



The Subcommittee on Evaluation has reviewed the data submitted for compliance with the *Standard Building Code*®, 1998 *International One- and Two-Family Dwelling Code*®, and the *Florida Building Code 2001–Building and* submits to the Building Official or other authority having jurisdiction the following report. The Subcommittee on Evaluation, and ICCES and its staff are not responsible for any errors or omissions to any documents, calculations, drawings, specifications, tests or summaries prepared and submitted by the design professional or preparer of record that are listed in the Substantiating Data Section of this report.

REPORT NO.: 2406

EXPIRES: See the current EVALUATION REPORT INDEX

CATEGORY: FLOOR, WALL AND ROOF SYSTEMS

SUBMITTED BY:

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1.0 PRODUCT TRADE NAME

ThermaSAVE Building Panels

2.0 SCOPE OF EVALUATION

Structural - transverse, shear and axial loads

3.0 USES

ThermaSAVE Building Panels are used as structural insulated wall, floor and roof panels in buildings of Type VI construction.

4.0 DESCRIPTION

4.1 General:

ThermaSAVE Building Panels are factory assembled sandwich panels with facings of either oriented strand board (OSB), plywood, cement board, gypsum board or FIBEROCK® panels bonded with expanded polystyrene (EPS) foam core material. The panels are used as load bearing wall, roof and floor components. The panels are produced in lengths up to 28 feet (8.4 m). The standard panel width is 4 feet (1.2 m), other widths are available upon request. The panels can be used individually or may be connected to form larger sections and assemblies.

4.2 Materials:

4.2.1 Facings: Panel facings range in thickness from $\frac{7}{16}$ inch to $\frac{3}{4}$ inch (11.11 to 19.05 mm). Oriented strand board (OSB) and plywood Exposure 1 facings shall comply with NER-124 or NER-108. Minimum $\frac{5}{16}$ inch cement board complying with ASTM C1186. Gypsum board shall be regular or Type X complying with ASTM C36. FIBEROCK® Panels are produced by United States Gypsum Company under ICC-ES Legacy Evaluation Reports NER-684 and ER-5578.

4.2.2 Foam Core: Foam core is expanded polystyrene (EPS) with thicknesses of $3\frac{1}{2}$ inches to 11.5 inches (88.90 to 292.10 mm) and a nominal density of 1.0 pcf to 2.0 pcf (16 to 32 kg/m³). The foam core material has a flame spread index (FSI) of 25 or less and a smoke density index (SDI) of 450 or less when tested under ASTM E84 at a maximum thickness of 6 inches. See Section 6.9 of this report for foam suppliers.

4.2.3 Adhesive: The adhesive is a Type II, Class 2 adhesive by Rohm and Haas Company under ICC-ES Legacy Report NER-451 or Ashland Specialty Chemical Company under ICC-ES Legacy Report NER-165.

4.3 Structural:

The ThermaSAVE Building Panels were tested for transverse loads, axial and racking shear loads under ASTM E72. The panels may be used as a structural member to resist transverse and racking shear loads in a Type VI building when designed and installed as specified in this report.

5.0 INSTALLATION

5.1 General:

ThermaSAVE Building panels are installed in accordance with the manufacturer's published installation instructions and this report.

Engineering calculations and drawings providing floor plans, window details, door details, and connector details shall be submitted to the building official when applying for a permit.

The manufacturer's published installation instructions, engineering drawings and this report shall be strictly adhered to and a copy of these instructions shall be available at all times on the job site during installation.

The instructions within this report govern if there are any conflicts between the manufacturer's instructions and this report.

