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REPORT HOLDER:

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EVALUATION SUBJECT:
3.50" and 4.00" Structural Insulated Panels

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2006 International Building Code® (IBC)
- 2007 California Building Code® (CBC)

1.2 Evaluated in accordance with:

- ICC AC04 dated July 2007 (Editorially revised April 2008)

Property Evaluated:

Structural

2.0 USES

The structural insulated panels (SIP) described herein are used as roof panels for patio covers and enclosures as limited by Appendix I of the International Building Code and Appendix H of the International Residential Code.

3.0 DESCRIPTION

3.5" and 4" structural insulated panels (SIP or sandwich panels) are described in drawings OSB-02415 S-1 and S-2 prepared by TJCAA. These panels are suitable as structural roof panels for patio covers conforming to Appendix I of the 2006 International Building Code (IBC) and Appendix H of the International Residential Code (IRC). The sandwich panels consist of aluminum facings which are 0.024" thick. These aluminum skins have an alloy and temper designation of 3105-H14 and conforms to ASTM B209. The core material consists of either a 3.5-inch or 4 inch polystyrene (EPS) core with a nominal density of 1.5 pounds per cubic foot (PCF) and is manufactured by Houston Foam Plastics in Houston, TX. The aluminum skins are bonded to the EPS with a urethane adhesive ISOGRIP produced by Ashland Specialty Chemical Company. This adhesive has been approved in ICC ESR-1140 in accordance with ICC Acceptance Criteria AC05.

In addition to the two aluminum skins and foam core, these panels also consist of one layer of 7/16" Oriented Strand Board (OSB) sheathing attached to the exterior skin also with ISOGRIP and is used as a substrate in which to attach various roofing materials. The evaluation of specific roofing materials is outside the scope of this report. However, the loads imposed on the panels by various roofing ranging in weight from 5 pounds per square foot (PSF) to 15 PSF are illustrated in the above referenced drawings.

These panels were tested in accordance with ICC Acceptance Criteria AC04 and documented in a test by Terrapin Testing, Inc. in reports no. TT 50335-A and TT 50335-B dated July 29, 2005. These tests were transverse load tests to evaluate the flexural capacity of the panels. Racking shear tests were not included in this report.

Accompanying the test reports were engineering reports were engineering calculations prepared by TJCAA. These calculations used the best fit data from the load-deflection curves and used this data to assemble a table of allowable spans based on various wind, live and snow load levels in terms of pounds per square foot. This analysis also considered a 300 pound concentrated load as prescribed by IBC 2006.

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4.0 DESIGN AND INSTALLATION

4.1 Design:

Determine the environmental loads from the local building official including Live Load, Wind Velocity and Ground Snow Load. Using the tables on sheet OSB-02415 S-2, determine the allowable span for various superimposed roof dead load and foam thickness.

5.0 CONDITIONS OF USE

The materials and components described in this report subject to the following limitations:

1. These structures are not intended to meet the provisions related to hospitals (OSHPD) and public schools in California (DSA).

2. These components are limited to non-habitable spaces described in Appendix I of the International Building Code. (IBC) and Appendix H of the International Residential Code (IRC).

3. Construction complies with this evaluation report, the manufacturer's instructions and the attached plans and specifications.

4. The spans of the roof panels described in Section 3.0 do not exceed the allowable spans as shown on the attached drawings.

5. Supporting members and foundations are reviewed by the local building official and/or a licensed professional civil or structural engineer licensed in the state where the product will be installed.

6. According to ICC AC04, these panels are limited for use as diaphragms (both vertical and horizontal) in Seismic Deisgn Categories A, B and C. However, these panels are permissible as vertical and horizontal diaphragms in Seismic Design Categories D, E and F providing the following conditions are met:

    1. The elements and system are designed in accordance with IBC table 15.4-2 and classified as "All other self-supporting structures, tanks, or vessels not covered above or by reference standards that are similar to buildings" using an R value of 1.25, Ω_o = 2 and C_d = 2.5.

    2. A load path is described in drawings and calculations which transfer the load from the roof to the foundation based on the prescribed loads.

6.0 EVIDENCE SUBMITTED

Test reports, data reduction engineering calculations and span tables. Test results are from laboratories in compliance with ISO/IEC 17025.

7.0 IDENTIFICATION

7.1 IAPMO Trademark: Each installation shall bear an original identifying decal or local bearing the IAPMO shield and reference to this evaluation report thus:

IAPMO ES TM

IAPMO #0116

7.2 Metals USA Trademark: Each install shall bear an original identifying decal or logo of Metals USA thus:

METALS USA BUILDING PRODUCTS

Director of Evaluation Services

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