00

- A. Work Included: This Section describes balancing requirements for all phases of HVAC work. The work includes complete balancing, adjusting and testing of the air and hydronic equipment and systems.

1.02 QUALITY ASSURANCE

- A. Testing and Balancing shall be performed in complete accordance with AABC National Standards for Field Measurement and Instrumentation only by an AABC or NEBB licensed contractor.
- B. Work shall be performed by an independent test and balance agency that specializes in, and whose business is limited to testing and balancing of air conditioning systems.
- C. Instruments used for testing and balancing of systems shall have been calibrated within a period of six (6) months and shall be checked for accuracy prior to start of work.

1.03 SUBMITTALS

- A. Provide to the Owner and Contractor with four (4) copies of a balancing agenda prior to start of balancing work including:
 - 1. General description of each air system with its associate equipment and operational cycles for winter heating, reheat, humidification, and cooling. Where different cycles are used for day and night time operation, describe separately.
 - 2. A complete list of all flow and terminal measurements to be performed.
 - 3. Agenda shall also include specific procedures for determining test parameters for flow. Specify type of instruments to be used, method of instrument application and air terminal correction factors for:
 - a. Air terminal configuration.
 - b. Flow direction (supply, return, or exhaust).
 - c. Effective area application to each size and type of air terminal.
 - d. Density corrections.
 - 4. Furnish a copy of agenda to the engineer and Owner prior to start of work, including qualifications of key personnel assigned to the project.
- B. Provide four (4) copies of final report, (two to the Owner and two to the Contractor) containing information outlined in AABC and in Part 3 - EXECUTION.

1.04 NOTIFICATION AND SCHEDULING

- A. A pre-balance conference shall be held prior to start as scheduled by the Contractor. Attendees at the meeting shall include representatives of the Balancing Contractor, General Contractor, Mechanical Sub-contractor, Control Sub-contractor, and Owner.
- B. The schedule for testing and balancing the HVAC system shall be established in coordination with the Balancing Contractor on a critical path network.
- C. The Balancing Contractor is responsible for initiating this continuing coordination to determine schedule for final testing and balancing services.

1.05 COORDINATION WITH OTHER TRADES

- A. To bring the HVAC system into a state of readiness for testing, adjusting and balancing, the Mechanical Contractor shall perform the following:
 - 1. Ensure that all splitters, extractor, volume, smoke and fire dampers are properly located and functional. Dampers serving requirements of smoke, minimum and maximum outside, return, relief, and exhaust air shall provide tight closure and full opening, with a smooth and free operation.
 - 2. Verify that all supply, return, exhaust, and grilles, registers, diffusers and terminal units are installed and operational.
 - 3. Ensure that air handling or conditioning systems, units, and associated apparatus, such as heating and cooling coils, filter sections, access doors, etc., are blanked and/or sealed to eliminate excessive bypass or leakage of air. All fans and systems (supply, return, relief, and exhaust) are operating and free of vibration.

PART 2 - PRODUCTS

2.01 INSTRUMENT AND TOOLS

- A. Furnish all instrumentation and tools required to perform a complete air and water balance of all systems on this project.

2.02 FLOW METERING SYSTEM

- A. Use flow metering systems specified and/or furnished to perform air and water balance.

PART 3 - EXECUTION

3.01 GENERAL

- A. Coordinate required locations of duct test openings and damper locations specified in other sections.
- B. Coordinate work done by testing and balancing agency with work of other trades.
- C. Plan Check and Review:
 - 1. Review location and type of volume dampers inlet conditions to air terminals, valves and HVAC equipment.
 - 2. Review location, type and size of balancing valve, flow metering stations and automatic control valves in the water flow system.
 - 3. Review location of pressure sensors in the air and water distribution systems.
 - 4. Review automatic control systems as they affect the test and balance procedure.
 - 5. Review sheet metal and piping shop drawings to verify the installation of flow control devices.
- D. Job Site Inspections
 - 1. Check for necessary balancing hardware (dampers, flow meters, valves, pressure taps, thermometer wells, etc.) to determine if they are installed properly and readily accessible.
 - 2. Identify and report possible restrictions in systems (closed smoke/fire dampers, fire dampers, long runs of flexible duct, poorly installed duct fittings).
 - 3. The mechanical contractor shall make any changes in pulley, sheaves; supply new pulleys, sheaves, belts as required. In addition, the Mechanical Contractor to add dampers, etc. Necessary for correct balance at no additional cost to the Owner.

4. Check for necessary balancing hardware (dampers, flow meters, valves, pressure taps, thermometer wells, etc.) to determine if they are installed properly and readily accessible.
- E. Identify and report possible restrictions in systems (closed smoke/fire dampers, fire dampers, long runs of flexible duct, poorly installed duct fittings).

3.02 TESTING

- A. Testing equipment shall be furnished by the contractor; testing personnel shall be competent to conduct the tests.
- B. Test all ductwork for excessive leakage and/or noise. Testing on any completed section of the ductwork must be made before installation of the finished ceiling or before the ductwork is furred in inaccessible spaces. Any leaks found must be properly repaired or joints remade and the section retested until tight. Any leaks which cause an objectionable noise must be repaired, regardless of the amount of leakage.
- C. Should any piece of an apparatus or any material or work fail in any of the tests, it shall be immediately removed and replaced by new material, and portion of the work replaced shall again be tested by Contractor at his own expense.

3.03 OPERATIONAL TESTS AND ADJUSTMENTS

- A. Upon completion of the work, all equipment and systems shall be operated and tested for a period of at least three consecutive days to demonstrate their satisfactory overall operation. On the last day of this period, the Contractors shall arrange for an acceptance test and final inspection by the Owner. All necessary adjustments and corrections to the systems shall be made prior to acceptance test so that the systems are operating smoothly and properly and absolutely ready before check and acceptance.
- B. Coordination of all items associated with the mechanical systems is the responsibility of the mechanical contractor, including all wiring in connection with mechanical equipment, and all temperature control work. It shall be this contractor's responsibility to determine that his systems, equipment and apparatus are properly wired and controlled and completely ready for satisfactory operation and test.
- C. Immediately before starting tests, all air filters shall be replaced as hereinbefore specified. All motors checked for rotation and all bearings lubricated.
- D. Operating and safety controls shall be tested at least three times, under ambient design conditions.

3.04 AIR BALANCE

- A. Changes, additions and modifications to dampers, pulleys and/or drive belts and other equipment necessary for proper air balance shall be provided by the Mechanical Contractor at no additional cost to the Owner.
- B. The Mechanical Contractor shall retain the services of an independent certified test and balance agency to provide a complete air balance. All work shall be done by using instruments certified accurate to limits used in standard practice for testing and balancing of air distribution for heating-cooling systems.
- C. Study design specifications and engineering drawings and prepare schedule to physically inspect mechanical equipment for air distribution systems to be tested and balanced.
- D. Prepare test and balancing schedule, test record forms and necessary technical information about the air distribution systems for installed heating-cooling equipment, and fan systems, for complete total air balance.
- E. Recommend adjustments and/or corrections to mechanical equipment and air distribution systems that are necessary for proper balancing of air handling systems.

- F. Upon completion of the air handling system, the Air Balance Agency shall complete tests, analysis and balance of the air handling systems for heating-cooling equipment. The Air-Balance Agency then shall submit four copies of balance report to the Mechanical Contractor for forwarding to the Architect for evaluation and approval.
- G. Air Balance Report shall include the following data
 - 1. Design specifications of air handling equipment
 - a. CFM
 - b. Static Pressure
 - c. % of Outside Air
 - d. Fan Motor HP
 - e. Fan Motor BHP
 - f. Fan RPM
 - 2. Installed equipment data
 - a. Manufacturer
 - b. Identifying Data
 - 3. Balancing test data
 - a. Fan Speed
 - b. Fan Operating amperes
 - c. Fan Operating BHP
 - d. Fan Duct sizes
 - e. Air Velocity (avg.)
 - f. Total CFM
 - g. Static Pressures
 - h. Design Specifications of grilles and/or diffusers
 - i. Manufacturer No. and Data
 - j. FPM
 - k. CFM
 - 4. Installed equipment data
 - a. Manufacturer No. and Data
 - b. Location
 - 5. Balancing test data
 - a. FPM
 - b. CFM
- H. All outlets shall be set for the air pattern shown on plans.
- I. Supply and return air dampers shall be set for design CFM, on heating and cooling cycle.
- J. Test and balance shall correct for air density at 6000 ft. elevation and above.

3.05 OWNERS INSTRUCTION

- A. Review the installation of all equipment and controls with the Owner after all systems are operating automatically. Instruct the Owner in the adjustment of all control and equipment devices. Allow a minimum of 8 hours for this instruction.

END OF SECTION

**SECTION 23 07 00
HVAC INSULATION**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. See 23 05 00

1.02 SECTIONS INCLUDE

- A. This Section describes insulation materials, methods, and applications for HVAC Mechanical Work, Special or specific details, applications, features, or methods may be described in work descriptions Sections or on the drawings.

1.03 REFERENCES

- A. Thermal insulation materials shall meet the property requirements of one or more of the following specifications as applicable to the specific product or end use:
 - 1. American Society for Testing of Materials Specifications:
 - a. ASTM C 547, "Standard Specification for Mineral Fiber Pipe Insulation"
 - b. ASTM C 585, "Standard Practice for Inner and Outer Diameters of Rigid Thermal Insulation for Nominal Sizes of Pipe and Tubing (NPS System)"
 - c. ASTM C 1136, "Standard Specification for Flexible, Low Permeance Vapor Retarders for Thermal Insulation"

1.04 SYSTEM PERFORMANCE

- A. Insulation materials furnished shall meet the minimum thickness requirements of National Voluntary Consensus Standard 90.1 (Latest edition), "Energy Efficient Design of New Buildings," of the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE).
- B. Insulation materials furnished and installed hereunder shall meet the fire hazard requirements of applicable building codes when tested in composite form per one of the following nominally equivalent test methods:
 - 1. American Society for Testing of Materials ASTM E 84
 - 2. Underwriters' Laboratories, Inc. UL 723, CAN/ULC-S102-M88
 - 3. National Fire Protection Association NFPA 255
- C. Molded pipe insulation shall be manufactured to meet ASTM C 585 for sizes required in the particular system.
- D. Molded fibrous glass pipe insulation shall comply with the requirements of ASTM C 547.

1.05 QUALITY ASSURANCE

- A. Qualifications of Installers: only a licensed firm employing installers specifically skilled and experienced in applying insulation to piping shall do Insulation work.
- B. Insulation materials and accessories furnished and installed hereunder shall, where required, be accompanied by manufacturers' current submittal or data sheets showing compliance with applicable specifications listed in above.
- C. Insulation materials, including all weather and vapor barrier materials, closures, hangers, supports, fitting covers, and other accessories, shall be furnished and installed in strict accordance with project drawings, plans, and specifications.

- D. Insulation materials and accessories shall be installed in a workmanlike manner by skilled and experienced workers who are regularly engaged in commercial insulation work.
- E. Codes and Standards:
 - 1. California Code of Regulations - Title 24.
 - 2. National Fire Protection Association - 90A.

1.06 DELIVERY AND STORAGE OF MATERIALS

- A. All of the insulation materials and accessories covered by this specification shall be delivered to the job site and stored in a safe, dry place with appropriate labels and/or other product identification.
- B. The contractor shall use whatever means are necessary to protect the insulation materials and accessories before, during, and after installation. No insulation material shall be installed that has become damaged in any way.
- C. If any insulation material has become wet because of transit or job site exposure to moisture or water, the contractor shall not install such material, and shall remove it from the job site. An exception may be allowed in cases where the contractor is able to demonstrate that wet insulation when fully dried out (either before installation or afterward following exposure to system operating temperatures) will provide installed performance that is equivalent in all respects to new, completely dry insulation. In such cases, consult the insulation manufacturer for technical assistance.

PART 2 - PRODUCTS

2.01 DUCT INSULATION – SEE 23 07 13

2.02 HVAC PIPING INSULATION – SEE 23 07 19

PART 3 - EXECUTION

3.01 APPLICATION / INSTALLATION

- A. Use the types and thickness of insulation specified in work description Sections.
- B. Apply insulations in accordance with the manufacturer's recommendations and with instructions specified herein or noted on the drawings.
- C. Install insulations only after the systems, items, and equipment have been installed and tested, inspected, and accepted. Exceptions: Slip-on piping insulation and equipment insulations installed at the factory.
- D. Fit insulation snugly to the item being insulated; butt all joints tightly with no voids, spaces, or thin spots.
- E. Seal all joints completely; where sealing tape is used, center the tape over the joint.
- F. Except where specified or necessary, do not use staples or fasteners which penetrate vapor barrier jackets or covers on cold systems or equipment; where such penetrating fasteners are used, seal each penetration completely to maintain the vapor barrier integrity. All penetrations of the ASJ and exposed ends of insulation shall be sealed with vapor barrier mastic. Vapor seals at butt joints shall be applied at every fourth pipe section joint and at each fitting to provide isolation of water incursion.
- G. Use adhesives, mastics, cements, sealants, and finishes undiluted unless specifically directed otherwise; apply per manufacturer's directions.
- H. Install outdoor jacketing or other specified weather proofing or finishing on all insulations outdoors.

- I. Install all indoor exposed insulation with extra care and finish neatly.
- J. Follow specified methods of installation unless alternative methods are submitted and approved.

3.02 FINISHING

- A. Finishes and Protection:
 - 1. Insure that the exterior finish of all insulation is applied and complete as specified
 - 2. Make ready for painting, or painted to match existing including color where specified for paint.
 - 3. Install all metal jackets or protective sheathing where specified.
- B. Repair, Touchup: Properly repair and touchup all dents, rips, tears, or other damage inflicted on jackets or exterior surfaces of insulation. Breaks or punctures in the vapor barrier of external insulation will not be accepted and must be repaired prior to project acceptance.

END OF SECTION

This page intentionally left blank

**SECTION 23 07 13
DUCT INSULATION**

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. See Section 23 07 00
- B. A continuous, intact vapor barrier is critical for ducts.
- C. All insulation material shall have a mold, humidity, and erosion resistant face that has met the requirements of 2016 CMC Standard No. 6-1.
- D. Insulation applied to the exterior surface of ducts located in buildings shall have a flame spread of no more than 25 and a smoke developed rating of not more than 50.
- E. Insulate all above grade ductwork unless otherwise shown on the drawings or specified in Section 23 31 16 METAL DUCT.

PART 2 - PRODUCTS

2.01 ID-1 FLEXIBLE BLANKET/VAPOR BARRIER FACED:

- A. Glass fiber reinforced Kraft/aluminum foil faced flexible blanket of 1.5 PCF nominal density resin bonded fibrous glass, have a installed thermal conductivity k factor of 0.25 at 75° F.; suitable for direct application and service on cold and dual temperature ductwork.
- B. Supply FSK jacket with a permeance of 0.02 or less
- C. Fiberglass ED-100 with all service facing, Certainteed Type 1001 Universal with Type IV facing, Schuller Manville Microlite with FSKL facing.

2.02 ID-2 FLEXIBLE BLANKET/VAPOR BARRIER FACED:

- A. Glass fiber reinforced Kraft/aluminum foil faced flexible blanket of 1.5 PCF nominal density resin bonded fibrous glass, have a installed thermal conductivity k factor of 0.25 at 75° F.; suitable for direct application and service on cold and dual temperature ductwork.
- B. Supply FSK jacket with a permeance of 0.02 or less
- C. Schuler Manville Microlite, Owens Corning, Certainteed.

PART 3 - EXECUTION

3.01 APPLICATIONS

- A. Supply Air Ducts indoors/concealed
 - 1. Use System ID-1 (Flexible Blanket / Vapor Barrier Faced
 - a. 2" thickness for all sizes
 - b. Applies to all cross sections (I.E. rectangular, circular, etc.)
- B. Return Air Ducts indoors/concealed
 - 1. Use System ID-1 (Flexible Blanket / Vapor Barrier Faced
 - a. 1 ½" thickness for all sizes
 - b. Applies to all cross sections (I.E. rectangular, circular, etc.)
- C. Do not externally insulate the following unless otherwise shown on the drawings or specified:
 - 1. Lined ductwork (indoors).
 - 2. Ducts constructed of fibrous glass (flexible or rigid).

3. Above grade ducts conducting exhaust air or ventilating air (not heated or cooled and used for fresh air supply) unless otherwise noted.
4. Exposed ducts located in conditioned space.

3.02 INSTALLATION FLEXIBLE BLANKET/VAPOR BARRIER FACED

- A. Install on supply and return ductwork so that condensation will not occur.
- B. Wrap around ducts, butt all joints. Secure with 3" (minimum) width tape at 18" (maximum) intervals along the duct; tape may be of the same material as the insulation facing with a pressure sensitive adhesive on one side or may be Hardcast DT490-C mineral impregnated woven synthetic fiber using Hardcast FTA-20 roller. In addition, on rectangular and cross section ducts, secure to the flat bottoms more than 18" wide with SticKlip fasteners only with 1 ½" diameter washers at 16" centers both ways; one centered longitudinal row is sufficient for ducts up to 36" flat bottom width.
- C. Seal all seams and joints with 3" (minimum) width tape centered along the edge of the lap; tape shall be as specified above.
- D. Seal all fastener penetrations with 3" x 3" (minimum) tape centered over the washer; tape shall be as specified above.
- E. Where strap type duct supports penetrate the insulation, slit the insulation and facing, fit around the straps, and seal with tape as specified above; tape shall be of size to suit the situation and be applied in the number of layers necessary to obtain complete sealing.
- F. For low temperature air ductwork, insulate the straps a minimum of 4 inches from any point of contact with the duct.
- G. At trapeze or similar type duct supports, insert a 12" wide strip of Armaflex insulation, ½" thick between duct bottom and the supporting member across and 6" beyond both ends of the bearing surface. Lap ducts insulation over this insert and seal the same as other lapped seams.
- H. Insulate all flexible duct connectors to the same thickness as adjacent duct insulation.
- I. Continue insulation on terminal unit inlets to cover the entire inlet collar.
- J. Insulate over all duct access doors with the same thickness as adjacent duct insulation. Provide removable insulation piece with an outer label on the insulation identifying the type of door.

3.03 INSTALLATION: FLEXIBLE BLANKET/COATED LINER

- A. Apply a 1/16" thick coat of Foster 85-62 JacTac 3-M Company Scotch Grip #38, Childers-125-1, adhesive or duct butter on all end or edges of cuts, rips, etc., before or while installing.
- B. Secure to the ductwork with welded or SticKlip, fasteners with 1 ½" diameter washers with cupped or beveled heads. Set at 16 (maximum) on centers both ways; provide a row of pins within 1" of all edges and joints, and one row of pins (minimum) on each flat duct or plenum face. In addition secure the entire perimeter of all edges at seams or joints with a 4" minimum width application of the above specified adhesive. The upstream edge of all duct liner shall have a sheet metal closure to protect against erosion.
- C. Fasteners shall compress the liner no more than 1/8".
- D. Clip off protruding ends of fastener pins in plenums.

END OF SECTION

SECTION 23 31 13
METAL DUCTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. General: Refer to Section 23 05 00, Mechanical - General.
- B. Work Included: Provide all ductwork and ductwork accessories, auxiliaries, and adjuncts for all and systems as specified or shown.
- C. Work Described Elsewhere: HVAC piping, equipment, and controls are specified in other HVAC Sections.

PART 2 - PRODUCTS

2.01 DUCT WORK

- A. Requirements
 - 1. Shop Fabricated Ductwork
 - a. Fabricate ductwork as required by classification as described below or gauges, and of configuration and sizes shown on the Drawings. Note that duct sizes shown are net inside; where ducts are lined, fabricate larger than shown to accommodate lining with shown dimensions net inside lining.
 - b. Fabricate ducts and fittings as shown on drawings, or if not detailed, fabricate in accordance with SMACNA.
 - c. Fabricate ducts with adequate cross-bracing or reinforcing to prevent drumming; should drumming subsequently occur, provide additional reinforcement as necessary to overcome same.
 - d. Construct ducts to provide smooth passage for the conducted air, laying edges exposed to the airstream in the direction of air flow.
 - e. Fabricate elbows or other fittings for changing direction of duct with a centerline radius equal to 1.5 times the duct width unless shown otherwise or necessitated by space restrictions. Where square or short radius turns are shown or required, fit with air turning vanes.
 - f. Fabricate diverging transitions with side slopes of 1:6; fabricate converging transitions with side slopes of 1:2. Greater slopes may be used only where space restriction prohibits specified slopes.
 - 2. Factory fabricated ductwork construction shall conform to applicable requirements stipulated above for shop fabricated ductwork.
- B. Galvanized Steel Ductwork (GSD)
 - 1. Rectangular Cross Section
 - a. Shop fabricated of prime grade lock seam for quality galvanized steel sheet in accordance with requirements stipulated above and fitted with auxiliaries and accessories as specified below and shown on the drawings.
 - 2. Low Pressure Ductwork, up to 2" static pressure and 2,500 fpm:
 - 3. Rectangular Duct: GSD gauge per SMACNA or C.M.C whichever is more stringent.
 - 4. Round Duct: As manufactured by United McGill Corp or equal. Uni-Rib, UNIRIB DUCT machine formed, spiral lock seam construction spot welded and bonded seams with an intermediate standing rib for rigidity. Slip joint construction couplings with a minimum of 2" insertion length. GSD gauge per SMACNA or C.M.C whichever is more stringent.

5. Fittings: (except elbows) machine formed using SMACNA RL-1 seams with seal class B.
 6. Plenums: Fabricate cross-brake panels and stiffen with galvanized steel angle iron members. Provide duct access doors as specified below and as shown on drawings.
 7. Elbows: fittings shall have a wall thickness not less than that specified for longitudinal straight ducts as shown in Table 3-2 and 3-3, SMACNA HVAC Duct Construction Standards, Metal and Flexible, 4" - 8" two piece, die stamped with fully welded longitudinal seam; 9" - 30", segmented standing seam construction; 31" - 36", segmented construction with joint spot welded and bonded. Each segmented elbow shall have the number of segments as indicated by Table 3-1 SMACNA HVAC Duct Construction Standards, Metal and Flexible for above 1500 fpm.
 8. Medium Pressure Duct, from above 2" to 6" static pressure and to 4000 fpm:
 9. All ductwork shall be constructed per SMACNA guidelines or C.M.C whichever is more stringent for medium pressure ductwork.
 10. Round Duct:
 - a. As manufactured by United McGill Corp or equal. Uni-Seal heavy gauge round duct and fittings machine formed, spiral lock seam or fully welded, as needed, construction for rigidity.
 - b. Fittings: (except elbows) machined formed using SMACNA RL-1 seams with seal class A.
 11. Unless otherwise specified, standing seam joint shall be used wherever possible on all fittings. All standing seam joints shall be sealed with a UL-Classified zero flame spread and zero smoke developed cement specially formulated for bonding metal-to-metal joints. In lieu of standing seam construction, joints may be solid welded or spot welded and bonded. All welded joints shall be coated with a protective paint, inside and out, to prevent damage to the galvanized surface. Spot-welded fittings shall have all joints sealed with a UL-Classified zero flame spread and zero smoke developed cement specially formulated for bonding metal-to-metal joints.
 12. Elbows: fittings shall have a wall thickness not less than that specified for longitudinal straight ducts as shown in Table 3-2 and 3-3, SMACNA HVAC Duct Construction Standards, Metal and Flexible, 4" - 8" two piece, die stamped with fully welded longitudinal seam; 9" - 30", segmented standing seam construction; 31" - 36", segmented construction with joint spot welded and bonded. Each segmented elbow shall have the number of segments as indicated by Table 3-1 SMACNA HVAC Duct Construction Standards, Metal and Flexible for above 1500 fpm.
 13. Divided-flow fittings shall be constructed with a radiused entrance to all branch taps and with no excess material projecting from the body into the branch tap entrance.
 14. Liner for all fittings shall be as specified above.
- C. Conical Fittings:
1. Low pressure:
 - a. All conical fittings shall be constructed with a minimum 2" flare around entire perimeter and a minimum 1:2 slope unless noted otherwise.
 2. Medium pressure:
 - a. All conical fittings shall be constructed with a minimum inlet equal to 1.5 times the outlet (1.5 x D) and a length equal to 0.7 times the outlet (0.7 x D) where D equals the duct diameter.
 - b. All conical fittings shall be constructed per SMACNA HVAC Construction Standards Metal and Flexible, figure 2-6

- D. 45 degree entry fittings:
 - 1. All 45 degree entry fittings shall be constructed per SMACNA HVAC Construction Standards Metal And Flexible, figure 2-6.

2.02 DUCTWORK ACCESS

- A. Duct Access Doors:
 - 1. Access panels - Rectangular ducts
 - a. Size to provide easy access, but not less than 18" wide.
 - b. Ventfabrics "Ventlok" insulated, hinged and latched type or equal
 - 2. Access panels - Round ducts
 - a. Size to provide easy access, but not less than 18" wide.
 - b. Ductmate-Metu round insulated access door or equal
 - 3. Plenum doors: Fabricate of 16 gauge galvanized sheet metal, cross broken, stiffened with angle iron, and set airtight. On insulated plenums make doors double wall, filled with 3" thick 6 lb. density glass fiber insulation. Trim: Ventlok, Young, #370 or #264 hinges, #260 latch, #390 half round gasket.

2.03 DUCTWORK ADJUNCTS

- A. Intake/Exhaust Screens: Provide ½" mesh 18 gauge galvanized iron bird screens at all exterior openings in mechanical system except where provided by the Contractor.
- B. Combustion Air Openings: Provide corrosion resistant ¼" screen mesh at all combustion air openings except where ducts terminate in attics.
- C. Insulation: As specified in Section 23 07 00, Insulation.
- D. Test Fittings: Ventlok #699.
- E. Duct Penetrations:
 - 1. Where ducts penetrate fire separations in the building, provide fire dampers or smoke/fire dampers as specified, shown and required by code.
 - 2. Where ducts penetrate roof or exterior walls, provide 24 gauge galvanized sheet metal flashing and counterflashing; solder all joints and make watertight, including under all air handlers, around all duct work penetrations, and exhaust fans.
- F. Sealants
 - 1. Design Polymeric DP1020, Ductmate PROseal high velocity duct sealant, Childers CP-146/CP-148, Fosters 32-19/32-17, or equal, UL 723, ASTM E-84
 - 2. Low Shrinkage, flexible, and mildew resistant conforming to NFPA 90A and 90B
- G. Tapes and Adhesives:
 - 1. Pressureless Tapes: Hardcast, 4" wide Type DT 5400 mineral impregnated woven fiber tape with manufacturer's FTA-20 activator/adhesive (indoors) and RTA-50 activator/adhesive (outdoors), applied with brush or roller in accordance with manufacturer's directions.
- H. Transverse Duct Connections:
 - 1. Traverse Joints: Ductmate or WDCI proprietary duct connection systems will be accepted. Ductwork constructed using these systems will refer to the manufacturers guidelines for sheet gauge, intermediate reinforcement size and spacing, and joint reinforcements. TDC/TDF/T-24 shall be constructed as a SMACNA T-24 flange.

2. The Ductmate companion angle with an integral polymer mastic seal shall be securely fastened to the duct walls using self-drilling screws, rivets or spot welding. Fastener spacing shall be as recommended by the manufacturer for the size or duct and the pressure class. The raw duct ends shall be properly seated in the integral mastic seal. A continuous strip of closed cell gasket tape, size 1/4" x 3/4", shall be installed between the mating flanges of the companion angles at each transverse joint, and the joint shall be made up using 3/8" diameter x 1" long plated bolts and nuts. Drive-on or snap-on cleats shall be used at spacings as recommended by the manufacturer.
3. The Ductmate system shall not be used for applications with duct gauges heavier than 16 gauge or lighter than 26 gauge.
4. Longitudinal Seams: Pittsburgh Lock shall be used on all longitudinal seams. All longitudinal seams will be sealed with a mastic sealant. Snaplock is not acceptable.

PART 3 - EXECUTION

3.01 APPLICATIONS

- A. Galvanized Steel Ductwork (GSD): Except where specified or shown otherwise, use (GSD) conforming to requirements (Part 2), or cross section configuration shown, in all locations (indoor/outdoor, above/below grade, concealed/exposed).
- B. Flexible Fibrous Glass Duct (FFG): Use (FFG) only where specifically called for on the drawings, as connection between terminal boxes and air outlets.
- C. Kitchen hood and equipment exhaust duct shall be in accordance with CMC Chapter 5.

3.02 DUCTWORK

- A. Pressure-Velocity Classification:
 1. All supply ductwork on constant volume systems (low pressure):
 - a. All ductwork shall be constructed per SMACNA static pressure class of positive +2" and a velocity of 2500 FPM.
 - b. Seal all joints and seams on all ducts and plenums per SMACNA seal class B. Pressure sensitive tapes are not allowed.
 2. All return ductwork (low velocity):
 - a. All ductwork shall be constructed per SMACNA static pressure class of negative -2" and a velocity of 2500 FPM.
 - b. Seal all joints and seams on all ducts and plenums per SMACNA seal class B. Pressure sensitive tapes are not allowed.
 3. All general exhaust ductwork [excluding kitchen and process systems] (low pressure):
 - a. All ductwork shall be constructed per SMACNA static pressure class of negative -2" and a velocity of 2500 FPM.
 - b. Seal all joints and seams on all ducts and plenums per SMACNA seal class B. Pressure sensitive tapes are not allowed.
- B. Broken places in galvanized coating made in forming shall be completely covered with galvanized paint.
- C. All ductwork shall comply with the C.M.C and the local jurisdiction's addendum.
- D. Ducts shall be reinforced in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, Latest Edition (low pressure and medium pressure, where shown on drawings). Duct shall be diagonally creased on all four sides. Seams shall be double crimped, bent and elbows shall be made with the throat radius of all bends 12" diameters of the width of the duct wherever possible and in no case shall the throat radius be less than one diameter of the branch duct. Where space does not permit the above radius or where square elbows are

indicated on the drawings, they shall be equipped with turning vanes of an approved type for low velocity ducts. Medium velocity ducts shall not use turning vanes and shall not use square elbows unless shown otherwise. Use Ductmate closure systems for all round and rectangular ducts.

- E. Transition pieces in the ducts shall have the sides sloped approximately one to five and no abrupt changes or offsets of any kind in the duct system will be permitted. Round to round take-offs shall be made with 45° wye fittings.
- F. Ductwork Auxiliaries
 - 1. Flexible Connectors
 - a. Install duct sections being fitted with a flexible connector with a 3" minimum gap between the ends being bridged by the flexible connector. Provide a generous fold in connector to allow for movement; staple and seal closure.
 - b. Provide 26-gauge galvanized steel weather shield on top and sides of flexible duct connectors for outdoor installations. Install weather shield at same time as flexible connectors; unprotected flexible connections will be replaced with new connectors at contractor's expense if the weather shields are installed at a subsequent time.
- G. Access and Inspection Panels and Doors
 - 1. Install panels and doors so that frames do not protrude into air stream. Mount frame against outside of lined ducts; provide 13" flanged stub for access panels on other ducts.
 - 2. Provide inspection panel at each splitter damper.
 - 3. Provide access panel at each fire damper or smoke/fire damper and elsewhere in the ductwork as required. Label as specified in Part 2 above.
 - 4. Plenum doors: Refer to Part 2 above.
 - 5. Wall and ceiling access panels: Furnish as required for access to ducts, damper operators, duct mounted access panels, etc.; coordinate size and location to obtain good access.
- H. Duct sizes shown on lined duct shall be clear inside insulation.
- I. Paint the inside of ductwork visible through grilles and registers dull black.
- J. Furnish and install 1-1/2 x 1-1/2 x 3/16" closure angles around all exposed ducts through walls and ceilings. (Both sides)
- K. Furnish and install 2 x 2 x 3/16" closure angle dams around all ducts through floors. Weld corners, seal with silicone non-hardening sealant and anchor to floor.
- L. Access doors shall be provided in ductwork for easy access to each fire damper and smoke/fire damper.

3.03 FIELD QUALITY CONTROL

- A. General
 - 1. Perform testing and provide demonstrations as specified in other HVAC Sections.
 - 2. Comply with requirements of Part 3, 23 05 00.
- B. Duct Cleaning
 - 1. Clean all ductwork in the shop prior to shipping. All ductwork shall be transported to the site in covered vans to eliminate contamination or shall be sealed prior to shipment and shall be protected from contamination at the site.
 - 2. After fabrication, and during and after installation, seal sections of open ductwork with plastic sheeting to prevent the intrusion of dirt and debris.
 - 3. After installation is complete, but before balancing and final connections are made, and with construction filters in place, blow clean all ductwork with the system fans operating at full air volume.

4. All return air ductwork shall be kept sealed until all construction is complete. If the air conditioning system is used during construction, the return air ductwork system shall not be used. Other means of outlets shall be used, such as leaving doors or windows open.

3.04 ADJUSTING AND FINISHING

- A. General: Comply with requirements of Part 3, 23 05 00. Adjust fan speeds as necessary.

END OF SECTION

**SECTION 23 31 16
NONMETAL DUCTS**

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. General: Refer to Section 23 05 00.
- B. Work Included: Provide all ductwork and ductwork accessories, auxiliaries and adjuncts for all systems as specified or shown.
- C. Work Described Elsewhere: HVAC piping, equipment, and controls are specified in other HVAC Sections.

PART 2 - PRODUCTS

2.01 DUCT WORK

- A. Factory-made air ducts (flexible ducts) shall be approved for the use intended or shall conform to the requirements of 2019 C.M.C. Standard No. 6-1.
 - 1. Each portion of a factory-made air duct system shall be identified by the manufacturer with a label or other suitable identification indicating compliance with C.M.C. Standard No. 6-1 and its class designation. These ducts shall be listed and shall be installed in accordance with the terms of their listing.
 - 2. All factory-made air ducts must be Approved Class 0 or Class 1.
- B. Flexible Ducts: Comply with SMACNA's "Duct Construction Standards, Metal and Flexible. Owens-Corning Fiberglass Valuflex or equal, insulated, wire helix type, 6 inch W.C. min. Product shall qualify as Class I Air Duct per UL181. Inner liner shall be black where visible through registers. All flexible ductwork must have a FHC not exceeding 25/50.
- C. Flexible Ductwork - Circular Cross Section:
 - 1. Thermaflex, Anaco Flex Systems, Cal-Flex Model #2PPJ or equal insulated flexible glass fiber duct factory fabricated as a Class 1 air duct, constructed of 2-layers of polyester film 100% bonded together, encapsulating the galvanized steel wire. Insulated with fiberglass insulation and jacketed with a reinforced vapor barrier jacket listed and labeled as a Class 1 Air Duct. Tested in accordance with U.L. Standard 181. Meets all requirements of NFP 90-A & 90-B, UMC Standard 6.1, Appendix A. Inner liner shall be black where visible through registers. All flexible ductwork must have a FHC not exceeding 25/50
 - 2. R-Value shall be 8.0 or greater in accordance with ADC Flexible Duct Performance and Installation Standards.
 - 3. Joint sealant: Fiberglass Type II (glass fabric) Duct Tape with a UL 181 B-M rating and panduit strap, as detailed on drawings.

PART 3 - EXECUTION

3.01 APPLICATIONS

- A. Flexible Fibrous Glass Duct (FFG): Use (FFG) only where specifically called for on the drawings, as connection between terminal boxes and air outlets.
- B. All ductwork shall comply with the C.M.C and the local jurisdiction's addendum.
- C. Flexible Fibrous Glass Ducts (FFG) - install as follows:

Stockton Police HQ Women's Locker Room Remodel

1. In a single piece not exceeding 8 feet in length downstream of terminal boxes (low pressure) and in a single piece not exceeding 3 feet in length upstream of terminal boxes (medium pressure).
2. With each section carrying a UL Class I label.
3. With no sharp bends. Do not bend size 4" through 12" diameter in excess of 180° in a 6 ft. length; do not bend sizes over 12" diameter in excess of 90° in a 6 ft. length.
4. Listed flexible duct: Install flexible duct as per manufacturers instructions. With all metal-to-metal connections secured with Panduit PLT-8H clamps or stainless steel cinch clamp, apply duct sealant between the end of the duct and the collar in a 2-inch band and clamp as described above. Allow at least 48 hours before pressure testing.
5. Supported at 4 ft. centers with 24 gauge, 12" galvanized saddles.

3.02 FIELD QUALITY CONTROL

- A. General
 1. Perform testing and provide demonstrations as specified in other HVAC Sections.
 2. Comply with requirements of Part 3, Section 23 05 00.
- B. Duct Penetrations:
 1. Where ducts penetrate fire separations in the building, provide fire dampers or smoke/fire dampers as specified, shown and required by code.
- C. Demonstrations: Before enclosing ductwork operate each fire damper and smoke/fire damper in the presence of the Owners representative to show that each damper is functional.
- D. Inspections: Evidence of poor fabrication or installation, as disclosed by job site inspections, will be cause for rejection; replacement or repair of defective work shall be done at no additional cost to the Owner.

END OF SECTION

**SECTION 23 33 13
DAMPERS**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Section 23 05 00, General Mechanical Requirements applies to this section.

1.02 QUALITY ASSURANCE

- A. All HVAC equipment shall comply with California Code of Regulations, Title-24, Part 6, latest edition.
- B. Comply with UL 181 and UL 181A for ducts and closures.

