



**THE PORT AUTHORITY OF NY & NJ**

4 World Trade Center, 150 Greenwich Street, 21st Floor, New York, NY 10007

# REQUEST FOR QUOTATION

Contact person/Telephone/Email  
Larry Waxman/212-435-4639/lwaxman@panynj.gov

Collective# / / Bid Due Date  
0000045507 / / 04/06/2016  
Bids must be received no later than 11:00 AM on the above Bid Due Date.  
Deliver Goods/Services To:  
Port Authority Technical Center  
241 Erie Street - Room 105  
Jersey City NJ 07310

Quantity	Description	Unit Price		Total	
	<p>FABRICATED STEEL PLATES, MANUFACTURE ,FURNISH AND DELIVER TO PATH LOCATED IN JERSEY CITY NJ, IN ACCORDANCE WITH THE FOLLOWING ATTACHMENTS: DIVISION 5 SECTION 05120 STRUCTURAL STEEL, DIVISION 9 SECTION 09910 PAINTING, DRAWINGS G0001, S1001, S1001, S1003, S1004 AND INSURANCE PROCURED BY THE CONTRACTOR CITS#4997N.</p> <p>TOTAL QUANTITY FOUR (4)PLATES. TWO (2) OF S1002 AND TWO (2) OF S1003.</p> <p>INDICATE UNIT PRICING: A) S1002 QUANTITY TWO (2) TIMES \$ _____ UNIT PRICE EQUALS \$ _____. AND B) S1003 QUANTITY TWO (2) TIMES \$ _____ UNIT PRICE EQUALS \$ _____.</p> <p>C)TOTAL DELIVERED FOB DELIVERED PRICE: \$ _____. (A+B=C)(ONE PURCHASE UNIT PU).</p> <p>QUOTE FOB DELIVERED PRICING ON ALL ITEMS.</p> <p>IN THE EVENT OF AN ORDER ADVISE DELIVERY IN _____ DAYS A.R.O.</p>				
	<b>PLEASE QUOTE FULLY DELIVERED PRICES</b>	<b>PAYMENT TERMS</b>		<b>Total Delivered Price</b>	

This Quotation is subject to the terms and conditions set forth on the back page hereof. Bidder is advised to read these before signing.

We have read the instructions and, if favored with an order, we agree to furnish the items enumerated herein at the prices and under the conditions indicated.

NOTICE TO BIDDERS: Unless the following term of assurance that the above offer is irrevocable is signed, the offer submitted herein shall not be deemed to be complete.

Signed \_\_\_\_\_  
Firm Name \_\_\_\_\_  
Telephone number \_\_\_\_\_ Date \_\_\_\_\_  
Fax Number \_\_\_\_\_  
Federal Taxpayer ID \_\_\_\_\_

Bidder  
Must  
Sign  
in  
Two  
Places

The foregoing offer shall be irrevocable for 90 days after the date on which the Port Authority of New York and New Jersey opens this proposal.  
Signed \_\_\_\_\_ Date \_\_\_\_\_  
Firm Name \_\_\_\_\_



# REQUEST FOR QUOTATION

Bid Due Date  
04/06/2016

Quantity	Description	Unit Price		Total	
	WITH BID RESPONSE ADVISE EQUIPMENT TO BE OFFERED: MANUFACTURER: _____ PLANT LOCATION: _____ MAKE/MODEL/PART NUMBER: _____				
	<b>PLEASE QUOTE FULLY DELIVERED PRICES</b>	<b>PAYMENT TERMS</b>		<b>Total Delivered Price</b>	

**This Quotation is subject to the terms and conditions set forth on the back page hereof. Bidder is advised to read these before signing.**

We have read the instructions and, if favored with an order, we agree to furnish the items enumerated herein at the prices and under the conditions indicated.

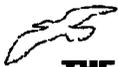
**NOTICE TO BIDDERS:** Unless the following term of assurance that the above offer is irrevocable is signed, the offer submitted herein shall not be deemed to be complete.

The foregoing offer shall be irrevocable for 90 days after the date on which the Port Authority of New York and New Jersey opens this proposal.

Signed \_\_\_\_\_  
 Firm Name \_\_\_\_\_  
 Telephone number \_\_\_\_\_ Date \_\_\_\_\_  
 Fax Number \_\_\_\_\_  
 Federal Taxpayer ID \_\_\_\_\_

Bidder Must Sign In Two Places
---

Signed \_\_\_\_\_ Date \_\_\_\_\_  
 Firm Name \_\_\_\_\_



# REQUEST FOR QUOTATION

/ Bid Due Date  
04/06/2016

Quantity	Description	Unit Price		Total	
	<p>This is a Formal Bid Invitation Mail Sealed Bids to:</p> <p>The Port Authority of NY &amp; NJ Attn: Bid Custodian Procurement Department 4 World Trade Center 150 Greenwich Street, 21st Floor New York, NY 10007</p> <p>by the date and time listed above, where it will be publicly opened and read.</p> <p>If you do not use or have an envelope provided, you must clearly mark the outside envelope/package with 'BID ENCLOSED' and show the company name, address, as well as Bid number and Due date as stated on this bid document.</p> <p>Bids are only accepted Monday through Friday, excluding Port Authority holidays, between the hours of 8 A.M. &amp; 5 P.M., via regular mail, express delivery service or hand delivery. Express carrier deliveries by commercial vehicles can be made via vendors approved by Silverstein Properties, the 4 World Trade Center (4WTC) Property Manager, through the Vehicle Security Center (VSC). Presently, UPS is the only delivery vendor with approved recurring delivery times. There is extensive security at the World Trade Center Site. Individuals must present a valid government-issued photo ID</p>				
	<p><b>PLEASE QUOTE FULLY DELIVERED PRICES</b></p>	<p><b>PAYMENT TERMS</b></p>			
		<p><b>Total Delivered Price</b></p>			

**This Quotation is subject to the terms and conditions set forth on the back page hereof. Bidder is advised to read these before signing.**

We have read the instructions and, if favored with an order, we agree to furnish the items enumerated herein at the prices and under the conditions indicated.

Signed \_\_\_\_\_  
 Firm Name \_\_\_\_\_  
 Telephone number \_\_\_\_\_ Date \_\_\_\_\_  
 Fax Number \_\_\_\_\_  
 Federal Taxpayer ID \_\_\_\_\_

**Bidder  
Must  
Sign  
in  
Two  
Places**

**NOTICE TO BIDDERS:** Unless the following term of assurance that the above offer is irrevocable is signed, the offer submitted herein shall not be deemed to be complete.

The foregoing offer shall be irrevocable for 90 days after the date on which the Port Authority of New York and New Jersey opens this proposal.

Signed \_\_\_\_\_ Date \_\_\_\_\_  
 Firm Name \_\_\_\_\_



# REQUEST FOR QUOTATION

Bid Due Date  
04/06/2016

Quantity	Description	Unit Price		Total	
	<p>to enter 4 WTC. Individuals without packages or carrying small packages or boxes that can be conveyed by hand or on a hand truck may enter through the lobby. All envelopes, packages and boxes may be subject to additional security screening.</p> <p>There is no parking available at 4 WTC/150 Greenwich Street, and parking in the surrounding area is extremely limited.</p> <p>A valid government-issued photo ID is required to gain access into the building to attend the bid opening or hand deliver a bid.</p> <p>Bids that are not received by the bid custodian by the scheduled bid opening date will be considered late.</p>				
1.000 PU	<p>Steel Fabricated Plates mfg/furnish/del</p> <p>PLEASE FOLLOW RETURN TO BID INSTRUCTIONS. REPLY ONLY ON P.A./PATH REQUEST FOR QUOTATION FORM AS ATTACHING YOUR COMPANY'S TERMS &amp; CONDITIONS MAY CAUSE YOUR BID TO BE DEEMED NON RESPONSIVE</p>				
<b>PLEASE QUOTE FULLY DELIVERED PRICES</b>		<b>PAYMENT TERMS</b>	<b>Total Delivered Price</b>		

**This Quotation is subject to the terms and conditions set forth on the back page hereof. Bidder is advised to read these before signing.**

We have read the instructions and, if favored with an order, we agree to furnish the items enumerated herein at the prices and under the conditions indicated.

