



PUBLIC WORKS DEPARTMENT

**SPECIAL PROVISIONS
FOR**

**WEBER POINT EVENTS CENTER
SHADE STRUCTURE
REHABILITATION – PHASE 2**

PROJECT NO. – WP22033

BID OPENING: AUGUST 31, 2023, 2 P.M.

WEBER POINT EVENTS CENTER SHADE STRUCUTRE REHABILITATION – PHASE 2

PROJECT NO. – WP22033

The special provisions contained herein have been prepared by, or under the direct supervision of, the following Registered Engineer:

CIVIL ENGINEERING



SIGNED: _____
Registered Civil Engineer

DATE: 7-21-23

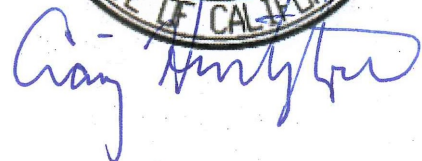
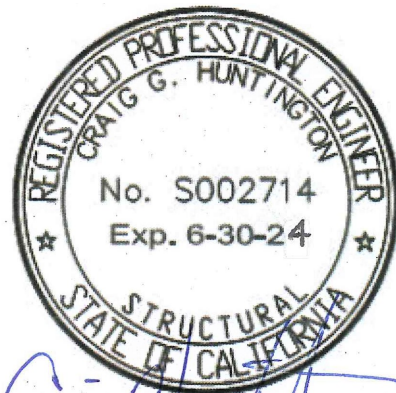


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DIVISION I – GENERAL PROVISIONS

SECTION 1 – GENERAL

1-1.01 TERMS AND DEFINITIONS

Wherever in the Standard Specifications, Special Provisions, Notice to Contractors, Proposal, Contract, or other contract documents the following terms are used; the intent and meaning shall be interpreted as follows:

City or Owner -	City of Stockton
Director -	Director of Public Works, City of Stockton
Standard Specifications -	City of Stockton, Standard Plans and Specifications, and any amendments or revisions thereto (Revised 9/27/16)
Caltrans Specifications -	State of California, Department of Transportation, 2015 Standard Plans and Specifications and any amendments or revisions thereto.
Laboratory -	City of Stockton's Department of Public Works or consultant laboratory
Department -	Department of Public Works, City of Stockton
Engineer -	City Engineer, City of Stockton, acting either directly or through properly authorized Engineer agents and consultants
MUTCD -	Latest edition of California Manual on Uniform Traffic Control Devices (MUTCD), and any amendments and revisions thereto

1-1.02 SPECIFICATIONS

The work described herein shall be done in accordance with the current City of Stockton, Department of Public Works Standard Specifications and Plans, and the latest Editions of the State of California, Department of Transportation Standard Specifications and Standard Plans, California MUTCD, as referenced therein, and in accordance with the following Special Provisions. To the extent the California Department of Transportation Standard Specifications implement the STATE CONTRACT ACT, they shall not be applicable since the City of Stockton is not subject to said ACT.

In case of conflict or discrepancy between any of the Contract Documents, the order of documents listed below shall be the order of precedence, with the first item listed having the highest precedence.

- a. Contract Change Order
- b. Contract
- c. Project Special Provisions
- d. Project Plans
- e. City's Standard Specifications
- f. City's Standard Drawings
- g. Revised Caltrans Standard Specifications
- h. Caltrans Standard Specifications
- i. Revised Caltrans Standard Plans
- j. Caltrans Standard Plans
- k. Supplemental Project Information

With regards to discrepancies or conflicts between written dimensions given on drawings and the scaled measurements, the written dimensions shall govern.

With regards to discrepancies or conflicts between large-scale drawings and small-scale drawings, the larger scale shall govern.

With regards to discrepancies or conflicts between detailed drawings and referenced standard drawings or plans, the detailed drawings shall govern.

In the event where provisions of codes, safety orders, contract documents, referenced manufacturer's specifications or industry standards are in conflict, the more restrictive and higher quality shall govern.

Should it appear that the work to be done or any of the matters relative thereto are not sufficiently detailed or explained in these specifications, the special provisions, or the plans, the Contractor shall apply to the Engineer in writing for such further explanations as may be necessary and shall conform to them as part of the contract. All responses from the Engineer shall be in writing. In the event of any doubt or question arising respecting the true meaning of these specifications, the special provisions or the plans, reference shall be made to the Engineer, whose decision thereon shall be final.

The Contractor shall examine carefully the site of the work and the plans and specifications therefore. He/She shall investigate and satisfy himself/herself as to conditions to be encountered, the character, quality and quantity of surface, subsurface materials or obstacles to be encountered, the work to be performed, materials to be furnished, and as to the requirements of the bid, plans and specifications of the contract.

1-1.03 PLANS

The bidder's attention is directed to the provisions in Section 1-1.03, "Definitions" of the Standard Specifications and Section 1-1.07 of the Caltrans Specifications.

See Instructions to Bidders for complete instructions and documentation forms.

SECTION 2 – BIDDING

2-1.01 GENERAL

The bidder's attention is directed to the "Notice to Contractors" for the date, time and location of the mandatory pre-bid meeting, if applicable. Refer to the City of Stockton's Bid Flash webpage: <http://www.stocktongov.com/services/business/bidflash/default.html>

The bidder's attention is directed to the provisions in Section 2, "Bidding," of the Standard Specifications and these special provisions for the requirements and conditions which the bidder must observe in the preparation for the submission of the bid.

The Bidder's Bond form mentioned in the last paragraph in Section 2-1.34, "Bidder's Security," of the Standard Specifications will be found following the signature page of the Proposal.

In conformance with Public Contract Code Section 7106, a Non-collusion Affidavit is included in the Proposal. Signing the Proposal shall also constitute signature of the Non-collusion Affidavit.

The contractor, sub recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of Title 49 CFR (Code of Federal Regulations) part 26 in the award and administration of US DOT assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy, as the recipient deems appropriate. Each subcontract signed by the bidder must include this assurance.

2-1.02 BID PROTEST

In case of Bid protests, attention is directed to the provisions in Section 2-1.51, "Bid Protests" of the Standard Specifications. The party filing the protest must have submitted a bid for the work. A subcontractor of a bidder may not submit a bid protest.

A copy of bid protests is to be sent to the following address:

Attention: Amanpreet Grewal
City of Stockton
Public Works Department
22 E. Weber Avenue, Room 301
Stockton, CA 95202

SECTION 3 – CONTRACT AWARD AND EXECUTION

3-1.01 CONTRACT AWARD

The bidder's attention is directed to the provisions in Section 3, " Contract Award and Execution," of the Standard Specifications and these special provisions for the requirements and conditions concerning award and execution of contract.

Bid protests are to be delivered to the following address: Department of Public Works, 22 E. Weber Avenue, Room 301, Stockton, CA 95202, Attn: Amanpreet Grewal. The award of the contract, if it be awarded, will be to the lowest responsible bidder whose proposal complies with all the requirements prescribed.

3-1.02 CONTRACT EXECUTION

The contract shall be executed by the successful bidder and shall be returned, together with the contract bonds, to the Agency so that it is received within 10 days, not including Saturdays, Sundays and legal holidays, after the bidder has received the contract for execution. Failure to do so shall be just cause for forfeiture of the proposal guaranty. The executed contract documents shall be delivered to:

City of Stockton
Public Works Department
Attn: Amanpreet Grewal
22 E. Weber Avenue, Room 301
Stockton, CA 95202

3-1.03 CONTRACT BONDS

Contract Bonds shall conform to the requirements set forth in Section 3-1.05, "Contract Bonds", of the Standard Specifications, except for the second paragraph which shall be replaced with the following:

"The Faithful Performance bond will be retained by the City of Stockton for twelve (12) months following recordation of the Notice of Completion (or partial completion) to guarantee correction of failure attributed to workmanship and materials. Upon recordation of the Notice of Completion (or partial completion), the amount of the Faithful Performance bond may be reduced to **ten percent (10%)** of the actual cost of the constructed improvements".

SECTION 4 – SCOPE OF WORK

4-1.01 DIFFERING SITE CONDITIONS

Attention is directed to the provisions in Section 4-1.06, "Differing Site Conditions," of the Caltrans Specifications and the Standard Specifications. Contractor shall notify the Engineer if he/she finds physical conditions differing materially from contract documents.

4-1.02 EXTRA WORK

Section 4-1.05, "Changes and Extra Work" of the Caltrans Specifications is amended by adding the following between the second and third paragraphs:

"If, in the opinion of the Engineer, such work cannot reasonably be performed concurrently with other items of work, and if a controlling item of work is delayed thereby, an adjustment of contract time will be made."

4-1.03 CLEANUP

The Contractor's attention is directed to Sections 4-1.13, "Cleanup," of the Caltrans Specifications.

The Contractor shall conduct and cause all working forces at the site to maintain the site in a neat orderly manner throughout the construction operations. The work shall be conducted in a manner that will control the dust. When ordered to provide dust control, the Contractor shall use water to reduce the dusty conditions all to the satisfaction of the Engineer. During construction, the Contractor shall remove all rubbish and debris as it is generated. Upon completion of the work, the Contractor shall remove all equipment, debris, and shall leave the site in a neat, clean condition all to the satisfaction of the Engineer.

SECTION 5 – CONTROL OF WORK

5-1.01 PERMITS

The Contractor's attention is directed to Sections 5-1.20B, "Permits, Licenses, Agreements, and Certifications," of the Caltrans Specifications.

The following is not an all-inclusive list of the required permits and/or licenses, if applicable:

- Contractor's License. A valid California Class A Contractor License.
- Business License. Contractor shall possess prior to the execution of the contract and maintain throughout the duration of the contract, a valid City of Stockton business license.
- Encroachment Permit. City of Stockton encroachment permit is not required for this project.
- Building Permit. Contractor shall obtain a City of Stockton building permit and submit all required documents associated with the permit. Building Permit fee will be paid by the City.
- State's Water Resources Control Board Stormwater Construction General Permit (contractor pays) – Notice of Intent (NOI) and Notice of Termination (NOT)
- Construction Notification, dust control – The Contractor is responsible for the preparation and submittal of the San Joaquin Valley Air Pollution Control District Construction Notification Form. More information can be found at the following web site: <http://www.valleyair.org>.
- Construction Water – The Contractor is responsible for obtaining a permit for water from California Water Service or City of Stockton, as applicable, for construction water obtained from a City hydrant. This permit shall be approved by the City of Stockton Fire Department.

Full compensation for conforming to the provisions in this section including applicable permit fees, 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.

