



EQUIPMENT ENCLOSURE SPECIFICATION

SECTION 13161 PRE-ENGINEERED FIBERGLASS ENCLOSURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Pre-engineered enclosures.
- B. Electrical wiring and devices for pre-engineered enclosures.
- C. Heating equipment for pre-engineered enclosures.
- D. Ventilation equipment for pre-engineered enclosures.
- E. Air conditioning equipment for pre-engineered enclosures.

1.2 RELATED SECTIONS

- A. Section 03300 – Cast-In-Place Concrete: Concrete building pad.
- B. Division 16: Electrical connections.

1.3 REFERENCES

- A. ASTM C 518 – Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
- B. ASTM D 256 – Standard Test Method for Determining the Pendulum Impact Resistance of Notched Specimens of Plastics.
- C. ASTM D 618 – Standard Practice for Conditioning Plastics for Testing.
- D. ASTM D 638 – Standard Test Method for Tensile Properties of Plastics.
- E. ASTM D 732 – Standard Test Method for Shear Strength Plastics by Punch Tool.
- F. ASTM D 790 – Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
- G. ASTM D 792 – Standard Test Method for Specific Gravity (Relative Density) and Density of Plastics by Displacement.
- H. ASTM D 1622 – Standard Test Method for Apparent Density of Rigid Cellular Plastics.
- I. ASTM D 2583 – Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Certified independent test results of representative wall laminate.
- C. Shop Drawings: Show:
 - 1. Critical dimensions, jointing and connections, fasteners and anchors.
 - 2. Materials of construction.
 - 3. Sizes, spacing, and location of structural members, connections, attachments, openings, and fasteners.
 - 4. Color.
- D. Samples: 8-inch square sample of representative wall construction, upon request.
- E. Manufacturer's installation instructions.



1.5 SYSTEM DESCRIPTION

- A. Size: provide one-piece molded construction FRP enclosures of the following type:
 - 1. Size:
 - i. 3 FEET 6 INCHES W x 2 FEET 4 INCHES D x 3 FEET 0 INCHES H (Model 200-071)
- B. Construction:
 - 1. One-piece construction.
 - 2. Paneled construction shall not be acceptable.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store products indoors or in weather protected area until installation. Protect from construction traffic and damage.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. The product shall be manufactured by TRACOM, Inc.; 6575-A Industrial Way, Alpharetta, Georgia 30004; Toll-Free Voice (877) 435-8637, Toll-Free Fax (866) 435-8637, www.tracomfrp.com.
- B. Requests for substitution must be made in writing and received by the engineer's office a minimum of ten (10) business days before bid opening. Substitutions shall be made in accordance with the provisions of Section 01600.
- C. Substitutions: Manufacturers not pre-approved shall not be allowed.
- D. Warranty: Enclosures shall be warranted to be free of defects in workmanship and materials for a period of two years from date of shipment.

2.2 MATERIALS

- A. Molded Composite Construction:
 - 1. Laminate: Isophthalic polyester resin with high performance, chopped, commercial grade glass strand fiber reinforcement with a suitable coupling agent.
 - i. Minimum glass content: 30%.
 - ii. Exterior surface: 15 mil (minimum) gel coat with U.V. inhibitors and a satin finish lightly textured and free from fiber pattern, roughness, or other irregularities.
 - iii. Exterior laminate: 1/8 inch thick (minimum); chemically bonded to the surface gel coat and encapsulating the foam core.
 - iv. Foam core (2.2.A.2)
 - v. Interior laminate: 1/8 inch thick (minimum); chemically bonded to the interior gel coat and encapsulating the foam core.
 - vi. Interior surface: 15 mil (minimum) gel coat with U.V. inhibitors and a textured finish, free from exposed glass or other irregularities.
 - vii. Laminate properties:
 - 1. Tensile strength (ASTM D 638): 14,000 PSI.
 - 2. Flexural strength (ASTM D 790): 27,000 PSI.
 - 3. Shear strength (ASTM D 732): 12,000 PSI.
 - 4. Barcol hardness (ASTM D 2583): 40.
 - 5. Density / specific gravity (ASTM D 792): 93.6 PCF/1.5.
 - 2. Core:



- i. Rigid closed cell, self-extinguishing, polyisocyanurate foam with a density of 2.5 pounds per cubic foot. Foam shall be P250 Elfoam without exception.
- ii. 1 inch thick with a minimum core insulating value of R~7.
- iii. Core properties:
 - 1. Thermal conductivity (ASTM C 518): 0.145 BTU inch/hr./SF/°F.
 - 2. Density / specific gravity (ASTM D 1622): 2.3 PCF.
 - 3. Shear Strength (ASTM C 273): 25 lb/in²
 - 4. Tensile Strength (ASTM D 1623): 45 lb/in²
 - 5. Compressive Strength (7% deflection/yield) (ASTM D 1621): 35
- 3. Coupons prepared in accordance with ASTM D 618.
- B. The manufacturer shall maintain a continuous quality control program and upon request shall furnish to the engineer certified test results of the physical properties.

2.3 COMPONENTS

- A. Door:
 - a. Fully opening gullwing front/top access door with (2) self-locking door support arms.
 - b. Construction:
 - i. One-piece molded fiberglass construction.
 - ii. Mount door with stainless steel continuous piano hinge.
 - iii. Provide stainless steel lockable hasp (for user supplied pad lock) for each door.
 - iv. Neoprene strip gasket with flexible lock to retain permanent grip.
 - v. Provide cushioned door lift handle identical to enclosure lift handles.
- B. Floor:
 - a. Integral reinforced insulated floor with rigid closed cell, self-extinguishing, polyisocyanurate foam with a density of 2.5 pounds per cubic foot. The foam core shall be 1 inch thick P250 Elfoam without exception, with a minimum insulating value of R~7.
 - b. (3) adjustable sampler mounting feet shall be provided (**OPTIONAL**).
- C. Lift Handles:
 - a. Provide (4) cushioned lift handles (2 – per enclosure end).
- D. Mounting Shelf(s)/Tray(s):
 - a. Flow meter mounting shelf: 14 inches wide x 19 inches long (**OPTIONAL**).
 - b. Battery tray: sized to accommodate ISCO Model 948 Lead Acid Battery (**OPTIONAL**).
- B. Molded-in Rain Gauge Cavity.
- C. 2" NPT coupling (**OPTIONAL**).

2.4 FINISHES

- A. Color: #1555 Whale Bone.
- B. Color: _____ (**OPTIONAL**).



PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that the concrete pad is level, true to plane, and of the correct dimensions to receive the structure. Correct all deficiencies before proceeding.

3.2 INSTALLATION (FOR PERMANENT MOUNTING)

- A. Install products in accordance with engineer's instructions, plans, blueprints, etc, local codes, and in a manner consistent with the installation instruction and recommendation of the manufacturer.
- B. Move and position the shelter into the appropriate position.
- C. A neoprene gasket (by others) should be positioned between the concrete slab and the enclosure mounting points or flange before the enclosure is lowered into position.
- D. After closing the enclosure door:
 - i. Layout the anchor bolt pattern.
 - ii. Starting on each side of the front door, drill the anchor bolt holes through the mounting flange, the neoprene gasket, and into the concrete slab to the depth and diameter required by the anchor bolt manufacturer.
 - iii. If the enclosure has been supplied with an external mounting flange, flat head bolts should be used wherever the sweep of the door crosses the mounting flange so as not to impede the opening or closing of the door.
 - iv. Stainless steel wedge style concrete anchors [1/2 inch diameter x 4-1/2 inches long – (minimum)] are recommended. TRACOM does not recommend the use of pre-set anchor bolts. Anchor bolts are to be supplied by others.

FAILURE to VERIFY the operation of the door(s) BEFORE the remaining anchor bolts are set MAY RESULT in the BINDING of the door against the door frame.

- E. Seal the flange with sealant, urethane caulk, or grout to ensure a watertight installation.
- F. Install (as necessary) and test the enclosure accessories in accordance with the manufacturers' instructions.

3.3 ADJUST AND CLEAN

- A. Clean surfaces in accordance with the manufacturer's instructions.
- B. Remove trash and debris, and leave the site in a clean condition.

END OF SECTION

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