**NOTICE TO BIDDERS:** Unless the following term of assurance that the above offer is irrevocable is signed, the offer submitted herein shall not be deemed to be complete.

Signed \_\_\_\_\_  
 Firm Name \_\_\_\_\_  
 Telephone number \_\_\_\_\_ Date \_\_\_\_\_  
 Fax Number \_\_\_\_\_  
 Federal Taxpayer ID \_\_\_\_\_

Bidder  
Must  
Sign  
In  
Two  
Places

The foregoing offer shall be irrevocable for 90 days after the date on which the Port Authority of New York and New Jersey opens this proposal.

Signed \_\_\_\_\_ Date \_\_\_\_\_  
 Firm Name \_\_\_\_\_



# REQUEST FOR QUOTATION

Bid Due Date  
04/06/2016

Quantity	Description	Unit Price		Total	
	<p>AND OR DELAY AN AWARD ISSUED.</p> <p>A price preference of 10 % is available for NY/NJ Minority and Women Business Enterprises (M/WBE) or 5% for NY/NJ Small Business Enterprises (SBE) certified by the Port Authority (PA) by the day before bid opening for awards not exceeding \$1,000,000. My firm was certified as a _____ on _____.</p> <p>QUESTIONS ONLY CONTACT: LARRY WAXMAN TEL: 212 435 4639 OR FAX 212 435 4695 OR EMAIL: Lwaxman@panynj.gov</p>				
	<b>PLEASE QUOTE FULLY DELIVERED PRICES</b>	<b>PAYMENT TERMS</b>		<b>Total Delivered Price</b>	

**This Quotation is subject to the terms and conditions set forth on the back page hereof. Bidder is advised to read these before signing.**

We have read the instructions and, if favored with an order, we agree to furnish the items enumerated herein at the prices and under the conditions indicated.

**NOTICE TO BIDDERS:** Unless the following term of assurance that the above offer is irrevocable is signed, the offer submitted herein shall not be deemed to be complete.

Signed \_\_\_\_\_  
 Firm Name \_\_\_\_\_  
 Telephone number \_\_\_\_\_ Date \_\_\_\_\_  
 Fax Number \_\_\_\_\_  
 Federal Taxpayer ID \_\_\_\_\_

**Bidder  
 Must  
 Sign  
 In  
 Two  
 Places**

The foregoing offer shall be irrevocable for 90 days after the date on which the Port Authority of New York and New Jersey opens this proposal.

Signed \_\_\_\_\_ Date \_\_\_\_\_  
 Firm Name \_\_\_\_\_

## TERMS AND CONDITIONS

1. The Port Authority (PA) reserves the right to request information relating to seller's responsibility, experience and capability to perform the work.
2. Unless otherwise provided, complete shipment of all items must be in one delivery FOB delivery point. Payment will not be made on partial deliveries unless authorized in advance by the party to be charged and the discount, if any, will be taken on the total order.
3. PA payment terms are net 30 days. Cash discounts for prompt payment of invoices may be taken but will not be considered in determining award, except in the case of tie bids.
4. Separate unit and total FOB delivered prices must be shown.
5. Sales to the PA and to PATH are currently exempt from New York and New Jersey State and local taxes and generally from federal taxation. The seller certifies that there are no federal, state, municipal or any other taxes included in the prices shown hereon.
6. The PA shall have the absolute right to reject any or all proposals or to accept any proposal in whole or part and to waive defects in proposals.
7. Unless the phrase "no substitute" is indicated, bidder may offer alternate manufacturer / brands, which shall be subject to Port Authority approval. Please indicate details of product being offered with bid.
8. Acceptance of seller's offer will be only by Purchase Order Form signed by the PA. No change shall be made in the agreement except in writing.
9. If the seller fails to perform in accordance with the terms of this purchase order, the PA may obtain the goods or services from another contractor and charge the seller the difference in price, if any, a reletting cost of \$100, plus any other damages to the PA.
10. Upon request, sellers are encouraged to extend the terms and conditions of any terms agreement with the PA to other government and quasi-government entities by separate agreement.
11. By signing this quotation or bid, the seller certifies to all statements on Form PA 3764A regarding non-collusive bidding; compliance with the PA Code of Ethics; and the existence of investigations, indictments, convictions, suspensions, terminations, debarments and other stated occurrences to assist the PA in determining whether there are integrity issues which would prevent award of the contract to the seller. The PA has adopted a policy set forth in full on PA 3764A, that it will honor a determination by an agency of the State of New York or New Jersey that a bidder is not eligible to bid on or be awarded public contracts because the bidder has been determined to have engaged in illegal or dishonest conduct or to have violated prevailing wage legislation. The Terms and Conditions of PA 3764A apply to this order. A copy can be obtained by calling (212) 435-4600 or at <http://www.panynj.gov/business-opportunities/become-vendor.html>
12. The vendor may subcontract the services or use a supplier for the furnishing of materials required hereunder to such persons or entities as the Manager, Purchasing Services may from time to time expressly approve in writing. All further subcontracting shall also be subject to such approval.
13. The successful bidder (vendor) shall not issue nor permit to be issued any press release, advertisement, or literature of any kind, which refers to the Port Authority or that goods will be, are being or have been provided to it and/or that services will be, are being or have been performed for it in connection with this Agreement, unless the vendor first obtains the written approval of the Port Authority. Such approval may be withheld if for any reason the Port Authority believes that the publication of such information would be harmful to the public interest or is in any way undesirable.
14. Neither the Commissioners of the Port Authority, nor Directors of PATH, nor any of them, nor any officer, agent or employee thereof, shall be charged personally by the Contractor with any liability, or held personally liable to the Contractor under any term or provision of this Agreement, or because of its execution or attempted execution, or because of any breach, or attempted or alleged breach, thereof.

10106617

BID # 4507



**PORT AUTHORITY TRANS-HUDSON CORPORATION**

# PORT AUTHORITY TRANS-HUDSON

## DUCT BANK FABRICATION PILOT

### CHARGE CODE CR08-083.016

No.	Date	Revision	Approved

Robert J. ...  
 Director of Construction  
 Port Authority of New York and New Jersey

2-23-15  
 DJT  
 2/6/15  
 DJT

Drawing Number: **G0001**  
 P&I: 083.016

1/5





WEDLINGER ASSOC. INC.



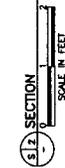
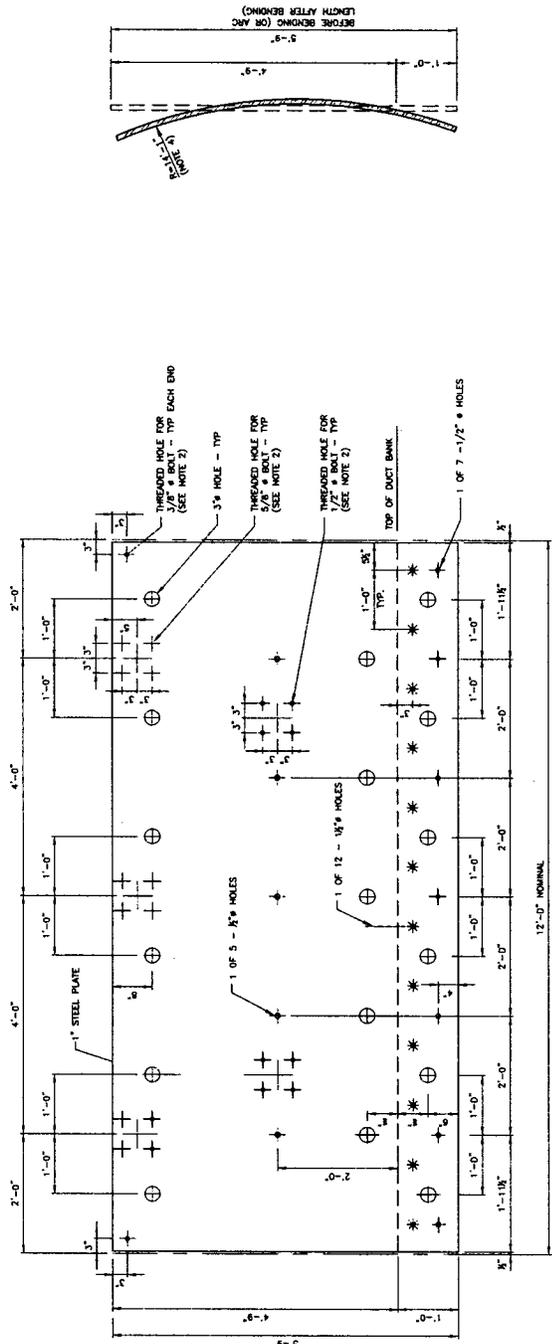
WEDLINGER ASSOC. INC.

