

PART 1 - GENERAL

1.1 Reference Standards	<ul style="list-style-type: none">.1 Perform precast concrete work in accordance with the CAN/CSA A23.4-F09 standard..2 Design the dosage of concrete materials and execute concrete works and tests in accordance with the CAN/CSA A23.1/ A23.2-F09 standard..3 Design concrete works in buildings in accordance with the CAN/CSA A23.3-F04 standard..4 Rules for qualification for manufacturers of architectural concrete and precast structural concrete in accordance with the CAN/CSA A251-F00 standard..5 Chemical additives, air-entraining agents for concrete and user guide in accordance with the CAN/CSA A266.1, A266.2 and A266.4 standards..6 Steel reinforcement for concrete, wires and mesh in accordance with the G30.14 - M83, G30.5 - M83 standards..7 Perform welding work in accordance with the CSA W59-13 standard..8 Weld rebars in reinforced concrete structures in accordance with the CSA W186-FM90 standards.
1.2 Manufacturer Qualifications	<ul style="list-style-type: none">.1 The manufacturer of precast concrete elements must meet the requirements of the CAN/CSA A251-00 standard for products in the AC (decorative concrete) category.
1.3 Design Criteria	<ul style="list-style-type: none">.1 Design precast elements in accordance with the CAN/CSA A23.4-F09 standard and such that they are capable of withstanding the stress of handling, storage, transport and assembly..2 Design precast concrete elements such that they are capable of supporting the loads prescribed in the National Building Code of Canada.

SYM-TECH precast concrete

SPECIFICATIONS FOR PRECAST CONCRETE ELEMENTS

8600 avenue Ouimet
St-Hyacinthe, Québec
J2R 1S8
Tel.:(450)796-1217

1.3 Design Criteria (cont.)	<p>.3 Design attachments and fasteners for precast concrete elements based on prescribed loads and strengths.</p> <p>.4 Submit two copies of design drawings and detailed designs of precast concrete elements and their method of assembly for verification by an engineer 3 weeks before their manufacture.</p>
1.4 Acceptable Tolerances	<p>.1 The tolerances of precast elements must comply with the CAN/CSA A23.4-F09/ A251-00 standards.</p>
1.5 In-Plant Quality Control	<p>.1 Provide the architect with certified copies of quality control test reports for the work being done, in accordance with the CAN/CSA A23.4-F09/ A251-00 standards.</p> <p>.2 Provide internal quality control program reports created in compliance with the requirements governing manufacturer accreditation for review and verification by the architect.</p> <p>.3 Send the engineer, upon request, a certified copy of the in-plant test report indicating the results of physical and chemical analyses conducted on the steel rebars provided.</p> <p>.4 Manufacturers of precast concrete elements must keep detailed records of the source of supply of materials used in the manufacturing of concrete and steel rebar, and must make these records available to the engineer for verification.</p>
1.6 Samples	<p>.1 Submit a 300mm x 300mm x 25mm sample of concrete to the architect for approval of the finish and colour. Indicate the maximum expected variation in colour.</p>

SYM-TECH precast concrete

SPECIFICATIONS FOR PRECAST CONCRETE ELEMENTS

8600 avenue Ouimet
St-Hyacinthe, Québec
J2R 1S8
Tel.:(450)796-1217

1.6 Samples (cont.)

.2 Manufacture and deliver onsite one regular precast element and one corner precast element, full-size, with the required details, and showing the prescribed colour, quality and finish. Have the prototypes verified and approved by the architect before manufacturing the other elements. If accepted, these elements may be used as part of the structure.

1.7 Shop Drawings

.1 Submit shop drawings in accordance with the CAN/CSA A23.3/ A23.4-F09 and A251-00 standards.
The drawings must indicate, show or include the following:

- .1 The nomenclature of finishes and details
- .2 Parts to be embedded in concrete and their reinforcements.
- .3 Openings and sleeves.
- .4 Handling and placement methods.

.2 The shop drawings submitted must bear the seal and signature of a qualified engineer and registered member of the ordre des ingénieurs du Québec.

1.8 Delivery and Storage

.1 Store elements level on pallets to ensure adequate air flow.

.2 Protect against staining.

1.9 Warranty

.1 The contractor hereby certifies that the precast elements are guaranteed against spalling and all other obvious signs of cracking, with the exception of normal hairline cracks due to shrinkage, except with respect to the warranty period, which shall be one year.

PART 2 - PRODUCTS

2.1 Materials

.1 Cement, aggregates, water and admixtures: in compliance with the CAN/CSA-A5-98 / A8-98 / A362-98; A23.1-F09 / A23.2-F09; CAN/CSA A23.5-98 standards.

SYM-TECH precast concrete

SPECIFICATIONS FOR PRECAST CONCRETE ELEMENTS

8600 avenue Ouimet
St-Hyacinthe, Québec
J2R 1S8
Tel.:(450)796-1217

2.1 Materials (cont.)

- .2 Colour and composition: to ensure the uniform colour and composition of the mix, the same brands of products and source of supply must be used for cement and aggregates used in the construction of the structure as a whole.
 - .3 Steel rebar: compliant with the CSA G30.14 - M83 standard, grade 400.
 - .4 Welded wire mesh: compliant with the CSA G30.5 - M83 standard.
 - .5 Formwork: compliant with the CAN/CSA A23.4-F09/ A251 standard.
 - .6 Anchorage and supports: compliant with the CAN/CSA-G40.20/G40.21, standard, 300w.
 - .7 Air entraining agents: additives compliant with the A266.1 standard.
 - .8 Retarder: compliant with the A266.2 standard.
-

2.2 Concrete Mix Proportions

- .1 Unless otherwise indicated, for all elements, use concrete dosed to achieve a tested minimum compressive strength of 35 Mpa at 28 days, with a maximum water/cement ratio compliant with the CAN/CSA A23.1/ A23.2-F09 standard, Table 7, for Category C exposure.
 - .2 Colorants must not account for more than 10% of the weight of the cement.
 - .3 The use of calcium chloride is prohibited.
 - .4 Cements, aggregates and colorants shall be selected based on the samples provided.
 - .5 Before manufacturing, send the architect, for approval, a 300mm x 300mm x 25mm sample of the requested colour and finish. The samples approved by the architect become the quality standard for the material and will serve as prototypes for controlling the quality of the finished product.
-

2.3 Manufacturing

- .1 Precast elements must be manufactured in accordance with the norm CAN/CSA A23.4-F09/ A251-00 standard.

SYM-TECH precast concrete

SPECIFICATIONS FOR PRECAST CONCRETE ELEMENTS

8600 avenue Ouimet
St-Hyacinthe, Québec
J2R 1S8
Tel.:(450)796-1217

2.3 Manufacturing (cont.)

.2 Each precast element must bear the date of casting and the corresponding identification mark appearing on the shop drawings and used to determine its position. The date of casting and identification mark must be placed on a part of the element that will not be visible once the work is completed.

.3 The parts to be embedded and anchorages must be designed and secured to the precast elements such that they are capable of supporting the prescribed loads.

2.4 Finishes

.1 The finish and colour of precast elements must match the sample kept in the architect's office.