

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .3 Section 35 51 24 - Floating Wharves Installation.

1.02 DESCRIPTION

- .1 The work under this section will include:
 - .1 The fabrication, supply and installation of anchor bolts, machine bolts, lagscrews, and all other miscellaneous bolts, nuts, washers, plates and metal parts required for the completion of the work.
 - .2 Supply and installation of a new epoxy coated steel wale system as indicated on the plan.
 - .3 Cutting and disposal existing yokes and Supply and Installation of new yokes as indicated on the drawings, and any other items necessary for the complete installations, as indicated on the drawings.

1.03 MEASUREMENT FOR PAYMENT

- .1 No separate payment shall be made for spikes, anchor bolts, machine bolts, lagscrews, nuts and washers, inserts, holdfasts, mooring rings, angles, channels, plates, any other metal required to complete the work, will be considered incidental to the contract and no separate payment will be made for these items.
- .2 Payment for the supply and installation of the epoxy coated steel wale including all fastenings, drilling and splicing of the steel wale will be made by the linear meter. No extra payment will be made for splicing of steel wale.
- .3 Payment for the removal and disposal of the existing yokes and the supply and installation of the new yokes on the existing floating wharves will be paid in a lump sum item.

1.04 REFERENCES

- .1 ASTM International
 - .1 ASTM A 53/A 53M-07, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
 - .2 ASTM A 269-08, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
 - .3 ASTM A 307-07b, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
- .2 CSA International
 - .1 CSA G40.20/G40.21-04(R2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

- .2 CAN/CSA G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
- .3 CSA S16-09, Design of Steel Structures.
- .4 CSA W48-06, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).
- .5 CSA W59-M03(R2008), Welded Steel Construction (Metal Arc Welding) Metric.
- .3 Environmental Choice Program
 - .1 CCD-047-98(R2005), Architectural Surface Coatings.
 - .2 CCD-048-98(R2006), Surface Coatings - Recycled Water-borne.
- .4 Green Seal Environmental Standards (GS)
 - .1 GS-11-2008, 2nd Edition, Paints and Coatings.
- .5 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .6 The Master Painters Institute (MPI)
 - .1 Architectural Painting Specification Manual - current edition.

1.05 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for sections, plates, pipe, tubing, bolts and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit two copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements and 01 35 44 - Environmental Mitigation Measures.
 - .1 For finishes, coatings, primers, and paints applied on site: indicate VOC concentration in g/L.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of New Brunswick, Canada.
 - .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

1.06 QUALITY ASSURANCE

- .1 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certifications: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.07 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labeled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

2 PRODUCTS

2.01 MATERIALS

- .1 Steel sections and plates: to CSA G40.20/G40.21, Grade 300W.
- .2 Welding materials: to CSA W59, latest edition.
- .3 Welding electrodes: to CSA W48 Series.
- .4 Bolts and anchor bolts: to ASTM A 307.
- .5 Adhesive anchoring system to be HVA Capsule Adhesive Anchor System by Hilti or approved equal.
- .6 Wire nails and spikes shall conform to B111-1974.
- .7 Stainless Steel bolts: To AISI Steel Products Manual No. 13.
- .8 Cast iron: to ASTM A48-74.
- .9 Lagcrews and Machine Bolts:
 - .1 lagscrews shall meet the requirements of B18.23-8-M1979.
 - .2 Machine bolts will have standard heads, nuts, and threads and when in position will be of sufficient length to permit a full nut and two washers. Threads shall be the Coarse Thread Series as specified in the latest issue of ANSI B1-1 having a Class 2A tolerance.
- .10 Galvanizing: hot dipped galvanizing with minimum zinc coating of 610g/sq.m. to CSA G164-M1981. All anchor bolts, machine bolts, spikes, lagscrews, nuts, washers, to be galvanized.
- .11 Galvanized primer: to CSB 1-GP-183M.

- .12 Steel sections, bars, tie rods, anchor dowels, plates and washers: to CSA G40.21-M1981, Type 300W.
- .13 Continuous epoxy coated HP 310 x 79 Steel Wale, as indicated on the plan.
 - .1 Primer Coat: Inorganic zinc to CGSB standard 1-GPp171M (min. 85% zinc in dry film).
 - .2 Intermediate Coat: High Build Epoxy Polyamide to CGSB Standard 1-GP-193Ma.
 - .3 Top Coat: High Build Epoxy Polyamide to CGSB standard 1-GP-193Ma.
 - .4 All paint material to be compatible with surface to which it is being applied.
 - .5 Color of intermediate and top coat to be black.
- .14 Resin Anchorage: epoxy resin cartridge providing 120KN ultimate tensile strength for size and depth of embedment.

2.02 FABRICATION

- .1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .2 Use self-tapping shake-proof flat, round headed screws on items requiring assembly by screws or as indicated.
- .3 Where possible, fit and shop assemble work, ready for erection.
- .4 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

2.03 ISOLATION COATING

- .1 Isolate aluminum from following components, by means of bituminous paint:
 - .1 Dissimilar metals except stainless steel, zinc, or white bronze of small area.
 - .2 Concrete, mortar and masonry.
 - .3 Wood.

3 EXECUTION

3.01 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for metal fabrications installation in accordance with manufacturer's written instructions.
 - .1 Visually inspects substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been

remedied and after receipt of written approval to proceed from Departmental Representative.

3.02 ERECTION

- .1 Do welding work in accordance with CSA W59 unless specified otherwise.
- .2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.
- .3 Provide suitable means of anchorage acceptable to Departmental Representative such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.
- .4 Exposed fastening devices to match finish and be compatible with material through which they pass.
- .5 Supply components for work by other trades in accordance with shop drawings and schedule.
- .6 Make field connections with bolts to CSA S16 or Weld field connection.
- .7 Deliver items over for casting into concrete together with setting templates to appropriate location and construction personnel.
- .8 Touch-up rivets, field welds, bolts and burnt or scratched surfaces with primer after completion of:
 - .1 Primer: maximum VOC limit 250 g/L to GS-11.
- .9 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.
 - .1 Primer: maximum VOC limit 250 g/L to GS-11.

3.03 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal

3.04 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by metal fabrications installation.

END OF SECTION