PART 2 - PRODUCTS

2.01 DAMPERS

- A. All dampers for use in low temperature air below 50° F duct shall have non-conducting composite damper shafts with shaft bearings and air seats.
- B. Manual Dampers:
 - 1. Round Ductwork 16" and smaller (low pressure):
 - a. Butterfly type, volume dampers.
 - b. Provide locking mechanism shall be provided on either the quadrants or end bearings. Ventlock or equal. Damper blade shall be a minimum of 22 gauge, but not less than two gauges more than the duct gauge.
 - c. All duct penetrations shall be gasketed to prevent air leakage.
 - d. Provide stand-offs as required for specified insulation thickness (see section 23 07 13.
 - e. Continuous 3/8" min rod shall be provided.
 - f. In locations where ducts are exposed use Ventlok #688 damper regulator for low pressure applications.
 - 2. Round Ductwork 18" and larger (low pressure):
 - a. Manual Dampers: Opposed blade type, 6" maximum blade width, Vent Products model 5303 or equal.
 - 3. Rectangular Ductwork 12" high and smaller (low pressure):
 - a. Rectangular volume dampers shall be Air Balance #111 or equal.
 - 4. Rectangular Ductwork larger than 12" high (low pressure):
 - a. Rectangular volume dampers shall be Air Balance #AC-2 or equal.

PART 3 - EXECUTION

3.01 DAMPERS

- A. Install duct accessories according to applicable portions of details of construction as shown in SMACNA standards.
- B. Install volume-control dampers in lined duct with methods to avoid damage to liner and to avoid erosion of duct liner.
- C. Ductwork shall comply with Chapter 6 C.M.C.

- D. Where ducts penetrate fire separations in the building, provide fire dampers or smoke/fire dampers as specified, shown and required by code.
- E. Balancing Dampers
 - 1. Provide balancing dampers (same as volume dampers specified in this section) where shown on drawings and any other locations required to achieve proper system air balance. In general, balancing dampers are required at all zone supply air ducts from supply air plenums, equipment, and in ducts to supply and return air grilles. All dampers shall be placed as shown. Minimum of seven duct diameters prior to the diffuser or register.
 - 2. Damper operators shall be installed in either to side or bottom of ductwork.

END OF SECTION

SECTION 23 33 23
TURNING VANES

PART 1 - GENERAL

1.01 - SEE 23 05 00 PART 1

PART 2 - PRODUCTS

2.01 AIR TURNING VANES AND DEVICES

- A. Ordinary type installed in elbows: Type, size, etc., as shown on drawings (see Duct Symbol Legend), fiberglass turning vanes are not acceptable. Install multiple turning vane sections with vanes 36" long or less in large elbows. Use turning vanes specifically rated for medium velocity when duct velocity exceeds 2,500 fpm.
1. Installed at duct branches or take-offs where shown: Ward Industries VNN, VNA, Airsan Accoustiturn, or equal.
 2. Installed downstream of VAV boxes in supply ductwork and in all return ductwork.

PART 3 - EXECUTION

3.01 AIR TURNING VANES AND DEVICES

- A. Provide at all square elbows and elsewhere as shown and scheduled on drawings. Do not use double thickness duct turns on turns less than 12" wide. Where height of double thickness duct turns exceeds 36", provide 1" H 1" H 16 gauge channel brace at mid-height, secure to duct at both ends. Acoustical duct turns: Where height exceeds 36" provide 16 gauge channel brace at mid-height secured to duct at both ends. Fiberglass turning vanes will not be acceptable.

END OF SECTION

This page intentionally left blank

**SECTION 23 33 43
FLEXIBLE CONNECTORS**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Section 23 05 00, General Mechanical Requirements applies to this section

1.02 QUALITY ASSURANCE

- A. All HVAC equipment shall comply with California Code of Regulations, Title 24, Part 6, latest edition.
- B. Comply with UL 181 and UL 181A for ducts and closures.

PART 2 - PRODUCTS

2.01 EQUIPMENT

- A. Flexible Connectors: Ventlok, flexible fabric, Duralon Flexible fabric with Metalfab connectors at connections to fans and air handling equipment.
 - 1. Comply with UL 181, Class 1.
 - 2. Minimum fabric weight 26 oz. / sq. yd. \pm 2 oz., thickness 0.019".
 - 3. Ventfabrics Inc. Ventlon, or equal, for exterior applications, resistant to sunlight, ozone and weather.
 - 4. Ventfabrics Inc. Ventglass, or equal, for interior applications.
 - 5. Complies with Underwriters Laboratories Standard # 214 for fire retardancy, and is accepted by the National Fire Protection Association for vibration isolation connectors in duct systems as covered by Paragraph 2-1.2.3 NFPA Bulletin #90A.
 - 6. Bonding Agent, Ventfabrics # 655 Adhesive or equal.

PART 3 - EXECUTION

3.01 DUCTWORK AUXILIARIES

- A. Flexible Connectors
 - 1. Install duct sections being fitted with a flexible connector with a 3" minimum gap between the ends being bridged by the flexible connector. Provide a generous fold in connector to allow for movement; staple and seal closure.
 - 2. Provide 26-gauge galvanized steel weather shield on top and sides of flexible duct connectors for outdoor installations. Install weather shield at same time as flexible connectors; unprotected flexible connections will be replaced with new connectors at contractor's expense if the weather shields are installed at a subsequent time.
 - 3. Ductwork shall be supported separately from the fan within 3 feet of the flexible connection.

END OF SECTION

This page intentionally left blank

SECTION 26 01 00

GENERAL REQUIREMENTS OF ELECTRICAL WORK

PART 1 GENERAL

1.01 SUMMARY

- A. This Section describes the general requirements for the electric work. These requirements apply to all sections of Division 26.
- B. Provide electrical materials, power and lighting equipment, installation and testing for the electrical work as shown on the plans.

1.02 DESCRIPTION

- A. Provide all equipment and materials for a complete electrical system as described herein and as shown on the plans.
- B. Provide the following electrical system upgrades:
 - 1. Removal of existing electrical wiring systems in remodel areas.
 - 2. Removal and replacement of the lighting systems and controls.
 - 3. Installation of new electrical panelboards and feeders.
 - 4. Installation of new electrical conduit, outlets and wiring.
 - 5. Electrical connections for equipment.
 - 6. Adjustment and cleaning.
 - 7. Testing and start-up.

1.03 CODE COMPLIANCE

- A. Perform all work in accordance with the following codes:
 - 1. 2019 CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE (PART 1, TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR)).
 - 2. 2019 CALIFORNIA BUILDING CODE - PART 2, TITLE 24, CCR (2018 IBC AND 2019 CALIFORNIA AMENDMENTS).
 - 3. 2019 CALIFORNIA ELECTRICAL CODE - PART 3, TITLE 24, CCR (2017 NEC AND 2017 CALIFORNIA AMENDMENTS).
 - 4. 2019 CALIFORNIA MECHANICAL CODE - PART 4, TITLE 24, CCR (2018 UMC AND 2019 CALIFORNIA AMENDMENTS).
 - 5. 2019 CALIFORNIA PLUMBING CODE - PART 5, TITLE 24, CCR (2018 UPC AND 2019 CALIFORNIA AMENDMENTS).
 - 6. 2019 CALIFORNIA FIRE CODE - PART 9, TITLE 24, CCR (2018 IFC AND 2019 CALIFORNIA AMENDMENTS)
 - 7. 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE - PART 11, TITLE 24

1.04 PERMITS, FEES AND INSPECTIONS

- A. Obtain all permits that are required for the work.
- B. Call for all local building department inspections.
- C. Obtain approvals from local building inspector prior to final observation by Engineer.
- D. Advise Engineer, one week prior to:
 - 1. Installation of underground work. Obtain Engineer's approval prior to backfill. The Engineer may direct uncovering of any work not so approved.
 - 2. Start of interior rough-in work.
 - 3. Start of wire pulling.
 - 4. Installation of switchboards.
 - 5. Installation of lighting fixtures.
 - 6. Installation of wiring devices.
 - 7. Connection of mechanical equipment.

1.05 STANDARDS

- A. Comply with the current applicable standards of the listed agencies for electrical materials and installation.
- B. Underwriters Laboratories, Inc. (UL): Provide a UL label or evidence of UL listing for all electrical material, unless the material is of a type for which a label or listing service is not provided.
- C. National Electrical Manufacturer's Association (NEMA).
- D. American National Standards Institute (ANSI).
- E. American Society for Testing Materials (ASTM).
- F. Insulated Power Cable Engineers Association.
- G. Certified Ballast Manufacturer's Association.
- H. Institute of Electrical and Electronic Engineers (IEEE).

1.06 SUBMITTALS

- A. Provide submittals for items specified in individual sections of Division 26 00 00, in accordance with the requirements of Division 1.
- B. Provide submittals for items listed documenting compliance with specification requirements.
 - 1. Test Reports: Reports of field tests, continuing copies of the test results, in tabulated form with the signature of the responsible person.
 - 2. Insulation resistance.
 - 3. Operation and Maintenance Manual.
 - 4. Record Drawings.

1.07 MATERIALS AND SUBSTITUTIONS

- A. Provide new material of the quality specified and satisfactory to the Engineer.
 - 1. Provide major equipment which is the product of a manufacturer who has, for a period of not less than five years been in successful manufacture of similar equipment to that specified and who has a catalog covering ratings and specifications of proposed equipment.

1.08 DRAWINGS AND SPECIFICATIONS

- A. Data given herein and on the plans are exact as could be secured, but their absolute accuracy is not guaranteed. Plans and specifications are for the assistance and guidance of the Contractor and exact locations, distances, levels and other data will be governed by the structures. The contractor shall provide a layout plan of all electrical equipment showing actual dimensions and working clearances. The contractor is responsible for ensuring that all electrical equipment will fit and no working clearances are exceeded.
- B. Clarification of plans and specifications for the purpose of facilitating construction, but not involving additional labor and materials, may be prepared during construction by the Engineer. Said revised plans and specifications shall become a part of the contract. The Contractor shall conform to the revised plans and specifications at no additional cost to the Owner.
- C. Layouts of equipment, accessories, and wiring systems are diagrammatic but follow these as closely as possible. Examine Architectural, Structural, and Mechanical and other drawings, noting all conditions that may affect this work. Report conflicting conditions to the Engineer for adjustment before proceeding with the work. Should the Contractor proceed with work without so reporting the matter, he does so, on his own responsibility and shall alter work if directed by the Engineer at his own expense.
- D. The right is reserved to make minor changes in locations of equipment and wiring systems

shown, providing the change is ordered before conduit runs and/or work directly connected to same is installed and no extra materials are required.

1.09 UTILITY COORDINATION

- A. Coordinate with the electric utility company, the telephone company, and the cable television company whenever necessary, to determine service equipment requirements, conduit and backfill requirements, electric metering requirements and other requirements to provide complete utility services, adequate to supply the electrical, communication, and television system(s) indicated. Provide materials that are specified in Division 26 in addition to conforming to utility company requirements.
- B. Include in bid, all work required by the utility companies. All work required for utility services shall be in accord with contract documents, specifications, drawings and as required by the utility companies.
- C. Use extreme caution when digging to avoid buried electrical cables.
 - 1. Before digging, call: (800) 642-2444

1.10 SUPERVISION

- A. Provide adequate and competent supervision. Maintain complete control of the project execution and complete liability for the materials and work until the job is completed and accepted by the Owner.

1.11 MANUFACTURER'S INSTRUCTION

- A. Follow the manufacturer's instructions when specific installation or connection details are not indicated or specified.
- B. Notify the Engineer of conflicts between the manufacturer's instructions and installation or connection details prior to the installation of materials.

1.12 WORKMANSHIP

- A. Firmly and permanently secure in place all electrical equipment to the structure so that it is level, plumb, and true with the structure and other equipment. Installation methods shall be as recommended by the National Electrical Contractors' Standard of Installation, except when methods specified or shown on the plans differ. The minimum installation standards shall be as required by the Codes.

1.13 PROTECTION

- A. Protect all equipment and materials required for the performance of this work from damage by the elements, vandalism, or work during construction.
 - 1. Do not subject the work and materials of other trades to damage during execution of the work in this division of the specifications.

1.14 COORDINATION WITH OTHER TRADES

- A. Coordinate with other trades and promptly transmit all information required by them. Coordinate the sequence of construction with other trades to ensure that all work proceeds with a minimum of interference and delay. Perform all work that requires relocation due to negligence or absence of regard for the work of other trades.

1.15 EXAMINATION OF SITE

- A. Examine the site prior to bid to determine existing site conditions that may affect the work. No allowance will be allowed for any extra work required due to a failure to recognize, or negligence to discover conditions prior to bid.

1.16 STRUCTURAL REQUIREMENTS

- A. Secure all anchors for electrical equipment in a manner that will not decrease the structural

value of any structure to an unsafe level. Inform the Engineer of any proposed modifications to the structure that involves cutting or patching of concrete, masonry, steel, or wood in the project.

1.17 OPERATION AND MAINTENANCE MANUALS

- A. Furnish four sets of operation and maintenance manuals prior to final inspection, bound in 8-1/2 x 11-inch three-ring side binders with durable plastic covers.
- B. Provide a separate section for each system, with a table of contents and index tabs for each volume.
- C. Part 1: Directory, listing names and addresses and telephone numbers of Electrical Engineer and Electrical Subcontractor.
- D. Part 2: Operation and maintenance instructions, arranged by system. For each system, give names, addresses and telephone numbers of suppliers and factory service representatives. Include:
 - E. List of equipment.
 - 1. Spare parts list.
 - 2. Operating instructions.
 - 3. Maintenance instruction, equipment.
 - 4. Shop Drawings and Product Data.
 - 5. Wiring Diagrams.

1.18 IDENTIFICATION

- A. Install nameplates on electrical equipment including:
 - 1. Individual circuit breakers on switchboards, distribution panelboards and motor control centers.
 - 2. Motor starters.
 - 3. Pilot lights, selector switches, overload resets, timers and other pilot control devices.
 - 4. Panelboards, switchboards, motor control centers, transformers, control cabinets and other major equipment.
 - 5. Disconnect switches, time switches, contactors, relays and other miscellaneous equipment enclosures.
 - 6. Light switches for which the control functions are not evident.
- B. Describe item, control function of sequence or operation on each nameplate, as applicable.
- C. Fabricate nameplates of laminated phenolic plastic, black front and back with white core. Bevel edges. Engrave through outer layer to produce white letters and numerals. For control pilot devices, engraved metallic plates, filled with enamel, are acceptable. Fasten nameplates to equipment with No. 4 Phillips, round head, cadmium steel, self-tapping screws.

1.19 TESTS AND REPORTS

- A. Prior to energization of equipment, check the insulation resistance of listed circuits, with a 500-volt "Megger".
- B. Take precaution during the testing period to insure the safety of personnel and equipment.
- C. Set circuit protective devices to provide proper long-time, short-time and ground-fault tripping coordination.
- D. Record all tests and furnish two copies to the Engineer.
- E. Tests:
 - 1. Grounding systems, for resistance to earth. Provide additional grounding electrodes if main service or separately derived system ground resistance exceed 5 ohms.
 - 2. Motor circuits with motor disconnected, for resistance to ground.
 - 3. Control circuits for resistance to ground.

4. Lighting circuits, for resistance to ground.
 5. Power feeders, for resistance to ground.
 6. Switchboards:
 - Main bus, power and control circuits, for resistance to ground.
 - a. Check connection; tighten if necessary.
 - b. Operation of each device.
 - c. Set relays and trip settings in accord with the Engineer's directions.
 - d. Check thermal overload heaters for size and reset operation.
 7. Circuit breakers for loose connections and proper operation. Adjust trip settings as required by Engineer.
 8. Motor stator windings, for resistance, phase and ground.
- F. Coordinate phase rotation of all motors with installer to ensure proper direction of rotation.
- G. List motor data:
1. Item of equipment.
 2. Nameplate data.
 3. Overload heater catalog number and rating.

1.20 DEMONSTRATIONS:

- A. After testing and final inspection, demonstrate operation of listed systems and equipment to Engineer and Owner.
- B. Arrange date of test with Owner.
- C. Advise the manufacturers' representative to be present when required.
- D. Instruct Owner's personnel in operation, adjustment and maintenance of equipment and systems, using the operation and maintenance data as the basis of instruction.
- E. Demonstrate:
 1. Motor Control Devices
 2. Lighting Fixtures:
 - a. Replacement of drivers and boards.
 - b. Cleaning.
 3. Lighting Control Devices:
 - a. Time Switches.
 - b. Photocontrols.
 - c. Contactors.

1.21 GUARANTEE:

- A. Guarantee the electrical work against defects in work or materials for one year after filing of Notice of Completion.
- B. Undertake repairs within 24 hours after notice from the Owner.
- C. If the operation of the electrical system fails to conform to Division 16 requirements, approved submittals, or operation and maintenance manuals, the Owner may operate the electrical system without liability to Owner. Repair or replace defective or unsatisfactory equipment or systems.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 EQUIPMENT MOUNTING SEISMIC CRITERIA

- A. Brace or anchor all electrical equipment to resist a horizontal force acting in any direction using the criteria of 2019 California Building Code, Title 24, Part 2.
- B. Simultaneous vertical force - use 1/3 by horizontal force.

- C. Where anchorage details are not shown on the drawings, the field installation shall be subject to the approval of the electrical and structural engineers.

END OF SECTION

SECTION 26 05 02

SUPPORTING FROM BUILDING STRUCTURE

PART 1 GENERAL

1.01 DESCRIPTION

- A. This section provides guidelines and limitations for supporting all electrical or mechanical items from the building structure, and for seismic bracing for all such items.
- B. Design and install all support and bracing systems except as noted. Provide for attachment to portions of the building structure capable of bearing the loads imposed. Design systems to not overstress the building structure.
- C. The Contractor is required to design support and bracing for items for which the contract documents do not provide specific attachment, support, and bracing. Seismic bracing is not required for the following items:
 - 1. All conduit less than 2.5 inches inside diameter, unless racked together.
 - 2. All conduit suspended by individual hanger 12 inches or less in length from the top of conduit to the bottom of the support for the hanger.
 - 3. All electrical conduits less than 2.5 inches inside diameter, unless racked together.

1.02 RELATED REQUIREMENTS

- A. Section 26 01 00: General Requirements for Electrical Work.

1.03 QUALITY ASSURANCE

- A. Design and install all support systems to comply with the seismic requirements of the California Building Code (CBC) Chapter 16A
- B. Design and install all support systems to comply with the requirements of the 2019 California Building Code (OPAs only).
- C. For seismic bracing design use the services of a structural engineer licensed in California.
- D. SUBMITTALS
 - 1. Submit shop drawings for all substructures and attachment methods.
 - 2. Submit proposed alternative methods of attachment for review and approval by the Engineer, prior to deviating from the requirements given below.
 - 3. For all seismic bracing systems, submit structural calculations and details prepared and signed by the Contractor's licensed engineer which include all resultant forces applied to the building structure. Do not overstress building structure. The maximum allowable loads are as indicated in 3.01 of this specification. The submittal data required does not require an analysis of the building structural members and their reaction to the loads of the conduit. The submittal data needs to address attachment methods and shall include calculations indicating the forces that are applied to the building structure at the point of attachment. Calculations will be reviewed for compliance with design criteria, not for arithmetic.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Furnish all substructures and fasteners required to comply with the limitations given below. Use materials as specified in the various sections and as appropriate to the use.
- B. All exterior materials: Hot dipped galvanized or stainless steel.

PART 3 EXECUTION

3.01 GUIDELINES & LIMITATIONS

- A. The General Contractor shall coordinate the load requirements from all subcontractors so that no combination of loads exceeds the limitations given below
- B. Steel Structure:
 - 1. At both the floor and the roof, attachments may be at the upper or the lower truss chord (horizontal members at top and bottom of truss). Hang no loads from web members (the diagonal and vertical members between chords), including the end diagonal member where the lower chord is discontinuous.
 - 2. Make the point of attachment at a panel point of the truss girders or joints. (The panel points are the intersections of the horizontal chords with the diagonal or vertical web members.)
 - 3. Make no attachments to metal decking.
 - 4. Do no welding on any trusses. Use bolted or clamped type connections.
 - 5. At floor and roof joists, hang only concentric loads, not one side loaded. At all other members (W beams and truss girders) hang all loads greater than 40 pounds Concentric.
 - 6. Attach no loads greater than the following without specific approval of Engineer.
 - a. Floor joists and girders: 500 pounds points load. 1000 pounds total for a single span.
 - b. Roof joists and girders: 300 pounds points load. 600 pounds total for a single span.

END OF SECTION

SECTION 26 05 19

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES (600 V AND LESS)

PART 1 GENERAL

1.01 SUMMARY

- A. Provide electrical materials, installation and testing for the interior improvements in City of San Leandro Police Building & South Office Modifications.

1.02 DESCRIPTION

- A. This section describes requirements for wire and cable.

1.03 RELATED WORK

- A. Section 26 01 00: General Requirements for Electrical Work.

1.04 REFERENCE STANDARDS

- A. NETA STD ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems; International Electrical Testing Association; 2009.

1.05 SUBMITTALS

- A. Procedure: Submit under Division 1.
- B. Provide submittals for items listed documenting compliance with specification requirements.
- C. Product Data:
 - 1. Electrical Materials: Manufacturer's current published catalog sheets.

PART 2 PRODUCTS

2.01 ALL CONDUCTORS AND CABLES

- A. Provide products that comply with requirements of NFPA 70.
- B. Provide products listed and classified by Underwriters Laboratories Inc. as suitable for the purpose indicated.
- C. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, etc. as required for a complete operating system.
- D. Comply with NEMA WC 70.
- E. Thermoplastic-Insulated Conductors and Cables: Listed and labeled as complying with UL 83.
- F. Thermoset-Insulated Conductors and Cables: Listed and labeled as complying with UL 44.
- G. Conductor Material:
 - 1. Copper Conductors: Soft drawn annealed, 98 percent conductivity, uncoated copper conductors complying with ASTM B3, ASTM B8, or ASTM B787/B787M unless otherwise indicated.
 - 2. Tinned Copper Conductors: Comply with ASTM B33.
- H. Conductor Color Coding:
 - 1. Color code conductors as indicated unless otherwise required by the authority having jurisdiction. Maintain consistent color coding throughout project.
 - 2. Color Coding Method: Integrally colored insulation.
 - 3. Color Code:
 - a. Equipment Ground, All Systems: Green.

2.02 WIRE AND CABLE

- A. Conductor: Insulated copper, individual conductors, 98 percent conductivity, stranded.
 - 1. Power conductors, #12 AWG, minimum to 750 MCM, stranded.
 - 2. Control conductors #14 AWG, minimum to #10 AWG, stranded.
- B. Insulation:

1. Rated 600 volts as follows:		
<u>Item</u>	<u>Size (AWG)</u>	<u>Insulation Type</u>
Branch Circuits (except underground)	#12 to #4/0	THWN/THHN-2
Underground Branch Circuits	#12 to #4/0	XHHW-2
Fixture Taps	#12	XHHW-2 or THHN/THWN-2
Feeders (except underground)	#12 to #4/0 to #750 MCM	THWN/THHN-2 RHH,RHW-2,USE-2,or XHHW-2
Underground Feeders	#12 to #750 MCM	RHH,RHW-2,USE-2,or XHHW-2
Grounding	All	THHN/THWN-2
Control Interconnect	#14 to #10	THHN/THWN-2
Control Cabinets	#14	MTW or THHN/THWN-2

2.03 WIRE CONNECTIONS

- A. Connect wire to binding post screw, stud, bolt or bus as follows:
 - 1. #10 AWG and smaller conductors, compression type, nylon, self-insulated grip spade lugs, T & B "Sta-Kon", Buchanan "Termend", Panduit "Pan-Term", or equal.
 - 2. #8 AWG to #750 MCM copper conductors, solderless lug type connectors, with hex-head or allen type compression set screws with configuration to suit application, T & B "Locktite", Burndy "QA", OZ Type "XL" or "XLH", or equal.
- B. Conductor Taps: #8 through #4 copper conductors, split-bolt, Kearney.
- C. Splice wire as follows:
 - 1. #10 AWG and smaller conductors, twist-on solder-less, insulated spring connectors, 3M "Scotchloks", T & B "Piggys" or equal.
 - 2. #8 AWG to #750 MCM copper conductors, two-way connectors, OZ type "XW", Burndy or equal.
 - 3. In underground pull-boxes, cast resin epoxy, Scotch.
- D. Size, install and tighten wire terminal and splice connectors in accordance with manufacturer's recommendations.

2.04 TAPE

- A. Wire Splices: Vinyl plastic electrical tape, 8.5-mil and 4.0-mil, Scotch 33.
- B. Conduit Wrapping: 10-mil vinyl wrapping tape, Manville, Minnesota Mining and Manufacturing Company.

2.05 WIRING ACCESSORIES

- A. Identify conductors with self-adhesive vinyl cloth markers, sized to fit the conductor insulation, with machine printed black marking, W.H. Brady, Thomas and Betts, or equal.

PART 3 EXECUTION

3.01 INSULATED CONDUCTORS AND CABLE

- A. Exercise extreme care when pulling conductors and cable into conduits to avoid kinking, twisting, nicking or scratching of the insulation or the placement of extreme stress on the conductors or cable. When required, utilize UL approved pulling compounds to assist in pulling conductors.
- B. Color code conductors by phase sequence A-B-C when looking into the front of the equipment from left-to-right, top-to-bottom or front-to-back. Provide conductors with the appropriate phase color or mark conductors with a minimum of 6 inches of phase tape on ends connected to terminals. Phase code conductors as listed:

<u>Voltage</u>	<u>Phase A</u>	<u>Phase B</u>	<u>Phase C</u>	<u>Neutral</u>	<u>Ground</u>
120/208	Black	Red	Blue	White	Green
277/480	Brown	Orange	Yellow	Grey	Green

- C. Identify all conductors with their respective circuit numbers at all boxes and terminals.
- D. For medium voltage cables, do not exceed manufacturer's recommendations for maximum allowable pulling force. Where wire and cable-pulling compound is used, use UL listed compounds only. In all cases, limit pulling tension to the following:
 - 1. Applied to Conductors: 0.008 pounds per circular mil of conductor cross sectional area.
 - 2. Applied to Nonmetallic Jacket: 1,000 pounds, but not exceeding pulling force specified above for conductor.
- E. Connections:
 - 1. Use twist-on solder-less connectors for splicing receptacle and lighting circuits #10 AWG wire size and smaller.
 - 2. Splice #12 and #10 AWG stranded conductors with compression connectors.
 - 3. Terminate conductors at motors with bolted connections, insulated with plastic tape.
 - 4. For conductor taps #8 through #4 AWG, provide split bolt service connectors.
 - 5. For splices larger than #10 AWG, insulate and smooth the splice with insulation putty, tape with one half-lapped layer of 8.5-mil vinyl plastic electrical tape and two half-lapped layers of 7.0-mil vinyl plastic electrical tape.
 - 6. Use cast resin epoxy splices for splices in underground pullboxes.
 - 7. Wrap all wire and cable operating at 480 volts AC or more with electric arc and fireproofing tape where wires are installed with other wires or cables.

END OF SECTION

This page intentionally left blank

SECTION 26 05 26

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SUMMARY

- A. This section describes requirements for grounding of the power and communications systems.

1.02 DESCRIPTION

- A. Provide all equipment and materials for a complete grounding system.
 - 1. Power System Grounding.
 - 2. Communications System Grounding.
 - 3. Electrical Equipment and Raceway Grounding and bonding.

1.03 RELATE REQUIREMENTS

- A. Section 26 01 00: General Requirements for Electrical Work.

1.04 REFERENCE STANDARDS

- A. ANSI/IEEE C2 – National Electrical Safety Code
- B. ANSI/NFPA 70 National Electric Code
- C. IEEE 80 – Guide for Safety in AC Substation Grounding
- D. IEEE 142 – Grounding of Industrial and Commercial Power Systems
- E. Motorola R56 – Standards and Guidelines for Communication Sites

1.05 SUBMITTALS

- A. Submit a complete set of marked-up record drawings to indicate installed location of system grounding electrode connections, and routing of grounding electrode conductor.
- B. Submit certified test results stating ground resistance from service neutral at service entrance and separately derived systems.

PART 2 PRODUCTS

2.01 GROUNDING AND BONDING REQUIREMENTS

- A. Do not use products for applications other than as permitted by NFPA 70 and product listing.
- B. Unless specifically indicated to be excluded, provide all required components, conductors, connectors, conduit, boxes, fittings, supports, accessories, etc. as necessary for a complete grounding and bonding system.
- C. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

2.02 GROUNDING AND BONDING COMPONENTS

- A. General Requirements:
 - 1. Provide products listed, classified, and labeled by Underwriter's Laboratories Inc. (UL) or testing firm acceptable to authority having jurisdiction as suitable for the purpose indicated.
 - 2. Provide products listed and labeled as complying with UL 467 where applicable.
- B. Conductors for Grounding and Bonding, in addition to requirements of Section 26 05 19:
 - 1. Use insulated copper conductors unless otherwise indicated.
 - a. Exceptions:
 - 1) Use bare copper conductors where installed underground in direct contact with earth.

2) Use bare copper conductors where directly encased in concrete (not in raceway).

C. Connectors for Grounding and Bonding:

1. Description: Connectors appropriate for the application and suitable for the conductors and items to be connected; listed and labeled as complying with UL 467.
2. Unless otherwise indicated, use exothermic welded connections for underground, concealed and other inaccessible connections.
3. Unless otherwise indicated, use mechanical connectors, compression connectors, or exothermic welded connections for accessible connections.

2.03 ACCEPTABLE MANUFACTURERS

A. Thomas and Betts Appleton, Raco, Oz Gedney, Blackburn, or approved equal.

2.04 MATERIALS

- A. Ground Rods: Copper encased steel, 3/4 inch diameter, minimum length - 10 feet.
- B. Ground Clamp: Water pipe connection, bronze two piece with serrated jaws, lug sized for grounding electrode conductor.
- C. Connectors, Compression Type: Bronze or Copper, pretreated with conductive paste, sized for conductor to which applied.
- D. Connectors, Exothermic Weld Type: Powder actuated weld. Bond made through exothermic reaction producing molten copper from premixed copper oxide and aluminum powder. Form bond in mold or crucible.

2.05 SECONDARY GROUNDING SYSTEM

- A. The main grounding system shall consist of bare copper ground wires connected to a UFER ground placed below the bottom of the structural slab. The grounding system shall include, but is not limited to ground cables, fittings, connectors and all other devices and material as required to render the system complete and meet the requirements of California Electrical Code (CEC) Article 250. Connect grounding system to all building columns.
- B. Except where specifically indicated otherwise, all exposed non-current carrying metallic parts of electrical equipment, metallic raceways systems, grounding conductor in nonmetallic raceways and neutral conductor of the wiring system shall be grounded. The ground connection shall be made at the main service equipment of each service and shall be extended to all required components of CEC Article 250.

2.06 COMMUNICATIONS GROUNDING SYSTEM

- A. All intermediate distribution frame (IDF) and main distribution frame (MDF) rooms shall have a Telecommunication Ground Bus Bar installed. Refer to drawings for specific size and assembly.
- B. The telecommunication service entrance MDF, shall have a minimum of a #2 AWG conductor with green outer sheath installed to the Telecommunication Ground Bus Bar located in the room.
- C. Except where specifically indicated otherwise, all facility MDFs shall have a minimum of a #4 AWG conductor with green outer sheath installed to the Telecommunication Ground Bus Bar located in each room.
- D. Except where specifically indicated otherwise, all facility IDFs shall have a minimum of a #6 AWG conductor with green outer sheath installed to the Telecommunication Ground Bus Bar located in each room.
- E. Provide Grounding for Radio CAD stations in the dispatch area per Motorola R56.

2.07 GENERAL BRANCH CIRCUITS GROUNDING

- A. All grounding conductor wire shall be insulated green copper conductors.
- B. All conduit bushings shall be grounding type.
- C. All grounding connections shall be made with solderless lugs and nonferrous hardware.

END OF SECTION

This page intentionally left blank

SECTION 26 05 29

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SUMMARY

- A. Provide electrical materials, installation and testing for the interior improvements in City of San Leandro Police Building & South Office Modifications.

1.02 DESCRIPTION

- A. This section describes requirements for supporting devices.

1.03 RELATED WORK

- A. Section 26 01 00: General Requirements for Electrical Work.

1.04 SUBMITTALS

- A. Procedure: Submit under provisions of Division 1.
- B. Provide submittals for items listed documenting compliance with specification requirements.
- C. Product Data:
 - 1. Electrical Materials: Manufacturer's current published catalog sheets.

PART 2 PRODUCTS

2.01 SUPPORTING DEVICES

- A. Conduit Supports:
 - 1. Straps, one hole galvanized or cadmium plated iron, T & B, Efcor, Appleton, or equal.
 - 2. Clamp backs, nest backs, galvanized iron or cadmium-plated steel, Efcor, OZ, Steel City, or equal. Plumbers perforated strap, not acceptable.
 - 3. Hanger Rod, 3/8-inch, minimum galvanized all-thread rod.
- B. Conduit Racks:
 - 1. Framing Channel, steel, hot-dip galvanized or electroplated, Kindorf, Unistrut, Superstrut, or equal.
 - 2. Channels attached to building or structure surfaces, 14 gauge, 1-5/8 inches wide by 13/16 inches deep. Other channels, 12 gauge minimum, 1-5/8 inches wide by 1-5/8 inches deep, minimum.
 - 3. Construct racks to limit deflection to 1/360 of span.
 - 4. Load on trapeze, rod type hangers, concrete inserts and beam clamps, not to exceed 700 pounds per hanger. Provide rigid frames if load exceeds 700 pounds per hanger.
- C. Anchor Methods:
 - 1. Hollow masonry anchors.
 - 2. Solid masonry, malleable iron expansion anchors or preset inserts.
 - 3. Metal surfaces, machine screws, bolts or welded studs.
 - 4. Wood surfaces, wood screws.
 - 5. Concrete surfaces or self-drilling anchors.

PART 3 EXECUTION (NOT INCLUDED)

END OF SECTION

This page intentionally left blank

SECTION 26 05 34

CONDUIT

PART 1 GENERAL

1.01 SUMMARY

- A. Provide electrical materials, installation and testing for the interior improvements in City of San Leandro Police Building & South Office Modifications.

1.02 DESCRIPTION

- A. This section describes requirements for raceways.

1.03 RELATED WORK

- A. Section 26 01 00: General Requirements for Electrical Work.
- B. Section 26 05 26: Grounding.

1.04 REFERENCE STANDARDS

- A. American National Standards Institute (ANSI):
 - 1. C80.1 Specification for Rigid Steel Conduit, Zinc Coated
 - 2. C80.3 Specification for Electrical Metallic Tubing, Zinc Coated
- B. National Electrical Manufacturers Association (NEMA):
 - 1. TC 2 Electrical Plastic Tubing (EPT), Conduit (EPC-40 and EPC-80) and Fittings
- C. Underwriters Laboratories, Inc. (UL):
 - 1. 1242 Intermediate Metal Conduit
- D. Federal Specifications:
 - 1. WW-C-581E Conduit, Metal Electrical Conduit. Steel, Zinc Coated

1.05 SUBMITTALS

- A. Procedure: Submit under provisions of Division 1.
- B. Provide submittals for items listed documenting compliance with specification requirements.
 - 1. Product Data:
 - 2. Electrical Materials: Manufacturer's current published catalog sheets.