5-1.02 SUBMITTALS

The following is a list of anticipated submittals for the project. The list is provided to aid the Contractor in determining the scope of work, but is not intended to be all inclusive and additional submittals may be required:

1. DAS-140
2. DAS-142
3. Shop Drawings
4. Local Hire Employment Ordinance – Good Faith Effort
5. Monthly Local Employment Ordinance Compliance Report

6. Emergency Contacts/Authorized Representatives
7. Lead Compliance Plan (if applicable)
8. Storm Water Pollution Prevention Plan
9. Contractor Safety Plan
10. Project Schedule (Critical Path Method)
11. Construction and Demolition Debris Recycling Report (Post Construction)
12. City of Stockton Building Permit
13. City of Stockton Business License
14. Structural Steel:
 - 14.1. Shop Fabrication Drawings
 - 14.2. Product Data
15. Steel Cables:
 - 15.1. Shop Fabrication Drawings
 - 15.2. Proof of Qualifications
16. Painting:
 - 16.1. Product Data
 - 16.2. Preliminary Color Samples
 - 16.3. Field Samples Execution
 - 16.4. Manufacturer's Warranty
 - 16.5. Proof of Qualification
 - 16.6. Overspray Protection Plan
17. Tension Membrane Roof:
 - 17.1. Product Data
 - 17.2. Installation & Stressing Procedure
 - 17.3. Proof of Compliance
 - 17.4. Proof of Qualification
 - 17.5. Fabric Sample
 - 17.6. Biaxial Test Report

The Contractor shall transmit each submittal to the Engineer for review and approval. Submittals shall be sequentially numbered on the submittal list form. Resubmittals shall be identified with the original number and a sequential resubmittal suffix letter. The original submittal shall be numbered X. The first resubmittal shall be numbered X-a and so on. Identify on the form the date of the submittal, and Contractor, Subcontractor or supplier. Any incomplete submittals will be returned for resubmittal.

Schedule submittals to expedite the Project, and deliver to Engineer at the Engineer's office, see Section 10-1.01, "Order of Work," of these Special Provisions.

For each submittal for review, allow 15 calendar days excluding delivery time to and from the Contractor. When revised for resubmission, identify all changes made since previous submission. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.

Within 10 calendar days after Notice of Award submit a complete list of all submittals to be submitted and the dates when they will be submitted. **All submittals shall be submitted within 30 calendar days from the date the Notice of Award; otherwise project working days will commence, with or without issuance of the Notice to Proceed.**

Wherever called for in the Contract Documents, or where required by the Engineer, the Contractor shall furnish to the Engineer for review, 1 set, plus one reproducible copy, of each shop drawing submittal. The term "Shop Drawings" as used herein shall be understood to include detail design calculations, shop drawings, fabrication and installation drawings, erection drawings, list, graphs, catalog sheets, data sheets, and similar items. Whenever the Contractor is required to submit design calculations as part of a submittal, such calculations shall bear the signature and seal of an engineer registered in the appropriate branch and in the state of California, unless otherwise directed.

Normally, a separate submittal form shall be used for each specific item or class of material or equipment for which a submittal is required. Transmittal of a submittal of various items using a single form will be permitted only when the items taken together constitute a manufacturer's "package" or are so functionally related that expediency indicates review of the group or package as a whole. A multi-page submittal shall be collated into sets, and each set shall be stapled or bound, as appropriate, prior to transmittal to the Engineer.

Except as may otherwise be indicated herein, the Engineer will return prints of each submittal to the Contractor with their comments noted on the submittal. The Contractor shall make complete and acceptable submittals to the Engineer by the second submission of a submittal item. The City reserves the right to withhold monies due to the Contractor to cover additional costs of the Engineer's review beyond the second submittal.

If a submittal is returned to the Contractor marked "NO EXCEPTIONS TAKEN", formal revision and resubmission of said submittal will not be required.

If a submittal is returned to the Contractor marked "MAKE CORRECTIONS NOTED", formal revision and resubmission of said submittal will not be required.

5-1.03 RECORDS

The Contractor's attention is directed to Sections 5-1.27, "Records," of the Caltrans Specifications.

The cost accounting records for the contract shall be maintained separately from other contracts, during the life of the contract, and for a period of not less than 3 years after the date of acceptance of the contract. If the Contractor intends to file claims against the City, the Contractor shall keep the cost accounting records specified above until complete resolution of all claims has been reached.

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 no additional compensation will be allowed therefore.

5-1.04 JOB SITE APPEARANCE

The Contractor shall maintain a neat appearance to the work.

Debris developed during construction shall be disposed of concurrently with its generation. The Contractor shall pay to the City of Stockton the sum of Two Hundred Fifty Dollars (\$250) for every calendar day where debris has remained on the job site overnight.

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 and no additional compensation will be allowed therefore.

5-1.05 REQUEST FOR INFORMATION

The Contractor's attention is directed to Sections 5-1.42, "Request for Information" of the Caltrans Specifications.

Contractor shall submit a request for information upon recognition of any event or question of fact arising under the contract. The Engineer shall respond to the request for information within 5 working days.

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 no additional compensation will be allowed therefore.

5-1.6 NOTICE OF POTENTIAL CLAIM

The Contractor shall not be entitled to the payment of any additional compensation for any cause, or for the happening of any event, thing or occurrence, including any act or failure to act, by the Engineer, unless he has given the Engineer due written notice of potential claim as herein specified, provided, however, that compliance with this section shall not be a prerequisite for matters within the scope of the protest provisions under

“Changes and Extra Work”, “Time of Completion” or within the notice provisions in “Liquidated Damages” not to any claim which is based on differences in measurements of errors of computation as to Contract quantities. The written notice of potential claim shall set forth the items and reasons which the Contractor believes to be eligible for additional compensation, the description of work, the nature of the additional costs and the total amount of the potential claim. If based on an act or failure to act by the Engineer, written notice for potential claim must be given to the Engineer prior to the Contractor commencing work; in all other cases, written notice for potential claims must be given to the Engineer within 15 days after the happening of the event, thing or occurrence giving rise to the potential claim.

It is the intention of this Section that potential differences between the parties of this Contract be brought to the attention of the Engineer at the earliest possible time appropriate action may be taken and settlement may be reached. The Contractor hereby agrees that he shall have no right to additional compensation for any claim that may be based on any act or failure by the Engineer or any event, thing or occurrence for which no written notice of potential claim was filed.

5-1.7 INSPECTIONS

All work under this contract shall be under the control and inspection of the City Engineer or his/her appointed representative. The Contractor shall notify the City of Stockton Public Works Department forty-eight (48) hours in advance of any construction. Contractor shall pay for overtime for inspection during City holidays, weekends and non-business hours.

5-1.8 AS-BUILT/RECORD DRAWINGS

The Contractor shall maintain a complete set of drawings on site for the purpose of keeping up to date all field modifications. This plan set shall be available for review by the project Inspector or the Engineer. These plans shall be provided to the Inspector after the completion of construction at the Post Construction Meeting and prior to the final payment. All revision, modifications and/or changes shall be marked clearly. Notes and dimensions shall be in red and be clear and legible. These plans will be used by the Design Engineer to mark up the original plan sheets with the revisions made during construction.

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 no additional compensation will be allowed therefore.

5-1.9 SURFACE RESTORATION

Surface restoration shall consist of restoring all areas within the limits of work to their original existing condition prior to construction.

The Contractor shall restore all paved areas, such as driveways, curb and gutter, roadway surfaces, ditches, landscaped areas, etc., and all other improvements disturbed or damaged by his operations.

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 no additional compensation will be allowed therefore.

5-1.10 RIGHTS IN LAND

The following is added to Section 5-1.32, "Areas for Use" of the Caltrans Specifications:

"All work, equipment parking, or any other activity associated with the project shall be confined to the project limits within the street rights-of-way. The Contractor's use of any other property exclusively in connection with this project shall be by a written agreement between the property owner and the Contractor. A certified copy of any such agreement shall be furnished to the Engineer prior to the use of such property by the Contractor."

Full compensation for conforming to the provisions in this section shall be considered as included in prices paid for the various contract items of work involved, and no additional compensation will be allowed therefore.

5-1.11 STAGING AREA

Attention is directed to the requirements specified in Section 5-1.32, "Areas for Use" of the Caltrans Specifications and these Special Provisions.

The street right-of-way shall be used only for activities that are necessary to perform the required work. The Contractor shall not occupy the right-of-way or allow others to occupy the right-of-way for material storage or other purposes that are not necessary to perform the required work.

The Contractor shall secure at his own expense any area required for plant sites, storage of equipment or materials, or for other purposes.

Full compensation for conforming to the provisions in this section shall be considered as included in prices paid for the various contract items of work involved, and no additional compensation will be allowed therefore.

SECTION 6 – BLANK

SECTION 7 – LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

7-1.01 PUBLIC SAFETY

The Contractor shall provide for the proper routing of vehicles, bicyclists, and pedestrians in a manner that will hold congestion and delay of such traffic to practicable minimum by furnishing, installing, and maintaining all necessary temporary signs, barricades, and other devices and facilities, as approved by the City Traffic Engineer. As the work progresses, the Contractor shall relocate, subject to the City Traffic Engineer's approval, such devices and facilities as necessary to maintain proper routing. The Contractor shall maintain Americans with Disabilities Act (ADA) compliance through the work site (or approved alternate route) at all times during all phases of construction. The Contractor shall notify the City Traffic Engineer via the inspector a minimum of three (3) working days prior to the relocation of any traffic control devices.

Full compensation for furnishing, installing, moving, and removing of all necessary traffic control devices including, but not limited to, signing, striping, barricades, arrow boards, CMS, and flagging shall be included in the contract prices for "Traffic Control" and no additional compensation will be allowed therefore. Section 12-1.04, "Payment," of the Caltrans Specifications is deleted.

7-1.02 LEAD COMPLIANCE PLAN

Attention is directed to Section 7-1.02K(6)(j)(ii) "Lead Compliance Plan, of the Caltrans Specifications.

A lead compliance plan for worker health and safety must be prepared by a Certified Industrial Hygienist (CIH) and must be submitted and implemented prior to the start of construction activities. This plan is needed in order to comply with California Occupational Safety and Health Administration (Cal OSHA) regulations addressing aerielly deposited lead for projects involving soil disturbance, and to minimize worker exposure to lead chromate or lead while handling paint and thermoplastic residue.

Allow 7 days for the Engineer's review. Obtain authorization for the plan before starting any activity that presents the potential for lead exposure.

The plan shall include items listed in 8 CA of Regs § 1532.1(e)(2)(B). Obtain authorization for the plan before starting any activity that presents the potential for lead exposure. Contractor shall provide a safety training program to employees who have no prior training, including City employees. The safety training program shall comply with 8 CA Code of Regs § 1532.1 and the provided lead compliance plan. Contractor shall submit copies of air monitoring or job site inspection reports made by or under the direction of the CIH under 8 CA Code of Regs § 1532.1 within 10 days after the date of monitoring or inspection.

Supply personal protective equipment, training, and washing facilities required by your lead compliance plan for five City employees.

Full compensation for conforming to the requirements 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.

SECTION 8 – PROSECUTION AND PROGRESS

8-1.01 SCHEDULE

Attention is directed to Section 8-1.02, “Schedule” of the Caltrans Specifications. The Contractor shall submit a schedule of construction to the City Engineer within five (5) working days following the Notice to Proceed.