No.	Date	Revision	Approved
ENGINEERING DEPARTMENT			
PORT AUTHORITY			
TRANS-HUDSON			

STRUCTURAL  
Title  
DUCT BANK  
FABRICATION PLAN

PLATE DETAILS AND SECTIONS  
SHEET 1 OF 2

Designed by: ALBINO  
Checked by: S. WITTELL  
Date: 10/29/2015  
Charge Code: CR08-083.016  
Drawing Number: S1002  
Proj: 15073000



- NOTE:
- SEE S1001 FOR GENERAL NOTES.
  - REMOVE TEMPORARY CROSSED BOLT FOR EACH THREADED HOLE.
  - PLATE TO BE SHAVED PER GENERAL NOTE 2.01 ON DRAWING S1001.
  - THE CURVATURE OF EACH PLATE SHALL BE FIELD VERIFIED.

( 2 REQUIRED )  
SECTION S1.2 TYPE 12-L STEEL PLATE DETAIL  
SCALE IN FEET

3/8





WEIDLINGER ASSOC. INC.  
N.J. Professional Engineer

WEIDLINGER ASSOC. INC.

STEEL AUTHORITY  
ENGINEERING DEPARTMENT

PORT AUTHORITY  
TRANS-HUDSON

STRUCTURAL  
Title

DUCT BANK  
FABRICATION PLAN

STEEL DETAILS

No.	Date	Revision	Approved

DESIGNED BY: [Signature]

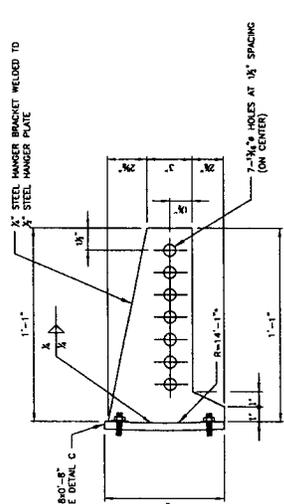
CHECKED BY: [Signature]

DATE: 10/29/2013

CHARGE CODE: CR08-083.016

DRAWING NUMBER: S1004

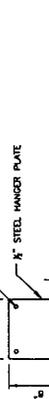
PROJECT: 1257500



(S1) DETAIL - BRACKET  
SCALE IN FEET



(S2) DETAIL - BRACKET  
SCALE IN FEET



(S3) DETAIL - BRACKET  
SCALE IN FEET



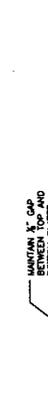
(S4) DETAIL - BRACKET  
SCALE IN FEET



(S5) DETAIL - BRACKET  
SCALE IN FEET



(S6) DETAIL - BRACKET  
SCALE IN FEET



(S7) DETAIL - BRACKET  
SCALE IN FEET



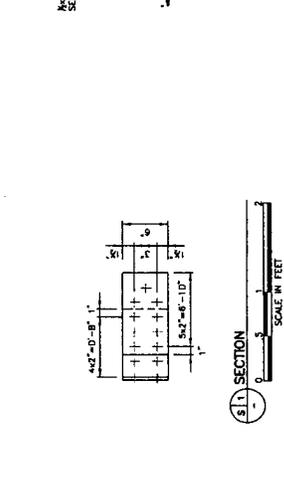
(S8) DETAIL - BRACKET  
SCALE IN FEET



(S9) DETAIL - BRACKET  
SCALE IN FEET



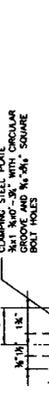
(S10) DETAIL - BRACKET  
SCALE IN FEET



(S11) DETAIL - BRACKET  
SCALE IN FEET



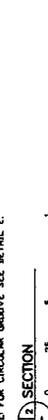
(S12) DETAIL - BRACKET  
SCALE IN FEET



(S13) DETAIL - BRACKET  
SCALE IN FEET



(S14) DETAIL - BRACKET  
SCALE IN FEET



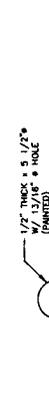
(S15) DETAIL - BRACKET  
SCALE IN FEET



(S16) DETAIL - BRACKET  
SCALE IN FEET



(S17) DETAIL - BRACKET  
SCALE IN FEET



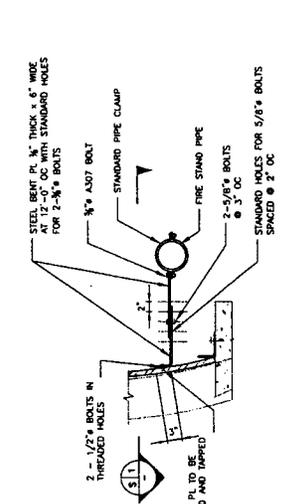
(S18) DETAIL - BRACKET  
SCALE IN FEET



(S19) DETAIL - BRACKET  
SCALE IN FEET



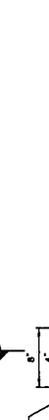
(S20) DETAIL - BRACKET  
SCALE IN FEET



(S21) DETAIL - BRACKET  
SCALE IN FEET



(S22) DETAIL - BRACKET  
SCALE IN FEET



(S23) DETAIL - BRACKET  
SCALE IN FEET



(S24) DETAIL - BRACKET  
SCALE IN FEET



(S25) DETAIL - BRACKET  
SCALE IN FEET



(S26) DETAIL - BRACKET  
SCALE IN FEET



(S27) DETAIL - BRACKET  
SCALE IN FEET



(S28) DETAIL - BRACKET  
SCALE IN FEET



(S29) DETAIL - BRACKET  
SCALE IN FEET



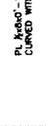
(S30) DETAIL - BRACKET  
SCALE IN FEET



(S31) DETAIL - BRACKET  
SCALE IN FEET



(S32) DETAIL - BRACKET  
SCALE IN FEET



(S33) DETAIL - BRACKET  
SCALE IN FEET



(S34) DETAIL - BRACKET  
SCALE IN FEET



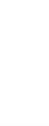
(S35) DETAIL - BRACKET  
SCALE IN FEET



(S36) DETAIL - BRACKET  
SCALE IN FEET



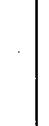
(S37) DETAIL - BRACKET  
SCALE IN FEET



(S38) DETAIL - BRACKET  
SCALE IN FEET



(S39) DETAIL - BRACKET  
SCALE IN FEET



(S40) DETAIL - BRACKET  
SCALE IN FEET

NOTE: ALL STEEL TO BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153 OR ASTM A153 UNLESS NOTED OTHERWISE.

2. THE COVER PLATE AS SHOWN IN DETAIL H SHALL BE PAINTED.

3. \* - \* - INDICATES PLATE CURVATURE TO BE FIELD VERIFIED.

575

## Insurance Procured by the Contractor

The Contractor shall take out, maintain, and pay the premiums on Commercial General Liability Insurance, including but not limited to premises-operations, products-completed operations, and independent contractors coverage, with contractual liability language covering the obligations assumed by the Contractor under this Contract and, if vehicles are to be used to carry out the performance of this Contract, then the Contractor shall also take out, maintain, and pay the premiums on Automobile Liability Insurance covering owned, non-owned, and hired autos in the following minimum limits:

**Commercial General Liability Insurance** - \$2 million combined single limit per occurrence for bodily injury and property damage liability.

**Automobile Liability Insurance** - \$2 million combined single limit per accident for bodily injury and property damage liability.

**Property/Inland Marine Insurance** – The Contractor and its appointed transporters, shall procure at all times and pay premiums on, Property/Inland Marine Insurance, on an all-risk basis, with full replacement value for property in the care, custody and control of the Contractor. The policy shall include PATH as loss payee.

