



Evaluation #

New Product # 20079022
Replaces # 200722-R

Safety & Buildings Division
201 West Washington Avenue
P.O. Box 2658
Madison, WI 53701-2658

Wisconsin Building Products Evaluation

Material

Structural Insulated Panel System
Insulspan (SIP) System

Manufacturer

Insulspan Incorporated
245N Jepson Street
Blissfield, MI 49228

SCOPE OF EVALUATION

GENERAL: This report evaluates the Structural Insulated Panel (SIP) System manufactured by Insulspan Incorporated for compliance with the requirements of the current edition of the Wisconsin Enrolled Commercial Building Code.

The **Comm** requirements below in accordance with the current **Wisconsin Uniform Dwelling Code for 1- and 2-family dwellings:**

- **Structural:** The Structural Insulated Panel (SIP) System was reviewed in accordance with the structural requirements of **ss. Comm 21.02, 21.22(4)(b), 21.22 (5)(c), 21.22(8)(a), 21.23(1) & (2) and 21.27 & 21.28.**
- **Foam Plastic:** The Structural Insulated Panel (SIP) System was reviewed in accordance with the foam plastic requirements of **s. Comm 21.11.**

Note:

1. Structural calculations shall be submitted (job-to-job basis) in accordance with of **ss. Comm 21.02, 21.22(4)(b), 21.22 (5)(c), 21.22(8)(a), 21.23(1) & (2) and 21.27 & 21.28.**
2. The Structural Insulated Panel (SIP) System was **not** evaluated for compliance with the thermal performance requirements of **Subchapter VI, ss. Comm 22.20, 22.21, 22.23, 22.25, 22.27, 22.28, and 22.31** of the current UDC.

The **IBC** requirements below in accordance with the current **Wisconsin Amended ICC Code:**

- **Structural:** The Structural Insulated Panel (SIP) System was reviewed in accordance with the structural requirements of **Chapter IBC 16.** See Note 1 below.
- **Wood Structural Panels:** The Structural Insulated Panel (SIP) System was evaluated in accordance with the wood structural panel requirements of **s. IBC 2303.1.4.**
- **Wood Structural Panel Sheathing(Wall):** The Structural Insulated Panel (SIP) System was evaluated in accordance with the wood structural panel sheathing requirements of **s. IBC 2304.6.1.1.**

- **Structural Floor Sheathing:** The Structural Insulated Panel (SIP) System was evaluated in accordance with the structural floor sheathing requirements of **s. IBC 2304.7.1.**
- **Structural Roof Sheathing:** The Structural Insulated Panel (SIP) System was evaluated in accordance with the structural floor sheathing requirements of **s. IBC 2304.7.2.**
- **Roof Sheathing:** The Structural Insulated Panel (SIP) System was evaluated in accordance with the roof sheathing requirements of **s. IBC 2308.10.8.**
- **Foam Plastic:** The Structural Insulated Panel (SIP) System was evaluated in accordance with the foam plastic requirements of **s. IBC 2603.1, 2603.2, 2603.3, 2603.4.1.5, 2603.5, 2603.5.2 and 2603.6.**

Note:

1. Structural calculations shall be submitted (job-to-job basis) in accordance with **IBC Chapter 16 for Live, Ground Snow, Roof, Wind, and Seismic Loads.**
2. The Structural Insulated Panel (SIP) System was not evaluated for compliance with the thermal performance requirements of **s. Comm 63.1018.**

DESCRIPTION AND USE

The Insulspan Structural Insulated Panels consist of structural oriented strand board (OSB) sandwich panels used as components in roof, floor, and wall assemblies. The sandwich panels are factory constructed with oriented strand board skins on each face of an expanded polystyrene foam core. Adjacent panels are joined in the field via spline studs that are factory installed on one side of each panel. Alternatively, it is permitted to make provision on each side of the panels for field installation of plywood or OSB surface splines under the skins of each face. When additional structural capacity is needed, an additional spline stud is incorporated in the interior of a panel or the spline stud at one side is doubled.

Materials:

1. **Foam Core** – the foam core is polystyrene, expanded from BASF beads (NER-479) or NOVA Chemicals Inc., beads (ESR-1798, Dylite M77). Nominal density is 1 pcf. The panels are available in insulation thicknesses of 3 ½ and 5 ½ inches for wall and floor applications and 3 ½, 5 ½, 7 ¼, 9 ¼, and 11 ¼ inches for roof applications.
2. **OSB Skins** – the OSB skins are APA or TECO rated sheathing, Exposure 1, 3/8-inch thick or 7/16-inch thick, conforming to US DOC PS-2. Skins are one-piece for the full length of the panels (no joints in the skins). Maximum skin size is 8 feet by 28 feet.
3. **Spline Studs** – the spline studs are No. 2 or better Southern Pine sawn lumber, No. 2 or better Spruce-Pine-Fir sawn lumber, or 1 ¾-inch thick 1.9E DF Micro-Lam LVL (ESR -1387). Alternatively, 3 inch wide, 5/8-inch thick plywood or OSB surface splines may be used when spline studs are not required for structural capacity or to meet fire resistive assembly details.
4. **Adhesive** – qualified adhesives are used to bond the OSB skins to the foam core and are identified in the manufacturer’s quality control manual.
5. **Nails** – in addition to glue, nails are used to attach OSB skins to spline studs. Such nails are 6d or 8d (as required for racking loads) common nails meeting Federal Specification FF-N-105B and have a minimum F_{yb} of 100,000 psi. When OSB or plywood surface splines are used, staples or fasteners shall be used as specified in the tables or the designer’s calculations (job-by-job).

Openings (headers and supporting framing) are accomplished by conventional framing methods and are not evaluated in this report.

Allowable loads for the panels are set forth in the Tables 1 through 5 located in the **TESTS AND RESULTS** section of this report.

TESTS AND RESULTS

The polystyrene expanded foam beads that make up the core of the Insulspan Structural Insulated Panels were tested in accordance with ASTM E84. See the national evaluations for BASF beads (NER-479) or NOVA Chemicals inc. beads (ESR-1798, Dylite M77).

Figure 1. STANDARD WALL PANEL AND DETAILS

Table 1 ALLOWABLE SPANS FOR TRANSVERSE LOADS ON INSULSPAN PANELS

MAXIMUM ALLOWABLE RACKING LOAD

ALLOWABLE RACKING LOAD (for stapled surface splines only)	208 PLF
ALLOWABLE RACKING LOAD (for nailed SPF wood splines only)	385 PLF

MAXIMUM ALLOWABLE SPANS FOR TRANSVERSE LOADS

TOTAL LOAD (DEAD + LIVE) 20 PSF	SKIN THICKNESS = 7/16 INCH DEFLECTION CRITERION = L/360 PANEL THICKNESS					SKIN THICKNESS = 7/16 INCH DEFLECTION CRITERION = L/240 PANEL THICKNESS				
	4-3/8"	6-3/8"	8-1/8"	10-1/8"	12-1/8"	4-3/8"	6-3/8"	8-1/8"	10-1/8"	12-1/8"
NO SPLINE	9'	13'	16'	18'	20'	9'	13'	16'	18'	20'
SINGLE SPLINE										
SPF #2	10'	15'	19'	23'	28'	12'	16'	20'	24'	28'
SYP #2	12'	18'	22'	26'	28'	12'	19'	24'	27'	28'
LVL	13'	18'	22'	26'	28'	16'	20'	24'	27'	28'
DOUBLE SPLINE										
SPF #2	13'	18'	22'	26'	28'	15'	20'	24'	28'	28'
SYP #2	14'	18'	23'	27'	28'	16'	21'	25'	28'	28'
LVL	14'	19'	23'	28'	28'	16'	21'	25'	28'	28'

TOTAL LOAD (DEAD + LIVE) 30 PSF	SKIN THICKNESS = 7/16 INCH DEFLECTION CRITERION = L/360 PANEL THICKNESS					SKIN THICKNESS = 7/16 INCH DEFLECTION CRITERION = L/240 PANEL THICKNESS				
	4-3/8"	6-3/8"	8-1/8"	10-1/8"	12-1/8"	4-3/8"	6-3/8"	8-1/8"	10-1/8"	12-1/8"
NO SPLINE	7'	10'	13'	15'	16'	7'	10'	13'	15'	16'
SINGLE SPLINE										
SPF #2	7'	10'	13'	15'	19'	9'	13'	16'	19'	22'
SYP #2	8'	12'	16'	20'	23'	9'	13'	16'	20'	23'
LVL	12'	16'	19'	22'	25'	13'	16'	19'	22'	25'
DOUBLE SPLINE										
SPF #2	11'	15'	19'	22'	26'	13'	17'	20'	23'	26'
SYP #2	12'	16'	19'	23'	27'	13'	17'	20'	24'	27'
LVL	12'	16'	20'	24'	28'	13'	17'	21'	24'	28'