PART 2 PRODUCTS

2.01 RACEWAYS

- A. Rigid Steel Conduit:
 - 1. ANSI C80.1, minimum size 3/4 inch.
 - 2. Threaded fittings, galvanized.
 - 3. Locknuts, 3/4 inch to 1-1/2 inch, heavy nut steel.
 - 4. Locknuts, 1-1/2 inch and larger, malleable iron.
 - 5. Insulated bushings, malleable iron, plastic or nylon insert, OZ "IBC" series, Efcor "56" series, Appleton "GIB" series or equal.
 - 6. Three-piece conduit couplings, malleable iron, T & B "Erickson", Appleton "EC" series, OZ "4" series, or equal.
- B. Intermediate Metal Conduit (IMC):
 - 1. Conform to UL 1242 and Federal Specification WW-C-581E, minimum size 3/4 inch.
 - 2. Fittings: As specified for rigid steel conduit.
- C. Electrical Metallic Tubing (EMT):
 - 1. Galvanized rolled steel ANSI C80.3.
 - 2. Fittings to 2 inch, rain-tight compression gland, steel, plated with zinc or cadmium, for wet

- locations and setscrew steel for dry locations.
3. Couplings, to 2 inch:
 - a. Compression type: OZ "6050S" series, T & B "5120" series, Efcor "760" series, or equal.
 - b. Setscrew type: OZ "5050S" series, Steel City "TK121" series, Efcor "730" series, or equal.
 4. Connectors, insulated throat:
 - a. Compression type: OZ "7050 ST" series, T & B "5123" series, Efcor "750B" Series, or equal.
 - b. Setscrew type: OZ "4050 ST" series, Steel City "TC721" series, Efcor "720B" Series, or equal.
 5. Couplings, 2-1/2 inch to 4 inch, set-screw, four screw, steel plated with zinc or cadmium, OZ "5250S" series, T & B "5042" series, Efcor "736" series, or equal.
 6. Connectors, 2-1/2 inch to 4 inch, insulated throat, set-screw, two screw, plated with zinc or cadmium, Appleton "TW250 SI" series, Efcor "726B" series, or equal.
 7. Adapter, EMT to rigid steel, zinc or cadmium plated malleable iron, OZ, T & B, Efcor, or equal.
 8. Maximum size, 2 inch, except for Telephone, 4 inch.
- D. Flexible Metal Conduit:
1. Fabricate from galvanized steel strip, minimum size 1/2 inch.
 2. Connectors, T & B "Tite Bite", with insulated throat, or equal.
 3. Length, no greater than 6 feet. Allow slack for movement of connected equipment.
- E. Liquid-tight Flexible Metal Conduit:
1. Fabricate from galvanized steel strip, jacketed with PVC, minimum size 1/2 inch.
 2. Straight connectors, cadmium plated steel or malleable iron, insulated throat and neoprene sealing ring, OZ "4Q-IT" series, T & B "5330" series, Efcor "11-B" series, or equal.
 3. Angle connectors, cadmium plated steel or malleable iron, insulated throat and neoprene sealing ring, OZ, T & B, Efcor, or equal, comparable to straight connectors.
 4. Hardware, cadmium plated steel.
 5. Length, no greater than 6 feet. Allow slack for movement of connected equipment.
- F. PVC Conduit:
1. Schedule 40, NEMA TC2, Type II underground installation.
 - a. Minimum size, 1 inch.
 - b. Elbows, Schedule 40, encased in concrete for sizes 2-inch and larger.
 - c. Extensions above grade, rigid steel (exposed), EMT (concealed indoors).
 - d. Adapters, PVC to rigid steel, threaded plastic.
 2. Schedule 80, NEMA TC2, Type II underground installations for emergency circuits.
 - a. Minimum size, 1 inch.
 - b. Elbows, Schedule 40, encased in concrete for sizes 2-inch and larger.
 - c. Extensions above grade, rigid steel (exposed), EMT (concealed indoors).
 - d. Adapters, PVC to rigid steel, threaded plastic.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install conduit in a neat and workmanlike manner in accordance with NECA 1.
- C. Conduit Support:
 1. Secure and support conduits in accordance with NFPA 70 and Section 26 05 29 using suitable supports and methods approved by the authority having jurisdiction.
 2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
- D. Connections and Terminations:

1. Use suitable adapters where required to transition from one type of conduit to another.
 2. Provide insulating bushings or insulated throats at all conduit terminations to protect conductors.
 3. Secure joints and connections to provide maximum mechanical strength and electrical continuity.
- E. Penetrations:
1. Do not penetrate or otherwise notch or cut structural members, including footings and grade beams, without approval of Structural Engineer.
 2. Make penetrations perpendicular to surfaces unless otherwise indicated.
 3. Provide sleeves for penetrations as indicated or as required to facilitate installation. Set sleeves flush with exposed surfaces unless otherwise indicated or required.
 4. Conceal bends for conduit risers emerging above ground.
 5. Seal interior of conduits entering the building from underground at first accessible point to prevent entry of moisture and gases.
 6. Where conduits penetrate waterproof membrane, seal as required to maintain integrity of membrane.
 7. Make penetrations for roof-mounted equipment within associated equipment openings and curbs where possible to minimize roofing system penetrations. Where penetrations are necessary, seal as indicated or as required to preserve integrity of roofing system and maintain roof warranty. Include proposed locations of penetrations and methods for sealing with submittals.
 8. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 84 00.
- F. Conduit Movement Provisions: Where conduits are subject to movement, provide expansion and expansion/deflection fittings to prevent damage to enclosed conductors or connected equipment. This includes, but is not limited to:
1. Where conduits cross structural joints intended for expansion, contraction, or deflection.
 2. Where conduits are subject to earth movement by settlement or frost.
- G. Condensation Prevention: Where conduits cross barriers between areas of potential substantial temperature differential, provide sealing fitting or approved sealing compound at an accessible point near the penetration to prevent condensation. This includes, but is not limited to:
1. Where conduits pass from outdoors into conditioned interior spaces.
 2. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.
- H. Provide grounding and bonding in accordance with Section 26 05 26.

3.02 RACEWAY SYSTEMS

- A. Install all wiring in raceways. Install raceway systems, including conduits, hangers and support channels parallel or perpendicular to structural members. Coordinate location of raceway systems with other Divisions prior to commencing installation.
- B. Rigid Steel Conduit: Suitable for use in all locations. Where used underground, wrap with no less than 2 layers of half-lapped 10 mil vinyl pipe wrapping tape, Manville, Minnesota Mining and Manufacturing Co., or equal.
- C. Intermediate Metal Conduit: As specified for rigid steel.
- D. Electrical Metallic Tubing: Suitable for use in concealed dry locations, not in concrete, masonry, or underground, and suitable exposed, minimum 8 feet above finished floor.
- E. Flexible Metal Conduit: Suitable for connection of recessed lighting fixtures, motors or other devices requiring flexible connections in dry locations.
- F. Liquid-Tight Flexible Metal Conduit: Suitable for connection of motors and equipment in damp or wet locations.

- G. PVC Conduit: Suitable for use underground, with a minimum of 18 inches of cover. Also suitable for use in concrete slabs. Fabricate field bends with an approved thermal bender and jig. Maintain separation between conduits using plastic spacers specifically designed for the purpose.
- H. Conduit Supports:
 - 1. Support all conduits at intervals not to exceed 10-feet.
 - 2. Support individual conduits with conduit hangers or clamp back and nest back, if required for entrance into the equipment.
 - 3. Support multiple conduits, 2 or more in parallel, with framing channel and pipe clamps.
 - 4. Spring steel fasteners may be used to fasten electrical metallic tubing to individual hanger wires, minimum #12 AWG, specifically used for hanging conduit, nothing else.
- J. Conduit Bends:
 - 1. Provide no more than (3) 90-degree conduit bends or the equivalent number of smaller radius bends in any conduit run between boxes or equipment.
 - 2. Length of run: 400-feet maximum less 100-feet for each equivalent 90 degree bend.
 - 3. Fabricate bends and offsets with a hickey or conduit bender designed specifically for use with the type of conduit to be bent, or use factory made bend.
 - 4. Radius of Underground Bends: Minimum 12 times conduit radius.
- K. Expansion Joints: Provide expansion couplings in conduit runs that cross expansion joints in the structures. Place expansion couplings at the expansion joints.
- L. Cap conduits during construction to prevent entrance of foreign material.
- M. Provide conduit-sealing bushings at conduit penetrations through exterior walls to seal against fluid and gas pressure around the conduit.
- N. Fit all conduits that enter the enclosure of a switchboard, distribution panel, or motor control center with an insulated grounding bushing.
- O. Fit PVC conduits that enter underground pullboxes and junction boxes with belled ends.
- P. Install pull ropes in all empty conduits, #12 AWG in conduits 1 inch and smaller and 3/16 inch polypropylene rope in conduits 1-1/4 inch and larger.

END OF SECTION

SECTION 26 05 37

BOXES

PART 1 GENERAL

1.01 SUMMARY

- A. Provide electrical materials, installation and testing for the interior improvements in City of San Leandro Police Building & South Office Modifications.

1.02 DESCRIPTION

- A. This section describes requirements for outlet boxes.

1.03 RELATED WORK

- A. Section 26 01 00: General Requirements for Electrical Work.

1.04 SUBMITTALS

- A. Procedure: Submit under provisions of Division 1.
- B. Provide submittals for items listed documenting compliance with specification requirements.
- C. Product Data:
 - 1. Electrical Materials: Manufacturer's current published catalog sheets.

PART 2 PRODUCTS

2.01 OUTLET BOXES

- A. Construction: Deep drawn or fabricated interlocked flat pieces with welded tabs, electro-galvanized sheet steel with electro-galvanized hardware. Do not use sectional boxes.
- B. Size: To accommodate the required number and sizes of conduits, wires, splices and devices but not smaller than the size indicated or specified.
- C. Plaster Ring: Provide flush with wall or ceiling finish, except where otherwise indicated or specified.
- D. Device Boxes: For single switches and receptacles, provide boxes not less than 4 inches square by 1-1/2 inches deep. For 2 devices, provide boxes not less than 4-11/16 inches square by 1-1/2 inches deep.
- E. Telecommunications Boxes: No less than 4-11/16 inches square by 2 inches deep.
- F. Special Mounting: In cabinets, tile, concrete block, brick, stone, wood or similar material, provide rectangular boxes with square corners and straight sides. For single devices, provide boxes 4 inches high by 2-1/2 inches wide by 3-3/8 inches deep. For 2 or more devices, provide multi-gang, non-sectional box with tile or masonry ring.
- G. Lighting Fixtures: 4-inch octagon by 2-1/8 inch deep, minimum. Fit boxes for surface or pendant mounted fixtures with 3/8-inch malleable iron fixture stud.

2.02 PULL AND JUNCTION BOXES

- A. General: For all pull and junction boxes over 300 cubic inches, provide code gauge, sheet steel boxes which meet NEMA 1 standards for panelboard and terminal cabinet box construction, with screw type covers.
- B. Ground Lug: Weld, before finish is applied, a grounding pad drilled for two bolted grounding lugs or two ground studs on the box interior.
- C. Finish: Apply rust inhibiting prime coat and 2 coats of baked enamel, standard factory gray.

- D. Hardware: Cadmium plated steel screws.

2.03 PRECAST CONCRETE BOXES

- A. Provide high-density reinforced concrete pull and junction boxes with end and side knockouts as manufactured by Christy, Forni, Brooks, or approved equal. Fabricated boxes with non-settling shoulders to facilitate maintaining grade during backfilling. Unless noted otherwise, provide galvanized steel checker plate covers with hold-down bolts, identified as follows:

<u>System</u>	<u>Identification</u>
Power - 600 volts or less	Electrical
Power - 2300 volts	Electrical (Provide high voltage warning sign per Title 8)

PART 3 EXECUTION

3.01 BOXES AND CABINETS

- A. Place outlet boxes in a location as close to that shown on the plans as possible. Coordinate location of boxes with other Divisions.
- B. Install wall mounted outlet boxes so that the distance from the centerline of the box to finished floor is as listed or indicated:
 - 1. Receptacles, + 18 inches
 - 2. Telephone, + 18inches
 - 3. Data, + 18 inches
 - 4. Switches, + 45 inches
- C. Install junction boxes with covers in concealed areas accessible after installation. Do not install junction boxes flush with finish walls or ceilings unless specifically approved by the Engineer.
- D. Attach surface boxes with:
 - 1. Steel or malleable iron expansion anchors in concrete or solid masonry.
 - 2. Wood screws in wood.
 - 3. Toggle bolts in hollow walls or masonry.
 - 4. Machine screws, bolts or welded studs in steel.
- E. Attach flush boxes with adjustable bar type hangers screw fastened to studs on both sides of the box.

END OF SECTION

SECTION 26 05 53

IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 DESCRIPTION

- A. Extent of electrical identification work is as outlined by this specification.
- B. Types of electrical identification work specified in this section include the following:
 - 1. Buried cable warnings.
 - 2. Electrical power, control and communication conductors.
 - 3. Operational instructions and warnings.
 - 4. Danger signs.
 - 5. Equipment/system identification signs.

1.02 RELATED REQUIREMENTS

- A. Section 26 01 00: General Requirements for Electrical Work.

1.03 QUALITY ASSURANCE

- A. California Electrical Code (CEC) Compliance: Comply with CEC as applicable to installation of identifying labels and markers for wiring and equipment.
- B. Underwriters Laboratories, Inc. (UL) Compliance: Comply with applicable requirements of UL Standard 969, "Marking and Labeling Systems", pertaining to electrical identification systems.
- C. American National Standards Institute (ANSI) Compliance: Comply with applicable requirements of ANSI Standard A13.1, "Scheme for the Identification of Piping Systems".
- D. National Electrical Manufacturer's Association (NEMA) Compliance: Comply with applicable requirements of NEMA Standard No's WC-1 and WC-2 pertaining to identification of power and control conductors.

1.04 SUBMITTALS

- A. Product Data: Submit manufacturer's data on electrical identification materials and products.
- B. Samples: Submit samples of each color, lettering style and other graphic representation required for each identification material or system.

PART 2 PRODUCTS

2.01 IDENTIFICATION REQUIREMENTS

- A. Identification for Equipment:
 - 1. Use identification nameplate to identify each piece of electrical distribution and control equipment and associated sections, compartments, and components.
- B. Identification for Conductors and Cables:
 - 1. Color Coding for Power Conductors 600 V and Less: Comply with Section 26 05 19.
 - 2. Use identification nameplate or identification label to identify color code for ungrounded and grounded power conductors inside door or enclosure at each piece of feeder or branch-circuit distribution equipment when premises has feeders or branch circuits served by more than one nominal voltage system.

2.02 IDENTIFICATION NAMEPLATES AND LABELS

- A. Identification Labels:
 - 1. Materials: Use self-adhesive laminated plastic labels; UV, chemical, water, heat, and abrasion resistant.

2. Text: Use factory pre-printed or machine-printed text. Do not use handwritten text unless otherwise indicated.

2.03 WARNING SIGNS AND LABELS

- A. Comply with ANSI Z535.2 or ANSI Z535.4 as applicable.
- B. Warning Signs:
 1. Materials:
 2. Minimum Size: 7 by 10 inches unless otherwise indicated.
- C. Warning Labels:
 1. Materials: Use factory pre-printed or machine-printed self-adhesive polyester, or self-adhesive vinyl labels; UV, chemical, water, heat, and abrasion resistant; produced using materials recognized to UL 969.
 2. Machine-Printed Labels: Use thermal transfer process printing machines and accessories recommended by label manufacturer.
 3. Minimum Size: 2 by 4 inches unless otherwise indicated.

2.04 ACCEPTABLE MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide electrical identification products of one of the following (for each type marker):
 1. Almetek,
 2. Brady, W.H. Company,
 3. Calipico Inc.,
 4. Cole-Flex Corporation,
 5. Direct Safety Company,
 6. George-Ingraham Corporation,
 7. Griffolyn Company,
 8. Ideal Industries, Inc.,
 9. LEM Products, Inc.,
 10. Markal Company,
 11. National Band and Tag Company,
 12. Panduit Corporation,
 13. Seton Name Plate Company,
 14. Tesa Corporation,
 15. Or equal.

2.05 ELECTRICAL IDENTIFICATION MATERIALS

- A. Except as otherwise indicated, provide manufacturer's standard products of categories and types required for each application. Where more than single type is specified for an application, provide single selection for each application.
- B. Color-Coded Plastic Tape:
 1. Provide manufacturer's standard self-adhesive vinyl tape not less than 3 mils thick by 1-1/2 inches wide.
 - a. Colors: Unless otherwise indicated or required by governing regulations, provide orange tape.
- C. Underground-Type Plastic Line Marker:
 1. Manufacturer's standard permanent, bright-colored, continuous-printed plastic tape, intended for direct-burial service; not less than 6 inches wide x 4 mils thick. Provide tape with printing which most accurately indicates type of service of buried cable.
- D. Cable/Conductor Identification Bands:
 1. Provide manufacturer's standard vinyl-cloth self-adhesive cable/conductor markers of wrap-around type, either pre-numbered plastic coated type, or write-on type with clear plastic self-adhesive cover flap; numbered to show circuit identification.

- E. Plasticized Tags:
 - 1. Manufacturer's standard pre-printed or partially pre-printed accident-prevention and operational tags, of plasticized card stock with matte finish suitable for writing, approximately 3-1/4 x 5-5/8 inches, with brass grommets and wire fasteners, and with appropriate pre-printed wording including large-size primary wording, e.g., DANGER, CAUTION, DO NOT OPERATE.
- F. Self-Adhesive Plastic Signs:
 - 1. Provide manufacturer's standard, self-adhesive or pressure-sensitive, pre-printed, flexible vinyl signs for operational instructions or warnings; of sizes suitable for application areas and adequate for visibility, with proper wording for each application, e.g., 208V, EXHAUST FAN, RECTIFIER.
- G. Colors: Unless otherwise indicated, or required by governing regulations, provide white signs with black lettering.
- H. Baked Enamel Danger Signs:
 - 1. General: Provide manufacturer's standard DANGER signs of baked enamel finish on 20-gauge steel; of standard red, black and white graphics; 14 x 10 inches size except where 10 x 7 inches is the largest size which can be applied where needed, and except where larger size is needed for adequate vision; with recognized standard explanation wording, e.g., HIGH VOLTAGE, KEEP AWAY, BURIED CABLE, DO NOT TOUCH SWITCH.
- I. Engraved Plastic-Laminate Signs:
 - 1. Provide engraving stock melamine plastic laminate, complying with FS L-P-387, in sizes and thicknesses indicated, engraved with engraver's standard letter style of sizes and wording indicated, black face and white core plies (letter color) except as otherwise indicated, punched for mechanical fastening except where adhesive mounting is necessary because of substrate.
 - 2. Thickness: 1/8 inch, except as otherwise indicated.
 - 3. Fasteners: Self-tapping stainless steel screws, except contact-type permanent adhesive where screws cannot or should not penetrate substrate.

2.06 LETTERING AND GRAPHICS

- A. General: Coordinate names, abbreviations and other designations used in electrical identification work, with corresponding designations shown, specified or scheduled. Provide numbers, lettering and wording as indicated or, if not otherwise indicated, as recommended by manufacturer or as required for proper identification and operation/maintenance of electrical systems and equipment. Comply with ANSI A13.1 pertaining to minimum sizes for letters and numbers.

PART 3 EXECUTION

3.01 APPLICATION AND INSTALLATION

- A. General Installation Requirements:
 - 1. Install electrical identification products as indicated, in accordance with manufacturer's written instructions, and requirements of CEC and OSHA.
 - 2. Coordination: Where identification is to be applied to surfaces which require finish, install identification after completion of painting.
 - 3. Regulations: Comply with governing regulations and requests of governing authorities for identification of electrical work.
- B. Conduit Identification:
 - 1. Where electrical conduit is exposed in spaces with exposed mechanical piping which is identified by color-coded method, apply color-coded identification on electrical conduit in manner similar to piping identification. Except as otherwise indicated use white as coded color for conduit.

- C. Box Identification:
 - 1. After completion, using an indelible wide tip marker, indicate on the cover of each junction and pull box the designation of the circuits contained therein, i.e., A-1, 3, 5. Use a black marker for normal power circuits a red marker for critical circuits, an orange marker for life safety circuits, and a green marker for equipment circuits.
 - 2. All junction and pull boxes for wiring systems above 600V shall be identified with high voltage warning labels installed every 20 linear feet in accordance with OSHA standards. All boxes shall also be painted red, see Section 09900 of the specifications.
 - 3. All junction and pull boxes for the fire alarm system shall be painted red. All raceway for the fire alarm system shall be labeled "Fire Alarm" in red letters on intervals not to exceed ten feet.
- D. Underground Cable Identification:
 - 1. During back-filling/top-soiling of each exterior underground electrical, signal or communication conduits, install continuous underground-type plastic line marker, located directly over buried line at 6 to 8 inches below finished grade. Where multiple small lines are buried in a common trench and do not exceed an overall width of 16 inches, install a single line marker.
 - 2. Install line marker for every buried conduit.
- E. Cable/Conductor Identification:
 - 1. Apply cable/conductor identification, including voltage, phase and feeder number, on each cable/conductor in each box/enclosure/cabinet where wires of more than one circuit or communication/signal system are present, except where another form of identification (such as color-coded conductors) is provided. Match identification with marking system used in panelboards, shop drawings, contract documents, and similar previously established identification for project's electrical work. Refer to Section 16100 - Basic Materials and Methods of these specifications for color coding requirements.
- F. Operational Identification and Warnings:
 - 1. Wherever required by OSHA or directed by the Owner's Representative, to ensure safe and efficient operation and maintenance of electrical systems, including prevention of misuse of electrical facilities equipment by unauthorized personnel, install self-adhesive plastic signs or similar equivalent identification, instruction or warnings on switches, outlets and other controls, devices and covers of electrical enclosures. Where detailed instructions or explanations are needed, provide plasticized tags with clearly written messages adequate for intended purposes. Request a meeting with the Owner's Representative prior to substantial completion to coordinate warning requirements.
- G. Danger Signs:
 - 1. In addition to installation of danger signs required by governing regulations and authorities, install appropriate danger signs at locations identified by the Owner's Representative as constituting similar dangers for persons in or about project. Request a meeting with the Owner's Representative prior to substantial completion to coordinate danger sign requirements.
 - a. High Voltage: Install danger signs wherever it is possible, under any circumstances, for persons to come into contact with electrical power of voltages higher than 110-120 volts.
 - b. Critical Switches/Controls: Install danger signs on switches and similar controls, regardless of whether concealed or locked up, where untimely or inadvertent operation (by anyone) could result in significant danger to persons, or damage to or loss of property.
- H. Equipment/System Identification:
 - 1. Install engraved plastic-laminate sign on each major unit of electrical equipment in building; including central or master unit of each electrical system including communication/control/signal systems, unless unit is specified with its own self-explanatory identification or signal system. Except as otherwise indicated, provide single line of text,

1/2 inch high lettering, on 1-1/2 inch high sign (2 inch high where 2 lines are required), white lettering in black field. Provide text matching terminology and numbering of the contract documents and shop drawings. Provide signs for each unit of the following categories of electrical work:

- a. Electrical cabinets and enclosures.
 - b. Access panel/doors to electrical facilities.
 - c. Transformers.
 - d. Fire alarm control panel, battery cabinets, voice alarm system cabinets, and transponders.
 - e. Automatic transfer switches.
2. Install signs at locations indicated or, where not otherwise indicated, at location for best convenience of viewing without interference with operation and maintenance of equipment. Secure to substrate with fasteners, except use adhesive where fasteners should not or cannot penetrate substrate. Identification of flush mounted cabinets and panelboards shall be on the inside of the device.
3. Panelboards, individually mounted circuit breakers, and each breaker in the switchboards, secondary unit substations, and distribution panels shall be identified with an engraved plastic laminate sign. Plastic nameplates shall be multicolored laminated plastic with faceplate and core as scheduled. Lettering shall be engraved minimum 1/4 inch high letters.
- a. 480/277 volt normal power equipment shall be identified with white faceplate with green core.
 - b. 480/277 volt life emergency branch power equipment shall be identified with white faceplate with red core.
 - c. 208/120 volt normal power equipment shall be identified with green faceplate with white core.
 - d. 208/120 volt emergency branch power equipment shall be identified with red faceplate with white core.
 - e. Equipment identification is to indicate the following:
 - 1) Equipment ID abbreviation.
 - 2) Voltage, phase, and wires.
 - 3) Emergency or other system.
 - 4) Power source origination.

Example:
Panel GLSH1
480/277V, 3 phase, 4 wire
Emergency System
Fed by GLSD1
- j. Submit complete schedule with the shop drawings listing all nameplates and information contained thereon.

END OF SECTION

This page intentionally left blank

SECTION 26 09 23
LIGHTING CONTROL

PART 1 – GENERAL

1.01 SUMMARY

- A. Section includes a networked lighting control system comprised of the following components:
 - 1. System Software Interfaces
 - a. Management and Visualization Interface
 - b. Historical Database and Analytics Interface
 - c. Personal Control Applications
 - d. Smartphone Programming Interface for wired devices
 - 2. System Backbone and Integration Equipment
 - a. System Controller
 - b. OpenADR Interface
 - 3. Wired Networked Devices
 - a. Wall Switches, Dimmers and Scene Controllers
 - b. Graphic Wall Stations
 - c. Auxiliary Input/Output Devices
 - d. Occupancy and Photocell Sensors
 - e. Power Packs and Secondary Packs
 - f. Networked Luminaires
 - g. Relay and Dimming Panel
 - 4. Wireless Networked Devices
 - a. Sensor Interface
 - b. Light Controllers
 - c. Digital Sensor Attachments
 - d. Networked Luminaires
 - e. Communication Bridge
- B. The networked lighting control system shall meet all of the characteristics and performance requirements specified herein.
- C. The contractor shall provide, install and verify proper operation of all equipment necessary for proper operation of the system as specified herein and as shown on applicable drawings.

1.02 RELATED DOCUMENTS

- A. Section 26 27 26 Wiring Devices
- B. Section 26 51 00 Interior Lighting Fixtures

1.03 SUBMITTALS

- A. Submittal shall be provided including the following items.
 - 1. Bill of Materials necessary to install the networked lighting control system.

2. Product Specification Sheets indicating general device descriptions, dimensions, electrical specifications, wiring details, and nomenclature.
3. Riser Diagrams showing device wiring connections of system backbone and also typical per room/area type.
4. Information Technology (IT) connection information pertaining to interconnection with facility IT networking equipment and third-party systems.
5. Other Diagrams and Operational Descriptions – as needed to indicate system operation or interaction with other system(s).
6. Contractor Startup/Commissioning Worksheet (must be completed prior to factory start-up).
7. Service Specification Sheets indicating general service descriptions, including startup, training, post-startup support, and service contract terms.
8. Hardware and Software Operation Manuals.

1.04 APPROVALS

- A. Prior approval from owner's representative is required for products or systems manufactured by companies not specified in the Network Lighting Controls section of this specification.
- B. Any alternate product or system that has not received prior approval from the owner's representative at least 10 days prior to submission of a proposal package shall be rejected.
- C. Alternate products or systems require submission of catalog datasheets, system overview documents and installation manuals to owner's representative.
- D. For any alternate system that does not support any form of wireless communication to networked luminaires, networked control devices, networked sensors, or networked input devices, bidders shall provide a total installed cost including itemized labor costs for installing network wiring to luminaires, control devices, sensors, input devices and other required system peripherals.

1.05 QUALITY ASSURANCE

- A. Product Qualifications
 1. System electrical components shall be listed or recognized by a nationally recognized testing laboratory (e.g., UL, ETL, or CSA) and shall be labeled with required markings as applicable.
 2. System luminaires and controls are certified by manufacturer to have been designed, manufactured and tested for interoperability.
 3. All components shall be subjected to 100% end of line testing prior to shipment to the project site to ensure proper device operation.
 4. All components and the manufacturing facility where product was manufactured must be RoHS compliant.
- B. Installation and Startup Qualifications
 1. System startup shall be performed by qualified personnel approved or certified by the manufacturer.
- C. Service and Support Requirements
 1. Phone Support: Toll free technical support shall be available.
 2. Remote Support: The bidder shall offer a remote support capability.
 3. Onsite Support: The bidder shall offer onsite support that is billable at whole day rates.
 4. Service Contract: The bidder shall offer a Service Contract that packages phone, remote, and onsite support calls for the project. Response times for each type of support call shall be indicated in the terms of the service contract included in the bid package.

1.06 WARRANTY

- A. The manufacturer shall provide a minimum five-year warranty on all hardware devices supplied and installed. Warranty coverage shall begin on the date of shipment.
- B. The hardware warranty shall cover repair or replacement any defective products within the warranty period.

1.07 MAINTENANCE & SUSTAINABILITY

- A. The manufacturer shall make available to the owner new parts, upgrades, and/or replacements available for a minimum of 5 years following installation.

PART 2 – EQUIPMENT

2.01 SYSTEM PERFORMANCE REQUIREMENTS

- A. System Architecture
 - 1. System shall have an architecture that is based upon three main concepts: (a) networkable intelligent lighting control devices, (b) standalone lighting control zones using distributed intelligence, (c) optional system backbone for remote, time based and global operation between control zones.
 - a. Intelligent lighting control devices shall have individually addressable network communication capability and consist of one or more basic lighting control components: occupancy sensor, photocell sensor, relay, dimming output, contact closure input, analog 0-10V input, and manual wall station capable of indicating switching, dimming, and/or scene control. Combining one or more of these components into a single device enclosure shall be permissible so as to minimize overall device count of system.
 - b. Lighting control zones consisting of one or more networked luminaires and intelligent lighting control devices and shall be capable of providing automatic control from sensors (occupancy and/or photocell) and manual control from local wallstations without requiring connection to a higher level system backbone; this capability is referred to as “distributed intelligence.”
 - c. System must be capable of interfacing directly with networked luminaires such that either low voltage network cabling or wireless RF communication is used to interconnect networked luminaires with control components such as sensors, switches and system backbone (see *Control Zone Characteristics* sections for each type of network connection, wired or wireless).
 - 2. The system shall be capable of providing individually addressable switching and dimming control of the following: networked luminaires, control zones to include multiple switch legs or circuits, and relay and dimming outputs from centralized panels to provide design flexibility appropriate with sequence of operations required in each project area or typical space type. A single platform shall be used for both indoor and outdoor lighting controls.
 - 3. Lighting control zones shall be capable of being networked with a higher level system backbone to provide time based control, remote control from inputs and/or systems external to the control zone, and remote configuration and monitoring through a software.
 - 4. All system devices shall support remote firmware update, such that physical access to each device is not necessary, for purposes of upgrading functionality at a later date.
 - 5. System shall be capable of “out of box” sequence of operation for each control zone. Standard sequence is:

- a. All switches control all fixtures in a zone
- b. All occupancy sensors automatically control all fixtures in the control zone with a default timeout.

B. Wired Networked Control Zone Characteristics

1. Following proper installation and provision of power, all networked devices connected together with low voltage network cable shall automatically form a functional lighting control zone without requiring any type of programming, regardless of the programming mechanism (e.g., software application, handheld remote, pushbutton). The "out of box" default sequence of operation is intended to provide typical sequence of operation so as to minimize the system startup and programming requirements and to also have functional lighting control operation prior to system startup and programming.
2. System shall be able to automatically discover all connected devices without requiring any provisioning of system or zone addresses.
3. The following types of wired networked control devices shall be provided for egress and/or emergency light fixtures:
 - a. Low-Voltage power sensing: These devices shall automatically provide 100% light level upon detection of loss of power sensed via the low voltage network cable connection.
 - b. UL924 Listed Line-Voltage power sensing: These devices shall be listed as emergency relays under the UL924 standard, and shall automatically close the load control relay(s) and provide 100% light output upon detection of loss of power sensed via line voltage connections.
 - c. Emergency egress devices shall be provided and UL labeled by the lighting control manufacturer.

C. Wireless Networked Control Zone Characteristics

1. Following proper installation and provision of power, all wireless networked devices paired, meshed or grouped together shall automatically follow the "out of box" default sequence of operations.
2. Wireless network communication shall support uniform and instant response such that all luminaires in a lighting control zone respond immediately and synchronously in response to a sensor or wallstation signal.
3. To support the system architecture requirement for distributed intelligence, wireless network communication shall support communication of control signals from sensors and wallstations to networked luminaires and wireless load control devices, without requiring any communication, interpretation, or translation of information through a backbone device such as a wireless access point, communication bridge or gateway.
4. All wireless communication shall be encrypted using at least 128-bit Advanced Encryption Standard (AES).
5. The following types of wired networked control devices shall be provided for egress and/or emergency light fixtures:
 - a. UL924 Listed Line-Voltage power sensing: These devices shall be listed as emergency relays under the UL924 standard and shall automatically close the load control relay(s) and provide 100% light output upon detection of loss or interruption of power sensed via line voltage connections.

D. System Integration Capabilities

1. The system shall interface with third party building management systems (BMS) to support two-way communication using the industry standard BACnet/IP or BACnet/MSTP protocols.

2.03 SYSTEM SOFTWARE INTERFACES

A. Management Interface

1. System shall provide a web-based management interface that provides remote system control, live status monitoring, and configuration capabilities of lighting control settings and schedules.
2. Management interface must be compatible with industry-standard web browser clients, including, but not limited to, Microsoft Internet Explorer®, Apple Safari®, Google Chrome®, Mozilla Firefox®.
3. All system software updates must be available for automatic download and installation via the internet.

B. Historical Database and Analytics Interface

1. System shall provide a browser-based trending and monitoring interface that stores historical data for all occupancy/daylight sensors and lighting loads. Additionally, the system shall optionally upload that data to a cloud-based server.

C. Visualization Interfaces

1. System shall provide an optional web-based visualization interface that displays a graphical floorplan. System data, to include status of occupancy sensors, daylight sensors and light output shall be overlaid to the floorplan to provide a graphical status page.

D. Portable Programming Interface for Standalone Control Zones

1. Portable handheld application interface for standalone control zones shall be provided for systems that allows configuration of lighting control settings.
2. Programming capabilities through the application shall include, but not be limited to, the following:
 - a. Switch/occupancy/photosensor group configuration
 - b. Manual/automatic on modes
 - c. Turn-on dim level
 - d. Occupancy sensor time delays
 - e. Dual technology occupancy sensors sensitivity
 - f. Photosensor calibration adjustment and auto-setpoint
 - g. Trim level settings

2.04 SYSTEM BACKBONE AND SYSTEM INTEGRATION EQUIPMENT

A. System Controller

1. System Controller shall be a multi-tasking, real-time digital control processor consisting of modular hardware with plug-in enclosed processors, communication controllers, and power supplies.
2. System Controller shall perform the following functions:
 - a. Facilitation of global network communication between different areas and control zones.
 - b. Time-based control of downstream wired and wireless network devices.
 - c. Linking into an Ethernet network.

- d. Integration with Building Management Systems (BMS) and Heating, Ventilation and Air Conditioning (HVAC) equipment.
 - e. Connection to various software interfaces, including management interface, historical database and analytics interface, visualization interface, and personal control applications.
3. System Controller shall not require a dedicated PC or a dedicated cloud connection.
 4. Device shall automatically detect all networked devices connected to it, including those connected to wired and wireless communication bridges.
 5. Device shall have a standard and astronomical internal time clock.
 6. Shall be capable of connecting to the customers Local Area Network (LAN) via IEEE 802.11.x Wireless and IEEE 802.3 Wired connection.
 7. System Controller shall support BACnet/IP and BACnet/MSTP protocols to directly interface with BMS and HVAC equipment without the need for additional protocol translation gateways.
 - a. BACnet/MSTP shall support a minimum of 50 additional BACnet MS/TP controllers in addition to the Expansion I/O modules.
 - b. BACnet/MSTP shall support 9600 to 115200 baud.
 - c. System Controller shall be BACnet Testing Laboratory (BTL listed) using Device Profile BACnet Building Controller (B-BC) with outlined enhanced features.
 - d. System controller must support BACnet/IP Broadcast Management Device (BBMD) and Foreign Device Registration (FDR).
- B. OpenADR Interface
1. System shall provide an interface to OpenADR protocol Demand Response Automation Servers (DRAS) typically provided by local electrical utility.
 2. OpenADR interface shall meet all of the requirements of Open ADR 2.0a Virtual End Nodes (VEN), including:
 - a. Programmable with the account information of the end-user's electrical utility DRAS account credentials.

2.05 WIRED NETWORKED DEVICES

- A. Wired Networked Wall Switches, Dimmers, Scene Controllers
1. Wall switches & dimmers shall support the following device options:
 - a. Number of control zones: 1, 2 or 4
 - b. Control Types Supported: On/Off or On/Off/Dimming
 2. Scene controllers shall support the following device options:
 - a. Number of scenes: 1, 2 or 4
 - b. Control Types Supported:
 - 1) On/Off or On/Off/Dimming
 - 2) Preset Level Scene Type
 - 3) Reprogramming of other devices within daisy-chained zone so as to implement user selected lighting scene
 - 4) Selecting a lighting profile to be run by the system's upstream controller so as to implement a selected lighting profile across multiple zones
- B. Wired Networked Graphic Wall Stations
1. Device shall have a full color touch screen.

2. Device shall enable configuration of all switches, dimmers, and lighting preset scenes via password protected setup screens.
3. Graphic wall stations shall support the following device options:
 - a. Number of control zones: Minimum of 16
 - b. Number of scenes: Minimum of 16
 - c. Optional password protection for setup screens.

C. Wired Networked Auxiliary Input / Output (I/O) Devices

1. Auxiliary Input/Output Devices shall be specified as an input or output device with the following options:
 - a. Contact closure input
 - 1) Input shall be programmable to support maintained or momentary inputs that can activate local or global scenes and profiles, ramp light level up or down, or toggle lights on/off.
 - b. 0-10V analog input
 - 1) Input shall be programmable to function as a daylight sensor.
 - c. RS-232/RS-485 digital input
 - 1) Input supports activation of up to 4 local or global scenes and profiles, and on/off/dimming control of up to 16 local control zones.
 - d. 0-10V dimming control output, capable of sinking a minimum of 20mA of current
 - 1) Output shall be programmable to support all standard sequence of operations supported by system.

D. Wired Networked Occupancy and Photosensors

1. Sensors shall utilize passive infrared (PIR) or passive dual technology (PDT) to detect both major and minor motion as defined by NEMA WD-7 standard.
2. Sensing technologies that are acoustically passive, meaning they do not transmit sound waves of any frequency do not require additional commissioning. Ultrasonic or Microwave based sensing technologies may require commissioning due to the active nature of their technology, if factory required.
3. Sensor programming parameter shall be available and configurable remotely from the software and locally via the device.
4. Sensor mounting type shall match project design requirements as shown on plans.
 - a. Sensors shall have optional features for photosensor/daylight override, dimming control, and low temperature/high humidity operation.
2. The system shall support the following types of photocell-based control:
 - a. On/Off: The control zone is automatically turned off if the photocell reading exceeds the defined setpoint and automatically turned on if the photocell reading is below the defined setpoint. A time delay or adaptive setpoint adjustable behavior may be used to prevent the system from exhibiting nuisance on/off switching.
 - b. Continuous Dimming: The control zone automatically adjusts its dimming output in response to photocell readings, such that a minimum light level consisting of both electric light and daylight sources is maintained at the task. The photocell response shall be configurable to adjust the photocell setpoint and dimming rates.