**In addition, the liability policy (ies) shall name The Port Authority of New York & New Jersey, its related entities, their commissioners, directors, officers, partners, employees and agents as additional insured**, including but not limited to premises-operations, products-completed operations on the Commercial General Liability Policy. Moreover, the Commercial General Liability Policy shall not contain any provisions for exclusions from liability other than provisions for exclusion from liability forming part of the most up to date ISO form or its equivalent unendorsed Commercial General Liability Policy. The liability policy (ies) and certificate of insurance shall contain separation of insured conditions and severability of interests clauses for all policies. These insurance requirements shall be in effect for the duration of the contract to include any warrantee /guarantee period and any maintenance period . An act or omission of one of the insureds shall not reduce or void coverage to the other insureds. Furthermore, the Contractor's insurance shall be primary insurance as respects to the above additional insureds. Any insurance or self-insurance maintained by the above additional insureds shall not contribute to any loss or claim

**The certificate of insurance and liability policy (ies) must contain the following endorsement for the above liability coverages:**

***“The insurer(s) shall not, without obtaining the express advance written permission from the General Counsel of the Port Authority, raise any defense involving in any way the jurisdiction of the Tribunal over the person of the Port Authority, the immunity of the Port Authority, its Commissioners, officers, agents or employees, the governmental nature of the Port Authority, or the provisions of any statutes respecting suits against the Port Authority.”***

The Contractor shall also take out, maintain, and pay premiums on **Workers' Compensation Insurance** in accordance with the requirements of law in the state(s)

NON-OCIP CGL AUTO WC  
4/8/13

10106617 ✓

where work will take place, and Employer's Liability Insurance with limits of not less than \$1 million each accident.

**Each policy above shall contain a provision that the policy may not be canceled, terminated, or modified without thirty (30) days' prior written notice to the Port Authority of NY and NJ, Att: Facility Contract Administrator, at the location where the work will take place and to the General Manager, Risk Financing.**

The Port Authority may at any time during the term of this agreement change or modify the limits and coverages of insurance. Should the modification or change results in an additional premium, The General Manager, Risk Financing for the Port Authority may consider such cost as an out-of-pocket expense.

Within five (5) days after the award of this agreement or contract and prior to the start of work, the Contractor must submit an original certificate of insurance, to the Port Authority of NY and NJ, Facility Contract Administrator, at the location where the work will take place. This certificate of insurance MUST show evidence of the above insurance policy (ies), stating the agreement/contract number prior to the start of work. The General Manager, Risk Financing must approve the certificate(s) of insurance before any work can begin. Upon request by the Port Authority, the Contractor shall furnish to the General Manager, Risk Financing, a certified copy of each policy, including the premiums.

If at any time the above liability insurance should be canceled, terminated, or modified so that the insurance is not in effect as above required, then, if the Manager shall so direct, the Contractor shall suspend performance of the contract at the premises. If the contract is so suspended, no extension of time shall be due on account thereof. If the contract is not suspended (whether or not because of omission of the Manager to order suspension), then the Authority may, at its option, obtain insurance affording coverage equal to the above required, the cost of such insurance to be payable by the Contractor to the Port Authority.

Renewal certificates of insurance or policies shall be delivered to the Facility Contractor Administrator, Port Authority at least fifteen (15) days prior to the expiration date of each expiring policy. The General Manager, Risk Financing must approve the renewal certificate(s) of insurance before work can resume on the facility. If at any time any of the certificates or policies shall become unsatisfactory to the Port Authority, the Contractor shall promptly obtain a new and satisfactory certificate and policy.

The requirements for insurance procured by the Contractor shall not in any way be construed as a limitation on the nature or extent of the contractual obligations assumed by the Contractor under this contract. The insurance requirements are not a representation by the Authority as to the adequacy of the insurance to protect the Contractor against the obligations imposed on them by law or by this or any other Contract. **[CITS#4997N]**

pg 2/2

10106617  
Bid #45507

C 07/22/2015

**DIVISION 5**  
**SECTION 05120**  
**STRUCTURAL STEEL**

**PART 1. GENERAL**

1.01 SUMMARY

This Section specifies requirements for structural steel.

1.02 REFERENCES

The following is a listing of the publications referenced in this Section.

American Association of State Highway and Transportation Officials (AASHTO)

Standard Specifications for Highway Bridges

American Institute of Steel Construction (AISC)

Code of Standard Practice for Steel Buildings and Bridges:

Sections 2; 6; 8; and 10, only (except that all references to the responsibility of the Owner and the Engineer will not apply.)

Specifications for Structural Steel Buildings

American Society for Non-destructive Testing (ASNT)

SNT-TC-1A Recommended Practice

American Welding Society (AWS)

D 1.5 AASHTO/AWS Bridge Welding Code

QC1 Certification of Welding Inspectors

1.03 DESIGN AND PERFORMANCE REQUIREMENTS

A. Connection Detailing

Complete details shall be shown on the shop drawings.

B. Shop Drawings

1. The shop drawings shall contain all dimensional and geometric information. Materials shall not be ordered, fabricated, or delivered to the construction site before the shop drawings have been approved.

2. Prior to review of the shop drawings by the Engineer, such shop drawings shall have been reviewed and approved by the Contractor and shall be stamped to indicate this by the Contractor. Such approval by the Contractor shall constitute the Contractor's representation that he has verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar data with respect thereto and has reviewed or coordinated each shop drawing with other shop drawings and samples and with the requirements of the Work and the Contract Drawings and Specifications.
3. Shop drawings shall include layouts and details showing the type of steel for each member, sizes of members, connections, cuts, copes, cope reinforcing, bolts, welds and other pertinent data. Provisions for the connection of any other work shall be indicated on the shop drawings.
4. All welds shall be indicated by standard welding symbols as defined by AWS. Shop drawings shall show the size, length, and type of each weld.
5. Shop drawings shall be submitted in complete packages so that individual parts and the assembled unit may be reviewed together.
6. The review of shop drawings by the Engineer shall not in any way relieve the Contractor from the responsibility for the adequacy of all required detailing, the responsibility for the proper fitting of the Work in strict conformance with the Contractor requirements and from the necessity of furnishing material and workmanship required by Contract Drawings and Specifications in addition to that indicated on the shop drawings.
7. Supply a complete set of stamped, approved drawings to the Engineer's representative at the fabrication shop prior to the commencement of any fabrication.

#### 1.04 QUALITY CONTROL

##### A.

1. The entity performing the Work of this Section shall have a minimum of three years experience in structural steel work involving complexities similar to those required under this Contract and shall employ labor and supervisory personnel experienced in this type of Work.
2. The fabrication shop shall be certified under the AISC certification program as Category Sbr for bridges unless a higher category is shown on the Contract Drawings.
3. The Contractor's quality control plan shall be submitted to the Engineer for review and approval. The Engineer may elect to inspect the fabrication shop to verify that the fabrication is performed in accordance with contract documents and that the shop is operated in accordance with the quality control plan. As a minimum the quality control plan for fabrication shall address the trace-ability of materials to mill certificates and heat numbers, and the documentation that shows welders and technicians are properly certified to perform the subject work and the inspection, testing and dimensional checks performed during fabrication.