5.2 Panel Connection:

The ThermaSAVE Building Panels are connected to each other at the panel edges by using factory cut splines 4 inches (102 mm) wide by $\frac{7}{16}$ inch thick (11.11 mm). The splines are OSB when using OSB facings, plywood when using plywood facings, OSB or $\frac{7}{16}$ inch cement board when using cement board facings. When connection gypsum board facings, or FIBEROCK® Panel facings the splines are #2 SPF 2 x 4 laid flat. The splines shall be the width required to connect the panels. The splines are fastened to facings with No. 6, $1\frac{1}{4}$ inch (31.75 mm) long, Type S or W drywall screws spaced a minimum of 6 inches (152.4 mm) on center. If screws are spaced 12 inches (304.8 mm) on center and used with $1\frac{1}{8}$ inch long by $\frac{1}{2}$ inch wide (25.58 mm long by 12.7 mm wide) staples between screws, staples are spaced 6 inches (152.4 mm) on center. Connections of splines at shear walls are covered in Table 4.

The top and bottom plates of the panels are dimensional wood plates sized to match the EPS core thickness fastened with common nails spaced 6 inches (152.4 mm) on center. Nail size is 6d for facings $\frac{1}{2}$ inch (12.7 mm) thick and less and 8d for facing thickness through $\frac{3}{4}$ inch (19.05 mm).

5.3 Wall and Roof Coverings:

When the panels are exposed to the weather at the time of erection and placement, they shall be covered on the exterior by a water resistant wrap, except when exterior facings are T1-11 panels or cement board. The exterior of the wall panels and roof panels shall be covered with an approved exterior wall covering or roof covering as required by the code. The interior of panels shall be covered with a Class A, B, or C interior finish material as required by the Code., except when using gypsum wall board, FIBEROCK® facings or cement board.

All exterior panel joints shall be sealed with a compatible acrylic latex caulk.

5.4 Openings:

Openings in wall panels are limited to 48 inches (1219.2 mm) in width. For openings greater than 48 inches (1219.2 mm) and for loads greater than those specified in the Tables, the specific condition must be designed by a registered professional engineer and framed by conventional methods.

5.5 Allowable Structural Loads:

Allowable transverse, axial, combined transverse and axial loads, and racking shear loads are given in Tables, 1, 2 3, and 4.

5.6 Wood Construction in Areas of Very Heavy Termite Infestation:

Where foam plastic insulation is used with wood construction, the foam plastic shall be installed in accordance with Section 2304.1.4 of the *Standard Building Code*®.

When used in areas of very heavy termite infestation (see Figure 2304.1.4 SBC), the bottom of ThermaSAVE Building Panels shall not be less than 6 inches (152.40 mm) above finish grade and the panels shall not be installed below grade or in contact with earth, see Section 2603.3 of the *Standard Building Code*® except when core EPS is R-Control® Perform Guard® EPS Boards in accordance with ESR-1006.

