

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 33 00, Submittal procedures.
- .2 Section 01 74 21, Construction-demolition waste management and disposal.
- .3 Section 35 59 13.19, Rubber marine fenders.

1.2 REFERENCES

- .1 ASTM International
 - .1 ASTM A53/A53M, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
 - .2 ASTM A6/A6M, Standard Specification for general Requirements for Rolled Structural steel Bars, Plates, Shapes and Sheet Piling.
- .2 CSA International
 - .1 CSA G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CSA W48, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).
 - .3 CSA W59, Welded Steel Construction (Metal Arc Welding).
- .3 Underwater welding: to ANSI/AWS D3.6.

1.3 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 and plates and include product characteristics, performance criteria, physical size and limitations.
- .3 Shop Drawings:
 - .1 Indicate materials, core thicknesses, connections, welding, reinforcement, details, and accessories.
 - .2 Provide a written description of the welding procedures approved by the Canadian Welding Bureau or by a certified metallurgical engineer, entitled to practice in the province of Québec in which case the shop drawings will bear the seal of the engineer.
 - .3 Assembly drawings to include the method of work and the assembly order of the elements.

1.4 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.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section with manufacturer's written instructions.
- .2 Storage and Handling Requirements:
 - .1 Store materials off ground and in accordance with manufacturer's recommendations
 - .2 Handle steel elements to avoid permanent deformations.
 - .3 Replace defective or damaged materials with new.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21- Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 MATERIALS

- .1 Steel sections and plates: to CSA G40.20/G40.21, Grade 300W.
- .2 Bolts: to ASTM A307.
- .3 Welding materials: to CSA W59.
- .4 Welding electrodes: to CSA W48 Series.

2.2 FABRICATION

- .1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .2 Where possible, fit and shop assemble work, ready for erection.
- .3 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

2.3 ACCESS LADDERS

- .1 Steel Rungs: 20 mm diameter, welded to existing stringers/angle iron to match existing rungs.

2.4 CHANNEL FRAMES

- .1 Fabricate frames from steel, sizes of channel and opening as indicated.
- .2 Weld channels together to form continuous frame for jambs and head of openings, sizes as indicated.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify that the condition of substrates of existing steel piles and sheet piles are acceptable for metal fabrications installation in accordance with the requirements in the plans and specifications.
 - .1 Visually inspect the steel piles and sheet piles in presence of the 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.
- .2 Verify the dimensions of existing elements.

3.2 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 Assemble the items on site using bolts to CSA S16 standard welding.

3.3 ACCESS LADDERS

- .1 Replace the damaged rungs in the service ladders where indicated by the Departmental Representative.
- .2 Straighten and weld the damaged spikes in the service ladders where indicated by the Departmental Representative.

3.4 NEW ACCESS DOOR

- .1 Install the new access door made of steel sections and steel plates where indicated.

3.5 UNDERWATER WELDING

- .1 The Contractor shall comply with the American Welding Society – American Standards Institute – Specification for underwater welding (ANSI/AWS D 3.6), Category C.
- .2 Contractor personnel shall be qualified for this type of welding. The Departmental Representative will require evidence of welders' qualifications.

- .3 Departmental Representative may also require test samples for each type of weld. Costs of sample tests to be borne by the Contractor.

3.6 CONTROL AND INSPECTION

- .1 Provide a written description of welding procedures for approval of the Departmental Representative.
- .2 Provide Departmental Representative with all facilities and assistance necessary for the examination of the welds, at no extra cost.
- .3 Should weld checks show a defect, the weld must be repaired, or redone. The Contractor shall adjust his welding method to prevent such defects.
- .4 Allow Departmental Representative to conduct inspections at the fabrication and/or assembly shop.

3.7 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 for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.8 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