- B. The Contractor shall qualify welding processes and welding operators in accordance with the applicable AWS Welding Code and shall provide certification that welders to be employed in the Work have satisfactorily passed AWS qualification tests.
- C. The Contractor shall maintain a quality control program for fabrication of structural steel to conform to the requirements of the Contract Drawings and Specifications. The quality control program shall conform to the AISC Code of Standard Practice for Steel Buildings and Bridges, as well as the requirements in this Section for both shop inspection and testing. The Contractor shall employ non-destructive testing personnel that meet ASNT SNT-TC-1A level II qualifications and AWS certified welding inspectors.
- D. The Contractor shall inspect structural steel at the fabricating shop.
- E. Welds shall be inspected and tested at the fabricating shop by the Contractor in accordance with AWS D 1.5 and as follows:
  - 1. All welds shall be visually inspected by an AWS certified inspector.
  - 2. Full penetration welds used in transverse joints (splices) of plates or shapes, and any length of weld in longitudinal joints of built-up members that is subject to direct tensile stress (acting in a direction perpendicular to the axis of the weld), shall be non-destructively tested for 100 percent of the weld length by radiographic or ultrasonic methods, as approved by the Engineer. All other full penetration welds shall be non-destructively tested in a similar manner for 25 percent of their length.
  - 3. Defects found visually in partial penetration and fillet welds shall be non-destructively tested by magnetic particle or dye penetrant methods, as approved by the Engineer, however, for bridge members test 10 percent of the length of all partial penetration and fillet welds in accordance with AWS D1.5. If in the opinion of the Engineer, the test results disclose unacceptable welds, then the percentage of welds required to be tested may be increased, as deemed necessary by the Engineer, up to 100%, without additional compensation therefor.
- F. The Contractor shall have sole responsibility for coordinating the Work and notifying the Engineer in a timely manner to assure that all testing and inspection procedures required by the Engineer are properly provided.
- G. The Port Authority will perform quality assurance testing to ensure quality workmanship. Inspection and testing will include but not be limited to visual inspections, ultrasonic, radiograph, magnetic particle or dye penetrant testing of the welding and cutting performed in the fabrication shop and in the field. The percentage and extent of testing will be no less than 25% of that required of the Contractor. The Contractor shall notify the Engineer and the Port Authority Materials Engineering Division 15 days prior to the start of fabrication.
- H. Supply equipment and personnel, at no additional cost to the Authority, to assist in moving members as necessary for adequate access to properly perform Quality Assurance inspections and testing by the Authority. Coupons of material may also be requested and shall be cut in the presence of the Engineer at no additional cost to the Authority. Provide a desk and adequate workspace for the Authority shop inspector. Provide access to telephones, fax machines and copy machines at all times.

#### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the construction site at appropriate intervals so as to ensure uninterrupted progress of Work.
- B. Material shall be stored in an area designated or approved by the Engineer. Structural steel shall be drained properly. Adequate shoring and protection shall be provided to prevent distortion and other damage. Structural steel shall be stored on timber and not on mud or cinders, and otherwise handled so as not to damage shop paint. All sections which are to be placed in ground storage shall be readily accessible for inspection.

#### 1.06 SUBMITTALS

See Appendix "A" for submittals requirements.

### **PART 2. PRODUCTS**

#### 2.01 MATERIALS

##### A. Structural Steel

Structural steel shall mean structural steel as defined in Section 2 - Classification of Materials of the AISC "Code of Standard Practice for Steel Buildings and Bridges".

Structural steel shall conform to types shown on the Contract Drawings. The types are indicated by the ASTM or AASHTO designation for each. Each type shall conform to all of the requirements of the indicated ASTM or AASHTO specifications.

##### B. Bolts

Bolts, nuts and washers shall be of the types shown on the Contract Drawings. Bolts shall conform to ASTM A307 with nuts and washers to match, unless otherwise noted.

##### C. Welding Electrodes: Comply with AWS D1.5.

##### D. Paint: In accordance with Section 09910 entitled Painting.

#### 2.02 FABRICATION

##### A. Fabrication shall not begin without approvals for the following:

1. Shop Drawings;
2. Quality Control Plan;
3. Welding Procedure Specifications;
4. Procedure Qualification Records (if applicable);
5. Welder Qualifications;
6. Mill Test Reports;
7. Quality Control personnel, including an AWS Certified Welding Inspector (CWI), and non-destructive testing personnel that meet ASNT SNT-TC-1A Level II qualifications.

Any fabrication performed without prior approval of these items will not be accepted. In addition, a copy of all signed approvals, including the supporting documentation, shall be in the possession of the fabrication shop prior to the commencement of fabrication and shall be made available to the Engineer at all times.

- B. Fabricate and assemble structural assemblies in shop to greatest extent possible. Provide camber and fabricate items of structural steel in accordance with the standards and specifications referenced herein and as indicated on shop drawings approved by the Engineer.
- C. Properly mark and match-mark materials for field assembly. Fabricate for a delivery sequence which will expedite erection and minimize field handling of materials.
- D. Where finishing is required, complete assembly, including welding of units, before the start of finishing operations. Provide finish surfaces of members, exposed in final structure, free of markings, burrs, and other defects.

### 2.03 SHOP PAINTING

- A. Shop paint and hot-dip galvanize structural steel as shown on the Contract Drawings, except those members or portions of members to be embedded in concrete or mortar. Paint embedded steel which is partially exposed on exposed portions and initial 2 inches of embedded areas only.
- B. Unless otherwise shown on the Contract Drawings, do not paint:
  - 1. Surfaces which are to be welded or high-strength bolted with friction-type connections;
  - 2. Surfaces which are scheduled to receive sprayed-on fireproofing;
  - 3. Surfaces of exposed, corrosion-resistant, high-strength, low-alloy steel members.
- C. Apply an additional coat of paint to surfaces which are inaccessible after assembly or erection. Change color of additional coat to distinguish it from first. Where shop painting is required, paint erection marks on painted surfaces.
- D. Type of paint and surface preparations, if any shall be as shown on the Contract Drawings.
- E. Notify the Port Authority Materials Engineering Division 15 days in advance of painting so arrangements can be made to inspect surface preparation prior to coating. In addition to inspecting surface preparation and coating the Port Authority will also perform tests to confirm blast profile, dry film thickness and adhesion. Samples of coatings will be selected for testing by the Engineer.

### PART 3. NOT USED

**END OF SECTION**

## **SECTION 05120**

### **STRUCTURAL STEEL**

#### **SUBMITTALS**

##### **APPENDIX "A"**

The following items shall be submitted to the Engineer for approval except as otherwise noted.

- A. Shop Drawings
  - 1. As per Division 1, "Shop Drawings, Catalog Cuts and Samples."
  - 2. Shop drawings for all structural steel as per 1.03 B.
- B. Catalog Cuts, Material Certification, Welder Qualifications and Test Results
  - 1. As per Division 1, "Shop Drawings, Catalog Cuts and Samples."
  - 2. Prior to commencing with fabrication of steel, certified copies of all mill reports covering the chemical and physical properties of all steel used in this Contract shall be submitted. Such certification shall be obtained from the mills producing the steel and shall certify that the steel meets the minimum requirements as to physical properties, inspection, marking, and tests for structural steel as defined by the American Society for Testing and Materials (ASTM) or in the case of bridges, AASHTO, for the type of steel shown on the Contract Drawings.
  - 3. Mill certificates for nuts, bolts, and washers.
  - 4. Inspection and test results from fabrication shop as per 1.04 E within five calendar days of inspections and tests.
  - 5. Welder qualifications in accordance with 1.04 B.
- C. Quality Control Documents
  - 1. Copy of AISC certification for the fabrication shop that indicates the required Category as specified herein.
  - 2. Copy of the fabrication shop's quality control program as outlined in 1.04 C. The program shall include the qualifications of the individuals responsible for implementing the program.
  - 3. Qualifications of all non-destructive testing personnel, certified welding inspectors and their entities.
  - 4. Name and location of shop that will perform painting work along with the shop's quality control plan.
  - 5. Notification 15 days prior to commencing fabrication of structural steel.
  - 6. Notification 15 days prior to commencing with surface preparation and painting.

**END OF APPENDIX "A"**

**DIVISION 9**  
**SECTION 09910**  
**PAINTING**

**PART 1. GENERAL**

**1.01 SUMMARY**

- A. This Section specifies requirements for shop application of paint as shown on the Contract Drawings.
- B. Work of this Section includes surface preparation and painting of the following items and surfaces:
  - 1. Exterior and interior painting in accordance with Appendix "B" to this Section.
  - 2. Galvanized steel and miscellaneous metal items.
- C. These and similar items shall not be painted:
  - 1. Concealed or inaccessible surfaces except as indicated on the Contract Drawings.
- D. Definitions: "QC" refers to quality control or a quality control program. This is a methodology employed by the Contractor to ensure compliance with Contract requirements.

