

# San Francisco – Oakland Bay Bridge SELF-ANCHORED SUSPENSION (SAS) SPAN



 American  
Bridge / **FLUOR**<sup>®</sup>  
A JOINT VENTURE

# San Francisco – Oakland Bay Bridge SELF-ANCHORED SUSPENSION (SAS) SPAN

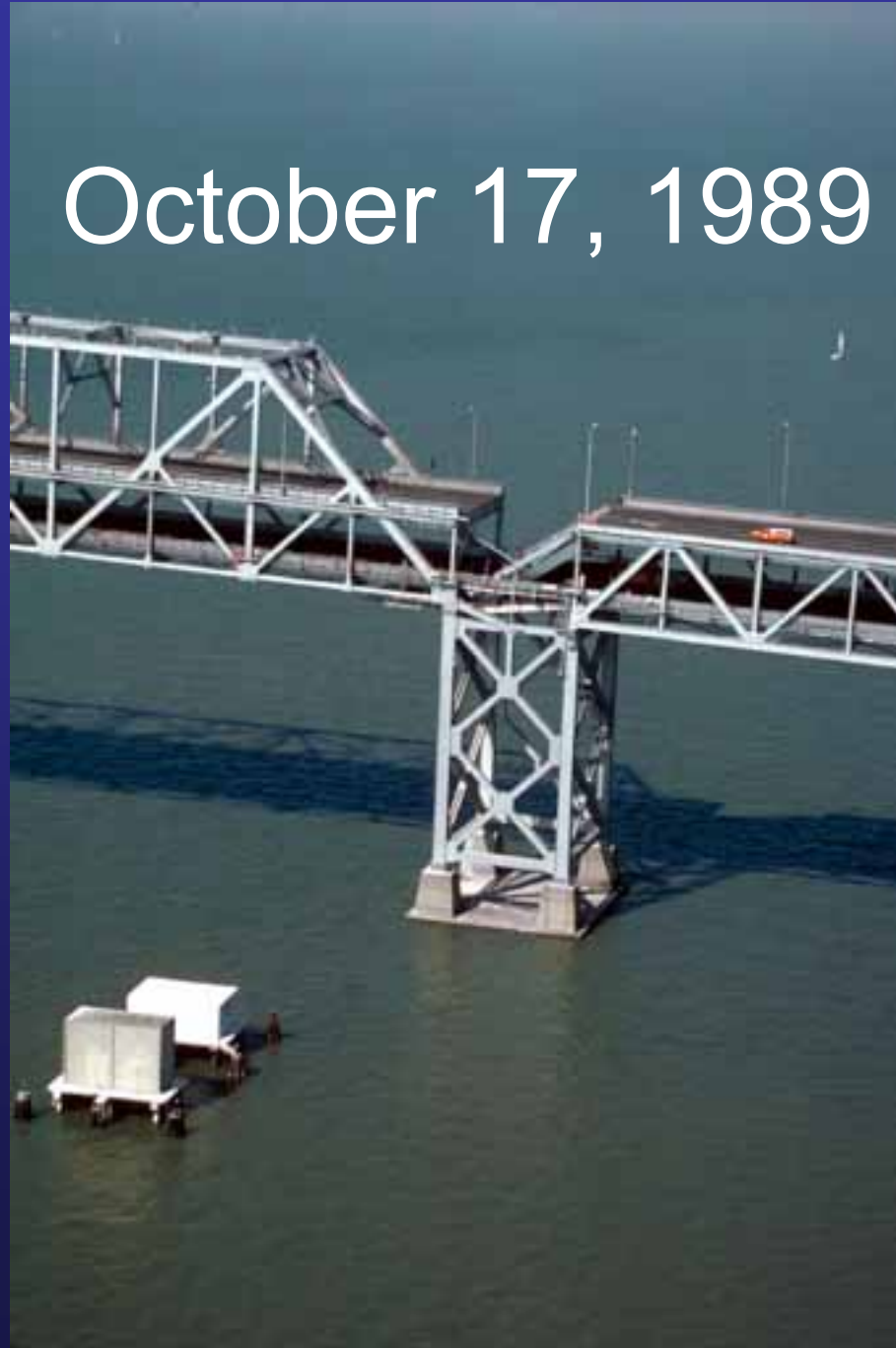
- Project Overview
- Conventional Vs SAS Bridge
- SFOBB SAS Features
- International Fabrication
- Temporary Bridge
- Shear Leg Crane
- Concrete Works
- Quality Program
  - Audits
  - Quality Plans
  - Mock-ups and Pre-qualifications
  - NCR Processing
  - In-process Tests and Inspections
  - Weld Tracking

# Project Overview



Bay Bridge Self-Anchored Suspension Tower Rendering

October 17, 1989



# Current East Span



©1999 Barrie Rokeach

# Replacement Span

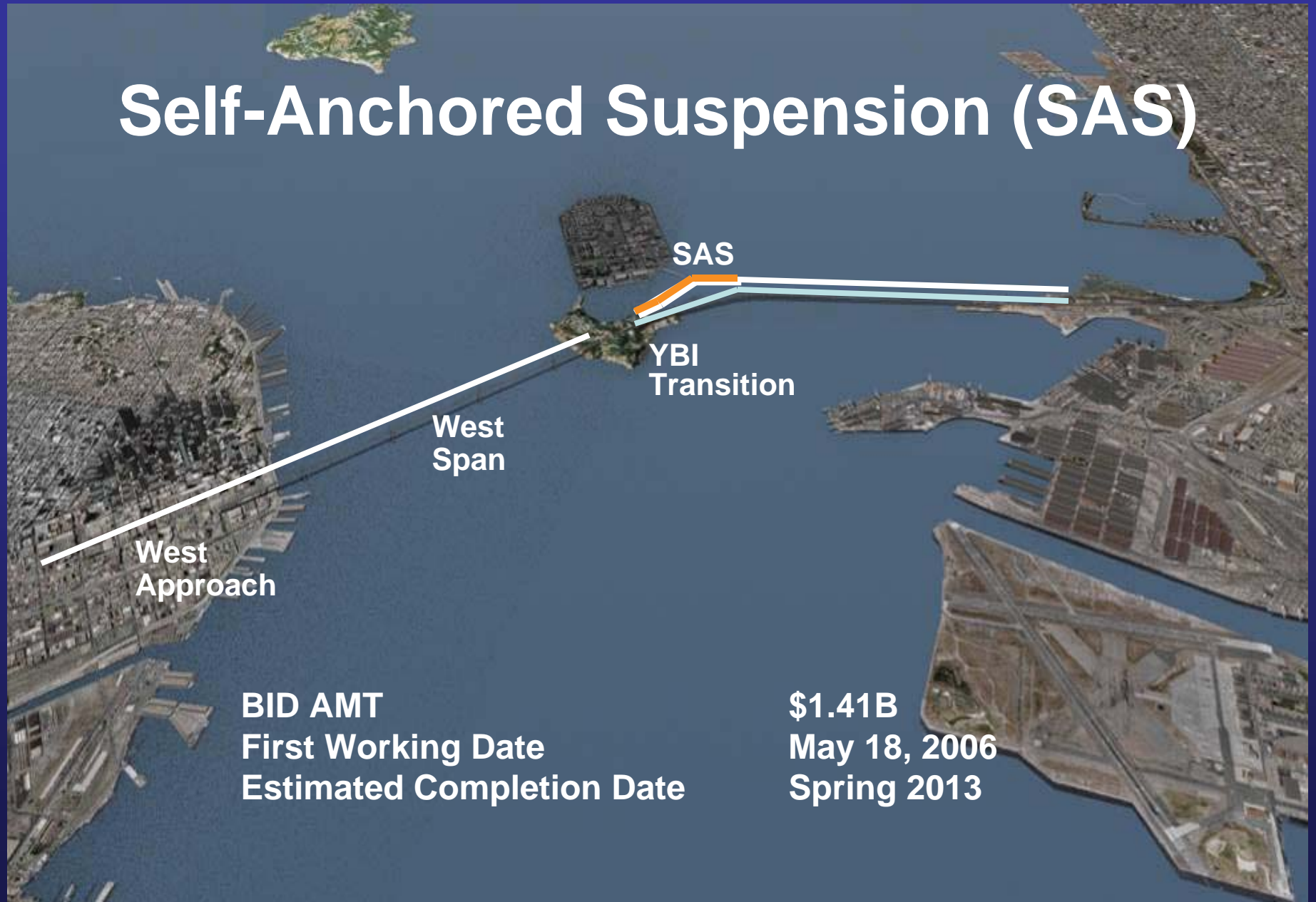


150 Year Service Life

1400 Year Earthquake



# Self-Anchored Suspension (SAS)



**BID AMT**  
**First Working Date**  
**Estimated Completion Date**

**\$1.41B**  
**May 18, 2006**  
**Spring 2013**

San Francisco-Oakland Bay Bridge (SFOBB)

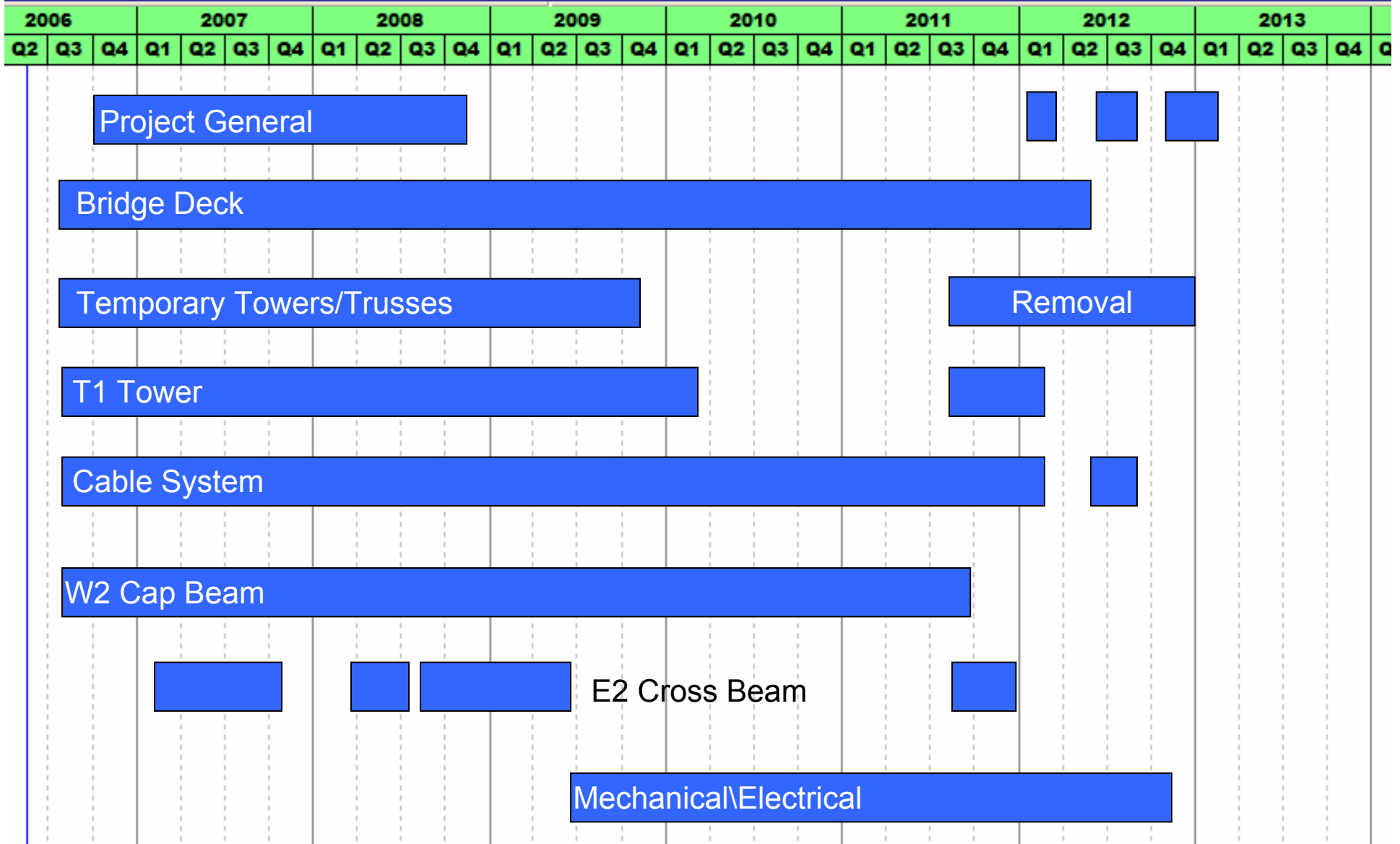






# Bicycle/Pedestrian Facility

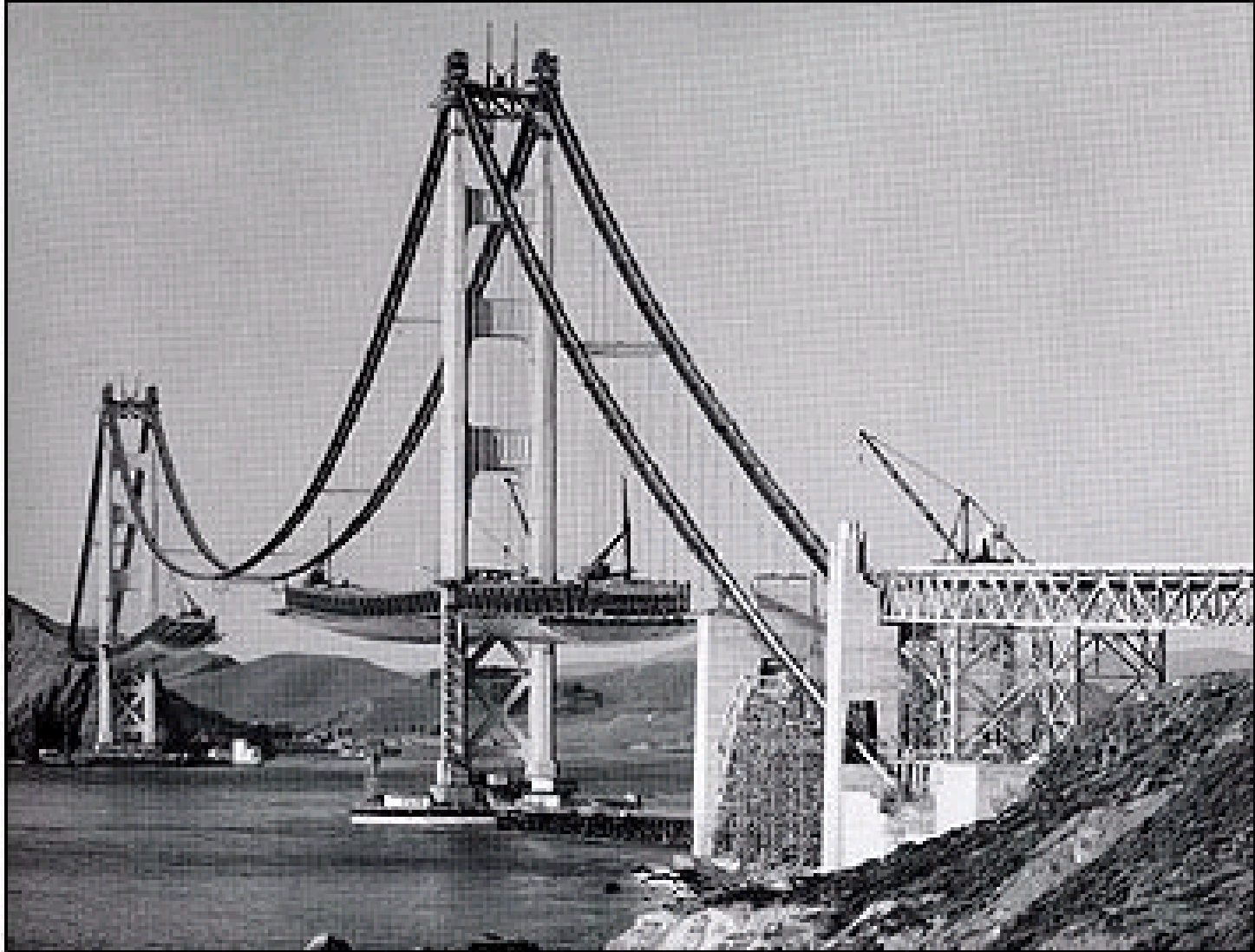
# Summary Project Schedule



# Conventional Vs SAS

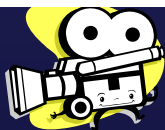
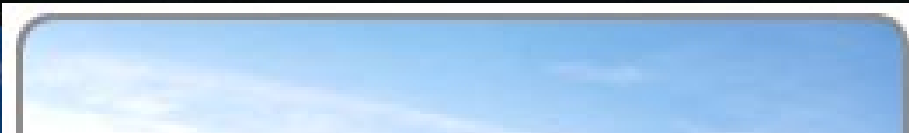


