



Project Manager (MGR): \_\_\_\_\_  
 Building Code: 2000, 2003, 2006 IBC/IRC  
 Standard(s): ICC-ES AC04 (June 2007)

Client: \_\_\_\_\_  
 Job Number: \_\_\_\_\_  
 Product: \_\_\_\_\_

**STANDARD EVALUATION PLAN (SEP)**

The Standard Evaluation Plan (SEP) provided below represents the minimum test and/or engineering evaluation to be performed to generate a listing report indicating compliance with the building code(s) listed above. Completion of less than the SEP requirements will permit a product to be listed only for specific properties and the report will not indicate compliance with any code or indicate any specific uses or applications for the product. Where multiple paths to compliance are indicated by letters or questions one option shall be circled.

NO	DESCRIPTION	TEST SUMMARY	TIP	TEMPLATE
<b>COMPONENT CERTIFICATION</b>				
1	Initiate facing certification SEP as specified below			
	A	Wood-based panels such as OSB, plywood or similar facing utilizing a phenol, resorcinol (certification as Structural Use Panel with characteristic values for $F_bS$ , $EI$ , $F_tA$ , $F_cA$ , $EA$ )		IM16 IM16 SEP 01
	B	Wood-based panels such as particleboard or similar facing utilizing a melamine, or urea bonding system (certification as Structural Use Panel with characteristic values for $F_bS$ , $EI$ , $F_tA$ , $F_cA$ , $EA$ )		IM16 IM16 SEP 01
	C	Cementitious, mineral or similar facing utilizing Portland cement, fly ash, or other mineral binder (certification as Structural Use Panel with characteristic values for $F_bS$ , $EI$ , $F_tA$ , $F_cA$ , $EA$ )		IM14.1C IM25 IM25 SEP 03
	D	Plastic, polymeric or similar facing (certification as Structural Use Panel with characteristic values for $F_bS$ , $EI$ , $F_tA$ , $F_cA$ , $EA$ )		IM8 IM8 SEP 03
E	Metal facings (certification shall include steel grade, yield strength, tensile strength, and section profile, if any)		IM15 IM15 SEP 01	
2	Initiate SIP core SEP as specified below			
	A	Preformed core (XPS, EPS)		IM26 IM26 SEP 01
B	Foamed-in-place core (polyurethane)		IM26 IM26 SEP 01 (ACU12)	
3	Initiate SIP adhesive SEP as specified below			
	A	Thin-film adhesive (pre-formed core)		IM14.3 IM22 SEP 02
B	Self-adhering adhesive (foamed-in-place core)		IM14.3 IM22 SEP 03	
4	Adhesive certified for use with specific facing material			IM14 TSK4.0
<b>ASSEMBLY CERTIFICATION</b>				
5	Transverse load for single span (maximum)	ICC-ES AC04, Sec. 4.3	IM14.1(4.1)	ICC-ES AC0004.04.03
6	Shear strength testing of core if mode of failure in transverse testing is other than shear	ASTM C273		
<b>ONGOING ASSESSMENT/QA BENCHMARKS</b>				
7	Benchmark facing properties flexural strength and stiffness in both orthogonal directions and panel density		IM14.1(6.1)	
8	Benchmark core properties density and adhesion strength as required by AC04		IM14.1(6.2)	

## ADDRESSABLE CONDITIONS OF USE (ACU)

Upon successful completion of the SEP requirements the listing report will contain the following *addressable* conditions of use except for any specific conditions of use that are addressed as indicated. Items to be addressed in proposed evaluation plan shall have their number circled.