**1.02 REFERENCES**

The following is a listing of the publications referenced in this Section:

American Society for Testing and Materials (ASTM)

ASTM A 123	Standard Specification for Zinc (Hot-Dip) Galvanized Coatings on Iron and Steel
ASTM A 153	Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A 780	Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
ASTM D 521	Standard Test Methods for Chemical Analysis of Zinc Dust (Metallic Zinc Powder).
ASTM D 523	Test Method for Specular Gloss.
ASTM D 562	Standard Test Method for Consistency of Paints Measuring Krebs Unit (KU) Viscosity Using a Stormer-Type Viscometer.
ASTM D 1475	Standard Test Method for Density of Liquid Coatings, Inks, and Related Products.
ASTM D 2369	Standard Test Method for Volatile Content of Coatings.
ASTM D 2371	Standard Test Method for Pigment Content of Solvent-Reducible Paints.
ASTM D 2697	Standard Test Method for Volume Nonvolatile Matter in Clear or Pigmented Coatings.

ASTM D 3359	Standard Test Method for Measuring Adhesion by Tape Test.
ASTM D 4259	Standard Practice for Abrading Concrete.
ASTM D 4263	Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.
ASTM D 4285	Standard Test Method for Indicating Oil or Water in Compressed Air.
ASTM D 4414	Standard Practice for Measurement of Wet Film Thickness by Notch Gages.
ASTM D 4417	Standard Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel.
ASTM D 4541	Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers.
ASTM D 6386	Standard Practice for Preparation of Zinc (Hot-Dip Galvanized) Coated Iron and Steel Product and Hardware Surfaces for Painting.
ASTM D 7091	Standard Practice for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to Ferrous Metals and Nonmagnetic, Nonconductive Coatings Applied to Non-Ferrous Metals.
ASTM F 1869	Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor using Anhydrous Calcium Chloride.

Northeast Protective Coating Committee (NEPCOAT)

NEPCOAT QPL	Qualified Products List
	<u>The Society for Protective Coatings (SSPC)</u>
SSPC-PA 1	Shop, Field and Maintenance Painting of Steel
SSPC-PA 2	Procedure for Determining Conformance to Dry Coating Thickness Requirements.
SSPC-PA 17	Procedure for Determining Conformance to Steel Profile/Surface Roughness/Peak Count Requirements.
SSPC-SP 1	Solvent Cleaning.
SSPC-SP 2	Hand Tool Cleaning.
SSPC-SP 3	Power Tool Cleaning.
SSPC-SP 5	White Metal Blast Cleaning.
SSPC-SP 6	Commercial Blast Cleaning.
SSPC-SP 7	Brush-Off Blast Cleaning.
SSPC-SP 10	Near-White Blast Cleaning.
SSPC-SP 11	Power Tool Cleaning to Bare Metal.
SSPC-SP 16	Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals.
SSPC-VIS 1	Visual Standard for Abrasive Blast Cleaned Steel.
SSPC-VIS 3	Visual Standard for Power and Hand Tool Cleaning.

### 1.03 AMBIENT TEMPERATURE AND HUMIDITY REQUIREMENTS

- A. Comply with the manufacturer's technical data sheets subject to approval by the Engineer as to environmental conditions under which paint and finishes may be applied, and with the following:
  - 1. Do not apply paints in rain, snow, fog or mist, or when relative humidity exceeds 85 percent. Painting may be performed during inclement weather if areas and surfaces to be painted are enclosed and heated within temperature limits specified by the manufacturer(s) during application and drying periods.
  - 2. Apply solvent based paint only when temperature of surfaces to be painted and surrounding air temperatures are between 45 degrees F and 95 degrees F.
  - 3. Apply water-based paint only when temperature of surfaces to be painted and surrounding air temperatures are between 50 degrees F and 90 degrees F.
  - 4. Apply paint to surfaces only when the surface temperature is at least 5 degrees F above the dew point.
- B. When painting and/or abrasive blasting operations are performed out of doors, no Work shall be performed when the U.S. Weather Bureau forecasts precipitation to commence prior to or within two hours after completion of such procedures and application of paint.

### 1.04 QUALITY ASSURANCE

#### A. Paint System Compatibility

The paint system, including all primers and undercoats, shall be produced by the manufacturer of the topcoat. Where this is not possible (as in cases of specialized primers used in the coating of miscellaneous components) review other Sections of the Specifications to determine the primer, surface preparation and treatment for the substrates and items to be field painted or finished as Work of this Section.

- 1. Notify the Engineer in writing of compatibility problems associated with the Work of this Section and substrates primed under other Sections of these Specifications.

#### B. Painting of Steel - Requirements

All painting of steel and galvanized steel shall be done by firms that are approved by the Engineer.

- 1. Shop and Field Technical Capabilities
  - a. Shops shall have areas available for specific operations, such as: receiving and lay down for steel to be coated; pre-cleaning of items to be coated; surface preparation; coating application; drying and curing of coated items; storage of coating materials.
  - b. Blasters and painters must be trained. This training shall consist of instruction by a qualified instructor and shall cover various types of surface preparation equipment, paints and application equipment. Maintain instructor qualifications and training records and produce them when requested.
  - c. There shall be procedures or processes in place to record specifications and revisions and to clarify ambiguous or incomplete specifications.
  - d. There shall be a procedure for informing quality control and production personnel of job/shop procedures to meet requirements of this Section.

2. Quality Control (QC)

The entity performing painting of steel and galvanized steel shall have a written quality control program. The program shall contain, but not be limited to, the following:

- a. The qualifications of QC staff, including training records and experience.
- b. The authority of QC staff and reporting lines in the firm organization chart.
- c. Standards and specifications used by QC staff for inspection purposes.
- d. Inspection reports and other records documenting compliance with Authority requirements.
- e. Inspection equipment and calibration standards used by QC staff and calibration procedures.
- f. Procedure for QC staff to advise the foreman, in writing, of non-conforming Work.

3. Contractor's Responsibility

- a. The Contractor is responsible for Quality Control, which entails the daily inspection of all painting. All inspections shall be performed by Quality Control Staff. The Quality Control Program shall ensure that coating systems are applied according to this Section and the coating manufacturer's technical data sheets subject to approval by the Engineer for surface preparation, ambient conditions, application parameters, curing and film thickness. In the event of a conflict, the requirements of this Section shall prevail.
- b. The Engineer may perform Quality Assurance inspections to verify that the Contractor's Quality Control program is being followed. The presence of Engineer Quality Assurance inspectors does not relieve the Contractor of complying fully with the requirements of this Section, and performing all required Quality Control inspections and tests.

4. Schedule and Engineer Approval

- a. Submit a schedule for surface preparation and painting at least 30 days prior to beginning Work.
- b. At least 10 days prior to painting, notify the Engineer.
- c. Do not paint steel until approval to proceed is given by the Engineer.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in the manufacturer's original unopened packages and containers bearing manufacturer's name, label and the following information:
  1. Manufacturer's name.
  2. Name or title of material.
  3. Manufacturer's stock number and date of manufacture.
  4. Shelf life.
  5. Contract or order number under which the material has been ordered.
  6. Lot and batch numbers.

- B. Store materials not in actual use in an enclosed storage area at a minimum ambient temperature of 45 degrees F and a maximum temperature of 90 degrees F. Maintain storage areas for coatings in a clean condition, free of foreign materials and residue. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take all necessary precautionary measures to ensure that workmen and Work areas are protected from fire hazards and health hazards resulting from handling, mixing and application of materials.
- C. Provide paint ready mixed to approved colors. Construction site tinting is prohibited.
- D. Extra Material

Where requirements for extra materials are shown on the Contract Drawings, deliver to the Engineer prior to issuance of the Certificate of Final Completion not less than one gallon of each color of each coating applied as Work of this Section. Deliver extra material in the manufacturer's original, unopened containers, clearly labeled with product identification and Contract number.

#### 1.06 SUBMITTALS

See Appendix "A" for submittal requirements.

### **PART 2. PRODUCTS**

#### 2.01 MANUFACTURERS

- A. Provide paint systems and products of manufacturers in accordance with Appendix "B" to this Section, or approved equal.
- B. When materials or products proposed to be used are products of manufacturers other than manufacturers specified in Appendix "B" to this Section, submit product information in accordance with the requirements of Division 1 - GENERAL PROVISIONS clause entitled "Substitution".

#### 2.02 MATERIALS

- A. Provide colors as shown on the Contract Drawings, or if not shown, as required by the Engineer.

