SECTION 03 41 13
PRECAST CONCRETE HOLLOW CORE PLANKS

SPEC WRITER NOTE:
1. Delete between //----// if not applicable to project.
2. Also delete any other item or paragraph not applicable in the section and renumber the paragraphs.
3. Verify method of anchorage and plank shown on structural drawings.
4. Verify details show plank shape.

PART 1 - GENERAL

1.1 DESCRIPTION

A. Section specifies precast concrete roof planks.

B. Designs: // channel // flat plank // steel edge flat plank.

1.2 MANUFACTURER'S QUALIFICATIONS

A. Products of one manufacturer regularly engaged in making precast concrete planks of type specified.

1.3 SUBMITTALS

A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES. All items indicated below are required submittals requiring Contracting Officer’s Representative (COR) review and approval

B. Shop Drawings: Roofing plank framing layout, anchorage, and installation details.

C. Manufacturers Certificates: Stating plank conforms to specification requirements.

D. Sustainable Construction Submittals:

SPEC WRITER NOTE: Retain sustainable construction submittals appropriate to product.

1. Recycled Content: Identify post consumer and pre consumer recycled content percentage by weight.

SPEC WRITER NOTE:
1. Make material requirements agree with applicable requirements specified in the referenced Applicable Publications.
2. Update and specify only that which applies to project.

1.4 APPLICABLE PUBLICATIONS

A. Publications listed below form a part of specification to extent referenced. Publications are referred to in text by basic designation only.

B. ASTM International(ASTM):

A36/A36M-19.....Standard Specification for Carbon Structural Steel

A615/A615M-20.....Standard Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement

A653/A653M-20.....Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc Iron Alloy Coated (Galvannealed) by the Hot Dip Process

A996/A996M-16.....Standard Specification for Rail Steel and Axle Steel Deformed Bars for Concrete Reinforcement

A1064/A1064M-18a.....Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete

C150C150M-20.....Standard Specification for Portland Cement

C494/C494M-19.....Standard Specification for Chemical Admixtures for Concrete

C881/C881M-20.....Standard Specification for Epoxy Resin Base Bonding Systems for Concrete

PART 2 - PRODUCTS

SPEC WRITER NOTE:
Check Structural Engineer for type and thickness or depth of planks required. Do not use nailing planks for adhered roofing. Coordinate with roofing Sections to determine fasteners required to anchor roofing membrane.

2.1 MATERIALS

A. Portland Cement: ASTM C150, Type I or III.

B. Reinforcing:

1. Welded wire Fabric: ASTM A1064, galvanized size as required by plank manufacturers.
2. Bars: ASTM A615 or A996, deformed. Grade as required by plank manufacturer.

C. Chemical Admixtures: ASTM C494, Type as required by plank manufacturer.

D. Bonding Adhesive: ASTM C881.

E. Steel Clips:

1. ASTM A653.
2. Designed to anchor planks to steel framing.

F. Grout:

1. Cement Grout: One part portland cement and two parts fine sand.
2. Epoxy Grout: ASTM C881.

G. Steel Angles: ASTM A36.

2.2 FABRICATION

A. Planks:

1. Shapes: // channel // tongue and grooved flat plank // tongue and grooved steel edge flat plank // as shown.
2. Manufacture: Reinforced concrete, composed of // lightweight // regular weight // mineral aggregate, portland cement and water, resulting in a unit having a minimum compressive strength of 24000 MPa // (3500 psi) for structural (non-nailable) slabs; 6900 Mpa (1000 psi) for nailable slabs //.

B. Allowable Tolerances:

1. Thickness and depth 3 mm, (1/8 inch).
2. Length and width 6 mm (1/4 inch).
3. Camber or Sweep:
   a. Plus or minus 6 mm (1/4-inch).
   b. Variation in camber between adjacent and abutting members, 3 mm (1/8 inch).
4. Inserts, bolts and pipe sleeves: Deviation from location shown - not more than 10 mm (3/8 inch).

C. Exposed concrete surfaces natural cement color free of honeycomb, pit holes, or other defects.

D. Not acceptable: Warped, cracked or broken units.

E. Flat Plank:

1. Fabricate to thickness shown with tongue and groove edges at abutting edges, square edges at exposed roof ends and sides.
2. Reinforce with wire fabric in both top and bottom of slab.
3. // Where shown, form tongue and groove edges from galvanized steel, sheet cast integrally with slab. Weld steel edge at corners. //

F. Channel Plank:

1. Fabricate to thickness shown.
2. Provide plank with square edges and closed ends and sides at roof edges except where concealed in finished work.

3. Reinforce channel plank with wire fabric in the web section, and steel reinforcement bars in flanges.

G. Steel Clips:

1. Provide zinc-coated steel clips for plank to secure plank to framing.
2. For inclines exceeding 1 in 6 (2-inches per foot), provide an angle clip to support planks at lower purlin.

H. //Where nailing is required for fastening material to roofing slabs, provide metal inserts or nailing concrete in slabs. //

I. Structural Steel Headers:

1. ASTM A36.
2. Angle sizes as shown.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Before erection of slabs, clean bearing surfaces free from dirt, mortar particles, and trash. // Level top masonry course with cement mortar or grout to provide even, solid bearing. //

B. Install slabs in accordance with manufacturer's instructions.

C. Erect slabs to prevent chipping and cracking and to provide a level deck surface.

1. Stagger end joints
2. Locate end joints on centerline of support.
3. After erection, fill // joints on upper side of channel slabs with epoxy grout cement // and joints on upper side of flat slabs with // epoxy grout // or // portland cement grout //.
4. Finish grout joint flush.

D. Erect steel edged tongue and groove plank so that planks have one structural support.

1. Form tight and closed joints at sides and ends of slabs.
2. Clip slabs to structural support.

E. Do not make cutouts without approval of the COR.

1. Form openings or carefully saw cut; do not punch openings.
2. Locate openings less than 150 mm (6-inches) wide in sections of plank between reinforcing bars.
3. Frame openings larger than 150 mm (6-inches) wide with structural steel headers.

SPEC WRITER NOTE:
1. Coordinate with structural (steel section and details to show angle

headers or supports for large openings.
2. Coordinate to show layout at openings, framing, and planks required.

3.2 REPLACEMENT AND REPAIR

A. Replace broken, cracked, and warped plank, and planks exceeding allowable tolerances.

B. Plank having defects, not affecting serviceability of deck, may be repaired with epoxy grout if approved by the COR.

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