TABLE 1
ROOF, LL: L/240, DL: L/180^{1,2}

CORE				DESIGN LOADS FOR TRANSVERSELY LOADED SPANS ^{1,2} (psf)																	
FACING THICKNESS (Inches)		Thickness (Inches)	Density (pcf)	LL 8'	DL 8'	LL 10'	DL 10'	LL 12'	DL 12'	LL 14'	DL 14'	LL 16'	DL 16'	LL 18'	DL 18'	LL 20'	DL 20'	LL 22'	DL 22'	LL 24'	DL 24'
7/16	7/16	3.50	1.0	40.4	13.5	27.4	9.1														
7/16	5/8	3.50	1.0	42.3	14.1	28.9	9.6	20.5	6.8												
5/8	5/8	3.50	1.0	44.2	14.7	30.5	10.2	21.7	7.2												
7/16	3/4	3.50	1.0	44.5	14.8	31.2	10.4	22.4	7.5												
3/4	5/8	3.50	1.0	44.5	14.8	32.9	11.0	23.8	7.9												
3/4	3/4	3.50	1.0	44.5	14.8	35.5	11.8	26.1	8.7												
7/16	7/16	3.50	2.0	44.5	14.8	35.6	11.9	25.6	8.5												
7/16	5/8	3.50	2.0	44.5	14.8	35.6	11.9	27.5	9.2												
7/16	3/4	3.50	2.0	44.5	14.8	35.6	11.9	29.7	9.9	21.6	7.2										
5/8	5/8	3.50	2.0	44.5	14.8	35.6	11.9	29.5	9.8	20.5	6.8										
3/4	5/8	3.50	2.0	44.5	14.8	35.6	11.9	29.7	9.9	23.4	7.8										
3/4	3/4	3.50	2.0	44.5	14.8	35.6	11.9	29.7	9.9	25.4	8.5										
7/16	7/16	5.50	1.0	60.0	20.0	48.0	16.0	35.1	11.7	26.2	8.7	20.0	6.7								
7/16	5/8	5.50	1.0	60.0	20.0	48.0	16.0	36.6	12.2	27.5	9.2	21.0	7.0								
7/16	3/4	5.50	1.0	60.0	20.0	48.0	16.0	39.2	13.1	29.8	9.9	23.0	7.7								
5/8	5/8	5.50	1.0	60.0	20.0	48.0	16.0	38.1	12.7	28.8	9.6	22.1	7.4								
5/8	5/8	5.50	1.0	60.0	20.0	48.0	16.0	40.0	13.3	31.2	10.4	24.2	8.1								
3/4	3/4	5.50	1.0	60.0	20.0	48.0	16.0	40.0	13.3	33.9	11.3	26.7	8.9	21.3	7.1						
7/16	7/16	5.50	2.0	60.0	20.0	48.0	16.0	40.0	13.3	34.3	11.4	25.8	8.6								
7/16	5/8	5.50	2.0	60.0	20.0	48.0	16.0	40.0	13.3	34.3	11.4	27.4	9.1	20.6	6.9						
7/16	3/4	5.50	2.0	60.0	20.0	48.0	16.0	40.0	13.3	34.3	11.4	30.0	10.0	23.2	7.7						
5/8	5/8	5.50	2.0	60.0	20.0	48.0	16.0	40.0	13.3	34.3	11.4	29.1	9.7	21.9	7.3						
3/4	5/8	5.50	2.0	60.0	20.0	48.0	16.0	40.0	13.3	34.3	11.4	30.0	10.0	24.9	8.3						