#### 2.03 MIXES

- A. Verify that the paint to be mixed has not exceeded its shelf life.
- B. Mix and prepare painting materials in accordance with the manufacturer's technical data sheets subject to approval by the Engineer and 1.05 C.
- C. Stir materials before application, and as required during application to produce a mixture of uniform density. Do not stir surface film into material. Remove film and, if necessary, strain material before using.
- D. Mix only complete kits of multi-component materials.
- E. Colors

Each undercoat shall be a contrasting color to facilitate identification of each coat where multiple coats are to be applied as shown on the Contract Drawings.

## 2.04 ABRASIVES

- A. Provide expendable or recyclable abrasives that are dry and free of oil, grease and corrosion-producing or other deleterious contaminants.
- B. For the preparation of steel that is specified to be blasted, provide abrasives that are sized to produce a sharp, angular, uniform anchor pattern with a profile height of 2.0-3.5 mils, unless the requirements of the coating manufacturer are more restrictive. In this case, comply with profile requirements specified by coating manufacturer.

## 2.05 EQUIPMENT

- A. Surface Preparation Equipment
  - 1. Provide hand tools, power tools, abrasive blast cleaning and other surface preparation equipment sized properly to conduct the Work as specified in this Section and shown on the Contract Drawings.
  - 2. Provide specialized equipment for the surface preparation of difficult-to-clean areas. Specialized equipment may include, but is not limited to:
    - a. Angled nozzles or short nozzles for abrasive blast cleaning.
    - b. Spin blast equipment.
- B. Paint Application Equipment
  - 1. Provide paint brushes, rollers and spray equipment to conduct the Work as specified in this Section.
  - 2. Provide specialized equipment as required for the painting of difficult-to-paint areas. Specialized equipment may include, but is not limited to:
    - a. Angled brushes for backs of nuts and bolts and other hard to reach areas.
    - b. Mitts, daubers or other methods to supplement brush application.

## PART 3. EXECUTION

### 3.01 PREPARATION

#### A. General

Perform preparation and cleaning procedures in accordance with the paint manufacturer's technical data sheets subject to approval by the Engineer and as specified in this Section, for each particular substrate condition.

- 1. Ensure paint system compatibility in accordance with 1.04 A.
- 2. Do not conduct final surface preparation which exposes the substrate to damp environmental conditions, when the surface temperature is less than 5 degrees F above the dew point, or when the relative humidity is >85%.
- 3. Remove hardware, hardware accessories, machined surfaces, lighting fixtures and similar items in place and not to be painted, or provide surface-applied protection prior to surface preparation and painting of items and adjacent surfaces. Following completion of painting of each space or area, reinstall removed items and remove protective coverings.
- 4. When previously painted surfaces requiring field top coating are glossy (greater than 50 units at 60 degrees), first remove the gloss using a 120 grit or greater (finer) grade sandpaper.

5. Thoroughly clean and remove all dust, oil, grease and other contaminants from surfaces to be painted. Schedule cleaning and painting so that contaminants from cleaning process will not fall onto wet, newly-painted surfaces.

B. Surface Preparation

1. Steel

Remove slag, flux deposits, weld splatter and surface irregularities such as slivers, tears, fins and hackles; follow AWS Guidelines. Grind any resulting burrs smooth, including burrs around holes, if any. Do not remove any welding material that will weaken weld strength.

Prior to preparation, break sharp edges such as those created by flame cutting and shearing. Do not break rolled edges of angles, channels and wide flange beams without Engineer's approval.

Clean surfaces to remove oil, grease, soil and other soluble contaminants in accordance with SSPC-SP1 Solvent Cleaning. Where shown on the Contract Drawings, prepare surface in accordance with one or more of the following: SSPC-SP 2, SSPC-SP 3, SSPC-SP 5, SSPC-SP 6, SSPC-SP 7, SSPC-SP 10 and SSPC-SP 11. For welds, edges and holes, prepare surfaces to the same cleanliness level and profile as the surrounding steel.

- a. Steel - Blast Cleaned

Unless otherwise shown on the Contract Drawings, perform abrasive blasting in accordance with SSPC-SP 10 Near White Blast Cleaning using a production line blast machine or by air blast. Abrasives used with blast machines may be all grit or a shot and grit mix. If a shot/grit mix is used, maintain a working mix that provides a sharp, angular profile. The use of all shot abrasive is not acceptable. Maintain the abrasive work mix such that the final surface profile is within the required range. Use SSPC-VIS 1 to evaluate the degree of cleaning.

- b. Provide expendable or recyclable abrasives that are dry and free of oil, grease, and corrosion producing, or other deleterious contaminants. Daily (or more frequently if required) check the abrasive for oil, grease or dirt contamination with the vial test. The test consists of adding a sample of abrasive from the inside of the blast machine to a sealable vial filled with deionized water. The vial is shaken for one minute and allowed to settle for five minutes. If any oil or grease is floating on top of the water, then the abrasive is contaminated. If the water becomes cloudy, then it contains dirt. Do not use contaminated or dirty abrasives to blast steel surfaces.

- c. Compressed Air Cleanliness

- (1) Provide compressed air that is free from moisture and oil contamination.
- (2) Use the white blotter test in accordance with ASTM D 4285 to verify the cleanliness of the compressed air. Conduct the test at least once per day for each compressor system. Sufficient freedom from oil and moisture is confirmed if soiling or discoloration are not visible on the paper.
- (3) If air contamination is observed, change filters, clean traps, add moisture separators or filters or make adjustments as necessary to achieve clean, dry air. Reinspect surfaces prepared or coated since the last satisfactory test and repair, at no cost to the Authority, defective Work caused by contaminated air.

d. Surface Profile

The steel surface profile shall be sharp and angular with a range of 2.0-3.5 mil. Pay special attention to areas that may have been shielded during blasting. Measure the surface profile in accordance with SSPC-PA 17 using the surface profile depth replica tape method as detailed in ASTM D 4417. File the replica tapes with the Quality Control inspection records.

2. Galvanized Steel Surfaces

a. Hot-dip galvanizing shall be by the "dry kettle" process. Do not quench galvanized items following galvanizing nor shall galvanized surfaces be treated with waxes, oils or chromates.

b. Surface Preparation

- (1) Prepare the surface for painting in accordance with ASTM D 6386 Zinc Phosphate Treatment. Follow the manufacturer's instructions for use of the materials. Prior to chemical treatment, remove white rust and other contaminants.
- (2) Alternatively, the surface may be prepared by brush-off blast cleaning in accordance with SSPC-SP16.

### 3.02 APPLICATION

A. General

1. Apply paint in accordance with SSPC-PA 1 and the manufacturer's technical data sheets subject to approval by the Engineer. Use applicators and techniques best suited for substrate and type of material being applied.
2. Do not apply paint in areas where dust is being generated.
3. Apply each coat at proper consistency. After each coat has dried, visually examine for pinholes, fish eyes, blisters, runs, sags and missed areas. Repair defects and repaint.
4. Apply additional coats when undercoats, stains or other conditions show through top coat of paint, until paint film is of uniform finish, color and appearance. Apply stripe coats of the prime or midcoat to all edges, corners, crevices, holes (exposed in final construction), welds and other surface irregularities.

B. Scheduling Painting

Apply paint to surfaces that have been cleaned, pretreated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

1. Allow sufficient time between successive coats to permit proper drying. Abide by the coating manufacturer's minimum and maximum recoat times subject to approval by the Engineer. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

C. Coating Thickness

Apply materials at the manufacturer's recommended spreading rate or wet film thickness, to establish a total dry film thickness as shown on the Contract Drawings or, if not shown, as recommended by coating manufacturer and as approved by the Engineer. Monitor paint application rate by use of wet film thickness gage in accordance with ASTM D 4414. Measure the dry film thickness of each coat. Comply with SSPC-PA 2 and ASTM D 7091 for the calibration, adjustment and use of the dry film thickness gages, and the frequency of measurements.

1. Give special attention to ensure that surfaces such as edges, corners, crevices, welds and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
2. Apply additional coating to areas of insufficient thickness. Use care during application to assure that all repairs blend in with the surrounding surfaces.
3. Unless directed otherwise by the Engineer, remove excessive coating thickness and reapply the affected coat(s).

