



GUIDE SPECIFICATIONS FOR:

CSI SECTION 03-41-13 PRECAST CONCRETE HOLLOW CORE SLABS

PART 1 - GENERAL

- 1.1 **SCOPE OF WORK:** The work included is the design, manufacture, delivery, erection, and installation of precast, prestressed hollow core slabs as defined by the bid documents.
- 1.2 **STANDARDS AND CODES:** The work shall be done in accordance with ACI Standard 318, Building Code Requirements for Reinforced Concrete, and shall comply with applicable local building code requirements.
- 1.3 **SUBMITTALS:**
- 1.3.1 The precast, prestressed hollow core slabs shall be designed by the Manufacturer for the spans and loading conditions specified on the structural drawings. Design calculations shall be submitted to the Structural Engineer for review and approval. Design submittals shall bear the stamp and signature of a State of Washington Registered Professional Engineer experienced in precast, prestressed concrete design.
- 1.3.2 The Manufacturer shall submit shop drawings and erection drawings to the designer of record for review and approval. Drawings shall show number and size of prestressing strands, prestress force, blockouts, mark numbers, and all other details necessary for the manufacture and installation of the hollow core slabs.

PART 2- PRODUCTS

- 2.1 **TYPE OF PRODUCT:** The precast, prestressed hollow core slabs shall be machine extruded, with continuous open cores, in a casting yard under closely controlled mixing, placing and curing conditions. The slabs shall be furnished in nominal four foot (4'-0") widths, and sawn to lengths shown on the drawings. Special slabs with skewed ends, or narrower widths, shall be cut to proper dimensions by the Manufacturer. Hollow core slab soffits shall have a smooth steel-formed finish.
- 2.2 **MANUFACTURER:** Hollow core slabs shall be produced by a firm with at least five (5) continuous years of experience in the manufacture of prestressed hollow core units.

PART 3 - MATERIALS

- 3.1 **CONCRETE:** Concrete mix shall be designed by the Manufacturer as required for proper operation of the production equipment. The concrete shall have a minimum compressive strength of 4,000 psi at the time of detensioning, and 8,000 psi at twenty-eight (28) days. When required, concrete compressive strength shall be determined with a calibrated rebound test hammer in accordance with ASTM Specification C-805.



- 3.2 **CEMENT:** Cement shall conform to ASTM Specification C-150.
- 3.3 **AGGREGATES:** Aggregates shall conform to ASTM Specification C-33 or C-330.
- 3.4 **REINFORCING:** Prestressing strands shall be 7-wire, uncoated high-tensile strength strand in conformance with ASTM Specification A-416.
- 3.5 **GROUT:** Grout for longitudinal shear keys between slabs shall consist of one part cement to three parts paving sand, by weight, with a maximum water content of five (5) gallons per sack of cement.
- 3.6 **CLOSURE CONCRETE:** Concrete for pouring closures at the ends of the slabs shall be as required by Section 03300 - Cast-In-Place Concrete.

PART 4- EXECUTION

- 4.1 **OPENINGS:** Rough openings and blockouts required for structural connection of hollow core slabs shall be provided by the Manufacturer, as shown on the shop drawings. Manufacturer shall provide rough blockouts, when shown on the architectural or structural drawings, for mechanical/HVAC penetrations over 8 inches in diameter or width. Penetrations less than 8 inches in diameter or width shall be cut in the field by the Contractor. Openings and/or cutting of prestressing strand shall be approved by Architect/Engineer and Manufacturer before drilling or cutting.
- 4.2 ***TOLERANCES:** Hollow core slabs shall comply with the following dimensional tolerances:
Length: ± 1 in.
Width: $3'-11 \frac{3}{4}'' \pm 1/4$ in.
Special widths (saw cut) $\pm 1/2$ in.
Depth: $\pm 1/4$ in.
Position of voids (vertical): $\pm 1/4$ in.
Position of voids (horizontal): $\pm 1/4$ in.
Minimum cover over tendons: $1/2$ in. to cores, 1 in. to bottom
Differential camber between adjacent members of the same design and length:
1/4 in. per 10 ft, but not greater than $1/2$ in. after field leveling.
For installations with directly finished ceilings:
1/8 in. per 10 ft., but not greater than $1/4$ in. after field leveling.
Squareness of ends (vertical and horizontal alignment): $\pm 1/2$ in.
- 4.3 **QUALITY CONTROL:** The hollow core Manufacturer shall be a PCI-Certified Plant, with an established Quality Control Program to ensure close control of the materials and procedures used in production of the hollow core slabs. Each hollow core slab shall be inspected prior to delivery, and shall be clearly marked by the Quality Control Inspector as approved for use in construction.

*Note to designer: Tighter tolerances can be accommodated if required for special situations, but slabs will have a higher cost.



PART 5 - INSTALLATION

- 5.1 **INSPECTION:** Prior to delivery of the hollowcore slabs, the Erector shall examine the site and verify that conditions are satisfactory for the proper installation of the slabs. Any unsatisfactory conditions shall be noted in writing and reported to the Contractor. Installation shall not proceed until any unsatisfactory conditions have been corrected in a manner acceptable to the Erector.
- 5.2 **JOBSITE STORAGE:** If temporary jobsite storage is required, hollow core slabs shall be handled and stored in accordance with the Manufacturer's written recommendations.
- 5.3 **ERECTION:** The Erector shall lift, handle, and place hollow core slabs in accordance with the Manufacturer's written instructions and approved placement drawings. The hollow core slabs shall be placed with the minimum end bearing shown on the drawings.
- 5.4 **BEARING STRIP:** Unless otherwise indicated on the drawings, all slabs will bear on a thin neoprene bearing strip approximately 1/4 in. thick and 3/8 in. wide.
- 5.5 **LEVELING AND GROUTING:** All hollow core slabs should be leveled within specified tolerances before grouting the longitudinal joints or pouring end closure concrete. Shores or other leveling devices shall not be removed until the grout has attained a minimum strength of 2,000 psi. For untopped applications, a skim coating or pump-able self-leveling floor underlayment may be applied directly on the hollow core slab where finished floor materials are to be installed.
- 5.6 **FIELD CUTTING:** Field cutting of hollow core slabs shall not be done without the prior approval of the Architect/Engineer and the Manufacturer. Approved cutting or drilling shall be accomplished in accordance with the Manufacturer's written recommendations.

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