



Weber Point Events Center Shade Structure Rehabilitation Phase 2

Design Commentary

For: City of Stockton
Date: May 4, 2022
Job: 21035



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Design Commentary

Original Design & Construction

The Weber Point Events Center was originally constructed in 1999, in accordance with the design prepared by Huntington Design Associates. Construction included a vinyl-coated polyester fabric membrane supported by a system of steel wire ropes and pipe masts, with a drilled pier foundation.

The original design is documented in the following:

- Foundation Design Package Drawings FS1 – FS4 (dated 1/11/99)
- Steel Design Package Drawings SS1 – SS6 (dated 3/26/99).
- Analysis & Foundation Design Package calculations dated 10/12/98
- Steel Design Package calculations dated 3/12/99.

This work was permitted under the 1994 Uniform Building Code.

The fabric membrane used was the product 1002, manufactured by Serge Ferrari. It had an expected lifespan of about 15 years.

Evaluation of the Structure

In response to concerns about the condition of the aging fabric membrane, Huntington Design inspected the structure at the request of the City of Stockton in August, 2021. Just prior to our inspection, James Wong of the City of Stockton identified a cable-to-cable connection that had come apart, and emergency re-attachment of the parted cable connection was made at the time of our inspection. The findings and recommendations arising from the inspection are documented in the Weber Point Events Center Inspection Report and Repair Recommendations, dated October 5, 2021.

The report noted that the fabric membrane was in poor condition and should be replaced, along with small (5/8" diameter) "cat-eye" cables and small turnbuckles, aluminum clamp bars, and other miscellaneous hardware. The paint on existing steel is in weathered condition, and repainting was also recommended as part of the structure's rehabilitation.

Phase 1 – Stabilization & Partial Demolition

In April, 2022, work was undertaken to remove the fabric membrane and other miscellaneous construction described in the Inspection Report. This work is as shown in Stabilization & partial Demolition Dwg's DM1 & DM2 of 1/20/22 (incorrectly labeled 1/20/21). Temporary stabilization cables were installed at this time (labeled EC1 and

EC2 on Dwg. DM1), and a permanent fix of the parted cable connection noted in the evaluation was made.

Phase 2 - Rehabilitation

The proposed Phase 2 work includes replacement of the worn-out fabric membrane, “cat-eye” cables and small turnbuckles, aluminum clamp bars, and other miscellaneous hardware. In addition, the temporary stabilization cables installed in Phase 1 will be removed, and all steel will be repainted.

There will be no changes to the geometry of the structure and resultant wind loads, and there will be no dead load added to or taken away from the structure. All primary members of the structure: masts, foundations, and cables will be retained (with the exception of the 5/8” cat-eye cables which will be replaced in kind). The original Serge Ferrari 1002 fabric will be replaced with a newer material (Serge Ferrari Flexlight Xtrem TX30) that has slightly greater strength and a longer expected lifespan. Data on the 1002 and TX30 materials is attached for reference.

The work is limited to replacement in kind of a secondary element of the structure (the fabric roof membrane and associated hardware), and the work is therefore to be permitted as validated by the original design drawings and calculations for the 1999 installation.

FIL / YARN GARNTITER	PES HT	2 x 1100	Dtex
MASSE TOTALE / TOTAL WEIGHT GESAMTGEWICHT	NF EN 22286 (§ 6)	1050	g/m ²
RESISTANCE RUPTURE* (CH/TR) TENSILE STRENGTH* (Wa/We) / REISSKRAFT* (K/S)	NFG 37.103	420/400	daN/5 cm
RESISTANCE DECHIRURE (CH/TR) TEAR STRENGTH (Wa/We) / WEITERREISSKRAFT (K/S)	DIN 53.363	55/50	daN
ADHERENCE / ADHESION HAFTUNG	NFG 37.107	12	daN/5 cm
REACTION AU FEU / FLAME RETARDANCY BRENNVERHALTEN	M2 NFP 92.503 / DIN 4102 B1 / BS 7837 / SIS 650082 / California State fire Marshall / NFPA 701		
VERNIS : ALLIAGE DE POLYMERES ACRYLIQUES HAUTE PERFORMANCE			
VARNISH : HIGH PERFORMANCE ACRYLIC POLYMERS ALLOY			
SCHLUSSLACK : VERBINDUNG VON HOCHWERTIGEN ACRYLPOLYMEREN			

précontraint® 1002

Architecture textile

Textile architecture

Textiles Bauen

WIDTH / BREITE

FINISH / BEHANDLUNG

180 cm

S

Flexlight

Xtrem TX30

Applications:

Static and permanent structures: tensile roofs and structures, large free span and anti-clastic shape

- **Longevity:** Easy to maintain with a potential lifespan of over 30 years
- **Natural Light and Solar Protection:** Blocks UV while providing consistent color translucency
- **Dimensionally Stable:** Will not elongate over time thanks to its Preconstraint® technology

	Flexlight Xtrem TX30-II	Flexlight Xtrem TX30-III	Flexlight Xtrem TX30-IV	Flexlight Xtrem TX30-V	
■ Technical specifications					Standards
Surface coating	CROSSLINK PVDF				
HT polyester cables	1100 Dtex	1100/1670 Dtex	1100/2200 Dtex	1670/2200 Dtex	
Thickness	0.78 mm	0.78 mm	1.02 mm	1.14 mm	
Weight	31 oz/sqyd	31 oz/sqyd	39.8 oz/sqyd	44.2 oz/sqyd	ASTM D751
Width	70 in	70 in	70 in	70 in	
Adhesion	12 daN/5 cm	12 daN/5 cm	13 daN/5 cm	15 daN/5 cm	EN ISO 2411
Tensile strength (warp/weft)	490/490 lbs/in	630/630 lbs/in	900/800 lbs/in	1150/900 lbs/in	ASTM D751 Cut strip
Tear strength (warp/weft)	80/75 lbs	130/100 lbs	200/180 lbs	360/250 lbs	ASTM D751 Trapezoid
<i>* The technical data above are average values with a +/- 5% tolerance</i>					
■ Additional information					
Elongation 24 h - 10 daN/5 cm (warp/weft)	< 1.2% / <1.2%	< 1.2% / <1.2%	< 1% / <1%	< 1.2% / <1.2%	EN 15977
Residual elongation (warp/weft)	< 0.5% / <0.5%	< 0.5% / <0.5%	< 0.4% / <0.4%	< 0.5% / <0.5%	EN 15977
Heat transfer coefficient (vertical/horizontal)	U=5.6/6.4W / sqm/°C				Calculated
Acoustic weakening index	13dBA	14dBA	15dBA	16dBA	ISO 140-3 & ISO 717-1
Visible light transmittance (Tv)	8%	7.5%	5.5%	5%	EN 410
Visible light reflection (Rv)	84%	84%	85%	85%	EN 410
Solar transmittance (Ts)	10%	10%	10%	10%	EN 410
Solar reflection (Rs)	75%	75%	75%	75%	EN 410
Solar factor (g)	14%	13%	11.5%	10.5%	EN 410
UV transmittance	0%	0%	0%	0%	EN 410
Solar reflectance index (SRI)	84.9%	84.9%	86.1%	87.5%	ASTM E1980-01 (Approach II)
■ Flame retardancy					
	NFPA 701 Method 1 / CSFMT19/B-s2,d0-EN13501-1	NFPA 701 Method 1 / CSFMT19/C-s2,d0-EN13501-1	NFPA 701 Method 1 / CSFMT19/C-s2,d0-EN13501-1	NFPA 701 Method 1 / CSFM T19/CAN/ULC-S109-14 / C-s2,d0 - EN13501-1	
■ Certifications and warranties					



Preconstraint® technology

**ISO 9001
ISO 14001**

20 year warranty

CSR and LEED reports available upon request

The ADDITIONAL INFORMATION values quoted above are given as an indication. Our products are subject to changes prompted by technology developments. We reserve the right to modify their characteristics at any time. The buyer of our products is responsible for checking the validity of the data.

WARRANTY: Please refer to the text of our warranty. The warranty is valid only after a written confirmation on a case-by-case basis of warranty application. The warranty will not apply to mobile structures. The buyer of our products is fully responsible for their application or their transformation concerning any possible third party. The buyer of our products is responsible for their implementation and installation in compliance with standards, codes of practice and safety regulations in force in destination countries.

Serge Ferrari
lightweight + durable

Serge Ferrari North America
954.942.3600
marketing.us@sergeferrari.com
sergeferrari.com/us

