Part 1 General

1.1 SECTION INCLUDES

.1 [Floor] [and] [roof] planks.

.2 Connection [embedments] [and] [hangers].

.3 Grouting plank joint keys [and end joints].

1.2 RELATED SECTIONS

.1 Section 03 30 00 Cast-in-place Concrete: Concrete [superstructure building frame,] [topping,] [and] [reinforcement].

.2 Section 03 41 00 - Structural Precast Concrete.

.3 Section 03 54 00 - Self-leveling Underlayment.

.4 Section [-]: Masonry load bearing support walls.

.5 Section 05 12 00 - Structural Steel: Supporting steel [lintels,] [headers,] [ ].

[OR]

.6 Section 05 50 00 - Metal Fabrications: Supporting steel [lintels,] [headers,] [ ].

.7 Section 07 84 00 – Firestopping.

.8 Section 07 92 00 – Joint Sealants: Caulking of butt joints of precast units at [exposed underside of floor members.] [.]

.9 Section [-]: Interior applied finish.

1.3 REFERENCES

.1 CAN/CSA-A23.1-09/A23.2-09 - Concrete Materials and Methods of Concrete Construction/ Methods of Test for Concrete.

.2 CSA-A23.3-04 (R2010) - Design of Concrete Structures.

.3 CSA-A23.4-09 - Precast Concrete - Materials and Construction.

.4 CSA-A3000-08 - Cementitious Materials Compendium.

.5 CSA-G40.20-04/G40.21-04 - General Requirements for Rolled or Welded Structural Quality Steel/ Structural Quality Steel.

.6 CSA-W47.1-09 - Certification of Companies for Fusion Welding of Steel.

.7 CPCI (Canadian Precast/Prestressed Concrete Institute) Design Manual – 4th Edition.

.8 ASTM A416/A416M-06 - Steel Strand, Uncoated Seven-Wire for Prestressed Concrete.

.9 ASTM A123/A123M-09 Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

.10 PCI (Precast Concrete Institute) MNL 116 Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products.

.11 CSA W59-03 (R2008) Welded Steel Construction (Metal Arc Welding).

.12 CSA W186-M1990 (R2007) Welding of Reinforcing Bars in Reinforced Concrete Construction.

.13 PCI (Precast Concrete Institute) Manual for Design of Hollowcore Slabs.

1.4 PERFORMANCE REQUIREMENTS

.1 Size components to withstand design loads as per the contract documents.

.2 Maximum Allowable Deflection of Planks as per CSA A23.3 and the contract documents.

.3 Design components to accommodate construction tolerances, as per relevant CSA codes.

.4 Precast components to be designed with concrete mix that will achieve 41 [ ] MPa compressive strength at 28 days, with properties according to CSA A23.1 Table 2 for Class N exposure. Slump and air tests not applicable according to CSA A23.1 Clause 8.9.6.

.5 Grout mix to be 20 MPa at 28 days.

1.5 ADMINISTRATIVE REQUIREMENTS

.1 Section 01 31 00: Project management and coordination procedures.

.2 Coordination:

.1 Hollowcore Manufacturer to provide information and drawings to General Contractor to coordinate with other work having a direct bearing on work of this section.

.2 General Contractor to coordinate field cut openings with affected section.

.3 Pre-installation Meetings:

.1 General Contractor to convene [one (1)] [( )] week before starting work of this section.

.2 General Contractor to discuss anchor and weld plate locations, sleeve locations, and cautions regarding cutting or core drilling.

1.6 SUBMITTALS FOR REVIEW

.1 Section 01 33 00: Submission procedures.

.2 Product Data: Indicate standard component configuration, design loads, deflections, and cambers.

.3 Shop Drawings: Indicate plank locations, connection details, edge conditions, bearing requirements, support conditions, dimensions, openings, [openings intended to be field cut.] and relationship to adjacent materials, to be stamped, signed and dated by a qualified engineer licensed in the province of [ ].

.4 Installation Data: Fabricator's special installation requirements, indicating special procedures, perimeter conditions requiring special attention, and [ ].

1.7 SUBMITTALS FOR INFORMATION

.1 Section 01 33 00: Submission procedures.

.2 Sustainable Design:

.1 Section [01 35 18]: LEED documentation procedures.

.2 Provide required LEED documentation for Product [recycled content] [regional materials] as required by contract documents.

1.8 CLOSEOUT SUBMITTALS

.1 Section 01 78 10: Submission procedures.

.2 Sustainable Design Closeout Documentation: [ ].

1.9 QUALITY ASSURANCE

.1 Manufacturer to meet requirements of CSA A23.4, including Appendices A and B, together with PCI MNL-116 and 117 and CPCI certification requirements.

.2 Manufacturer: Certified to Canadian Precast/Prestressed Concrete Institute (CPCI) Precast Concrete Certification Program for Structural, Architectural and Specialty Precast Concrete Products and Systems.

.3 Perform welding to CSA-W59-03 (R2008) and W186-M1990 (R2007).

.4 Welder: Qualified within previous [twelve (12)] [ ] months to CSA-W47.1-09.

.5 Maintain plant records and quality control program during production of precast planks. Make records available upon request.

.6 Fabricator Qualifications: CPCI Certified Company specializing in manufacturing the Products specified in this section with [documented] experience.

.7 Erector: Company specializing in performing the work of this section with minimum [five (5)] [( )] years [documented experience.]

.8 Design precast concrete members under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed at the place where the Project is located.

