



*For the Specifier: Edit this document to fit requirements of specific project*

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## **SECTION 03130 INSULATING CONCRETE FORMS**

### **PART 1 GENERAL**

#### **1.01 OVERVIEW**

- A. Work shall be conducted in accordance with Division 1 and requirements of this section.
- B. Installation of Celblox<sup>®</sup> Insulated Concrete Forms for cast-in-place concrete walls and installation of steel reinforcing bars and the placement of concrete into the forms.

#### **1.02 SCOPE OF WORK**

- A. Qualified installer to provide labor, materials, tools, and temporary bracing to accomplish the installation of the Celblox<sup>®</sup> insulating concrete forms and pouring of concrete into the forms .

#### **1.03 ITEMS INSTALLED PER SPECIFICATION**

- 1. Utility penetration
- 2. Door and window bucks
- 3. Concrete
- 4. Hold-downs
- 5. Rebar
- 6. Hangers, insert devices, sleeves, bolts.
- 7. Drainage system
- 8. Footings
- 9. Water proofing
- 10. Post Pads
- 11. Beam pockets
- 12. Bracing

#### **1.04 RELATED SECTIONS**

- 1. Section 01500 Temporary Facility and Controls
- 2. Section 03050 Basic Concrete Materials and Methods
- 3. Section 03100 Concrete Forming and Accessories
- 4. Section 03200 Concrete Reinforcement
- 5. Section 03300 Cast-in-Place Concrete
- 6. Section 03400 Pre-Cast Concrete
- 7. Section 04000 Masonry
- 8. Section 05000 Metals
- 9. Section 06000 Woods and Plastics
- 10. Section 07100 Damp-proofing and Waterproofing

- 11. Section 07130 Modified Bituminous Sheet Waterproofing
- 12. Section 07240 Exterior Insulation and Finish System
- 13. Section 07460 Siding
- 14. Section 07600 Flashing and Sheet Metal
- 15. Section 08000 Doors and Windows
- 16. Section 09200 Plaster and Gypsum Board
- 17. Section 09700 Wall Finishes

1.05 APPLICABLE SPECIFICATIONS, CODES AND STANDARDS

A. ASTM Standards

- 1. **ASTM C578** Standard Specification for Preformed Cellular Thermal Insulation.
- 2. **ASTM C203** Standard Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation.
- 3. **ASTM C272** Standard Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions.
- 4. **ASTM C303** Standard Test Method for Density of Preformed Block-Type Thermal Insulation.
- 5. **ASTM C518** Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
- 6. **ASTM D1037-99** Test Method for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials.
- 7. **ASTM D1621** Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
- 8. **ASTM E84** Standard Test Method for Surface Burning Characteristics of Building Materials.
- 9. **ASTM E90** Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
- 10. **ASTM E96** Standard Test Methods for Water Vapor Transmission of Materials.
- 11. **ASTM E119** Standard Test Methods for Fire Tests of Building Construction and Materials.
- 12. **NFPA 251** Standard Methods of Tests of Fire Resistance of Building Construction and Material.
- 13. ISO 9000 Quality System: Plastic Ties and Webs

B. Uniform Building Code

- 1. **UBC 26-3** Standard Room Fire Test.

C. International Code Council

- 1. International Building Code 2005 ICCES ESR #1525 for Celblox<sup>®</sup> Insulating Concrete Forms.

D. Wisconsin Safety and Buildings Division

- 1. Wisconsin Building Product Evaluation 200710-I.

#### 1.06 SYSTEM DESCRIPTION

1. Celblox<sup>®</sup> Insulated Concrete Forms consist of two opposing foam panels, each 16" high x 48" length x 2 ½" thick made of EPS (expanded polystyrene). The panels are connected by plastic "ties" so as to maintain an open cavity within which to pour the concrete.
2. The foam panels are pre-assembled at the factory in standard cavity widths to accommodate a poured wall thickness of 4" through 12", in 2" increments.
3. Plastic webs, 1 ½" wide, imbedded vertically in the walls of the foam provide full coverage the width of the blox every 8 inches on center for interior and exterior treatments.

#### 1.07 QUALITY ASSURANCE

1. Installer Qualifications: Minimum of three (3) years experience in the installation of insulated concrete forms and five (5) years experience with general concrete forming.
2. Manufacturer Qualifications: Twenty (20) years experience manufacturing ICF's.
3. Pre-installation Meeting: Minimum one week prior to start of work as described in this document; attendees to include the manufacturer's representative, and the general contractor and foreman. Discuss following issues:
  - a). Scheduling and coordinating of work and trades.
  - b). Environmental condition and site readiness.
  - c). Site access issues

#### 1.08 PRODUCT DELIVERY, STORAGE and HANDLING

1. Product delivered in factory packaging, unopened, undamaged, with identification labels intact.
2. Store and handle product in a specific location to prevent damage, impact damage or soiling.