E. Wired Networked Wall Switch Sensors

1. Wall switches sensors shall support the following device options:

- a. User Input Control Types Supported: On/Off or On/Off/Dimming
 - b. Occupancy Sensing Technology: PIR only or Dual Tech
 - c. Daylight Sensing Option: Inhibit Photosensor
- F. Wired Networked Embedded Sensors
1. Embedded sensors shall support the following device options:
 - a. Occupancy Sensing technology: PIR only or Dual Tech
 - b. Daylight Sensing Option: Occupancy only, Daylight only, or combination Occupancy/Daylight sensor
- G. Distributed System Power, Switching and Dimming Controls
1. Devices shall incorporate one optional Class 1 relay, optional 0-10 VDC dimming output, and contribute low voltage Class 2 power to the rest of the system.
 2. Device programming parameters shall be available and configurable remotely from the software and locally via the device push-button.
 3. Device shall be plenum rated.
 4. Devices shall be UL Listed for load and load type as specified on the plans.
- H. Wired Networked Luminaires
1. Networked luminaire shall have a factory installed mechanically integrated control device and carry a UL Listing as required.
 2. Networked LED luminaire shall provide low voltage power to other networked control devices.
 3. System shall be able to maintain constant lumen output over the specified life of the LED luminaire (also called lumen compensation) by automatically varying the dimming control signal to account for lumen depreciation.
 4. System shall be able to provide control of network luminaire intensity, in addition to correlated color temperature of specific LED luminaires.
 5. Controls manufacturer is responsible for primary troubleshooting and tech support of complete fixture.
- I. Wired Networked Relay and Dimming Panel
1. Relay and dimming panel(s) shall be capable of providing the required amount of relay capacity, as required per panel schedules shown on drawings, with an equal number of individual 0-10V dimming outputs.
 2. Standard relays used shall have the following required properties:
 - a. Configurable in the field to operate with normally closed or normally open behavior.
 - b. Provides visual status of current state and manual override control of each relay.
 - c. Be individually programmable
 3. 0-10 dimming outputs shall support a minimum of 100mA sink current per output.
 4. Panel shall be UL924 listed for control of emergency lighting circuits.
 5. Panel shall provide a contact closure input that acts as a panel override to activate the normally configured state of all relays (i.e., normally open or normally closed) in the panel.

2.06 WIRELESS NETWORKED DEVICES

- A. Wireless Networked Sensor Interface
1. The device shall be capable of broadcasting the following manual wall control commands: on, off, and adjust dim level.
- B. Wireless Networked Light Controllers (No Sensor)

1. The wireless light controller shall be capable of providing continuous dimming and on/off control of one commercial light fixture including fluorescent, HID, induction and LEDs.
 2. An external antenna attached to the luminaire shall not be allowed.
 - a. Each wireless light controller shall provide measurement capability of the amperage, voltage, wattage, and watt-hours of its controlled lighting.
- C. Wireless Networked Digital Sensors
1. In addition to providing Wireless Networked Light Controllers functionality, also provides:
 - a. Integrated digital occupancy sensing and digital photocell sensor.
 - b. Sensor shall connect directly to the wireless light controller and shall be suitable for embedding into the enclosure of a luminaire.
 - c. Sensor shall have software-adjustable settings
 - d. Photocell shall be suitable for closed and open loop applications.
- D. Wireless Network Communication Bridge
1. A communication bridge device shall be provided that interfaces with the System Controller via Owner's LAN connection and interfaces with wireless network.
 2. Device shall be capable of communicating with a group of a minimum of 250 wireless networked devices and luminaires, so as to reduce the amount of communication bridges required in the system.

PART 3 – EXECUTION

3.01 INSTALLATION REQUIREMENTS

- A. Installation Procedures and Verification
1. The successful bidder shall review all required installation and pre-startup procedures with the manufacturer's representative through pre-construction meetings.
 2. The successful bidder shall install and connect the networked lighting control system components according to the manufacturer's installation instructions, wiring diagrams, the project submittals and plans specifications.
 3. The successful bidder shall be responsible for testing of all low voltage network cable included in the bid. Bidder is responsible for verification of the following minimum parameters:
 - a. Wire Map (continuity, pin termination, shorts and open connections, etc.)
 - b. Length
 - c. Insertion Loss
- B. Coordination with Owner's IT Network Infrastructure
1. The successful bidder is required to coordinate with the owner's representative to secure all required network connections to the owner's IT network infrastructure.
 - a. The bidder shall provide to the owner's representative all network infrastructure requirements of the networked lighting control system.
 - b. The bidder shall provide, to the manufacturer's representative, all necessary contacts pertaining to the owner's IT infrastructure, to ensure that the system is properly connected and started up.
- C. Coordination with Mechanical Division
1. The successful bidder shall provide all integration equipment detailed in Division 260943.

2. The successful bidder to verify integration scope with the Mechanical Contractor prior to submittal phase and provide all necessary schedules to the Lighting Control manufacturer.

D. Documentation and Deliverables

1. The installing contractor shall be responsible for documenting installed location of all networked devices, including networked luminaires. This includes responsibility to provide as-built plan drawing showing device addresses corresponding to locations of installed equipment.
2. The installing contractor is also responsible for the following additional documentation to the manufacturer's representative if visualization / graphical floorplan software is provided as part of bid package:
 - a. As-Built floor plan drawings showing wired network control zones outlined, in addition to device address locations required above. All documentation shall remain legible when reproducing\scanning drawing files for electronic submission.
 - b. As-Built electrical lighting drawings (reflected ceiling plan) in PDF and CAD format. Architectural floor plans shall be based on as-built conditions.
 - 1) CAD files shall have layers already turned on/off as desired to be shown in the graphical floorplan background images. The following CAD elements are recommended to be hidden to produce an ideal background graphical image:
Title block
Text- Inclusive of room names and numbers, fixture tags and drawings notes
Fixture wiring and homeruns
Control devices
Hatching or poché of light fixtures or architectural elements
 - 2) CAD files shall be of AutoCAD 2013 or earlier. Revit file overall floor plan views shall be exported to AutoCAD 2013.

3.02 SYSTEM STARTUP

- A. Upon completion of installation by the installer, including completion of all required verification and documentation required by the manufacturer, the system shall be started up and programmed by an authorized representative of the manufacturer.
 1. Low voltage network cable testing shall be performed prior to system startup at the discretion of the manufacturer.
- B. System start-up and programming shall include:
 1. Verifying operational communication to all system devices.
 2. Programming the network devices into functional control zones to meet the required sequence of operation.
 3. Programming and verifying all sequence of operations.
 4. Customization of owner's software interfaces and applications.
- C. Initial start-up and programming is to occur on-site. Additional programming may occur on-site or remotely over the Internet as necessary.

3.03 PROJECT TURNOVER

- A. System Documentation
 1. Submit software database file with desired device labels and notes completed.
- B. Owner Training
 1. Provisions for onsite training for owner and designated attendees to be included in submittal package.

END OF SECTION

This page intentionally left blank

SECTION 26 27 26

WIRING DEVICES

PART 2 PRODUCTS

1.01 ALL WIRING DEVICES

- A. Provide products listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

1.02 RELATED REQUIREMENTS

- A. Section 26 01 00: General Requirements for Electrical Work.

1.03 WIRING DEVICES

- A. Provide UL listed wiring devices, ivory or color selected by Engineer, with voltage and current ratings specified and wire terminations designed to contain stranded conductors. Provide grounding type receptacles. Provide RED color for all wiring devices connected to the emergency power system.
- B. Provide 120 volt single and duplex receptacles which meet Federal Specification W-C-596 as listed:
 - 1. SPECIFICATION GRADE - COMMERCIAL (DESIGNER)
 - 2. SPECIFICATION GRADE - COMMERCIAL
 - 3. STANDARD GRADE COMMERCIAL
- C. Provide receptacles other than 120 volt single and duplex as indicated.
- D. Provide 20 amp AC quiet type switches which meet federal specification W-C596 with voltage ratings to suit branch circuit requirements indicated and as listed.
- E. Listed manufacturers establish a standard of quality. Substitutions will be considered in accordance with Section 16010 - General Requirements for Electrical Work.
- F. Key Switches: Equivalent to listed switches, activated with removable key.
- G. Switch with Pilot Light: Leviton #5226, Bryant #6405, G.E. #7945, or equal.
- H. Wall Plates: Type 302 stainless steel, satin finish, minimum 0.040 inch thick, single or multiple gang.

END OF SECTION

This page intentionally left blank

SECTION 26 28 17

ENCLOSED CIRCUIT BREAKERS

PART 1 GENERAL

1.01 SUMMARY

- A. This section describes requirements for enclosed circuit breakers.

1.02 RELATED WORK

- A. Section 26 01 00: General Requirements for Electrical Work.

1.03 REFERENCE STANDARDS

- A. Design, manufacture and test the molded case circuit breakers in accordance with the latest applicable standards of the following:
 1. Underwriters Laboratories, Inc. (UL) 489: Molded Case Circuit Breakers.
 2. National Electrical Manufacturer's Association (NEMA) AB1: Molded Case Circuit Breakers.
 3. NEMA 250: Enclosures for Electrical Equipment.

1.04 SUBMITTALS

- A. Provide submittals for item listed documenting compliance with specification requirements.
- B. Product Data: Provide manufacturer's current published catalog sheets, including equipment ratings (voltage, current, interrupting rating, cable terminal size), weights, dimensions, wiring schematics, connection details, performance characteristics, finishes and accessories for the listed items.
 1. Enclosed circuit breakers.
- C. Shop Drawings: Provide dimensioned drawings with equipment and materials lists, schedules, details of construction and wiring diagrams for the listed items.
 1. Enclosed circuit breakers.

1.05 DELEIVERY, STORAGE, AND HANDLING

- A. Store and handle equipment in accordance with manufacturer's instructions. Include one (1) copy of these instructions with equipment at time of shipment.

PART 2 PRODUCTS

2.01 ENCLOSED CIRCUIT BREAKERS

- A. Description: Units consisting of molded case circuit breakers individually mounted in enclosures.
- B. Provide products listed and labeled by Underwriters Laboratories Inc. as suitable for the purpose indicated.
- C. Unless otherwise indicated, provide products suitable for continuous operation under the following service conditions:
 1. Altitude: Less than 6,600 feet.
 2. Ambient Temperature: Between 23 degrees F and 104 degrees F.
- D. Short Circuit Current Rating is to match upstream circuit breaker.
- E. Conductor Terminations: Suitable for use with the conductors to be installed.
- F. Provide solidly bonded equipment ground bus in each enclosed circuit breaker, with a suitable lug for terminating each equipment grounding conductor.
- G. Enclosures: Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E.

1. Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:

H. Provide externally operable handle with means for locking in the OFF position.

2.02 ENCLOSED CIRCUIT BREAKERS

A. Nameplates:

1. Provide a nameplate identifying enclosed circuit breaker in accordance with Section 26 01 00 - General Requirements for Electrical Work.
2. Provide a manufacturer's nameplate on the enclosed interior panel indicating enclosed circuit breaker voltage rating, current rating and manufacturer's name.

B. Circuit Breakers: Thermal magnetic, molded case, with inverse time current overload, and instantaneous magnetic trips, trip-free and trip-indicating all poles of multi-pole device shall operate simultaneously during open, close and trip operations. Provide circuit breakers indicated with the following ratings:

<u>Circuit Breaker Frame Size</u>	<u>Trip Rating (Amperes)</u>	<u>Voltage (Ac Rating)</u>	<u>Symmetrical AC Interrupting Capacity</u>
100/1 pole	15 - 100	20	10,000 Min.
100/2 & 3 poles	15 - 100	240	10,000 Min.
150/2 & 3 poles	110 - 150	240	18,000 Min.
225/3 poles	125-225	240	22,000 Min.
100/1 pole	15-100	277	14,000 Min.
100/2 & 3 poles	15-100	480	14,000 Min.
150/2 & 3 poles	110-150	480	25,000 Min.
225/3 poles	125-225	480	25,000 Min.

C. Manufacturer: Cutler Hammer, General Electric, Square D.

D. The listing of specific manufacturers above does not imply acceptance of their products that do not meet the specified ratings, features and functions. Manufacturers listed above are not relieved from meeting these specifications in their entirety.

2.03 ENCLOSURES

A. Provide NEMA 1 general purpose enclosures for all enclosed circuit breakers unless otherwise noted. Provide enclosures suitable for locations as indicated on the drawings and as described below.

1. NEMA 1 surface or flush-mounted general purpose enclosures primarily intended for indoor use.
2. NEMA 12 dust-tight enclosures intended for indoor use primarily to provide protection against circulation dust, falling dirt and dripping non-corrosive liquids.
3. NEMA 3R rain-tight encloses intended for outdoor use primarily to provide protection against rain, sleet and damage from external ice formation.
4. NEMA 4 watertight stainless steel intended for indoor or outdoor use primarily to provide protection against windblown dust and rain, splashing rain, hose-directed water and damage from external ice formation.
5. NEMA 7: Class I, Group C and D hazardous location cast aluminum intended for indoor use in locations classified as Class I, Group C and D in the California Electrical Code (CEC).
6. NEMA 9: Class II, Group E, F and G hazardous location cast aluminum intended for indoor use in locations classified as Class II, Group E, F and G in the CEC.

B. Provide nameplates that contain a permanent record of catalog number and maximum rating on all enclosed circuit breakers. Provide handle mechanisms that are pad-lockable in the "OFF" position.

PART 3 EXECUTION

3.01 FACTORY TESTING

- A. Provide standard factory tests on the equipment under this section. Provide all tests in accordance with the latest version of NEMA and UL standards.

3.02 INSTALLATION

- A. Install all equipment per the manufacturer's recommendations and the contract drawings.

3.03 FIELD SETTINGS

- A. Perform field adjustments of the circuit breakers as required to place the equipment in final operating condition. Provide settings in accordance with the approved protective device coordination study or as directed by the Engineer.

END OF SECTION

This page intentionally left blank

SECTION 26 28 18

ENCLOSED SWITCHES

PART 1 GENERAL

1.01 SUMMARY

- A. Provide electrical materials, installation and testing for the interior improvements in City of San Leandro Police Building & South Office Modifications.

1.02 DESCRIPTION

- A. This section describes requirements for fused and non-fused disconnects.

1.03 RELATED WORK

- A. Section 26 01 00: General Requirements for Electrical Work.

1.04 SUBMITTALS

- A. Submit manufacturers' data and shop drawings in accordance with Section 01 30 00 - Administrative Requirements and Section 01 60 00 - Product Requirements for items listed.
- B. Provide submittals for items listed documenting compliance with specification requirements.
- C. Product Data:
 - 1. Electrical Materials: Manufacturer's current published catalog sheets.

PART 2 PRODUCTS

2.01 DISCONNECTS, FUSED AND NON-FUSED

- A. Where indicated, provide horsepower rated disconnect switches, pad-lockable in the open position.
- B. Three Phase Switches (over 10 horsepower):
 - 1. Fused or non-fused, as indicated, 600 VAC, heavy duty type safety switches, mounted in NEMA 1 general purpose enclosures in dry locations and NEMA 3R rain-tight enclosures in damp or wet locations, Westinghouse "H600", General Electric "Type TH", Square D "Heavy Duty" or equal.
 - 2. Clearly indicate on the switch enclosure the "on" and "off" positions.
 - 3. Mechanisms, quick-make, quick-break.
 - 4. Door interlock, defeatable to facilitate access into the switch enclosure with the switch in the closed position. Equip fusible switches with Class R fuse rejection clips.
- C. Single Phase Switches (non-fused):
 - 1. 120/240 VAC, general duty type safety switches, mounted in NEMA 1 general purpose enclosures in dry locations and NEMA 3R rain-tight enclosures in damp or wet locations, Cutler Hammer "DG", General Electric "Spec-Setter TG", Square D "Class 3130" or equal.
 - 2. Clearly indicate on the switch enclosure the "on" and "off" positions.
 - 3. Mechanisms, quick make, quick break
 - 4. Door interlock, defeatable to facilitate access into the switch enclosure with the switch in the closed position.

PART 3 EXECUTION

3.01 DISCONNECT SWITCHES

- A. Install disconnect switches where indicated. Provide all mounting hardware and accessories.
- B. Provide a flexible connection from the disconnect switch to the motor unless otherwise indicated.

City of Stockton Police HQ Women's Locker Room Remodel

- C. Attach disconnect switches with specified anchors.
- D. Apply phase tape and identify circuit numbers as specified.
- E. Install fuses where indicated or when required by UL listing of equipment.

END OF SECTION

SECTION 26 50 10
LED LIGHTING

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: LED Luminaires, LED modules, drivers, emergency battery drivers, light standards.

1.02 REFERENCES

- A. Publications are referenced within the text by their basic designation only. The most current version shall apply.
- B. American National Standards Institute/American National Standard Lighting Group ANSI/ANSI/ANSI – C78.377-2017 Specifications for the Chromaticity of Solid State Lighting Products.
- C. American National Standards Institute/American National Standard Lighting Group ANSI/ANSI/ANSI – C82.77-2020 Harmonics Emission Limits.
- D. Federal Communication Commission (FCC) 47 CFR Part 15 – Radio Frequency Devices.
- E. Illuminating Engineering Society of North America (IESNA) LM-79-, LM-80-15, and TM-21.
- F. National Electrical Manufacturers Association (NEMA) SSL-1-2016 Electronic Drivers for LED Devices, Arrays, or Systems.
- G. SSL-3-2010 Solid State Lighting High Power LED Binning for General Illumination.
- H. SSL-4-2012 Solid State Lighting Retrofit Lamps.
- I. National Fire Protection Association (NFPA) NEC-70-2011
- J. Underwriters Laboratories (UL) 8750-Light Emitting Diode (LED) Equipment for Use in Lighting Products.
- K. Underwriters Laboratories (UL) 1598C- Light Emitting Diode (LED) Retrofit Luminaire Conversion Kits.

1.03 SUBMITTALS

- A. List of Materials: Submit a complete list of proposed materials.
- B. Shop Drawings: Provide detailed and dimensioned Shop Drawings indicating kind, weight and thickness of materials, method of fitting and fastening parts together, location and number of sockets, size of lamps, and complete details of method of fitting suspension and fastening luminaires in place. Provide wiring diagrams for lighting control equipment. Drawings shall contain sufficient information to assemble and install equipment at the Project site without further instructions.
- C. Prior to start of construction; provide photometric calculations with graphic of lighting foot-candle levels at work plane, ceiling and walls. Calculations shall comply with IESNA recommendations.
- D. Installation Instructions: Submit manufacturer's written installation instructions for luminaires and accessories.

1.04 SUBSTITUTIONS

- A. Luminaires that deviate from these requirements shall not be accepted without written approval from the Owners representative. When deviating or substituting luminaires, the following information shall be submitted:

1. Comparison with specified
2. Benefit for the Owner.
3. Prior to start of construction; provide photometric calculations with graphic of lighting foot-candle levels at work plane, ceiling and walls. Calculations shall comply with IESNA recommendations.

1.05 QUALITY ASSURANCE

- A. Design of lighting luminaires, accessories, supports, and method of luminaire installation shall comply with requirements for earthquake-resistant construction of the State of California.
- B. Provide suspension points at no more than two feet from luminaire ends. Spacing between supports shall not exceed eight feet.
- C. Components and luminaires shall be listed and approved for the intended application by Underwriter's Laboratories (UL), or other Nationally Recognized Testing Laboratory (NRTL), and in compliance with applicable industry standards and codes, including those mentioned under article 1.02 – References.

1.06 WARRANTY

- A. Provide one-year labor warranty.
- B. Provide material warranty as specified:
 1. LED modules: five years minimum.
 2. Drivers: five years minimum.
- C. Warranty period begins at substantial completion or project acceptance for beneficial occupancy.
- D. CONTRACTOR shall warranty Luminaires, including drivers, LED modules and ancillary components via a single warranty source. Multiple warranty sources is not acceptable.

PART 2 - PRODUCTS

2.01 MATERIAL AND FABRICATION

- A. Lighting luminaires shall be the type indicated on Drawings and as specified. Luminaires of same type shall be of one manufacturer.
- B. Specific manufacturer and model number references are indicated as a standard of performance and quality; other manufacturers' models may be submitted for review, provided the product meets or exceeds the specifications, and has benefit to the Owner.
- C. Conductors that pass over edges or through metal opening(s) shall be secured from contacting the edges or be protected from cutting and abrasion. This requirement shall be met through one of the following:
 1. Rolling the edge of the metal not less than 120 degrees.
 2. A bushing or grommet of a material other than rubber at least 1.2 mm (0.047") thick.
 3. Glass sleeving at least 0.025 mm (0.010") thick.
- D. Lighting luminaires shall meet the following requirements:
 1. Industry standards as indicated under REFERENCES Article.
 2. Luminaire shall be from a manufacturer who has been in the business of manufacturing LED lighting luminaires for interior and exterior applications for a minimum of 5 years.

3. Luminaires shall comply with the California Health and Safety Code requirements for products containing substances identified in the California Lighting Efficiency and Toxics Reduction Act, or be in compliance with the European Restriction of Hazardous Substances (RoHS), whichever is more stringent.
4. Luminaires shall be baked-on enamel or powder-coated, unless otherwise specified in this section.
5. The luminaire(s) lens, including end caps shall be 0.187 nominal thickness (for polycarbonate lenses), 0.125 nominal thickness (for acrylic lenses).
6. Drivers shall be easily accessible without the use of special tools.
7. Wiring cavity shall be field accessible for service or repairs.
8. Luminaires shall be capable of being operated by standard motion/ vacancy sensors, daylight sensors, and dimmers.
9. Luminaires shall be provided with a manufacturer's stencil or permanent legible sticker that states manufacturer business information and date of delivery.
10. Temperature rating; -20 degrees Celsius minimum starting temperature. Luminaire accessories including LEDs and drivers shall be able to withstand temperatures in excess of 110 Fahrenheit degrees.
11. Color Rendering Index (CRI):
 - 1) Interior Applications: +85 CRI.
 - 2) Exterior Applications: +70 CRI
12. Power factor: Greater than 0.9 at 120V and 277V.
13. Total Harmonic Distortion: Less than 20% at 120V and 277V.
14. Color Correlated Temperature: 4000K minimum \pm 275K degrees.
15. LEDs and drivers life expectancy: 50,000 minimum projected hours at 6,000 hours testing for both LEDs and drivers.
16. Interior Light Reflecting Finishes: White or specular finish with not less than 85% reflectance.
17. Exterior Finishes: As detailed on luminaire schedule or on drawings.
18. Luminaires in contact with insulation materials shall be IC rated.

2.02 DRIVERS and LED MODULES

- A. Drivers:
 1. Approved Drivers Manufacturers:
 - a. Osram – Optotronic.
 - b. Philips – Advance and Xitanium.
 - c. Universal Lighting Technologies – Everline.
 - d. General Electric – Lightech.
 - e. Thomas Research Products
 - f. Kenall – Low Profile LED Driver
 - g. EldoLED
 - h. Or approved equal.

2. Driver Type and Characteristics:
 - a. Comply with the state of California Health and Safety Code requirements for products containing substances identified in the California Lighting Efficiency and Toxics Reduction Act, or be RoHS compliant, whichever is more stringent.
 - b. Dimming for 0-10 volt DC control circuits. Drivers shall be specifically compatible with the lighting control system being provided.
 - c. Comply with applicable state, federal, and industry standards listed under References article.
 - d. Wattage as stated in Luminaire's LM-79 test report.

B. LEDs:

1. Approved Manufacturers:
 - a. General Electric.
 - b. Philips.
 - c. NICHIA
 - d. Samsung LED Co.
 - e. CREE
 - f. Or approved equal.
2. LEDs Characteristics:
 - a. Lumen Maintenance: Greater than 90% at 50⁰ C degrees.
 - b. LEDs must be from same manufacturer and batch.
 - c. TM-21 and LM-80 reported hours of no less than 50,000.
 - d. LM-79 reported CCT and CRI in compliance with articles 2.09.D.9 and 12.
 - e. Color Correlated Temperature (CCT) shall be in compliance with ANSI C78.377-2008.

2.03 ENCLOSED, GASKETED LUMINAIRE:

- a. Luminaire shall be 20 gage steel.
- b. Lens enclosure shall be heavy duty vapor tight enclosed gasketed with closed-cell foam gasketing permanently attached to luminaire housing.
- c. Luminaire shall have tamperproof latches.
- d. Luminaire shall be furnished with minimum one watertight hub kit for top or end conduit entry.
- e. Luminaire shall have option for cable mount and safety strap
- f. Wet Location listed.

2.04 EXIT ILLUMINATION

- a. Ceiling or wall mounted, LED exit light
- b. LED green exit lettering and directional arrows as indicated on drawings.
- c. Number of faces as indicated on drawings.

- d. Provide with emergency battery pack capable of operating exit light for minimum of 90 minutes.

2.05 EMERGENCY BATTERY OPERATED POWER SUPPLY

2. Shall be self-contained, battery operated power supply for operating LEDs for minimum of 90 minutes.
3. Manufacturer: Bodine

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install a lighting luminaire for each lighting outlet indicated and label with day of installation.
- B. Luminaire voltage shall be as indicated on Drawings.
- C. Install recessed and surface-mounted luminaires, with plaster frames compatible with ceiling and wall systems employed; secure luminaires mechanically to frames.
- D. Align rows of suspended and surface-mounted luminaires to form straight lines at uniform elevations.
- E. Recessed luminaires shall fit snugly against ceilings to prevent light leakage.
- F. Luminaire installations shall comply with CBC Seismic requirements
- G. Support suspended recessed luminaires as shown on drawings. If there is no support detail than suspend recessed luminaires in T-bar ceilings as follows: Luminaires shall be attached to ceiling grid to resist a horizontal force equal to weight of luminaires. For heavy-duty grid systems, luminaires weighing less than 56 pounds must also have two 12 gage slack safety wires from diagonal corners to the structure above; luminaires weighing more than 56 pounds shall be independently supported by not less than four taut 12 gage wires capable of supporting four times the load. For intermediate duty grid systems, luminaires shall be independently supported by not less than four taut 12 gage wires capable of supporting four times the load. Luminaire hanger wire ends shall be twisted three tight turns within a 1 ½ -inch distance. Provide positive point of attachment to T-bar ceiling with four, #8 wafer head tek screws (one at each corner), avoiding conflict with operation of the lens. Luminaire installation shall be coordinated with acoustical ceiling installation.
- H. Continuous suspended luminaires:
 1. Luminaire suspension device shall allow vertical adjustment of luminaire without the use of tools. For continuous linear suspended luminaires longer than eight feet, provide not less than three suspension points.
 2. Top of luminaire shall be suspended as shown on the Drawings.
 3. Luminaire shall utilize factory furnished or approved hardware and canopy for either hard or T-bar ceilings.
- I. Surface mount luminaires shall be attached to structure. Toggle bolts are NOT permitted. Provide backing where required.

3.02 TESTING

- A. Check and adjust luminaires for required illumination.
- B. Replace defective LED strips and drivers.
- C. Test and adjust lighting control equipment for proper operation.

3.03 SPARE PARTS

- A. Furnish ten percent spare LED strips with a minimum of one spare strip of each type.
- B. Furnish ten percent spare motion detectors of each type with a minimum of one spare detector of each type.
- C. Furnish ten percent spare drivers of each type with a minimum one spare driver of each type.

3.04 HAZARDOUS WASTE DISPOSAL

- A. Hazardous waste disposals shall be handled and disposed of by an approved, licensed contractor.
- B. Products with PCBs are not acceptable. Hazardous waste shall be placed in appropriate containers provided by hazardous waste contractor labeled clearly with:
 - 1. Project Name
 - 2. Quantity of materials
 - 3. Date materials became waste
- C. Store, remove, transport and dispose of hazardous materials in accordance with state and federal regulations.
- D. Provide Owner with copy of manifest and certificate of destruction.

3.05 PROTECTION

- A. Protect the Work of this section until Substantial Completion.

3.06 CLEANUP

- A. Remove rubbish, debris, and waste materials from all areas of work each day.
- B. Clean luminaire surfaces of dirt, cement, plaster and debris. Furnish cleansers compatible with material surfaces being cleaned.

END OF SECTION



Hazard Management Services, Inc.

207 McHenry Ave. • Modesto, CA 95354
(209) 551-2000 • www.hazmanage.com

October 24, 2017

Ms. Candace Harrison, AIA
Project Architect
Indigo Hammond and Playle Architects, LLP
909 Fifth Street
Davis, CA 95616

Dear Ms. Harrison:

This letter contains the results of a hazardous materials inspection performed by Hazard Management Services, Inc. (HMS, Inc.) of the Stockton Police Department located at 22 East Market Street in Stockton, CA. This inspection was requested in preparation for future renovation of the basement and first floor. The inspection was performed on October 17, 2017 and October 18, 2017 by Tyler Faison and Stephany Godinez. Mr. Faison is a Cal/OSHA Certified Site Surveillance Technician, EPA-accredited Building Inspector, and CDPH Certified Lead Sampling Technician. Ms. Godinez is an EPA-accredited Building Inspector. The methods used were reviewed, and this report compiled, by Chris Chipponeri. Mr. Chipponeri is a Cal/OSHA Certified Asbestos Consultant, EPA-accredited Building Inspector, and CDPH-accredited Inspector and Risk Assessor. See attached HMS, Inc. personnel certifications.

Procedures – Asbestos

A walkthrough of the spaces was performed, and samples were collected from suspect materials identified which may be impacted by renovation work. Each bulk sample was given a unique number, identified on a chain of custody, packaged, and sent via FedEx to Forensic Analytical Laboratories, Inc. (FALI) in Hayward, California. FALI is accredited by the National Institute of Standards and Technology's National Voluntary Laboratory Accreditation Program for the analysis of bulk asbestos fibers by polarized light microscopy with dispersion staining. See attached FALI laboratory accreditation.

Results – Asbestos

A total of 42 samples was collected from 36 identified suspect materials. Of the 36 materials sampled, six materials were found to contain asbestos and are known to be asbestos containing from prior inspections. The table below identifies the asbestos-containing materials, percentage and type of asbestos by visual estimation, approximate amount of material identified, and the US EPA National Emission Standard for Hazardous Air Pollutants (NESHAP) category for the material.

Material	Percent & Type	Approximate Amount	NESHAP Category
12" Vinyl Floor Tile – Beige w/ Brown Streaks	5% - Chrysotile	7,268 square feet	Category I Non-Friable
12" Vinyl Floor Tile – Beige Oatmeal	5% - Chrysotile	340 square feet	Category I Non-Friable
12" Vinyl Floor Tile – Grey/Tan Stone	5% - Chrysotile	337 square feet	Category I Non-Friable
12" Vinyl Floor Tile – Green w/ Dark Streaks	5% - Chrysotile	2,348 square feet	Category I Non-Friable
Drywall – Orange Peel Texture	2% - Chrysotile	14,954 square feet	RACM/Friable
Drywall – Knockdown Texture	2% - Chrysotile	488 square feet	RACM/Friable
Transite Panels – Storefront	Known	44 square feet	Category II Non-Friable



Continued

Material	Percent & Type	Approximate Amount	NESHAP Category
12" Vinyl Floor Tile – Black w/ White Streaks	5% - Chrysotile	872 square feet	Category I Non-Friable
Thermal System Insulation – Hard Elbows	Known	77+ elbows	RACM/Friable
Plaster – Orange Peel Texture	2% Chrysotile	12,193 square feet	RACM/Friable
12" Vinyl Floor Tile – Beige Specks	5% Chrysotile	3,002 square feet	Category I Non-Friable
12" Vinyl Floor Tile – White/Blue Oatmeal	5% Chrysotile	238 square feet	Category I Non-Friable

The following materials may be impacted by any personnel without regard to asbestos work practices:

- | | |
|---|---|
| CMU and Grout – Grey | Plaster – Sand Finish |
| 1" Ceramic Tile and Grout – Pink | 12" ACT – Rough Pinhole |
| 4" Ceramic Tile and Grout – Pink | Stone Flooring – Salt & Pepper |
| 4" Ceramic Tile and Grout – White | Brick and Mortar – White |
| Tackboard – Beige | Window Sealant – Black |
| 2' x 2' FCP – Pinhole Fissure | Button Board |
| Tackboard – White | 4" Baseboard and Mastic – Brown (260 linear feet) |
| Drywall – Unfinished | 2' x 4' FCP – Pinhole Fissure |
| Tackboard – Brown | White Sink Sealant |
| Carpet and Mastic – Blue Multi | Carpet and Mastic – Dark Blue |
| Carpet and mastic – Grey Multi | 12" ACT and Mastic – Heavy Texture |
| Carpet and Mastic – Beige | Stone Wall and Grout – White |
| Linoleum and Mastic – Grey/Red Stone | Tackboard – Black |
| 4" Baseboard and Mastic – Grey (138 linear feet) | Carpet and Mastic – Tan Squares |
| 12" ACT – Random Hole | 12" ACT – Pinhole Fissure |
| 4" Baseboard and Mastic – White (128 linear feet) | Canvas Duct Tape |
| 2" Ceramic Tile and Grout – Tan | Fiberglass Insulation |
| 4" Ceramic Tile and Grout – Cream Stone | 4" Baseboard and Mastic – Black (4,072 linear feet) |
| 2" Baseboard and Mastic – Black (112 linear feet) | |

Note: Although baseboards were found to be asbestos-free during laboratory analysis, all baseboards attached to plaster and drywall walls shall be treated as asbestos-containing. See approximate amounts of baseboards listed above.

Attached to this report are Function Space Notes identifying each space inspected and providing a breakdown of components within each space inspected. Also attached are sample maps for the location of samples collected during this inspection.

Recommendations – Asbestos

Since more than 100 square feet of the asbestos-containing materials will be impacted as part of this renovation project, a contractor registered with Cal/OSHA as an asbestos abatement contractor must perform the removal of the materials. The workers performing the work will need to have AHERA Worker training with at least one worker trained to the AHERA Contractor-Supervisor level. The workers will need to perform removal of the material using Cal/OSHA Class I and Class II abatement work practices. The contractor will need to file a notification with the local Cal/OSHA office at least 24 hours prior to abatement activities commencing at the site. Workers will need to handle asbestos-containing materials in accordance with 8 CCR 1529.



Ms. Candace Harrison
Indigo Hammond and Playle Architects, LLP
Page Three
October 24, 2017

The US EPA NESHAP regulation requires the abatement of any materials that contain greater than 1% asbestos and that are friable or likely to become friable during demolition/renovation activities. A 10-working day notification will need to be filed with the local San Joaquin Valley Air Pollution Control District (San Joaquin Valley APCD) prior to abatement activities commencing. There are fees associated with this notification that would need to be paid prior to the 10-working day period commencing. Since the flooring materials and transite panels are non-friable, and should remain so during removal, a notification is not required to be filed with the San Joaquin Valley APCD for these abatement projects. HMS, Inc. does recommend that the contractor submit a courtesy notification to the San Joaquin Valley APCD at least 24 hours prior to work commencing. If the method of removal may make the materials friable, then a 10-working day notification would be required to be filled with the San Joaquin Valley APCD.

Any non-friable materials that may become friable during abatement, will need to be disposed of as hazardous (regulated) asbestos-containing material. For non-friable materials that are not made friable, the materials may be disposed of as non-hazardous asbestos-containing material.

To comply with California State License Board requirements, the contractor performing abatement will need to hold the C-22 asbestos abatement license or the C-class specialty license for each trade work to be performed with asbestos certification. If the contractor is performing two trades work or more, the contractor may also hold the B-class general license with asbestos certification.

Procedures - Lead

A Niton X-Ray Fluorescence Spectrum Analyzer (XRF) was used to perform a lead paint inspection of paints/coating that may be impacted during renovation activities. An XRF measures the lead concentration in paints or coatings by emitting a low dosage of radiation into the surface. The radiation causes lead molecules that may be present to release x-rays back to the unit. The XRF then calculates the amount of lead present in a paint of coating by the number of x-rays emitted and provides the results in milligrams per square centimeter units (mg/cm²). Attached to this report is a table identifying all sample locations, color and component tested, condition of the paint, the results, and any additional comments that may be noted.

Results - Lead

The following paints were found to be lead-based by XRF analysis:

No.	Color	Substrate (approximate amount)	Component	Condition	XRF Result (mg/cm ²)
9.	Pink	4" Ceramic Tile (309 square feet)	Wall	I	2.9
53.	White	4" Ceramic Tile (80 square feet)	Wall	I	10.1
76.	Cream	4" Ceramic Tile (451 square feet)	Wall	I	9.7

All remaining paints were found to be lead-containing by XRF analysis.

Recommendations – Lead

Workers that impact paints containing any detectable amount of lead must use lead-safe work practices and have valid training for the method of impact to comply with Cal/OSHA, 8 CCR 1532.1. Further, impact of more than 100 square feet of lead-based paints or coatings requires a notification to be filed with Cal/OSHA at least 24 hours prior to work commencing.



Ms. Candace Harrison
Indigo Hammond and Playle Architects, LLP
Page Four
October 24, 2017

To comply with CDPH requirements, any disturbance to paints or coatings that contain lead must be completed within a contained area to prevent the creation of a lead hazard. To comply with California Department of Toxic Substance Control and Title 22 requirements, any waste streams containing lead must be profiled prior to disposal.