Bay Bridge Self-Anchored Suspension Tower Rendering



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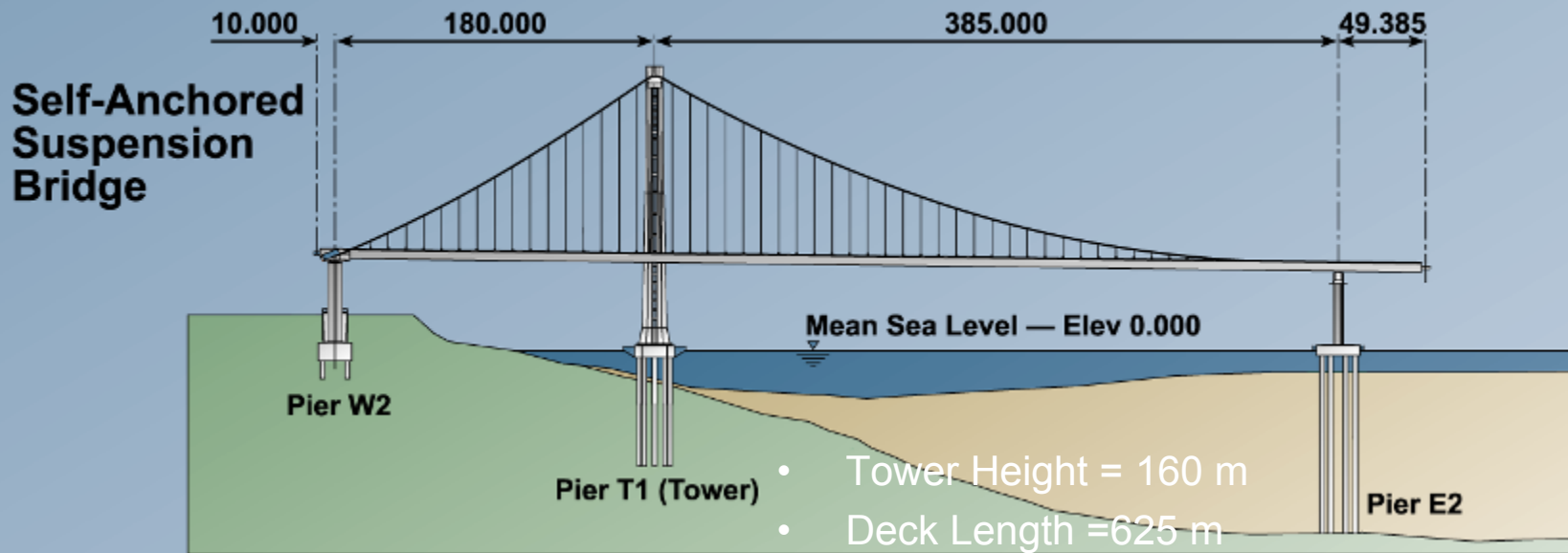


# SAS Features

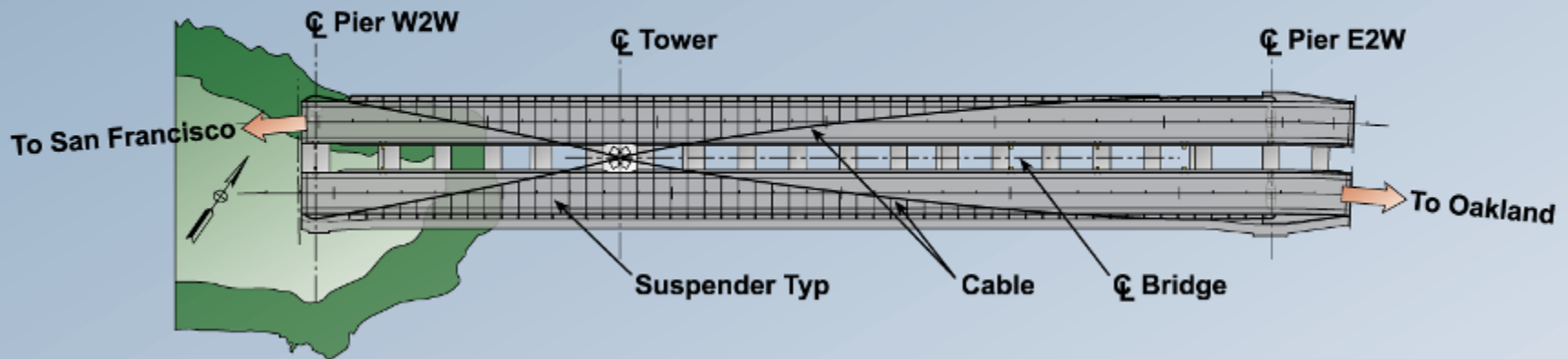


Bay Bridge Self-Anchored Suspension Tower Rendering

# SFOBB SAS

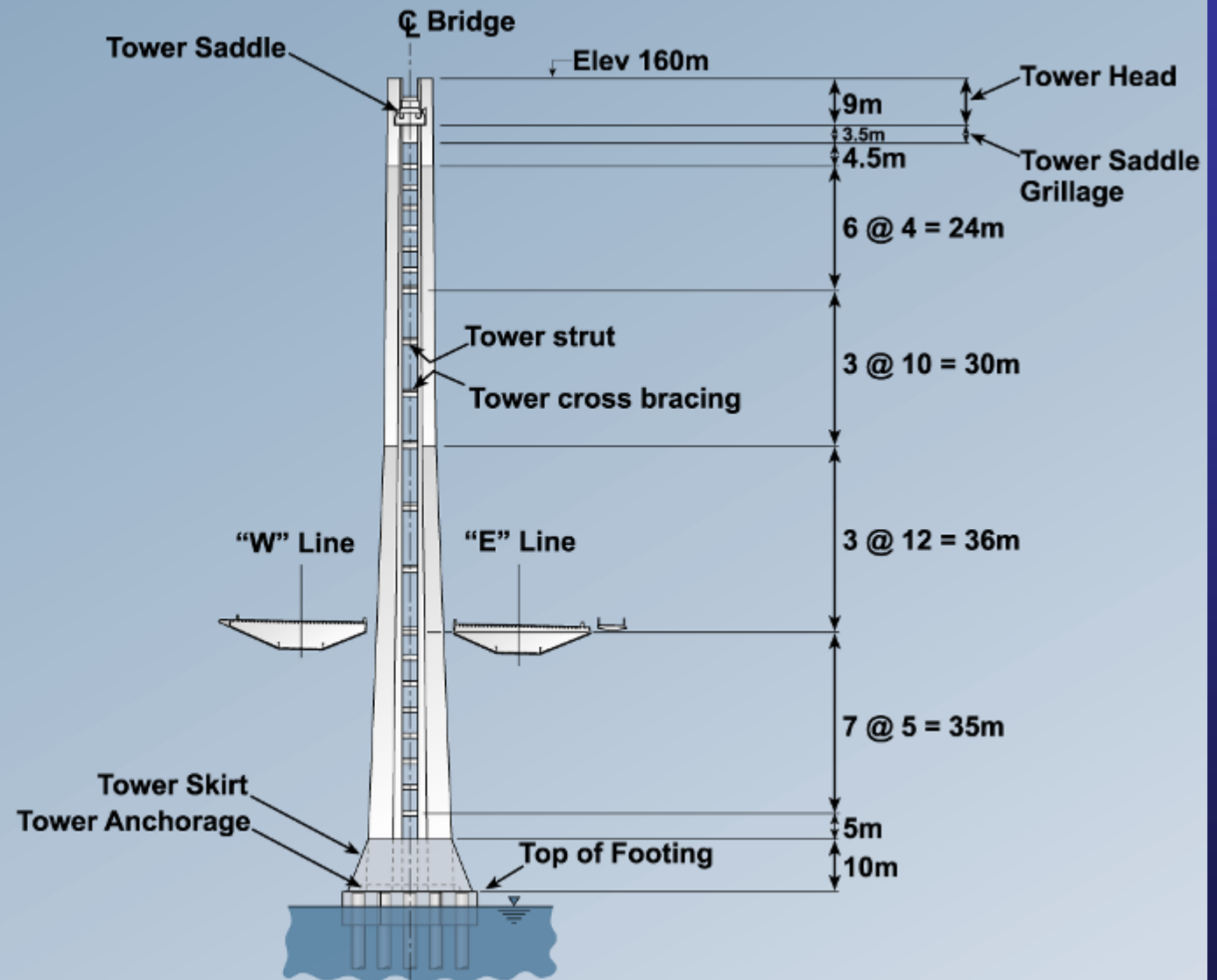


- Tower Height = 160 m
- Deck Length = 625 m
- Superstructure = 43,603,000 kg

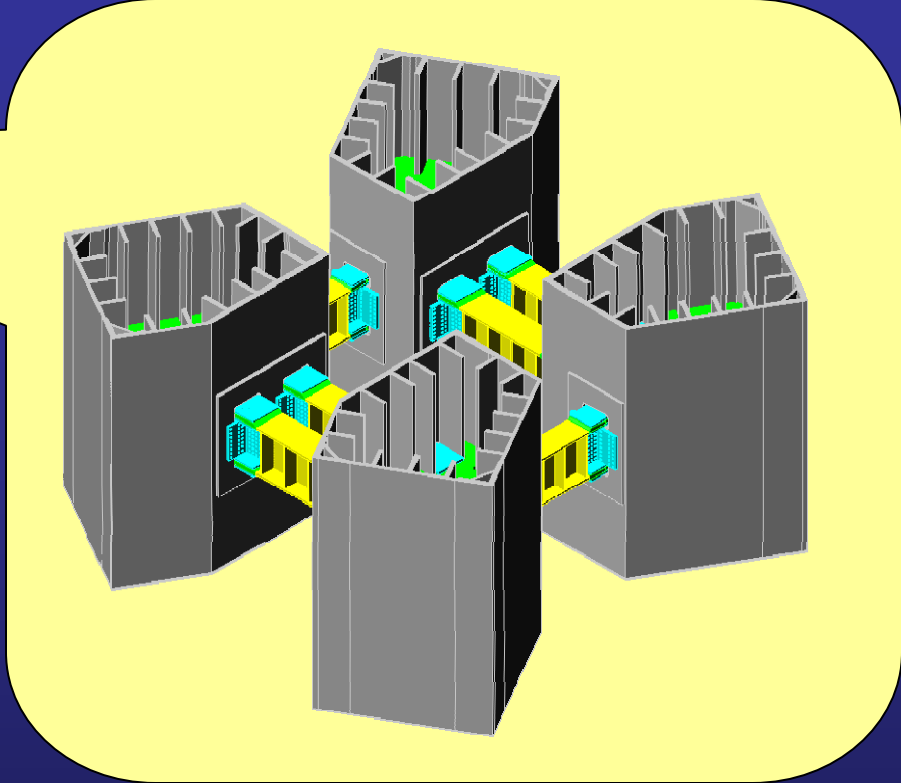


# T-1 Tower Layout

## Tower Transverse Elevation

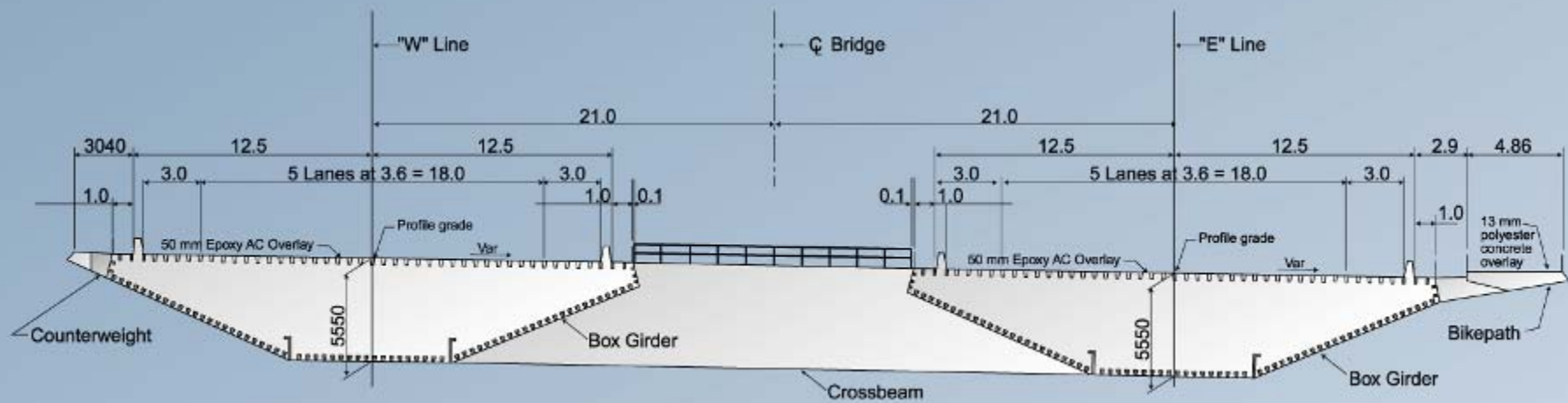






One Tower (4 Legs) Seismic Shear Link Beams

# Orthotropic Deck and Crossbeam



**Typical Cross Section**

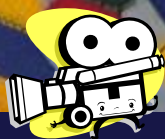
# Cable Installation

- Asymmetrical single tower
- One continuous main cable
- Bridge decks super-elevated and curved
- Load transfer not in free hanging position
- Final structural analysis will be “as-built” analysis

