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PART 1 - GENERAL

1.1 Reference Standards

- .1 CAN/CSA-G40.20-13/G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel / Structural Quality Steel.
- .2 CSA W59-18, Welded Steel Construction.
- .3 ASTM A307-14e1, Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60,000 psi Tensile Strength.
- .4 ASTM A123/A123M-17, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- .5 ASTM A153/A153M-16a, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- .6 CAN/CSA-S16-14, Design of Steel Structures.

1.2 Shop Drawings

- .1 Submit shop drawings in accordance with **Section 01 33 00**.
- .2 Clearly indicate the following items:
  - .1 General arrangements, dimensions, clearance locations and directions of assemblies as installed on structures.
  - .2 Locations, sizes and installation tolerances of anchor bolts, eye bolts and embedded parts.
  - .3 Types of materials used, finishes and core thickness.
  - .4 All other pertinent details and accessories.

1.3 Measurement for Payment

- .1 Measurement for payment will be in accordance with **Section 01 29 00**.
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PART 2 - PRODUCTS

2.1 Materials

- .1 Steel Sections: to CAN/CSA-G40.21, Grade 350W.
- .2 Steel plate and angles: to CAN/CSA-G40.21, Grade 300W.
- .3 Welding materials: to CSA W59.
- .4 Bolts and anchor bolts: to ASTM A307.
- .5 Galvanizing (Fabrications): hot-dip galvanizing with zinc coating 600 g/m<sup>2</sup> to ASTM A123M.
- .6 Galvanizing (Hardware): hot-dipped galvanizing to ASTM A153M.
- .7 Zinc primer: Zinc rich, ready mix to ASTM A123.
- .8 Adhesive anchors:
  - .1 Anchor rods to grade ASTM A193 B7 threaded rod, diameter as noted on drawings, complete with matching hardware. Galvanize anchor rods after fabrication. Cutting anchor rods to length after galvanizing will not be permitted.
  - .2 Adhesive to be injectable, two component hybrid adhesive specifically tested and rated for installation in cracked concrete.
    - .1 Acceptable product is HIT-HY 200 Adhesive, or approved equivalent.

2.2 Fabrication

- .1 Build work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
  - .2 Fabricate items from steel unless otherwise noted.
  - .3 Where possible, fit and shop assemble work, ready for installation.
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|                         | .4 | Ensure exposed welds are continuous for length or joint.                                                                                                                                                                                 |
| 2.3                     |    |                                                                                                                                                                                                                                          |
| Miscellaneous           |    |                                                                                                                                                                                                                                          |
| <u>Metal Work Items</u> | .1 | Miscellaneous anchors, bolts and inserts:<br>.1 Where size, spacing and the like are not indicated, provide as necessary for the purpose.<br>.2 Galvanize all miscellaneous anchors, bolts and hardware after fabrication to ASTM A153M. |
|                         | .2 | Miscellaneous Steel:<br>.1 Provide miscellaneous steel as required for ladders, holdfasts, and ice shields.<br>.2 Galvanize all miscellaneous steel items after fabrication with zinc coating 600 g/m <sup>2</sup> to ASTM A123M.        |

PART 3 - EXECUTION

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|-----|-------------------------|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.1 | <u>Erection</u>         | .1 | Install metalwork square, plumb, straight and true, accurately fitted, with tight joints and intersections.                                                                                                                                         |
|     |                         | .2 | Make field connections with bolts to CAN/CSA-S16, or weld.                                                                                                                                                                                          |
|     |                         | .3 | Touch-up bolts and scratched surfaces after completion of erection with zinc primer.                                                                                                                                                                |
| 3.2 | <u>Adhesive Anchors</u> | .1 | Prepare holes and install adhesive anchors to specified embedment as shown on drawings. Coordinate final anchor length to suit embedment specified and thickness of connected components.                                                           |
|     |                         | .2 | Adhesive anchors to be installed in accordance with the Manufacturer's printed instructions by individual trained in installation by manufacturer representative. Provide training certificate for Departmental Representative review upon request. |
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