3/4	3/4	5.50	2.0	60.0	20.0	48.0	16.0	40.0	13.3	34.3	11.4	30.0	10.0	26.7	8.9	22.3	7.4				
7/16	7/16	7.25	1.0	71.2	23.8	57.0	19.0	47.5	15.8	38.2	12.7	29.6	9.9	23.3	7.8						
7/16	5/8	7.25	1.0	71.2	23.8	57.0	19.0	47.5	15.8	39.6	13.2	30.8	10.3	24.4	8.1						
7/16	3/4	7.25	1.0	71.3	23.7	57.0	19.0	47.5	15.8	40.7	13.6	33.3	11.1	26.6	8.9	21.4	7.1				
5/8	5/8	7.25	1.0	71.2	23.8	57.0	19.0	47.5	15.8	40.7	13.6	32.1	10.7	25.5	8.5	20.5	6.8				
3/4	5/8	7.25	1.0	71.2	23.8	57.0	19.0	47.5	15.8	40.7	13.6	34.7	11.6	27.8	9.3	22.5	7.5				
3/4	3/4	7.25	1.0	71.2	23.8	57.0	19.0	47.5	15.8	40.7	13.6	35.6	11.9	30.5	10.2	24.9	8.3	20.6	6.9		
7/16	7/16	9.25	1.0	71.2	23.8	57.0	19.0	47.5	15.8	40.7	13.6	35.6	11.9	31.7	10.6	26.7	8.9	21.8	7.3		
7/16	5/8	9.25	1.0	71.2	23.8	57.0	19.0	47.5	15.8	40.7	13.6	35.6	11.9	31.7	10.6	27.8	9.3	22.8	7.6		
7/16	3/4	9.25	1.0	71.2	23.8	57.0	19.0	47.5	15.8	40.7	13.6	35.6	11.9	31.7	10.6	28.5	9.5	24.9	8.3	20.7	6.9
5/8	5/8	9.25	1.0	71.3	23.7	57.0	19.0	47.5	15.8	40.7	13.6	35.6	11.9	31.7	10.6	28.5	9.5	23.8	7.9		
3/4	5/8	9.25	1.0	71.3	23.7	57.0	19.0	47.5	15.8	40.7	13.6	35.6	11.9	31.7	10.6	28.5	9.5	25.9	8.6	21.8	7.3
3/4	3/4	9.25	1.0	71.2	23.8	57.0	19.0	47.5	15.8	40.7	13.6	35.6	11.9	31.7	10.6	28.5	9.5	25.9	8.6	23.8	7.9
7/16	7/16	11.25	1.0	87.7	29.2	70.1	23.4	58.4	19.5	50.1	16.7	43.8	14.6	39.0	13.0	35.1	11.7	29.3	9.8	24.3	8.1
7/16	5/8	11.25	1.0	87.7	29.2	70.1	23.4	58.4	19.5	50.1	16.7	43.8	14.6	39.0	13.0	35.1	11.7	30.4	10.1	25.3	8.4
7/16	3/4	11.25	1.0	87.7	29.2	70.1	23.4	58.4	19.5	50.1	16.7	43.8	14.6	39.0	13.0	35.1	11.7	31.9	10.6	27.7	9.2
5/8	5/8	11.25	1.0	87.7	29.2	70.1	23.4	58.4	19.5	50.1	16.7	43.8	14.6	39.0	13.0	35.1	11.7	31.6	10.5	26.4	8.8
3/4	5/8	11.25	1.0	87.7	29.2	70.1	23.4	58.4	19.5	50.1	16.7	43.8	14.6	39.0	13.0	35.1	11.7	31.9	10.6	28.9	9.6
3/4	3/4	11.25	1.0	87.7	29.2	70.1	23.4	58.4	19.5	50.1	16.7	43.8	14.6	39.0	13.0	35.1	11.7	31.9	10.6	29.2	9.7