Attached to this report is a copy of the submitted CDPH Form 8552. This form is required whenever a lead paint inspection is performed in California and should be retained for your records.

Thank you for the opportunity to perform this inspection. If you have any questions, or need further assistance with this project, please contact me at (209) 551-2000 or (209) 484-4648 or by e-mail at cchipponeri@hazmanage.com.

Sincerely,

A handwritten signature in black ink, appearing to read 'Chris Chipponeri'.

Chris Chipponeri
Chief Operating Officer
Cal/OSHA CAC 10-4633
CDPH Lead I/A 20476

Enclosures:

HMS, Inc. Personnel Certifications
FALI Laboratory Accreditations
Chains of Custody and Result Reports
Functional Space Notes
XRF Survey Report
Sample Maps
Material Picture Log
CDPH Form 8552

Hazard Management Services, Inc.

This is to confirm that

Chris J. Chipponeri

Has attended the four-hour

AHERA Refresher Course for Asbestos Inspectors

And has completed the requisite training and passed the exam for

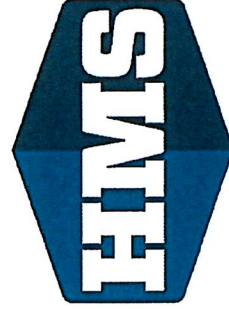
asbestos accreditation under TSCA Title II

September 12, 2017

Certificate Number: HMSBIR295

Valid Until: September 12, 2018

Cal/OSHA Approval Number: CA-025-06



Michael C. Sharp

Michael C. Sharp - AHERA Training Director
Hazard Management Services, Inc.
207 McHenry Ave. Modesto, CA 95354
(209) 551-2000

DEPARTMENT OF INDUSTRIAL RELATIONS
Division of Occupational Safety and Health
Asbestos Unit
2424 Arden Way, Suite 495
Sacramento, CA 95825-2417
(916) 574-2993 Office (916) 483-0572 Fax
<http://www.dir.ca.gov/dir/databases.html> actu@dir.ca.gov



005174633C

339

Hazard Management Services, Inc.
Christopher J Chipponeri
207 McHenry Ave.
Modesto CA 95354

March 29, 2017

Dear Certified Asbestos Consultant or Technician:

Enclosed is your certification card. **To maintain your certification, you must abide by the rules printed on the back of the certification card.**

Your certification is valid for a period of one year. If you wish to renew your certification, you must apply for renewal at least 60 days before the expiration date shown on your card. [8 CCR 341.15(h)(1)].

Please hold and do not send copies of your required AHERA refresher renewal certificates to our office until you apply for renewal of your certification.

Certificates must be kept current if you are actively working as a CAC or CSST. The grace period is only for those who are not actively working as an asbestos consultant or site surveillance technician.

Please contact our office at the above address, fax number or email; of any changes in your contact/mailling information within 15 days of the change.

Sincerely,

Jeff Ferrell
Senior Safety Engineer

Attachment: Certification Card

cc: File

Renewal – Card Attached (Revised 10/24/2012)

State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant

Christopher J Chipponeri

Name

Certification No. **10-4633**

Expires on **06/16/18**

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.



Mr. Christopher J. Chipponeri
Hazard Management Services, Inc.
207 McHenry Avenue
Modesto, California 95354



Hazard Management Services, Inc.

This is to confirm that

Tyler Faison

Has attended the four-hour

AHERA Refresher Course for Asbestos Inspectors

And has completed the requisite training and passed the exam for

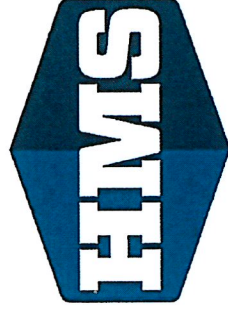
asbestos accreditation under TSCA Title II

September 12, 2017

Certificate Number: HMSBIR299

Valid Until: September 12, 2018

Cal/OSHA Approval Number: CA-025-06



Michael C. Sharp

Michael C. Sharp - AHERA Training Director
Hazard Management Services, Inc.
207 McHenry Ave. Modesto, CA 95354
(209) 551-2000

DEPARTMENT OF INDUSTRIAL RELATIONS
Division of Occupational Safety and Health
Asbestos Unit
2424 Arden Way, Suite 495
Sacramento, CA 95825-2417
(916) 574-2993 Office (916) 483-0572 Fax
<http://www.dir.ca.gov/dir/databases.html> actu@dir.ca.gov



607135728T

413

Hazard Management Services, Inc.
Tyler J Faison
207 McHenry Ave.
Modesto CA 95354

June 23, 2017

Dear Certified Asbestos Consultant or Technician:

Enclosed is your certification card. **To maintain your certification, you must abide by the rules printed on the back of the certification card.**

Your certification is valid for a period of one year. If you wish to renew your certification, you must apply for renewal at least 60 days before the expiration date shown on your card. [8 CCR 341.15(h)(1)].

Please hold and do not send copies of your required AHERA refresher renewal certificates to our office until you apply for renewal of your certification.

Certificates must be kept current if you are actively working as a CAC or CSST. The grace period is only for those who are not actively working as an asbestos consultant or site surveillance technician.

Please contact our office at the above address, fax number or email; of any changes in your contact/mailling information within 15 days of the change.

Sincerely,

Jeff Ferrell
Senior Safety Engineer

Attachment: Certification Card

cc: File

Renewal – Card Attached (Revised 10/24/2012)

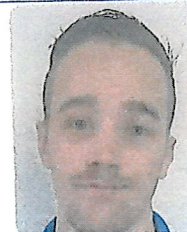
State of California
Division of Occupational Safety and Health
Certified Site Surveillance Technician

Tyler J Faison

Name

Certification No. **16-5728**

Expires on **08/17/18**



This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.

Hazard Management Services, Inc.

This is to confirm that

Stephany Godinez

Has attended the twenty-four hour

AHERA Course for Asbestos Inspectors

And has completed the requisite training and passed the exam for

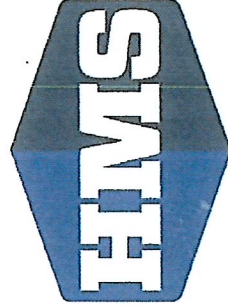
asbestos accreditation under TSCA Title II

March 29-31, 2017

Certificate Number: HMSBI156

Valid Until: March 31, 2018

Cal/OSHA Approval Number: CA-025-05



Michael C. Sharp

Michael C. Sharp - AHERA Training Director
Hazard Management Services, Inc.
207 McHenry Ave. Modesto, CA 95354
(209) 551-2000



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

Forensic Analytical Laboratories, Inc.

3777 Depot Road, Suite 409

Hayward, CA 94545-2761

Mr. Steven Takahashi

Phone: 310-294-4365 Fax: 310-764-1136

Email: stakahashi@falaboratories.com

<http://www.falaboratories.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101459-0

Bulk Asbestos Analysis

Code

Description

18/A01

EPA -- Appendix E to Subpart E of Part 763 -- Interim Method of the Determination of Asbestos in Bulk Insulation Samples

18/A03

EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

Code

Description

18/A02

U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.

A handwritten signature in black ink, appearing to read "Dana S. Luman".

For the National Voluntary Laboratory Accreditation Program

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101459-0

Forensic Analytical Laboratories, Inc.
Hayward, CA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2017-07-01 through 2018-06-30

Effective Dates

A handwritten signature in black ink, appearing to read "Peter S. Saman".

For the National Voluntary Laboratory Accreditation Program


BULK Material Analysis Request Form

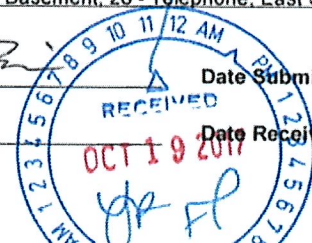
Hazard Management Services, Inc.

Modesto
 P.O. Box 576848
 Modesto, CA 95355-1755
 (209) 551 - 2000
 FAX: (209) 575 - 5657

Date Submitted: 10/18/17	Analysis Requested: PLM with Dispersion Staining
Contact: Chris Chipponeri	Turn Around Time: 24 HR
Collected By: Tyler Faison	Laboratory: Forensic Analytical
Date(s) Collected: 10/17/17, 10/18/17	Special Instructions: please email results to tfaison@hazmanage.com
Job ID: Stockton, City of	Project ID / Job No: M17214
Job Site: Stockton Police Department	Bill to: Hazard Management Services, Inc.

Sample ID	Material Description / Location
HMS-M17214-3A	CMU and Grout - Grey Basement, 39 - Telephone Equipment, Wall Wall at Damage
HMS-M17214-3B	CMU and Grout - Grey Basement, 02 - Women's Locker Room, North Wall, Center
HMS-M17214-5A	Ceramic Tile and Grout - Pink Basement, 03 - Women's Restroom, East Side of Floor at Damage
HMS-M17214-6A	4" Ceramic Tile and Grout - Pink 1st Floor, 18 - Women's Restroom, South Wall at Damage
HMS-M17214-8A	4" Ceramic Tile and Grout - White Basement, 10 - Janitor Closet, North Wall
HMS-M17214-11A	Tackboard - Beige Basement, 13 - Ramp on, North Wall, Center
HMS-M17214-12A	2' x 2' FCP - Pinhole Fissure Basement, 13 - Ramp on, South Side at Damage
HMS-M17214-13A	Tackboard - White Basement, 15 - Ramp on Storage - North Side, West Wall, North End
HMS-M17214-14A	Drywall - Unfinished Basement, 15 - Ramp on Storage - North Side, South Wall, Center Comment: Without joint compound
HMS-M17214-14B	Drywall - Unfinished Basement, 15 - Ramp on Storage - North Side, East Wall, South Corner Comment: With joint compound
HMS-M17214-16A	Tackboard - Brown Basement, 16 - Ramp on Office, West Wall, North End
HMS-M17214-18A	Carpet and Mastic - Blue Multi Basement, 17 - Roll Call Room, East Wall, North End
HMS-M17214-19A	Carpet and Mastic - Grey Multi Basement, 20 - Men's Sm Locker Room 34, East Wall at Door Threshold
HMS-M17214-20A	Carpet and Mastic - Beige Basement, 21 - Property Storage, East Wall, South Side
HMS-M17214-21A	Linoleum and Mastic - Grey/Red Stone Basement, 25 - Elevator, East Side, South End
HMS-M17214-22A	4" Baseboard and Mastic - Grey Basement, 26 - Room 27, South Wall, East End
HMS-M17214-23A	12" ACT - Random Hole Basement, 28 - Telephone, East Side of Telephone Room, South Side

Submitted By:  Date Submitted: 10/18/17 Submitted Via: Fedex
 Received By: _____ Date Received: 1/1 Received Via: _____



BULK Material Analysis Request Form

Hazard Management Services, Inc.

Modesto
P.O. Box 576848
Modesto, CA 95355-1755
(209) 551 - 2000
FAX: (209) 575 - 5657

Date Submitted: 10/18/17	Analysis Requested: PLM with Dispersion Staining
Contact: Chris Chipponeri	Turn Around Time: 24 HR
Collected By: Tyler Faison	Laboratory: Forensic Analytical
Date(s) Collected: 10/17/17, 10/18/17	Special Instructions: please email results to tfaison@hazmanage.com
Job ID: Stockton, City of	Project ID / Job No: M17214
Job Site: Stockton Police Department	Bill to: Hazard Management Services, Inc.

Sample ID	Material Description / Location
HMS-M17214-24A	2" Ceramic Tile and Grout - Tan Basement, 31 - Break Room Toilet, South Side, North End
HMS-M17214-25A	4" Ceramic Tile and Grout - Cream Ston Basement, 31 - Break Room Toilet, North Wall, Center
HMS-M17214-26A	Transite Ceiling Basement, 31 - Break Room Toilet, In Attice Access
HMS-M17214-27A	Acoustic Wallboard Basement, 17 - Roll Call Room, West Wall, South Door
HMS-M17214-28A	Plaster - Orange Peel Basement, 33 - Men's Restroom, East Wall, North End
HMS-M17214-28B	Plaster - Orange Peel 1st Floor, 12 - Custodial Closet, North Side, West End
HMS-M17214-29A	2" Baseboard and Mastic - Black Basement, 37 - Weight Room, East Wall, North End
HMS-M17214-0A	Plaster - Sand Finish Basement, 42 - SGT. Locker Room, North Wall, at Damage
HMS-M17214-31A	12" ACT and Mastic - Rough Finish Basement, 08 - Corridor, West End of Hallway
HMS-M17214-32A	Stone Flooring - Salt Pepper Basement, 12 - Stairway West Side, East Side, Behind Door
HMS-M17214-33A	12" ACT and Mastic - Rough Pinhole 1st Floor, 04 - Office 141, North Side, East End
HMS-M17214-34A	Brick and Mortar - White 1st Floor, 09 - Traffic Clerical, North Wall, East Side
HMS-M17214-35A	Window Sealant - Black 1st Floor, 02 - Office 140, West Side, North End
HMS-M17214-36A	Button Board 1st Floor, 13 - Pipe Chase, West Wall, Center
HMS-M17214-37A	4" Baseboard and Mastic - Brown 1st Floor, 48 - Police Bike Storage, SW Corner
HMS-M17214-38A	2' x 4' FCP - Pinhole Fissure 1st Floor, 15 - Traffic Supply Room, Center at Damage
HMS-M17214-40A	White Sink Sealant 1st Floor, 19 - Men's Restroom, At Sink
HMS-M17214-41A	Carpet and Mastic - Dark Blue 1st Floor, 49 - Evidence Examination Room, South Side, East End

Submitted By: _____ Date Submitted: 10/18/17 Submitted Via: Fedex
 Received By: _____ Date Received: 1/1 Received Via: _____



BULK Material Analysis Request Form

Hazard Management Services, Inc.

Modesto
P.O. Box 576848
Modesto, CA 95355-1755
(209) 551 - 2000
FAX: (209) 575 - 5657

Date Submitted: 10/18/17	Analysis Requested: PLM with Dispersion Staining
Contact: Chris Chipponeri	Turn Around Time: 24 HR
Collected By: Tyler Faison	Laboratory: Forensic Analytical
Date(s) Collected: 10/17/17, 10/18/17	Special Instructions: please email results to tfaison@hazmanage.com
Job ID: Stockton, City of	Project ID / Job No: M17214
Job Site: Stockton Police Department	Bill to: Hazard Management Services, Inc.

Sample ID	Material Description / Location
HMS-M17214-42A	12" ACT and Mastic - Heavy Texture 1st Floor, 35 - Records Room, West Side Center
HMS-M17214-43A	Stone Wall and Grout - White 1st Floor, 25 - Elevator Lobby, West Wall, North End
HMS-M17214-44A	12" VFT and Mastic - Grey/Tan Stone 1st Floor, 46 - Radio Room, West Side, North End
HMS-M17214-902A	Drywall - Orange Peel Basement, 26 - Room 27, North Wall, East Corner
HMS-M17214-902B	Drywall - Orange Peel Basement, 26 - Room 27, East Wall, Center Comment: Without joint compound
HMS-M17214-902C	Drywall - Orange Peel 1st Floor, 16 - Office Break Room, South Corner, East End Comment: With joint compound
HMS-M17214-902D	Drywall - Orange Peel 1st Floor, 16 - Office Break Room, South Wall, Center Comment: Without joint compound

Submitted By: _____

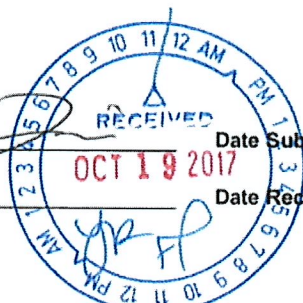
Date Submitted: 10/18/17

Submitted Via: Fedex

Received By: _____

Date Received: 1/1

Received Via: _____



Date Printed: 10/18/2017



Bulk Asbestos Analysis

(EPA Method 600/M4-82-020 and 600/R-93-116, Visual Area Estimation)

Hazard Mgmt Svcs-Modesto/Plst Hill
Mike Sharp
P.O. Box 576848

Modesto, CA 95357-6848

Client ID: 1146
Report Number: B248086
Date Received: 10/19/17
Date Analyzed: 10/20/17
Date Printed: 10/20/17
First Reported: 10/20/17

Job ID/Site: M17214 - Stockton, City of Stockton Police Department

FALI Job ID: 1146
Total Samples Submitted: 42
Total Samples Analyzed: 42

Date(s) Collected: 10/18/2017

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
HMS-M17214-3A	11947641						
Layer: Grey Cementitious Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
HMS-M17214-3B	11947642						
Layer: Grey Cementitious Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
HMS-M17214-5A	11947643						
Layer: Pink Ceramic Tile			ND				
Layer: Off-White Grout			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
HMS-M17214-6A	11947644						
Layer: Pink Ceramic Tile			ND				
Layer: Off-White Grout			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
HMS-M17214-8A	11947645						
Layer: White Ceramic Tile			ND				
Layer: White Grout			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
HMS-M17214-11A	11947646						
Layer: White Drywall			ND				
Layer: Beige Semi-Fibrous Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (20 %) Fibrous Glass (10 %) Synthetic (3 %)							

Report Number: B248086

Date Printed: 10/20/17

Client Name: Hazard Mgmt Svcs-Modesto/Plst Hill

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
HMS-M17214-12A	11947647						
Layer: Beige Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (35 %)	Fibrous Glass (45 %)						
HMS-M17214-13A	11947648						
Layer: White Drywall			ND				
Layer: White Joint Compound			ND				
Layer: White Semi-Fibrous Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (20 %)	Fibrous Glass (10 %)	Synthetic (2 %)					
HMS-M17214-14A	11947649						
Layer: White Drywall			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (10 %)	Fibrous Glass (5 %)						
HMS-M17214-14B	11947650						
Layer: White Drywall			ND				
Layer: White Joint Compound			ND				
Layer: White Tape			ND				
Layer: White Joint Compound			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (20 %)	Fibrous Glass (10 %)						
HMS-M17214-16A	11947651						
Layer: Brown Fibrous Material			ND				
Layer: Beige Fibrous Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (60 %)	Fibrous Glass (5 %)	Synthetic (15 %)					
HMS-M17214-18A	11947652						
Layer: Black Carpet			ND				
Layer: Yellow Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)	Synthetic (85 %)						
HMS-M17214-19A	11947653						
Layer: Black Carpet			ND				
Layer: Blue Mastic			ND				
Layer: Off-White Tile			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)	Synthetic (85 %)						
HMS-M17214-20A	11947654						
Layer: Beige Carpet			ND				
Layer: Yellow Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)	Synthetic (85 %)						

Report Number: B248086

Date Printed: 10/20/17

Client Name: Hazard Mgmt Svcs-Modesto/Plst Hill

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
HMS-M17214-21A	11947655						
Layer: Brown Sheet Flooring							ND
Layer: Fibrous Backing							ND
Layer: Yellow Mastic							ND
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (20 %)	Fibrous Glass (5 %)	Synthetic (10 %)					
HMS-M17214-22A	11947656						
Layer: Grey Baseboard							ND
Layer: White Mastic							ND
Total Composite Values of Fibrous Components:		Asbestos (ND)					
HMS-M17214-23A	11947657						
Layer: White Drywall							ND
Layer: Beige Fibrous Material							ND
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (70 %)	Fibrous Glass (5 %)						
HMS-M17214-24A	11947658						
Layer: Black Grout							ND
Total Composite Values of Fibrous Components:		Asbestos (ND)					
HMS-M17214-25A	11947659						
Layer: White Grout							ND
Total Composite Values of Fibrous Components:		Asbestos (ND)					
HMS-M17214-26A	11947660						
Layer: Grey Non-Fibrous Material							ND
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
HMS-M17214-27A	11947661						
Layer: Beige Fibrous Material							ND
Layer: Paint							ND
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (60 %)	Fibrous Glass (20 %)						
HMS-M17214-28A	11947662						
Layer: Grey Plaster							ND
Layer: White Texture							ND
Layer: Paint							ND
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							

Report Number: B248086

Date Printed: 10/20/17

Client Name: Hazard Mgmt Svcs-Modesto/Plst Hill

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
HMS-M17214-28B	11947663						
Layer: Beige Plaster			ND				
Layer: White Plaster			ND				
Layer: Off-White Texture		Chrysotile	2 %				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (Trace)					
Cellulose (Trace)							
HMS-M17214-29A	11947664						
Layer: Black Baseboard			ND				
Layer: Yellow Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
HMS-M17214-0A	11947665						
Layer: Beige Plaster			ND				
Layer: White Plaster			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
HMS-M17214-31A	11947666						
Layer: Brown Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (35 %) Fibrous Glass (45 %)							
HMS-M17214-32A	11947667						
Layer: Grey Non-Fibrous Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
HMS-M17214-33A	11947668						
Layer: Brown Fibrous Material			ND				
Layer: White Drywall			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (20 %) Fibrous Glass (50 %)							
HMS-M17214-34A	11947669						
Layer: Beige Cementitious Material			ND				
Layer: Paint			ND				
Layer: Brown Non-Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
HMS-M17214-35A	11947670						
Layer: Black Non-Fibrous Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							

Client Name: Hazard Mgmt Svcs-Modesto/Plst Hill

Report Number: B248086

Date Printed: 10/20/17

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
HMS-M17214-36A	11947671						
Layer: Grey Cementitious Material							ND
Total Composite Values of Fibrous Components:		Asbestos (ND)					
HMS-M17214-37A	11947672						
Layer: Brown Baseboard							ND
Layer: Brown Mastic							ND
Total Composite Values of Fibrous Components:		Asbestos (ND)					
HMS-M17214-38A	11947673						
Layer: Beige Fibrous Material							ND
Layer: Paint							ND
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (35 %) Fibrous Glass (45 %)							
HMS-M17214-40A	11947674						
Layer: White Non-Fibrous Material							ND
Total Composite Values of Fibrous Components:		Asbestos (ND)					
HMS-M17214-41A	11947675						
Layer: Black Carpet							ND
Layer: Clear Mastic							ND
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace) Synthetic (85 %)							
HMS-M17214-42A	11947676						
Layer: White Drywall							ND
Layer: Beige Fibrous Material							ND
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (20 %) Fibrous Glass (20 %)							
HMS-M17214-43A	11947677						
Layer: White Grout							ND
Total Composite Values of Fibrous Components:		Asbestos (ND)					
HMS-M17214-44A	11947678						
Layer: Grey Tile							ND
Layer: Black Mastic		Chrysotile					5 %
Total Composite Values of Fibrous Components:		Asbestos (Trace)					
Cellulose (Trace)							
HMS-M17214-902A	11947679						
Layer: Off-White Plaster							ND
Layer: White Plaster							ND
Layer: Paint							ND
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							

Report Number: B248086

Client Name: Hazard Mgmt Svcs-Modesto/Plst Hill

Date Printed: 10/20/17

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
HNS11T HNS11T214-902B	11947680						
Layer: White Drywall			ND				
Layer: Off-White Plaster			ND				
Layer: White Plaster			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
HNS11T HNS11T214-902C	11947681						
Layer: White Drywall			ND				
Layer: White Joint Compound			ND				
Layer: White Tape			ND				
Layer: White Texture			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (20 %) Fibrous Glass (10 %)							
HNS11T HNS11T214-902D	11947682						
Layer: White Drywall			ND				
Layer: White Texture			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (20 %)							



Tad Thrower, Laboratory Supervisor, Hayward Laboratory

Note: Limit of Quantification ('LOQ') = 1%. 'Trace' denotes the presence of asbestos below the LOQ. 'ND' = 'None Detected'.

Analytical results and reports are generated by Forensic Analytical Laboratories Inc. (FALI) at the request of and for the exclusive use of the person or entity (client) named on such report. Results, reports or copies of same will not be released by FALI to any third party without prior written request from client. This report applies only to the sample(s) tested. Supporting laboratory documentation is available upon request. This report must not be reproduced except in full, unless approved by FALI. The client is solely responsible for the use and interpretation of test results and reports requested from FALI. Forensic Analytical Laboratories Inc. is not able to assess the degree of hazard resulting from materials analyzed. FALI reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. All samples were received in acceptable condition unless otherwise noted.

Bulk Material Analysis Request Form - Hazard Management Services, Inc.

207 McHenry Avenue, Modesto, CA 95354

Phone: (209) 551-2000

Fax: (209) 575-5657

Job ID: M17081

Client: City of Stockton

Collected By: T Faison

Date Collected: 03/30/2017

Lab Submitted To: FALI

Special Instructions: please e-mail results to cchipponeri@hazmanage.com and tfaison@hazmanage.com

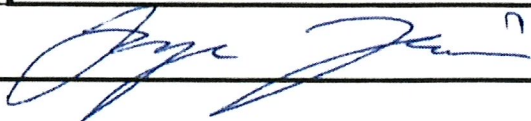
Analysis Requested: PLM w/ Dispersion Staining

Turnaround Time: Rush

Project: Stockton Police Department Basement Flood Inspection

Line	Sample Number	Material Description and Location
1	HMS-M17081-01A	Carpet and Mastic- Tan Squares SE Corner- Basement Office
2	HMS-M17081-02A	4" Baseboard and Mastic- White SE Corner- Basement Office
3	HMS-M17081-03A	Carpet and Mastic- Grey/ Tan SW Corner- Basement Storage
4	HMS-M17081-04A	12" VFT and Black Mastic- Beige SW Corner- Basement Storage
5	HMS-M17081-05A	4" Baseboard and Mastic- Black SW Corner- Basement Storage
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

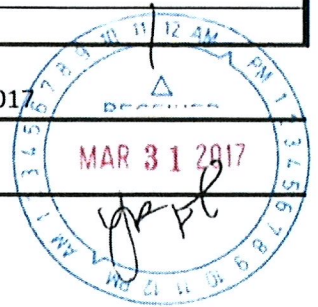
Submitted By: T Faison



Date: 3/30/2017

Received By: _____

Date: _____



Submitted Via: Drop Off _____

FedEx _____

XX _____

Courier _____



Bulk Asbestos Analysis

(EPA Method 600/R-93-116, Visual Area Estimation)

Hazard Mgmt Svcs-Modesto/Plst Hill
Mike Sharp
P.O. Box 576848

Modesto, CA 95357-6848

Client ID: 1146
Report Number: B237050
Date Received: 03/31/17
Date Analyzed: 03/31/17
Date Printed: 03/31/17
First Reported: 03/31/17

Job ID/Site: M17081 - City of Stockton, Stockton Police Department Basement Flood Inspection
Date(s) Collected: 03/30/2017

FALI Job ID: 1146
Total Samples Submitted: 5
Total Samples Analyzed: 5

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
HMS-M17081-01A	11874255						
Layer: Brown Carpet			ND				
Layer: Yellow Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)	Synthetic (85 %)						
HMS-M17081-02A	11874256						
Layer: Brown Non-Fibrous Material			ND				
Layer: Brown Mastic			ND				
Layer: White Non-Fibrous Material			ND				
Layer: Clear Mastic			ND				
Layer: Off-White Semi-Fibrous Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (3 %)	Wollastonite (Trace)						
Comment: Bulk complex sample.							
HMS-M17081-03A	11874257						
Layer: Brown Carpet			ND				
Layer: Yellow Mastic			ND				
Layer: Blue Non-Fibrous Material			ND				
Layer: Yellow Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)	Synthetic (75 %)						
HMS-M17081-04A	11874258						
Layer: Tan Mastic			ND				
Layer: Beige Tile			ND				
Layer: Black Mastic		Chrysotile	5 %				
Total Composite Values of Fibrous Components:		Asbestos (Trace)					
Cellulose (Trace)							
HMS-M17081-05A	11874259						
Layer: Black Non-Fibrous Material			ND				
Layer: Tan Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)	Wollastonite (Trace)						

Client Name: Hazard Mgmt Svcs-Modesto/Plst Hill

Report Number: B237050

Date Printed: 03/31/17

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
-----------	------------	---------------	------------------	---------------	------------------	---------------	------------------



Tad Thrower, Laboratory Supervisor, Hayward Laboratory

Note: Limit of Quantification ('LOQ') = 1%. 'Trace' denotes the presence of asbestos below the LOQ. 'ND' = 'None Detected'.

Analytical results and reports are generated by Forensic Analytical Laboratories Inc. (FALI) at the request of and for the exclusive use of the person or entity (client) named on such report. Results, reports or copies of same will not be released by FALI to any third party without prior written request from client. This report applies only to the sample(s) tested. Supporting laboratory documentation is available upon request. This report must not be reproduced except in full, unless approved by FALI. The client is solely responsible for the use and interpretation of test results and reports requested from FALI. Forensic Analytical Laboratories Inc. is not able to assess the degree of hazard resulting from materials analyzed. FALI reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. All samples were received in acceptable condition unless otherwise noted.

BULK MATERIAL Analysis Report Form for Hazard Management Services, Inc.

P.O. BOX 576848
 MODESTO, CA 95357-6848
 (209) 551-2000
 FAX (209) 551-2005

P.O. BOX 25474
 FRESNO, CA 93729
 (559) 432-9356
 FAX (559) 432-9356



JOB I.D.: M06-225 **CLIENT:** City of Stockton

COLLECTED BY: Michael van den Eenden

DATE COLLECTED: 11-16-06 **ANALYSIS CONDUCTED:** PLM 2 hour turn around time

JOB SITE: City of Stockton Police Department

SAMPLE #	RESULTS	MATERIAL DESCRIPTION/LOCATION
HMS-M06-225-101	2hr	Mastic on drywall and drywall core sample
HMS-M06-225-102	2hr	Tape and Joint Compound with drywall core sample
HMS-M06-225-103	2hr	Tape and Joint Compound with drywall core sample
		Please fax results to the Modesto Office and E-mail to mvandenenden@hazmanage.com

D:\CLIENTS\BulkAnalysisReport

Michael van den Eenden

E. Spis
 11/17/06 (E)
 10:30am



Bulk Asbestos Analysis

(EPA Method 600/R-93-116, Visual Area Estimation)

Hazard Mgmt Services Inc.
Michael van den Enden

PO Box 576848
Modesto, CA 95357-6848

Client ID: 1146
Report Number: B092503
Date Received: 11/17/06
Date Analyzed: 11/17/06
Date Printed: 11/17/06
First Reported: 11/17/06

Job ID/Site: M06-225 City of Stockton - City of Stockton Police Department

FASI Job ID: 1146

Date(s) Collected: 11/16/2006

Total Samples Submitted: 3

Total Samples Analyzed: 3

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
HMS-M06-225-101	10582437						
Layer: White Drywall			ND				
Layer: Brown Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (20 %)	Fibrous Glass (10 %)	Talc (Trace)					
HMS-M06-225-102	10582438						
Layer: White Drywall			ND				
Layer: White Skimcoat/Joint Compound		Chrysotile	2 %				
Total Composite Values of Fibrous Components:		Asbestos (Trace)					
Cellulose (20 %)	Fibrous Glass (10 %)						
HMS-M06-225-103	10582439						
Layer: White Drywall			ND				
Layer: White Skimcoat/Joint Compound		Chrysotile	2 %				
Total Composite Values of Fibrous Components:		Asbestos (Trace)					
Cellulose (20 %)	Fibrous Glass (10 %)						

James Flores, Laboratory Supervisor, Hayward Laboratory

Note: Limit of Quantification ('LOQ') = 1%. 'Trace' denotes the presence of asbestos below the LOQ. 'ND' = 'None Detected'.

Analytical results and reports are generated by Forensic Analytical at the request of and for the exclusive use of the person or entity (client) named on such report. Results, reports or copies of same will not be released by Forensic Analytical to any third party without prior written request from client. This report applies only to the sample(s) tested. Supporting laboratory documentation is available upon request. This report must not be reproduced except in full, unless approved by Forensic Analytical. The client is solely responsible for the use and interpretation of test results and reports requested from Forensic Analytical. This report must not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. Government. Forensic Analytical is not able to assess the degree of hazard resulting from materials analyzed. Forensic Analytical reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. All samples were received in acceptable condition unless otherwise noted.

BULK MATERIAL Analysis Request Form for Hazard Management Services, Inc.

PHONE: 209-551-2000

P.O. Box 576848 Modesto, CA 95357-5657

FAX: 209-575-5657

Job I.D. M11204

CLIENT: City of Stockton

COLLECTED BY: Chris C

DATE COLLECTED: 8/30/11

DATE SUBMITTED: 8/30/11

LAB SUBMITTED TO: FALI

Special Instructions: Please e-mail to: cchipponeri@hazmange.com

ANALYSIS REQUESTED: PLM

TURNAROUND TIME: 24 hr

PROJECT: City of Stockton, Police Department HVAC inspection

SAMPLE #	Material Description/Location	Results
1	HMS-M11204-01A Canvas Duct Tape-Penthouse-Roof	
2	HMS-M11204-01B Canvas Duct Tape-Basement Mechanical Room	
3	HMS-M11204-02A Black vibration dampner-Penthouse-Roof	
4	HMS-M11204-02B Black air dampner-Air Handler-Basement Mechanical Room	
5	HMS-M11204-03A 12" VFT and mastic-Tan Streak-1st Floor Break Room	
6	HMS-M11204-04A 12" VFT and Mastic-Tan with Brown Specks-Rm 109 Floor	
7	HMS-M11204-05A Sprayed on Fireproofing with Drywall-1st Floor Attic at Security Entry	
8	HMS-M11204-05B Fireproofing- Overspray on metal duct-1st floor attic west	
9	HMS-M11204-06A Plaster-Rough Texture-Custodial Closet-Basement	
10	HMS-M11204-06B Plaster-Rough Texture-Mens Locker Room in Shower Area-Basement	
11	HMS-M11204-07A Hard Elbow Pipe Insulation-Attic in Room 109	
12	HMS-M11204-07B Hard Elbow Pipe Insulation-Mechanical Room Basement	
13	HMS-M11204-07C Hard Elbow Pipe Insulation-Hot Water Pipe-Mechanical Room Basement	

14	HMS-M11204-08A	White pipewrap insulation at fiberglass pipes valve openings-Mechanical Room Basement	
15	HMS-M11204-09A	Water Tank Insulation-Boiler Room-Basement	
16	HMS-M11204-10A	12" ACT-Pinhole with Drywall behind-Rm 109	
17	HMS-M11204-10B	12" ACT-Pinhole with Drywall behind-Basement Hallway	
18	HMS-M11204-11A	Silver Duct Tape-Air Compressor Pipe-Mechanical Room Basement	
19	HMS-M11204-12A	Sealant at Boiler Brick inside access panel on side ~12 In ft -Boiler Room Basement	
20	HMS-M11204-13A	Boiler Brick Insulation-Boiler #1 at Access Panel ~ 30 sq ft- Boiler Room Basement	
21	HMS-M11204-14A	Cinder Block Grout-Custodial Closet-Basement	
22	HMS-M11204-15A	Concrete with rough texture coating-Mens Locker Room- Basement	
23	HMS-M11204-16A	2x2 FCP-Pinhole/Fissure-Dispatch Locker Room-Basement	
24	HMS-M11204-17A	12" VFT and Mastic-Black-Work area outside Room 118	
25	HMS-M11204-18A	2x4 FCP-Pinhole/Fissure-Report Room-1st Level	
26	HMS-M11204-19A	12" Green VFT and Mastic-Report Room	
27	HMS-M11204-20A	Single-Ply Roofing-Roof	

Delivered by: Ch. [Signature] Date: 8/30/11 Submitted Via: _____
 Received by: St B 8-31-11 8:00 Date: _____ Drop Off Fed Ex Courier _____



Bulk Asbestos Analysis

(EPA Method 600/R-93-116, Visual Area Estimation)

Hazard Mgmt Svcs-Modesto/Plst Hill
Chris C
PO Box 576848

Modesto, CA 95357-6848

Client ID: 1146
Report Number: B153620
Date Received: 08/31/11
Date Analyzed: 09/01/11
Date Printed: 09/01/11
First Reported: 09/01/11

Job ID/Site: M11204 , City of Stockton , Police Department HVAC inspection , City of Stockton
Date(s) Collected: 08/30/2011

FALI Job ID: 1146
Total Samples Submitted: 27
Total Samples Analyzed: 27

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
HMS-M11204-01A Layer: White Tape	11162141		ND				
Total Composite Values of Fibrous Components: Cellulose (90 %)		Asbestos (ND)					
HMS-M11204-01B Layer: White Tape	11162142		ND				
Total Composite Values of Fibrous Components: Cellulose (90 %)		Asbestos (ND)					
HMS-M11204-02A Layer: Black Semi-Fibrous Material	11162143		ND				
Total Composite Values of Fibrous Components: Cellulose (Trace) Fibrous Glass (70 %)		Asbestos (ND)					
HMS-M11204-02B Layer: Black Semi-Fibrous Material	11162144		ND				
Total Composite Values of Fibrous Components: Cellulose (Trace) Fibrous Glass (70 %)		Asbestos (ND)					
HMS-M11204-03A Layer: Tan Tile Layer: Black Mastic	11162145	Chrysotile Chrysotile	Trace 5 %				
Total Composite Values of Fibrous Components: Cellulose (Trace)		Asbestos (Trace)					
HMS-M11204-04A Layer: Tan Tile Layer: Black Mastic	11162146	Chrysotile Chrysotile	Trace 5 %				
Total Composite Values of Fibrous Components: Cellulose (Trace)		Asbestos (Trace)					
HMS-M11204-05A Layer: White Drywall Layer: White Non-Fibrous Material	11162147		ND ND				
Total Composite Values of Fibrous Components: Cellulose (20 %) Fibrous Glass (10 %)		Asbestos (ND)					

Report Number: B153620

Date Printed: 09/01/11

Client Name: Hazard Mgmt Svcs-Modesto/Plst Hill

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
HMS-M11204-05B	11162148						
Layer: Off-White Non-Fibrous Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
HMS-M11204-06A	11162149						
Layer: White Plaster			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
HMS-M11204-06B	11162150						
Layer: Grey Plaster			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
HMS-M11204-07A	11162151						
Layer: Grey Fibrous Material		Amosite	5 %				
Layer: White Woven Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (5%)					
Cellulose (5 %) Fibrous Glass (65 %)							
HMS-M11204-07B	11162152						
Layer: White Semi-Fibrous Material		Amosite	5 %	Chrysotile	5 %		
Layer: White Woven Material			ND				
Layer: Green Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (9%)					
Cellulose (5 %) Fibrous Glass (65 %)							
HMS-M11204-07C	11162153						
Layer: Grey Fibrous Material		Amosite	5 %				
Layer: White Woven Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (5%)					
Cellulose (5 %) Fibrous Glass (65 %)							
HMS-M11204-08A	11162154						
Layer: Grey Fibrous Material		Amosite	5 %				
Layer: White Woven Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (5%)					
Cellulose (5 %) Fibrous Glass (65 %)							
HMS-M11204-09A	11162155						
Layer: White Semi-Fibrous Material		Amosite	7 %	Chrysotile	7 %		
Layer: White Woven Material			ND				
Layer: Green Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (13%)					
Cellulose (5 %) Fibrous Glass (65 %)							



Client Name: Hazard Mgmt Svcs-Modesto/Plst Hill

Report Number: B153620

Date Printed: 09/01/11

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
HMS-M11204-10A	11162156						
Layer: White Drywall			ND				
Layer: Tan Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (35 %) Fibrous Glass (45 %)							
HMS-M11204-10B	11162157						
Layer: White Drywall			ND				
Layer: Tan Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (35 %) Fibrous Glass (45 %)							
HMS-M11204-11A	11162158						
Layer: Silver Tape			ND				
Layer: Yellow Adhesive			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
HMS-M11204-12A	11162159						
Layer: Grey Non-Fibrous Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
HMS-M11204-13A	11162160						
Layer: Beige Non-Fibrous Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
HMS-M11204-14A	11162161						
Layer: Grey Grout			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
HMS-M11204-15A	11162162						
Layer: Grey Cementitious Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
HMS-M11204-16A	11162163						
Layer: Beige Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (35 %) Fibrous Glass (45 %)							
HMS-M11204-17A	11162164						
Layer: Black Tile			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							

Client Name: Hazard Mgmt Svcs-Modesto/Plst Hill

Report Number: B153620

Date Printed: 09/01/11

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
HMS-M11204-18A	11162165						
Layer: Beige Fibrous Material							ND
Layer: Paint							ND
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (35 %) Fibrous Glass (45 %)							
HMS-M11204-19A	11162166						
Layer: Green Tile		Chrysotile					Trace
Total Composite Values of Fibrous Components:		Asbestos (Trace)					
Cellulose (Trace)							
HMS-M11204-20A	11162167						
Layer: White Non-Fibrous Material							ND
Layer: White Fibrous Material							ND
Layer: Yellow Foam							ND
Layer: Black Semi-Fibrous Tar							ND
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace) Fibrous Glass (10 %) Synthetic (5 %)							



Tad Thrower, Laboratory Supervisor, Hayward Laboratory

Note: Limit of Quantification ('LOQ') = 1%. 'Trace' denotes the presence of asbestos below the LOQ. 'ND' = 'None Detected'.