Once all material is ordered, approved, and shipped, coordination w/ Weber Point Event Center shall be done prior to starting construction. Construction shall be anticipated to begin as early as September 2024. The Contractor's construction schedule must be approved before any construction may commence.

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 no additional compensation will be allowed therefore.

8-1.02 PRE-CONSTRUCTION CONFERENCE

The City of Stockton Public Works Department will schedule a pre-construction meeting with the Contractor following award of the contract and prior to commencing work. This meeting will be held in the City of Stockton, Public Works Department.

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 no additional compensation will be allowed therefore.

8-1.03 POST CONSTRUCTION CONFERENCE

The Contractor shall attend a post-construction meeting that will be arranged by the Public Works Department after completion of work and prior to acceptance and final payment. The project engineer and the project Inspector will also attend this meeting. The purpose of the meeting will be to discuss the project and any related issues that can help improve future Public Works construction projects. This meeting will be held in the City of Stockton, Public Works Department.

At this meeting the Contractor will also submit a marked-up set of record drawings/as-built plans at no additional cost to the City.

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 no additional compensation will be allowed therefore.

8-1.04 TIME OF COMPLETION

Attention is directed to the provisions in Section 8-1.05, "Time," of the Caltrans Specifications and these Special Provisions.

The contract for the performance of the work and the furnishing of materials shall commence within ten (10) days from the Notice to Proceed date and shall be diligently prosecuted to completion before the expiration of the working days specified in this section from the date of said commencement.

The Contractor shall diligently prosecute the contract work to completion within thirty (30) 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 no additional compensation will be allowed therefore.

8-1.05 LIQUIDATED DAMAGES

Attention is directed to the provisions in 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 **\$3700 (thirty-seven hundred)** per day for each and every calendar day that the work, with the exception of the plant establishment and maintenance period, remains incomplete after expiration of the contract working days specified in these Special Provisions.

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 no additional compensation will be allowed therefore.

SECTION 9 – PAYMENT

9-1.01 GENERAL

Attention is directed to Section 9 of the Standard Specifications, Section 9, "Payment," of the Caltrans Specifications, and these Special Provisions. All measurements and payments for this work shall conform to all applicable provisions on Section 9 of the Caltrans Specifications.

All materials designated to be removed shall become the property of the Contractor, unless otherwise noted, and shall be disposed in accordance with local, state, and federal laws and ordinances.

Full compensation for performing the work in these specifications shall be included in the prices paid for the various contract items of work and no additional compensation will be allowed therefore.

9-1.02 PAYMENTS

Attention is directed to Sections 9-1.16, "Progress Payments," and 9-1.17, "Payment After Contract Acceptance," of the Caltrans Specifications, and Sections 9-1.16A, "Progress Payments - General," and 9-1.17D, "Final Payment and Claims," of the Standard Specifications. No partial payment will be made for any materials that are furnished on hand, but not yet installed or incorporated in the work.

Full compensation for all labor, equipment, tools, materials, services, travel, and incidentals and for doing all the work and all other items required to complete the work in conformity with the Contract Documents will be included in the prices paid for the various contract items of work and no additional work compensation will be allowed therefore. No other compensation will be made except for the items listed in the Bid Proposal. Work for which no separate payment has been provided will be considered as a subsidiary obligation of the Contract.

Schedule of Measurement and Payment:

1. Mobilization: paid by lump sum, shall include costs associated with the movement of personnel, equipment, supplies, and incidentals to the project site.
2. Construction Fencing: paid by lump sum, shall include all cost associated with providing and maintaining barricades, fencing, shoring, pedestrian walkways including lights and other safety precautions to guard against personal injury and property damage as prescribed by jurisdictional authorities, including insurance companies.
3. Water Pollution Control: paid by lump sum, shall include preparing the WPCP, implementation of erosion control BMPs identified in WPCP, providing all labor, materials, tools equipment, and incidentals as described in Section 13 of the Caltrans Standard Specifications and these Special Provisions.

4. Shade Structure Painting: paid by lump sum. Includes providing all labor, tools, materials, transportation, equipment, fuel, and power required to successfully paint the structure & other associated work as indicated on the plans, in the specifications, and as required by the Engineer.
5. Shade Structure Rehabilitation: paid by lump sum. Includes providing all labor, tools, materials, transportation, equipment, fuel, and power required to successfully complete the Weber Point Events Center Shade Structure Rehabilitation – Phase 2 project & other associated work as indicated on the plans, in the specifications, and as required by the Engineer.
6. Patterning and Detailing Services (by Huntington Design Associates, Inc.): paid by lump sum. The contractor shall hire Huntington Design Associates, Inc. independently to provide Patterning and Detailing Services. Services will be provided to the Contractor within six weeks after required submittals are approved.

Services include following:

- Preparing fabric template drawings and fabrication details for 84 different fabric panels fabricated into 3 different subassemblies. The eight different panels are depicted on the 'Weber Point Fabric Assembly - Drawing 1000 A' (Exhibit B) from the original 1999 construction. These pattern drawings have been provided for reference. Panels 1, 2, 5, and 6 are shop heat sealed into a single assembly. Panels 3 & 4 comprise a second shop heat-sealed assembly, and Panels 7 & 8 comprise a third shop heat-sealed assembly.
- Prepare shop fabrication details for aluminum clamp bars at all connections to masts and other fabric “corners”.
- Prepare shop fabrication details for aluminum U-straps.
- Determine fabrication length and prestress forces for 12 cat eye cables.

Note: Patterning and Detailing bid item shall be set at \$31,910.00, as the fee paid to Huntington Design Associates, Inc. for services.

9-1.03 INCREASE OR DECREASE QUANTITIES

The City reserves the right to make such alterations, deviations, additions to, or omissions from the plans and specifications, including the right to increase or decrease the quantity of any item or portion of the work or to omit any item or portion of the work, as may be deemed by the Engineer to be necessary or advisable and to require such extra work as may be determined by the Engineer to be required for the proper completion or construction of the whole work contemplated, without adjustment in the unit price as bid. Section 9-1.06B and Section 9-1.06C of the Caltrans Specifications shall not apply.

Any such changes will be set forth in a contract change order, which will specify, in addition to the work to be done in connection with the change made, adjustment of contract time, if any, and the basis of compensation for such work. A contract change order will not become effective until approved by the Public Works Director. City Manager and/or City Council approval may be necessary depending on the amount of the change order.

9-1.04 MOBILIZATION

Mobilization shall conform to the provisions in Section 9-1.16D, "Mobilization," of the Caltrans Standard Specifications and these Special Provisions.

Full compensation for any costs required to comply with the provisions in this section shall be considered to be included in the "Mobilization" price paid for on the contract items of work and no additional compensation will be allowed therefore.

9-1.05 STOP NOTICE

Section 9-1.16E(4), "Stop Notice Withholds," of the Caltrans Specifications is amended to read as follows:

At its option, the Department of Public Works may at any time retain from the amounts due to the Contractor sufficient amount to cover claims which are filed pursuant to *Section 3179 et seq of the Code of Civil Procedures*.

9-1.06 QUANTITIES

The following estimate of the quantities of work to be done and materials to be furnished are **approximate only**, and are intended as a basis for the comparison of bids. The City does not expressly or by implications agree that the actual amount of work will correspond therewith, but reserves the right to increase or decrease the amount of any class or portion of the work without increase or decrease in the unit price bid or to omit portions of the work that may be deemed necessary or expedient by the Engineer.

Base Bid Schedule

Item No.	Description	Unit	Quantity	Unit Cost	Total Cost
1	Mobilization	LS	1		
2	Construction Fencing	LS	1		
3	Water Pollution Control	LS	1		
4	Shade Structure Painting	LS	1		
5	Shade Structure Rehabilitation	LS	1		
6	Patterning and Detailing Services (by Huntington Design Associates, Inc.)	LS	1	\$31,910.00	\$31,910.00
Total Bid					

Each bidder shall bid each item on the Base Bid Schedule. Failure to bid an item shall be just cause for considering the bid as non-responsive. The City reserves the right to include or delete any Schedule or portion thereof, or to reject all bids.

Official bid documents, including plans and specifications, are available on the City of Stockton website at:

<http://www.stocktongov.com/services/business/bidflash/default.html>

All bids submitted for this project must conform to the requirements of the official bid documents, including plans and specifications.

DIVISION II – GENERAL CONSTRUCTION

SECTION 10 – GENERAL

10-1.01 ORDER OF WORK

The order of work shall conform to the Contractor's approved project schedule described in Section 8-1.01, "Schedule" of these Special Provisions.

Contractor's attention is directed to the Public Safety, Public Convenience, and Maintaining Traffic sections of these Special Provisions. Nothing in this section shall be construed as to relieve the Contractor of the responsibility to stage the work in a manner that complies with the requirements of these sections.

All permits and approvals as may be required for this project shall be secured or ordered immediately after award of the contract or their acquisition timing determined, such that the same is not a cause for delay. The cost of the permits shall be included in the total bid costs.

Minor deviations from these requirements may be allowed by the Engineer, if in the opinion of the Engineer, the prosecution of the contract will be better served and the work expedited. Any Contractor request for such deviations shall not be adopted without the Engineer's prior written approval.

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 no additional compensation will be allowed therefore.

SECTION 11 – BLANK

SECTION 12 – BLANK

SECTION 13 – WATER POLLUTION CONTROL

13-1.01 WATER POLLUTION CONTROL

Water pollution control shall conform to the requirements in Section 13, "Water Pollution Control," of the Caltrans Specifications, these Special Provisions, and as directed by the Engineer.

The Contractor shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP), which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting storm water and with the intent of keeping all products of erosion from moving off site into receiving waters. The Contractor shall inspect and maintain all BMPs.

Full compensation for furnishing, installing, maintaining, and removing all components of the required water pollution control devices as specified in the plans and these Special Provisions, and as directed by the Engineer, shall be included in the contract prices for "Water Pollution Control" and no additional compensation will be allowed therefore.

SECTION 14 – ENVIRONMENTAL STEWARDSHIP

14-1.01 HAZARDOUS WASTE AND CONTAINMENT

When the presence of asbestos or hazardous substances are not shown on the plans or indicated in the specifications and the Contractor encounters materials which the Contractor reasonably believes to be asbestos or a hazardous substance as defined in Section 25914.1 of the Health and Safety Code, and the asbestos or hazardous substance has not been rendered harmless, the Contractor may continue work in unaffected areas reasonably believed to be safe. The Contractor shall immediately cease work in the affected area and report the condition to the Engineer in writing.

In conformance with Section 25914.1 of the Health and Safety Code, removal of asbestos or hazardous substances including exploratory work to identify and determine the extent of the asbestos or hazardous substance will be performed by separate contract.

If delay of work in the area delays the current controlling operation, the delay will be considered a right of way delay and the Contractor will be compensated for the delay in conformance with the provisions in Section 8-1.07, "Delays," of the Caltrans Specifications.