ACU NO	CONDITION OF USE	EVALUATION REQUIRED TO ELIMINATE CONDITION	TIP	TEMPLATE
1	<b>Non-Structural Use Only.</b> Panels are non-structural and may be used only as nonbearing, non-shear curtain walls, subjected to transverse wind loading only.	Test for axial and racking loads in accordance with AC04. Additionally, Allowable values for lateral resistance and nail head pull-through shall be established in accordance with ASTM D1037.	IM14.1(5.1)	TSK IM14.ACUI
2	<b>Strength Limited to Tested Height/Span Only.</b> In use panel heights/spans shall not exceed the values listed herein. Extrapolation beyond the values listed herein is not permitted.	Test alternate/maximum height/span in axial and transverse loads in accordance with ICC-ES AC04. Interpolate values for panels of intermediate heights.	IM14.1(5.2)	TSK IM14.ACUII
3	<b>Strength Limited to Tested Thickness Only.</b> This report applied only to the panel thicknesses specifically listed herein.	Test alternate thicknesses in axial, transverse, and racking loads in accordance with ICC-ES AC04 for each thickness to be listed.	IM14.1(5.3)	
4	<b>Orientation of Facing Material.</b> The facing material shall be oriented with its strong axis perpendicular to the supports. (non-isotropic materials only)	Conduct assembly tests with facing panels in "weak" direction or test assemblies in with facings in both orthogonal directions.	IM14.1(5.4)	
5	<b>Vertical Use Only.</b> SIP shall be installed vertically only and shall not be used horizontally as a roof or floor assembly. (AC 04 4.6.2.1)	Test for concentrated loads in accordance with ICC-ES AC04 appropriate for the intended use (i.e. roof or floor). This ACU is non-addressable for fiber-cement panels certified under IM 25 SEP 02.	IM14.1(5.5)	
6	<i>Applies only to SIPs with facings containing wood or other organic materials</i> <b>Protection from Decay.</b> SIPs that rest on exterior foundation walls shall not be located within 8-inches from exposed earth. SIPs supported by concrete or masonry that is in direct contact with earth shall be protected from the concrete or masonry by a moisture barrier. (IBC 2304.11.2.2, IBC 2304.11.2.3, AC04 2.2.5)	Test for decay resistance equivalent to preservative treated lumber ASTM D3345	IM14.1(5.6)	
7	<i>Applies only to SIPs with facings containing wood or other organic materials</i> <b>Protection from Termites.</b> In areas subject to damage from termites, SIP panels shall be protected from termites using an approved method. Panels shall not be installed below grade or in contact with earth. (IBC 2304.11.6, IRC R324.4, AC04 2.2.5)	Test for termite resistance in accordance with EG239.	IM14.1(5.7)	
8	<b>Openings.</b> Openings in panels shall be reinforced with wood or steel designed in accordance with accepted engineering practice to resist all loads applied to the opening as required by the adopted code. Details for door and window openings shall be provided to clarify the manner of supporting axial, transverse and/or racking shear loads at openings. Such details shall be subject to approval by the local authority having jurisdiction.	At a minimum, tests shall be conducted on the header for downward load only. In such cases lateral loads shall be carried by an engineered sill member or the panel may be design for combined downward & bending if such values have been established in both orthogonal directions. Additional axial and transverse load tests shall be conducted on window assemblies to eliminate the need for jack/jamb studs on each side the opening.	IM14.1(5.8)	
9	<b>Thermal barrier.</b> The SIP panel foam plastic core shall be separated from the interior of the building by an approved thermal barrier of 0.5-inch gypsum wallboard or equivalent thermal barrier. (IBC 2603.4)	Testing shall be performed in accordance with NFPA 286 with the acceptance criteria from IBC 803.2. Additionally, the surface burning characteristics (flame spread & smoke developed) shall be assessed in accordance with IBC 803.2 (ASTM E84, IBC 2603.9).	IM14.1(5.9)	