TOTAL LOAD (DEAD + LIVE) 40 PSF	SKIN THICKNESS = 7/16 INCH DEFLECTION CRITERION = L/360 PANEL THICKNESS					SKIN THICKNESS = 7/16 INCH DEFLECTION CRITERION = L/240 PANEL THICKNESS				
	4-3/8"	6-3/8"	8-1/8"	10-1/8"	12-1/8"	4-3/8"	6-3/8"	8-1/8"	10-1/8"	12-1/8"
NO SPLINE	6'	8'	10'	13'	14'	6'	8'	11'	13'	14'
SINGLE SPLINE										
SPF #2	6'	8'	10'	13'	15'	8'	11'	14'	16'	19'
SYP #2	6'	9'	12'	15'	17'	8'	11'	14'	16'	19'
LVL	9'	14'	17'	19'	22'	9'	14'	17'	19'	22'
DOUBLE SPLINE										
SPF #2	9'	14'	17'	20'	22'	9'	14'	17'	20'	22'
SYP #2	10'	14'	17'	20'	23'	10'	15'	17'	20'	23'
LVL	10'	15'	18'	21'	24'	10'	15'	18'	21'	24'

TOTAL LOAD (DEAD + LIVE) 50 PSF	SKIN THICKNESS = 7/16 INCH DEFLECTION CRITERION = L/360 PANEL THICKNESS					SKIN THICKNESS = 7/16 INCH DEFLECTION CRITERION = L/240 PANEL THICKNESS				
	4-3/8"	6-3/8"	8-1/8"	10-1/8"	12-1/8"	4-3/8"	6-3/8"	8-1/8"	10-1/8"	12-1/8"
NO SPLINE	5'	7'	9'	11'	12'	5'	7'	9'	11'	12'
SINGLE SPLINE										
SPF #2	5'	7'	9'	11'	13'	7'	9'	12'	14'	17'
SYP #2	5'	7'	9'	12'	14'	7'	9'	12'	14'	17'
LVL	7'	12'	15'	17'	19'	7'	12'	15'	17'	19'
DOUBLE SPLINE										
SPF #2	7'	11'	14'	17'	20'	7'	11'	14'	17'	20'
SYP #2	8'	13'	16'	18'	21'	8'	13'	16'	18'	21'
LVL	8'	13'	16'	19'	21'	8'	13'	16'	19'	21'

Table 2 ALLOWABLE HEIGHTS FOR AXIAL LOADS ON INSULSPAN PANELS – 4-3/8 INCH THICK

MAXIMUM ALLOWABLE HEIGHTS FOR AXIAL LOADS

SKIN THICKNESS =	7/16 INCH
PANEL THICKNESS =	4-3/8 INCH

AXIAL LOAD (NON-BEARING) 0 PLF		ECCENTRICITY = 0 INCH					ECCENTRICITY = 2-3/16 INCHES				
		WIND PRESSURE (PSF)					WIND PRESSURE (PSF)				
		10	15	20	25	30	10	15	20	25	30
NO SPLINE	17'	14'	12'	10'	9'	17'	14'	12'	10'	9'	
SINGLE SPLINE											
SPF #2	20'	14'	12'	10'	9'	20'	14'	12'	10'	9'	
SYP #2	20'	17'	12'	10'	9'	20'	17'	12'	10'	9'	
LVL	20'	17'	16'	14'	13'	20'	17'	16'	14'	13'	
DOUBLE SPLINE											
SPF #2	20'	17'	15'	14'	13'	20'	17'	15'	14'	13'	
SYP #2	20'	17'	16'	14'	13'	20'	17'	16'	14'	13'	
LVL	20'	18'	16'	15'	13'	20'	18'	16'	15'	13'	

AXIAL LOAD (NON-BEARING) 1000 PLF		ECCENTRICITY = 0 INCH					ECCENTRICITY = 2-3/16 INCHES				
		WIND PRESSURE (PSF)					WIND PRESSURE (PSF)				
		10	15	20	25	30	10	15	20	25	30
NO SPLINE	15'	13'	11'	10'	9'	15'	13'	11'	10'	9'	
SINGLE SPLINE											
SPF #2	18'	14'	12'	10'	9'	18'	14'	12'	10'	9'	
SYP #2	19'	16'	12'	10'	9'	19'	16'	12'	10'	9'	
LVL	19'	17'	15'	14'	13'	19'	17'	15'	13'	12'	
DOUBLE SPLINE											
SPF #2	19'	17'	15'	14'	13'	19'	17'	15'	13'	12'	
SYP #2	19'	17'	15'	14'	13'	19'	17'	15'	14'	13'	
LVL	20'	17'	16'	14'	13'	20'	17'	15'	14'	13'	

AXIAL LOAD (NON-BEARING) 2000 PLF		ECCENTRICITY = 0 INCH					ECCENTRICITY = 2-3/16 INCHES				
		WIND PRESSURE (PSF)					WIND PRESSURE (PSF)				
		10	15	20	25	30	10	15	20	25	30
NO SPLINE	14'	12'	10'	9'	8'	9'	8'	7'	6'	6'	
SINGLE SPLINE											
SPF #2	17'	14'	12'	10'	9'	12'	10'	9'	8'	8'	
SYP #2	18'	16'	12'	10'	9'	12'	11'	9'	8'	8'	
LVL	18'	16'	14'	13'	12'	13'	11'	10'	9'	8'	
DOUBLE SPLINE											
SPF #2	18'	16'	15'	13'	12'	13'	11'	10'	9'	8'	
SYP #2	18'	16'	15'	13'	12'	13'	11'	10'	9'	8'	
LVL	19'	16'	15'	14'	13'	14'	12'	10'	9'	9'	