Analytical results and reports are generated by Forensic Analytical Laboratories Inc. (FALI) at the request of and for the exclusive use of the person or entity (client) named on such report. Results, reports or copies of same will not be released by FALI to any third party without prior written request from client. This report applies only to the sample(s) tested. Supporting laboratory documentation is available upon request. This report must not be reproduced except in full, unless approved by FALI. The client is solely responsible for the use and interpretation of test results and reports requested from FALI. Forensic Analytical Laboratories Inc. is not able to assess the degree of hazard resulting from materials analyzed. FALI reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. All samples were received in acceptable condition unless otherwise noted.

Functional Space Notes

HAZARD MANAGEMENT SERVICES, INC.

Client: Stockton, City of
HMS Project Number: M17214

Site: Stockton Police Department
Date of Inspection: October 17, 2017

Materials	Material Class	Percent Asbestos	Hmgns Matrl #	Sampled Here?	Footage Sq/Ln/Jnts	Friable? Yes/No
Building: 01 - Basement		Room: 01 - Women's Lockers 51				
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900	144 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Plaster - Sand Finish	MISC	None Detected	30	576 sq	
	<i>Comment: Samples non-detect in prior sampling</i>					
Ceiling:	Plaster - Sand Finish	MISC	None Detected	30	144 sq	
	<i>Comment: Samples non-detect in prior sampling</i>					
Misc:	Canvas Duct Tape	NON	Non-Suspect			
	<i>Comment: Sampled result non-detect</i>					
Misc:	Fiberglass Insulation	NON	Non-Suspect			
Building: 01 - Basement		Room: 02 - Women's Locker Room				
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900	288 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	CMU and Grout - Grey	MISC	None Detected	3 3B	612 sq	
	<i>Comment: Paint white throughout</i>					
Walls:	Plaster - Sand Finish	MISC	None Detected	30	153 sq	
	<i>Comment: Samples non-detect in prior sampling</i>					
Ceiling:	Plaster - Sand Finish	MISC	None Detected	30	288 sq	
	<i>Comment: Samples non-detect in prior sampling</i>					
Building: 01 - Basement		Room: 03 - Women's Restroom				
Floor:	Ceramic Tile and Grout - Pink	MISC	None Detected	5 5A	110 sq	
Walls:	4" Ceramic Tile and Grout - Pink	MISC	None Detected	6	168 sq	
Walls:	Drywall - Orange Peel	MISC	Known	902	84 sq	No
	<i>Comment: South Wall</i>					
Walls:	Plaster - Sand Finish	MISC	None Detected	30	336 sq	
	<i>Comment: Samples non-detect in prior sampling</i>					
Ceiling:	Plaster - Sand Finish	MISC	None Detected	30		
	<i>Comment: Samples non-detect in prior sampling</i>					

Functional Space Notes

HAZARD MANAGEMENT SERVICES, INC.

Client: Stockton, City of

Site: Stockton Police Department

HMS Project Number: M17214

Date of Inspection: October 17, 2017

Materials	Material Class	Percent Asbestos	Hmgns Sampled Matrl # Here?	Footage Friable? Sq/Ln/Jnts Yes/No
Building: <u>01 - Basement</u>		Room: <u>04 - Mechanical Equipment Room</u>		
Floor: Concrete	NON	Non-Suspect		
Walls: CMU and Grout - Grey	MISC	None Detected	3	1920 sq
Walls: Concrete	NON	Non-Suspect		
Ceiling: Concrete	NON	Non-Suspect		
Misc: 45 - Minute Fire Door	MISC	Assumed	7	1 dr No
Misc: Canvas Duct Tape	NON	Non-Suspect		
<i>Comment: Sampled result non-detect</i>				
TSI: Hard Elbows	TSI	Known	903	20 ea No
Building: <u>01 - Basement</u>		Room: <u>05 - Boiler Room</u>		
Floor: Concrete	NON	Non-Suspect		
Walls: CMU and Grout - Grey	MISC	None Detected	3	768 sq
Walls: Concrete	NON	Non-Suspect		
Ceiling: Concrete	NON	Non-Suspect		
Misc: Canvas Duct Tape	NON	Non-Suspect		
<i>Comment: Sampled result non-detect</i>				
TSI: Hard Elbows	TSI	Known	903	8 ea No
Building: <u>01 - Basement</u>		Room: <u>06 - Emergency Generator</u>		
Floor: Concrete	NON	Non-Suspect		
Walls: CMU and Grout - Grey	MISC	None Detected	3	1024 sq
Walls: Concrete	NON	Non-Suspect		
Ceiling: Concrete	NON	Non-Suspect		
Misc: Canvas Duct Tape	NON	Non-Suspect		
<i>Comment: Sampled result non-detect</i>				
TSI: Hard Elbows	TSI	Known	903	5 ea No
Building: <u>01 - Basement</u>		Room: <u>07 - Exterior Way</u>		
Floor: Concrete	NON	Non-Suspect		
Walls: Concrete	NON	Non-Suspect		
Ceiling: Metal Grid	NON	Non-Suspect		

Functional Space Notes

HAZARD MANAGEMENT SERVICES, INC.

Client: Stockton, City of
HMS Project Number: M17214

Site: Stockton Police Department
Date of Inspection: October 17, 2017

Materials	Material Class	Percent Asbestos	Hmgns Matrl #	Sampled Here?	Footage Sq/Ln/Jnts	Friable? Yes/No
Building: 01 - Basement		Room: 08 - Corridor				
Floor:	12" VFT and Mastic - Beige Oatmeal	MISC	Known	901	40 sq	No
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900	60 ln	No
Floor:	12" VFT and Mastic - Green w/ Dark Stre	MISC	Known	4	1100 sq	No
	<i>Comment: Prior results show positive results</i>					
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	CMU and Grout - Grey	MISC	None Detected	3	4050 sq	
	<i>Comment: Painted White throughout corridor</i>					
Ceiling:	12" ACT and Mastic - Pinhole Fissure	NON	Non-Suspect			
	<i>Comment: Non-Detect during prior sampling</i>					
Ceiling:	12" ACT and Mastic - Rough Finish	MISC	None Detected	31 31A	880 sq	
Building: 01 - Basement		Room: 09 - Storage Near Mech Room				
Floor:	Concrete	NON	Non-Suspect			
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	CMU and Grout - Grey	MISC	None Detected	3	120 sq	
Ceiling:	Concrete	NON	Non-Suspect			
TSI:	Hard Elbows	TSI	Known	903	4 ea	No
	<i>Comment: Vary in Size</i>					
Building: 01 - Basement		Room: 10 - Janitor Closet				
Floor:	Concrete	NON	Non-Suspect			
Walls:	4" Ceramic Tile and Grout - White	MISC	None Detected	8 8A	40 sq	
Walls:	CMU and Grout - Grey	MISC	None Detected	3	232 sq	
Walls:	Plaster - Sand Finish	MISC	None Detected	30	68 sq	
	<i>Comment: Samples non-detect in prior sampling</i>					
Ceiling:	Plaster - Sand Finish	MISC	None Detected	30	60 sq	
	<i>Comment: Samples non-detect in prior sampling</i>					

Functional Space Notes

HAZARD MANAGEMENT SERVICES, INC.

Client: Stockton, City of

Site: Stockton Police Department

HMS Project Number: M17214

Date of Inspection: October 17, 2017

Materials	Material Class	Percent Asbestos	Hmgns Matrl #	Sampled Here?	Footage Sq/Ln/Jnts	Friable? Yes/No
Building: 01 - Basement		Room: 11 - Space 41				
Floor: 12" VFT and Mastic - Green w/ Dark Stre <i>Comment: Prior results show positive results</i>	MISC	Known	4		48 sq	No
Baseboard: 4" Baseboard and Mastic - Black <i>Comment: Non-detect in prior sampling</i>	NON	Non-Suspect				
Walls: CMU and Grout - Grey	MISC	None Detected	3		256 sq	
Ceiling: Wood	NON	Non-Suspect				
Building: 01 - Basement		Room: 12 - Stairway West Side				
Floor: Stone Flooring - Salt Pepper	MISC	None Detected	32	32A	480 sq	
Walls: Drywall - Orange Peel	MISC	Known	902		1020 sq	No
Ceiling: Drywall - Orange Peel	MISC	Known	902		280 sq	No
Misc: 30 - Minute Fire Door	MISC	Assumed	10		2 ea	No
Building: 01 - Basement		Room: 13 - Ramp on				
Floor: 12" VFT and Mastic - Beige w/ Brown Str <i>Comment: VFT continue below ramped area</i>	MISC	Known	900		50 sq	No
Floor: Carpet and Mastic - Tan Squares <i>Comment: Non - Detect at prior sampling</i>	NON	Non-Suspect				
Baseboard: 4" Baseboard and Mastic - Black <i>Comment: Non-detect in prior sampling</i>	NON	Non-Suspect				
Walls: Plaster - Orange Peel	MISC	2 %	28		360 sq	No
Walls: Tackboard - Beige	MISC	None Detected	11	11A	360 sq	
Ceiling: 2' x 2' FCP - Pinhole Fissure	MISC	None Detected	12	12A	100 sq	
Building: 01 - Basement		Room: 14 - Ramp Storage - West Side				
Floor: 12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900		105 sq	No
Baseboard: 4" Baseboard and Mastic - Black <i>Comment: Non-detect in prior sampling</i>	NON	Non-Suspect				
Walls: CMU and Grout - Grey	MISC	None Detected	3		352 sq	
Walls: Concrete	NON	Non-Suspect				
Walls: Drywall - Orange Peel	MISC	Known	902		106 sq	No
Ceiling: Plaster - Sand Finish <i>Comment: Samples non-detect in prior sampling</i>	MISC	None Detected	30		105 sq	

Functional Space Notes

HAZARD MANAGEMENT SERVICES, INC.

Client: Stockton, City of
HMS Project Number: M17214

Site: Stockton Police Department
Date of Inspection: October 17, 2017

Materials	Material Class	Percent Asbestos	Hmgns Matr #	Sampled Here?	Footage Sq/Ln/Jnts	Friable? Yes/No
Building: 01 - Basement		Room: 15 - Ramp on Storage - North Side				
Floor:	12" VFT and Mastic - Green w/ Dark Stre	MISC	Known	4	120 sq	No
	<i>Comment: Below carpet Material Comment: Prior results show positive results</i>					
Floor:	Carpet and Mastic - Grey/Tan	NON	Non-Suspect			
	<i>Comment: Non-Detect in prior sampling</i>					
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Drywall - Orange Peel	MISC	Known	902	414 sq	No
Walls:	Drywall - Unfinished	MISC	None Detected	14	14A, 14B	60 sq
	<i>Comment: Above FCP</i>					
Walls:	Tackboard - White	MISC	None Detected	13	13A	414 sq
	<i>Comment: Drywall assumed behind tackboard</i>					
Ceiling:	2' x 2' FCP - Pinhole Fissure	MISC	None Detected	12	120 sq	
Building: 01 - Basement		Room: 16 - Ramp on Office				
Floor:	Carpet and Mastic - Tan Squares	NON	Non-Suspect			
	<i>Comment: Non - Detect at prior sampling</i>					
Baseboard:	4" Basboard and Mastic - White	NON	None Detected		15A	
Walls:	Drywall - Orange Peel	MISC	Known	902	338 sq	No
Walls:	Tackboard - Beige	MISC	None Detected	11	338 sq	
	<i>Comment: Drywall assumed behind</i>					
Walls:	Tackboard - Brown	MISC	None Detected	16	16A	112 sq
	<i>Comment: Drywall assumed behind</i>					
Ceiling:	2' x 2' FCP - Pinhole Fissure	MISC	None Detected	12	150 sq	
Misc:	Transite Panels	MISC	Known	17	3 ea	No
	<i>Comment: At storefront</i>					

Functional Space Notes

HAZARD MANAGEMENT SERVICES, INC.

Client: Stockton, City of
HMS Project Number: M17214

Site: Stockton Police Department
Date of Inspection: October 17, 2017

Materials	Material Class	Percent Asbestos	Hmgns Matrl #	Sampled Here?	Footage Sq/Ln/Jnts	Friable? Yes/No
Building: 01 - Basement		Room: 17 - Roll Call Room				
Floor: 12" VFT and Mastic - Beige w/ Brown Str <i>Comment: Under the lifted floor</i>	MISC	Known	900		675 sq	No
Floor: Carpet and Mastic - Blue Multi	MISC	None Detected	18	18A	675 sq	
Baseboard: 4" Baseboard and Mastic - Black <i>Comment: Non-detect in prior sampling</i>	NON	Non-Suspect				
Walls: Acoustic Wallboard <i>Comment: Behind Beige Tackboard</i>	MISC	None Detected	27	27A	288 sq	
Walls: Plaster - Orange Peel <i>Comment: Assumed behind tackboard</i>	MISC	2 %	28		480 sq	No
Walls: Tackboard - Beige	MISC	None Detected	11		960 sq	
Walls: Tackboard - Black <i>Comment: Non-detect in prior sampling</i>	NON	Non-Suspect				
Ceiling: 2' x 2' FCP - Pinhole Fissure	MISC	None Detected	12		675 sq	
Misc: Transite Panels	MISC	Known	17		8 ea	No
Building: 01 - Basement		Room: 18 - Server Room				
Floor: Concrete	NON	Non-Suspect				
Walls: Plaster - Orange Peel <i>Comment: Assumed behind tackboard</i>	MISC	2 %	28		666 sq	No
Walls: Tackboard - Beige <i>Comment: CMU behind Tackboard</i>	MISC	None Detected	11		666 sq	
Ceiling: 2' x 2' FCP - Pinhole Fissure	MISC	None Detected	12		330 sq	
Building: 01 - Basement		Room: 19 - Record Storage				
Floor: Concrete	NON	Non-Suspect				
Walls: CMU and Grout - Grey <i>Comment: Paint White Throughout</i>	MISC	None Detected	3		960 sq	
Ceiling: Concrete	NON	Non-Suspect				
<i>Room</i> Labeled Room 1						
<i>Comments:</i>						

Functional Space Notes

HAZARD MANAGEMENT SERVICES, INC.

Client: Stockton, City of

Site: Stockton Police Department

HMS Project Number: M17214

Date of Inspection: October 17, 2017

Materials	Material Class	Percent Asbestos	Hmgns Matrl #	Sampled Here?	Footage Sq/Ln/Jnts	Friable? Yes/No
Building: 01 - Basement		Room: 20 - Men's Sm Locker Room 34				
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900	750 sq	No
Floor:	Carpet and Mastic - Grey Multi	MISC	None Detected	19 19A	750 sq	
	<i>Comment: 12" VFT assumed throughout space under carpet</i>					
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	CMU and Grout - Grey	MISC	None Detected	3	880 sq	
Ceiling:	12" ACT and Mastic - Rough Finish	MISC	None Detected	31	750 sq	
<i>Room Comments:</i>	<i>Labeled Room 34</i>					
Building: 01 - Basement		Room: 21 - Property Storage				
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900	112 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Carpet and Mastic - Beige	MISC	None Detected	20 20A	352 sq	
	<i>Comment: Plaster assumed behind Carpet</i>					
Walls:	Plaster - Orange Peel	MISC	2 %	28	352 sq	No
	<i>Comment: Assumed behind carpet</i>					
Ceiling:	Plaster - Sand Finish	MISC	None Detected	30	112 sq	
	<i>Comment: Samples non-detect in prior sampling</i>					
<i>Room Comments:</i>	<i>Labeled Room 45 , Locked vault within space. All suspect materials must be sampled prior to their disturbance</i>					
Building: 01 - Basement		Room: 22 - Mens Locker Room				
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900	900 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	CMU and Grout - Grey	MISC	None Detected	3	1040 sq	
Ceiling:	12" ACT and Mastic - Rough Finish	MISC	None Detected	31	900 sq	
Building: 01 - Basement		Room: 23 - Storage 31				
Floor:	12" VFT and Mastic - Green w/ Dark Stre	MISC	Known	4	70 sq	No
	<i>Comment: Prior results show positive results</i>					
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	CMU and Grout - Grey	MISC	None Detected	3	272 sq	
Ceiling:	Plaster - Sand Finish	MISC	None Detected	30	70 sq	
	<i>Comment: Samples non-detect in prior sampling</i>					

Functional Space Notes

HAZARD MANAGEMENT SERVICES, INC.

Client: Stockton, City of
HMS Project Number: M17214

Site: Stockton Police Department
Date of Inspection: October 17, 2017

Materials	Material Class	Percent Asbestos	Hmgns Matrl #	Sampled Here?	Footage Sq/Ln/Jnts	Friable? Yes/No
Building: 01 - Basement		Room: 28 - Telephone				
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900	160 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	CMU and Grout - Grey	MISC	None Detected	3	42 sq	
Walls:	Plaster - Sand Finish	MISC	None Detected	30	104 sq	
	<i>Comment: Samples non-detect in prior sampling</i>					
Walls:	Wood	NON	Non-Suspect			
Ceiling:	12" ACT - Random Hole	MISC	None Detected	23 23A	10 ln	
	<i>Comment: Screwed in</i>					
Ceiling:	12" ACT and Mastic - Rough Finish	MISC	None Detected	31	160 sq	
Building: 01 - Basement		Room: 29 - Room 25 Break Room				
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900	220 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	CMU and Grout - Grey	MISC	None Detected	3	128 sq	
Walls:	Plaster - Sand Finish	MISC	None Detected	30	384 sq	
	<i>Comment: Samples non-detect in prior sampling</i>					
Ceiling:	12" ACT and Mastic - Rough Finish	MISC	None Detected	31	220 sq	
Building: 01 - Basement		Room: 30 - Break Room 2				
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900	253 sq	No
Baseboard:	4" Baseboard and Mastic - Grey	MISC	None Detected	22	68 ln	
Walls:	CMU and Grout - Grey	MISC	None Detected	3	136 sq	
Walls:	Drywall - Orange Peel	MISC	Known	902	408 sq	No
	<i>Comment: Pink wallpaper covering large portion</i>					
Ceiling:	12" ACT and Mastic - Rough Finish	MISC	None Detected	31	253 sq	
<i>Room</i>	<i>Kitchen Included</i>					
<i>Comments:</i>						

Functional Space Notes

HAZARD MANAGEMENT SERVICES, INC.

Client: Stockton, City of
HMS Project Number: M17214

Site: Stockton Police Department
Date of Inspection: October 17, 2017

Materials	Material Class	Percent Asbestos	Hmgns Matrl #	Sampled Here?	Footage Sq/Ln/Jnts	Friable? Yes/No
Building: 01 - Basement		Room: 31 - Break Room Toilet				
Floor:	2" Ceramic Tile and Grout - Tan	MISC	None Detected	24 24A	40 sq	
Walls:	4" Ceramic Tile and Grout - Cream Ston	MISC	None Detected	25 25A	101 sq	
Walls:	Drywall - Orange Peel	MISC	Known	902	252 sq	No
Ceiling:	Drywall - Orange Peel	MISC	Known	902	40 sq	No
TSI:	Hard Elbows	TSI	Known	903	6 ea	No
	<i>Comment: Assumed Amount in Attic Access</i>					
Misc:	Transite Ceiling	MISC	None Detected	26 26A	200 sq	
	<i>Comment: Attic Access</i>					
Building: 01 - Basement		Room: 32 - Break Room Office				
Floor:	Carpet and Mastic - Grey Multi	MISC	None Detected	19	250 sq	
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Drywall - Orange Peel	MISC	Known	902	112 sq	No
Walls:	Tackboard - Beige	MISC	None Detected	11	168 sq	
	<i>Comment: Drywall assumed behind tackboard</i>					
Walls:	Wood	NON	Non-Suspect			
	<i>Comment: Drywall assumed behind wood</i>					
Ceiling:	12" ACT and Mastic - Rough Finish	MISC	None Detected	31	250 sq	
Building: 01 - Basement		Room: 33 - Men's Restroom				
Floor:	2" Ceramic Tile and Grout - Tan	MISC	None Detected	24	200 sq	
Walls:	4" Ceramic Tile and Grout - Cream Ston	MISC	None Detected	25	192 sq	
Walls:	Plaster - Orange Peel	MISC	2 %	28 28A	480 sq	No
Ceiling:	Plaster - Sand Finish	MISC	None Detected	30	200 sq	
	<i>Comment: Samples non-detect in prior sampling</i>					
Building: 01 - Basement		Room: 34 - Men's East Locker Room				
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900	396 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	CMU and Grout - Grey	MISC	None Detected	3	540 sq	
Walls:	Plaster - Sand Finish	MISC	None Detected	30	720 sq	
	<i>Comment: Samples non-detect in prior sampling</i>					
Ceiling:	2' x 4' Uniform Hole Panels	MISC	Assumed	904	396 sq	No

Functional Space Notes

HAZARD MANAGEMENT SERVICES, INC.

Client: Stockton, City of

Site: Stockton Police Department

HMS Project Number: M17214

Date of Inspection: October 17, 2017

Materials	Material Class	Percent Asbestos	Hmgns Matrl #	Sampled Here?	Footage Sq/Ln/Jnts	Friable? Yes/No
Building: 01 - Basement		Room: 35 - SWAT Armory				
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900	264 sq	No
Walls:	CMU and Grout - Grey	MISC	None Detected	3	408 sq	
Walls:	Plaster - Sand Finish	MISC	None Detected	30	136 sq	
	<i>Comment: Samples non-detect in prior sampling</i>					
Ceiling:	Plaster - Sand Finish	MISC	None Detected	30	264 sq	
	<i>Comment: Samples non-detect in prior sampling</i>					
<i>Room</i>	<i>Listed Rm 56</i>					
<i>Comments:</i>						
Building: 01 - Basement		Room: 36 - Mechanical Room				
Floor:	12" VFT and Mastic - Green w/ Dark Stre	MISC	Known	4	10 sq	No
	<i>Comment: Prior results show positive results</i>					
Walls:	CMU and Grout - Grey	MISC	None Detected	3	11 sq	
Walls:	Plaster - Sand Finish	MISC	None Detected	30	101 sq	
	<i>Comment: Samples non-detect in prior sampling</i>					
Ceiling:	Plaster - Sand Finish	MISC	None Detected	30	10 sq	
	<i>Comment: Samples non-detect in prior sampling</i>					
Building: 01 - Basement		Room: 37 - Weight Room				
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900	775 sq	No
Baseboard:	2" Baseboard and Mastic - Black	MISC	None Detected	29	112 ln	
				29A		
Walls:	CMU and Grout - Grey	MISC	None Detected	3	1008 sq	
Walls:	Concrete	NON	Non-Suspect			
Walls:	Drywall - Orange Peel	MISC	Known	902	252 sq	No
Ceiling:	12" ACT and Mastic - Rough Finish	MISC	None Detected	31	775 sq	
Ceiling:	Drywall - Orange Peel	MISC	Known	902	78 sq	No
<i>Room</i>	<i>Closet within Space quantified</i>					
<i>Comments:</i>						

Functional Space Notes

HAZARD MANAGEMENT SERVICES, INC.

Client: Stockton, City of
HMS Project Number: M17214

Site: Stockton Police Department
Date of Inspection: October 17, 2017

Materials	Material Class	Percent Asbestos	Hmgns Matrl #	Sampled Here?	Footage Sq/Ln/Jnts	Friable? Yes/No
Building: 01 - Basement		Room: 38 - Fire Sprinkler Control				
Floor:	12" VFT and Mastic - Beige Oatmeal	MISC	Known	901	150 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	CMU and Grout - Grey	MISC	None Detected	3	70 sq	
Walls:	Concrete	NON	Non-Suspect			
Walls:	Plaster - Sand Finish	MISC	None Detected	30	700 sq	
	<i>Comment: Samples non-detect in prior sampling</i>					
Ceiling:	Concrete	NON	Non-Suspect			
Building: 01 - Basement		Room: 39 - Telephone Equipment				
Floor:	12" VFT and Mastic - Beige Oatmeal	MISC	Known	901	150 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	CMU and Grout - Grey	MISC	None Detected	3 3A	70 sq	
Walls:	Concrete	NON	Non-Suspect			
Walls:	Plaster - Sand Finish	MISC	None Detected	30	700 sq	
	<i>Comment: Samples non-detect in prior sampling</i>					
Ceiling:	Concrete	NON	Non-Suspect			
Building: 01 - Basement		Room: 40 - Stairwell storage				
Floor:	12" VFT and Mastic - Green w/ Dark Stre	MISC	Known	4	52 sq	No
	<i>Comment: Prior results show positive results</i>					
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	CMU and Grout - Grey	MISC	None Detected	3	277 sq	
Ceiling:	Wood	NON	Non-Suspect			
Building: 01 - Basement		Room: 41 - Electrical Room				
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900	112 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	CMU and Grout - Grey	MISC	None Detected	3	616 sq	
Ceiling:	Concrete	NON	Non-Suspect			

Functional Space Notes

HAZARD MANAGEMENT SERVICES, INC.

Client: Stockton, City of
HMS Project Number: M17214

Site: Stockton Police Department
Date of Inspection: October 17, 2017

Materials	Material Class	Percent Asbestos	Hmgns Matri #	Sampled Here?	Footage Sq/Ln/Jnts	Friable? Yes/No
Building: <u>01 - Basement</u>		Room: <u>42 - SGT. Locker Room</u>				
Floor:	Concrete	NON	Non-Suspect			
Walls:	CMU and Grout - Grey	MISC	None Detected	3	495 sq	
Walls:	Plaster - Sand Finish	MISC	None Detected	30	0A	165
	<i>Comment: Samples non-detect in prior sampling</i>					
Ceiling:	Plaster - Sand Finish	MISC	None Detected	30	68 sq	
	<i>Comment: Samples non-detect in prior sampling</i>					
Building: <u>01 - Basement</u>		Room: <u>43 - SGT. Locker Restroom</u>				
Floor:	2" Ceramic Tile and Grout - Tan	MISC	None Detected	24	24 sq	
Walls:	4" Ceramic Tile and Grout - Cream Ston	MISC	None Detected	25	88 sq	
Walls:	Plaster - Orange Peel	MISC	2 %	28	220 sq	No
Ceiling:	Plaster - Orange Peel	MISC	2 %	28	24 sq	No
Building: <u>01 - Basement</u>		Room: <u>44 - SGT. Locker Closet</u>				
Floor:	Concrete	NON	Non-Suspect			
Walls:	Plaster - Orange Peel	MISC	2 %	28	160 sq	No
Ceiling:	Plaster - Orange Peel	MISC	2 %	28	24 sq	No
Building: <u>01 - Basement</u>		Room: <u>45 - East Stairwell</u>				
Floor:	Stone Flooring - Salt Pepper	MISC	None Detected	32	260 sq	
Walls:	Concrete	NON	Non-Suspect			
Ceiling:	Plaster - Orange Peel	MISC	2 %	28	160 sq	No
Misc:	30 - Minute Fire Door	MISC	Assumed	10	1 ea	No

Functional Space Notes

HAZARD MANAGEMENT SERVICES, INC.

Client: Stockton, City of

Site: Stockton Police Department

HMS Project Number: M17214

Date of Inspection: October 17, 2017

Materials	Material Class	Percent Asbestos	Hmgns Matr#	Sampled Here?	Footage Sq/Ln/Jnts	Friable? Yes/No
Building: 02 - 1st Floor		Room: 01 - West Corridor				
Floor:	Stone Flooring - Salt Pepper	MISC	None Detected	32	265 sq	
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Plaster - Orange Peel	MISC	2 %	28	928 sq	No
Ceiling:	12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33	265 sq	
Building: 02 - 1st Floor		Room: 02 - Office 140				
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900	180 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Drywall - Orange Peel	MISC	Known	902	108 sq	No
Walls:	Plaster - Orange Peel	MISC	2 %	28	324 sq	No
Ceiling:	12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33	180 sq	
Window:	Window Sealant - Black	MISC	None Detected	35 35A	40 ln	
Building: 02 - 1st Floor		Room: 03 - Office Traffic Personnel				
Floor:	12" VFT and Mastic - Green w/ Dark Stre	MISC	Known	4	156 sq	No
	<i>Comment: Prior results show positive results</i>					
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Brick and Mortar - White	MISC	None Detected	34	100 sq	
Walls:	Plaster - Orange Peel	MISC	2 %	28	300 sq	No
Ceiling:	12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33	156 sq	
Window:	Window Sealant - Black	MISC	None Detected	35	64 ln	
<i>Room Comments:</i>	<i>Listed as Report Room</i>					
Building: 02 - 1st Floor		Room: 04 - Office 141				
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900	180 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Drywall - Orange Peel	MISC	Known	902	216 sq	No
Walls:	Plaster - Orange Peel	MISC	2 %	28	432 sq	No
Ceiling:	12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33 33A	180 sq	

Functional Space Notes

HAZARD MANAGEMENT SERVICES, INC.

Client: Stockton, City of

Site: Stockton Police Department

HMS Project Number: M17214

Date of Inspection: October 17, 2017

Materials	Material Class	Percent Asbestos	Hmgns Matrl #	Sampled Here?	Footage Sq/Ln/Jnts	Friable? Yes/No
Building: <u>02 - 1st Floor</u>		Room: <u>05 - Traffic Lieutenant</u>				
Floor:	12" VFT and Mastic - Green w/ Dark Stre	MISC	Known	4	156 sq	No
	<i>Comment: Prior results show positive results</i>					
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Drywall - Orange Peel	MISC	Known	902	100 sq	No
Walls:	Plaster - Orange Peel	MISC	2 %	28	400 sq	No
Ceiling:	12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33	156 sq	
Window:	Window Sealant - Black	MISC	None Detected	35	40 In	
Building: <u>02 - 1st Floor</u>		Room: <u>06 - Office 142</u>				
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900	120 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Plaster - Orange Peel	MISC	2 %	28	352 sq	No
Ceiling:	12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33	120 sq	
Building: <u>02 - 1st Floor</u>		Room: <u>07 - Traffic Sergeant</u>				
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900	10 sq	No
Floor:	12" VFT and Mastic - Beige w/ Specks	MISC	Known	905	118	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Brick and Mortar - White	MISC	None Detected	34	96 sq	
Walls:	Plaster - Orange Peel	MISC	2 %	28	384 sq	No
Ceiling:	12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33	128 sq	
Building: <u>02 - 1st Floor</u>		Room: <u>08 - Vehicle Abatement Coordinator</u>				
Floor:	12" VFT and Mastic - Beige w/ Specks	MISC	Known	905	168 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Plaster - Orange Peel	MISC	2 %	28	416 sq	No
Ceiling:	12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33	168 sq	
<i>Room</i>	<i>Room 135</i>					
<i>Comments:</i>						

Functional Space Notes

HAZARD MANAGEMENT SERVICES, INC.

Client: Stockton, City of

Site: Stockton Police Department

HMS Project Number: M17214

Date of Inspection: October 17, 2017

Materials	Material Class	Percent Asbestos	Hmgns Matr #	Sampled Here?	Footage Sq/Ln/Jnts	Friable? Yes/No
Building: 02 - 1st Floor		Room: 09 - Traffic Clerical				
Floor:	12" VFT and Mastic - Beige w/ Specks	MISC	Known	905	168 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Brick and Mortar - White	MISC	None Detected	34 34A	104 sq	
Walls:	Drywall - Orange Peel	MISC	Known	902	312 sq	No
Ceiling:	12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33	168 sq	
Building: 02 - 1st Floor		Room: 10 - Traffic Room				
Floor:	12" VFT and Mastic - White/Blue Oatmeal	MISC	Known	906	238 sq	No
	<i>Comment: Black Mastic exists below tile. Newer Tiles contain yellow mastic</i>					
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Brick and Mortar - White	MISC	None Detected	34	124 sq	
Walls:	Plaster - Orange Peel	MISC	2 %	28	496 sq	No
Ceiling:	12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33	238 sq	
Building: 02 - 1st Floor		Room: 11 - Corridor 2				
Floor:	Stone Flooring - Salt Pepper	MISC	None Detected	32	145 sq	
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Plaster - Orange Peel	MISC	2 %	28	544 sq	No
Ceiling:	12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33	145 sq	
<i>Room Comments:</i>	<i>See site map</i>					
Building: 02 - 1st Floor		Room: 12 - Custodial Closet				
Floor:	Concrete	NON	Non-Suspect			
Walls:	CMU and Grout - Grey	MISC	None Detected	3	35 sq	
Walls:	Plaster - Orange Peel	MISC	2 %	28 28B	176 sq	No
Ceiling:	Plaster - Orange Peel	MISC	2 %	28	30 sq	No
Misc:	4" Ceramic Tile and Grout - White	MISC	None Detected	8	40 sq	
TSI:	Hard Elbows	TSI	Known	903	4 ea	No

Functional Space Notes

HAZARD MANAGEMENT SERVICES, INC.

Client: Stockton, City of
HMS Project Number: M17214

Site: Stockton Police Department
Date of Inspection: October 17, 2017

Materials	Material Class	Percent Asbestos	Hmgns Matri #	Sampled Here?	Footage Sq/Ln/Jnts	Friable? Yes/No
Building: <u>02 - 1st Floor</u>		Room: <u>13 - Pipe Chase</u>				
Floor:	Concrete	NON	Non-Suspect			
Walls:	Button Board	MISC	None Detected	36	36A	192 sq
Ceiling:	Concrete	NON	Non-Suspect			
Window:	Hard Elbows	TSI	Known	903		20 ea No
<i>Comment: Various Sizes</i>						
Building: <u>02 - 1st Floor</u>		Room: <u>14 - Sergeants Office</u>				
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900		63 sq No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
<i>Comment: Non-detect in prior sampling</i>						
Walls:	Plaster - Orange Peel	MISC	2 %	28		256 sq No
Ceiling:	12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33		63 sq
Building: <u>02 - 1st Floor</u>		Room: <u>15 - Traffic Supply Room</u>				
Floor:	12" VFT and Mastic - Green w/ Dark Stre	MISC	Known	4		150 sq No
<i>Comment: Prior results show positive results</i>						
Baseboard:	4" Baseboard and Mastic - Brown	MISC	None Detected	37		50 In
Walls:	Wood Panels	NON	Non-Suspect			
<i>Comment: Glue behind Panels is a suspect material and should be sampled prior to disturbance</i>						
Ceiling:	2' x 4' FCP - Pinhole Fissure	MISC	None Detected	38	38A	150 sq
Building: <u>02 - 1st Floor</u>		Room: <u>16 - Office Break Room</u>				
Floor:	12" VFT and Mastic - Green w/ Dark Stre	MISC	Known	4		336 sq No
<i>Comment: Prior results show positive results</i>						
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
<i>Comment: Non-detect in prior sampling</i>						
Walls:	Brick and Mortar - White	MISC	None Detected	34		148 sq
Walls:	CMU and Grout - Grey	MISC	None Detected	3		148 sq
<i>Comment: Painted White</i>						
Walls:	Drywall - Orange Peel	MISC	Known	902	902C, 902D	296 sq No
Ceiling:	2' x 4' FCP - Pinhole Fissure	MISC	None Detected	38		336 sq

Functional Space Notes

HAZARD MANAGEMENT SERVICES, INC.

