10.7 CSI TECHNICAL SPECIFICATIONS

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SECTION 03135

EXPANDED POLYSTYRENE CONCRETE FORMWORK

PART 1 GENERAL

1.01 SECTION INCLUDES

A. American ConForm Industries SmartBlock for cast-in-place insulated concrete, with shoring, bracing and anchorage.
B. Required access for other work.
C. Form accessories.

1.02 INSTALLED BUT NOT FURNISHED PRODUCTS

D. Section 03300: Cast-In-Place Concrete: Supply of concrete accessories for placement by this section.
E. Section 04300: Supply of masonry accessories for placement by this section.
F. Section 05500: Metal Fabrications: Supply of metal fabrications for placement by this section.

1.03 RELATED SECTIONS

A. Section 03200: Concrete Reinforcement.
B. Section 03300: Cast-In-Place Concrete.

1.04 REFERENCES

C. ACI 301: Structural Concrete for Buildings.
D. ACI 318: Building Code Requirements for Reinforced Concrete.
E. ASTM C 578: Standard Specification for Preformed, Cellular Polystyrene Thermal Insulation.

F. American ConForm Industries User's Manual for SmartBlock Forms.

G. Structural Calculations for SmartBlock Forms.

1.05 DESIGN REQUIREMENTS

A. A. All designing, engineering and construction of formwork, shoring and bracing must conform to design and applicable code requirements. Concrete must conform to required shape, lines and dimensions.

1.06 SUBMITTALS

A. Shop Drawings; identify required dimensions, materials, and arrangement.

B. Product Data; denotes form materials and installation requirements.

1.07 QUALITY ASSURANCE

A. Work is to conform to ACI 347.

B. Erection of formwork is the contractor's responsibility. Approval of the shop drawings, by the architect of record, as submitted or as corrected does not relieve the contractor of their responsibility to appropriately construct and maintain the forms so that they will function properly.

1.08 REGULATORY REQUIREMENTS

A. Conform to applicable codes for designing, fabricating and erecting of formwork.

B. ICBO Evaluation Service, Inc. Report 4572; ConForm SmartBlock Polystyrene forms for reinforced concrete walls.

C. BOCA International Evaluation Services, Inc. Report 95· 46: DIVISION 03, CONCRETE; Section 03130 Permanent Forms.

1.09 DELIVERY, STORAGE, AND HANDLING

A. Deliver American ConForm Industries SmartBlock Forms, installation instructions and user reference manual as provided by manufacturer.

B. Store as strapped, banded or other prepackaged bundles and boxes provided by the manufacturer to prevent damage. Protect from UV deterioration due to prolonged exposure to direct sunlight.

1.10 COORDINATION

A. Coordination of this section, with other sections requiring attachment or embedment of components or modification of formwork, must be prearranged.

B. If erection of the formwork results in insufficient concrete cover over reinforcement, stop construction and request instructions from the Architect/Engineer of record.

PART 2 PRODUCTS

2.01 MANUFACTURERS: PREFABRICATED FORMS

A. American ConForm Industries; Product: SmartBlock SF10 Standard Form.

B. Two opposing faces of EPS foam connected with an EPS foam bridge. An interlocking tongue-and-groove is along top and bottom horizontal surfaces. Surface of exterior is scored 1/16" deep on 2" increments to facilitate measuring and cutting.

C. Expanded Polystyrene Foam:

1. Density: 1.5 – 2.0 pcf.

2. Flame spread: ASTM E 84, 25 or less.

3. Smoke Developed: ASTM E 84, 450 or less.

D. Substitutions: Under provisions of Section 01600.

2.02 MANUFACTURERS: UNASSEMBLED FORMS

A. American ConForm Industries; Product: SmartBlock 12VWF Variable Width Form.

B. Two opposing faces of EPS foam connected with polypropylene connectors manually inserted into preformed "T" slots in the foam. Connector flange is 1 ¼" wide by 6" long and after proper positioning, is ¼" below the surface of the foam panel. An interlocking tongue-and-groove is along top and bottom horizontal surfaces. Surface of exterior is scored 1/16" deep on 2" increments to facilitate measuring and cutting.

C. Expanded Polystyrene Foam:

1. Density: 1.5 – 2.0 pcf.

2. Flame spread: ASTM E 84, 25 or less.

3. Smoke Developed: ASTM E 84, 450 or less.

D. Substitutions: Under provisions of Section 01600.

2.03 ACCESSORIES

A. Bracing: Commercially available systems or nominal lumber or steel framing members.

B. Cleat or Sleepers: Nominal lumber or steel framing members.

C. Tape: Release tape for securing, protecting and sealing slots, corners, adjustment cuts, interlocking tongue and groove.

D. Nails, Tie Wire, Lag Bolts, Through Bolts, Anchorages: Sized as required, of sufficient strength and composition to maintain formwork positioning while placing concrete.

PART 3 EXECUTION

3.01 EXAMINATION

A. Dimensional lines, levels and centers of foundation must be verified before erecting formwork. Dimensions must agree with drawings.

B. Strength of foundation concrete to be verified before proceeding with erecting formwork.

3.02 ERECTION: FORMWORK

A. American ConForm Industries SmartBlock Forms must be installed in accordance with manufacturer's recommendations. Erect SmartBlock forms in a running bond. Corners are overlapped “log cabin” style. Protect forms and connectors from damage.

B. Erect formwork, shoring and bracing to achieve design requirements. All work must conform to ACI 301 requirements.

C. Bracing and shoring must ensure stability of formwork and support construction loads.

D. Design, erect, support, brace, and maintain formwork to support axial, lateral, dynamic and static loads and moments that may occur until such forces can be resisted by the concrete structure. Resultant concrete, members and structures must be of correct shape, size, position, elevation and alignment.

E. Plumb and align all joints.

F. Approval of the Architect/Engineer of record must be obtained before framing openings not indicated on drawings.

3.03 EMBEDDED PARTS, OPENINGS AND INSERTS.

A. Locate, set in place and stabilize items to be cast directly into concrete.

B. Openings, where required, must be formed and stabilized.

C. Work with other sections must be coordinated before locating, forming, placing and stabilizing openings, sleeves, slots, pockets, recesses, bolts, anchors, other inserts and components.

D. Positioning of items must conform to the appropriate section. Masonry anchors must conform to spacing and intervals specified in Section 04300.

E. Manufactures instructions for installation of accessories must be followed. Positioning must not be compromised during placement of the concrete.

3.04 FORM MAINTENANCE

A. Remove foreign matter on exterior and interior of forms before placing into position.

B. Cavities must be clear of debris prior to concrete placement.

C. Compressed air or water can be used to remove remaining foreign matter. Ensure clean-outs allow water and debris can drain to exterior.

D. In cold weather, remove ice and snow from interior cavity of forms. Do not use de-icing salts or other chemicals. Unless formwork is within heated space, do not use water to clean out forms. Use compressed air or other method approved by the Architect/Engineer of record to remove foreign matter.

E. Wall finishes requiring bonding to the EPS foam can only be applied to a clean surface. Oxidation, from UV exposure, in the form of yellow dust must be removed from the exterior surfaces. Mild detergent and a stiff brush or pressure washers may be used. Rinse thoroughly with water.

3.05 TOLERANCES OF FORMWORK

A. Tolerances of formwork must be maintained in accordance with ACI 301.

3.06 FIELD QUALITY ASSURANCE

A. Before placement of concrete, inspect erected formwork, shoring, and bracing. Ensure formwork conforms to design, stability and cleanliness and that shoring, bracing, supports, fastenings, ties, accessories and other items are secure and maintain their positions.

END OF SECTION