7/16	7/16	11.25	2.0	87.7	29.2	70.1	23.4	58.4	19.5	50.1	16.7	43.8	14.6	39.0	13.0	35.1	11.7	31.9	10.6	29.2	9.7
7/16	5/8	11.25	2.0	87.7	29.2	70.1	23.4	58.4	19.5	50.1	16.7	43.8	14.6	39.0	13.0	35.1	11.7	31.9	10.6	29.2	9.7
7/16	3/4	11.25	2.0	87.7	29.2	70.1	23.4	58.4	19.5	50.1	16.7	43.8	14.6	39.0	13.0	35.1	11.7	31.9	10.6	29.2	9.7
5/8	5/8	11.25	2.0	87.7	29.2	70.1	23.4	58.4	19.5	50.1	16.7	43.8	14.6	39.0	13.0	35.1	11.7	31.9	10.6	29.2	9.7
3/4	5/8	11.25	2.0	87.7	29.2	70.1	23.4	58.4	19.5	50.1	16.7	43.8	14.6	39.0	13.0	35.1	11.7	31.9	10.6	29.2	9.7
3/4	3/4	11.25	2.0	87.7	29.2	70.1	23.4	58.4	19.5	50.1	16.7	43.8	14.6	39.0	13.0	35.1	11.7	31.9	10.6	29.2	9.7
7/16	7/16	7.25	2.0	103.1	34.4	82.5	27.5	68.8	22.9	53.8	17.9	39.8	13.3	30.2	10.2	23.3	7.8				
7/16	5/8	7.25	2.0	103.1	34.4	82.5	27.5	68.8	22.9	56.4	18.8	41.9	14.0	31.9	10.6	24.7	8.2				
7/16	3/4	7.25	2.0	103.1	34.4	82.5	27.5	68.8	22.9	58.9	19.6	46.5	15.5	35.6	11.9	27.7	9.2	22.0	7.3		
5/8	5/8	7.25	2.0	103.1	34.4	82.5	27.5	68.8	22.9	58.9	19.6	44.2	14.7	33.7	11.2	26.1	8.7	20.6	6.9		
3/4	5/8	7.25	2.0	103.1	34.4	82.5	27.5	68.8	22.9	58.9	19.6	49.1	16.4	37.7	12.6	29.5	9.8	23.4	7.8		
3/4	3/4	7.25	2.0	103.1	34.4	82.5	27.5	68.8	22.9	58.9	19.6	51.6	17.2	42.7	14.2	33.7	11.2	27.0	9.0	21.8	7.3
7/16	7/16	9.25	2.0	103.1	34.4	82.5	27.5	68.8	22.9	58.9	19.6	51.6	17.2	44.5	14.8	34.7	11.6	27.5	9.2	22.1	7.4
7/16	5/8	9.25	2.0	103.1	34.4	82.5	27.5	68.8	22.9	58.9	19.6	51.6	17.2	45.8	15.3	36.5	12.2	29.0	9.7	23.3	7.8
7/16	3/4	9.25	2.0	103.1	34.4	82.5	27.5	68.8	22.9	58.9	19.6	51.6	17.2	45.8	15.3	40.6	13.5	32.5	10.8	26.3	8.8
5/8	5/8	9.25	2.0	103.1	34.4	82.5	27.5	68.8	22.9	58.9	19.6	51.6	17.2	45.8	15.3	38.4	12.8	30.6	10.2	24.7	8.2
3/4	5/8	9.25	2.0	103.1	34.4	82.5	27.5	68.8	22.9	58.9	19.6	51.6	17.2	45.8	15.3	41.3	13.7	34.4	11.5	27.9	9.3
3/4	3/4	9.25	2.0	103.1	34.4	82.5	27.5	68.8	22.9	58.9	19.6	51.6	17.2	45.8	15.3	41.2	13.8	37.5	12.5	31.9	10.6

