



PART 1 – General

1.1 GENERAL INSTRUCTIONS

- .1 Read and be governed by conditions of the Contract and sections of Division 1.

1.2 SECTION INCLUDES

- .1 Precast panels:
 - .1 Install new precast header as indicated.. Support as indicated on structural drawings.
 - .2 Finish, colour, and texture on exposed surfaces of new precast concrete work shall match existing.
- .2 Steel support and retention connections for precast.
- .3 Installation of precast.

1.3 QUALITY ASSURANCE

- .1 Qualifications:
 - .1 Provide the work of this section, executed by competent installers with a minimum of 5 years experience in the application of the Products, systems, and assemblies specified, and with approval and training of the Product manufacturers.
 - .2 Manufacturer shall be qualified in accordance with CSA A23.4-09(R2014).
- .2 Conduct a pre-installation meeting.

1.4 SUBMITTALS

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 Shop drawings:
 - .3 Submit shop drawings to the requirements of Section 01 33 00:
 - .1 Location and dimensions of each unit in the completed structure.
 - .2 Location and layout of steel supports and bolts.
 - .3 Reinforcing details and grade of reinforcing.
 - .4 Concrete strength and admixtures used.
 - .5 Jointing clearances and clearances between the units and adjacent materials.
 - .6 Identifying marks for each precast unit.
 - .7 Special precautions to be taken by other sections affecting the work of this section.



- .8 Comprehensive face mix design.
- .4 Samples:
 - .1 Submit 305 mm x 305 mm (12" x 12") precast concrete sample.

1.5 DESIGN REQUIREMENTS

- .1 Manufacturer shall be responsible for the design, connections and installation of the precast concrete units and shall direct the placing of items to be cast in concrete work.
- .2 Design precast concrete panel system, associated components, connections and anchorages in accordance with CAN/CSA A23.1/A23.2-14, CSA A23.4-09(R2014), CAN/CSA S16-14, CAN/CSA G40.20-13/G40.21-13, CAN/CSA G164-M92(R2003), CSA W59-13, and the building code.
- .3 Maximum deflection shall be not more than 1/360th of the span for any unit under weight of dead and live loads.
 - .1 Mechanical connections: shall be clearly shown and detailed on shop drawings.
 - .2 Design mechanical connections, such as bolts, inserts and special manufactured items to provide means of compensating for deviations in dimensions or thickness of unit in field.
 - .3 Connections shall have ultimate strength such that when precast units are installed under most unfavourable permissible conditions of construction tolerance, they will support 1.6 times total loads for which units are designed.
 - .4 Allowance for movement shall be as specified in CSA A23.4-05.
 - .5 Connections indicated are suggestions only. Be responsible for complete structural design and checking of anchorage and connections.

1.6 HANDLING, STORAGE AND PROTECTION

- .1 Design and cast lifting devices into the units to ensure that they will be safely and efficiently handled. Lifting devices shall be so arranged that they do not have to be removed or, if they must be removed, they shall be arranged so that they are readily filled by this section.
- .2 Stack units on properly cushioned supports to protect the edges.
- .3 Do not permit units to contact earth or other staining influences or to rest on corners.
- .4 Protect the work of other sections during erection and final cleaning.
- .5 Transport, handle and store units to prevent staining, chipping, cracking, spalling, distortion, warping or other physical damage.

1.7 WARRANTY

- .1 Warrant work of this section for a period of 2 years in accordance with Section 01 78 00.



PART 2- Products

2.1 MATERIALS

- .1 Precast concrete units:
 - .1 Cement, water reducer, air entrainment, pigment, sand, aggregates, water admixture: to CSA A23.4-09(R2014) and CAN/CSA A23.1/A23.2-14. Use white cement in face mix.
 - .2 Aggregate: in conformance with CAN/CSA A23.1/A23.2-14 and shall be tested for soundness prior to manufacture in accordance with CSA A23.4-09(R2014).
 - .3 Use same brand and source of materials used for facing throughout the Work to ensure uniformity of colouration and other mix characteristics.
 - .4 Admixture: in accordance with CAN/CSA A23.1/A23.2-14. Introduce admixtures to concrete at time of batching in accordance with the manufacturer's recommendations. Under no circumstances, use calcium chloride on an admixture containing calcium chloride. Admixtures shall be subject to the acceptance of the Contractor.
 - .5 Reinforcing steel: billet steel bars conforming to CSA G30.18-09(R2014). Reinforcing larger than 6mm diameter shall be deformed bars conforming to the same standard. Welded wire mesh shall conform to CSA G30.5. Galvanize reinforcing with less than 25mm cover.
 - .6 Water: in accordance with CAN/CSA A23.1/A23.2-14.
 - .7 Structural steel: new material conforming to CSA G40.20-13, or ASTM A36/A36M-14.
 - .8 Concrete mix:
 - .1 Use concrete mix designed to produce minimum of 35 MPa compressive strength at 28 days, with a maximum water/cement ratio to CSA A23.4-09(R2014).
 - .9 Forms: to CSA A23.4-09(R2014).
 - .10 Form release agent: Commercially produced liquid release agent that will not bond with, stain or adversely affect precast concrete surfaces. Form release agent must be compatible with sealants.
 - .11 Hardware: shall be cleaned prior to fabrication of precast units.
- .2 Joint sealants: in accordance with Section 07 92 00.

2.2 FABRICATION

- .1 Fabricate precast concrete wall panels in accordance with CSA A23.4-09(2014).
- .2 Precast concrete exposed surface finish shall match approved samples. Colour and texture shall be uniform and consistent throughout, free from air pockets, imperfections, blemishes and discolourations.



PART 3 - Execution

3.1 DIMENSIONS

- .1 Check dimensions at Museum Properties before commencing shop drawings and before fabrication and report discrepancies to Contracting Authority and Contractor.

3.2 WELDING

- .1 Perform welding in accordance with CSA W59-13 and CSA W186-M1990(R2012). Organization undertaking welding shall be fully approved by Canadian Welding Bureau under requirements of CSA W47.1-09(R2014).
- .2 Provide fit-up plates or angles to compensate for deviations alignment or location of inserts.
- .3 Exercise care to minimize effect of welding heat. Design welds to prevent tearing at end of weld which would cause progressive failure.
- .4 Detailed welding procedure covering specified welds on erection and shop drawings may be requested for review by the inspection and testing company.

3.3 INSTALLATION

- .1 Erect precast concrete units in accordance with CSA A23.4-09(R2014).
- .2 Install precast concrete units so that joints are accurate within tolerances listed as follows:
 - .1 Face width of joint to vary not more than +/- 1.5 mm.
 - .2 Faces of adjacent precast sections offset not more than 1.5 mm.
 - .3 Edge alignment: alignment of panels edges not to exceed 1.5 mm.
 - .4 Bowed panels, within allowable bowing tolerances, arranged so offset between adjacent panels does not exceed 6 mm.

3.4 JOINT SEALANTS

- .1 Provide in accordance with Section 07 92 00.

3.5 CLEAN-UP

- .1 Remove, as the Work progresses, excess or foreign materials which would set up, stain, or become difficult to remove from finished surfaces.
- .2 At completion, clean exposed surfaces of precast units. Remove dirt and other extraneous matter. Do not use acidic cleaners.
- .3 Take precautions to prevent staining the material of others during cleaning operations.

END OF SECTION