Cable Wraps  
Around Roadway

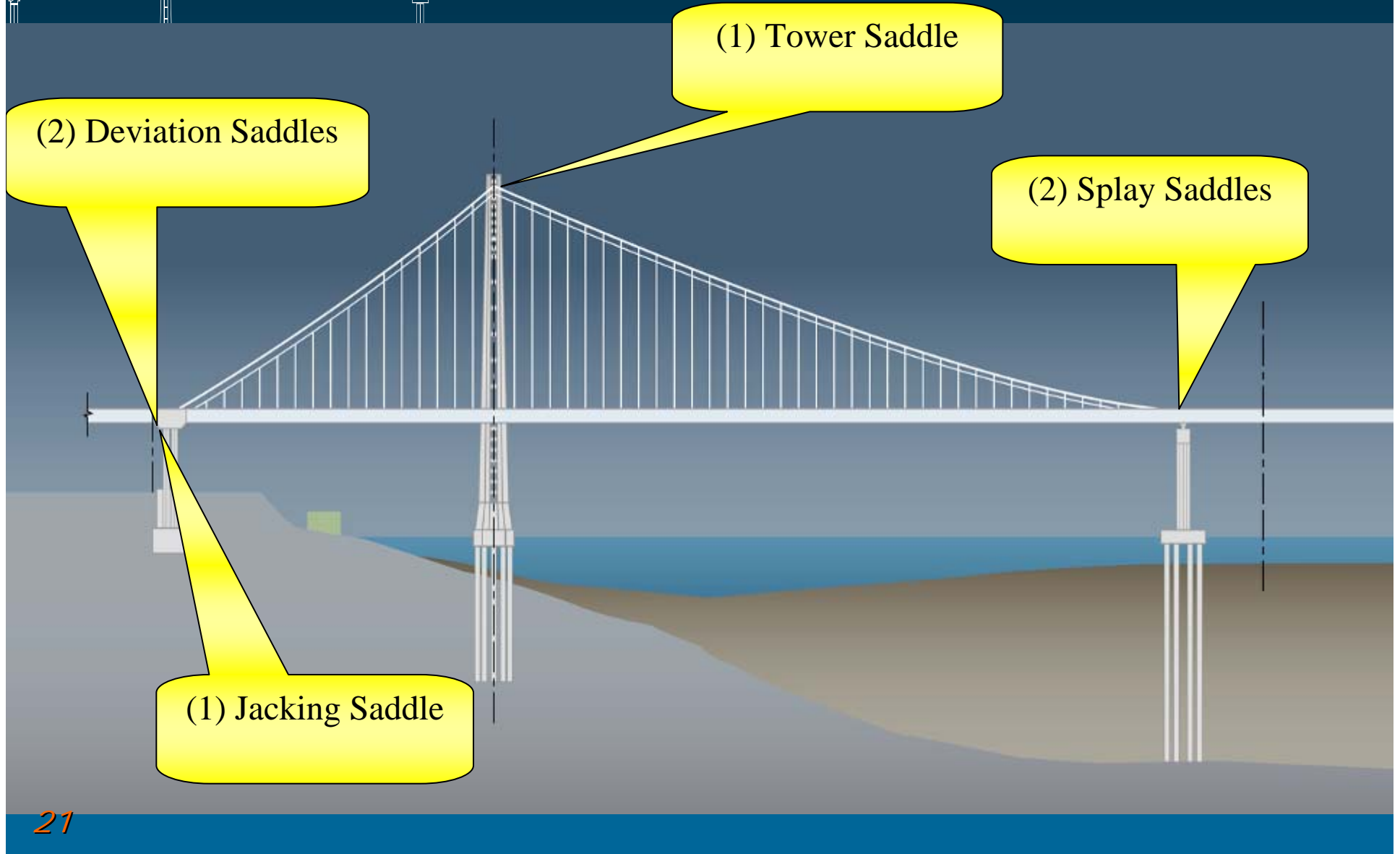
Single Cable Concept



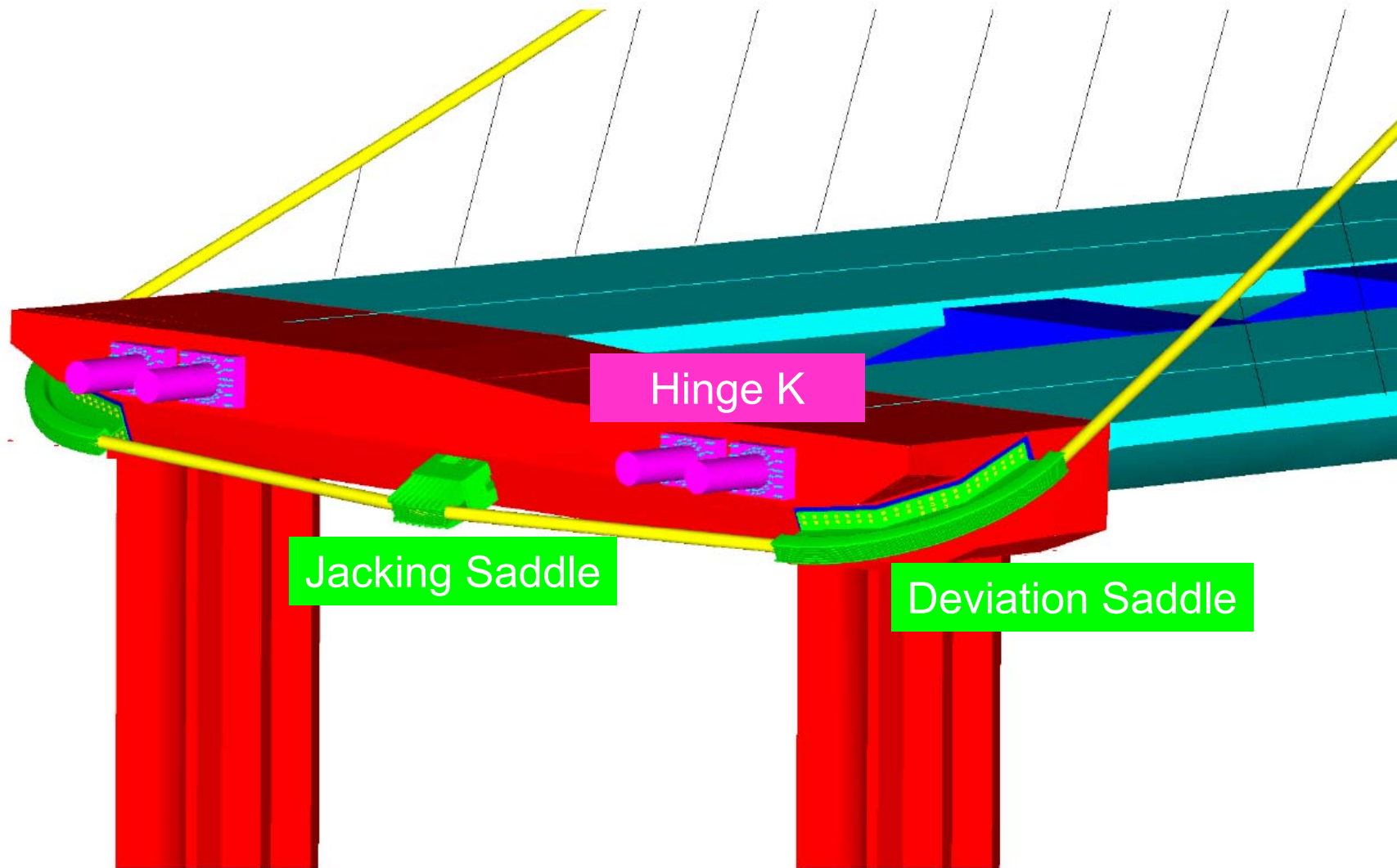




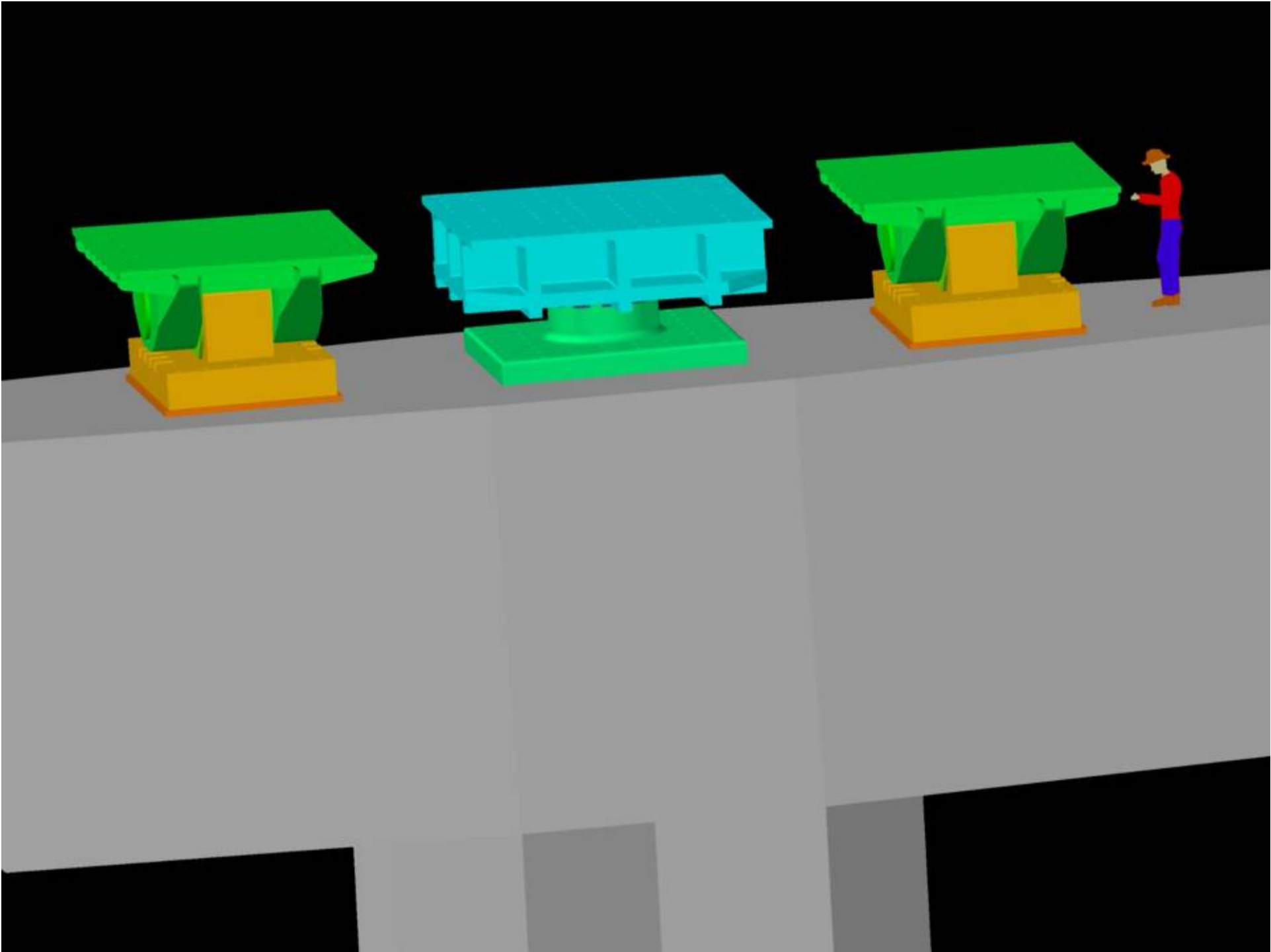
# SAS Saddle Location (Total 6)