14-1.02 NOISE CONTROL REQUIREMENTS

Noise control shall conform to the provisions in Section 14-8-02, "Noise Control," of the Caltrans Specifications and these Special Provisions. Nothing in the Caltrans Specifications or these Special Provisions voids the Contractor's public safety responsibilities or relieves the Contractor from the responsibility to comply with other ordinances regulating noise level.

The Contractor shall comply with all local sound control and noise level rules, regulations and ordinances which apply to any work performed pursuant to the contract.

The noise level requirement shall apply to the equipment on the job or related to the job, including, but not limited to, trucks, transit mixers, or transient equipment that may or may not be owned by the Contractor. The use of loud sound signals shall be avoided in favor of light warnings except those required by safety laws for the protection of personnel.

Full compensation for conforming to the requirements 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.

SECTION 15 – ATTACHMENTS

- **Division 5 – Section 05 12 00 – Structural Steel**
- **Division 5 – Section 05 19 10 – Steel Cables**
- **Division 9 – Section 09 96 10 – Painting**
- **Division 13 – Section 13 31 23 – Tension Membrane Roof**

DIVISION 5
SECTION 05 12 00 – STRUCTURAL STEEL

PART 1 **GENERAL**

1.01 Related Documents

- A. All Drawings and General Requirements and Special Conditions of the Contract apply to work of this section.

- B. In the event of conflict between any of the provisions of these documents, including the Drawings and this section of the specification, the requirements of the most stringent shall govern.

1.02 Summary

- A. Description of Work.
 - 1. Miscellaneous steel fabrications, as shown on the drawings.
 - 2. Preparation, prime, and finish painting of all steel per Specification Section 09 96 10.
 - 3. Erection engineering of the steel work.
 - 4. Erection of all steel components.

- B. Responsibilities of the Contractor
 - 1. The Contractor shall provide all the fabricated structural steel, including transport to the site.
 - 2. The Contractor shall perform the Work in accordance with the Construction Manager's Project Schedule.
 - 3. The Contractor shall engineer the erection of the structural steel to accommodate the Project Schedule and the use of the facility during Construction.
 - 4. The Contractor shall erect the structural steel.
 - 5. The Contractor shall prepare and prime, and finish paint the steel per specification Section 09 96 10 "Painting", including field touch up.
 - 6. The Contractor shall be solely responsible for the safe execution of the work in the shop and in the field.
 - 7. The Contractor shall be responsible to coordinate the work with that of all other trades.

- C. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. City of Stockton Public Works Department Special Provisions.
 - 2. Division 5 Section 05 19 10 "Steel Cables" for wire rope cables.

3. Division 9 Section 09 96 10 "Painting" for surface preparation and coating requirements
4. Division 13 Section 13 31 23 "Tension Membrane Roof" for fabric membrane.

1.03 Performance Requirements

A. Erection Engineering

1. The Contractor shall be solely responsible for the design and engineering of any shoring towers, temporary braces, and/or temporary guys including the foundation and/or anchorage thereof that may be required to execute the work.

1.04 Submittals

A. General:

1. Submit each item in this Article according to the Special Provisions of this specification. The Engineer shall review the Contractor's submittals for general compliance with the Contract Documents for strength and serviceability only, this review shall not be for accuracy of dimensions, fit-up, constructability, or for coordination of shop drawings.

B. Product Data for each type of product specified.

1.05 Quality Assurance

- A. The steel fabricator shall have not less than five (5) years continuous experience in the fabrication of structural steel of similar or greater complexity.
- B. Codes and Standards: Work must comply with the latest edition of the following standard specifications and codes with modifications as specified herein. In the event of conflict between any of the pertinent codes and regulations and the requirements of the referenced standards or these Specifications, the provisions of the more stringent shall govern.
 1. The California State Building Code 2019 with current amendments.
 2. American Institute of Steel Construction (AISC) Publications and Standards –as referenced herein.
 - a. AISC 360-16 "Specification for Structural Steel Buildings", except as modified herein and as shown on the Drawings.
 - b. "Code of Standard Practice for Steel Buildings and Bridges" except as modified by provisions noted herein and as shown on the Drawings.
 3. ASTM A 6 (ASTM A 6M) "Specification for General Requirements for Rolled Steel Plates, Shapes, Sheet Piling, and Bars for Structural Use."

4. Research Council on Structural Connections' (RCSC) " Specification for Structural Joints High-Strength Bolts." 2009.
 5. American Welding Society - "Structural Welding Code ANSI/AWS D1.1" as referenced herein.
 6. American Welding Society - "Structural Welding Code, Reinforcing Steel, ANSI/AWS D1.4"
 7. Steel Structure Painting Council - Painting Manual, Vol. 1 and 2.
 8. American Society for Testing and Materials (ASTM) - as referenced herein.
 9. ASCE/SEI 37-14 "Design Loads on Structures during Construction", published by the American Society of Civil Engineers.
- C. Testing and Inspection of Steel Work: Per Provision 2.06 of this specification, testing and inspection of the structural steel in the shop and in the field for the Owner's quality assurance will be performed by an independent Testing Agency, retained and paid for by the Owner. The Contractor shall not rely on the Owner's Testing Agency for his quality control.
1. The Contractor shall furnish to the Testing Agency, as part of the cost of the Work, the following:
 - a. A complete set of approved erection drawings and shop drawings.
 - b. Cutting lists, order sheets, material bills and shipping bills and schedules.
 - c. A complete set of all welding procedures and sequences prepared in accordance with AWS requirements.
 - d. Current certificates for all welding operators.
 - e. A copy of the fabrication shop's quality control procedures manual.
 2. The Contractor shall make all repairs to defective work to the satisfaction of the requirements of the Contract Documents and at no additional cost to the Owner.
 3. The Inspector shall submit reports of his inspection and test findings to the Engineer, and the Owner or his representative. He shall record all defects found with subsequent repair operations and submit reports to the Engineer.
 4. The work of the Inspector shall in no way relieve the Contractor of his responsibility to comply with all requirements of the Contract Documents, nor shall the work of the Inspector relieve the -Contractor's responsibility for quality control of the work either in the shop or in the field.

1.06 Rejection And Replacement

- A. In the event of damage to the steel, immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.

- B. Any materials or welding rejected by the Engineer or the Testing Agency Inspector either in the shop, mill or field including bolts and other purchased items, must be promptly repaired or replaced to meet the requirements of the Contract Documents at no additional cost to the Owner.

1.07 Connections

- A. Member splices shall not be allowed except where shown on the Drawings.

PART 2 PRODUCTS

2.01 Materials

- A. Structural Steel Plates and Bars:
 - 1. High-Strength, Low-Alloy Columbium-Vanadium Steel: ASTM A 572 (ASTM A 572M), Unless indicated otherwise on the Drawings: Grade 50, Fy min=50 ksi (345 MPa).
- B. Bolts, rods, pins, turnbuckles & clevises: Provide grade or capacity per dwg's.

2.03 Fabrication

- A. Fabricate and assemble structural steel in shop to greatest extent possible. Fabricate structural steel according to AISC specifications referenced in this Section and in Shop Drawings.
 - 1. All members when finished shall be true and free of twists, bends, and open joints between the component parts. Members shall be thoroughly straightened in the shop by methods which will not injure them, before being worked on in any way.
 - 2. Camber structural steel members where indicated.
 - 3. Identify high-strength structural steel according to ASTM A 6 (ASTM A 6M) and maintain markings until steel has been erected.
 - 4. Member splices between workpoint connections are not permitted except where specifically shown on the Drawings.
 - 5. Connections shall be as indicated on the Drawings.
 - 6. All members and weldments shall be piece marked with metal tags adhered or welded to the piece.
 - 7. Hollow Structural Members: All hollow structural members, round and/or tubes, shall be completely sealed airtight with welded plates with the exception of those that are to be hot dipped galvanized.
 - 8. Fabricate for delivery in a sequence that will expedite erection and minimize field handling of structural steel.
 - 9. Complete structural steel assemblies, including welding of units, before initiation of shop-priming operations.
 - 10. Dimensional tolerances and verifications shall be as defined in the fabricator's dimensional control plan for the Work.

- B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.
 - 1. Manual thermal cutting shall be done only with a mechanically-guided torch.
 - 2. The use of thermal-cut holes for bolted connections will under no circumstances be permitted, and violation of this clause will be sufficient cause for the rejection of any pieces in which thermal cut holes exist.
 - 3. Thermal cutting of structural steel in the field is not allowed except with the written consent and approval of the Engineer.

- C. Finishing:
 - 1. Clean and repair all cut edges by welding and/or grinding to remove all gouges, cuts burrs and jags to meet the requirements of AWS D1.1.
 - 2. Re-entrant cuts shall have as large a radius as possible without over cutting.
 - 3. Seal weld seams, joints, and crevices of all work to received high performance coating.

- D. Shear Connectors:
 - 1. Prepare steel surfaces as recommended by manufacturer of shear connectors.
 - 2. Use automatic end welding of headed-stud shear connectors according to AWS D1.1 and manufacturer's printed instructions.
 - 3. Other steel studs, such as those welded to embedment weldments shall be arranged as shown on the Drawings.

- E. Holes: Provide holes required for securing other work to structural steel framing and for passage of other work through steel framing members, as shown on Shop Drawings.
 - 1. All pin connections shall have bored or reamed pin holes.
 - 2. Pin-hole diameters shall not be greater than 0.05" (1.25 mm) larger than the pin diameter with finish, unless otherwise noted on the drawings.
 - 3. Cut, drill, or punch bolt holes perpendicular to metal surfaces. Do not flame-cut holes or enlarge holes by burning. Drill holes in bearing plates.

- G. All members and weldments shall be piece marked with metal tags adhered or welded to the piece. Submit details of marking.

2.05 Shop Finish Preparation

- A. Shop prime and finish steel surfaces per Specification Section 09 96 00, except the following:
 - 1. Galvanized surfaces.

- B. Minimum Surface Preparation: Thoroughly clean all steel surfaces (whether to receive paint or not) of all loose mill scale, loose rust, spatter, slag and flux deposit, oil dirt, grease and other foreign matter. Use the following methods of cleaning:

1. All grease and oil shall be removed in accordance with SSPC- SP 1, "Solvent Cleaning".
2. Surface Preparation for all painted surfaces shall be per Specification Section 09 96 00.

C. Process structural steel indicated for galvanizing according to ASTM A 123.

2.06 Source Quality Control

- A. Testing and inspection of the structural steel for the Owner's quality assurance will be performed by an independent Testing Agency, retained and paid for by the Owner.

PART 3 EXECUTION

3.01 Examination

- A. Inspection of the Site: The Steel Contractor must examine areas and conditions under which structural steel is to be erected and notify the Construction Manager in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to the Steel Erector and the Engineer.