AXIAL LOAD (NON-BEARING) 3000 PLF		ECCENTRICITY = 0 INCH					ECCENTRICITY = 2-3/16 INCHES				
		WIND PRESSURE (PSF)					WIND PRESSURE (PSF)				
		10	15	20	25	30	10	15	20	25	30
NO SPLINE	13'	11'	9'	8'	7'	--	--	--	--	--	
SINGLE SPLINE											
SPF #2	16'	14'	12'	10'	9'	--	--	--	--	--	
SYP #2	16'	14'	12'	10'	9'	--	--	--	--	--	
LVL	16'	14'	12'	11'	10'	--	--	--	--	--	
DOUBLE SPLINE											
SPF #2	16'	14'	12'	11'	10'	--	--	--	--	--	
SYP #2	17'	14'	13'	12'	11'	--	--	--	--	--	
LVL	17'	14'	13'	12'	11'	--	--	--	--	--	

See Page 9 of this report for footnotes

Table 3 ALLOWABLE HEIGHTS FOR AXIAL LOADS ON INSULSPAN PANELS – 6-3/8 INCH THICK

MAXIMUM ALLOWABLE HEIGHTS FOR AXIAL LOADS

SKIN THICKNESS =	7/16 INCH
PANEL THICKNESS =	6-3/8 INCH

AXIAL LOAD (NON-BEARING) 0 PLF		ECCENTRICITY = 0 INCH					ECCENTRICITY = 3-3/16 INCHES				
		WIND PRESSURE (PSF)					WIND PRESSURE (PSF)				
		10	15	20	25	30	10	15	20	25	30
NO SPLINE	23'	19'	16'	14'	13'	23'	19'	16'	14'	13'	
SINGLE SPLINE											
SPF #2	26'	20'	16'	14'	13'	26'	20'	16'	14'	13'	
SYP #2	27'	23'	19'	15'	13	27'	23'	19'	15'	13	
LVL	27'	23'	20'	18'	16'	27'	23'	20'	18'	16'	
DOUBLE SPLINE											
SPF #2	27'	23'	20'	18'	17'	27'	23'	20'	18'	17'	
SYP #2	27'	24'	21'	19'	17'	27'	24'	21'	19'	17'	
LVL	28'	24'	21'	19'	17'	28'	24'	21'	19'	17'	

AXIAL LOAD (NON-BEARING) 1000 PLF		ECCENTRICITY = 0 INCH					ECCENTRICITY = 3-3/16 INCHES				
		WIND PRESSURE (PSF)					WIND PRESSURE (PSF)				
		10	15	20	25	30	10	15	20	25	30
NO SPLINE	21'	18'	15'	14'	12'	21'	18'	15'	14'	12'	
SINGLE SPLINE											
SPF #2	25'	20'	16'	14'	13'	25'	20'	16'	14'	13'	
SYP #2	26'	22'	19'	15'	13'	26'	22'	19'	15'	13'	
LVL	26'	23'	20'	18'	16'	26'	22'	20'	18'	16'	
DOUBLE SPLINE											
SPF #2	26'	23'	20'	18'	17'	26'	23'	20'	18'	16'	
SYP #2	27'	23'	21'	19'	17'	27'	23'	20'	19'	17'	
LVL	27'	24'	21'	19'	17'	27'	24'	21'	19'	17'	

AXIAL LOAD (NON-BEARING) 2000 PLF		ECCENTRICITY = 0 INCH					ECCENTRICITY = 3-3/16 INCHES				
		WIND PRESSURE (PSF)					WIND PRESSURE (PSF)				
		10	15	20	25	30	10	15	20	25	30
NO SPLINE	20'	17'	15'	13'	12'	14'	12'	11'	9'	9'	
SINGLE SPLINE											
SPF #2	24'	20'	16'	14'	13'	17'	15'	13'	12'	11'	
SYP #2	25'	22'	19'	15'	13'	18'	15'	13'	12'	11'	
LVL	25'	22'	19'	17'	16'	18'	15'	14'	12'	11'	
DOUBLE SPLINE											
SPF #2	25'	22'	19'	17'	16'	18'	16'	14'	12'	11'	
SYP #2	26'	23'	20'	18'	16'	19'	16'	15'	13'	12'	
LVL	26'	23'	20'	18'	17'	20'	17'	15'	13'	12'	