10	<b>Water-resistive barrier.</b> Panels, at the time of their erection and placement, shall be covered on the exterior by a water-resistive barrier as required by the applicable code. The water-resistive barrier shall be attached with flashing in such a manner as to provide a continuous water-resistive barrier behind the exterior wall veneer. (IBC 1404.2, IBC 1405.3)	Assembly tests in accordance with ASTM E331 under the conditions specified in IBC 1403.2(Exception 2). Tests on the facing shall include flexural bending and stiffness in the same manner used for the baseline tests except in the wet condition. Wet values shall be within 10% of control values. Tests on lateral resistance and nail head pull through shall be conducted in accordance with ASTM D1037 in the wet condition. Wet values shall be within 10% of control values. If the reduction exceeds 10% the transverse, axial, and racking values shall be reduced by the percent reduction.	IM14.1(5.10)	
11	<b>Weather protection.</b> The exterior facing of the SIP wall be covered with weather protection as required by the adopted building code or other approved materials. (IBC 1405.2, AC04 2.2.2)	Tests shall be performed on the facing as required by the appropriate facing SEP.	IM14.1(5.11)	
12	<b>Voids in Core.</b> Voids may be provided in the panel core during fabrication at predetermined locations only. Voids shall be limited to a single 1-inch maximum (outside diameter) hole running parallel to the panel span. Voids shall be spaced a minimum of 4-feet on center, measured perpendicular to the panel span. Two ½-inch diameter holes may be substituted for the single 1-inch hole provided they are maintained parallel and within 2-inches of each other. (AC04 3.6)	Tests shall be performed with additional voids placed in specific or worst case locations. Additional voids may be assessed in the panels used for initial qualification.	IM14.1(5.12)	
13	<b>Concentrated Loads.</b> Axial loads shall be applied to SIP panel through repetitive members spaced at regular intervals of 24-inches on center, or less. Reinforcement designed in accordance with accepted engineering practice shall support all concentrated loads.	Tests shall be performed with concentrated axial loads at the maximum spacing for which recognition is sought.	IM14.1(5.13)	
14	<b>Eccentric and Side Loads.</b> Axial loads shall be applied concentrically to the top of the SIP panel. Loads shall not be applied eccentrically or through framing attached to one side of the panel (such as balloon framing).	Tests shall be performed with eccentric or side loading replicating the in-use conditions.	IM14.1(5.14)	
15	<b>Fire Resistive Assemblies.</b> SIP panels shall not be used as part of a fire-rated assembly.	Tests shall be performed for specific assemblies in accordance with ASTM E119		
16	<b>Holes Through Panel.</b> Holes may be placed in panels during fabrication at predetermined locations only. Holes shall be limited to 4-inches x 4-inches square. The minimum distance between holes shall not be less than 4-feet on center measured perpendicular to the panel span and 24-inches on center measured parallel to the panel span. Not more than three holes shall be provided in a single line of holes parallel to the panel span. The holes may intersect voids permitted elsewhere in this report. (AC04 3.6)	Tests shall be performed with additional holes placed in specific or worst case locations.		
17	<b>Seismic Design.</b> Where SIP panels are used to resist seismic forces the following factors shall be used for design: Response Modification Coefficient, $R = 2.0$ ; System Overstrength Factor, $\Omega_0 = 2.5$ ; Deflection Amplification Factor, $C_d = 2.0$ .	Testing shall be performed to demonstrate equivalency to code recognized system having greater R factor.		
18	<b>Shear wall Design.</b> SIP shear walls shall be sized to resist all code required wind and seismic loads without exceeding the allowable loads provided herein. The maximum panel height-to-width ratio shall be 2:1.	Aspect ratios in excess of 2:1 shall be qualified through testing in accordance with ASTM E72.		
19	<b>Diaphragm Design.</b> SIP horizontal diaphragms shall be sized to resist all code required wind and seismic loads without exceeding the allowable loads provided herein. The maximum panel height-to-width ratio shall be 3:1.	Aspect ratios in excess of 2:1 shall be qualified through testing in accordance with ASTM E455		
20	<b>End Support Conditions.</b> Allowable transverse loads are based on full bearing on one facing and loads applied to the opposite facing. Minimum bearing shall not be less than specified in load tables. If other support conditions exist, consult the manufacturer for design information.	Testing of specific support conditions in accordance with E72.		
21	<b>Seismic Design Limits.</b> Use of the panels as shear walls (racking shear) is limited to structures in Seismic Design Categories A, B and C. Panels used in seismic zones D, E, and F shall resist only transverse and axial loads.	IM14 TSK 10.0 Qualification of SIP for use in Seismic zones D, E, and F		

### NON-ADDRESSIBLE CONDITIONS OF USE

Upon successful completion of the SEP requirements the listing report will contain the following *non-addressible* conditions of use which cannot be removed from the report through testing or additional evaluation.