3.02 Preparation

- A. Provide temporary shores, guys, braces, jacks, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Temporary bracing shall be left in place as long as may be required for safety. The bracing shall be located so it does not interfere with the erection and installation of subsequent members and can be removed as required during construction. Coordinate to minimize interference with the general progress of the work. Remove temporary supports when permanent structural steel, connections, and bracing are in place, unless otherwise indicated.
- B. The structure is designed to be self-supporting and stable after erection is completed. It is the Contractor's sole responsibility to determine erection procedures, sequencing and temporary bracing; to determine the adequacy and strength of any parts of the structure being used as temporary supports or tie-downs; and to ensure the safety of the building and its component parts during erection, except as specifically directed in writing by the Engineer or the Owner. This includes the addition of whatever temporary bracing, guys, shoring, or tie-downs that might be necessary. Such materials shall be removed by the Contractor and remain his property after completion of the project.

1.02 3.03 Erection

- A. The steel erector shall employ a competent superintendent to supervise all work of erection. This superintendent shall be present at all times during this phase of the work.
- B. Coordinate erection activities with the other contractors to minimize impact on other work on site. Allow access to the steel work by other trades.
- C. Set structural steel accurately in locations and to elevations indicated.
- D. Base and Bearing Plates: Clean concrete and masonry bearing surfaces of bond-reducing materials and roughen surfaces prior to setting base and bearing plates. Clean bottom surface of base and bearing plates.
 - 1. Set base and bearing plates for structural members on wedges, shims, or setting nuts as required.
 - 2. Tighten anchor bolts after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of base or bearing plate prior to packing with grout.
 - 3. Pack grout solidly between bearing surfaces and plates so no voids remain. Finish exposed surfaces, protect installed materials, and allow to cure.
- E. Align and adjust various members forming part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
- F. Splice members only where indicated.
- G. Remove erection bolts on welded, architecturally exposed structural steel; and grind smooth at exposed surfaces. Do not fill holes with plug welds. Install bolts snug tight to fill holes when approved by Architect.
- H. Do not use thermal cutting during erection.

3.04 Field Quality Assurance

- A. Testing and inspection of the structural steel for the Owner's quality assurance will be performed by an independent Testing Agency, retained and paid for by the Owner. The Contractor shall not rely on the Owner's Testing Agency for his quality control.
 - 1. The work of the Inspector shall in no way relieve the Contractor of his responsibility to comply with all requirements of the Contract Documents, nor shall the work of the Inspector relieve the Contractor's responsibility for quality control of the work either in the shop or in the field.

3.05 Cleaning And Touchup Paint

- A. Clean-up: Remove all lugs, erection brackets, erection bolts, guys and other equipment not indicated as part of the finished structure and restore or repair finishes. Repair any holes or abraded or damaged areas to concrete structure, glazing, metals, or finishes, per requirements of Division 1 and other pertinent specification sections.
 - 1. Particular care shall be taken during handling, shipping and erection to maintain all visible surfaces clean without stains or objectionable soiling.
 - 2. Protect all visible painted surfaces from staining agents.
 - 3. Should visible steel surfaces be soiled or stained as a consequence of erection and handling, upon completion of the steel work the Contractor shall be responsible to clean all visible surfaces of the finished steel to the satisfaction of the Engineer.
- B. Touchup Painting: All shop painting requirements shall apply to field touch up painting. See Section 09 96 10.

End of Section 05 12 00

DIVISION 5
SECTION 05 19 10 – STEEL CABLES

PART 1 – GENERAL

1.01 Related Documents

- A. All Drawings and General Requirements and Special Conditions of the Contract apply to work of this section.
- B. All Division 01 Specifications apply to work of this section.
- C. In the event of conflict between any of the provisions of these documents, including the Drawings and this section of the specification, the requirements of the most stringent shall govern.

1.02 Description Of Work:

- A. Manufacture and supply of finished cable assemblies with all end fittings.
- B. Manufacture, fabrication and supply of all cast or machined cable clamp connections including welded steel attachments indicated on the Drawings.
- C. Erection and stressing of the primary structure cables and associated hardware.
- D. Responsibilities of Contractor:
 - 1. The Contractor shall provide all cable assemblies and cable connection castings, including transport to the site.
 - 2. The Contractor shall be responsible for detailing all cable assemblies and cast connections based upon the designs shown of the Drawings.
 - 3. The Contractor shall perform the Work in accordance with the Construction Manager's Project Schedule.
 - 4. The Contractor shall be solely responsible for the safe execution of the work in the shop and in the field.

E. Related Work Described Elsewhere:

1. City of Stockton Public Works Department Special Provisions.
2. Tension Membrane Roof– Specification Section 13 31 23.
3. Structural Steel - Specification Section 05 12 00.
 - a. Specification Section 05 12 00 applies to all welding of cable connections.

1.03 Quality Assurance:

A. Codes and Standards:

Work must comply with the latest edition of the following standard specifications and codes with modifications as specified herein. Note that some of the requirements specified herein significantly exceed the minimums required for compliance with these standards:

1. The California State Building Code 2019 amendments.
2. AISC 360-10 "Specification for Structural Steel Buildings", except as modified herein, published by the American Society of Civil Engineers.
3. ASCE 19 -16 " Structural Applications of Steel Cables for Buildings".
4. Research Council on Structural Connections - "Specifications for Structural Joints Using High-Strength Bolts".
5. American Institute of Steel Construction (AISC) –as referenced herein.
6. American Society for Testing and Materials (ASTM) - as referenced herein.
7. ASCE/SEI 37-14 "Design Loads on Structures during Construction", published by the American Society of Civil Engineers.

In the event of conflict between pertinent codes and regulations and the requirements of the referenced standards or these Specifications, the provisions of the more stringent shall govern.

- B. Qualifications of Manufacturers: Cable and casting manufacturers shall be qualified and have at least 5 years continuous experience in the manufacturing of materials of similar quality.

C. Qualifications for Welding Work: See specification section 05 12 00.

D. Testing and Inspection of Cable Assemblies:

1. Cable prestretch and final length documentation. Provide documentation of prestretch and marking for all cable assemblies.
2. Modulus of stands and wire ropes per A586 per EN 1993-11 for every production batch.

1.04. Submittals:

A. Review of shop drawings and all other submittals shall be limited to review for general compliance with the strength and serviceability requirements of the Construction Documents and for architectural appearance. This review shall not be for accuracy of dimensions, for fit-up, constructability, or for coordination with other of the Contractor's shop drawings.

B. Proofs of Qualification:

Submit with bid evidence satisfactory to Owner that the cable fabricator is qualified for the Work in accordance with Section 1.03B of this specification.

C. Marking:

1. Submit details of proposed method of piece marking the cable components for identification and verification of proper placement in the work. Marks shall be placed in positions that can be checked after erection. See Section 05 12 00, paragraph 2.03 I. for requirements.
2. Provide workpoint and orientation marking on cables as specified.

1.05 Product Handling:

A. Protection: Use all means necessary to protect structural cable assemblies, components and finishes before, during, and after fabrication, shipping deployment on site and erection to the point of turnover of the completed cable structure to the Construction Manager.

- B. Erection: Provide all spools, guides, supports, blocking, and other temporary protection for handling, deploying, and erecting the cables.

1.06 Rejection And Replacement:

- A. In the event of damage to materials, immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to Owner.
- B. Any materials or welding rejected by the Engineer or the Testing Agency Inspector either in the shop, mill or field including castings, must be promptly repaired or replaced to meet the requirements of the Construction Documents at no additional cost to Owner.

1.07. Connections:

- A. Cable splices shall not be allowed except where shown on the Drawings.
- B. Cable Connections to structural steel. The Contractor shall coordinate (see Specification Section 05 12 00) and verify with the Construction Manager and the Engineer all final pin hole diameters, edge distances and boss plate thickness with the cable fittings and connections.
- C. Connections jacks, erection aids, temporary platforms. Design and provision of connections for all temporary erection work is the responsibility of the Contractor.

1.08 Substitutions To Construction Documents:

See Special Provisions of this specification.

1.09 Performance Requirements

- A. Connections
 - 1. Shop drawings submitted by the Contractor showing substitutions or designs not previously reviewed by the Engineer in accordance with paragraph 1.08 shall be subject to rejection.
 - 2. The Engineer's review of the detailed connection drawings shall be for compliance with strength and serviceability requirements only, and shall not be for accuracy of dimensions, for fit-up, constructability or for coordination of shop drawings.

B. Erection Engineering

1. The Contractor shall be solely responsible for the sequence, procedure, means, and methods of erection as well as safe erection of the work. The Contractor shall be solely responsible for compliance with all pertinent statutes, regulations and/or ordinances with respect to the erection of the work.
2. The Contractor shall be responsible to develop a detailed erection sequence and plan. The Contractor shall analyze the structure at various stages in its erection to ensure stability of the structure and/or its sub-assemblies as well as ensure that neither temporary nor permanent components of the structure, both new and existing, are over-stressed including the appropriate concurrent environmental loads from wind and snow.
3. The Contractor shall be solely responsible for the design and engineering of any shoring towers, temporary braces, and/or temporary guys including the foundation and/or anchorage thereof that may be required to execute the work

PART 2 – PRODUCTS

2.01 Welding Consumables & Electrodes:

See Specification Section 05 12 00.

2.02 Cables Assemblies And Connectors:

Scope: All structural strand, wire ropes, and their permanently attached end fittings shall conform to ASCE 19 " Structural Applications of Steel Cables for Buildings".

A. Cables, General:

1. All open spiral strand indicated on the Drawings shall conform to ASTM A586 "Standard Specification for Zinc-coated Parallel and Helical Wire Structural Strand". Zinc coating shall be class A for inner and outer wires unless specifically noted otherwise. Alternatively, outer wires may be given a galfan coating with a minimum weight of at least 300g/m².
2. All wire rope indicated on the Drawings shall conform to ASTM A603 "Standard Specification for Zinc-coated Steel Wire Rope". Zinc coating shall be class A for inner and outer wires unless specifically noted otherwise.
3. Same cable types as identified on the Drawings shall have the same modulus of elasticity, plus or minus 2%.

4. Cables shall be completely free of grease and foreign materials.
5. All completed cable assemblies greater than 12 mm (0.5") diameter shall be pre-stretched per ASTM A586 to 55% of their minimum specified breaking strength. Cable assemblies with breaking strengths greater than 8,350 kN (1,880 kip), pre-stretch need not exceed 4,600 kN (1,030 kip).
6. Cut lengths of all cables greater than 12 mm (0.5") diameter shall be determined so that the length of cable assembly shall be within $\pm 0.02\%$ of the theoretical length after pre-stretching, except that lengths less than 15 m (50') shall have tolerance of ± 3 mm (0.118").
7. Mark all finished cable assemblies greater than 12 mm (0.5") as follows:
 - a. Mark with a continuous longitudinal paint stripe with the end connections in their proper relative orientation to facilitate installation of the assembly without twist. The paint stripe should be no more than 3 mm (1/8") in width.
 - b. Mark all intermediate workpoints along cable with clear painted targets to the same tolerance as the cable length between workpoints.
 - c. Mark the ends of all clamps and saddles with a transverse paint stripe for use in aligning and positioning clamps and saddles. The paint stripe should be no more than 3 mm (1/8") in width.
8. Touch up all damage to zinc coating in the field with zinc cold galvanizing to protect the exposed steel and to match color of finish.