AXIAL LOAD (NON-BEARING) 3000 PLF		ECCENTRICITY = 0 INCH					ECCENTRICITY = 3-3/16 INCHES				
		WIND PRESSURE (PSF)					WIND PRESSURE (PSF)				
		10	15	20	25	30	10	15	20	25	30
NO SPLINE	19'	16'	14'	12'	11'	--	--	--	--	--	
SINGLE SPLINE											
SPF #2	21'	18'	16'	14'	13'	--	--	--	--	--	
SYP #2	22'	19'	16'	15'	13'	--	--	--	--	--	
LVL	22'	19'	17'	15'	14'	4'	4'	--	--	--	
DOUBLE SPLINE											
SPF #2	22'	19'	17'	15'	14'	5'	4'	4'	--	--	
SYP #2	23'	19'	17'	16'	14'	7'	6'	5'	5'	5'	
LVL	23'	20'	17'	16'	14'	8'	7'	6'	6'	5'	

See Page 9 of this report for footnotes

Table 4 ALLOWABLE HEIGHTS FOR AXIAL LOADS ON INSULSPAN PANELS – 4-1/4 INCH THICK

MAXIMUM ALLOWABLE HEIGHTS FOR AXIAL LOADS

SKIN THICKNESS =	7/16 INCH
PANEL THICKNESS =	4-1/4 INCH

AXIAL LOAD (NON-BEARING) 0 PLF		ECCENTRICITY = 0 INCH					ECCENTRICITY = 2-3/16 INCHES				
		WIND PRESSURE (PSF)					WIND PRESSURE (PSF)				
		10	15	20	25	30	10	15	20	25	30
NO SPLINE	17'	14'	12'	10'	9'	17'	14'	12'	10'	9'	
SINGLE SPLINE											
SPF #2	20'	14'	12'	10'	9'	19'	14'	12'	10'	9'	
SYP #2	20'	16'	12'	10'	9'	20'	16'	12'	10'	9'	
LVL	20'	17'	15'	13'	12'	20'	17'	15'	13'	12'	
DOUBLE SPLINE											
SPF #2	20'	17'	15'	13'	12'	20'	17'	15'	13'	12'	
SYP #2	20'	17'	15'	13'	12'	20'	17'	15'	13'	12'	
LVL	20'	17'	15'	13'	12'	20'	17'	15'	13'	12'	

AXIAL LOAD (NON-BEARING) 1000 PLF		ECCENTRICITY = 0 INCH					ECCENTRICITY = 2-3/16 INCHES				
		WIND PRESSURE (PSF)					WIND PRESSURE (PSF)				
		10	15	20	25	30	10	15	20	25	30
NO SPLINE	15'	13'	11'	10'	9'	15'	13'	11'	10'	9'	
SINGLE SPLINE											
SPF #2	19'	14'	12'	10'	9'	18'	14'	12'	10'	9'	
SYP #2	19'	16'	12'	10'	9'	18'	15'	12'	10'	9'	
LVL	19'	17'	15'	13'	12'	18'	15'	14'	12'	11'	
DOUBLE SPLINE											
SPF #2	19'	17'	15'	13'	12'	19'	16'	14'	12'	11'	
SYP #2	19'	17'	15'	13'	12'	19'	16'	14'	13'	12'	
LVL	20'	17'	15'	13'	12'	19'	16'	14'	13'	12'	

AXIAL LOAD (NON-BEARING) 2000 PLF		ECCENTRICITY = 0 INCH					ECCENTRICITY = 2-3/16 INCHES				
		WIND PRESSURE (PSF)					WIND PRESSURE (PSF)				
		10	15	20	25	30	10	15	20	25	30
NO SPLINE	14'	12'	10'	9'	8'	7'	6'	6'	5'	4'	
SINGLE SPLINE											
SPF #2	18'	14'	12'	10'	9'	10'	8'	7'	7'	6'	
SYP #2	18'	15'	12'	10'	9'	10'	9'	8'	7'	6'	
LVL	18'	15'	13'	12'	11'	10'	9'	8'	7'	7'	
DOUBLE SPLINE											
SPF #2	18'	15'	13'	12'	11'	11'	9'	8'	7'	7'	
SYP #2	18'	16'	14'	12'	11'	11'	10'	8'	8'	7'	
LVL	19'	16'	14'	13'	12'	12'	10'	9'	8'	7'	

