

**Part 1 General**

**1.1 RELATED SECTIONS**

- .1 Section 01 33 00 - Submittal Procedures
- .2 Section 03 10 00 – Concrete Forming and Accessories.
- .3 Section 03 20 00 – Concrete Reinforcing.
- .4 Section 03 30 00 – Cast-in-Place Concrete

**1.2 MEASUREMENT FOR PAYMENT**

- .1 Mooring Cleats - Type "A": The supply and installation of Type "A" mooring cleats, including reinforced concrete pedestal, will be measured by the unit secured in place. Contractor to provide all concrete, reinforcing steel, anchor bolts, nuts, washers, welding, grout, fastenings, plant, equipment, and labor.
- .2 Mooring Cleats - Type "B1": The supply and installation of Type "B1" mooring cleats, including reinforced concrete pedestal, will be measured by the unit secured in place. Contractor to provide all concrete, reinforcing steel, anchor bolts, nuts, washers, steel anchor plates, welding, grout, fastenings, plant, equipment, and labor.
- .3 Mooring Rings: The supply and placement will be measured by unit secured in place. Contractor to provide all fastenings, equipment and labour.
- .4 Include incidental to the unit price any costs for demolition and removal required to carry out the work.

**1.3 REFERENCES**

- .1 American Society for Testing and Materials International (ASTM), latest edition
  - .1 ASTM A27/A27M-10, Standard Specification for Steel Castings, Carbon, for General Application.
  - .2 ASTM A148/A148M-08, Standard Specification for Steel Castings, High-Strength, for Structural Purposes.
- .2 Canadian General Standards Board (CGSB), latest edition
  - .1 CAN/CGSB-1.61, Exterior and Interior Marine Alkyd Enamel.
  - .2 CAN/CGSB-1.212, Heavy Metal Free Marine Primer for Steel and Light Alloy Surfaces.
- .3 Canadian Standards Association (CSA International), latest edition
  - .1 CSA G40.20/G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

#### **1.4 SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product data: submit manufacturer's printed product literature, specifications and data sheet when directed by Departmental Representative.
- .3 Detailed description of any structural modifications required to accommodate mooring devices.

#### **1.5 QUALITY CONTROL**

- .1 Manufacturer's Instructions: submit manufacturer's installation instructions when directed by Departmental Representative.

#### **1.6 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials for reuse and recycling.

### **Part 2 Products**

#### **2.1 MATERIALS**

- .1 Mooring Devices:
  - .1 Mooring Cleats Type "A": galvanized cast iron cleats, 212.3 kg weight as dimensioned on the drawings.
  - .2 Mooring Cleats Type "B1": galvanized cast iron cleats, 36.2 kg weight as dimensioned on the drawings.
  - .3 Mooring rings galvanized cast iron dimensioned on drawings.
  - .4 Anchor Bolts and Nuts: to ASTM A307, galvanized.
  - .5 Non-Shrink Grout: pre-mixed compound of non-metallic aggregate and plasticizing agents, capable of developing minimum compressive strength of 50 MPa at 28 days
  - .6 Galvanizing: to ASTM-A123/A123M-09, Zinc (hot dip galvanized) coatings for iron and steel products, minimum zinc coating 610 g/m<sup>2</sup>.
  - .7 Welding: to CSA W59.
  - .8 Sealer: to CAN2-19.24 and CAN3-A23.1 chemical curing multi-component, Class "B - Type 1, colour grey.
  - .9 Concrete: to Section 03 30 00.
  - .10 Concrete Reinforcement: to CSA G30.12M, Grade 400.

### **Part 3 Execution**

#### **3.1 APPLICATION**

- .1 Mooring Cleats - Type 'A'
  - .1 Install concrete cleat block for type 'A' cleats as detailed on the drawings.

- .2 Secure cleats with 25 mm diameter anchor bolts of lengths required complete with associated nuts and washers as detailed on the drawings.
- .3 After cleat installation is complete, bolt holes in cleats will be filled with approved waterproofing compound.
- .2 Mooring Cleats - Type 'B1'
  - .1 Install concrete cleat block for type 'B1' cleats as detailed on the drawings.
  - .2 Secure cleats with anchor bolts of sizes and lengths required complete with associated nuts and washers as detailed on the drawings.
  - .3 After cleat installation is complete, bolt holes in cleats will be filled with approved waterproofing compound.
- .3 Mooring Rings:
  - .1 Install mooring rings as per drawings.

### 3.2 SETTING AND GROUTING

- .1 Set mooring devices at locations and elevations as indicated.
  - .1 After tightening of anchor bolts or positioning wedges, grout under base using a non-shrink, non-metallic type of grout.
  - .2 Ensure that temperatures of foundation, air, base and grout are within range specified by grout manufacturer.
- .2 Do not grout until approval given by Departmental Representative.

### 3.3 PAINTING

- .1 Paint ferrous metal portion of mooring cleat.
- .2 Use one (1) coat of exterior oil ferrous metal primer and two (2) coats of alkyd/oil resin paint. Paint materials for each coat to be product of a single manufacturer. Ensure previous coat of primer or paint is dry before next coat is applied.

### 3.4 CLEANING

- .1 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

**END OF SECTION**