# West Deviation and Jacking Saddles at W2





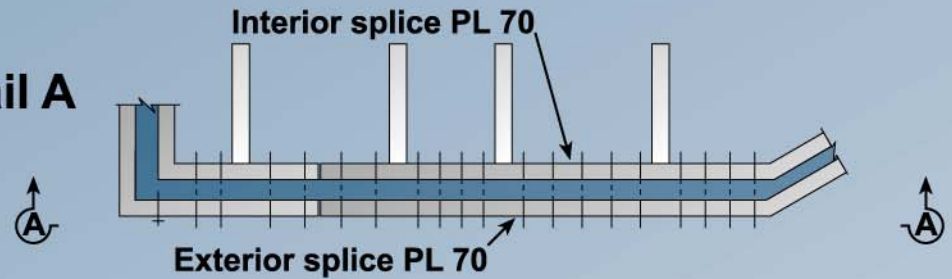




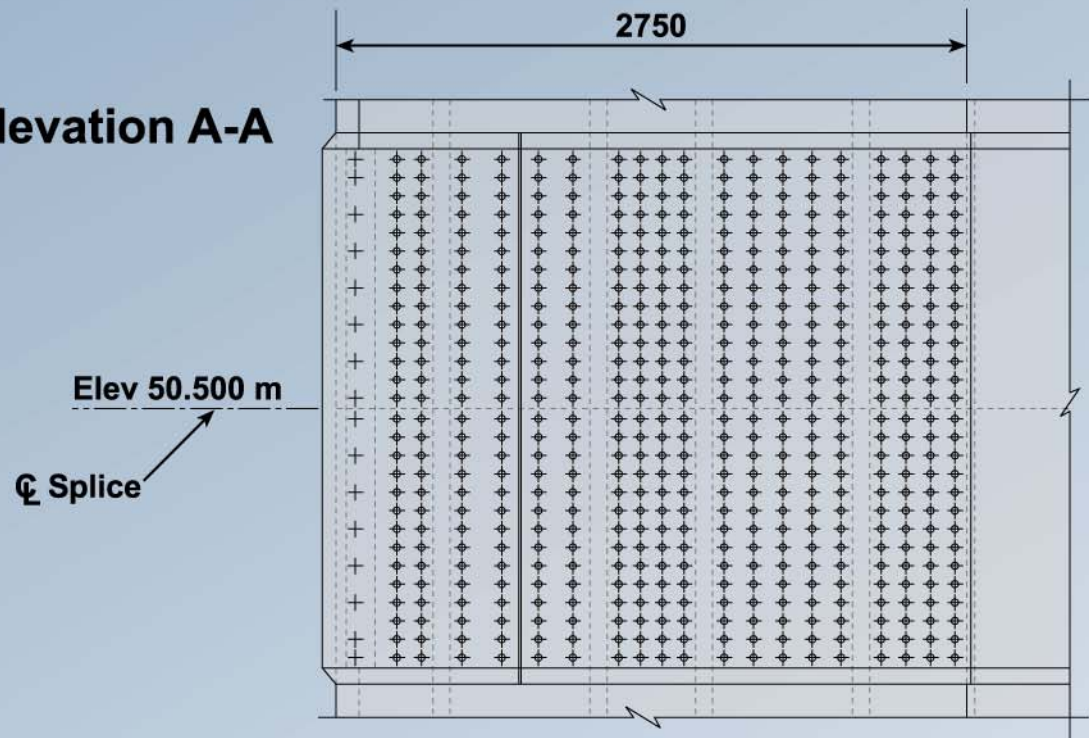
# Tower Bolted Splice Details

**Bolted Splice  
Defined for  
Tower Skin  
Plate A**

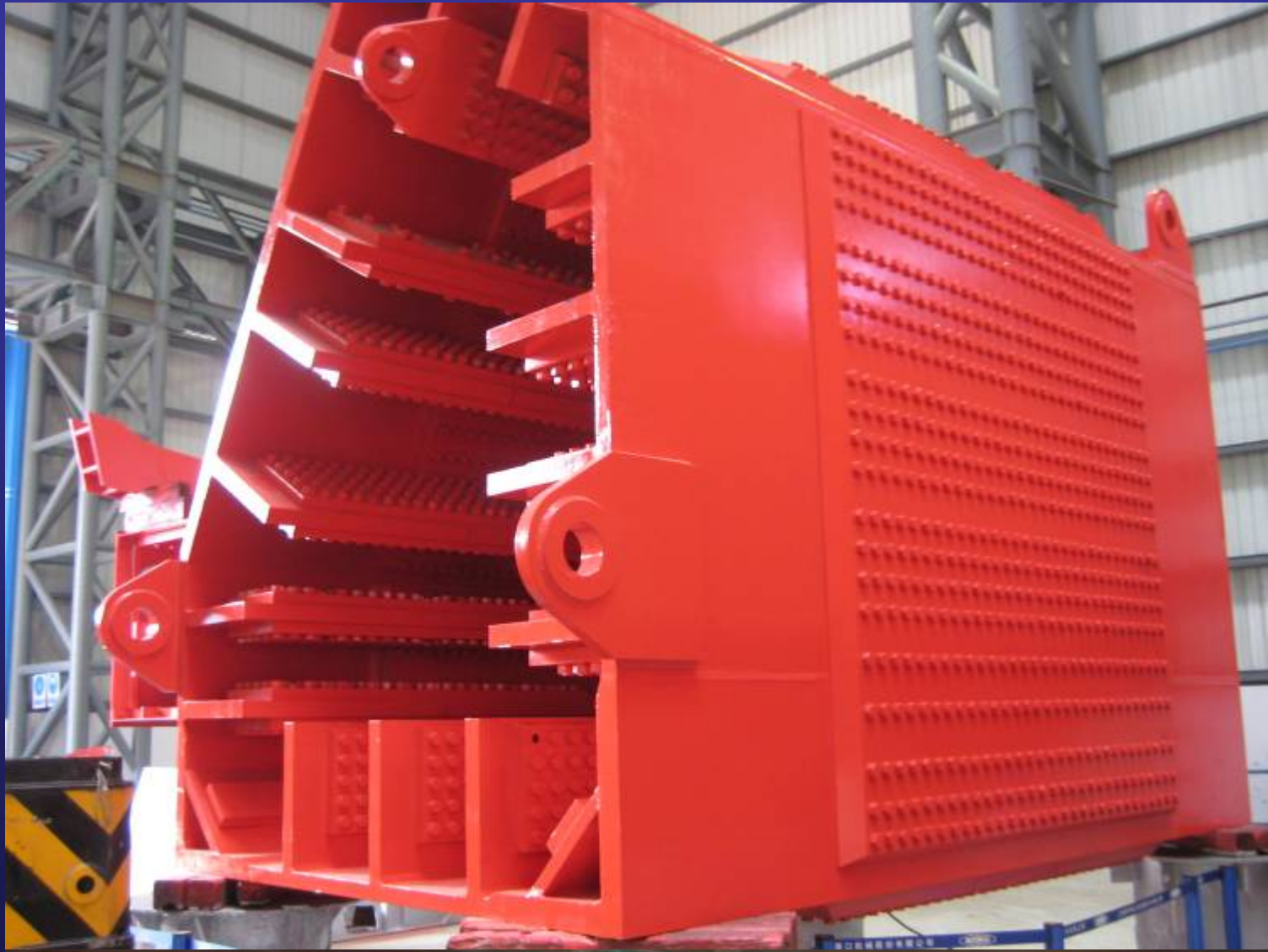
**Detail A**



**Elevation A-A**







# International Fabrication



Bay Bridge Self-Anchored Suspension Tower Rendering

# SAS - International Fabrication Effort



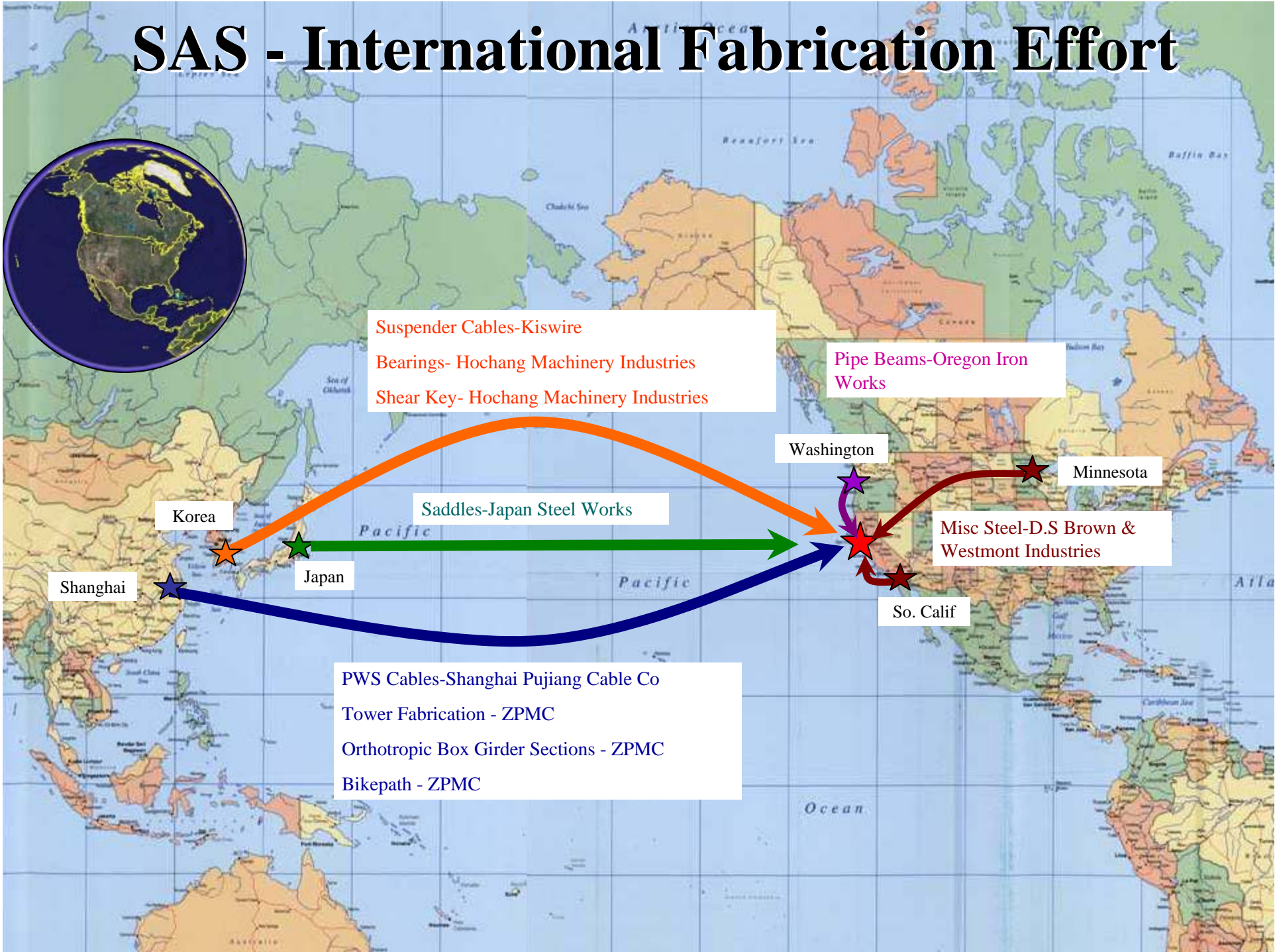
Suspender Cables-Kiswire  
Bearings- Hochang Machinery Industries  
Shear Key- Hochang Machinery Industries

Pipe Beams-Oregon Iron Works

Saddles-Japan Steel Works

Misc Steel-D.S Brown & Westmont Industries

PWS Cables-Shanghai Pujiang Cable Co  
Tower Fabrication - ZPMC  
Orthotropic Box Girder Sections - ZPMC  
Bikepath - ZPMC





# Superstructure Fabricator - ZPMC



Changxing Island Facility  
Shanghai, P R China



New Tower Fabrication Shop



# Tower





# Orthotropic Box Girder



Submerged Arc Welding Gantry



U-Rib Bending Machine

# Orthotropic Box Girder



**OBG Lift Assembly**

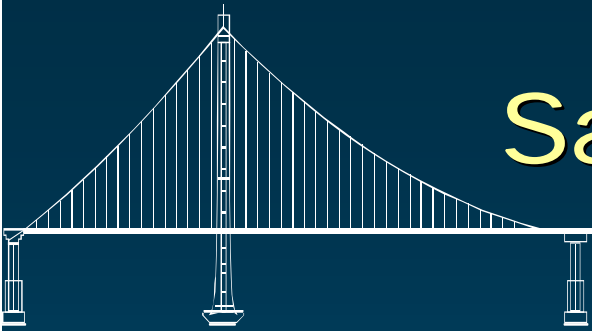


**OBG Lifts Lined Up**









# Saddle Fabrication

JAPAN STEEL WORKS



Casting West Deviation Saddle



# Saddle Fabrication Types:



Machining West Deviation Saddle



# Shanghai Pujiang Cable Co., Ltd.



PWS Cable Taping



PWS Cable Assembly

# Goodwin Steel Castings



Pattern Shop

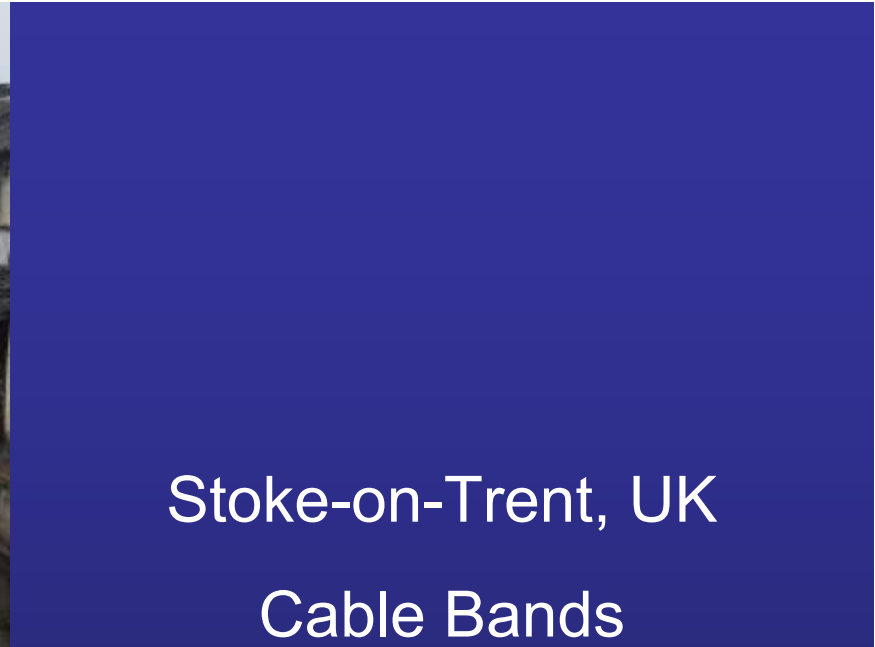
Mock-up Casting







Xitang, PRC  
PWS Cable



Stoke-on-Trent, UK  
Cable Bands



# Temporary Bridge

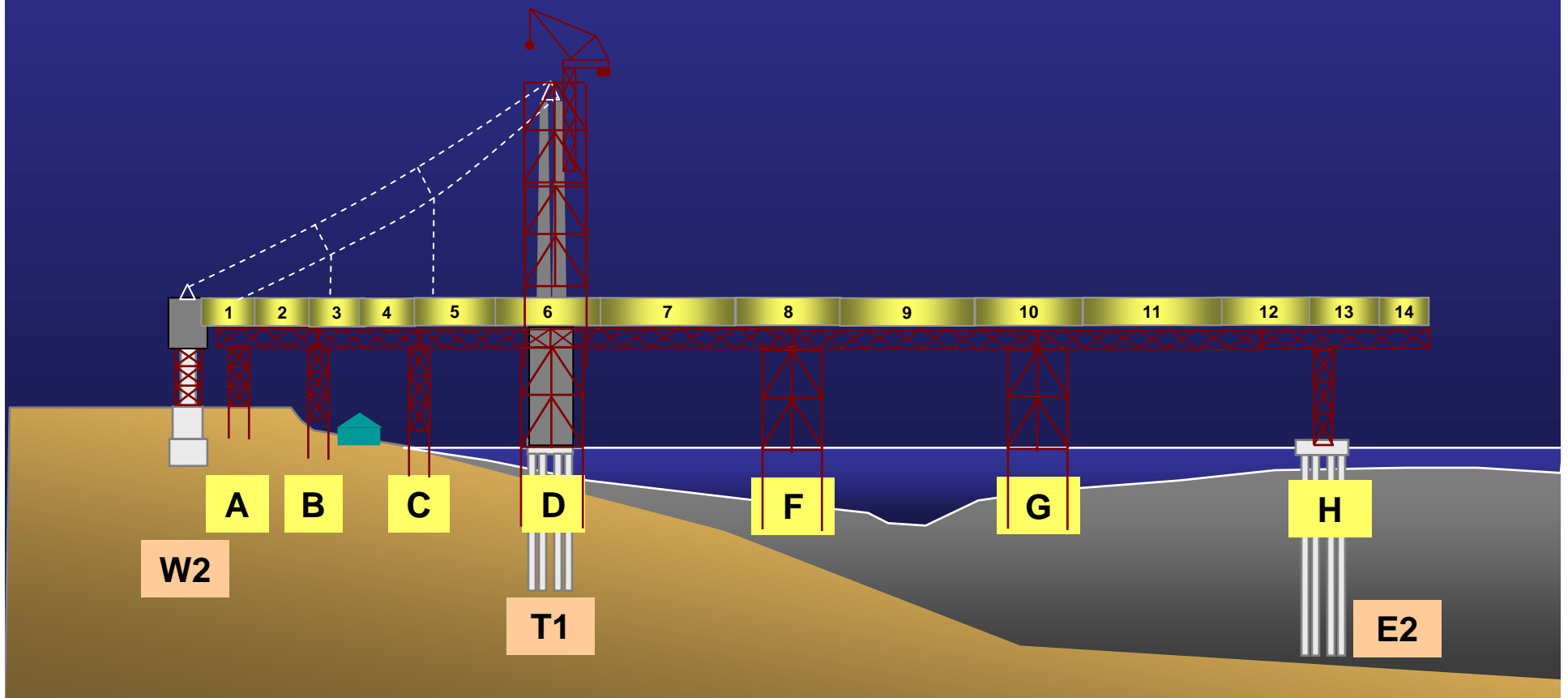


Bay Bridge Self-Anchored Suspension Tower Rendering

# Temporary Works

## Facts

- 6,500 Mtons of Piling consisting of 48" x 1-1/4 and 42" x 1-1/2"
- 4,300 Mtons for Towers
- 5,500 Mtons Truss Material
- 2,124 Mtons of Driving Frames

