

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:** Casey, William**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-027403**Date Inspected:** 03-Apr-2012**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site

<b>CWI Name:</b>	Bernie Docena and Fred Von Hoff			<b>CWI Present:</b>	Yes	No	
<b>Inspected CWI report:</b>	Yes	No	N/A	<b>Rod Oven in Use:</b>	Yes	No	N/A
<b>Electrode to specification:</b>	Yes	No	N/A	<b>Weld Procedures Followed:</b>	Yes	No	N/A
<b>Qualified Welders:</b>	Yes	No	N/A	<b>Verified Joint Fit-up:</b>	Yes	No	N/A
<b>Approved Drawings:</b>	Yes	No	N/A	<b>Approved WPS:</b>	Yes	No	N/A
				<b>Delayed / Cancelled:</b>	Yes	No	N/A
<b>Bridge No:</b>	34-0006			<b>Component:</b>	SAS Tower		

**Summary of Items Observed:**

Caltrans Office of Structural Material (OSM) Quality Assurance Inspector (QAI) Joselito Lizardo was present at the Self Anchored Suspension (SAS) job site as requested to perform observations on the welding of components for the San Francisco Oakland Bay Bridge (SFOBB) Project.

At Tower Base 9 meter inner East external diaphragm, this QA Inspector randomly observed ABF personnel Wai Kitlai continuing to perform 2F (horizontal position) fillet production welding on the 25mm thick fit lug to the 45mm thick 9-meter inner East external diaphragm plate on one side and to the 60mm thick vertical stiffener plate on the other side. The welder was using the dual shielded Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1.6mm diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-F3200-2. This QA Inspector observed ABF personnel using propylene gas torch to preheat the plates being welded prior welding. This QA Inspector observed QC Inspector Bernie Docena using a Fluke infra red temperature gauge to verify the preheat temperature of more than 225°F. This QA Inspector performed a verification of the welding parameters and observed 286 amperes and 25.0 volts. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-F3200-2. During the shift, the welder has completed the 22mm fillet weld on two sides of the four (4) fit lugs marked W092-7 to W092-10. The welder held the same preheat for three (3) hours after welding as required.

After the fillet welding completion of the fit lugs mentioned above, the welder has moved to 9 meter North diaphragm and performed 2F (horizontal position) Shielded Metal Arc Welding (SMAW) fillet welding the 45mm thick stiffener plate shop marked piece number 439-4 around one foot above the drop in plate ND1-A52. The stiffener is being welded on three sides namely; tower skin plate 'E', North shear plate and vertical stiffener plate.

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The welder was noted using 4.0mm diameter E7018H4R electrode implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-F1200A. This QA Inspector observed ABF personnel using propylene gas torch to preheat the plates being welded prior welding. This QA Inspector observed QC Inspector Bernie Docena using a Fluke infra red temperature gauge to verify the preheat temperature of more than 225°F. This QA Inspector performed a verification of the welding parameters and observed 160 amperes on the 4.0mm diameter electrode. At the end of the shift, the top 8mm fillet weld of the stiffener was completed and the bottom side was left remain and should continue tomorrow.

At Tower Base 9 meter inner East external diaphragm, this QA Inspector randomly observed ABF personnel Jin Pei Wang perform 2F (horizontal position) fillet production welding on the 25mm thick fit lug to the 45mm thick 9-meter inner East external diaphragm plate on one side and to the 60mm thick vertical stiffener plate on the other side. The welder was using the dual shielded Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1.6mm diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-F3200-2. This QA Inspector observed ABF personnel using propylene gas torch to preheat the plates being welded prior welding. This QA Inspector observed QC Inspector Bernie Docena using a Fluke infra red temperature gauge to verify the preheat temperature of more than 225°F. This QA Inspector performed a verification of the welding parameters and observed 285 amperes and 24.5 volts. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-F3200-2. During the shift, the welder has completed the 22mm fillet weld on two sides of the four (4) fit lugs marked W092-11 to W092-14. The welder held the same preheat for three (3) hours after welding as required.

After the fillet welding completion of the fit lugs mentioned above, the welder has moved to 9 meter North diaphragm and performed 2F (horizontal position) Shielded Metal Arc Welding (SMAW) fillet welding the 45mm thick stiffener plate shop marked piece number 439-2 around one foot above the drop in plate ND1-A56. The stiffener is being welded on three sides namely; tower skin plate 'E', North shear plate and vertical stiffener plate. The welder was noted using 4.0mm diameter E7018H4R electrode implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-F1200A. This QA Inspector observed ABF personnel using propylene gas torch to preheat the plates being welded prior welding. This QA Inspector observed QC Inspector Bernie Docena using a Fluke infra red temperature gauge to verify the preheat temperature of more than 225°F. This QA Inspector performed a verification of the welding parameters and observed 155 amperes on the 4.0mm diameter electrode. At the end of the shift, the top 8mm fillet weld of the stiffener was completed and the bottom side was left remain and should continue tomorrow.

