

SHORT FORM GUIDE SPECIFICATIONS



PART I—GENERAL

1.1 Description

- a. Work Include
These specifications cover precast, prestressed structural concrete construction including product design not shown on contract drawings, manufacture, transportation, and erection.
- b. Related Work Specified Elsewhere
Flashing and sheet metal; sealants and caulking; painting.
- c. Work Furnished and Installed by Others
Reglets for flashing.

1.2 Reference Standards

- a. ACI 301 — Specifications for Structural Concrete; American Concrete Institute International; 2010 (Errata 2012).
- b. ACI 318 — Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute International; 2011.
- c. ASTM C260/C260M — Standard Specification for Air-Entraining Admixtures for Concrete; 2010a.
- d. AWS D1.1/D1.1M — Structural Welding Code // Steel; American Welding Society; 2011 w/Errata.
- e. PCI MNL 116 — Manual for Quality Control for Plants and Production of Precast Concrete Products;
- f. PCI MNL 120 — PCI Design Handbook // Precast and Prestressed Concrete; Precast/Prestressed Concrete Institute; Seventh Edition, 2010.
- g. PCI MNL 123 — Design and Typical Details of Connections for Precast and Prestressed Concrete; Precast/Prestressed Concrete Institute; 1988, Second Addition.
- h. PCI MNL 135 — Tolerance Manual for Precast and Prestressed Concrete Construction; Precast/Prestressed Concrete Institute; 2000.

1.3 Submittals

- a. Shop Drawings
Indicate layout, unit locations, configuration, unit identification marks, integral insulation, panel system connectors, connection details, support items, dimensions, openings, and relationship to adjacent materials. Provide erection drawings.

1.4 Quality Assurance

- a. Manufacturer Qualification
The precast concrete manufacturing plant shall be certified by the PCI (Prestressed Concrete Institute), Plant Certification Program prior to the start of production. Precast concrete manufacturer must have produced product similar to what is being specified for a minimum of two years.
- b. Design Engineer Qualifications
Design precast concrete units under direct supervision of a Professional Engineer experienced in design of precast concrete and licensed in the respective state.
- c. Welder Qualifications
Qualified in accordance with AWS D1.1/D1.1M and AWS D1.4/D1.4M.

PART II—PRODUCTS

2.1 Manufacturers

- a. Prestressed Structural Precast
Any manufacturer holding a PCI Group C3A Plant Certification for the types of products specified; see www.pci.org.
- b. Integrally Insulated Panel System

2.2 Precast Units

- a. Precast Concrete Units
Comply with PCI MNL-120, PCI MNL -122, PCI MNL 123, and PCI MNL-135.

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(2.2 Precast Units, continued. . .)

- b. Concrete Mix
Minimum 5000 psi, 28 day strength.
- c. Design Loads
Static loads, anticipated dynamic loading, including positive and negative wind loads, thermal movement loads, and erection forces as defined by applicable code.

2.3 Concrete Materials

- a. Cement
ASTM C150/C150M, Type I or III—Normal Portland type.
- b. Admixtures
Air-entraining admixtures, ASTM C260; Water reducing, retarding accelerating, high-range water reducing admixtures, ASTM C494.
- c. Aggregates | ASTM C33 or C330
- d. Water
Potable and free from foreign materials in amounts harmful to concrete and embedded steel.
- e. Reinforcing Steel
Bars—Deformed Billet Steel (ASTM A615), Deformed Rail Steel (ASTM A616), Deformed Axle Steel (ASTM A617), Deformed Low-Alloy Steel (ASTM A706);
Wire—Cold Drawn Steel (ASTM A82);
Wire Fabric—Welded Steel (ASTM A185), Welded Deformed Steel (ASTM A497).
- f. Strand
Uncoated, 7 wire, stress-relieved or low relaxation strand (ASTM A416) (*including supplement*) Grade 250K or 270K;
- g. Anchors and Inserts
Materials—Structural Steel (ASTM A36 minimum);
Finish—Manufacturer's Standards.
- h. Grout
Cement grout—Portland cement, sand and water sufficient for placement and hydration.

2.4 Insulation

- a. Integral Insulation
Expanded polystyrene insulation.

2.5 Accessories

- a. Bearing Pads
High-density plastic in combination with hard board shims.

2.6 Fabrication

- a. Fabricate in general conformance with PCI MNL 116 guidelines.

PART III—GENERAL

3.1 Erections

- a. Installation
Installation of precast, prestressed concrete shall be performed by the manufacturer or a competent erector. Members shall be lifted by means of suitable lifting devices at points provided by the manufacturer. Temporary shoring and bracing, if necessary, as shown on the approved shop drawings, shall comply with the manufacturer's recommendations.
- b. Alignment
Members shall be properly aligned and leveled as required by the approved shop drawings. Any variations between adjacent members that exceed industry standards shall be reasonably leveled out by jacking, loading or any other industry standard method as recommended by the manufacturer.

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3.2 Field Welding

- a. Field welding is to be completed per the approved shop drawings in accordance with AWS D1.1/D1.1M and AWS D1.4/D1.4M.

3.3 Attachments

- a. Subject to approval of the architect/engineer, and manufacturer, precast, prestressed products may be drilled or “shot” provided no contact is made with the prestressing steel. Should spalling occur, it shall be required by the trade doing the drilling or the shooting to make repairs.

— END OF SPECIFICATION —