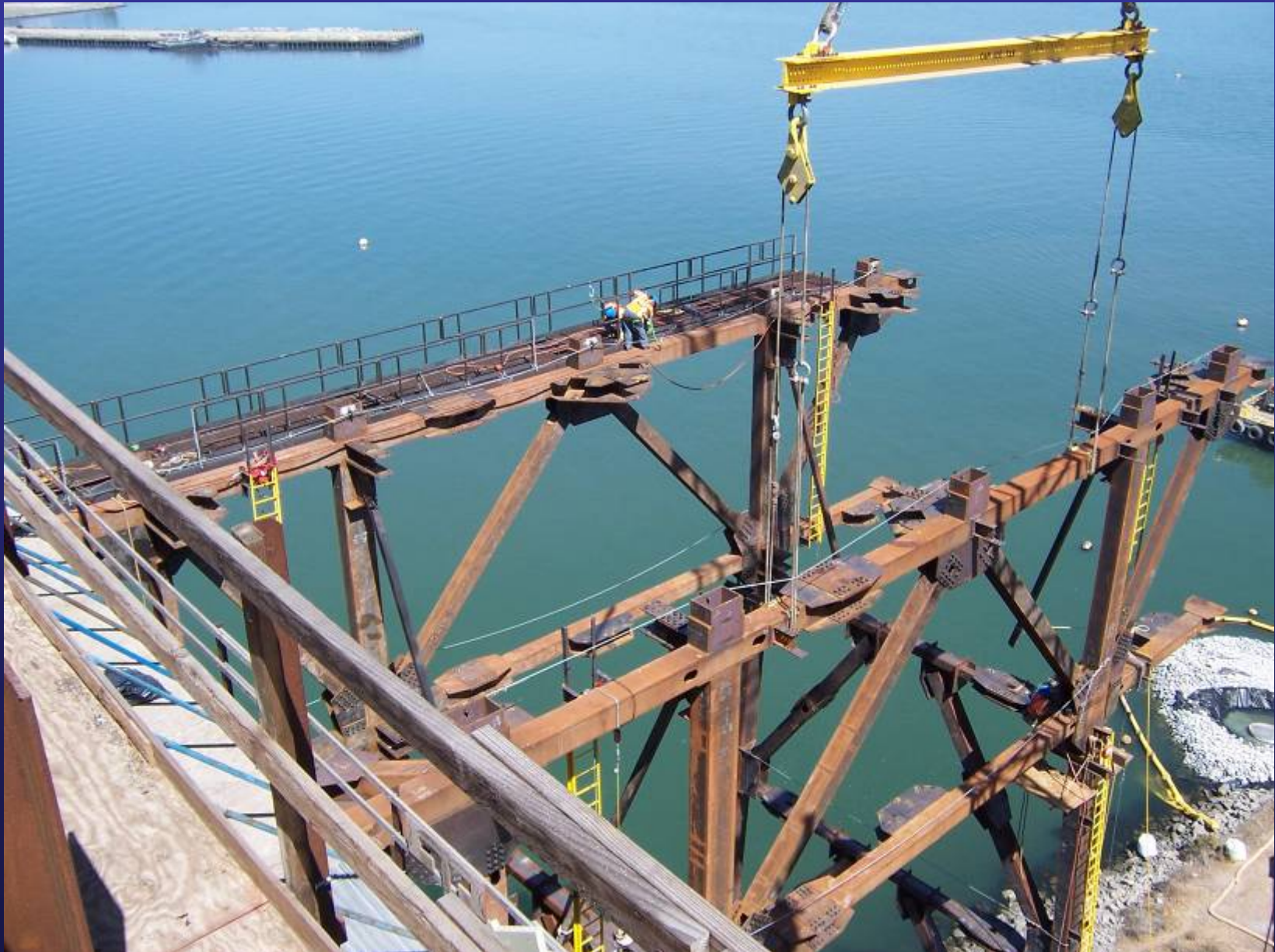




# Temporary Tower Foundations



# Temporary Bridge



# Shear Leg Crane



Bay Bridge Self-Anchored Suspension Tower Rendering



# Shear Leg Crane and Barge

Lifting Capacity: 1700 Mtons  
Boom Length: 100 Meters  
Self Erecting Boom





# Shear Leg Crane



# Concrete Works



Bay Bridge Self-Anchored Suspension Tower Rendering





E2 Crossbeam

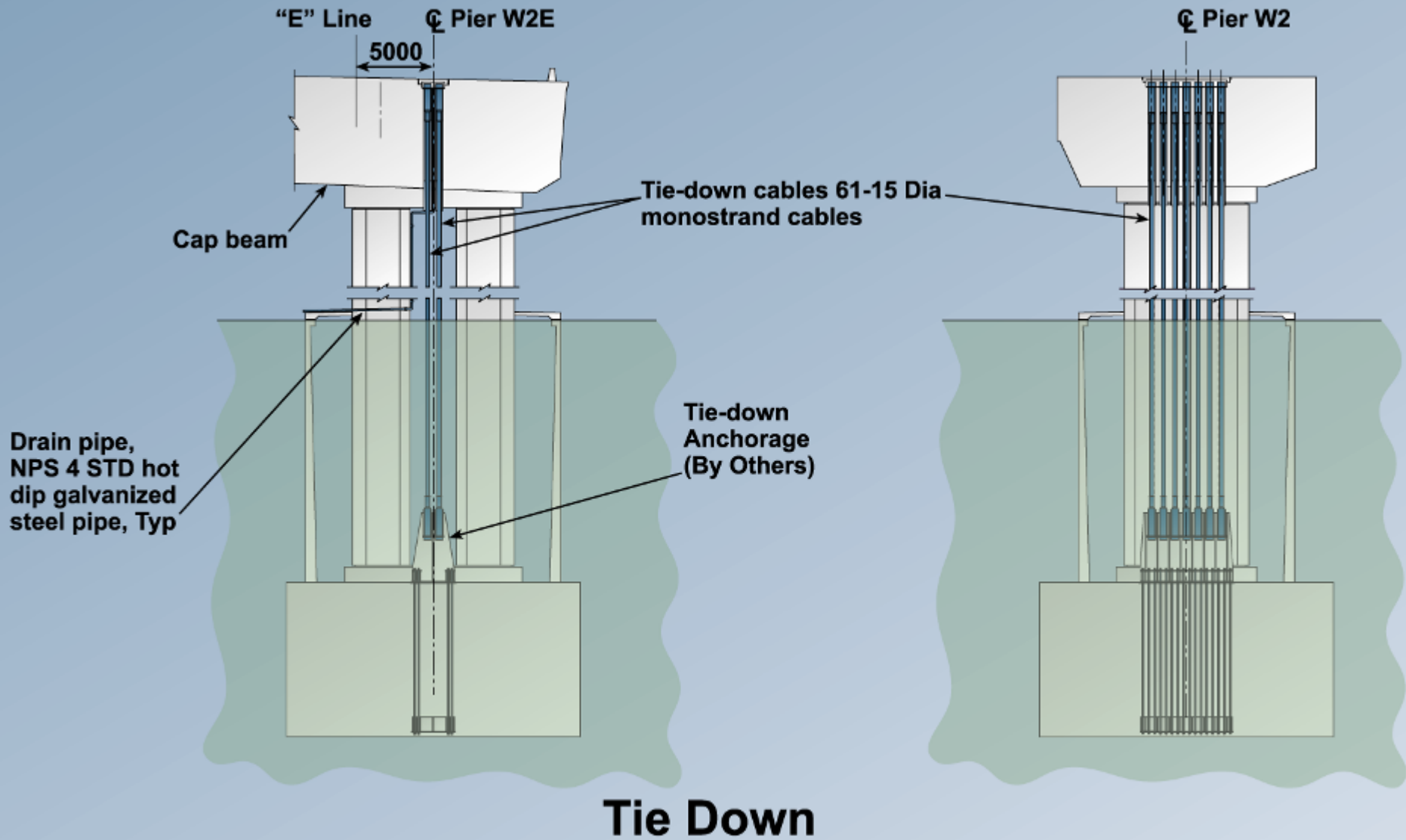
W2 Cap Beam

# W2 Cap Beam Details Elevation





# Cable Tie-down Details



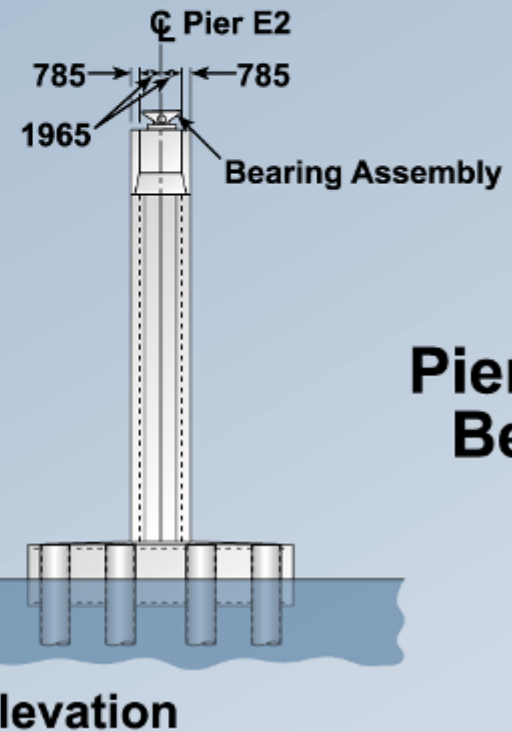
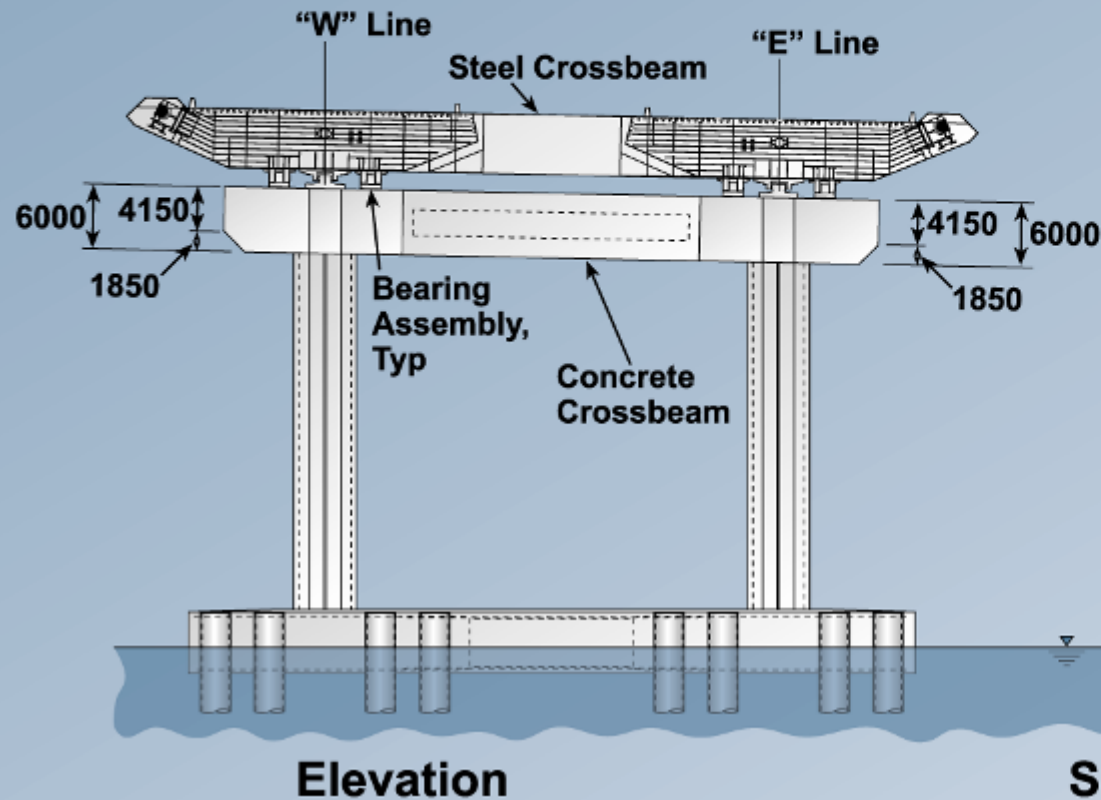
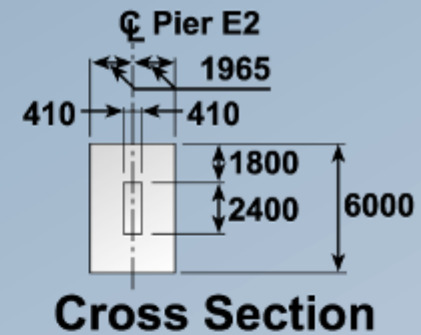
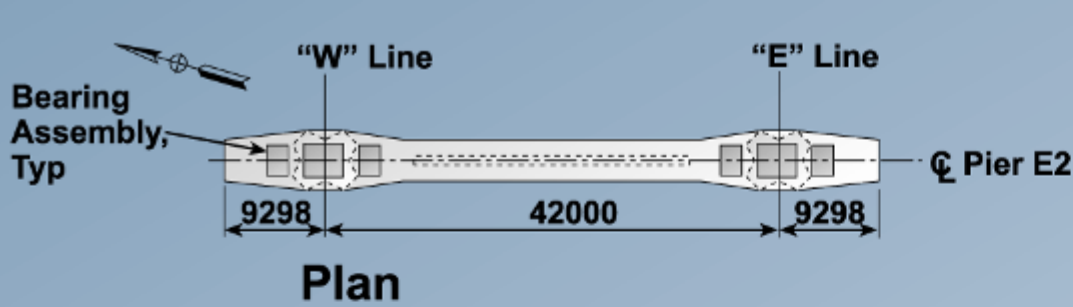
# W-2 Cap Beam

## Facts

- 2,300 cubic meters conventional concrete
- 4,500 cubic meters self-consolidating concrete (8,700PSI)
- 1,000 tons of rebar
- Dimensions: 55'W x 225'L x 22'D



# Pier E2 Details



**Pier E2  
Beam**



# E-2 Cross Beam

## Facts

- 2,000 cubic meters self-consolidating concrete (8,700PSI)
- 650 tons of rebar
- Dimensions: 15'W x 200'L x 20'D





# Quality Program



Bay Bridge Self-Anchored Suspension Tower Rendering

# Facility Audits



# Audits (40 performed to-date)

- Extensive in-depth facility audits
  - Audit checklist from lessons learned
  - Paperwork approval (English only) before audit
  - Facility audit
    - American standards
    - Verify capability and control/traceability through out the process
    - Extensive international travel
    - Some doing work for Caltrans on other projects do not receive a pass for the SAS
    - Extends to lower tier subcontractors
  - Cannot start ANY work until passing an audit
  - Financial penalties for failing an audit

# Quality Programs





# QUALITY PLANS

## (14 approved to-date)

- CONTRACT DOES NOT REQUIRE ONE **COMPREHENSIVE** ABFJV QC PROGRAM/MANUAL
- SPECIFIC CONTRACT QUALITY PROGRAM REQUIREMENTS
  - SEVERAL QC MANAGERS
  - SEVERAL QC PLANS
  - OTHER FABRICATION SPECIFIC PLANS (i.e., THERMAL CONTROL PLAN, PRECAST FENDERS, BEARING LUBRICANT, CABLE BAND SLIP, etc.)

