

Use of SIPA Test Results

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Question: SIPA frequently sponsors research testing on behalf of the SIPA members. In these testing programs the SIP assemblies are supplied by a SIPA manufacturing member, often based on logistics to the testing laboratory. The question is then posed as to whether or not the test results achieved are applicable to SIPs manufactured by other SIPA members?

Response: When SIPA sponsors a test program, the details associated with the SIP assemblies are clearly defined before the SIPs are manufactured and supplied to the testing laboratory. This includes the requirements for (a) the OSB facers, (b) the foam core, (c) the adhesives used to bond the foam core to the facers and (d) any construction details pertinent to the testing procedure.

For example, assume that an expanded polystyrene (EPS) foam core that must meet the requirements of ASTM C578 Type I and have a minimum density of 0.90 lbs per cubic foot is specified for a specific testing program. The specification for the facers requires that they be 7/16 in. thick OSB meeting the requirements of APA PRN-610 and that the adhesives must meet the requirements of Type II, Class 2, conforming to ASTM D2559 recognized for bonding OSB to EPS foam.

During the manufacturing of the SIP test specimens, an accredited third party inspection agency must verify these component requirements have all been met.

If, subsequent to the testing, another SIPA manufacturer wants to apply the test results achieved to SIPs that they produce, they would then be required to demonstrate that the SIPs they manufacture use equivalent components and include a third party verification of this equivalence.

Specific Example of the Use of SIPA Test Results

In December of 2011, APA conducted a series of moisture resistance tests for SIPA. The results were reported in APA Report T2011P-73 issued on January 15, 2012. The purpose of this testing was to determine the impact of moisture cycling on the axial and transverse load capacity of SIPs manufactured with APA PRN-610 facers. The testing in this report supplements the durability study reported in APA Report T2011-43, where cyclic shear testing was conducted on both dry and moisture-cycled SIP assemblies.

The SIPs were manufactured by a SIPA member and the SIPs bore a third party inspection agency trademark. The facers were 7/16 in. thick OSB meeting the requirements of APA PRN-610 and trademarked with the APA PRN-610 designation. The core of the SIPs was composed of EPS foam meeting the requirements of ASTM C578 Type I with a minimum density of 0.90 lb/ft³. The thickness of the core was 3.5 in. (89 mm).

The adhesive used to structurally laminate the EPS foam core material to the OSB facers conformed to ASTM D2559 specifically intended for use as an adhesive for the lamination of structural insulated panels using OSB facers and an EPS foam core.

Each 4 ft. by 8 ft. SIP contained a single 1-1/2 in. diameter vertical chase and two 1-1/2 in. horizontal chases in the EPS core. Two holes (4-3/4 in. by 4-3/4 in.) to simulate a double gang electrical box opening were routed in one face of each SIP specimen. The results of this study showed a minimal impact on the panel's axial and transverse load capacities due to 72 hour water soak and ASTM E72 moisture exposure respectively when tested after the assemblies were re-dried.

SIPA considers these results to be applicable to SIPs manufactured by any SIPA member using components and SIP construction equivalent to those used to manufacture the original test specimens.

