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RESEARCH REPORT: RR 25536

Expires: February 1, 2025
Issued Date: April 1, 2024
Code: 2020 LABC

GENERAL APPROVAL – Renewal - Fibergrate® FRP RF Panel Enclosure System for rooftop communication antenna screening

DETAILS

The Fibergrate® FRP RF Panel Enclosure System consists of Dynaform® pultruded fiberglass reinforced structural shapes and Dynaform ® pultruded FRP Plate which spans between the structural supports. Connections between the pultruded shapes and cladding plate are accomplished by means of FRP threaded rod and fiber-reinforced thermoplastic nuts. The material specifications are as follows:

1. Dynaform® Pultruded Structural Shapes: Fiberglass reinforced plastic shapes formed by the pultrusion method. The minimum properties for the pultruded beams are listed in Table 1.

2. Dynaform® Pultruded FRP plate: Pultruded fiber reinforced polymer plate.

3. ½" FRP threaded rod.

4. Fiber-reinforced thermoplastic nut.

The approval is subject to the following conditions:

1. Dynaform® Pultruded FRP plate cladding panels are installed inside a frame of 4" x ½" equal leg angle in the long (horizontal) directions, and 3" x 3/8" equal leg angle in the short (vertical direction). Cladding panels are through-bolted to the angle frame by means of ½" FRP threaded rod and fiber reinforced thermoplastic nuts. When support as described above, the allowable load for the 5'-0" x 7'-0" framed panel is 37.7 psf (pounds per square foot).

2. Dynaform® Structural Shapes applied as beams: The design values are in Table 1.

TABLE 1 - Design values for FRP

Property	Direction	Specification
Tensile	Lengthwise Crosswise	5350 psi 945 psi
Tensile Modulus	Lengthwise Crosswise	3.48×10^6 psi 1.45×10^6 psi
Flexural	Lengthwise Crosswise	6685 psi 1825 psi
Flexural Modulus	Lengthwise Crosswise	2.54×10^6 psi 1.13×10^6 psi
Shear	Horizontal	930 psi
½" bolt bearing	Lengthwise Crosswise	5150 psi 1980 psi
Minimum edge distance		1.5 - inch

Note: Design value is based on a factor of safety of 8

3. Complete plans and structural calculations prepared by a California licensed architect or permit issuance civil or structural engineer shall be submitted to the department for approval prior to permit issuance.

4. The Fire Department shall approve all plans for plastic screening on Title 19 buildings.

5. Antennas and screening must not obstruct access to the roof by the Fire Department as required by Sec 57.316.4.4 of the Los Angeles Municipal Code which states: No person shall obstruct required access passageways on the roof surface. An

unobstructed passageway for use by the Fire Department shall be provided through or around any approved structures or equipment installations on the roof surface. One access passageway shall be provided for every 50-feet length or fraction thereof of roof surface. Passageways shall be at least three feet wide and have at least seven feet of overhead clearance.

6. The individual rooftop screening panel area in any one plane or approximately the same plane shall be limited to 250 square feet and the total maximum aggregate area of all panels shall not exceed the larger of 3 square feet per foot of building frontage or 5 percent of the area of the roof, with a maximum allowable height of 18 feet above the roof level.

7. Screening material shall be located at least 20 ft from interior property lines for Type I, II, III, and IV buildings per 2020 LABC section 1510.6.2, Item 2.

8. Screening material shall be located at least 5 ft from interior property lines for Type V buildings per 2020 LABC section 1510.6.3, Item 3.

9. Screening shall not be illuminated or electrified.

10. Each panel shall be identified with LARR #25536 and Fibergrate Composite Structural Label

11. The fabrication will be in accordance with manufacturer's quality control manual. A copy of the quality control manual is on file with Engineering Research Section.

DISCUSSION

The report is in compliance with the 2020 Los Angeles City Building Code.

The approval is based on LADBS Acceptance Criteria L182

The approval is based on tests per section 1510.6.2 and 2303.2 of the 2020 LABC, which show that the approved materials exhibit performance that is equivalent to fire-retardant treated wood.

Fibergrate Composite Structures
RE: Fibergrate ® FRP RF Panel Enclosure System for rooftop communication antenna screening

Addressee to whom this Research Report is issued is responsible for providing copies of it, complete with any attachments indicated, to architects, engineers and builders using items approved herein in design or construction which must be approved by Department of Building and Safety Engineers and Inspectors.

This general approval of an equivalent alternate to the Code is only valid where an engineer and/or inspector of this Department has determined that all conditions of this Approval have been met in the project in which it is to be used.

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TLB2400009
R03/26/2024
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