¹Either facing thickness may be in compression or tension.

²Loads are for single spans.

TABLE 2
FLOOR, LL: L/360, DL: L/240^{1,2,3,4}

FACING THICKNESS (Inches)		CORE		DESIGN LOADS FOR TRANSVERSELY LOADED SPANS (psf)											
		Thickness (Inches)	Density (pcf)	LL 8'	DL 8'	LL 10'	DL 10'	LL 12'	DL 12'	LL 14'	DL 14'	LL 16'	DL 16'	LL 18'	DL 18'
7/16	7/16	5.50	1.0	45.4	22.7										
7/16	5/8	5.50	1.0	46.8	23.4										
7/16	3/4	5.50	1.0	48.9	24.4										
5/8	5/8	5.50	1.0	48.3	24.1										
3/4	5/8	5.50	1.0	50.4	25.2										
3/4	3/4	5.50	1.0	52.6	26.3										
7/16	7/16	5.50	2.0	53.3	26.7	42.7	21.3								
7/16	7/16	7.25	1.0	62.2	31.1	44.9	22.4								
7/16	5/8	7.25	1.0	63.3	31.7	46.2	23.1								
5/8	5/8	7.25	1.0	63.3	31.7	47.5	23.7								
7/16	3/4	7.25	1.0	63.3	31.7	48.3	24.1								
3/4	5/8	7.25	1.0	63.3	31.7	49.7	24.8								
3/4	3/4	7.25	1.0	63.3	31.7	50.7	25.3	40.0	20.0						
7/16	7/16	9.25	1.0	63.3	31.7	50.7	25.3	42.2	21.1						
7/16	7/16	11.25	1.0	77.9	39.0	62.3	31.2	51.9	26.0	44.5	22.3				
7/16	7/16	7.25	2.0	91.7	45.8	70.7	35.3	49.6	24.8						
7/16	5/8	7.25	2.0	91.7	45.8	73.3	36.7	51.8	25.9						
7/16	3/4	7.25	2.0	91.7	45.8	73.3	36.7	56.2	28.1	41.3	20.6				
5/8	5/8	7.25	2.0	91.7	45.8	73.3	36.7	54.1	27.0						
3/4	5/8	7.25	2.0	91.7	45.8	73.3	36.7	58.7	29.4	43.3	21.7				
3/4	3/4	7.25	2.0	91.7	45.8	73.3	36.7	61.1	30.6	48.0	24.0				
7/16	7/16	9.25	2.0	91.7	45.8	73.3	36.7	61.1	30.6	51.5	25.7				
7/16	5/8	9.25	2.0	91.7	45.8	73.3	36.7	61.1	30.6	52.4	26.2	40.4	20.2		
7/16	3/4	9.25	2.0	91.7	45.8	73.3	36.7	61.1	30.6	52.4	26.2	44.3	22.2		
5/8	5/8	9.25	2.0	91.7	45.8	73.3	36.7	61.1	30.6	52.4	26.2	42.3	21.1		
3/4	5/8	9.25	2.0	91.7	45.8	73.3	36.7	61.1	30.6	52.4	26.2	45.8	22.9		
3/4	3/4	9.25	2.0	91.7	45.8	73.3	36.7	61.1	30.6	52.4	26.2	45.8	22.9	40.4	20.2