**Table of MFSQA Audits, Quality Plans & Quality Managers  
Required By  
Special Provision Section**

SP Sec.	Title	Install	Supply	2 <sup>nd</sup> Tier	MFSQA	Quality		Welding		Painting	
						Plan	Mgr.	Plan	Mgr.	Plan	Mgr.
10-1.35	DREDGING	TBD	-	-	-	●	●	-	-	-	-
10-1.40	EPOXY ASPHALT CONCRETE	OC Jones	-	-	-	●	●	-	-	-	-
10-1.42	PRESTRESSING CAST-IN-PLACE CONCRETE – Grouting	AB/F	SDI/Cemex	-	-	●	-	-	-	-	-
10-1.43	HIGH STRENGTH PRESTRESSING ROD (75MM)	AB/F	Macalloy	-	●	○	○	-	-	-	-
10-1.44	CABLE TIEDOWN	AB/F	SDI	-	●	○	○	-	-	-	-
				Welding (TBD)	●	○	○	-	-	-	-
10-1.46	FURNISH PRECAST CONCRETE FENDER MODULES	AB/F	Cemex	-	●	●	●	-	-	-	-
10-1.47	FURNISH AND INSTALL SPHERICAL BUSHING BEARING (PIER E2)	AB/F	Hochang	-	●	●	●	●	●	●	●
10-1.48	FURNISH SPHERICAL BUSHING RING BEARING (HINGE K)	AB/F	Lubrite	-	●	●	●	●	●	●	●
10-1.49	TOWER CROSS BRACING SPHERICAL BUSHING BEARING	AB/F	ZPMC	-	●	-	-	●	●	●	●
10-1.50	FURNISH AND INSTALL SHEAR KEY (PIER E2)	AB/F	Hochang	-	●	○	○	-	-	-	-
10-1.54	SEISMIC JOINT	AB/F	-	-	-	-	-	●	●	●	●
10-1.58	HEADED BAR REINFORCEMENT	AB/F	Regional	-	-	●	-	-	-	-	-
10-1.59	FURNISH AND ERECT STRUCTURAL STEEL (BRIDGE)	AB/F	ZPMC	-	●	-	-	●	●	-	-
10-1.59	FURNISH AND INSTALL STRUCTURAL STEEL (BRIDGE) (SADDLE)			HSB (TBD)	●	○	○	-	-	-	-
		AB/F	JSW	-	●	-	-	●	●	-	-
				HSB (TBD)	●	○	○	-	-	-	-
		Galv. (TBD)	●	○	○	-	-	-	-	-	
10-1.59	FURNISH AND INSTALL STRUCTURAL STEEL (BRIDGE) (PIPE BEAM AND FUSE)	AB/F	OIW	-	●	-	-	●	●	●	●
10-1.59	INSTALL STRUCTURAL STEEL (BRIDGE) (PIPE BEAM) (HINGE AW & AE)	AB/F	Caltrans	-	-	-	-	●	●	-	-
10-1.60	FURNISH AND ERECT PWS CABLE AND SUSPENDER SYSTEM	AB/F	-	-	●	○	○	-	-	-	-
			ZPMC (Shrouds)	●	○	○	-	-	-	-	-
			Shanghai P (PWS)	●	○	○	-	-	-	-	-
			Nippon (Z Wrap)	●	○	○	-	-	-	-	-
			Grignard (Paste)	●	○	○	-	-	-	-	-
			Kiswire (Susp. WR)	●	○	○	-	-	-	-	-
			Goodwin (Bands)	●	○	○	-	-	-	-	-
10-1.61	TOWER SUSPENDER ASSEMBLIES	AB/F	Phillystrand	-	●	○	○	-	-	-	-
10-1.62	SERVICE PLATFORM	AB/F	ZPMC	-	-	-	-	●	●	-	-
10-1.63	TRAVELER SCAFFOLD	AB/F	Westmont	-	-	-	-	●	●	-	-
10-1.66	CLEAN AND PAINT SIGN STRUCTURES	Certified	Certified	-	-	-	-	-	-	●	●
10-1.69	CLEAN AND PAINT STRUCTURAL STEEL	Certified	Certified	-	●	○	○	-	-	●	●
10-1.70	CLEAN AND PAINT JOINT SEAL, BEARINGS AND KEY	Certified	Certified	-	-	-	-	-	-	●	●
10-1.71	CLEAN AND PAINT CABLE SYSTEM	Certified	Certified	-	●	○	○	-	-	○	○
10-1.73	MISCELLANEOUS METAL (BRIDGE)	AB/F	ZPMC	-	-	-	-	●	●	-	-
10-1.75	MISCELLANEOUS METAL (SERVICE PLATFORM)	AB/F	ZPMC	-	-	-	-	●	●	-	-
10-1.80	STEEL BARRIER	AB/F	ZPMC	-	-	-	-	-	-	●	●

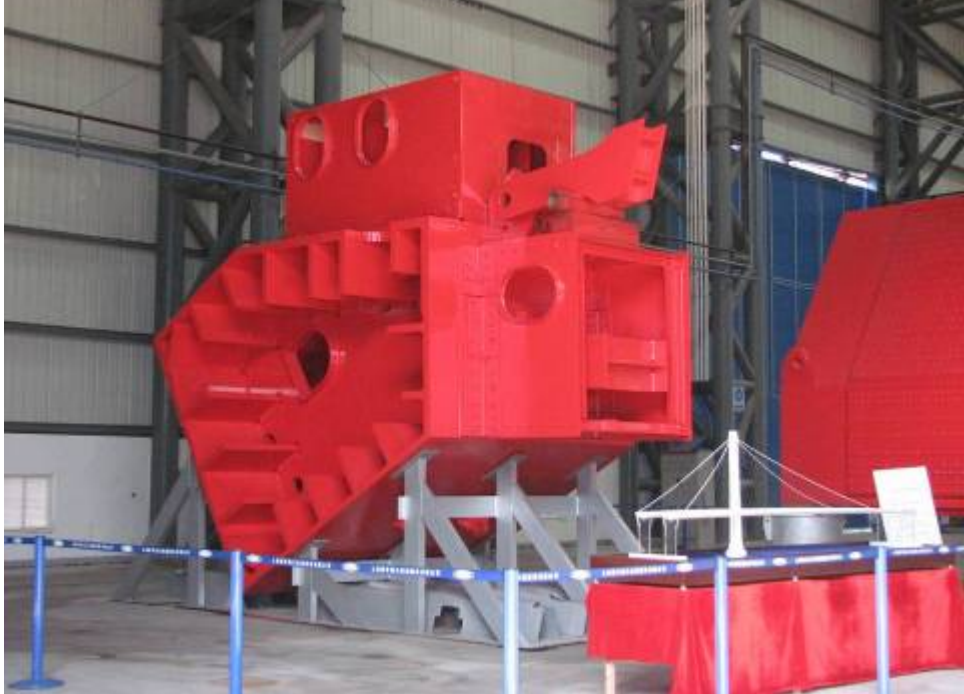
● = REQUIRED BY CONTRACT  
○ = RECOMMENDED BY ABFJV QC  
- = NO REQUIREMENT

# Mock-Ups and Prequalification





# Completed ABF Tower Mock-Ups



# Electroslag Weld trials





# U-Rib Bending Demonstration



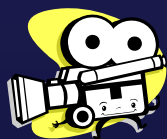
1002 07-03-2007

1006 07-03-2007





# Cable Compaction Cable Band Slip Test

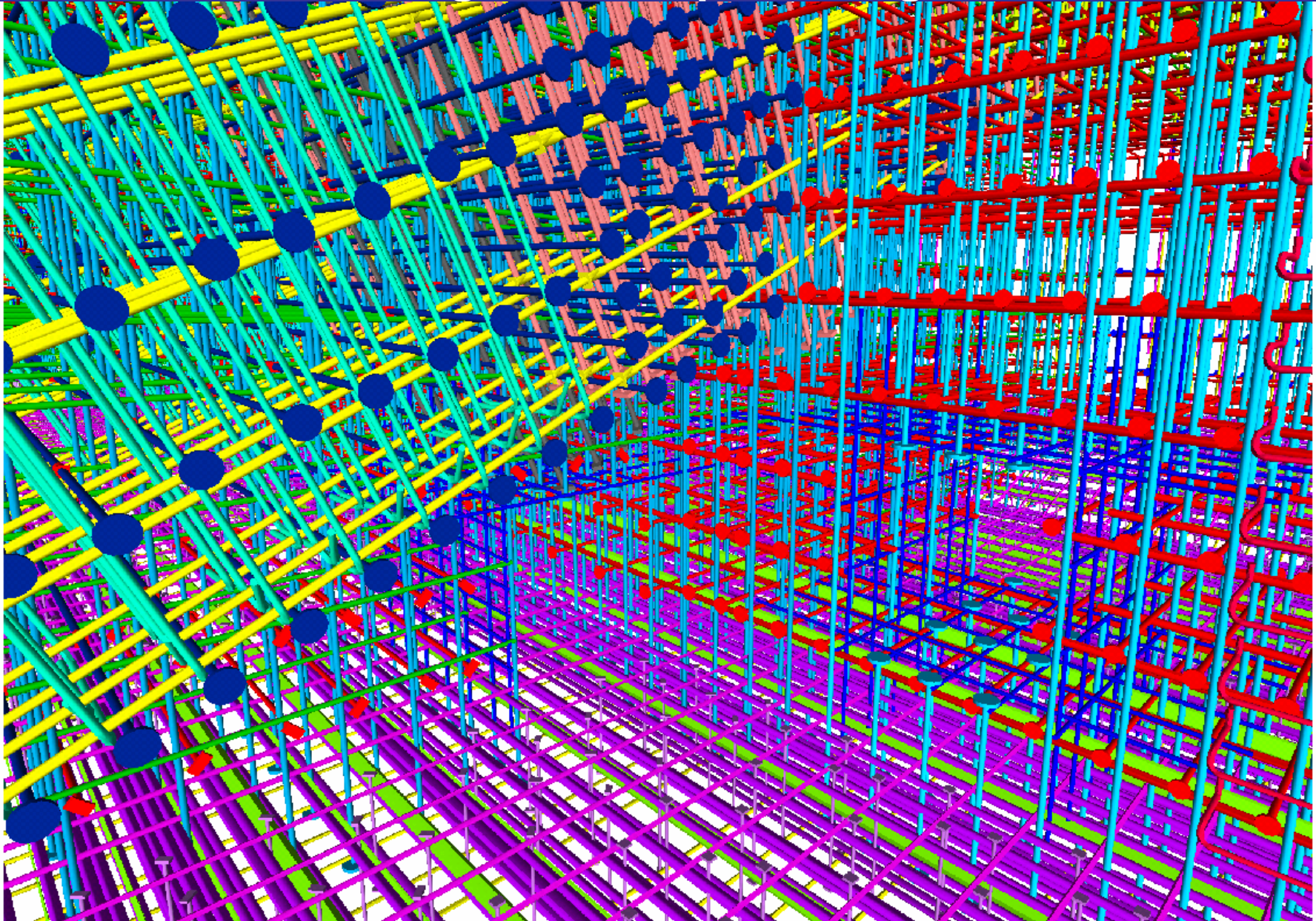


# W-2 Cap Beam Integrated Shop Drawings

1. Prepared Using “Navisworks” Program by ABFJV Personnel (Michael Lewis)
2. Modeling of Approximately 30,000 Elements which includes:
  - a. Reinforcing Steel
  - b. Post Tensioning Ducts
  - c. Embeds
  - d. High Strength Rods for Main Hinge & Deviation Saddles
3. Resolved 30,000 conflicts which was almost one conflict per every element modeled



# W-2 Cap Beam Integrated Shop Drawings





# Reinforcing Mechanical Coupler Pre-qualifications



# W-2 Cap Beam



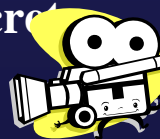
Formwork for Mass Concrete  
Demonstration Pour



SCC Pour Mock-up

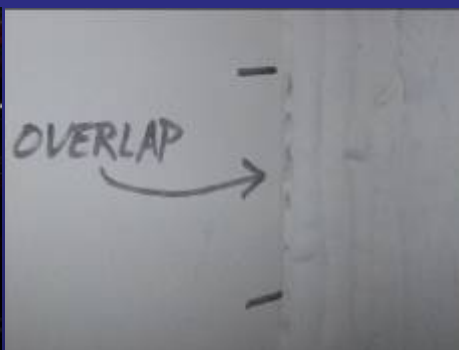


Spread Test Performed During Self  
Consolidating Concrete Pour Mock-up





# NCR Processing





# NCR Processing

- Transition from serial letters with attachments to on-line document control process
- Lesson Learned – Technology is not the process. There need to be buy-in and commitments from all parties to make the system work

Creation of a Non-Conformance Report in PDF format

The screenshot displays a software application titled "Integral Vision™ The Standard in Project Management™ ver 2.0". The interface is divided into several sections:

- Sidebar (Left):** A navigation tree with categories like "Project Overview", "Management Info", "Construction", "Design", and "METS". Under "METS", there are sub-items such as "My Actions", "Reports for Review", "Setup", "METS List of Reports", "Administration", "Daily", "Material Release", "Materials/Fabrication Prog", "NCR", "NDT", "SMR", "Submittal Review", "Search", "Reports", and "Document control".
- Central Form (MCR - Webpage Dialog):** A form for creating an NCR. It includes fields for:
  - NCR Number:** NCR-000122
  - Inspector By:** McReynolds, Robert
  - Select Branch:** Bay Area Branch
  - Location:** Changsha Island, Shanghai, PRC
  - Prime Contractor:** American Bridge/Floor Enterprises, a JV
  - Sub-contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), China
  - Type of problem:** Welding, Concrete, Other, Curing, Procedural, Joint fit up, Coating, Description: QC failure to identify
  - Reference Description:** AWS D1.5 (2002) Section 6.26.2
  - Description of Non-Conformance:** ASB has allowed ZPMC QC to accept a Complete Joint Penetration weld with a crack on weld 2 MSD1-SA335-1, plate SA335 to P459. ZPMC QC Inspector MR. Berni Fox accepted the weld on April 18, 2008. Coltrane QA Inspector Vian revisited the weld by MT and found a 15 mm crack on the weld groove be...
  - Applicable reference:** AWS D1.5 (2002) section 6.26.2 which states "Welds that are subject to RT or MT in addition to visual inspection shall have no cracks and shall be unacceptable if the RT or MT shows any types of discontinuities described as 6.26.2.1, 6.26.2.2, 6.26.2.3, or 6.26.2.4"
  - Who discovered the problem:** Larry Vian, METS Inspector
  - Name of individual from Contractor notified:** Steve Lawton, ABF FQCM
  - Time and method of notification:** Verbal, 04/21/08, 1900 hours
  - Name of Caltrans Engineer notified:** Ching Chao
  - Time and method of notification:** Verbal, 04/21/08, 0900 hours
  - QC Inspector's Name:** Shan Xia Jun
  - Was QC Inspector aware of the problem:** Yes
- Preview Window (Right):** A window titled "MCR - Webpage Dialog" showing a preview of the generated PDF report. The report header includes:
  - STATE OF CALIFORNIA - BUSINESS, TRANSPORTATION AND HOUSING AGENCY
  - DEPARTMENT OF TRANSPORTATION
  - OFFICE OF ENGINEERING SERVICES
  - Office of Structural Materials
  - Quality Assurance and Source Inspection
  - Contract #: 04-0120F4
  - City: SEALA Re: SF PM 13.2/1.9
  - File #: 60.25B
 The main title is "QUALITY ASSURANCE - NON-CONFORMANCE REPORT". It includes the same details as the central form, such as "Location: Changsha Island, Shanghai, PRC", "Prime Contractor: American Bridge/Floor Enterprises, a JV", and "Subcontractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changsha Island". It also features a photograph of a crack in a weld joint.

The NCR is transmitted to the Contractor

The screenshot displays the Integral Vision software interface, titled "The Standard in Project Management™ ver 2.0". The user is logged in as "Welcome, Meynier, Jean-Louis". The main window is titled "NCT - Webpage Dialog" and contains a form for "NCR Transmittal".

**Form Fields:**

- Doc No: 05.03.06-000009
- To: American Bridge/Floor Enterprises, a JV
- Attention: Derek Williams, Rick Morrow, Gary Pursell, Peter Siegenthaler
- Subject: NCR No. ZPMC-0118

**Enclosed please find the following items:**

- NCR No: ZPMC-0118
- Reference Description: AWS D1.5 (2002) Section 6.26.2
- Material Location: tower
- Remarks: ABF has allowed EPMC QC to accept a SA135-1, plate SA135 to P459, cutout on the weld groove bevel in the base. Please also see the attached NCR #294C-0118 for details.

**Action Required and/or Action Taken:**

- Propose a resolution for the identified occurrences.
- Submit a critical weld repair for the

**Preview Window:**

The preview window shows a document titled "NON-CONFORMANCE REPORT TRANSMITTAL" from the "DEPARTMENT OF TRANSPORTATION - District 4 Toll Bridge". It includes contact information for the department and details of the report, such as the date (10-Apr-2006), customer number (04-02094), and job name (SA1 Superstructure). The report description is "AWS D1.5 (2002) Section 6.26.2".

**Footer:**

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Quick search and status of all the Non-Conformance Reports and Non-Conformance Proposed Resolution reports

**Integral Vision™**  
The Standard in Project Management™ ver 2.0

NPR Entry - Webpage Dialog

**NCR Proposed Resolution**

Doc No: ABF-NPR-000015 Rev #: 0 Date Sent: 2/24/2014

Subject: NCR No. ZPMC-0048  
Contract: 04-0120P4  
Reference: 05.03.06-000011 NCR No: ZPMC-

**Contractor's Proposed Resolution:**  
Reference Resolution: UT procedure corrected immediately on shop floor.

Please see the attached response from ZPMC. ABFJV has reviewed a issue resolved. ABFJV believes, based on our understanding of the top (first) box on the NCT was checked. Please confirm.

Submitted By: Kanapick, Charles

**Caltrans' Comment:**  
Straight-beam Ultrasonic Testing (UT) of all 'C' sides was performed. Therefore, we concur that Non-Conformance ZPMC-0048 is resolved.

Regarding the comment about ABF's understanding of the NCT process the NCT form specifically states that the NCR is resolved.

Submitted By: Wright, Doug Submitted Date: 2/24/2014

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**ABF American Bridge FLUOR**  
AMERICAN BRIDGE/FLUOR ENTERPRISES, a JV  
375 Balsa Road  
Oakland, CA 94612  
Telephone: (510) 836-4400 Fax: (510) 836-4401

**NCR PROPOSED RESOLUTION**

To: California Department of Transportation  
222 Balsa Road  
Oakland, CA 94612  
Attention: Panell, Gary  
Resident Engineer  
Ref: 05.03.06-000011  
Subject: NCR No. ZPMC-0048

Dated: 23-Apr-2008  
Contract No.: 04-0120P4  
Job Name: 04-0120-13.20-13.0  
Document No: ABF-NPR-000015 Rev: 0

**Contractor's Proposed Resolution:**  
Reference Resolution: UT procedure corrected immediately on shop floor.

Please see the attached response from ZPMC. ABFJV has reviewed and concurs with the resolution of the contractor. The issue resolved. ABFJV believes, based on our understanding of the NCT process that this NCR was issued closed as the top (first) box on the NCT was checked. Please confirm.

Submitted By: Kanapick, Charles  
Attachment(s): ABF-NPR-000015R00

Status: CLO  
Date: 25 Jun 2014

**Caltrans' comments:**  
Straight-beam Ultrasonic Testing (UT) of all 'C' sides was performed, and has continued to be performed since the occurrence. Therefore, we concur that Non-Conformance ZPMC-0048 is closed.

Regarding the comment about ABF's understanding of the NCT process, each Non-Conformance requires a response unless the NCT form specifically states that the NCR is resolved.

Submitted By: Wright, Doug Date: 24 Jun 2008  
Attachment(s): ABF-NPR-000015

ABF-NPR-000015 Rev: 0 Page 1 of 1

Legend

Refresh Preview

To

First Prev 1 2 Next Last

NPR Response to ABF	Status	Count
000	Closed	94
	Pending	-217
	Pending	-130
000	Closed	62
000	Pending	-67
000	Closed	62
000	Pending	-67



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# In-Process Tests and Inspections





# In-Process Tests and Inspections

- Coordination of inspection and testing activities
  - Numerous sub-consultant contracts
  - Domestic and international
  - Coordination with Caltrans

# In-Process Tests and Inspections

- Welding Quality Control
  - Procedure Qualifications
  - Welding Quality Control Plan
    - Only AISC Category 3 facilities can self-perform welding NDT & inspection
  - Daily Reports

# Welding QC Plan









# AMERICAN BRIDGE/FLUOR SFOBB BRIDGE PROJECT

## QUALITY ASSURANCE SOFTWARE WELDLINKPRO®







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# Introduction

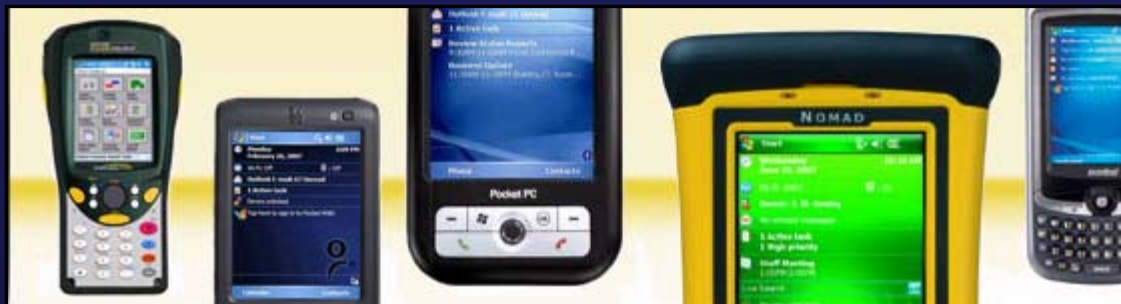
- Web based Quality tool developed using Microsoft's ASP.NET and C# programming language. Designed to be utilized by Fabricator, Contractor and Owner specifically to document the fabrication of the San Francisco Bay Bridge Project.
- Real time reporting of inspections and repairs before, during and after welding by use of hand held devices and wireless network.
- Material traceability through the use of bar code technology and Material Data Log.



# Introduction

(continued)

- Accountability of welders through tracking repair rates by welder, process, position, joint configuration and cause.
- Insures all required inspections and repairs have been completed in advance of shipment.
- Provides access via the world wide web to unlimited personnel to view the real time inspection and repair status.





# Industries

- Bridge
- Aerospace
- Nuclear
- Hydroelectric
- Marine
- Military
- Construction



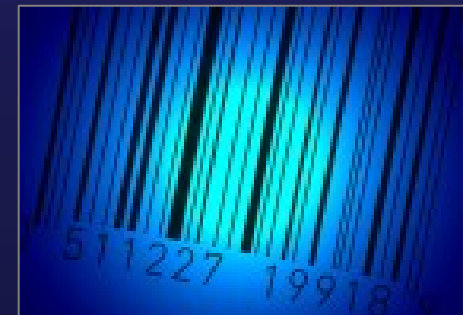
# Highlights

- Material traceability
- Weld joint tracking
- Welder performance tracking
- Weekly Welding Report
- Documentation
- Benefits
- Contact information



# Material traceability

- Material traceability is accomplished by use of bar code technology and/or traditional means of tracking items such as heat number and grade.
- Material information is compiled and stored on the Material Data Log as well as the Weld Data Log.
- Filtering allows the user to search by any desired combination of fields.





# Material traceability

(continued)

- Material lists can be downloaded offsite for material on hand payments.
- Consolidated material list between parties.
- Individual plate traceability.
- Check sample verification
- PDF material test report



Welcome siteadmin

### Material Data Log

[Return to previous page](#)

#### Order Details

[Show/Hide](#)

PO #:	<b>ORDER001</b>	Ordered:	<input type="text" value="10/1/2007"/>
Ordered:	<input type="text" value="1"/>	Received:	<input type="text" value="1"/>
Material:	<input type="text" value="Plate"/>	Grade:	<input type="text" value="250"/>
Standard:	<input type="text" value="A709"/>	Line #:	<input type="text" value="1"/>
Length:	<input type="text" value="1000"/>	Thickness:	<input type="text" value="10"/>
Manufacturer:	<input type="text" value="Wuyang"/>	Temperature Zone:	<input type="text" value="T1"/>
Supplement:	<input type="text" value="Z25"/> <input type="text" value="S1"/> <input type="text" value="S2"/>	Supplements to add:	<input type="text" value="S3"/>

#### Receiving

[Show/Hide](#)

Received:	<input type="text" value="10/2/2007"/>	Plate Id:	<input type="text" value="PLATE001"/>
Barcode:	<input type="text" value="PLATE001"/>	<b>Reassign Barcode</b>	<b>Barcode Cutout</b>
Lot #:	<input type="text" value="LOT001"/>	Cert #:	<input type="text" value="CERT001"/>
Heat #:	<input type="text" value="HEAT001"/>	Batch #:	<input type="text"/>
Weight:	<input type="text"/>	Width:	<input type="text" value="100"/>
Place:	<input type="text"/>	Contract #:	<input type="text"/>
Approved Batch:	<input type="text" value="34"/>	CT Lot #:	<input type="text"/>
Receiving Status:	<input type="text" value="CT Accept"/>	ZPMC Designation:	<input type="text" value="-- Choose ZPMC --"/>
Inspector:	<input type="text" value="Nate Lindell"/>		

#### Receiving Inspection

[Show/Hide](#)

- MTR supplied?
- Weld repairs visible?
- FCM material?
- Markings in accordance with ASTM A6?
- Visually acceptable in accordance with ASTM A6

Welcome siteadmin

### Material Receiving Filter List

[Return to previous page](#)

[Show/Hide Search Panel](#)

<input checked="" type="checkbox"/> <b>PO #:</b>	-- Choose PO # --	<input checked="" type="checkbox"/> <b>PO Date:</b>	<input type="text"/>
<input type="checkbox"/> <b>Line #:</b>	<input type="text"/>	<input type="checkbox"/> <b>Received Date:</b>	<input type="text"/>
<input type="checkbox"/> <b>Supplement</b>		<input type="checkbox"/> <b>Barcode:</b>	<input type="text"/>
<input type="checkbox"/> <b>Plate Id:</b>	<input type="text"/>	<input type="checkbox"/> <b>Lot #:</b>	<input type="text"/>
<input type="checkbox"/> <b>Batch #:</b>	<input type="text"/>	<input type="checkbox"/> <b>Heat #:</b>	<input type="text"/>
<input type="checkbox"/> <b>Cert #:</b>	<input type="text"/>	<input type="checkbox"/> <b>Length:</b>	<input type="text"/>
<input type="checkbox"/> <b>Width:</b>	<input type="text"/>	<input type="checkbox"/> <b>Thickness:</b>	<input type="text"/>
<input type="checkbox"/> <b>Weight:</b>	<input type="text"/>	<input type="checkbox"/> <b>Place:</b>	<input type="text"/>
<input type="checkbox"/> <b>Contract #:</b>	<input type="text"/>	<input type="checkbox"/> <b>Approved Batch:</b>	<input type="text"/>
<input type="checkbox"/> <b>CT Lot #:</b>	<input type="text"/>	<input type="checkbox"/> <b>Receiving Inspector:</b>	-- Choose Inspector --
<input type="checkbox"/> <b>Manufacturer:</b>	-- Choose Manufacturer --	<input type="checkbox"/> <b>Material:</b>	-- Choose Material --
<input type="checkbox"/> <b>Standard:</b>	-- Choose Standard --	<input type="checkbox"/> <b>Grade:</b>	-- Choose Grade --
<input type="checkbox"/> <b>ZPMC Designation:</b>	-- Choose ZPMC --	<input type="checkbox"/> <b>Status:</b>	-- Choose Status --
<input type="checkbox"/> <b>Temperature Zone:</b>	-- Choose Temp Zone --	<input type="checkbox"/> <b>MTR Supplied</b>	
<input type="checkbox"/> <b>Check Sampled</b>		<input type="checkbox"/> <b>Check Sample Date:</b>	<input type="text"/>
<input type="checkbox"/> <b>Check Sample Status:</b>	-- Choose Status --	<input type="checkbox"/> <b>Check Sample Inspector:</b>	-- Choose Inspector --

Search



# Highlights

- Material traceability
- **Weld joint tracking**
- Welder performance tracking
- Weekly Welding Report
- Documentation
- Benefits
- Contact information



# Weld Data Log

- A centralized location for each weld joint on the project.
- Created prior to weld joint fit up.
- Outlines the required nondestructive testing.
- Outlines the required in process inspections per the contract requirements.
- Provides material traceability used to construct the weld.
- Works in conjunction with weld maps.