AXIAL LOAD (NON-BEARING) 3000 PLF		ECCENTRICITY = 0 INCH					ECCENTRICITY = 2-3/16 INCHES				
		WIND PRESSURE (PSF)					WIND PRESSURE (PSF)				
		10	15	20	25	30	10	15	20	25	30
NO SPLINE	13'	11'	9'	8'	7'	--	--	--	--	--	
SINGLE SPLINE											
SPF #2	15'	12'	13'	10'	9'	--	--	--	--	--	
SYP #2	15'	13'	11'	10'	9'	--	--	--	--	--	
LVL	15'	13'	11'	10'	9'	--	--	--	--	--	
DOUBLE SPLINE											
SPF #2	15'	13'	11'	10'	9'	--	--	--	--	--	
SYP #2	15'	13'	11'	10'	10'	--	--	--	--	--	
LVL	15'	13'	12'	11'	10'	--	--	--	--	--	

See Page 9 of this report for footnotes

Table 5 ALLOWABLE HEIGHTS FOR AXIAL LOADS ON INSULSPAN PANELS – 6-1/4 INCH THICK

MAXIMUM ALLOWABLE HEIGHTS FOR AXIAL LOADS

SKIN THICKNESS =	7/16 INCH
PANEL THICKNESS =	6-1/4 INCH

AXIAL LOAD (NON-BEARING) 0 PLF		ECCENTRICITY = 0 INCH					ECCENTRICITY = 3-3/16 INCHES				
		WIND PRESSURE (PSF)					WIND PRESSURE (PSF)				
		10	15	20	25	30	10	15	20	25	30
NO SPLINE	23'	19'	16'	15'	13'	23'	19'	16'	15'	13'	
SINGLE SPLINE											
SPF #2	26'	19'	16'	15'	13'	26'	19'	16'	15'	13'	
SYP #2	26'	21'	18'	15'	13'	26'	21'	18'	15'	13'	
LVL	27'	22'	19'	17'	15'	27'	22'	19'	17'	15'	
DOUBLE SPLINE											
SPF #2	27'	22'	19'	17'	15'	27'	22'	19'	17'	15'	
SYP #2	28'	22'	19'	17'	16'	28'	22'	19'	17'	16'	
LVL	28'	23'	20'	18'	16'	28'	23'	20'	18'	16'	

AXIAL LOAD (NON-BEARING) 1000 PLF		ECCENTRICITY = 0 INCH					ECCENTRICITY = 3-3/16 INCHES				
		WIND PRESSURE (PSF)					WIND PRESSURE (PSF)				
		10	15	20	25	30	10	15	20	25	30
NO SPLINE	21'	18'	16'	14'	12'	21'	18'	16'	14'	12'	
SINGLE SPLINE											
SPF #2	25'	19'	16'	15'	13'	24'	19'	16'	15'	13'	
SYP #2	26'	21'	18'	15'	13'	24'	20'	18'	15'	13'	
LVL	26'	22'	19'	17'	15'	25'	21'	18'	16'	15'	
DOUBLE SPLINE											
SPF #2	26'	22'	19'	17'	15'	25'	21'	18'	16'	15'	
SYP #2	27'	22'	19'	17'	16'	26'	22'	19'	17'	15'	
LVL	27'	23'	20'	18'	16'	26'	22'	19'	17'	16'	

AXIAL LOAD (NON-BEARING) 2000 PLF		ECCENTRICITY = 0 INCH					ECCENTRICITY = 3-3/16 INCHES				
		WIND PRESSURE (PSF)					WIND PRESSURE (PSF)				
		10	15	20	25	30	10	15	20	25	30
NO SPLINE	20'	17'	15'	13'	12'	12'	10'	9'	8'	7'	
SINGLE SPLINE											
SPF #2	23'	19'	16'	15'	13'	15'	12'	11'	10'	9'	
SYP #2	24'	20'	18'	15'	13'	15'	13'	11'	10'	9'	
LVL	24'	20'	18'	16'	15'	15'	13'	11'	10'	9'	
DOUBLE SPLINE											
SPF #2	24'	20'	18'	16'	15'	16'	13'	12'	10'	10'	
SYP #2	25'	21'	18'	17'	15'	17'	14'	12'	11'	10'	
LVL	25'	21'	19'	17'	15'	17'	15'	13'	12'	11'	

AXIAL LOAD (NON-BEARING) 3000 PLF		ECCENTRICITY = 0 INCH					ECCENTRICITY = 3-3/16 INCHES				
		WIND PRESSURE (PSF)					WIND PRESSURE (PSF)				
		10	15	20	25	30	10	15	20	25	30
NO SPLINE	18'	15'	13'	12'	11'	--	--	--	--	--	
SINGLE SPLINE											
SPF #2	20'	16'	14'	13'	12'	--	--	--	--	--	
SYP #2	20'	17'	15'	13'	12'	--	--	--	--	--	
LVL	20'	17'	15'	13'	12'	--	--	--	--	--	
DOUBLE SPLINE											
SPF #2	20'	17'	15'	14'	12'	--	--	--	--	--	
SYP #2	21'	18'	15'	14'	13'	--	--	--	--	--	
LVL	21'	18'	16'	14'	13'	--	--	--	--	--	

See Page 9 of this report for footnotes

Footnotes for Racking Load Table

Panels are made of two equal layers of APA or TECO rated OSB sheathing. The core shall be nominal 1.0 pcf density (min. 0.9 pcf) EPS (expanded polystyrene) foam adhered to the sheathing with glue and set under pressure.