¹Either face may be in compression or tension.

²Loads are for single spans.

³The tabulated loadings also apply to panels under the following conditions:

- a) Facing thickness increased; core density as tabulated or greater.
- b) Core density increased; facing thickness as tabulated or greater.
- c) Core density and facing thickness increased.

⁴The floor panels are limited to use in Group R Occupancies.

TABLE 3
W = ALLOWABLE AXIAL LOADS in PLF FOR WALLS SUBJECT TO
MAXIMUM 25 PSF (1200 Pa) TRANSVERSE WIND LOAD

FACING THICKNESS (Inches)		CORE		WALL DESIGN LOADS PER FOOT OF PANEL WIDTH BASED ON TRANSVERSE/AXIAL LOADING ¹ (plf)								
		Thickness (Inches)	Density (pcf)	Load 8'	Load 10'	Load 12'	Load 14'	Load 16'	Load 18'	Load 20'	Load 22'	Load 24'
7/16	7/16	3.50	1.0	2000	737							
7/16	7/16	3.50	2.0	2000	2000	205						
7/16	7/16	5.50	1.0	2000	2000	2000	529					
7/16	7/16	5.50	2.0	2000	2000	2000	2000	386				
7/16	7/16	7.25	1.0	2000	2000	2000	2000	2000				
7/16	7/16	7.25	2.0	2000	2000	2000	2000	2000	2000			
7/16	7/16	9.25	1.0	2000	2000	2000	2000	2000	2000	1051		
7/16	7/16	9.25	2.0	2000	2000	2000	2000	2000	2000	2000	1684	
7/16	7/16	11.25	1.0	2000	2000	2000	2000	2000	2000	2000	2000	
7/16	7/16	11.25	2.0	2000	2000	2000	2000	2000	2000	2000	2000	2000
7/16	5/8	3.50	1.0	2000	2000							
7/16	5/8	3.50	2.0	2000	2000	900						
7/16	5/8	5.50	1.0	2000	2000	2000	1057					
7/16	5/8	5.50	2.0	2000	2000	2000	2000	1177				
7/16	5/8	7.25	1.0	2000	2000	2000	2000	2000				
7/16	5/8	7.25	2.0	2000	2000	2000	2000	2000	2000			
7/16	5/8	9.25	1.0	2000	2000	2000	2000	2000	2000	1725		
7/16	5/8	9.25	2.0	2000	2000	2000	2000	2000	2000	2000	2000	
7/16	5/8	11.25	1.0	2000	2000	2000	2000	2000	2000	2000	2000	244
7/16	5/8	11.25	2.0	2000	2000	2000	2000	2000	2000	2000	2000	2000
7/16	3/4	3.50	1.0	2000	2000							
7/16	3/4	3.50	2.0	2000	2000	2000						
7/16	3/4	5.50	1.0	2000	2000	2000	2000					
7/16	3/4	5.50	2.0	2000	2000	2000	2000	2000				
7/16	3/4	7.25	1.0	2000	2000	2000	2000	2000	2000			
7/16	3/4	7.25	2.0	2000	2000	2000	2000	2000	2000	1672		
7/16	3/4	9.25	1.0	2000	2000	2000	2000	2000	2000	2000		
7/16	3/4	9.25	2.0	2000	2000	2000	2000	2000	2000	2000	2000	935
7/16	3/4	11.25	1.0	2000	2000	2000	2000	2000	2000	2000	2000	1938
7/16	3/4	11.25	2.0	2000	2000	2000	2000	2000	2000	2000	2000	2000
5/8	5/8	3.50	1.0	2000	1659							
5/8	5/8	3.50	2.0	2000	2000	1642						
5/8	5/8	5.50	1.0	2000	2000	2000	1606					
5/8	5/8	5.50	2.0	2000	2000	2000	2000	2000				
5/8	5/8	7.25	1.0	2000	2000	2000	2000	2000	267			
5/8	5/8	7.25	2.0	2000	2000	2000	2000	2000	2000	690		
5/8	5/8	9.25	1.0	2000	2000	2000	2000	2000	2000	2000		
5/8	5/8	9.25	2.0	2000	2000	2000	2000	2000	2000	2000	2000	
5/8	5/8	11.25	1.0	2000	2000	2000	2000	2000	2000	2000	2000	1020
5/8	5/8	11.25	2.0	2000	2000	2000	2000	2000	2000	2000	2000	2000
3/4	5/8	3.50	1.0	2000	2000							
3/4	5/8	3.50	2.0	2000	2000	2000						
3/4	5/8	5.50	1.0	2000	2000	2000	2000					
3/4	5/8	5.50	2.0	2000	2000	2000	2000	3805				
3/4	5/8	7.25	1.0	2000	2000	2000	2000	2000	1535			
3/4	5/8	7.25	2.0	2000	2000	2000	2000	2000	2000	2000		
3/4	5/8	9.25	1.0	2000	2000	2000	2000	2000	2000	2000	730	
3/4	5/8	9.25	2.0	2000	2000	2000	2000	2000	2000	2000	2000	2000
3/4	5/8	11.25	1.0	2000	2000	2000	2000	2000	2000	2000	2000	2000
3/4	5/8	11.25	2.0	2000	2000	2000		2000	2000	2000	2000	2000
3/4	3/4	3.50	1.0	2000	2000	411						
3/4	3/4	3.50	2.0	2000	2000	2000	825					
3/4	3/4	5.50	1.0	2000	2000	2000	2000	813				
3/4	3/4	5.50	2.0	2000	2000	2000	2000	2000	1962			
3/4	3/4	7.25	1.0	2000	2000	2000	2000	2000	2000			
3/4	3/4	7.25	2.0	2000	2000	2000	2000	2000	2000	2000	1318	
3/4	3/4	9.25	1.0	2000	2000	2000	2000	2000	2000	2000	2000	
3/4	3/4	9.25	2.0	2000	2000	2000	2000	2000	2000	2000	2000	2000
3/4	3/4	11.25	1.0	2000	2000	2000	2000	2000	2000	2000	2000	2000
3/4	3/4	11.25	2.0	2000	2000	2000	2000	2000	2000	2000	2000	2000

¹Either face may be in compression or tension.