B. Sockets, End fittings:

1. Cable sockets and clevises shall be cast or forged steel conforming to ASTM 148M in the grade required to satisfy specified requirements. These end fittings shall be splattered or swaged on the cable as indicated on the Drawings.
2. All sockets, end fittings and clevises, including pins and other component hardware, shall be designed to withstand 100% of the minimum specified breaking strength connected cable without permanent deformation and shall not in any way impair the load carrying capacity or efficiency of the cable.
3. All cast steel cable fittings shall be tested and inspected per paragraph 2.06.D and shall have minimum Charpy V-notch value of 27 Joules at -40°C & 40 Joules at +20°C. See ASTM A 781M.
4. All fittings, pins, nuts, sockets, clevises shall be galvanized or zinc metalized:
 - a. Hot dipped to Class A or B-1 per ASTM A153, or
 - b. Mechanically galvanized to Class 50 per ASTM B 695, or
 - c. Electrogalvanized for equivalent zinc thickness.

5. Spelter sockets shall be designed specifically for zinc or resin socketing.
6. Resin for speltering cable sockets shall be polyester resin such as WIRELOCKÒ or equivalent in accordance with EN 13411-4.
7. Zinc for speltering cable sockets shall be at least equal to the grade designated as "high grade" in ASTM B6. Speltering per 2.05.C.8 may be employed for all speltered sockets.
8. Touch up all damage to zinc coating in the field with zinc cold galvanizing to protect the exposed steel and to match color and finish of zinc coating.

2.03 Other Materials:

All other materials, not specifically described but required for a complete and proper installation of structural steel, shall be provided and shall be new, free from rust, first quality of their respective kinds, and subject to the acceptance by the Engineer.

PART 3 - EXECUTION

3.01 Examination

Inspection of the Site: The Contractor must examine areas and conditions under which cables are to be erected and notify the Construction Manager in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to the Contractor's erector and the Engineer.

3.02 General:

- A. Spool completed cable assemblies on spools for transport to the site as needed to assure cable assembly is protected and undamaged in transport, handling and storage on site.
- B. All cable assemblies shall be piece marked.

END OF SECTION 05 19 10

DIVISION 9
SECTION 09 96 10 – PAINTING

PART 1 GENERAL

1.01 Summary

- A. Related Documents:
 - 1. All Drawings and General Requirements and Special Conditions of the Contract apply to work of this section.
 - 2. In the event of conflict between any of the provisions of these documents, including the Drawings and this section of the Specification, the requirements of the most stringent shall govern.

- B. Section Includes:
 - 1. Field application of paints and coatings.
 - 2. Unless otherwise specified or shown, paint all surfaces and items which are exposed to view, with the exception of wire rope, aluminum components, gasketing, concrete, and fabric.
 - 3. Surface preparation.

1.02 Submittals

- A. Product Data:
 - 1. Materials List: Complete list of proposed manufacturers and products.
 - 2. Manufacturer's Specifications: Manufacturer's technical information for each product, including paint analysis and application instructions.
 - 3. Material safety data sheets for each product.

- B. Samples:
 - 1. Preliminary Samples: 8-1/2" x 11" samples of each color, texture and sheen on glossy card stock.
 - 2. Field Samples: After preliminary samples have been approved, apply for final approval a field sample of minimum 30" x 30" size at a location near grade on a mast as designated by Project Manager.

- C. Proof of Qualification: Submit with bid evidence satisfactory to Owner that the painting applicator is qualified for the Work in accordance with Section 1.03A of this specification.

- D. Overspray Protection Plan:
 - 1. Describe procedures and products that will be used to prevent migration of overspray to surrounding grounds and water.

1.03 Quality Assurance

- A. Applicator Qualifications: Company specializing in performing the work of this section with minimum 3 years successful experience in work of similar scope.
- B. Manufacturer's Instructions: Perform painting work in accordance with manufacturer's written instructions and recommendations.
- C. Comply with paint manufacturer's instructions on temperature and humidity conditions under which materials can be applied.

PART 2 PRODUCTS

2.01 Paint Products

- A. Spot Primer Coat (on bare metal): Sherwin Williams Macropoxy 646-100 (B58 Series) or approved equal, applied to 4.0 – 6.0 mils thickness.
- B. Mid Coat: Sherwin Williams Macropoxy 5000 (B58 Series), applied to 4.0 – 6.0 mils thickness.
- C. Finish Coat: Sherwin Williams Sher-Loxane 800 (B80 Series), applied to 4.0 – 6.0 mils thickness.

2.02 Materials

- A. Material Quality:
 - 1. Provide premium quality materials. Materials not bearing manufacturer's identification as a premium-grade product are not acceptable.
 - 2. Should manufacturer's specifications or product names change, provide its current equal or better product.
 - 3. Primer and undercoats are to be of same manufacturer as final coat.
 - 4. Materials left from previous jobs are not acceptable.
 - 5. Use only thinners approved by paint manufacturer and use only within recommended limits.
 - 6. Solvents: Non-petroleum based, as recommended by paint manufacturer for the use intended.
- B. Finish Coat Coordination: Provide finish coats which are compatible with prime paints used.
 - 1. Upon request from other trades, furnish information on characteristics of finish materials proposed for use.
 - 2. Provide barrier coats over incompatible primers or remove and reprime.
 - 3. Notify Owner in writing of any problems anticipated in use of specified coating systems with substrates primed by others.

2.03 Colors

- A. General: Paint color shall match existing structure paint. Contractor shall provide paint sample for City approval.
- B. Finish coat colors shall be factory mixed.

PART 3 EXECUTION

3.01 Examination

- A. Examine areas and conditions under which painting work is to be applied.
- B. Do not paint over dirt, rust, scale, grease, oil, dust, moisture, scuffed or damaged surfaces, or conditions detrimental to a durable paint life.
- C. Starting work indicates acceptance of conditions of surfaces and within any particular area.

3.02 Preparation

- A. Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions and as specified for substrate condition.
- B. Remove hardware, accessories, and items in place and not to be painted, or provide protection prior to surface preparation and painting. Reinstall removed items after painting.
- C. Remove oil and grease prior to mechanical cleaning.
- D. All areas of rust on steel surfaces to be removed by spot grinding with a wire wheel.
- E. All surfaces to be painted are to be thoroughly cleaned by power washing to SSPC SP3 standard.
- F. Schedule cleaning so contaminants from cleaning process do not fall onto wet, newly painted surfaces.
- G. Moisture Content: Do not paint over surfaces where moisture content exceeds manufacturer's instructions.

- H. Ferrous Metals:
 - 1. Bare Surfaces: Clean of oil, dirt, loose mill scale, and other foreign substances.
 - 2. Galvanized Surfaces: Clean free of oil and surface contaminants using etching solution, and rinse with water to neutralize

3.03 Application

- A. Apply paint in accordance with manufacturer's instructions. Use applicators and techniques best suited for substrate and type of material being applied.
 - 1. Apply additional coats when stains or blemishes show through final coat, until paint is a uniform finish, color and appearance.
 - 2. Ensure dry film thickness at corners and crevices is equivalent to that of flat surfaces.
 - 3. Paint is to be applied using brush & roller. Spraying is not permitted.
- B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated or otherwise prepared for paint as soon as practicable after preparation.
 - 1. Do not apply materials in areas where dust is being generated, or will be generated, before coatings are thoroughly dry.
 - 2. Allow time between successive coats to permit proper drying.
 - 3. Do not recoat until paint feels firm and does not deform or feel sticky under moderate thumb pressure.
- C. Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate, to achieve a total dry film thickness (DFT) as recommended by coating manufacturer.
- D. Finish Coats: Provide even texture. Leave no laps, irregularity in texture, skid marks, or other surface imperfections. Opaque Finishes: Provide opaque, uniform finish, color and coverage. Cloudiness, spotting, holidays, brush marks, runs, sags, ropiness or other surface imperfections are not acceptable.
- E. Completed Work: Match approved samples for color, texture and coverage. Remove, refinish or repaint work not accepted.

3.04 Cleaning

- A. Remove discarded paint materials, rubbish, cans and rags from site at end of each workday.
 - 1. Keep flammable materials in approved labeled containers in a well-ventilated area.
 - 2. Cover containers of coatings or solvent products when not in use.

- B. Protection: Protect work of other trades, whether to be painted or not. Correct damage by cleaning, repairing, replacing, or repainting, as acceptable to Owner.
1. Clean paint-spattered surfaces immediately by proper methods of washing and scraping. Do not damage or scratch finished surfaces.
 2. Provide "Wet Paint" signs to protect new painted finishes.
 3. Remove temporary protective wrappings, provided by others for protection of their work, after completion of painting operations.
 4. Do not cover operating mechanical or electrical equipment.
- C. Repair: At completion of work by other trades, touch up and restore damaged surfaces or defaced painted surfaces.

END OF SECTION 09 96 10

DIVISION 13
SECTION 13 31 23 – TENSION MEMBRANE ROOF

PART 1 - GENERAL

1.01 Related Documents

- A. All Drawings and General Requirements and Special Conditions of the Contract apply to work of this section.
- B. In the event of conflict between any of the provisions of these documents, including the Drawings and this section of the specification, the requirements of the most stringent shall govern.

1.02 Description of Work:

- A. Perform all work, including furnishing all labor, material and equipment necessary for the fabrication, installation and stressing of the tensioned membrane roof system, complete as shown on the Drawings, inferable there from, and specified in accordance with the requirements of the Contract Documents. Work is to include, but not necessarily be limited to, the supply, fabrication, shipment and installation of the following principal items:
 - 1. Coated fabric tensioned membrane for the roof as shown on the Drawings.
 - 2. Clamping system, including molded rubber elements.
- B. Related Work Described Elsewhere:
 - 1. City of Stockton Public Works Department Special Provisions
 - 2. Steel Cables– Specification Section 05 19 10
 - 3. Structural Steel - Specification Section 05 12 10.

1.03 Qualifications:

- A. Supply and installation of the tension membrane roof is limited to firms with proven experience with manufacturing, fabrication and installation of tensioned membrane roofs of a comparable size and nature to that specified herein.
- B. The Contractor shall have substantial experience with tensioned fabric structures, including minimum five years documented experience in work of similar scope.

- C. The Contractor and the Contractor's personnel who will be actively in charge of the day-to-day activities of the project shall have a minimum three years previous experience with permanent tensioned membrane structures exceeding 600 square meters (6,000 square feet) in plan area. Such experience shall include management of a contract of similar scope, i.e. the supply, fabrication and installation of membrane, membrane connections, associated cables and hardware.

1.04 Responsibility

- A. The intent of these specifications is that the Contractor shall be responsible for the quality and workmanship of all items specified herein.