D. Coating Adhesion

1. Apply all coats in such a manner to assure that they are well-adhered to each other and to the substrate. If the application of any coat causes lifting of an underlying coat, or if there is poor adhesion between coats or to the substrate, remove the coating in the affected area to adjacent sound, adherent coating and reapply the material.
2. If adhesion is suspect, conduct adhesion tests in accordance with ASTM D 3359 or ASTM D 4541 as directed by the Engineer and repair all test areas. The acceptance criteria for the testing will be established by the Engineer. Replace all defective coating that is revealed by the testing.

E. Completed Work

Match approved samples for color, texture and coverage. Remove, refinish or repair Work not in compliance with the requirements specified in this Section.

F. Painting of Bare Areas and Repair of Damaged and Unacceptable Coatings

1. Surface Preparation of Localized Areas
  - a. Repair localized damage, corrosion and unacceptable coatings.
  - b. Prepare the surface by cleaning in accordance with SSPC-SP 1 Solvent Cleaning followed by SSPC-SP 2 Hand Tool Cleaning or SSPC-SP 3 Power Tool Cleaning. Use a solvent that is acceptable to the paint manufacturer.
  - c. For previously blast-cleaned steel, if the damage exposes the substrate, remove all loose material and prepare the steel in accordance with SSPC-SP 11 with a 2 mil profile. Use SSPC-VIS 3 to evaluate the degree of cleaning.
  - d. Welds and other bare areas shall be cleaned to the same level as the surrounding steel. If the surrounding steel was abrasive blast cleaned, welds and other small, bare areas may also be cleaned in accordance with SSPC-SP 11 with a 2 mil profile.
  - e. For galvanized steel, repair damaged galvanizing in accordance with ASTM A 780. Use a zinc-rich coating containing a minimum of 93 percent zinc in the dry film. For damage that exposes the substrate, clean surfaces in accordance with SSPC-SP 11.

2. Surface Preparation of Extensive Areas
  - a. Repair extensive areas of damage or unacceptable coating by methods acceptable to the Engineer, based on the nature of the defect.
  - b. For previously blast-cleaned steel, blast surfaces back to original requirements. Use extreme care to avoid overblast damage to the surrounding coating.
3. Feathering of Repair Areas and Other Bare Areas
  - a. Feather the existing coatings surrounding each repair location. Feather for a distance of 1 to 2 inches to provide a smooth, tapered transition into the coating.
  - b. Verify that the edges of coating around the periphery of the repair areas are tight and intact by probing with a putty knife in accordance with the requirements of SSPC-SP 3 Power Tool Cleaning. Roughen the existing coating in the feathered area to assure proper adhesion of the touch up coats.
- G. Coating Application in Repair Areas and Other Bare Areas
  1. When the bare substrate is exposed in the repair area, apply all coats of the system to the specified thicknesses.
  2. When the damage does not extend to the bare substrate, apply only the affected coats.
  3. Maintain the thickness of the system in overlap areas within the specified total thickness tolerances.
  4. For welds and other unpainted areas, apply all coats of the system.
- H. Clean-up

During progress of Work, remove discarded paint materials, rubbish, cans and rags daily. Upon completion of painting Work, clean window glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

### 3.03 PAINT TESTING

- A. The Authority reserves the right to conduct tests of the materials at any time, and any number of times during shop or field painting.
  1. The Engineer may sample the paint(s) being used. A representative pint or quart sample of each component of paint(s) at the construction site will be transferred to metal containers, identified, sealed and certified in the presence of the Contractor.
  2. Tests on paint samples may be conducted by the Engineer to confirm manufacturer's submittals made under Appendix "A". Any or all of the following tests may be conducted:
    - a. Viscosity (Stormer @ 25 degrees C) KU, ASTM D 562.
    - b. Percent Total Solids by Weight, ASTM D 2369.
    - c. Volatile Organic Compounds (VOC), ASTM D 2369.
    - d. Weight per Gallon, ASTM D 1475.
    - e. Volume Nonvolatile Matter, ASTM D 2697.
    - f. Pigment Content, ASTM D 2371.
    - g. Percent Metallic Zinc in Primer, ASTM D 521.
    - h. Specular Gloss of Finish Coat, ASTM D 523.

- i. Infrared Identification - of individual components and of the mixed coatings for 2 component materials. Obtain each spectrum by sandwiching a small quantity (i.e., 1-2 drops) of material between 2 potassium bromide plates and obtaining a transmission infrared spectrum. For the mixed and cured material, use a solid sampling technique.
3. If the Engineer determines upon review of laboratory tests that the material being used does not comply with the requirements specified in this Section, he may direct the Contractor to stop painting Work and remove non-complying paint, to repaint surfaces coated with rejected paint or to remove rejected paint from previously painted surfaces if, upon repainting with specified paint, the two coatings are incompatible.

#### 3.04 PROTECTION

Protect other adjacent Work against damage by painting and finishing Work. Correct damage by cleaning, repairing or replacing, and repainting, as approved by the Engineer.

- A. Provide "Wet Paint" signs to protect newly painted finishes. After completion of painting operations, remove temporary protective wrappings for protection of adjacent and existing conditions.
- B. At completion of all Work of the Contract, touch-up and restore damaged or defaced painted surfaces.
- C. Ensure that coated items are not shipped until cured. Protect all fully coated and cured items from handling and shipping damages using padded slings, dunnage, separators and tie-downs.

END OF SECTION

## SECTION 09910

### PAINTING

#### APPENDIX "A"

#### SUBMITTALS

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 - GENERAL PROVISIONS:

##### A. Product Data

1. Manufacturer's technical data sheets including the following information for each coating:
  - Volume Solids
  - VOC
  - DFT range
  - DFT maximum
  - Zinc content (zinc primers only)
  - Slip coefficient (zinc primers only)
  - Substrates
  - Surface preparation
  - Profile
  - Storage temperature
  - Primers
  - Topcoats
  - Application equipment, including touchup
  - Mixing
  - Thinners
  - Thinning maximum
  - Sweat-in-time
  - Pot life
  - Application schedule -
  - Minimum surface/air temperatures and humidity
  - Maximum surface/air temperatures and humidity
  - Drying schedule -
  - Dry to handle
  - Dry to topcoat
  - Maximum recoat
  - Cure
2. Submit to the Engineer one copy of U.S. Department of Labor, Material Safety Data Sheets (MSDS) for hazardous chemicals utilized during the Work of this Section.

##### B. Samples

1. Submit in color(s) shown on the Contract Drawings, or if not shown, in color(s) as selected by the Engineer from manufacturer's color chart.
2. On a 12 inch by 12 inch hardboard or metal panels, two samples of each paint and coating material, if required by the Engineer. If more than one application method is to be used, submit two samples of each paint and coating material for each application method.
3. Identify each sample as to manufacturer, color name and number, location and application.
  - a. On actual wood surfaces, two 4 inch by 8 inch samples of each natural and stained wood material. Identify each sample as to manufacturer and location application.

C. Construction and Installation Procedures

Submit a surface prep/coating procedure if requested by the Engineer.

D. Schedules

Submit a schedule for surface preparation and painting.

E. Qualifications

1. Submit the paint applicator's qualifications and/or experience.
2. Submit instructor qualifications and training records for blasters and painters as required by 1.04 C.1.b, if requested by the Engineer.

F. Quality Assurance-Quality Control

Submit a copy of the quality control program, as required by 1.04 C.2, if requested by the Engineer.

G. Inspection Reports

Submit copies of daily inspection reports if requested by the Engineer.

END OF APPENDIX "A"

**SECTION 09910**

**PAINTING**

**APPENDIX "B"**

**PAINT SCHEDULE**

**A. Exterior**

<u>Surface</u>	<u>System Designation</u>	<u>Primer</u>	<u>Manufacturer's Product</u>	<u>2nd Coat</u>	<u>Manufacturer's Product</u>	<u>Top Coat</u>	<u>Manufacturer's Product</u>
Steel Semi-Gloss	S-18	Epoxy Mastic Spot Primer	PPG PMC Amerlock 2AL	Tie Coat	PPG PMC Amerlock Sealer	NA	NA
			Carboline Carbomastic 615 HS		Carboline Rustbond		
			SW Epoxy Mastic Aluminum II		SW Macropoxy 920 Pre- Prime		
			International Interseal 670HS AL		International Interbond 600		