Client: Stockton, City of

Site: Stockton Police Department

HMS Project Number: M17214

Date of Inspection: October 17, 2017

Materials	Material Class	Percent Asbestos	Hmgns Matrl #	Sampled Here?	Footage Sq/Ln/Jnts	Friable? Yes/No
Building: 02 - 1st Floor		Room: 17 - Corridor 3				
Floor:	Stone Flooring - Salt Pepper	MISC	None Detected	32	575 sq	
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	FRP and Glue - Off-White	NON	Non-Suspect			
	<i>Comment: The glue is a suspect material and must be sampled prior to disturbance</i>					
Walls:	Plaster - Orange Peel	MISC	2 %	28	1920 sq	No
Ceiling:	12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33	575 sq	
Building: 02 - 1st Floor		Room: 18 - Women's Restroom				
Floor:	Ceramic Tile and Grout - Pink	MISC	None Detected	5	120 sq	
Walls:	4" Ceramic Tile and Grout - Pink	MISC	None Detected	6 6A	141 sq	
Walls:	Plaster - Orange Peel	MISC	2 %	28	211 sq	No
Ceiling:	Plaster - Orange Peel	MISC	2 %	28	120 sq	No
Misc:	White Sink Sealant	MISC	None Detected	40	20 ln	
Building: 02 - 1st Floor		Room: 19 - Men's Restroom				
Floor:	2" Ceramic Tile and Grout - Tan	MISC	None Detected	24	120 sq	
Walls:	4" Ceramic Tile and Grout - Cream Ston	MISC	None Detected	25	70 sq	
Walls:	Plaster - Orange Peel	MISC	2 %	28	352 sq	No
Ceiling:	Plaster - Orange Peel	MISC	2 %	28	120 sq	No
Misc:	White Sink Sealant	MISC	None Detected	40 40A	20 ln	
Building: 02 - 1st Floor		Room: 20 - Office 124				
Floor:	Black Mastic	MISC	Known	907	252 sq	No
Floor:	Carpet and Mastic - Dark Blue	MISC	None Detected	41	252 sq	
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Drywall - Orange Peel	MISC	Known	902	384 sq	No
Walls:	Plaster - Orange Peel	MISC	2 %	28	128 sq	No
Ceiling:	Plaster - Orange Peel	MISC	2 %	28	252 sq	No

Functional Space Notes

HAZARD MANAGEMENT SERVICES, INC.

Client: Stockton, City of
HMS Project Number: M17214

Site: Stockton Police Department
Date of Inspection: October 17, 2017

Materials	Material Class	Percent Asbestos	Hmgns Matrl #	Sampled Here?	Footage Sq/Ln/Jnts	Friable? Yes/No
Building: <u>02 - 1st Floor</u>		Room: <u>21 - Office 124.A</u>				
Floor: Black Mastic	MISC	Known	907		81 sq	No
Floor: Carpet and Mastic - Dark Blue	MISC	None Detected	41		81 sq	
Baseboard: 4" Baseboard and Mastic - Black <i>Comment: Non-detect in prior sampling</i>	NON	Non-Suspect				
Walls: Drywall - Orange Peel	MISC	Known	902		288 sq	No
Ceiling: Drywall - Orange Peel	MISC	Known	902		81 sq	No
<i>Room Left Side</i>						
<i>Comments:</i>						
Building: <u>02 - 1st Floor</u>		Room: <u>22 - Office 124.B</u>				
Floor: Black Mastic	MISC	Known	907		81 sq	No
Floor: Carpet and Mastic - Dark Blue	MISC	None Detected	41		81 sq	
Baseboard: 4" Baseboard and Mastic - Black <i>Comment: Non-detect in prior sampling</i>	NON	Non-Suspect				
Walls: Drywall - Orange Peel	MISC	Known	902		288 sq	No
Ceiling: Drywall - Orange Peel	MISC	Known	902		81 sq	No
Building: <u>02 - 1st Floor</u>		Room: <u>23 - Interview Room - Left</u>				
Floor: Carpet and Mastic - Dark Blue	MISC	None Detected	41		112 sq	
Baseboard: 4" Baseboard and Mastic - Black <i>Comment: Non-detect in prior sampling</i>	NON	Non-Suspect				
Walls: Drywall - Orange Peel	MISC	Known	902		264 sq	No
Walls: Plaster - Orange Peel	MISC	2 %	28		88 sq	No
Ceiling: 12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33		112 sq	
Building: <u>02 - 1st Floor</u>		Room: <u>24 - Interview Room - Right</u>				
Floor: Carpet and Mastic - Dark Blue	MISC	None Detected	41		112 sq	
Baseboard: 4" Baseboard and Mastic - Black <i>Comment: Non-detect in prior sampling</i>	NON	Non-Suspect				
Walls: Drywall - Orange Peel	MISC	Known	902		352 sq	No
Walls: Plaster - Orange Peel	MISC	2 %	28		352 sq	No
Ceiling: 12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33		112 sq	

Functional Space Notes

HAZARD MANAGEMENT SERVICES, INC.

Client: Stockton, City of
HMS Project Number: M17214

Site: Stockton Police Department
Date of Inspection: October 17, 2017

Materials	Material Class	Percent Asbestos	Hmgns Matrl #	Sampled Here?	Footage Sq/Ln/Jnts	Friable? Yes/No
Building: <u>02 - 1st Floor</u>		Room: <u>25 - Elevator Lobby</u>				
Floor:	Stone Flooring - Salt Pepper	MISC	None Detected	32	360 sq	
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Drywall - Orange Peel	MISC	Known	902	780 sq	No
Walls:	Stone Wall and Grout - White	MISC	None Detected	43 43A	312 sq	
Ceiling:	12" ACT and Mastic - Heavy Texture	MISC	None Detected	42	216 sq	
Ceiling:	12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33	144 sq	
Building: <u>02 - 1st Floor</u>		Room: <u>26 - Strategic Operations Lobby</u>				
Floor:	12" VFT and Mastic - Black w/ White Str	MISC	Known	908	156 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Drywall - Orange Peel	MISC	Known	902	400 sq	No
Ceiling:	12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33	156 sq	
Building: <u>02 - 1st Floor</u>		Room: <u>27 - Strategic Operations Lieutenant</u>				
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900	121 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Drywall - Orange Peel	MISC	Known	902	352 sq	No
Ceiling:	12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33	121 sq	
Building: <u>02 - 1st Floor</u>		Room: <u>28 - Crime Prevention</u>				
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900	176 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Brick and Mortar - White	MISC	None Detected	34	43 sq	
Walls:	Drywall - Orange Peel	MISC	Known	902	432 sq	No
Ceiling:	12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33	176 sq	
Window:	Window Sealant - Black	MISC	None Detected	35	40 ln	

Functional Space Notes

HAZARD MANAGEMENT SERVICES, INC.

Client: Stockton, City of
HMS Project Number: M17214

Site: Stockton Police Department
Date of Inspection: October 17, 2017

Materials	Material Class	Percent Asbestos	Hmgns Matrl #	Sampled Here?	Footage Sq/Ln/Jnts	Friable? Yes/No
Building: <u>02 - 1st Floor</u>						
Room: <u>29 - Crime Prevention Center</u>						
Floor: 12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900		176 sq	No
Baseboard: 4" Baseboard and Mastic - Black	NON	Non-Suspect				
<i>Comment: Non-detect in prior sampling</i>						
Walls: Brick and Mortar - White	MISC	None Detected	34		108 sq	
Walls: Drywall - Orange Peel	MISC	Known	902		324 sq	No
Ceiling: 12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33		176 sq	
Window: Window Sealant - Black	MISC	None Detected	35		64 ln	
<i>Room Comments: See site map</i>						
Building: <u>02 - 1st Floor</u>						
Room: <u>30 - Office 119</u>						
Floor: 12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900		154 sq	No
Baseboard: 4" Baseboard and Mastic - Black	NON	Non-Suspect				
<i>Comment: Non-detect in prior sampling</i>						
Walls: Brick and Mortar - White	MISC	None Detected	34		400 sq	
Walls: Drywall - Orange Peel	MISC	Known	902		400 sq	No
Ceiling: 12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33		154 sq	
Window: Window Sealant - Black	MISC	None Detected	35		40 ln	
Building: <u>02 - 1st Floor</u>						
Room: <u>31 - Special Operations Department</u>						
Floor: Carpet and Mastic - Dark Blue	MISC	None Detected	41		256 sq	
Baseboard: 4" Baseboard and Mastic - Black	NON	Non-Suspect				
<i>Comment: Non-detect in prior sampling</i>						
Walls: Drywall - Orange Peel	MISC	Known	902		512 sq	No
Ceiling: 12" ACT and Mastic - Heavy Texture	MISC	None Detected	42		256 sq	
Building: <u>02 - 1st Floor</u>						
Room: <u>32 - Admin. Sergeant</u>						
Floor: 12" VFT and Mastic - Beige w/ Specks	MISC	Known	905		121 sq	No
Baseboard: 4" Baseboard and Mastic - Black	NON	Non-Suspect				
<i>Comment: Non-detect in prior sampling</i>						
Walls: Drywall - Orange Peel	MISC	Known	902		35 sq	No
Walls: Plaster - Orange Peel	MISC	2 %	28		352 sq	No
Ceiling: 12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33		121 sq	

Functional Space Notes

HAZARD MANAGEMENT SERVICES, INC.

Client: Stockton, City of

Site: Stockton Police Department

HMS Project Number: M17214

Date of Inspection: October 17, 2017

Materials	Material Class	Percent Asbestos	Hmgns Matrl #	Sampled Here?	Footage Sq/Ln/Jnts	Friable? Yes/No
Building: <u>02 - 1st Floor</u>		Room: <u>33 - Roll Call Room</u>				
Floor:	12" VFT and Mastic - Beige w/ Specks	MISC	Known	905	713 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Brick and Mortar - White	MISC	None Detected	34	778 sq	
Walls:	Drywall - Orange Peel	MISC	Known	902	184 sq	No
Walls:	Plaster - Orange Peel	MISC	2 %	28	10 sq	No
Ceiling:	12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33	713 sq	
TSI:	Hard Elbows	TSI	Known	903	10 ea	No
	<i>Comment: Attic Space Available in Space</i>					
Window:	Window Sealant - Black	MISC	None Detected	35	64 ln	
Building: <u>02 - 1st Floor</u>		Room: <u>34 - Roll Call Office</u>				
Floor:	12" VFT and Mastic - Beige w/ Specks	MISC	Known	905	108 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Drywall - Orange Peel	MISC	Known	902	336 sq	No
Ceiling:	12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33	108 sq	
Building: <u>02 - 1st Floor</u>		Room: <u>35 - Records Room</u>				
Floor:	12" VFT and Mastic - Beige w/ Specks	MISC	Known	905	1296 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Brick and Mortar - White	MISC	None Detected	34	324 sq	
Walls:	Drywall - Orange Peel	MISC	Known	902	972 sq	No
Walls:	Plaster - Orange Peel	MISC	2 %	28	324 sq	No
Ceiling:	12" ACT and Mastic - Heavy Texture	MISC	None Detected	42	42A	1296 sq
Window:	Window Sealant - Black	MISC	None Detected	35	160 ln	
Building: <u>02 - 1st Floor</u>		Room: <u>36 - Server / Fridge Room</u>				
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900	108 sq	No
Walls:	Wood	NON	Non-Suspect			
	<i>Comment: Painted partially</i>					
Ceiling:	Drywall - Orange Peel	MISC	Known	902	108 sq	No

Functional Space Notes

HAZARD MANAGEMENT SERVICES, INC.

Client: Stockton, City of
 HMS Project Number: M17214

Site: Stockton Police Department
 Date of Inspection: October 17, 2017

Materials	Material Class	Percent Asbestos	Hmgns Matri #	Sampled Here?	Footage Sq/Ln/Jnts	Friable? Yes/No
Building: <u>02 - 1st Floor</u>						
Room: <u>37 - Records Copy Room</u>						
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900	72 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
<i>Comment: Non-detect in prior sampling</i>						
Walls:	12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33	136 sq	
Walls:	Drywall - Orange Peel	MISC	Known	902	272 sq	No
Ceiling:	12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33	72 sq	
Building: <u>02 - 1st Floor</u>						
Room: <u>38 - Mechanical Closet</u>						
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900	21 sq	No
Walls:	CMU and Grout - Grey	MISC	None Detected	3	160 sq	
Ceiling:	Plaster - Sand Finish	MISC	None Detected	30	21 sq	
<i>Comment: Samples non-detect in prior sampling</i>						
Building: <u>02 - 1st Floor</u>						
Room: <u>39 - Room 103</u>						
Floor:	12" VFT and Mastic - Black w/ White Str	MISC	Known	908	380 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
<i>Comment: Non-detect in prior sampling</i>						
Walls:	Brick and Mortar - White	MISC	None Detected	34	351 sq	
Walls:	Drywall - Orange Peel	MISC	Known	902	702 sq	No
Ceiling:	12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33	380 sq	
Windows:	Window Sealant - Black	MISC	None Detected	35	40 In	
Building: <u>02 - 1st Floor</u>						
Room: <u>40 - Room 103 North Office</u>						
Floor:	Carpet and Mastic - Grey/Tan	NON	Non-Suspect			
<i>Comment: Non-Detect in prior sampling</i>						
Baseboard:	4" Basboard and Mastic - White	NON	None Detected			
Walls:	Drywall - Orange Peel	MISC	Known	902	342 sq	No
Ceiling:	12" ACT and Mastic - Heavy Texture	MISC	None Detected	42	84 sq	
Building: <u>02 - 1st Floor</u>						
Room: <u>41 - Room 103 South Office</u>						
Floor:	Carpet and Mastic - Dark Blue	MISC	None Detected	41	96 sq	
Baseboard:	4" Basboard and Mastic - White	NON	None Detected			
Walls:	Drywall - Orange Peel	MISC	Known	902	360 sq	No
Ceiling:	12" ACT and Mastic - Heavy Texture	MISC	None Detected	42	96 sq	
Windows:	Window Sealant - Black	MISC	None Detected	35	40 In	

Functional Space Notes

HAZARD MANAGEMENT SERVICES, INC.

Client: Stockton, City of

Site: Stockton Police Department

HMS Project Number: M17214

Date of Inspection: October 17, 2017

Materials	Material Class	Percent Asbestos	Hmgns Matrl #	Sampled Here?	Footage Sq/Ln/Jnts	Friable? Yes/No
Building: <u>02 - 1st Floor</u>		Room: <u>42 - Office 107</u>				
Floor:	Carpet and Mastic - Dark Blue	MISC	None Detected	41	225 sq	
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Brick and Mortar - White	MISC	None Detected	34	240 sq	
Walls:	Drywall - Orange Peel	MISC	Known	902	240 sq	No
Walls:	Wood Panels	NON	Non-Suspect			
	<i>Comment: Glue behind Panels is a suspect material and should be sampled prior to disturbance</i>					
Ceiling:	12" ACT and Mastic - Heavy Texture	MISC	None Detected	42	225 sq	
Building: <u>02 - 1st Floor</u>		Room: <u>43 - Office 106</u>				
Floor:	12" VFT and Mastic - Black w/ White Str	MISC	Known	908	168 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Brick and Mortar - White	MISC	None Detected	34	104 sq	
Walls:	Drywall - Orange Peel	MISC	Known	902	312 sq	No
Ceiling:	12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33	168 sq	
Building: <u>02 - 1st Floor</u>		Room: <u>44 - Office 105</u>				
Floor:	12" VFT and Mastic - Black w/ White Str	MISC	Known	908	168 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Brick and Mortar - White	MISC	None Detected	34	104 sq	
Walls:	Drywall - Orange Peel	MISC	Known	902	312 sq	No
Ceiling:	12" ACT and Mastic - Rough Pinhole	MISC	None Detected	33	168 sq	
Building: <u>02 - 1st Floor</u>		Room: <u>45 - Radio Room Lobby</u>				
Floor:	12" VFT and Mastic - Grey/Tan Stone	MISC	Known	44	121 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Brick and Mortar - White	MISC	None Detected	34	264 sq	
Walls:	Drywall - Knockdown Texture	MISC	Known	909	88 sq	No
Ceiling:	2' x 4' FCP - Pinhole Fissure	MISC	None Detected	38	121 sq	

Functional Space Notes

HAZARD MANAGEMENT SERVICES, INC.

Client: Stockton, City of

Site: Stockton Police Department

HMS Project Number: M17214

Date of Inspection: October 17, 2017

Materials	Material Class	Percent Asbestos	Hmgn's Matrl #	Sampled Here?	Footage Sq/Ln/Jnts	Friable? Yes/No
Building: <u>02 - 1st Floor</u>		Room: <u>46 - Radio Room</u>				
Floor:	12" VFT and Mastic - Grey/Tan Stone	MISC	Known	44 44A	216 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Brick and Mortar - White	MISC	None Detected	34	471 sq	
Walls:	Drywall - Knockdown Texture	MISC	Known	909	157 sq	No
Ceiling:	2' x 4' FCP - Pinhole Fissure	MISC	None Detected	38	216 sq	
Building: <u>02 - 1st Floor</u>		Room: <u>47 - Equipment Bike Storage</u>				
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900	345 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	Brick and Mortar - White	MISC	None Detected	34	171 sq	
Walls:	CMU and Grout - Grey	MISC	None Detected	3	513 sq	
Walls:	Drywall - Orange Peel	MISC	Known	902	137 sq	No
Ceiling:	2' x 4' FCP - Pinhole Fissure	MISC	None Detected	38	345 sq	
Building: <u>02 - 1st Floor</u>		Room: <u>47.1 - Storage Space</u>				
Floor:	12" VFT and Mastic - Beige w/ Specks	MISC	Known	905	70 sq	No
Baseboard:	4" Baseboard and Mastic - Black	NON	Non-Suspect			
	<i>Comment: Non-detect in prior sampling</i>					
Walls:	CMU and Grout - Grey	MISC	None Detected	3	153 sq	
Walls:	Drywall - Orange Peel	MISC	Known	902	306 sq	No
Ceiling:	2' x 4' FCP - Pinhole Fissure	MISC	None Detected	38	70 sq	
<i>Room Comments:</i>	<i>Inside bike storage</i>					
Building: <u>02 - 1st Floor</u>		Room: <u>48 - Police Bike Storage</u>				
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900	208 sq	No
Baseboard:	4" Baseboard and Mastic - Brown	MISC	None Detected	37 37A	58 ln	
Walls:	Brick and Mortar - White	MISC	None Detected	34	130 sq	
Walls:	CMU and Grout - Grey	MISC	None Detected	3	262 sq	
Walls:	Drywall - Orange Peel	MISC	Known	902	130 sq	No
Ceiling:	2' x 4' FCP - Pinhole Fissure	MISC	None Detected	38	208 sq	

Functional Space Notes

HAZARD MANAGEMENT SERVICES, INC.

Client: Stockton, City of
HMS Project Number: M17214

Site: Stockton Police Department
Date of Inspection: October 17, 2017

Materials	Material Class	Percent Asbestos	Hmgns Matrl #	Sampled Here?	Footage Sq/Ln/Jnts	Friable? Yes/No
Building: 02 - 1st Floor		Room: 49 - Evidence Examination Room				
Floor:	12" VFT and Mastic - Beige w/ Specks	MISC	Known	905	240 sq	No
Floor:	Carpet and Mastic - Dark Blue	MISC	None Detected	41 41A	144 sq	
Baseboard:	4" Baseboard and Mastic - Brown	MISC	None Detected	37	64 ln	
Walls:	Brick and Mortar - White	MISC	None Detected	34	288 sq	
Walls:	Drywall - Orange Peel	MISC	Known	902	288 sq	No
Ceiling:	2' x 4' FCP - Pinhole Fissure	MISC	None Detected	38	240 sq	
Building: 02 - 1st Floor		Room: 50 - Evidence Storage Room				
Floor:	12" VFT and Mastic - Beige w/ Brown Str	MISC	Known	900	70 sq	No
Baseboard:	4" Baseboard and Mastic - Brown	MISC	None Detected	37	34 ln	
Walls:	CMU and Grout - Grey <i>Comment: Painted White</i>	MISC	None Detected	3	230 sq	
Walls:	Drywall - Orange Peel	MISC	Known	902	76 sq	No
Ceiling:	2' x 4' FCP - Pinhole Fissure	MISC	None Detected	38	70 sq	
Building: 02 - 1st Floor		Room: 51 - Exterior Office				
Floor:	Concrete	NON	Non-Suspect			
Baseboard:	4" Baseboard and Mastic - Brown	MISC	None Detected	37	54 ln	
Walls:	Brick and Mortar - White	MISC	None Detected	34	140 sq	
Walls:	CMU and Grout - Grey	MISC	None Detected	3	243 sq	
Walls:	Drywall - Knockdown Texture	MISC	Known	909	243 sq	No
Ceiling:	2' x 4' FCP - Pinhole Fissure	MISC	None Detected	38	140 sq	



**SURVEY FOR LEAD BASED PAINT
STOCKTON POLICE DEPARTMENT**

Site Name:		STOCKTON POLICE DEPARTMENT				Date:		OCTOBER 18, 2017		
Address:		22 EAST MARKET STREET , STOCKTON, CA 95202						HMS Job #:		M17214
Start Time:	12:22	Calibration:	1.04 = 1.0	1.04 = 1.0	1.04 = 1.0	1.04 = 1.0	Technician:	TYLER FAISON		
End Time:	13:18	Calibration:	1.04 = 1.0	1.04 = 0.9	1.04 = 1.1	1.04 = 1.1	Inspector/Assessor:	CHRIS CHIPPONERI		
Niton XLP 300		See Lead-Based Paint Inspections, Sampling Protocol, & Definition of Lead-Based Paint on Page 1								
No.	Sample Location	Color	Substrate	Component	Condition	XRF Result (mg/cm2)				
1.	BASEMENT									
2.	Hallway To Women's Locker Room	White	CMU	Wall	I	0.01				
3.	Room 51	White	Metal	Door Frame	I	0.08				
4.		White	Metal	Door	I	0.03				
5.		White	CMU	Wall	I	0				
6.		White	Metal	HVAC	I	0.01				
7.	Women's Locker Room	White	CMU	Wall	I	0				
8.		White	Metal	Door Frame	I	0.03				
9.	Women's Locker Room Restroom	Pink	Ceramic Tile	Floor	I	0.04				
10.		Pink	4" Ceramic Tile	Wall	I	2.9				
11.		White	Plaster	Wall	I	0.03				
12.	West Storage	White	Metal	Door Frame	I	0.04				
13.	West Custodial Storage	Tan	Plaster	Wall	I	0.01				
14.		Tan	Metal	Door Frame	I	0.04				
15.	Room 41	Tan	Metal	Door Frame	I	0.01				
16.		Tan	Wood	Ceiling	I	0				
17.		Tan	Metal	Pipe	I	0				
18.	Stairwell	Black & White	Stone	Floor	I	0				
19.		Brown	Plaster	Wall	I	0.02				
20.		Off White	Plaster	Wall	I	0.02				



**SURVEY FOR LEAD BASED PAINT
STOCKTON POLICE DEPARTMENT**

Site Name:		STOCKTON POLICE DEPARTMENT				Date:		OCTOBER 18, 2017		
Address:		22 EAST MARKET STREET, STOCKTON, CA 95202						HMS Job #:		M17214
Start Time:	12:22	Calibration:	1.04 = 1.0	1.04 = 1.0	1.04 = 1.0	1.04 = 1.0	Technician:			TYLER FAISON
End Time:	13:18	Calibration:	1.04 = 1.0	1.04 = 0.9	1.04 = 1.1	1.04 = 1.1	Inspector/Assessor:			CHRIS CHIPPONERI
Niton XLP 300		See Lead-Based Paint Inspections, Sampling Protocol, & Definition of Lead-Based Paint on Page 1								
No.	Sample Location	Color	Substrate	Component	Condition	XRF Result (mg/cm2)				
21.	Ramp On Room	White	Metal	Door Frame	I	0.04				
22.	Ramp On - Storage Room	White	Drywall	Wall	I	0				
23.		White	Concrete	Wall	I	0				
24.	Ramp On - North East Room	Yellow	Transite	Panel	I	0				
25.	Roll Call Room	Beige	Metal	Pipe	I	0.01				
26.		Beige	Metal	Alarm Box	I	0				
27.	Server Room	White	CMU	Wall	I	0				
28.		Brown	Metal	Door Frame	I	0.02				
29.		Brown	Metal	Door	I	0.04				
30.		Beige	Metal	Breaker Box	I	0				
31.		Tan	CMU	Wall	I	0.01				
32.	Main Hallway	White	Metal	Breaker Box	I	0.01				
33.	Men's Locker Room	White	Metal	Door Frame	I	0.13				
34.		White	CMU	Wall	I	0				
35.	Room 45	Yellow	Metal	Door Frame	I	0.07				
36.		Tan	Metal	Safe	I	0				
37.		Yellow	Stucco	Ceiling	I	0.02				
38.	Hallway to Men's Center Locker Room	White	Metal	Door Frame	I	0.02				
39.		White	Metal	Door	I	0.01				
40.		White	CMU	Wall	I	0.02				



**SURVEY FOR LEAD BASED PAINT
STOCKTON POLICE DEPARTMENT**

Site Name:		STOCKTON POLICE DEPARTMENT				Date:		OCTOBER 18, 2017			
Address:		22 EAST MARKET STREET, STOCKTON, CA 95202						HMS Job #:		M17214	
Start Time:	12:22	Calibration:	1.04 = 1.0	1.04 = 1.0	1.04 = 1.0	1.04 = 1.0	Technician:			TYLER FAISON	
End Time:	13:18	Calibration:	1.04 = 1.0	1.04 = 0.9	1.04 = 1.1	1.04 = 1.1	Inspector/Assessor:				CHRIS CHIPPONERI
Niton XLP 300		See Lead-Based Paint Inspections, Sampling Protocol, & Definition of Lead-Based Paint on Page 1									
No.	Sample Location	Color	Substrate	Component	Condition	XRF Result (mg/cm2)					
41.	Room 31	Tan	Metal	Door Frame	I	0.04					
42.		Tan	CMU	Wall	I	0.01					
43.	Elevator Hallway	White	Metal	Elevator Door Frame	I	0.06					
44.		White	CMU	Wall	I	0.04					
45.		White	Metal	Door	I	0.06					
46.	Radio Room (27)	White	CMU	Wall	I	0.01					
47.		White	Drywall	Wall	I	0.01					
48.	Room 26	White	CMU	Wall	I	0.06					
49.		White	Metal	Door Frame	I	0.08					
50.	Room 25 (Break Area)	White	Metal	Window Frame	I	0.09					
51.	Telephone Room	White	Plaster	Wall	I	0.03					
52.	Kitchen	White	Drywall	Wall	I	0					
53.	Break Room Toilet (Kitchen Room Restroom)	White	4" Ceramic Tile	Wall	I	10.1					
54.		Beige	2" Ceramic Tile	Floor	I	0.03					
55.		White	Drywall	Wall	I	0.01					
56.	Weight Room	Grey	CMU	Wall	I	0.06					
57.		White	CMU	Wall	I	0.06					
58.	FIRST FLOOR										
59.	Corridor 1	Beige	Plaster	Wall	I	0.10					
60.	Room 140	Beige	Metal	Door Frame	I	0.01					



**SURVEY FOR LEAD BASED PAINT
STOCKTON POLICE DEPARTMENT**

Site Name:		STOCKTON POLICE DEPARTMENT					Date:		OCTOBER 18, 2017		
Address:		22 EAST MARKET STREET, STOCKTON, CA 95202					HMS Job #:		M17214		
Start Time:		Calibration:		1.04 = 1.0		1.04 = 1.0		Technician:		TYLER FAISON	
End Time:		Calibration:		1.04 = 1.0		1.04 = 0.9		Inspector/Assessor:		CHRIS CHIPPONERI	
Niton XLP 300		See Lead-Based Paint Inspections, Sampling Protocol, & Definition of Lead-Based Paint on Page 1									
No.	Sample Location	Color	Substrate	Component	Condition	XRF Result (mg/cm2)					
61.		White	Plaster	Wall	I	0.10					
62.		White	Drywall	Wall	I	0.09					
63.	Report Room	White	Brick	Wall	I	0.05					
64.		White	Metal	Window Seal	I	0.05					
65.	Lt. Digulio (Traffic Lt. Room)	White	Drywall	Wall	I	0.02					
66.		White	Metal	Window Frame	I	0.09					
67.	Sergeant Walker's & Sergeant Givens Room	White	Brick	Wall	I	0.06					
68.		White	Metal	Door Frame	I	0					
69.	Hallway To Sergeant's Office	Beige	Metal	Breaker Box	I	0.04					
70.	Sergeants Office	White	Metal	Door Frame	I	0.01					
71.		White	Drywall	Wall	I	0.02					
72.	Traffic Equipment Room	Brown	Metal	Door Frame	I	0.03					
73.	Room 124	Beige	Metal	Door Frame	I	0.04					
74.		White	Metal	Door Frame	I	0.01					
75.	Interrogation Room	White	Drywall	Wall	I	0.01					
76.	Men's Restroom	White	4" Ceramic Tile	Wall	I	9.70					
77.		Tan	2" Ceramic Tile	Floor	I	0.01					
78.	Main Hallway	Beige	Plaster	Wall	I	0.08					
79.	109	Beige	Metal	Door Frame	I	0.04					
80.		White	Drywall	Wall	I	0.01					

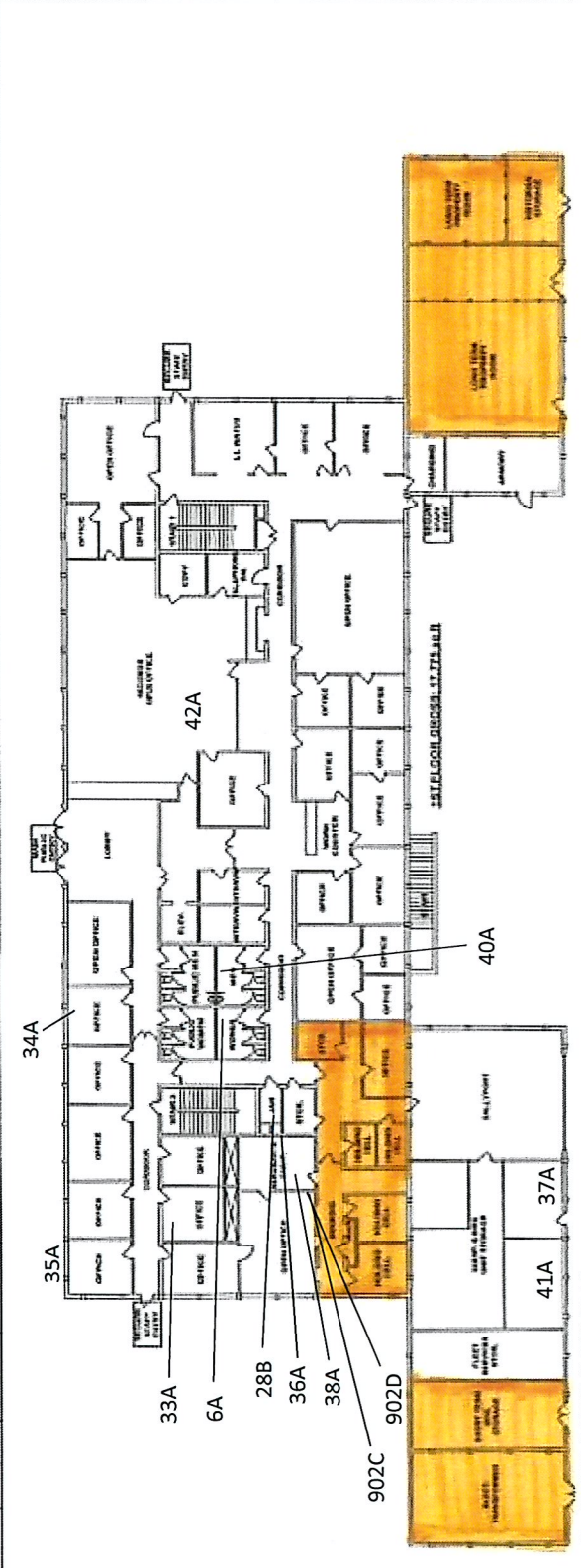


**SURVEY FOR LEAD BASED PAINT
STOCKTON POLICE DEPARTMENT**

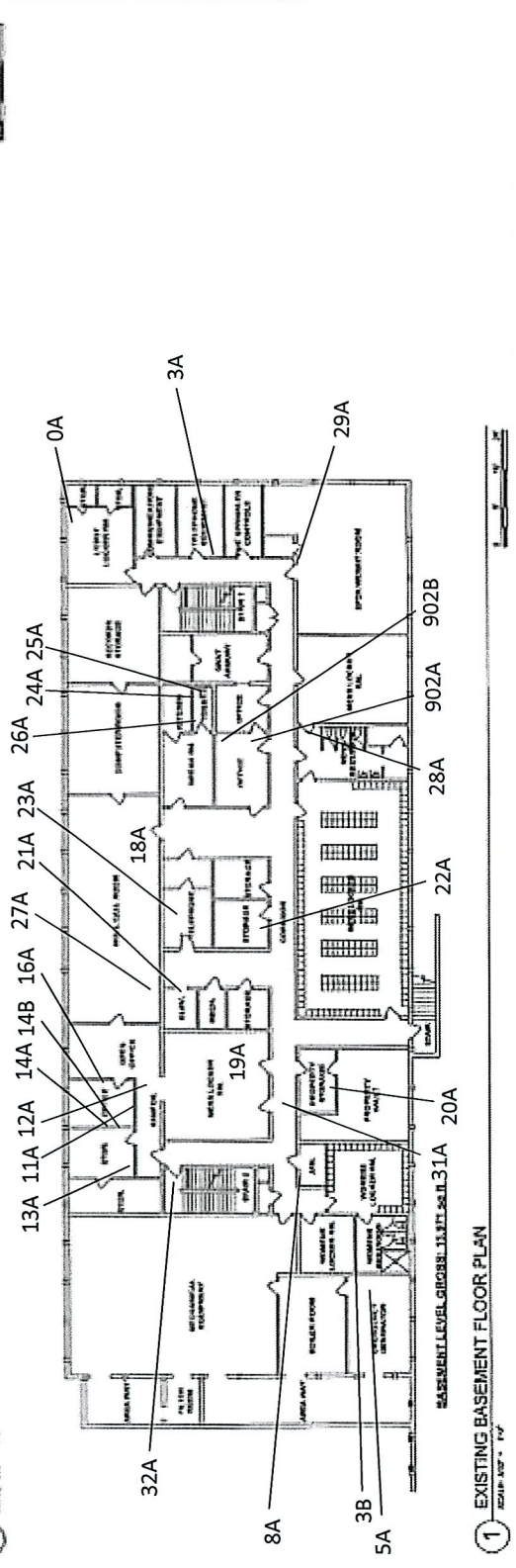
Site Name:		STOCKTON POLICE DEPARTMENT				Date:		OCTOBER 18, 2017		
Address:		22 EAST MARKET STREET, STOCKTON, CA 95202						HMS Job #:		M17214
Start Time:	12:22	Calibration:	1.04 = 1.0	1.04 = 1.0	1.04 = 1.0	1.04 = 1.0	Technician:	TYLER FAISON		
End Time:	13:18	Calibration:	1.04 = 1.0	1.04 = 0.9	1.04 = 1.1	1.04 = 1.1	Inspector/Assessor:	CHRIS CHIPPONERI		
Niton XLP 300		See Lead-Based Paint Inspections, Sampling Protocol, & Definition of Lead-Based Paint on Page 1								
No.	Sample Location	Color	Substrate	Component	Condition	XRF Result (mg/cm2)				
81.		White	Metal	Window Frame	I	0.03				
82.		White	Brick	Wall	I	0.04				
83.		Blue	Plaster	Wall	I	0.01				
84.	East Corridor (Hallway)	Beige	Plaster	Wall	I	0.12				
85.	Room 103	White	Plaster	Wall	I	0				
86.		White	Metal	Window Frame	I	0.01				
87.	West Office (Inside Room 103)	White	Metal	Door Frame	I	0				
88.	East Office (Inside Room 103)	White	Drywall	Wall	I	0				
89.	Copy Room	White	Metal	Door Frame	I	0.03				
90.		White	Concrete	Wall	I	0				
91.	Break Room (Adjacent To Copy Room)	White	Wood	Wall	I	0				



CITY OF STOCKTON POLICE HQ & ANNEX REMODEL	
EXISTING FLOOR PLANS	AE-101



2 EXISTING FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"



1 EXISTING BASEMENT FLOOR PLAN
SCALE: 1/8" = 1'-0"

Material Picture Log

Hazard Management Services, Inc.