1.05 Codes, Standards, Regulations, And Ordinances

- A. General: The Contractor will perform the Work in accordance with the most recent edition of the Codes and Standards noted herein.
- B. Standards: Except as otherwise shown or noted, all work shall comply with the requirements of the latest editions of the following standards. See Section 05 12 01 for standards relating to structural steel. In case of conflict between the referenced standards and the project specifications, the more stringent shall govern:
 - 1. American Society for Testing and Materials Standards
 - a. ASTM B209, Specification for Aluminum and Aluminum-Alloy Sheet and Plate
 - b. ASTM B308, Specification for Aluminum-Alloy 6061-T6 Standard Structural Shapes
 - c. ASTM D4851, Test Methods for Coated and Laminated Fabrics for Architectural Use
 - d. ASTM E84, Test Methods for Surface Burning Characteristics of Building Materials
 - e. ASTM E108, Test Methods for Fire Test of Roof Coverings
 - f. ASTM E136, Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C
 - g. ASTM E424, Test Methods Solar Energy Transmittance and Reflectance (Terrestrial) of Sheet Materials
 - h. ASTM F593, Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
 - i. ASTM F594, Specification for Stainless Steel Nuts
 - 2. Aluminum Association "Specifications for Aluminum Structures", all sections.

3. American Welding Society: AWS D1.2 "Structural Welding Code - Aluminum".
4. American Society of Civil Engineers, ASCE, Standards
 - a. ASCE 19 16 "Structural Applications of Steel Cables for Buildings"
 - b. ASCE 55 16 "Tensile Membrane Structures"
5. Other standards as cited herein.

1.06 Submittals:

- A. Product Data: Submit data for proprietary materials and items, including bolts, coated fabric, fasteners, cables, cable fittings, pins and other materials. Include manufacturer's certifications, mill certifications, and laboratory test reports where required.
- B. All work indicated or specified on shop drawings and other required submittals shall be deemed to be within the scope of the Contract, unless specifically noted otherwise. Review and acceptance of shop drawings and all other submittals which show, specify, or otherwise indicate work which is considered by the Contractor to be additional to the scope of the Work shall in no way change the scope of the Contract nor entitle the Contractor to additional compensation.
- C. The contractor shall provide an installation and stressing procedure which details the methods, sequence of installation, and stressing of the fabric membrane.
- D. Proofs of Compliance: The Contractor shall submit certificates from the producers of all material and fasteners, certifying that the material meets the minimum requirements specified.
- E. Proofs of Qualification: Submit evidence satisfactory to the Owner that the fabric membrane fabricator and installer are qualified for the work in accordance with the requirements of paragraph 1.03 of this Specification Section.
- F. Submit one 36 in. square sample of membrane material to be used for review of color and finish.
- G. Test Reports: Submit copies of test reports as follows:
 1. Bi-axial testing performed per paragraph 3.01.B.
- H. Schedule of On-Site Activities: The Contractor will provide and maintain a detailed schedule of on-site activities or tasks indicating the portions of the site required to execute the scheduled tasks including areas for storage and marshaling components, the expected duration of tasks, and access requirements.

- I. Membrane Repair Manual and Kit: Upon substantial performance of the Work, submit two (2) copies of a repair manual for the tensioned membrane roof to the Owner.
 - 1. The manual shall include a schedule for routine inspection, an inspection checklist, instructions for emergency repair, use of emergency repair materials, and copies of warranties as specified elsewhere.
 - 2. Provide a repair kit at the site for emergency repair.

The instructions for use of all repair kit materials and emergency equipment shall be included in the repair manual with one copy included in the repair kit.
- J. Warranties
 - 1. Project Installation Warranty: Submit written agreement signed by the Contractor, the installer, and the membrane manufacturer, guaranteeing to correct failures of materials, products, and workmanship for a 3-year period from the date of substantial completion of the Project, without reducing or otherwise limiting other rights to correction which the Contractor may have under the Contract Documents.
 - 2. Manufacturer's Product Warranty: Submit manufacturer's standard limited warranty for the tension membrane roof materials, signed by the manufacturer's authorized official, guaranteeing to correct failures of the product which might occur during a warranty period of 20 years, without reducing or otherwise limiting any other rights to correction which they may have under the Contract Documents.

1.07 Examination of Site

- A. The Contractor will examine all existing surface conditions, areas of general site conditions before commencing the work of this section. The Contractor will immediately report any unsatisfactory conditions to the Owner in writing.

1.08 Review of The Work

- A. Access to the Work: The Owner, the Engineer, the Construction Manager, and their representatives shall at all times have access to the Work wherever it is in preparation or in progress. The Contractor will provide facilities for such access when it is reasonable to do so.

1.09 Roof Erection Control and Verification

- A. General Requirements: The Contractor shall continuously monitor the installation of the tensioned fabric system to ensure that it is constructed in accordance with the Drawings and to ensure that construction loading neither

damages nor over-stresses any part of the membrane or its supporting steel structure.

B. The Contractor shall implement controls and procedures, including stress measurements of the membrane, to assure that the following monitoring is completed:

1. All roof system installation activity occurs in accordance with a pre-established installation plan which indicates a detailed sequence of work and which assures that the membrane stresses are monitored and are uniformly and progressively developed.
2. A reaction plan is in place which assures that should fabric membrane over-stresses occur as installation takes place, an immediate response is made to reduce the stresses to within acceptable levels.
3. Provision is made so that in case of high winds during the period when the fabric membrane is attached to the structure but is not yet tensioned out, the fabric will not be damaged by the action of such winds.
4. In its final configuration, the roof system develops the specified uniform membrane prestress at the specified geometry.

1.10 Final Inspection

Perform final inspection of installed tension membrane surfaces and boundaries per paragraph 3. 4. Submit inspection report to the Engineer for the record.

1.11 Testing and Inspection

A. The Owner for his quality assurance may at his expense retain an independent Testing Agency to inspect the work. The Contractor shall not rely on the Owner's Testing Agency for his quality control.

B. The Contractor will supply the Testing Agency, as part of the cost of the Work, the following:

1. A complete set of approved erection drawings and shop drawings.
2. Cutting lists, order sheets, material bills and shipping bills and schedules.
3. Representative sample pieces required by the Testing Agency for testing.
4. Manufacturer's literature for all products to be utilized in the work.

5. Details of proposed processes and procedures to be used in executing the work.
 6. Schedule of the shop and fieldwork.
 7. Full and ample means and assistance for inspection of all procedures and work product during various stages in the fabrication and installation process and proper facilities and access, including scaffolding, temporary work platforms, etc. for inspection of the work in the shop and in the field.
- C. The Contractor shall make all repairs to defective work or replace non-conforming materials to the satisfaction of the requirements of the Contract Documents, at no additional cost to the Owner.

PART 2 PRODUCTS

2.01 General

- A. Any materials or operation specified by reference to published specifications of the manufacturer, fabricator, the American Society of Testing and Materials (ASTM) and other published standards, shall comply with the requirements of the standard listed. In case of conflict between the referenced specifications and the project specifications, the one having the more stringent requirements shall govern.
- B. See Section 05 12 00 structural steel materials, fabrication, and related products.

2.02 PVC Polyester Composite Membrane Materials

- A. All tension membranes shall be a polyester fabric coated with polyvinyl chloride and a PVDF topcoat.
- B. Fabric shall be Prestraint TX30-II, as manufactured by Serge Ferrari, or approved equal.
- C. All coated tension membrane materials, fabric and composite shall have the performance characteristics outlined herein. Submit manufacturers certificates of compliance:
 1. Life expectancy in this application shall be in excess of 30 years.
 2. The material shall be warranted for a period of 20 years.

D. Manufacturer's Products:

1. The Contractor will obtain primary materials from only one manufacturer.
2. The Contractor will use only one type of fabric for the entire fabric membrane work, including reinforcements and sealing strips.

E. Coated Fabric Performance: Each type of coated fabric and composite mesh employed in the Work shall meet the following requirements. Submit certificates of compliance, test methods are noted:

1. Strip Tensile N/cm ASTM D4851
Dry Warp 480 lb./in.
Dry Fill 480 lb./in.

2. Trapezoidal Tear ASTM D4851
Warp 80 lb.
Fill 75 lb.

3. Coating adhesion and peel strength ASTM D4851
Dry or Wet, minimum: 13 lb./in.

4. Lap Joint Static Load: Pass at stress indicated lbs/in fabric with 2 in. lap joint, 4 hours (min.) ASTM D 4851 strip tensile test sample with joint, static load at value indicated. Pass if no failure, slippage, peel, de-lamination, or pucker of joint in the period of 4 hours.

Dry, room temp. Warp & Fill: 100 % of spec'd dry strip tensile strength
Wet, room temp. Warp & Fill: 100 % of spec'd wet strip tensile strength

5. Optical properties of material
Transmittance: 8% ±2%
Reflectance: 84% ±4%

6. Spread of Flame Pass NFPA 701, small scale

F. Nominal fabric surface area between cable work lines is 15,686 sq. ft. Contractor shall procure additional fabric as required to accommodate seam allowances, cable cuffs, corner reinforcements, and cutting waste. Note: square footage provided above is not guaranteed.

2.03 Synthetic Rubber Padding, Seals and Gaskets

- A. All synthetic rubber materials for padding, gasketing, seals and similar uses shall be neoprene, as specified below. All materials shall be homogeneous, free from defects or foreign matter, and shall be compounded and cured to meet the requirements herein specified. These requirements shall apply to sheets, moldings, extrusions and field applied compounds.
- B. Neoprene materials shall contain at least 50% basic rubber hydrocarbons by weight, and shall contain no crude or reclaimed rubber.
- C. Cured materials shall have a quality equivalent to the following properties when tested as indicated, using standard ASTM test samples:
- | | | |
|-------------------------------------|--|---------------------------------------|
| 1. Hardness, durometer A (min.) | 40 to 60 | D2240 |
| 2. Tensile strength (min.) | 600 psi | D412, Method A |
| 3. Elongation (min.) | 200% | D412, Method A |
| 4. Compression Set (max.) | 30% @ 100'C | D395 Method B, 70 hrs. |
| 5. Heat aging, change from original | D865, 70 hrs.@ 100'C | |
| a. hardness (max.) | + 10 points | Shore A |
| b. loss of tensile strength (max.) | -15% | |
| c. loss of elongation (max.) | -40% | |
| d. change in width or length(max.) | -2% | Sample: 1" x 2" x .080 (25 x 50 x2mm) |
| 6. Flame resistance | D635 must not propagate flame | |
| 7. Brittleness at low temperature | D747 -60'C | |
| 8. Ozone resistance | No cracks | D114970'C (30,000 pp |
| 9. Resistance to oil aging, 70 hrs. | D471, 20% @100'C, immersion in ASTM oil #3 | |
| 10. Tear Resistance | 150 lbs./linear in.(min.) | D624 (die C) |

2.08 Clamps, Fasteners and Hardware

- A. Scope: All clamp plates, keder extrusions, and fasteners used to secure clamp system to the perimeter and cables, all fasteners to assemble clamp systems, and all miscellaneous hardware and fasteners as required to complete the work specified herein and as shown on the drawings.
- B. Hardware: Unless otherwise specified on the drawings, the following materials will be used for the applications listed:
 - 1. All fasteners shall be stainless steel; bolts and threaded studs shall be high strength ASTM F593 Alloy 316, condition CW1, Fy 95 ksi, Fu 110 ksi. Nuts shall be lock nuts complying with ASTM F594 same alloy and condition as the bolt.
 - 2. All fasteners penetrating watertight seals shall have sealing hats and/or washers as required.
- C. Aluminum: Clamps, plates, keder and extruded sections shall be 6061-T6 alloy with minimum yield stress of 35 ksi (245 MPa)
 - 1. Sheet, Clamps, Plates and extrusions shall be clear anodized per MIL-A-8625C, Type 2, Class 1.
 - 2. Dimensional tolerance shall be as established by ANSI H35.2-1978.
- D. Stainless Steel: Miscellaneous stainless steel sheet and hardware shall be of AISI type 316.

