

**03 20 00 – CONCRETE REINFORCING**

**Part 1        General**

**1.1            MEASUREMENT FOR PAYMENT**

- .1        No measurement will be made under this Section.

**1.2            RELATED SECTIONS**

- .1        Section 03 41 02 – Precast Concrete Blocks

**1.3            MEASUREMENT PROCEDURES**

- .1        Include reinforcement costs in items of concrete work in Section 03 41 02 – Precast Concrete Bases.

**1.4            REFERENCES**

- .1        Canadian Standards Association (CSA International).
- .2        CSA-A23.1-04/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
- .3        CSA-A23.3-04, Design of Concrete Structures.
- .4        CAN/CSA-G30.18-M92(R2002), Billet-Steel Bars for Concrete Reinforcement, a National Standard of Canada.

**Part 2        Products**

**2.1            MATERIALS**

- .1        Substitute different size bars only if permitted in writing by Engineer.
- .2        Reinforcing steel: billet steel, grade 350, deformed bars to CAN/CSA-G30.18, unless indicated otherwise.
- .3        Reinforcing steel: weldable low alloy steel deformed bars to CAN/CSA-G30.18.
- .4        Cold-drawn annealed steel wire ties: to ASTM A497/A497M.
- .5        Chairs, bolsters, bar supports, spacers: to CSA-A23.1/A23.2.

**2.2            FABRICATION**

- .1        Obtain Engineer's approval for locations of reinforcement splices other than those shown on placing drawings.

**Part 3            Execution**

**3.1                PLACING REINFORCEMENT**

- .1      Place reinforcing steel as indicated on placing drawings and in accordance with CSA-A23.1/A23.2.
- .2      Prior to placing concrete, obtain Engineer's approval of reinforcing material and placement.
- .3      Ensure cover to reinforcement is maintained during concrete pour.

**END OF SECTION**

## **03 41 02 – PRECAST CONCRETE BLOCKS**

### **Part 1 General**

#### **1.1 MEASUREMENT PROCEDURES**

- .1 Supply and installation of new concrete anchor blocks will be paid for per unit supplied and installed. Any fasteners, shackles or connection hardware require shall be considered incidental to this item.

#### **1.2 REFERENCES**

- .1 Canadian Standards Association (CSA International)
- .1 CSA-A23.1/A23.2-2004, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
- .2 CSA-A23.3-04, Design of Concrete Structures.
- .3 CSA-A23.4-05, Precast Concrete - Materials and Construction.
- .4 CAN/CSA-A3000-03, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).
  - .1 CSA-A3001-03, Cementitious Materials for Use in Concrete.
- .5 CAN/CSA-G30.18-M92(R2002), Billet-Steel Bars for Concrete Reinforcement.
- .6 CSA-W59-03, Welded Steel Construction (Metal Arc Welding) (Metric version).

#### **1.3 PERFORMANCE REQUIREMENTS**

- .1 Length of precast elements not to vary from design length by more than plus or minus 50 mm.
- .2 Cross sectional dimensions of precast elements not to vary from design dimensions by more than plus or minus 50 mm.
- .3 Precast elements not to vary by more than plus or minus 50 mm from true overall cross sectional shape as measured by difference in diagonal dimensions.

#### **1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Transport concrete base with points of support and direction of reactions approximately same as when they will be in final position in work.
- .2 Handle, store and protect concrete base in order to avoid damage to concrete.
- .3 Identify lifting points by inserting hooks during manufacture.

### **Part 2 Products**

#### **2.1 MATERIALS**

- .1 Cement to CAN/CSA-A3001, Type GU.

- .2 Water: to CSA-A23.1/A23.2.
- .3 Reinforcing steel: to CAN/CSA-G30.18.
- .4 Hardware and miscellaneous materials: to CSA-A23.1/A23.2.
- .5 Anchors and supports: to CAN/CSA-G40.21 Type 300 W.
- .6 Welding materials: to CSA W48.
- .7 Air entrainment admixtures: to ASTM C260.

## **2.2 MIXES**

- .1 Concrete:
  - .1 Alternative 1 - Performance Method for specifying concrete: to meet Engineer performance criteria in accordance with CAN/CSA-A23.1/A23.2.
    - .1 Provide concrete mix to meet following hard state requirements:
      - .1 Durability and class of exposure: C-1.
      - .2 Minimum compressive strength at 28 days: 30 MPa.
      - .3 Surface texture: steel trowel finish.
    - .2 Provide quality management plan to ensure verification of concrete quality to specified performance.
    - .3 Concrete supplier's certification.

## **2.3 MANUFACTURED UNITS**

- .1 Manufacture units in accordance with CSA-A23.4.
- .2 Provide hardware suitable for handling elements.

## **2.4 SOURCE QUALITY CONTROL**

- .1 Upon request, provide Engineer with certified copies of quality control tests related to this project as specified in CSA-A23.4.
- .2 Upon request, provide Engineer with certified copy of mill test report of reinforcing steel supplied, showing physical and chemical analysis.

## **Part 3 Execution**

### **3.1 VERIFICATION**

- .1 Quality Control Plan: ensure concrete supplier meets performance criteria and provide verification of compliance.

**END OF SECTION**