

## SECTION 03450a

### Architectural precast Concrete

### IRC 2006 EARTH FRIENDLY BLOCK

## PART 1 GENERAL

### 1.01 SUMMARY

- A. Section Includes:
  - 1. Insulated concrete forms for:
    - a. Exterior structural wall construction.
    - b. Interior walls (structural and non-structural).
  - 2. Installation of reinforcing steel.
  - 3. Placement of concrete within formwork.
- B. Products Installed but not Furnished Under this Section:
  - 1. Reinforcing Steel: Furnish in accordance with Section 03200.
  - 2. Cast -In-Place Concrete: Furnish in accordance Section 03300
  - 3. Sleeves, inserts, anchors and bolts: Furnish in accordance with Section 05500 and other applicable sections.
  - 4. Bucks for Windows and Doors: Furnish in accordance with Division 8.
- C. Related Sections:
  - 1. Windows and Doors: Furnish and install in accordance with Division 8.
  - 2. Stucco, plaster, tile and other wall finishes: Furnish and install in accordance with Division 9.

### 1.02 REFERENCES

- A. ASTM
  - 1. ASTM C1389 (formerly ASTM E514) - Test Method for Water Penetrations and Leakage Through Masonry
  - 2. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.
  - 3. ASTM E119 - Test methods for Fire Tests of Building Construction and Materials.
  - 4. ASTM E331 - Test method for Water Penetrations of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- B. UBC:
  - 1. UBC 8-1- Test Method for Surface Burning Characteristics of Building Materials.
  - 2. UBC 14-1 - Kraft Waterproof Building Paper.
  - 3. UBC 26-3 - Room Fire Test Standard for Interior of Foam Plastic Systems.

### 1.03 SYSTEM DESCRIPTION

- A. Design Requirements: Insulated concrete form system shall provide a permanent framework for a grid of reinforced concrete to form load-bearing walls, shear walls, stem walls, lintels, retaining walls and other components of the building. Channels

inside the elements shall be designed to provide optimum strength while using the lowest possible amount of concrete.

- B. Performance Requirements: In accordance with manufacturer's General Structural Notes on Drawings.

#### **1.04 SUBMITTALS**

- A. Product Data: Submit manufacturer's specifications, design data and installation instructions.
- B. Shop Drawings: Submit drawings showing layout, dimensions and construction details.
- C. Test Reports: Submit reports validating product compliance with specified requirements.

#### **1.05 QUALITY ASSURANCE**

- A. Pre-Installation Conference:
  - 1. Convene a pre-installation conference to review specifications and procedures with the Architect, Contractor, installer, manufacturer's representative, Owner and other trades relevant to the work, prior to ordering materials.
  - 2. Notify Architect at least 48 hours prior to starting Work.
  - 3. Contractor shall review materials, details, etc. and submit a report including revised details to Architect. Incorporate revised details approved by Architect in the Project at no additional cost to Owner.

#### **1.06 DELIVERY, STORAGE AND HANDLING**

- A. Packing and Shipping: Deliver materials to and unload onto level surface with labels intact.
- B. Storage: Adequately protect against damage while stored at the site.
- C. Handling: Comply with manufacturer's instructions.

#### **1.07 ENVIRONMENTAL REQUIREMENTS**

- A. Resource Management:
  - 1. Recycled Content: Provide insulating concrete form containing 85% recycled content.
  - 2. Manufacturing:
    - a. Production of 10 square feet of material shall consume approximately 1kWh of electricity with no heating process required.

- b. Residues of production shall be recycled into subsequent product production.

## **PART 2                      PRODUCTS**

### **2.01    MANUFACTURER/LICENSEE**

- A. Manufacturer: Earth Friendly Block 205 S. Industrial Drive Tempe, Arizona 85281
- B. Licensee: Earth Friendly Block Arizona 205 S. Industrial Drive Tempe, Arizona 85281

### **2.02    MATERIALS**

- A. Insulated concrete forms
  - 1. Material: Earth Friendly Block.
    - a. Recycled content, postconsumer expanded polystyrene:  $\pm 87$  % by volume.
    - b. Bulk density: 22 lb/ft<sup>3</sup>  $\pm 10$ %.
    - c. Compressive strength: 56 psi.
    - d. Tensile strength: 43 psi
    - e. Water vapor transmission: 7.3
    - f. Fire Endurance (10 inch wall thickness per ASTM E119): 4 hours rating per UL R14366, 9/91, 2/99
    - g. Thermal barrier (Room fire test):
      - 1) No flame spread.
      - 2) No smoke development.
      - 3) Wall meets UBC 26-3.
    - h. Surface burning characteristics (ASTM E84, NFPA 255)
      - 1) Flame spread index: 0
      - 2) Smoke development index: 5.
      - 3) NFPA Class A
      - 4) UBC Class 1
    - i. Frost resistance: Highly frost resistant.
    - i. Toxicity: Low
    - k. Formation of mildew: Mildew and fungus growth is not anticipated.
    - l. Water transmission: Meets the following requirements.
      - 1) ASTM E331

- 2) ASTM C1389 (formerly ASTM E514)
- 3) UBC 14-1 (grade "C" kraft paper).

m. Average wall humidity: Average 2.5% by volume.

n. Expansion: 0.0018 inch/foot.

o. Thermal performance (effective R-value):  $\pm 30 \text{ h.}^\circ\text{Fsq.ft./Btu.}$

p. Sound Insulation: >50dB(a)

## 2. Standard Element Dimensions:

a. Overall thickness:

- 1) 10 inches (250mm)

b. Void Diameter:

- 1) 10 inch (250mm) overall thickness: 6 inches (155mm).

c. Outside wall thickness (void to outside face):

- 1) 10 inch (250mm) overall thickness: 2 inches (50mm).

d. Length:

- 1) 10 inch (250mm) overall thickness: 60 inches (1500mm).

B. Concrete: In accordance with Section 03300 and as follows:

- 1. Compressive strength at 28 days: In accordance with General Structural Notes.
- 2. Aggregate size: In accordance with insulated concrete form manufacturer's recommendation for size of void to be provided.
- 3. Slump: In accordance with General Structural Notes and insulated concrete form manufacturer's recommendation for size of void to be provided.

C. Adhesive for joining insulated concrete forms: As provided by insulated concrete form manufacturer.

## 2.03 EQUIPMENT

A. Tools and Supplies shall be as recommended by manufacturer's Installation Guide.

## 2.04 FABRICATION

A Tolerances:

- 1. 10 inch (250mm) overall thickness
  - a. Overall thickness:  $\pm 1/8$  inch.
  - b. Voids: -1/2 inch (openings may be oblong instead of round)

- c. Outside wall thickness (void to outside face): +1/2 inch, -3/8 inch

## **PART 3                      EXECUTION**

### **3.01      EXAMINATION**

#### **A.   Verification of Conditions:**

1.   Examine subsurfaces to receive Work and report detrimental conditions in writing to Architect.
2.   Examine footings to verify that they are within acceptable tolerances for installation of wall panels.
3.   Commencement of Work will be construed as acceptance of subsurfaces.

#### **B.   Coordination:   Coordinate with other work which affects, connects with, or will be concealed by this Work.**

### **3.02      INSTALLATION**

#### **A.   In accordance with manufacturer's Installation Guide.**

### **3.03      CLEANING**

- #### **A.   During the course of the Work and on completion of the Work, remove and dispose of excess materials, equipment and debris away from premises.**

END OF SECTION