# Weld Data Log

(continued)

- Insures proper acceptance criteria is applied.
- Eliminates costly re inspections






Welcome siteadmin

## Weld Data Log

### Weld Data Log

Originator:	<input type="text" value="Mead, Josh"/>	Report #:	<input type="text" value="WLD002"/>
Status:	<input type="text"/>	Parent Report #:	
Subassembly:	<input type="text" value="SUB ASSEMBLY 1"/>	Job:	<input type="text" value="Oakland Bay Bridge East Span"/>
Assembly:	<input type="text" value="DP"/>	Origination Date:	<input type="text" value="10/13/2007"/> 
Segment:	<input type="text" value="2BE"/>	Completion Date:	
Lift:	<input type="text" value="1E"/>	Weld ID:	<input type="text" value="WELD_ID_2"/>
Repair Length:	<input type="text"/>	Weld Map #:	<input type="text" value="WELD_MAP_NUMBER_2"/>
Repair Depth:	<input type="text"/>	Drawing #:	<input type="text" value="DRAWING_NUMBER_2"/>
		Barcode:	<input type="text" value="WELD001"/>
		Repair Width:	<input type="text"/>

Save

### Weld Type

Weld Type:

Code:

# Weld Data Log

(continued)

- All inspection and repair reports are created via links from this central location.
- Captured data populates the weld reject log and daily production.
- Insures the correct acceptance criteria is applied during inspections.
- Eliminates the need for manual creation of reports reducing reporting errors.

### Base Metals

Barcode	Plate Number	Standard	Grade	Heat Number	Thickness	
PLATE001	PLATE001	A709	250	HEAT001	10	<a href="#">Remove</a>
PLATE002	PLATE002	A709	250	HEAT002	10	<a href="#">Remove</a>

[Add Base Metal](#)

### Tasks

#	Hold	Task Type	Report	Completor	Status	Date	
1	<input type="checkbox"/>	Install Barcode or Weld ID	<a href="#">Accept</a>				<a href="#">Edit</a> <a href="#">Delete</a> ▼
2	<input type="checkbox"/>	Weld joint fit up inspection	<a href="#">Accept</a>				<a href="#">Edit</a> <a href="#">Delete</a> ▲▼
3	<input type="checkbox"/>	Assembly Practice	<a href="#">Log Progress</a>				<a href="#">Edit</a> <a href="#">Delete</a> ▲▼
4	<input type="checkbox"/>	Welding Techniques	<a href="#">Log Progress</a>				<a href="#">Edit</a> <a href="#">Delete</a> ▲▼
5	<input type="checkbox"/>	Welding Parameters	<a href="#">Log Progress</a>				<a href="#">Edit</a> <a href="#">Delete</a> ▲▼
6	<input type="checkbox"/>	Perform 100% Visual Inspection	<a href="#">Create Report</a>				<a href="#">Edit</a> <a href="#">Delete</a> ▲▼
7	<input type="checkbox"/>	Perform 100% Ultrasonic Inspection AWDS D1.5-02 Table 6.3 for acceptance	<a href="#">Create Report</a>				<a href="#">Edit</a> <a href="#">Delete</a> ▲▼
8	<input type="checkbox"/>	Perform 25% Magnetic Particle Inspection	<a href="#">Create Report</a>				<a href="#">Edit</a> <a href="#">Delete</a> ▲

[Add Task](#)

### Repair History

No Repairs have been made

# Weld Data Log

(continued)

- History of all repairs associated to the weld
- Provides the positive proof all required inspections and repairs have been completed.
- Supports the creation of the weekly welding report.
- Supports and captures revisions to repair reports such as critical weld repairs.
- May be utilized during the review of the weekly welding report



**Base Metals**

Barcode	Plate Number	Standard	Grade	Heat Number	Thickness	
PLATE001	PLATE001	A709	250	HEAT001	10	<a href="#">Remove</a>
PLATE002	PLATE002	A709	250	HEAT002	10	<a href="#">Remove</a>

[Add Base Metal](#)

**Tasks**

#	Hold	Task Type	Report	Completor	Status	Date	
1	<input type="checkbox"/>	Install Barcode or Weld ID	<b>Accept</b>				<a href="#">Edit</a> <a href="#">Delete</a> ▼
2	<input type="checkbox"/>	Weld joint fit up inspection	<b>Accept</b>				<a href="#">Edit</a> <a href="#">Delete</a> ▲▼
3	<input type="checkbox"/>	Perform 100% Visual Inspection	<b>VT0000007</b>	Site Admin	Accepted	02/05/2008	<a href="#">Edit</a> <a href="#">Delete</a> ▲▼
4	<input type="checkbox"/>	Perform 100% Ultrasonic Inspection AWDS D1.5-02 Table 6.4 for acceptance	<b>UT0000009</b>	Site Admin	Repair In Progress	02/05/2008	<a href="#">Edit</a> <a href="#">Delete</a> ▲▼
5	<input type="checkbox"/>	Perform 10% Magnetic Particle Inspection	<b>MT0000011</b>	Site Admin	Repair In Progress	02/05/2008	<a href="#">Edit</a> <a href="#">Delete</a> ▲

[Add Task](#)

**Repair History**

#	Task Type	Report	Completor	Status	Date
4	Perform 100% Ultrasonic Inspection AWDS D1.5-02 Table 6.4 for acceptance	<b>UT0000009</b>	Site Admin	Repair In Progress	02/05/2008
	Critical Weld Repair	<b>CWR0000010 R0</b>	Site Admin	Repair Successful	02/05/2008
5	Perform 10% Magnetic Particle Inspection	<b>MT0000011</b>	Site Admin	Repair In Progress	02/05/2008
	Weld Repair	<b>WRR0000012 R0</b>	Site Admin	Repair Failed	02/05/2008

# Highlights

- Material traceability
- Weld joint tracking
- **Welder performance**
- Weekly Welding Report
- Documentation
- Benefits
- Contact information



# Welder Performance

- Welder performance is captured on the Weld Reject Log.
- Filtering allows the user to search by any desired combination of fields.
- Utilized for trend analysis of weld repairs.
- Provides real time total reject percentages project wide by any filterable field.



# Welder Performance

(continued)

- Inspector
- Welder
- Repair type
- Weld identification
- Location in the structure
- Position
- Process
- Joint type
- Repair length
- Repair depth
- Repair width
- Repair percent
- Cause





## Weld Reject Log

Show/Hide Search

<input checked="" type="checkbox"/> <b>Original Weld</b>		<input checked="" type="checkbox"/> <b>Repair Weld</b>	
<input checked="" type="checkbox"/> <b>Date Range:</b>	<input type="text"/> to <input type="text"/>	<input checked="" type="checkbox"/> <b>Inspection Method:</b>	<input type="text"/>
<input checked="" type="checkbox"/> <b>Inspector</b>	<input type="text"/>	<input checked="" type="checkbox"/> <b>Repair</b>	<input type="text"/>
<input type="checkbox"/> <b>SubAssembly</b>	<input type="text"/>	<input type="checkbox"/> <b>Assembly</b>	<input type="text"/>
<input type="checkbox"/> <b>Segment</b>	<input type="text"/>	<input type="checkbox"/> <b>Lift</b>	<input type="text"/>
<input type="checkbox"/> <b>Structure</b>	<input type="text"/>	<input type="checkbox"/> <b>Weld ID</b>	<input type="text"/>
<input checked="" type="checkbox"/> <b>Repair Length</b>		<input checked="" type="checkbox"/> <b>Repair %</b>	
<input checked="" type="checkbox"/> <b>Cause</b>		<input checked="" type="checkbox"/> <b>Welder</b>	
<input checked="" type="checkbox"/> <b>Indication Repair</b>	<input type="text"/>	<input checked="" type="checkbox"/> <b>Process</b>	<input type="text"/>
<input checked="" type="checkbox"/> <b>Joint Type</b>	<input type="text"/>	<input type="checkbox"/> <b>WPS #</b>	<input type="text"/>
<input type="checkbox"/> <b>Filler Metal:</b>	<input type="text"/>		

Search

All , None

Date	Inspection Method	Inspector	Repair	Repair Length	Repair %	Cause	Welder	Position	Process	Joint Typ
11/16/2007	UT	Li Liming	WRR0000010 R0	210			50242	1G	FCAW	Butt
11/16/2007	UT	Li Liming	WRR0000013 R0	160	9.52	First time excavation	50242	1G	FCAW	Butt
11/16/2007	UT	Li Liming	WRR0000014 R0	60	2.86	First time excavation	50242	1G	FCAW	Butt
11/16/2007	UT	Li Liming	WRR0000012 R0	150		First time excavation	50242	1G	FCAW	Butt
11/16/2007	UT	Li Liming	WRR0000009 R0	580			50242	1G	FCAW	Butt
11/16/2007	UT	Li Liming	WRR0000011 R0	500		First time excavation	50242	1G	FCAW	Butt
03/21/2008	UT	Xue Hairong	T-WR001 R0	130	.69	First time excavation	48659	1G	SMAW	Butt
04/05/2008	UT	Xue Hairong	WRR0000003 R0	130	1.06	First time excavation	40421	1G	FCAW	Butt
04/05/2008	UT	Xue Hairong	WRR0000005 R0	160	1.11	First time excavation	53870	1G	FCAW	Butt
04/06/2008	UT	Xue Hairong	WRR0000007 R0	160	1.28	First time excavation	53753	1G	SMAW	Butt
04/06/2008	UT	Li Liming	WRR0000001 R0	120	.26	First time excavation	53870	1G	FCAW	Butt

# Highlights

- Material traceability
- Weld joint tracking
- Welder performance tracking
- **Weekly Welding Report**
- Documentation
- Benefits
- Contact information



# Weekly Welding Report

- Weekly Welding Report is Compiled electronically following completion of tasks outlined on the Weld Data Log.
- Following review by the Quality Control Manager the Weekly Welding Report is submitted electronically to the Engineer for approval.
- During review by the Engineer the database may be available to verify current status of inspections and repairs.

# Weekly Welding Report

(continued)

- Weekly Welding Report includes:
  - NDE reports
  - Critical Weld Repair Reports
  - Weld Repair Reports
  - Heat Straightening Reports
  - Nonconformance Reports
  - Weld Reject Log
  - Daily Production report



## Weld Report

Structure	OBG <input type="button" value="v"/>		
By Date	11/12/2007 <input type="button" value="c"/>	<input type="button" value="View"/>	
By Week	11/12/2007 - 11/19/2007 (Week #2) <input type="button" value="v"/>		
<b>11/12/2007 - 11/18/2007</b>			
Viewing	11/16/2007 - Friday <input type="button" value="v"/>		

### Weld Reject Log

Show/Hide

Date	Inspector	Repair	Lift	Segment	Assembly	Sub Assembly	Weld ID	%	Cause	Inspection Method
11/16/2007	Li Liming	WRR0000009 R0			FB	FB003	FB003-13-001			UT
11/16/2007	Li Liming	WRR0000010 R0			FB	FB003	FB003-14-006			UT
11/16/2007	Li Liming	WRR0000011 R0			FB	FB003	FB003-15-001		First time excavation	UT
11/16/2007	Li Liming	WRR0000012 R0			FB	FB003	FB003-05-001		First time excavation	UT
11/16/2007	Li Liming	WRR0000013 R0			FB	FB3A	FB003-16-001	9.52	First time excavation	UT
11/16/2007	Li Liming	WRR0000014 R0			FB	FB3A	FB003-16-006	2.86	First time excavation	UT

### Daily Production Log

Show/Hide

Weld ID	Inspector	Welder	Task	Location	Logged	%	SubAssembly	Assembly	Segment	Lift	Structure	Repair
FB003-10-001	Li Liming		Ultrasonic Examination 100% AWS D1.5-02 Table 6.3		11/16/2007		FB003	FB			OBG	
FB003-10-006	Li Liming		Ultrasonic Examination 100% AWS D1.5-02 Table 6.3		11/16/2007		FB003	FB			OBG	
FB003-08-001	Li Liming		Ultrasonic Examination 100% AWS		11/16/2007		FB003	FB			OBG	

# Highlights

- Material traceability
- Weld joint tracking
- Welder performance tracking
- Weekly Welding Report
- **Documentation**
- Benefits
- Contact information



# Documentation

- Records can be viewed electronically or printed.
- Final acceptance of components is obtained by producing a **Data Acceptance Packet**.
- Data Acceptance Packets are compiled after completing a query and are produced in PDF format.

# Documentation

- Data Acceptance Packet include the following
  - Nondestructive Testing Reports
  - Weld Repair Reports
  - Post Weld Repair NDE Reports
  - Weld Map
  - Weld Data Log
  - Material Test Report
  - In process inspections as required



# Highlights

- Material traceability
- Weld joint tracking
- Welder performance tracking
- Weekly Welding Report
- Documentation
- **Benefits**
- Contact information



# Benefits

- Real time wireless accurate and consistent reporting of inspection and repair results.
- Electronic submittal process reduces the approval time and personnel.
- Increased level of traceability of material, inspections and repairs result in decreased time and involvement by the customer before, during and after fabrication including shipment.
- Eliminates costly re-inspections of previously inspected and accepted welds and components.

# Benefits

(continued)

- Shared information between all parties at all locations through the use of web based application.
- Onsite reporting increases floor coverage and decreases office time.
- Increased level of accountability of welders and inspectors.
- Localization (bilingual)
- Eliminate redundant tracking by multiple parties.

# Benefits

(continued)

- Reduced exposure for omitted and duplicate reports.
- Customer satisfaction by providing access to the database during the review and approval of the Weekly Welding Report.
- Reduce costly repairs through trend analysis
- May be implemented project wide
- Paperless submittal process
- Electronic report correlation and PDF printing



# Summary

- Designed for the “Total Quality Management” approach this unique tool will greatly enhance traditional Quality Control and Quality Assurance reporting and documentation.
- Web based application opens the door for cooperation between Fabricator, Contractor and Owner.
- Increases accountability for welders, inspectors and reviewers.
- Captures valuable data that can be utilized to establish controls to reduce or eliminate defects.
- Provides complete material traceability from beginning to end.

# Highlights

- Material traceability
- Weld joint tracking
- Welder performance tracking
- Weekly Welding Report
- Documentation
- Benefits
- **Contact information**



# Contact information



Inspectech Corporation

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[www.Inspectechconsulting.com](http://www.Inspectechconsulting.com)

Further product information on WeldLinkPro can be found at the following website

[www.WeldLinkPro.com](http://www.WeldLinkPro.com)