1. Allowable load of 208 plf is based on using surface splines consisting of minimum 3 inch wide, 5/8-inch-thick AD plywood at all panel edges, both sides. Panel skins shall be stapled to the splines using minimum 16 ga., 7/16-inch crown by 1-3/4 inch long staples along all panel edges at 6 inches on center, both sides.
2. Allowable load of 385 plf is based on using minimum 2x SPF solid sawn lumber splines at all panel edges. Panel skins shall be nailed to the splines using minimum 8d common nails along all panel edges at 6 inches on center, both sides.

Footnotes for Transverse Loads Tables

Panels shall be made of two equal layers of APA or TECO rated OSB sheathing. The core shall be nominal 1.0 pcf density (min. 0.9 pcf) EPS (expanded polystyrene) foam adhered to the sheathing with glue and set under pressure. In panels with spline studs, the skins shall be nailed to the spline studs with 6d nails @ 6 inches o.c. When the tables indicate that no spline studs are required for structural capacity, it is permitted to join adjacent panels using 3 inch wide, 5/8-inch-thick plywood or OSB surface splines under the skins of each face instead of spline studs. The surface splines shall be installed using a gap filling expanding foam sealant and 1-1/4 inch long, No. 6 screws at 6 inches on center on each side of the joint.

1. Values shown are allowable spans due to dead load plus live load.
2. The tables reflect two deflection criteria. For all panels the deflection criteria of L/360 shall be used for floor loads. For roof panels with slopes less than 3 in 12 pitch, the L/360 deflection criteria shall be used. For roof panels with slopes of 3 in 12 or greater, the deflection criteria of L/240 shall be acceptable.
3. To minimize deflection creep on panels without splines loaded with permanent or long-duration loads (> 6 mo.), find the Allowable span on the table for twice the actual load (i.e., use 40 psf for actual load of 20 psf).
4. Some allowable spans are not based on deflections, therefore, no multipliers for other deflection criteria shall be allowed.
5. All values are for normal duration loads. No increases for other durations are allowed.
6. Maximum spans are limited to the maximum panel size, 28 feet.
7. All values listed are for single-span panels with supports at each end.
8. For eight foot wide panels with splines at 8' -0" o.c., use table values for sandwich panels without splines; for panels with splines at 4' -0" o.c., use tables for single splines.
9. All values are based on INSULSPAN – Transverse Load Tables (T. 1 – T.38), “©INSULSPAN 1999”, Dated September 9, 1999.

Footnotes for Axial Load Tables

Panels shall be made of two equal layers of APA or TECO rated OSB sheathing. The core shall be nominal 1.0 pcf density (min. 0.9 pcf) EPS (expanded polystyrene) foam adhered to the sheathing with glue and set under pressure. In panels with spline studs, the skins shall be nailed to the spline studs with 6d nails @ 6 inches o.c. When the tables indicate that no spline studs are required for structural capacity, it is permitted to join adjacent panels using 3 inch wide, 5/8-inch-thick plywood or OSB surface splines under both exterior and interior skins instead of spline studs. The surface splines shall be installed using a gap filling expanding foam sealant and 1-1/4 inch long, No. 6 screws at 6 inches on center on each side of the joint.

1. Values shown are allowable spans due to dead load plus live load.
2. Allowable loads are based on axial loads being applied over the entire panel width.
3. Deflection criterion of H/240 is used.
4. Some allowable spans are not based on deflections, therefore, no multipliers for other deflection criteria shall be allowed.
5. All values are for normal duration loads. No increases for other durations are allowed.
6. Maximum spans are limited to the maximum panel size, 28 feet.
7. All values listed are for single-span panels with supports at the top and bottom.
8. Where no allowable height is shown, panel does not meet criteria to carry applied axial load.
9. For panels with splines at 24" o.c. use the allowable heights of panels with double splines.
10. For eight foot wide panels with splines at 8' -0" o.c., use table values for sandwich panels without splines; for panels with splines at 4' -0" o.c., use tables for single splines.
11. All values are based on INSULSPAN – Transverse Load Tables (T. 1 – T.38), “©INSULSPAN 1999”, Dated September 9, 1999.

Figure 2. ONE HOUR FLOOR/CEILING ASSEMBLY

Note: See footnotes on page 12 for descriptions of numbered elements.

Figure 3. ONE HOUR WALL ASSEMBLY (Limited Load Bearing)

Note: See footnotes on page 12 for descriptions of numbered elements.