1.10 REGULATORY REQUIREMENTS

.1 Conform to applicable code for design load and on-site handling requirements.

.2 Conform to [NBC equivalent thickness], [PCI MNL-124,] [ ] to achieve [ ] hour rating for roof and floor assembly.

1.11 DELIVERY, STORAGE, AND PROTECTION

.1 Section 01 61 00: Transport, handle, store, and protect products.

.2 Lifting or Handling Devices: Capable of supporting member in positions anticipated during manufacture, storage, transportation, and erection.

.3 Mark each member with date of production.

PART 2 Products

2.1 ACCEPTABLE FABRICATIONS

.1 [ ] [Product] [ ].

.2 [ ] [Product] [ ].

.3 [ ] [Product] [ ].

2.2 MATERIALS

.1 Materials: CSA-A3000, CAN/CSA-A23.1/A23.2.

.2 Tensioning Steel Strands: [ASTM A416/A416M,] [ASTM A421/A421M,] Grade [250] [270] [ ] K of sufficient strength commensurate with member design.

.3 Reinforcing Steel: ASTM A615/A615M, deformed steel bars.

.4 Cement Grout: Minimum compressive strength of < [20] [ ] MPa> << [3,000] [ ] psi>>at 28 days.

2.3 ACCESSORIES

.1 Connecting and Supporting Devices: [CSA-G40.20/G40.21 carbon steel;] [ASTM A666 stainless steel;] [ASTM A123/A123M-09 hot dip galvanized] plates, angles, [items cast into concrete,] [items connected to steel framing members,] and inserts; fasteners to ASTM A325.

.2 Core Hole End Plugs: To dam the concrete [or grout].

.3 Bearing Pads: [High density plastic, <[3] [ ] mm><<[1/8] [ ] inch>> thick, smooth on [one side.] [both sides.], [masonite hard board], [ ].

.4 Shims: [Plastic.] [Steel.]

2.4 FABRICATION

.1 To commence upon receipt of approved shop drawings and schedules.

.2 Conform to CSA-A23.4.

.3 Embed anchors, inserts, plates, angles, and other items at locations indicated on approved drawings.

.4 Provide openings required by other sections, at locations indicated on approved drawings.

2.5 COMPONENTS

.1 Nominal Thickness: <[152] [203] [254] [305] [330] [356] [_____] mm><<[6] [8] [10] [12] [13] [14] [ ] inches>>.

.2 Nominal Plank Width: <[1 220] [ ] mm> <<[48] [ ] inches>>.

2.6 FINISHES

.1 Plant Finish: Top surface: as extruded or required by contract documents or floor system design requirements.

.2 Plant Finish: Bottom surface: as extruded; may contain small surface holes caused by small air bubbles, minor chipping, or spalling at edges or ends, without major discolouration.

.3 Connecting and Supporting Steel Devices: [Prime painted.] [Hot dip galvanized.] [Electroplated.] [Unfinished.]

2.7 FABRICATION TOLERANCES

.1 Conform to CSA A23.4.

2.8 SOURCE QUALITY CONTROL [AND TESTS]

.1 Provide [testing] [and] [analysis] of site placed concrete and grout as required by contract documents.

.2 Provide shop [inspection] [and] [testing] for stressing strands.

.3 Test samples in accordance with specified standards.

PART 3 Execution

3.1 EXAMINATION

.1 General Contractor to verify that site conditions are ready to receive work and field measurements are as indicated on approved drawings.

.2 Verify supporting structure is ready to receive work.

3.2 ERECTION

.1 Erect members without damage to structural capacity, shape, or finish. Replace or repair damaged members.

.2 Align and maintain uniform horizontal and end joints, as erection progresses.

.3 General Contractor to maintain any temporary bracing if required for the supporting structure [components] [or] to avoid any rotation or excessive deflections of the supporting components.

.4 Install bearing pads at bearing ends of planks [as indicated].

.5 Adjust differential camber between precast members to tolerance before final attachment [and grouting].

.6 Adjust differential elevation between precast members to tolerance before final attachment [and grouting].

.7 Grout plank joints, trowel smooth.

.8 Transition differential elevation of adjoining planks with grout to a maximum slope of [ ] [as required].

.9 Secure units in place according to erection drawings. Perform welding in accordance with [CSA-W59.] [CSA-W186.]

.10 Field cut holes and openings up to [150 mm] [6 inches] in diameter to be cored or drilled by the trade requiring them, subject to the approval of the hollowcore slab manufacturer.

.11 Openings larger than [150 mm] [6 inches] to be located on shop drawings at time of approval and to be provided in the shop.

.12 Do not cut any reinforcing without prior approval of the precast slab manufacturer and engineer.

3.3 ERECTION TOLERANCES

.1 Section 01 73 00: Tolerances.

.2 Erect members level and plumb, within allowable tolerances.

.3 Erect to the tolerances as specified in CSA A23.4.

3.4 CLEANING

.1 Section 01 74 00: Cleaning installed work.

.2 Clean weld marks, dirt, or blemishes from surface of exposed members, caused by the work of this trade.

.3 Clean field welds with wire brush and touch up with [primer] [galvanized] paint.

.4 Upon completion of the work in this section, all surplus materials and debris shall be removed from this site.

3.5 PROTECTION OF FINISHED WORK

.1 Section 01 78 40: Protecting installed work.

.2 Protect members from damage caused by field welding or erection operations performed by the work of this trade.

.3 Provide non-combustible shields during welding operations, as required.

END OF SECTION