Client: Stockton, City of

Site: Stockton Police Department



Material: 4" Baseboard and Mastic - Black
HMR #: 0
Asb:
Comment: Non-detect in prior sampling



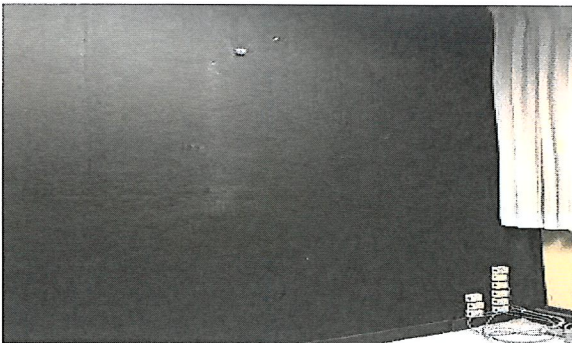
Material: Canvas Duct Tape
HMR #: 0
Asb:
Comment: Sampled result non-detect



Material: Carpet and Mastic - Tan Squares
HMR #: 0
Asb:
Comment: Non - Detect at prior sampling



Material: Metal Grid
HMR #: 0
Asb:
Comment:



Material: Tackboard - Black
HMR #: 0
Asb:
Comment: Non-detect in prior sampling



Material: Wood
HMR #: 0
Asb:
Comment:

Material Picture Log

Hazard Management Services, Inc.

Client: Stockton, City of

Site: Stockton Police Department



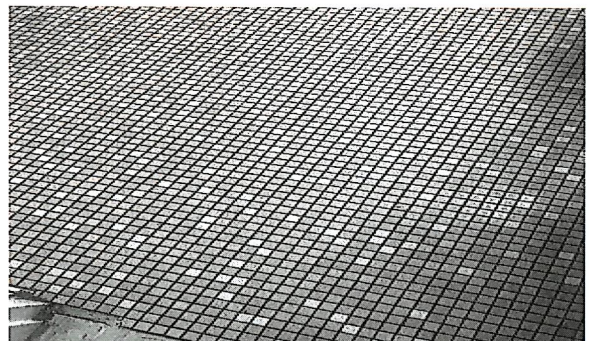
Material: Wood Panels
HMR #: 0
Asb:
Comment: Glue behind Panels is a suspect material and should be sampled prior to disturbance



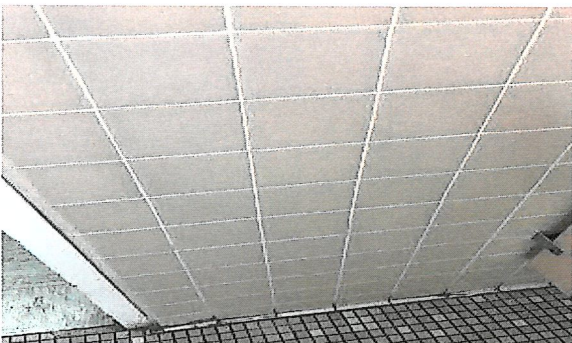
Material: CMU and Grout - Grey
HMR #: 3
Asb: 0
Comment:



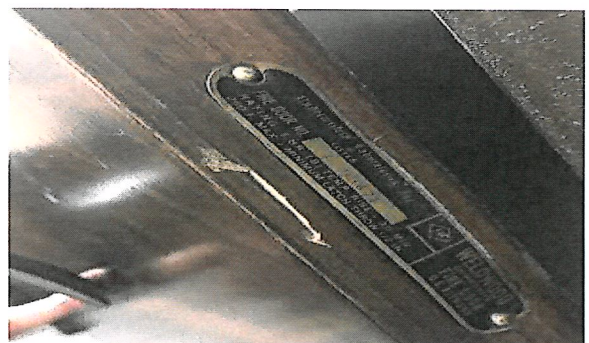
Material: 12" VFT and Mastic - Green w/ Dark Stre
HMR #: 4
Asb: Known
Comment: Prior results show positive results



Material: Ceramic Tile and Grout - Pink
HMR #: 5
Asb: 0
Comment:



Material: 4" Ceramic Tile and Grout - Pink
HMR #: 6
Asb: 0
Comment:



Material: 45 - Minute Fire Door
HMR #: 7
Asb: 0
Comment:

Material Picture Log

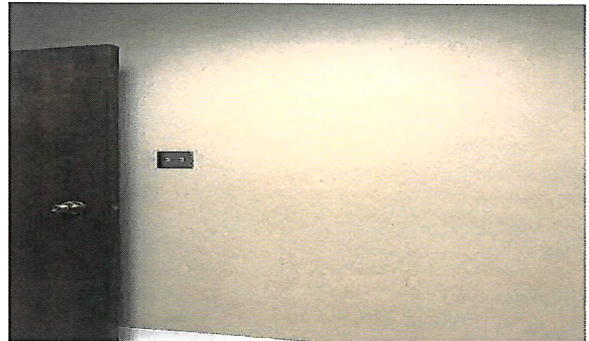
Hazard Management Services, Inc.

Client: Stockton, City of

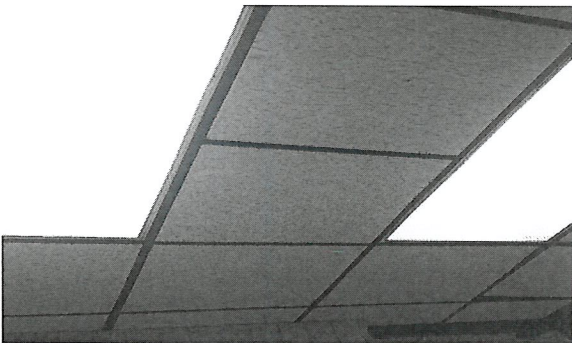
Site: Stockton Police Department



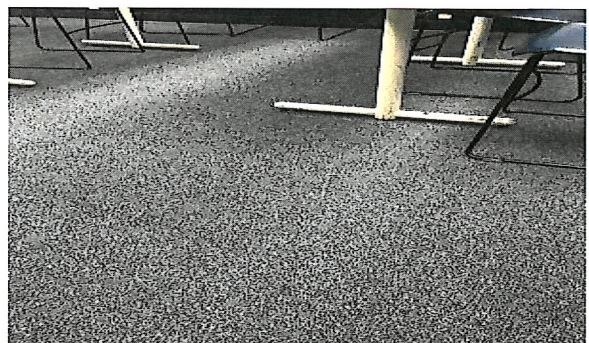
Material: 4" Ceramic Tile and Grout - White
HMR #: 8
Asb: 0
Comment:



Material: Tackboard - Beige
HMR #: 11
Asb: 0
Comment:



Material: 2' x 2' FCP - Pinhole Fissure
HMR #: 12
Asb: 0
Comment:



Material: Carpet and Mastic - Blue Multi
HMR #: 18
Asb: 0
Comment:



Material: Carpet and Mastic - Beige
HMR #: 20
Asb: 0
Comment:



Material: 12" ACT - Random Hole
HMR #: 23
Asb: 0
Comment: Screwed in

Material Picture Log

Hazard Management Services, Inc.

Client: Stockton, City of

Site: Stockton Police Department



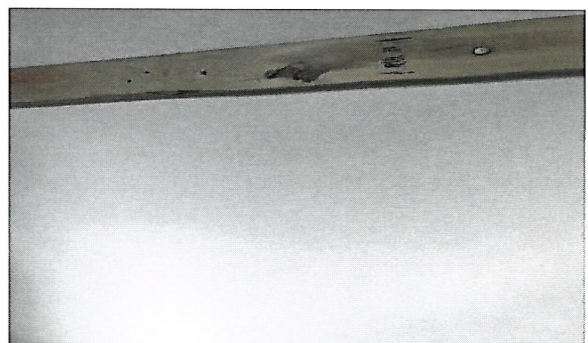
Material: 2" Ceramic Tile and Grout - Tan
HMR #: 24
Asb: 0
Comment:



Material: 4" Ceramic Tile and Grout - Cream Ston
HMR #: 25
Asb: 0
Comment:



Material: Transite Ceiling
HMR #: 26
Asb: 0
Comment:



Material: Plaster - Orange Peel
HMR #: 28
Asb: 2
Comment:



Material: 2" Baseboard and Mastic - Black
HMR #: 29
Asb: 0
Comment:



Material: Plaster - Sand Finish
HMR #: 30
Asb: 0
Comment: Samples non-detect in prior sampling

Material Picture Log

Hazard Management Services, Inc.

Client: Stockton, City of

Site: Stockton Police Department



Material: Stone Flooring - Salt Pepper
HMR #: 32
Asb: 0
Comment:



Material: 12" ACT and Mastic - Rough Pinhole
HMR #: 33
Asb: 0
Comment:



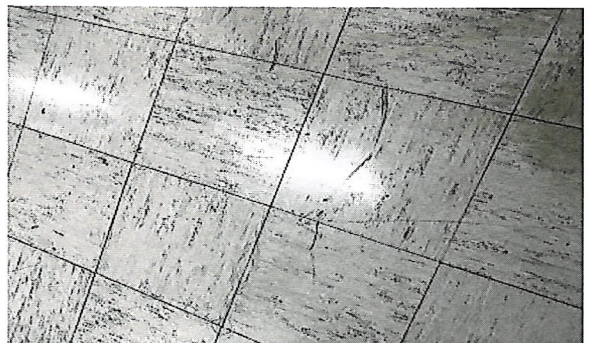
Material: Button Board
HMR #: 36
Asb: 0
Comment:



Material: 4" Baseboard and Mastic - Brown
HMR #: 37
Asb: 0
Comment:



Material: 2' x 4' FCP - Pinhole Fissure
HMR #: 38
Asb: 0
Comment:



Material: 12" VFT and Mastic - Beige w/ Brown Str
HMR #: 900
Asb: Known
Comment:

Material Picture Log

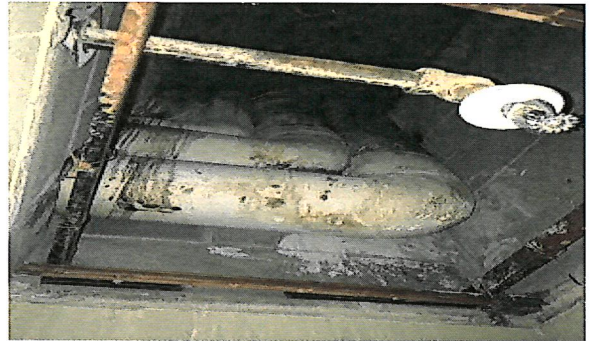
Hazard Management Services, Inc.

Client: Stockton, City of

Site: Stockton Police Department



Material: 12" VFT and Mastic - Beige Oatmeal
HMR #: 901
Asb: Known
Comment:



Material: Hard Elbows
HMR #: 903
Asb: Known
Comment:



Material: 2' x 4' Transite Panels
HMR #: 904
Asb: Known
Comment:

LEAD HAZARD EVALUATION REPORT

Section 1 – Date of Lead Hazard Evaluation 10.18.2017

Section 2 – Type of Lead Hazard Evaluation (Check one box only)

Lead Inspection Risk assessment Clearance Inspection Other (specify) _____

Section 3 – Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]		City	County	Zip Code
22 East Market Street		Stockton	San Joaquin	95202
Construction date (year) of structure	Type of structure		Children living in structure?	
1969	<input type="checkbox"/> Multi-unit building <input type="checkbox"/> School or daycare <input type="checkbox"/> Single family dwelling <input checked="" type="checkbox"/> Other <u>Police Department</u>		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Don't Know	


Section 4 – Owner of Structure (if business/agency, list contact person)

Name		Telephone number		
City of Stockton		209.937.8460		
Address [number, street, apartment (if applicable)]		City	State	Zip Code
425 N. El Dorado Street		Stockton	CA	95202

Section 5 – Results of Lead Hazard Evaluation (check all that apply)

No lead-based paint detected Intact lead-based paint detected Deteriorated lead-based paint detected
 No lead hazards detected Lead-contaminated dust found Lead-contaminated soil found Other _____

Section 6 – Individual Conducting Lead Hazard Evaluation

Name		Telephone number		
Chris Chipponeri		209.551.2000		
Address [number, street, apartment (if applicable)]		City	State	Zip Code
207 McHenry Ave		Modesto	CA	95354
CDPH certification number	Signature	Date		
I/A 20476		10.19.2017		

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

Tyler Faison 28716

Section 7 – Attachments

- A. A foundation diagram or sketch of the structure indicating the specific locations of each lead hazard or presence of lead-based paint;
- B. Each testing method, device, and sampling procedure used;
- C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector
 Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:
 California Department of Public Health
 Childhood Lead Poisoning Prevention Branch Reports
 850 Marina Bay Parkway, Building P, Third Floor
 Richmond, CA 94804-6403
 Fax: (510) 620-5656



Hazard Management Services, Inc.

207 McHenry Ave. • Modesto, CA 95354
(209) 551-2000 • www.hazmanage.com

August 8, 2018

Ms. Candace Harrison, AIA
Project Architect
Indigo Hammond and Playle Architects, LLP
909 Fifth Street
Davis, CA 95616

Dear Ms. Harrison:

This letter contains the results of a limited hazardous materials inspection performed by Hazard Management Services, Inc. (HMS, Inc.) of the Stockton Police Department's second floor, located at 22 East Market Street in Stockton, California. This inspection was requested in preparation for a future sprinkler and fire alarm installation project. The inspection was performed on August 3, 2018 by Tyler Faison and Trevor Leitz. Tyler Faison is a Cal/OSHA Certified Site Surveillance Technician, EPA-accredited Building Inspector, and California Department of Public Health (CDPH) Certified Lead Sampling Technician. Trevor Leitz is an EPA-accredited Building Inspector and CDPH Certified Lead Sampling Technician. The methods used were reviewed, and this report compiled, by Chris Chipponeri. Mr. Chipponeri is a Cal/OSHA Certified Asbestos Consultant, EPA-accredited Building Inspector, and CDPH Certified Inspector and Risk Assessor. See attached HMS, Inc. personnel certifications.

Procedures – Asbestos

A walkthrough of the spaces to be renovated was performed and samples were collected from identified suspect materials which may be impacted by renovation work. Each bulk sample was given a unique number, identified on a chain of custody, packaged, and sent via FedEx to Forensic Analytical Laboratories, Inc. (FALI) in Hayward, California. FALI is accredited by the National Institute of Standards and Technology's National Voluntary Laboratory Accreditation Program for the analysis of bulk asbestos fibers by polarized light microscopy with dispersion staining. See attached FALI laboratory accreditation.

Results – Asbestos

A total of sixteen sample was collected from eleven identified suspect material. None of the samples were found to be asbestos-containing. Historical evidence of the plaster with drywall behind was found to be asbestos-containing and this material will continue to be listed as ACM for the second floor. The following table identifies the asbestos-containing material, the percent by visual estimation and type of asbestos, and US EPA National Emission Standard for Hazardous Air Pollutants (NESHAP) category.

Material	Percent by Weight & Type of Asbestos	NESHAP Category
Plaster – Orange Peel*	2% Chrysotile	RACM/Friable

*Material was found to be asbestos-containing historically and should continue to be listed as ACM until further space-by-space sampling proves otherwise



Ms. Candace Harrison, AIA
 Indigo Hammond and Playle Architects, LLP
 Page Two
 August 8, 2018

The following materials may be impacted by any personnel without regard to asbestos work practices:

- | | |
|--|--|
| 12" ACT – Pinhole Fissure (Second Floor) | HVAC Canvas Taping (Second Floor) |
| 12" ACT – Pinhole (Second Floor) | 2' x 4' FCP – Pinhole Fissure (Second Floor) |
| Drywall – Unfinished (Second Floor) | 12" ACT – Pinhole Smooth (Second Floor) |
| 12" ACT – Knockdown Pattern (Second Floor) | 4" Baseboard and Mastic (Second Floor) |
| Fireproofing Overspray (Second Floor) | |

Recommendations – Asbestos

Since more than 100 square feet of the asbestos-containing materials are to be impacted as part of this renovation project, a contractor registered with Cal/OSHA as an asbestos abatement contractor must perform the removal of the materials. The workers performing the work will need to have AHERA Worker training with at least one worker trained to the AHERA Contractor-Supervisor level. The contractor will need to file a notification with the local Cal/OSHA office at least 24 hours prior to abatement activities commencing at the site. Workers will need to handle asbestos-containing materials in accordance with 8 CCR 1529.

The US EPA NESHAP regulation requires the abatement of any asbestos-containing materials that are friable or likely to become friable during demolition/renovation activities that contain more than 1% asbestos. A 10-working day notification will need to be filed prior to abatement activities commencing. There are fees associated with this notification that would need to be paid prior to the 10-working day period commencing.

To comply with California State License Board requirements, the contractor performing abatement will need to hold the C-22 asbestos abatement license or the C-class specialty license for each trade work to be performed with asbestos certification. If the contractor is performing two trades work or more, the contractor may also hold the B-class general license with asbestos certification.

Procedures - Lead

A Niton X-Ray Fluorescence Spectrum Analyzer (XRF) was used to perform a lead paint inspection of paints/coating that may be impacted during renovation activities. An XRF measures the lead concentration in paints or coatings by emitting a low dosage of radiation into the surface. The radiation causes lead molecules that may be present to release x-rays back to the unit. The XRF then calculates the amount of lead present in a paint of coating by the number of x-rays emitted and provides the results in milligrams per square centimeter units (mg/cm²). Attached to this report is a table identifying all sample locations, color and component tested, condition of the paint, the results, and any additional comments that may be noted.

Results - Lead

The following paints were found to be lead-containing by laboratory analysis:

No.	Color	Substrate	Component	Condition	Result wt%
9.	Tan	Plaster (Second Floor)	Wall	I	0.041



Ms. Candace Harrison, AIA
Indigo Hammond and Playle Architects, LLP
Page Two
August 8, 2018

All remaining paints were found to be lead-free by laboratory analysis. Please note that the only paints that were sampled were those expected to be impacted by ceiling penetrations on the second floor.

White Paint on Plaster
White Paint of Drywall
Yellow Paint on Metal Door
Light Brown Paint on Metal Door

Recommendations – Lead

Workers that impact paints containing any detectable amount of lead must use lead-safe work practices and have valid training for the method of impact to comply with Cal/OSHA, 8 CCR 1532.1. To comply with CDPH requirements, any disturbance to paints or coatings that contain lead must be completed within a contained area to prevent the creation of a lead hazard. To comply with California Department of Toxic Substance Control and Title 22 requirements, any waste streams containing lead must be profiled prior to disposal.

Attached to this report is a copy of the submitted CDPH Form 8552. This form is required whenever a lead paint inspection is performed in California and should be retained for your records.

Thank you for the opportunity to perform this inspection. If you have any questions, or need further assistance with this project, please contact me at (209) 551-2000 or (209) 484-4648 or by e-mail at cchipponeri@hazmanage.com.

Sincerely,

A handwritten signature in black ink, appearing to read 'Chris Chipponeri'.

Chris Chipponeri
Chief Operating Officer
Cal/OSHA CAC 10-4633
CDPH Lead I/A 20476

Enclosures:
HMS, Inc. Personnel Certifications
FALI Laboratory Accreditations
Chains of Custody and Result Reports
Sample Map
CDPH Form 8552



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

Forensic Analytical Laboratories, Inc.

3777 Depot Road, Suite 409

Hayward, CA 94545-2761

Mr. Steven Takahashi

Phone: 310-294-4365 Fax: 310-764-1136

Email: stakahashi@falaboratories.com

<http://www.falaboratories.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101459-0

Bulk Asbestos Analysis

Code

Description

18/A01

EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples

18/A03

EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

Code

Description

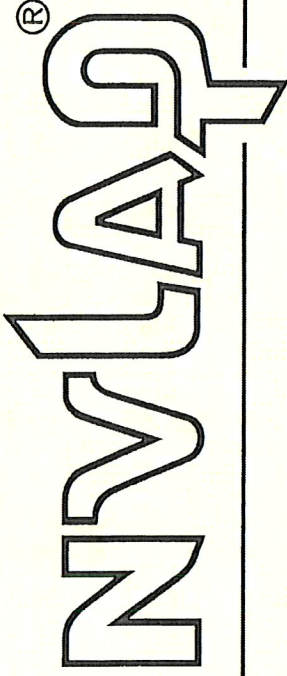
18/A02

U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.

A handwritten signature in black ink, appearing to read "Dana S. Gorman".

For the National Voluntary Laboratory Accreditation Program

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101459-0

Forensic Analytical Laboratories, Inc.
Hayward, CA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2018-07-01 through 2019-06-30
Effective Dates

A handwritten signature in black ink, appearing to read "Peter S. Lander".

For the National Voluntary Laboratory Accreditation Program

Bulk Material Analysis Request Form - Hazard Management Services, Inc.

207 McHenry Avenue, Modesto, CA 95354

Phone: (209) 551-2000

Fax: (209) 575-5657

Job ID: M18167

Client: City of Stockton

Collected By: Tyler Faison

Date Collected: 8/3/18

Lab Submitted To: FAL

Special Instructions: please e-mail results to tfaison@hazmanage.com

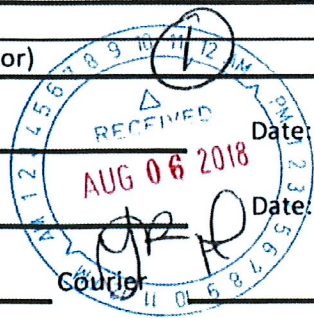
Analysis Requested: PLM w/ Dispersion Staining

Turnaround Time: 24HR

Project: Stockton Police Department 2nd Floor

Line	Sample Number	Material Description and Location
1	HMS-M18167-01A	Plaster - Orange Peel texture (Drywall behind) Main lobby (Second Floor)
2	HMS-M18167-01B	Plaster - Orange Peel texture (Drywall behind) NW corridor at damage (Second Floor)
3	HMS-M18167-01C	Plaster - Orange Peel texture (Drywall behind) Room 240 North wall center (Second Floor)
4	HMS-M18167-02A	Plaster - Orange Peel texture (Drywall behind) Room 1 Holding area (First Floor)
5	HMS-M18167-02B	Plaster - Orange Peel texture (Drywall behind) Holding area lobby (First Floor)
6	HMS-M18167-03A	12" ACT - PF rough Conference Room (Second Floor)
7	HMS-M18167-04A	12" ACT - Pinhole Center Lobby - Attic Hatch (Second Floor)
8	HMS-M18167-05A	Drywall - Unfinished w/out JC NE corridor attic (Second Floor)
9	HMS-M18167-06A	12" ACT - Splatter Room 211 (Second Floor)
10	HMS-M18167-07A	Fireproofing - overspray Main lobby (Second Floor)
11	HMS-M18167-07B	Fireproofing - overspray Main lobby (Second Floor)
12	HMS-M18167-07C	Fireproofing - overspray NE corridor attic (Second Floor)
13	HMS-M18167-08A	HVAC Taping & Canvas NE corridor (Second Floor)
14	HMS-M18167-09A	2"x4" - FCP - PF Community Room West Center (Second Floor)
15	HMS-M18167-10A	12" ACT - PF Smooth Room 240 center (Second Floor)

Submitted By: _____

Date: 8/3/2018

Received By: _____

Date: _____

Submitted Via: Drop Off _____

FedEx _____

XX _____

Courier _____

Bulk Material Analysis Request Form - Hazard Management Services, Inc.

207 McHenry Avenue, Modesto, CA 95354

Phone: (209) 551-2000

Fax: (209) 575-5657

Job ID: M18167

Client: City of Stockton

Collected By: Tyler Faison

Date Collected: 8/3/18

Lab Submitted To: FALI

Special Instructions: please e-mail results to tfaison@hazmanage.com

Analysis Requested: PLM w/ Dispersion Staining

Turnaround Time: 24HR

Project: Stockton Police Department 2nd Floor

Line	Sample Number	Material Description and Location
1	HMS-M18167-11A	4" Baseboard and mastic Room 240 North wall center (Second Floor)
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Submitted By: _____




Date: 8/3/2018

Received By: _____

Date: _____

Submitted Via: Drop Off _____

FedEx _____

XX _____

Courier _____



Bulk Asbestos Analysis

(EPA Method 40CFR, Part 763, Appendix E to Subpart E and EPA 600/R-93-116, Visual Area Estimation)

Hazard Mgmt Svcs-Modesto/Plst Hill
Tyler Faison
P.O. Box 576848

Modesto, CA 95357-6848

Client ID: 1146
Report Number: B263022
Date Received: 08/06/18
Date Analyzed: 08/07/18
Date Printed: 08/07/18
First Reported: 08/07/18

Job ID/Site: M18167 - City of Stockton, Stockton Police Department 2nd Floor

FALI Job ID: 1146
Total Samples Submitted: 16
Total Samples Analyzed: 16

Date(s) Collected: 08/03/2018

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
HMS-M18167-01A	12063445						
Layer: Off-White Plaster			ND				
Layer: White Texture			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
HMS-M18167-01B	12063446						
Layer: Off-White Plaster			ND				
Layer: White Texture			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
HMS-M18167-01C	12063447						
Layer: Off-White Plaster			ND				
Layer: White Texture			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
HMS-M18167-02A	12063448						
Layer: Grey Plaster			ND				
Layer: White Texture			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
HMS-M18167-02B	12063449						
Layer: White Texture			ND				
Layer: Paint			ND				
Layer: Tan Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							
HMS-M18167-03A	12063450						
Layer: Brown Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (35 %) Fibrous Glass (45 %)							

Client Name: Hazard Mgmt Svcs-Modesto/Plst Hill

Report Number: B263022

Date Printed: 08/07/18

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
HMS-M18167-04A	12063451						
Layer: Brown Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (35 %) Fibrous Glass (45 %)							
HMS-M18167-05A	12063452						
Layer: White Drywall			ND				
Layer: Tan Fibrous Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (20 %) Fibrous Glass (Trace)							
HMS-M18167-06A	12063453						
Layer: Brown Fibrous Material			ND				
Layer: Paint			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (35 %) Fibrous Glass (45 %)							
HMS-M18167-07A	12063454						
Layer: White Semi-Fibrous Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Fibrous Glass (20 %)							
HMS-M18167-07B	12063455						
Layer: White Semi-Fibrous Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Fibrous Glass (20 %)							
HMS-M18167-07C	12063456						
Layer: White Semi-Fibrous Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Fibrous Glass (20 %)							
HMS-M18167-08A	12063457						
Layer: White Fibrous Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (95 %)							
HMS-M18167-09A	12063458						
Layer: Beige Fibrous Material			ND				
Layer: Paint			ND				
Layer: White Plaster			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (35 %) Fibrous Glass (45 %)							
HMS-M18167-10A	12063459						
Layer: Yellow Mastic			ND				
Layer: Grey Fibrous Material			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (3 %) Fibrous Glass (7 %)							

Client Name: Hazard Mgmt Svcs-Modesto/Plst Hill

Report Number: B263022

Date Printed: 08/07/18

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
HMS-M18167-11A	12063460						
Layer: Black Non-Fibrous Material			ND				
Layer: Brown Mastic			ND				
Total Composite Values of Fibrous Components:		Asbestos (ND)					
Cellulose (Trace)							



Tad Thrower, Laboratory Supervisor, Hayward Laboratory

Note: Limit of Quantification ('LOQ') = 1%. 'Trace' denotes the presence of asbestos below the LOQ. 'ND' = 'None Detected'.

Analytical results and reports are generated by Forensic Analytical Laboratories Inc. (FALI) at the request of and for the exclusive use of the person or entity (client) named on such report. Results, reports or copies of same will not be released by FALI to any third party without prior written request from client. This report applies only to the sample(s) tested. Supporting laboratory documentation is available upon request. This report must not be reproduced except in full, unless approved by FALI. The client is solely responsible for the use and interpretation of test results and reports requested from FALI. Forensic Analytical Laboratories Inc. is not able to assess the degree of hazard resulting from materials analyzed. FALI reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. All samples were received in acceptable condition unless otherwise noted.

Bulk Material Analysis Request Form - Hazard Management Services, Inc.

207 McHenry Avenue, Modesto, CA 95354

Phone: (209) 551-2000

Fax: (209) 575-5657

Job ID: M18167

Client: City of Stockton

Collected By: Tyler Faison

Date Collected: 8/3/18

Lab Submitted To: FALI

Special Instructions: please e-mail results to tfaison@hazmanage.com

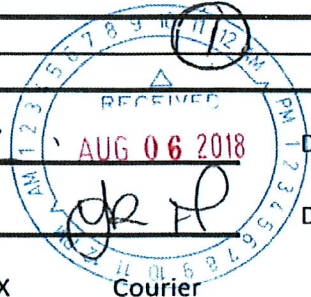
Analysis Requested: FLAME AA

Turnaround Time: 24HR

Project: Stockton Police Department 2nd Floor

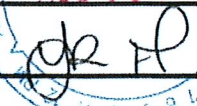
Line	Sample Number	Material Description and Location
1	HMS-M18167-Pb01	White Paint on Plaster Holding Room 1 (First Floor)
2	HMS-M18167-Pb02	Yellow Paint on metal door Holding area lobby (First Floor)
3	HMS-M18167-Pb03	Light Brown paint on metal doorframe stairway doorway (Second Floor)
4	HMS-M18167-Pb04	Tan Paint on plaster wall Main lobby (Second Floor)
5	HMS-M18167-Pb05	White paint on drywall Personnel and training room (Second Floor)
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Submitted By: _____

Date: 8/3/2018

Received By: _____



Date: _____

Submitted Via: Drop Off _____

FedEx _____

XX _____

Courier _____



Metals Analysis of Paints

(AIHA-LAP, LLC Accreditation, Lab ID #101762)

Hazard Mgmt Svcs-Modesto/Plst Hill
Tyler Faison
P.O. Box 576848

Modesto, CA 95357-6848

Client ID: 1146
Report Number: M201160
Date Received: 08/06/18
Date Analyzed: 08/07/18
Date Printed: 08/07/18
First Reported: 08/07/18

Job ID / Site: M18167, City of Stockton, Stockton Police Department 2nd Floor
Date(s) Collected: 8/3/18

FALI Job ID: 1146
Total Samples Submitted: 5
Total Samples Analyzed: 5

Sample Number	Lab Number	Analyte	Result	Result Units	Reporting Limit*	Method Reference
HMS-M18167-PB01	30809746	Pb	< 0.008	wt%	0.008	EPA 3050B/7000B
HMS-M18167-PB02	30809747	Pb	< 0.008	wt%	0.008	EPA 3050B/7000B
HMS-M18167-PB03	30809748	Pb	< 0.02	wt%	0.02	EPA 3050B/7000B
HMS-M18167-PB04	30809749	Pb	0.041	wt%	0.006	EPA 3050B/7000B
HMS-M18167-PB05	30809750	Pb	< 0.006	wt%	0.006	EPA 3050B/7000B

* The Reporting Limit represents the lowest amount of analyte that the laboratory can confidently detect in the sample, and is not a regulatory level. The Units for the Reporting Limit are the same as the Units for the Final Results.

Daniele Siu

Daniele Siu, Laboratory Supervisor, Hayward Laboratory

Analytical results and reports are generated by Forensic Analytical at the request of and for the exclusive use of the person or entity (client) named on such report. Results, reports or copies of same will not be released by Forensic Analytical to any third party without prior written request from client. This report applies only to the sample(s) tested. Supporting laboratory documentation is available upon request. This report must not be reproduced except in full, unless approved by Forensic Analytical. The client is solely responsible for the use and interpretation of test results and reports requested from Forensic Analytical. Forensic Analytical is not able to assess the degree of hazard resulting from materials analyzed. Forensic Analytical reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. Any modifications that have been made to referenced test methods are documented in Forensic Analytical's Standard Operating Procedures Manual. Sample results have not been blank corrected. Quality control and sample receipt condition were acceptable unless otherwise noted.

DEPARTMENT OF INDUSTRIAL RELATIONS
Division of Occupational Safety and Health
Asbestos Unit
2424 Arden Way, Suite 495
Sacramento, CA 95825-2417
(916) 574-2993 Office (916) 483-0572 Fax
<http://www.dir.ca.gov/dir/databases.html> actu@dir.ca.gov



607135728T

413

Hazard Management Services, Inc.
Tyler J Faison
207 McHenry Ave.
Modesto CA 95354

May 31, 2018

Dear Certified Asbestos Consultant or Technician:

Enclosed is your certification card. **To maintain your certification, you must abide by the rules printed on the back of the certification card.**

Your certification is valid for a period of one year. If you wish to renew your certification, you must apply for renewal at least 60 days before the expiration date shown on your card. [8 CCR 341.15(h)(1)].

Please hold and do not send copies of your required AHERA refresher renewal certificates to our office until you apply for renewal of your certification.

Certificates must be kept current if you are actively working as a CAC or CSST. The grace period is only for those who are not actively working as an asbestos consultant or site surveillance technician.

Please contact our office at the above address, fax number or email; of any changes in your contact/mailling information within 15 days of the change.

Sincerely,

Jeff Ferrell
Senior Safety Engineer

Attachment: Certification Card

cc: File



Hazard Management Services, Inc.

This is to confirm that

Tyler Faison

Has attended the four-hour

AHERA Refresher Course for Asbestos Inspectors

And has completed the requisite training and passed the exam for

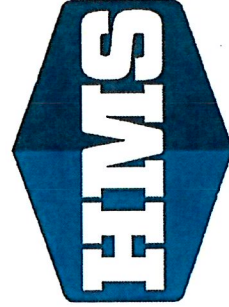
asbestos accreditation under TSCA Title II

September 12, 2017

Certificate Number: HMSBIR299

Valid Until: September 12, 2018

Cal/OSHA Approval Number: CA-025-06



Michael C. Sharp

Michael C. Sharp - AHERA Training Director
Hazard Management Services, Inc.
207 McHenry Ave. Modesto, CA 95354
(209) 551-2000

State of California Department of Public Health

Lead-Related
Construction
Certificate

Certificate
Type

Expiration
Date

Sampling Technician 12/26/2018



Tyler J. Faison ID #: 28716

Mr. Tyler J. Faison
Hazard Management Services, Inc.
207 McHenry Ave
Modesto, California 95354

Hazard Management Services, Inc.

This is to confirm that

Trevor T. Leitz

Has attended the twenty-four hour

AHERA Course for Asbestos Inspectors

And has completed the requisite training and passed the exam for

asbestos accreditation under TSCA Title II

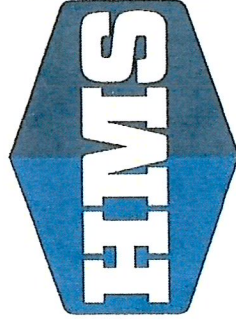
April 25-27, 2018

Michael C. Sharp

Certificate Number: HMSBI188

Valid Until: April 27, 2019

Cal/OSHA Approval Number: CA-025-05



Michael C. Sharp - AHERA Training Director
Hazard Management Services, Inc.
207 McHenry Ave. Modesto, CA 95354
(209) 551-2000

State of California Department of Public Health

Lead-Related
Construction
Certificate

Certificate
Type

Expiration
Date

Sampling Technician 10/04/2019



Trevor T. Leitz ID # 31130

LEAD HAZARD EVALUATION REPORT

Section 1 – Date of Lead Hazard Evaluation 8.3.2018

Section 2 – Type of Lead Hazard Evaluation (Check one box only)

Lead Inspection Risk assessment Clearance Inspection Other (specify) _____

Section 3 – Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]		City	County	Zip Code
22 East Market Street		Stockton	San Joaquin	95202
Construction date (year) of structure	Type of structure		Children living in structure?	
1969	<input type="checkbox"/> Multi-unit building <input type="checkbox"/> School or daycare <input type="checkbox"/> Single family dwelling <input checked="" type="checkbox"/> Other <u>Police Station</u>		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Don't Know	


Section 4 – Owner of Structure (if business/agency, list contact person)

Name		Telephone number		
City of Stockton		209.937.8460		
Address [number, street, apartment (if applicable)]		City	State	Zip Code
425 N El Dorado Street		Stockton	CA	95202

Section 5 – Results of Lead Hazard Evaluation (check all that apply)

No lead-based paint detected Intact lead-based paint detected Deteriorated lead-based paint detected
 No lead hazards detected Lead-contaminated dust found Lead-contaminated soil found Other _____

Section 6 – Individual Conducting Lead Hazard Evaluation

Name		Telephone number		
Chris Chipponeri		209-551-2000		
Address [number, street, apartment (if applicable)]		City	State	Zip Code
207 McHenry Ave		Modesto	CA	95354
CDPH certification number	Signature	Date		
IA 20476		8.10.2018		

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

Tyler Faison ST 28716

Section 7 – Attachments

- A. A foundation diagram or sketch of the structure indicating the specific locations of each lead hazard or presence of lead-based paint;
- B. Each testing method, device, and sampling procedure used;
- C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector
 Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:
 California Department of Public Health
 Childhood Lead Poisoning Prevention Branch Reports
 850 Marina Bay Parkway, Building P, Third Floor
 Richmond, CA 94804-6403
 Fax: (510) 620-5656