PART 3 – EXECUTION

3.01 Engineering And Detailing

- A. Patterning and Dimensional Detailing: The Contractor shall retain Huntington Design Associates to provide compensated fabric cutting patterns and details for the Contractor's use in fabricating tensioned membrane roof elements. Subcontractor shall fabricate the following elements in accordance with these cutting patterns and details:
 - 1. Fabric membrane geometry and seam locations
 - a. Fabric reinforcements, edge ropes, and other details.
 - b. Wire rope cables
 - c. Clamp bars, U-straps, turnbuckles, and all other miscellaneous hardware and fasteners.

- B. Biaxial Testing: The Contractor shall perform biaxial testing of representative samples of the tension membrane material in order to determine its elastic properties and to set pattern compensation for the material employed in the work.
1. At least two samples shall be tested, where the total number of test samples shall be determined by the Contractor based upon the variability of the test results and experience with the manufacturer's product. Samples for testing shall be cruciform in shape, with 4 legs of equal width and length.
 2. Testing shall be performed by tensioning the sample with equal loads about both axes of the fabric. Each load increment shall be held for a period of 20 minutes, with warp and fill % elongation recorded at the conclusion of each load increment.
 3. Load increments (in lb./ in. of width) shall be as follows: 0/15/30/60/30/15/30/60/30/15/40/70/40/15/40/70/40/15/40/80/40/15/0.
 4. Submit bi-axial test reports for use by Huntington Design Associates in developing fabric cutting patterns.
- C. Tension Membrane Clamps and Field Joints:
1. The Contractor will detail the tension membrane fastening, clamp system, and all field joints including keder extrusions, straps, fasteners and all sealing strips, closures, and covers per the general arrangement shown on the Drawings.
 2. Spacers between membrane clamps and supports will be provided as required so that the clamp curvature is smooth.
 3. All membrane field joints shall be 100% watertight without the use of surface-applied caulking. Cover flaps and closure strips over clamping shall be considered part of the sealing.
 4. Unless otherwise noted, all components of the clamp system will be rounded to 0.25 inch (6 mm) radius in areas of fabric contact to prevent development of stress concentrations in the fabric.
 5. Bolts, nuts and bolt heads shall be covered by metal, so that closure strips and cover flaps bearing foot traffic will be protected by hard cover or padding so that roof foot traffic can be supported without the bolt, nut or bolt head damaging the closure fabric.
 6. The clamp system is an interlocking design to insure alignment at the ends of components to prevent the development of stress concentrations in the fabric during installation and the service life of the structure.
 7. All clamps and field joints in the fabric membrane and shall be detailed to resist the maximum permitted membrane stress without permanent deformation of any part or component.
 8. Aluminum clamp bars and extrusions shall be fabricated curved to the clamp line profiles

3.02 Fabrication

A. See paragraph 2.3 of this Specification Section for Cable Assemblies.

B. Tension Membrane Panels:

1. Panels bounded by field joints or edges shall be as identified on the Drawings. Each panel shall be shop fabricated as a one-piece fabric assembly.
2. Areas at corners and other areas of possible stress concentrations will be reinforced with bias reinforcing patches.
3. The Contractor will plan and assemble the sections so as to keep warp splices and repairs to a minimum. Warp splices shall be limited to one per 2,150 ft² (200 m²).
4. All structural lap joints shall be heat "welded" to develop the tensile strength of the coated fabric in the warp or fill.
5. All structural lap joints shall be at least 76 mm (3 in.) and shall be made in accordance with best industry standards. Complete and continuous fusion of the faying surfaces of the lap shall be achieved.
6. All membrane splices and seams will be arranged shingle fashion for optimal shedding of water.
7. All membrane sections will be rolled on pipes or carefully folded over appropriate padding, covered and padded in such a manner so as to prevent creasing, crushing and abrasion of membrane during shipment and prior to installation.
8. Provide continuous M3 membrane wear strips where steel cables are in contact the surface of the membrane.
9. Factory patches are not allowed except to repair minor damage, cuts, tears and abraisions (4") at panel edges where the patch cannot be seen in the installation.
 - a. All patches shall be executed to achieve 100% of the virgin coated membrane's strength properties.
 - b. All patches shall be neat, clean and carefully made to maintain the best possible appearance.

C. Packaging Tension Membrane Panels

1. Each unique fabric panel shall have a packaging plan and a unpacking deployment plan designed by the Contractor. The packaging plan shall indicate placement of all padding and protective materials. The packing plans shall submitted to the Engineer for the record.

2. Fabricated fabric panels shall be rolled and packaged in a manner to protect the fabric membrane during shipping and storage prior to installation as well as prevent flex-fold damage to the fabric in packing, shipping, unpacking, and deployment of the panels in the field.
3. All "folding" shall be over 4" diameter closed cell foam pads to prevent crimping fabric yarns and flex-fold damage.
4. Packaging shall avoid folding folds wherever possible. Where unavoidable, a system of padding shall be employed to prevent crimping and kinking the fabric in packaging and in deployment in the field.

3.03 Installation of Tensioned Membrane Roof System

- A. See Section 05 12 01 for installation information related to structural steel.
- B. Weather Conditions: The Contractor will proceed with installation of the tensioned membrane and associated work only when existing and forecast weather conditions will permit work to be performed in accordance with established procedures and an appropriate degree of safety. The Contractor will proceed only when willing to guarantee the work as required without additional reservations or restrictions. All mutual decisions or agreements to proceed with the work under unfavorable weather conditions must be recorded in writing stating the reasons for proceeding and the name of the person or persons involved in the decision. Under no condition will the Contractor be required to erect in weather conditions not approved by him.
- C. Preparation: Prior to start of installation, the Contractor will check all surfaces to be in contact with the fabric membrane. All edges are to be smooth and well rounded as indicated on the Drawings before proceeding. Potential causes for snagging or tearing of the tensioned membrane during installation and service of the membrane structure must be removed. Non-complying work by others will be brought to the and the Construction Manager's attention.
- D. At all times, either creasing or folding of the around sharp corners shall be avoided. The membrane shall not be abraded in any manner; for example, by pulling tools across it or by dragging the across rough surfaces. The surface upon which any membrane is placed shall be relatively smooth and free of projections and sharp or irregular objects. Heed the manufacturer's directions regarding the treatment of the membrane during installation.
- E. At all times, worker and personnel on the roof tensioned membrane surface shall wear appropriate soled shoes, cleaned prior to accessing the surface so as to not scratch or abrade the tension membrane.

F. The tensioned membrane shall be installed and prestressed to the tensions identified on the Drawings in such a way that it will be free of architectural or structurally objectionable wrinkles.

G. The tension membrane roof system as installed shall be 100% watertight.

H. Patching and Repairs:

1. Installation of the fabric panels shall be made with due care and appropriate protection to limit flex-fold damage, abrasion, cuts, and tears.
2. Small damaged areas, maximum dimension in any direction 100 mm (4 in), in the roof fabric shall be patched.
3. No more than one field patch in 6,700 ft² (622 m²) shall be allowed.
4. No more than one field patch per fabric panel.
5. No more than five field patches in Work shall be allowed.
6. Notwithstanding the above noted limitations, if in the opinion of the Contractor a temporary patch is necessary for the integrity of the fabric membrane, he may install it providing that a permanent repair approved by the Engineer is made prior to completion of the work.
7. All field patches shall be executed to achieve 100% of the virgin coated fabric's strength properties.
8. All patches shall be neat, clean and carefully made to maintain the best possible appearance. If appearance is in question, the opinion of the Engineer shall be final.
9. All patches shall be circular or oblong ovals.

I. Synthetic Rubber Gaskets:

1. Care shall be taken not to cut or rip rubber gaskets during installation.
2. Splices in synthetic rubber gaskets shall be vulcanized or scarfed and cemented using a one or two part cement. All cutting specified shall be done using approved equipment and in conformance with approved techniques.
3. All caulking shall be with a one part urethane equal to that produced by Mameco, Cleveland, Ohio; or Sikaflex-1A by Sika Company, Lyndhurst, New Jersey; or approved equal.

4. Where lap splices are used, tapered synthetic rubber shims shall be used under all clamps; shims shall be cemented to base material.
 5. Lap splices shall be arranged so as to shed water by "shingling".
- J. Aluminum work shall be accurately aligned and set to correct position. Installation tolerances for structural aluminum shall be the same as specified in the AISC Code of Standard Practice, based on standard temperature of 70°F (21°C).
- K. Cleaning: All tensioned membranes shall be clean without objectionable stains or soiling at the completion of the Work.
1. Care shall be taken during erection to assure the tensioned membrane top and bottom surfaces are as clean as possible,
 2. Protect all membrane materials from staining agents.
 3. The Contractor shall be responsible to clean the tensioned membrane surfaces, roof fabric top and bottom surfaces and exterior surfaces, as well as associated hardware, steel and finished surfaces to the satisfaction of the Engineer upon completion of the Work.

3.04 Inspection of Tension Membranes

- A. Perform a detailed inspection of the installed fabric membranes upon substantial completion of the work.
- B. Inspect the fabric membrane surfaces for cuts, abrasions, holes, damage, or discontinuities in the base fabric that could initiate tear propagation. Repair all damaged areas.
- C. Inspection shall be sufficiently comprehensive and detailed to locate and repair all fabric membrane damage with a dimension greater than or equal to 12 mm (0.5 in.)
- D. Inspect clamping, supporting steel and the fabric membrane boundaries for discontinuities, sharp edges and other features which may damage the fabric membrane. Correct all problems identified.
- E. Review fabric membrane proximity to structural components, fixtures or other items which could damage the fabric if it came in contact with the item or surface. Identify all problems and provide written notice reporting all findings.
- F. Provide a written inspection report, detailing the extent of inspection and the repairs made.

END OF SECTION 13 31 23