

SECTION 03470 – PRECAST CONCRETE PRIVACY WALL

PART 1 – GENERAL

1.1 REFERENCE STANDARDS

- .1 Canadian Standards Association (CSA)
 - a. CSA-A23.1-09 / A23.2-09, Test Methods and Standard Practices for Concrete.
 - b. CSA-A23.3-04(R2010), Design of Concrete Structures.
 - c. CSA-A23.4-09, Precast Concrete – Materials and Construction.
 - d. CSA-W59-03, Weld Steel Construction
 - e. CSA-W186-M 1990 (R2002), Weld of Reinforcing bar in Reinforced Concrete.
- .2 National Building Code of Canada, 2010
- .3 Ontario Building Code, 2012
- .4 Concrete Reinforcing Institute, “Manual of Standard Practice”

1.2 QUALITY OF MANUFACTURER

- .1 Manufacturer shall be certified by CSA, meeting requirements of CSA A23.4-09 for appropriate class of work.
- .2 Manufacturer shall be a member of the National Precast Concrete Association (NPCA).
- .3 Approved manufacturer: **Hy-Grade Precast Concrete** (905.684.8568).

1.3 DESIGN CRITERIA

- .1 Design precast concrete elements to carry handling and expected service loads, without detrimental effects. Assumed standard loads as follows:

Whmax:	0.535 kPa
Whmin:	0.235 kPa
Ch:	1.2 (Horizontal Drag Coefficient)
Cg:	2.5 (Gust Effect)
Is:	0.304 kPa (Ice Accretion Load)
- .2 Retain a structural engineer, registered in Ontario, experienced in the field of precast concrete to ensure adequacy of the structural aspects of the design, shop drawings, manufacturing, transportation and installation of all precast concrete components, attachments, hardware and assemblies.

1.4 QUALITY ASSURANCE

- .1 Conform to requirements of CSA A23.4-09 for allowable tolerances.

1.5 SUBMITTALS

- .1 Prepare and submit detailed drawings, containing all pertinent information in regard to the erection of the precast privacy wall including:
 - a. Location of each unit in the completed structure and identifying marks for each unit
 - b. Size and dimensions of each panel complete with connection details
 - c. Grade of reinforcement, concrete strength and admixtures
 - d. Locations and details for lifting hooks and handling points
 - e. Sequence of erection and any special instructions that may be required in handling and setting.
- .2 Shop drawings to be sealed by professional engineer licensed to practice in jurisdiction of this project.

1.6 DELIVERY, HANDLING AND STORAGE

- .1 Proper lifting devices for the completed unit shall be incorporated to ensure that it will be safely and efficiently handled and not produce distortion, cracking or deflection nor strain or adversely affect the unit.
- .2 Precast panels shall be handled and adequately protected during fabrication, curing, storage and transport by methods that will prevent damage, warping, cracking, breakage, chipping, staining or other disfigurement. Units shall not be permitted to contact the earth or other staining influences.
- .3 Repair chipped, checked, cracked, blemished or defective units.

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PART 2 – PRODUCTS

2.1 MATERIALS

- .1 Cement, aggregates, water, admixtures: to CSA A23.4-09.
- .2 Formwork materials: All forms shall be accurately constructed, well braced and stiffened to avoid deformations under pressure of wet concrete and vibrators.
- .3 Use same brands and source of cement and aggregate for entire project to ensure uniformity of colouration and other mix characteristics.
- .4 Reinforcing steel: to CAN/CSA-G30.18-M92. All reinforcing steel to be weldable grade 400W.
- .5 Anchors: hot dip galvanized steel, designed to satisfy specific design and performance criteria.

2.2 CONCRETE MIXES

- .1 Use concrete mix designed to produce minimum 35 MPa compressive strength at 28 Days.

2.3 FABRICATION

- .1 All exterior wall faces to have a simulated liner finish as follows: **SPECIFIER TO SELECT FINISH.**
- .2 All interior wall faces to have a smooth trowel finish.
- .3 Accurately set reinforcing steel. Vibrate continuously during casting of concrete.
- .4 Bearing areas shall be reinforced against diagonal tension, splitting, rupture and flexure. Extra ties, stirrups and reinforcing bars shall be placed at support points.
- .5 Support precast units uniformly while curing. Keep a daily check to detect any development of warpage or other distortion. Rearrange supports as required to compensate for warpage or distortion.
- .6 Cast-in lifting devices required for erection of the precast units. Ensure that lifting devices used externally or cast into units are capable of supporting the precast units in all positions that the units may be in during course of manufacture, transportation and installation. Ultimate capacity of lifting devices shall be sufficient to resist forces obtained by applying load factor of 4:1.
- .7 Mark each precast unit to correspond to identification mark on shop drawings for location.
- .8 Mark each precast unit with date cast.
- .9 Markings shall be on part of unit which will not be exposed.

PART 3 – EXECUTION

3.1 EXAMINATION

- .1 Prior to start of installation on site, examine location, spacing and level of inserts installed.
- .2 Report unsatisfactory conditions prior to installation. Start of installation shall imply acceptance of conditions.

3.2 INSTALLATION

- .1 Erection of the precast panels, at the site, shall be by the contractor.
- .2 All work shall be executed using workers skilled in the trade of precast erection.
- .3 All units shall be set plumb, true and square, with joints parallel and uniform, all in accordance with approved Erection Drawings.
- .4 Units shall be anchored securely and rigidly to supporting work (if required).
- .5 Contractor (not precast manufacturer) shall provide and supply all anchors, fixing devices, supports, and misc. installation hardware necessary.
- .6 Patch holes at lifting hook locations, to match adjacent surfaces.

3.3 CLEANING

- .1 Clean soiled precast concrete surfaces by approved means to satisfaction of consultant.
- .2 Repair units that have minor visual defects to the satisfaction of consultant.

3.4 INSPECTION AND TESTING

- .1 All inspection and testing as directed by consultant. Costs incurred for all inspection and testing shall be the responsibility of the contractor.

END