Footnotes for Figure 2. ONE HOUR FLOOR/CEILING ASSEMBLY

1. **Insulspan Panels** – 48 inches wide (minimum), 5-1/2 inch thick (maximum) EPS core having 7/16-inch thick OSB skins. Panels having 7-1/4, 9-1/4 and 11-1/4 inch thick cores are also permitted in roof/ceiling assemblies.
2. **Splines** – 2x wood spline studs. When the tables indicate that no spline studs are required for structural capacity 3 inch wide, 5/8-inch-thick OSB surface splines are permitted under both skins instead of spline studs.
3. **Fasteners** – OSB skins are fastened to spline studs using 6d nails @ 6 inches on center. When using OSB surface splines, the surface splines shall be installed using a gap filling expanding foam sealant and 1 inch long, No. 6 drywall screws at 6 inches on center on each side of the joint.
4. **Gypsum Wallboard** – a ceiling surface consisting of two layers 5/8-inch thick Type X gypsum wallboard. The gypsum panels are attached to the Insulspan panels using 2 inch long, A-point, bugle head drywall screws at 6 inches on center along the sheet perimeters and on a 12 inch x 12 inch spacing in the field of the sheets. All seams shall be staggered. Exposed seams shall be treated with an application of tape, followed by three coats of US Gypsum Corporation Durabond 90 joint compound.
5. **Roof Covering** – (on roof/ceiling assemblies only) – a code complying roof covering.

Footnotes for Figure 3. ONE HOUR – Wall Assembly (Limited Load Bearing)

1. **Insulspan Panels** – 3-1/2 inches or 5-1/2 inches thick EPS core having 3/8-inch or 7/16 thick OSB skins. Structural load shall not exceed 27.4 % of allowable load nor 1250 lb/ft..
2. **Splines** – 2x wood spline studs @ 48 inches on center.
3. **Top and Bottom Plates** – 2x wood top and bottom plates.
4. **Nails** – OSB skins are fastened with 6d common nails at 6 inches on center at panel edges (vertical splines) and at the top and bottom plates.
5. **Gypsum Wallboard** – Two layers of 1/2-inch thick USG Fire Code “C” installed on each side of the assembly.

The **first layer** of gypsum wallboard is installed horizontally over the insulation panels using a continuous 3/8-inch diameter bead of construction adhesive (Miracle DSA 20 drywall adhesives) at 24 inches on center across the width of the panels and 1-inch long No. 6 bugle head drywall screws at 6 inches on center along the perimeter and 12 inches on center at the two adhesive lines.

The **second layer** of gypsum wallboard is installed vertically in the same manner as the first layer using 1-5/8 inch long bugle head drywall screws.

LIMITATIONS OF APPROVAL

The **IBC** limitations below are in accordance with the current **Wisconsin Amended ICC Code**:

1. Design loads shall be determined in accordance with the applicable code sections and loadings on the panels shall not exceed the allowable loads noted in the allowable load tables in this approval. Additionally, for plastered ceilings, the live load deflection shall be limited to 1/360th of the span.
2. Design calculations and details for specific applications using the Structural Insulated Panel (SIP) System shall be submitted or supplied to the code official verifying compliance with this approval and applicable code. Panel connections and other issues concerning the panel’s incorporation into the structural system of a structure are not within the scope of this approval.
3. Panels having a core thickness of greater than 5 1/2 inches shall have 7/16-inch thick skins only and are **limited to roof applications only**.
4. No cutting or routing of the panels shall be permitted except as shown on approved construction documents.
5. This approval does not include an evaluation of panels whose components are preservative treated or fire retardant treated wood.
6. The use of the panels shall be limited to structures where combustible construction is permitted by the code.
7. The exterior of the wall panels and roof panels shall be covered with an approved exterior wall covering or an approved roof covering respectively.
8. The panel core shall be separated from the interior of the building by an approved 15 minute thermal barrier installed as described in the applicable code.
9. The foam plastic core shall be manufactured from polystyrene, expanded from BASF beads (NER-479) or NOVA Chemicals Inc. beads (ESR-1798, Dylite M77). Nominal density is 1 pcf.
10. The panels are produced by Insulspan, Inc., in Blissfield, Michigan, under a quality control program with inspections by Intertek Testing Services, NA, Inc. (AA-688).

This approval will be valid through December 31, 2012, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The product approval is applicable to projects approved under the current edition of the applicable codes. This approval may be void for project approvals made under future applicable editions. The Wisconsin Building Product Evaluation number must be provided when plans that include this product are submitted for review.

DISCLAIMER

The department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement not specified in this document.

Revision Date:

Approval Date: February 15, 2008 By: _____

Lee E. Finley, Jr.
Product & Material Review
Integrated Services Bureau