NO	CONDITION OF USE	TIP
1	<b>Construction Types.</b> SIP panels shall only be used on buildings of combustible construction (Type V).	IM14.1(3.1)
2	<b>Plumbing Installation Restrictions.</b> Plumbing and waste lines may extend at right angles through the wall panels but are not permitted vertically within the core. Liens shall not interrupt splines or panel plates unless approved by the local authority having jurisdiction. (AC04 3.5)	IM14.1(3.2)
3	<b>Overall Structural System.</b> The scope of this report is limited to the evaluation of the SIP panel component. Panel connections and other issues concerning the panel's incorporation into the overall structural system of a building are beyond the scope of this report.	
4	<b>Design Approval.</b> Where required by the authority having jurisdiction, structures using SIP panels shall be designed by a registered design professional. Construction documents, including engineering calculations and drawings providing floor plans, window details, door details, and connector details, shall be submitted to the code official when application is made for a permit. The individual preparing such documents shall possess the necessary qualifications as required by the applicable code and the professional registration laws of the state where the construction is undertaken. Approved construction documents shall be available at all times on the jobsite during installation.	
5	<b>Design Loads.</b> Design loads to be resisted by the SIP panels shall be as required under the applicable code. Loadings on the panels shall not exceed the loads noted in this report. Where loading conditions result in several modes of superimposed stressing, the sum of the ratio of actual loads over allowable loads shall not exceed one. Calculations demonstrating that the loads applied are less than the allowable loads described in this report shall be submitted to the code official for approval.	
6	<b>Cutting and Notching.</b> No field cutting or routing of the panels shall be permitted except as shown on approved construction documents.	
7	<b>Installation.</b> SIP panels shall be fabricated, identified and erected in accordance with this report, the approved construction documents, and the applicable codes. In the event of a conflict between the manufacturer's published installation instructions and this report, this report shall govern. Approved construction documents shall be available at all time on the jobsite during installation.	
8	<b>Manufacturer.</b> Panels must be fabricated in the facility(ies) listed in this report.	
9	<b>Heat-Producing Fixtures.</b> Heat-producing fixtures shall not be installed in the panels unless protected by a method approved by the code official or documented in test reports. This limitation shall not be interpreted to prohibit heat-producing elements with suitable protection.	
10	<i>For panels addressing ACU21 only</i> <b>Seismic Design.</b> Adhesives are not allowed on wood to wood interfaces in SIP assemblies intended to resist seismic forces in Seismic Design Categories D, E & F.	

### PROGRAM MODIFICATIONS (MOD)

Program modifications shall be conducted in accordance with the procedures identified below.

MOD NO	PROGRAM MODIFICATION	EVALUATION REQUIRED TO COMPLETE MODIFICATION	TIP	TEMPLATE
1	Update Report Holder Information			
2	Product Revision/Modification			TSK IM14 MOD02
	A Change in facing material			
	B Change in core material			
	C Change in adhesive			
	D Change in production process			
3	Code Update/Evaluation			
4	Editorial or Technical Change/Correction			
5	Production Facility/Listee Modification			TSK IM14 MOD05A
	A Add new production facility/listee	Testing of three panels under transverse load in accordance with AC04, Section 6.1. If component supplier changes for any component, appropriate product modification testing must be performed.		
	B Modify scope of production facility/listee			
	C Remove production facility/listee			