#### 1.09 Submittals

1. Manufactures literature describing products.
2. Installation manual.
3. When requested: provide manufacture's ICC report.
4. Steel Reinforcement per Architect's drawings
5. Concrete mix and specifications per Architect's drawings.
6. Engineering calculations per Architect's drawings.
7. Window and door schedule per engineer's specifications.

**PART 2 PRODUCTS**

**2.01 MANUFACTURE OF FORMS**

Cellox, LLC  
 1200 Industrial St.  
 Reedsburg, WI 53959  
 Tel. 608-524-2316  
 Fax 608-524-2362  
www.ceblox.com

**2.02 MATERIALS**

- A. Permanent Insulating Concrete Forming System made of Expanded Polystyrene (EPS) to comply with ASTM C-578 specifications:
1. Thermal Resistance ASTM C518-91
  2. Compressive Resistance ASTM D1621
  3. Water Vapor Permeability ASTM E96
  4. Water Absorption ASTM C272
  5. Flame spread and smoke development ASTM E84
  6. Flexural Strength ASTM C203-99
  7. Fire Resistance rating of 8" wall finished wall: 4 hours
  8. Test Method for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials (Screw withdrawal and lateral resistance tests) ASTM D1037-99

Distance from Edge of Sample (inches)	Section 61 Screw Withdrawals (Mean lbf)	Section 41 Lateral Resistance Test (Mean lbf)	
		Pulled Parallel to Axis Of Web	Pulled Perpendicular to Axis of Web
.25	177	231	169
.375	191	297	221
.5	212	353	289
.75	236	438	349

**2.03 MANUFACTURED COMPONENTS**

- A. Proprietary System Components of Expanded Polystyrene (EPS).
1. Standard Block ,
    - a. Size: 4", 6", 8", 10", 12" cavity width for concrete.
    - b. 16" height x 48" length x 2 1/2" thick

Standard CELBLOX®	4" Cavity	6" Cavity	8" Cavity	10" Cavity	12" Cavity
Concrete Thickness	4"	6"	8"	10"	12"
Concrete Volume	.066 yd <sup>3</sup>	.099 yd <sup>3</sup>	.132 yd <sup>3</sup>	.165 yd <sup>3</sup>	.198 yd <sup>3</sup>
EPS thickness (total)	5 inches	5 inches	5 inches	5 inches	5 inches
Wall Surface Area	5.3 ft <sup>2</sup>	5.3 ft <sup>2</sup>	5.3 ft <sup>2</sup>	5.3 ft <sup>2</sup>	5.3 ft <sup>2</sup>

2. 45 Degree Corner Block
  - a. Size: 4", 6" 8", 10", 12" cavity width for concrete.
3. Brick Ledge panel
  - a. Size: 4", 6" 8", 10", 12"
  - b. 16" height x 48" length x 2 ½" thick
4. 90 Degree Corner Block
  - a. Size: 4", 6" 8", 10", 12" cavity width for concrete.
5. Taper Top
  - a. Size: 4", 6" 8", 10", 12" cavity width for concrete.
  - b. 16" height x 48" length x 2 ½" thick

### **PART 3 EXECUTION / INSTALLATION**

#### **3.01 MANUFACTURER'S INSTRUCTIONS**

- A. Install the EPS forms in accordance with instructions and recommendations from CELLOX, LLC.

#### **3.02 INSPECTION**

- A. Verification of Conditions at the site: Verify layout matches all locations indicated on the plans.
- B. Verify site conditions are appropriate for installations of the EPS concrete forms.
- C. Contractor shall verify that any anchorages or inserts not within tolerance are corrected.
- D. Inspect before pour for potential "blow-out" areas.

#### **3.03 CONSTRUCTION**

##### **A. General**

1. Erect EPS forms plumb, square and level.
2. Install windows and door bucks as specified.
3. Install shoring and bracing to achieve design requirements.
4. Properly reinforce all cuts and weak spots.
5. Install vertical and horizontal reinforcing bars as specified.
6. Install and tie all reinforcing bars such that concrete will fully surround all bars during the pour.
7. Place all anchor bolts and straps as specified.
8. Install sleeve penetrations as specified.
9. Cut chases for plumbing and electrical as specified.
10. Within the 30 minute period after the pour, adjust all bracing turnbuckles to bring the walls into plumb.

##### **B. Interface with other work.**

1. Create point load areas for girders, beams and trusses as indicated on the structural plans.
2. Install connections for floor joists and/or rim joists as specified

3. Create transitions for brick facing with EPS Brickledge forms.

C. Protection.

1. Deliver product in the original factory packaging, bearing the product identification numbers and the manufacturer.
2. All materials and work shall be adequately protected by the erector at all times.
3. Provide temporary cover for insulating forms so as to prevent exposure to UV light if the application of surface finish will be delayed beyond 45 days.
4. Any material in contact with the ICF forms must be compatible with the expanded polystyrene.

3.04 CLEANING

- A. Clean formed cavities of debris prior to pouring concrete.

**END OF SECTION**