

PART 1 - GENERAL

- 1.1 DESCRIPTION .1 The work under this section will include the supply, fabrication and installation of all machine bolts, nuts, washers, anchor bolts, angles, plates, bars, holdfast, embedded metals in concrete, tie-rods and connections to steel H-piles, channels, steel angles to support concrete wall panels at steel H-piles, ladder units, and all other miscellaneous steel.
- 1.2 RELATED SECTIONS .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .3 Section 03 30 00 - Structural Concrete.
- .4 Section 06 10 10 -Rough Carpentry.
- .5 SECTION 31 62 16.16 - Steel H-Piles
- 1.3 REFERENCES .1 Canadian Standards Association (CSA International)
- .1 CSA G40.20/G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel.
- .2 CAN/CSA-S16-14, Limit States Design of Steel Structures.
- .3 CSA W48-14, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).
- .4 CSA W59-13,Welded Steel Construction (Metal Arc Welding) (Imperial Version).
- .5 ASTM A123-12/A123M-12, Zinc (Hot Dip Galvanized) Coating and Iron and Steel products.
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- 1.3 REFERENCES (Cont'd)
- .2 Do welding to CSA W59-13 unless specified otherwise. Welding companies and welders to be certified under CSA W47.1.
- 1.4 MEASUREMENT FOR PAYMENT
- .1 Prefabricated ladder inserts: Include cost of supply and installation in items for payment in their respective Sections. This will also include all fabrication and galvanizing of the units and ladder holdfasts.
- .2 Refer to section 31 63 26.16 - Steel H-Pile for measurement for payment.
- .3 Fender Hook: Galvanize fender hooks as shown will be measured by the unit supplied and installed in the work.
- .4 Metal Wheelguard: The supply and installation of the new galvanized steel wheelguard system as shown on drawings will be measured by the linear meter for payment. Handling, fabrication, welding, anchor bolts, cover plates and galvanize will be considered incidental to the pay item.
- .5 Miscellaneous steel, plates, angles and fasteners: Include cost of supply and installation in items for payment in their respective Sections. This will also include all welding, cutting, drilling and other work necessary in the field to complete the project.
- 1.5 SUBMITTALS
- .1 Shop Drawings
- .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.
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- 1.6 QUALITY ASSURANCE
- .1 Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
  - .2 Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

- 1.7 WASTE MANAGEMENT AND DISPOSAL
- .1 Divert unused metal materials from landfill to metal recycling facility approved by Departmental Representative.

PART 2 - PRODUCTS

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

- 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.
  - .4 Machine bolts will have standard heads, nuts and when in position will be of sufficient length to permit a full nut and two washers. Treads shall be Coarse Thread Series as specified in latest ANS/B1-1 having a Class 2A tolerance.
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2.2 FABRICATION  
(Cont'd)

- .5 Standard cast iron washers suitable for the size of the bolt specified will be placed under the heads and nuts of all machine bolts bearing on timber surfaces unless noted otherwise on the drawings. Ogee washers to Timber Design Manual issued by Laminated Timber Institute of Canada and to be cast iron, free from injurious defects or impurities. As an alternative to Ogee washers, standard galvanized plate washers can be used. The washer is to be three times the bolt diameter and a minimum thickness of 6 mm. Square washers are not permitted.

2.3 FINISHES

- .1 Galvanizing: all galvanized hardware as identified to be hot dipped galvanizing with zinc coating 610 g/m<sup>2</sup> to CAN/CSA-G164.
- .2 Zinc primer: zinc rich, ready mix to CAN/CGSB-1.181.
- .3 All Metals or materials specified in this section are either hot dip galvanized and/or Stainless Steel except connections of tie-rods to H-piles. All anchorage to concrete will be Stainless Steel.

PART 3 - EXECUTION

3.1 ERECTION

- .1 Do welding work in accordance with CSA W47.1 unless specified otherwise.
- .2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.
- .3 Touch-up field welds, bolts and burnt or scratched surfaces after completion of erection with primer.

- 3.1 ERECTION  
(Cont'd)
- .4 Take necessary care in the handling of all galvanized steel parts to prevent damage to the galvanized coating. Evidence of damage shall be cause for rejection. Damage may be touched-up if approved by Departmental Representative.
  - .5 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.