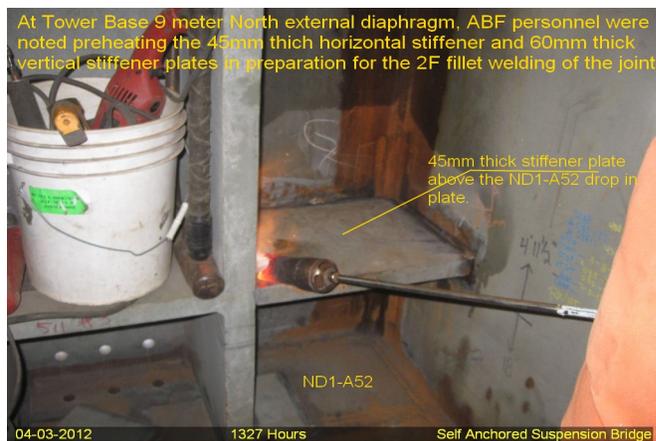
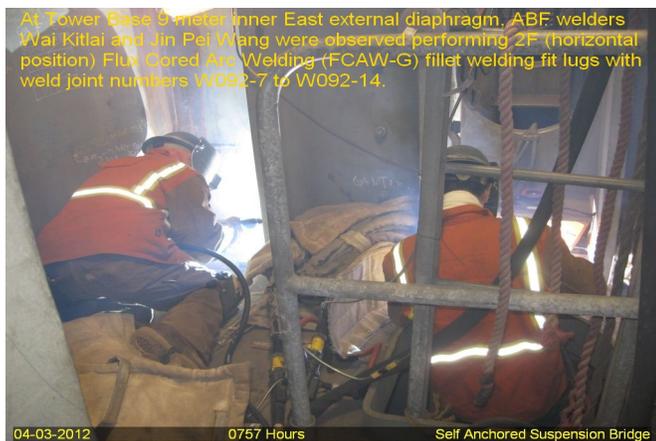
At Tower Base 13 meter inner West external diaphragm, this QA Inspector randomly observed ABF personnel Xiao Jian Wan continuing to perform 4F (overhead position) fillet production welding on the perimeter C10 channel to 45mm thick diaphragm plate fillet weld joint W132-1. The welder was noted welding 6mm fillet between one side of the channel top flange and diaphragm plate per detail 1 of the ZPMC drawing number FW3. The welder was using the 3.2mm diameter E7018H4R electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-F1200A. This QA Inspector observed ABF personnel using propylene gas torch to preheat the plates being welded prior welding. This QA Inspector observed QC Inspector Bernie Docena using a Fluke infra red temperature gauge to verify the preheat temperature of more than 150°F. This QA Inspector performed a verification of the welding parameters and observed 115 amperes on the 3.2mm diameter electrode. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-F1200A. At the end of the shift, SMAW fillet welding was completed.

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At Tower Base 13 meter inner West external diaphragm, this QA Inspector randomly observed ABF personnel Luo Xiao Hua continuing to perform 4F (overhead position) fillet production welding on the perimeter C10 channel to 45mm thick diaphragm plate fillet weld joint W133-2. The welder was noted welding 6mm fillet between one side of the channel top flange and diaphragm plate per detail 1 of the ZPMC drawing number FW3. The welder was using the 3.2mm diameter E7018H4R electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-F1200A. This QA Inspector observed ABF personnel using propylene gas torch to preheat the plates being welded prior welding. This QA Inspector observed QC Inspector Bernie Docena using a Fluke infra red temperature gauge to verify the preheat temperature of more than 150°F. This QA Inspector performed a verification of the welding parameters and observed 125 amperes on the 3.2 diameter electrode. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-F1200A. At the end of the shift, SMAW fillet welding was completed.

At Tower Base 13 meter diaphragm, this QA took over the welding observations of diaphragm plate to shear plate PJP T-joint W114 from fellow QA Dan Smith. During the afternoon shift, this QA has observed ABF welder James Zhen perform removal of the entire welded root pass due to Magnetic Particle Testing (MT) detected linear indications during previous test. The welder was noted using carbon air arc gouging in removing the entire length of the welded root pass the followed by smooth grinding. After the completion of the root pass removal, ABF QC Fred Von Hoff performed the MT on the removal and noted acceptable result. This QA also performed the MT verification and noted same result. The welder informed this QA and QC that the rewelding of the root pass will be done tomorrow since the welder will be leaving early due to medical appointment.

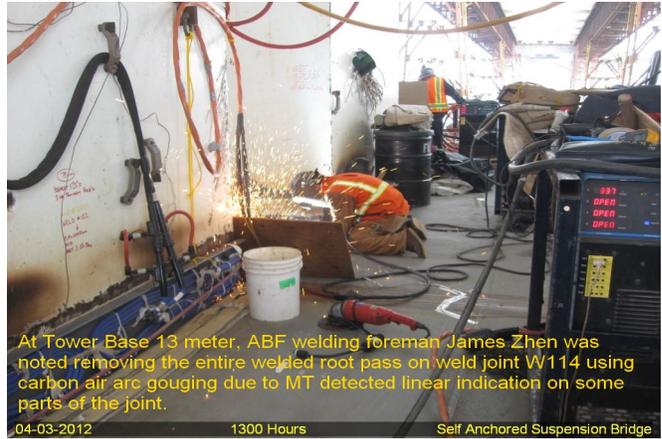


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## Summary of Conversations:

No significant conversation occurred today.

## Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact SMR Nina Choy 510-385-5910, who represents the Office of Structural Materials for your project.

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**Inspected By:** Lizardo, Joselito

Quality Assurance Inspector

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**Reviewed By:** Levell, Bill

QA Reviewer