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RESEARCH REPORT: RR 25520

Expires: July 1, 2025
Issued Date: December 1, 2023
Code: 2023 LABC

GENERAL APPROVAL – Renewal and Clerical Modification - Cell Solutions Panel System, which includes Fiberglass Reinforced Plastic (FRP) assemblies manufactured by Hi Tech Composite Structures, Inc. for rooftop communication equipment screening.

DETAILS

The rooftop equipment enclosure system consists of FRP assemblies, which may include either Cell solutions prefabricated panels, or FRP structural shapes assembled with bolts or adhesives as indicated below. The general construction of the enclosures will include an FRP panel fastened to an FRP supporting structural FRP frame. The Cell Solution panels, shall be assembled between 4" x 4" x $^{1}/_{4}$" thick pultruded fiberglass reinforced structural square tubes and Cell Solutions Composite Panels which span between the square tubes. Cell Solutions composite panels consist of a $^{3}/_{16}$" thick single skin panel with 4" deep 90-degree perimeter return flanges and panel stiffeners manufactured with a proprietary blend of glass fiber reinforcement and fire resistant resin, which is the structural adhesive. The panel stiffeners may be FRP channels, angles, or tubes. Connections between Cell solutions Panel and the 4" structural pultruded fiberglass are made with ½" diameter fiberglass bolts and nuts or a proprietary structural adhesive.

The Cell Solutions panel may be manufactured as an inset panel, or as a panel skin applied to the outside face of an FRP structure with a proprietary structural adhesive. Additional testing has been completed to verify the original test data, which allows the Cell Solutions technology to be used for multiple configurations within the limits of the adhesive and supporting structure. Material specifications are as follows:

1. Cell Solutions Composite Panels, consisting of a $^{3}/_{16}$" thick single skin panel, are attached to the 4" deep 90-degree perimeter return flanges and panel stiffeners with a proprietary structural adhesive, and are manufactured with a proprietary blend of glass fiber reinforcement and fire resistant resin. Cell solutions composite panels will be identified with the Cell solutions name and logo and assigned LARR number affixed to the back side of the composite panel.

2. Cell Solution panels applied to the outside face of an FRP structure shall be constructed with a minimum $^{3}/_{16}$" FRP flat sheet adhered to an FRP structural frame with a proprietary structural adhesive. The FRP frame shall be assembled using FRP structural tubes, angles, or channels. The Cell Solutions panels shall be identified with the Cell Solutions logo and assigned LARR number affixed to the back side of each panel section.

3. All FRP panel skins and FRP structural tubes, channels, and angles shall be designed using the allowable design values indicated in the attached Design Values Load Chart.

4. 4" x 4" x $^{1}/_{4}$" thick pultruded fiberglass structural square tubes.

5. ½" FRP threaded rod and nut: Threaded rod is 0.492" overall diameter and net 0.416" diameter. The nut is 1.055: square and 0.692" thick.

The glass fiber plastic skin, reinforcement plastic skin and FR plastic shapes are approved plastics with CC1 classification and Flame Spread Index of 25.

The above products are approved for use with the following conditions:

1. Cell Solutions panels are installed between the FRP 4" x 4" x ¼" thick pultruded fiberglass reinforced structural square tubes. Three $^{5}/_{8}$" diameter holes are drilled through the tube and the panel. A ½" diameter fiberglass bolts and nuts was cut to length and inserted through the drilled hole. FRP nut was placed on each end of the threaded rod and tightened one-quarter turn from snug. The safety factor for the structural FRP shapes has been increase to 5 as noted in the attached design value chart.

2. 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. The calculations shall be prepared using the allowable design indicated in the attached Design Values Load Chart.

3. The Fire Department shall approval all plans for plastic screening on Fire Marshall Fire Life Safety projects per Section 504.4 of the Los Angeles Fire Code.

4. Antennas and screening must not obstruct access to the roof by the Fire Department as required by Sec 57.504.4 of the Los Angeles Municipal Code.

5. 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 8 feet above the roof level.

6. All equipment screens shall comply with Section 1511.6 of the Los Angeles Building Code.

7. Screening shall not be illuminated or electrified.

8. Each panel shall be identified with LARR #25520 and Cell Solutions, LLC.

9. 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 clerical modification is to capture compliance with the2023 Los Angeles Building Code for this general approval.

The report is in compliance with the 2023 Los Angeles City Building Code.

The approval is based on tests.

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.

Hi Tech Composite Structures, Inc.
RE: Cell Solution Panel Enclosure System

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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Attachment: Detail Sheet, Design Values Load Chart (2 Pages)