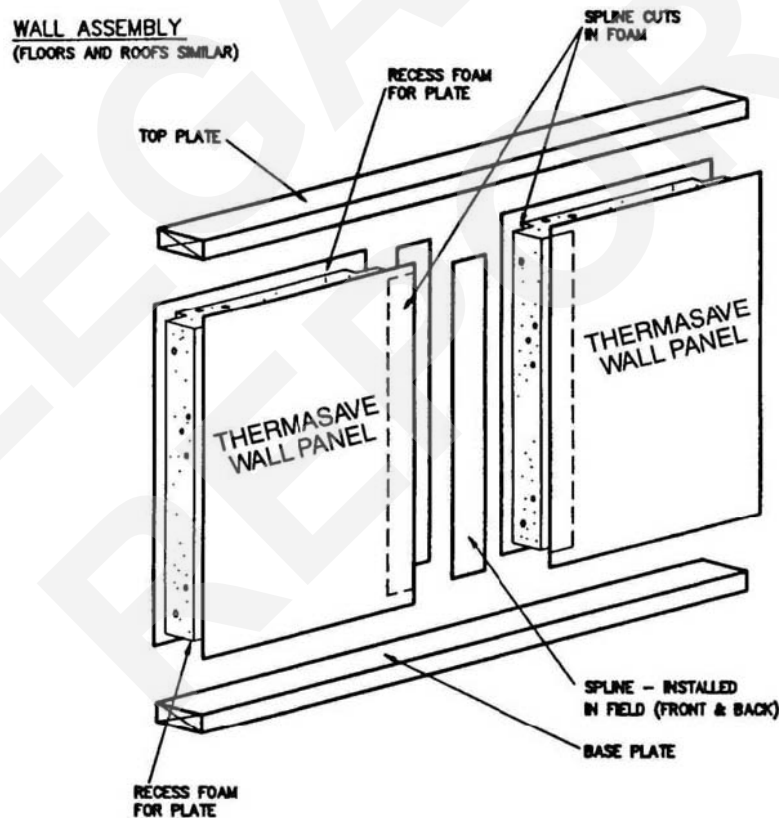
TABLE 4
ALLOWABLE SHEAR WALL LOADS (PLF)
FRAMING OF DOUGLAS FIR LARCH OR SOUTHERN PINE^{1,2}

MINIMUM FACE THICKNESS (Inches)	COMMON NAILS (Into Lumber Framing)		DRYWALL SCREWS (Into Splines)		SHEAR (plf) (Both Faces)
	Nail Size	Spacing (inches)	Screw Size (inches)	Spacing (inches)	
$\frac{7}{16}$	8d	3	1 $\frac{1}{4}$ Type S or W	2 $\frac{1}{2}$	490 ³
	8d	6	1 $\frac{1}{4}$ Type S or W	4 $\frac{1}{2}$	260

¹Panels with $\frac{7}{16}$ inch and thicker faces fastened with 6d common nails at 6 inches o.c. and 1 $\frac{1}{4}$ -inch Type S or W drywall screws at 6 inches o.c. are satisfactory alternates to the plywood bracing specified in SBC Section 2308.2.2.

²Minimum panel width is four feet. The maximum panel height-width ratio is 3 $\frac{1}{2}$:1, facings nailed at all edges.

³Two top plates are required.



ASSEMBLY DESCRIPTION: ADJACENT THERMASAVE PANELS ARE CONNECTED BY MEANS OF 4" WIDE SPLINES WHICH ARE INSERTED INTO NOTCHES IN THE FOAM CORE AND ATTACHED TO THE FACING MATERIAL EACH SIDE OF THE PANEL JOINT WITH SCREWS. WALL PANELS WILL HAVE SPLINES AT BOTH INTERIOR AND EXTERIOR FACES, WHEREAS FLOOR AND ROOF PANELS WILL NORMALLY HAVE SPLINES AT THE TOP FACE ONLY. DETAILS OF SPECIFIC CONDITIONS ARE SHOWN ON THE FOLLOWING PAGES.

FIGURE 1—WALL ASSEMBLY

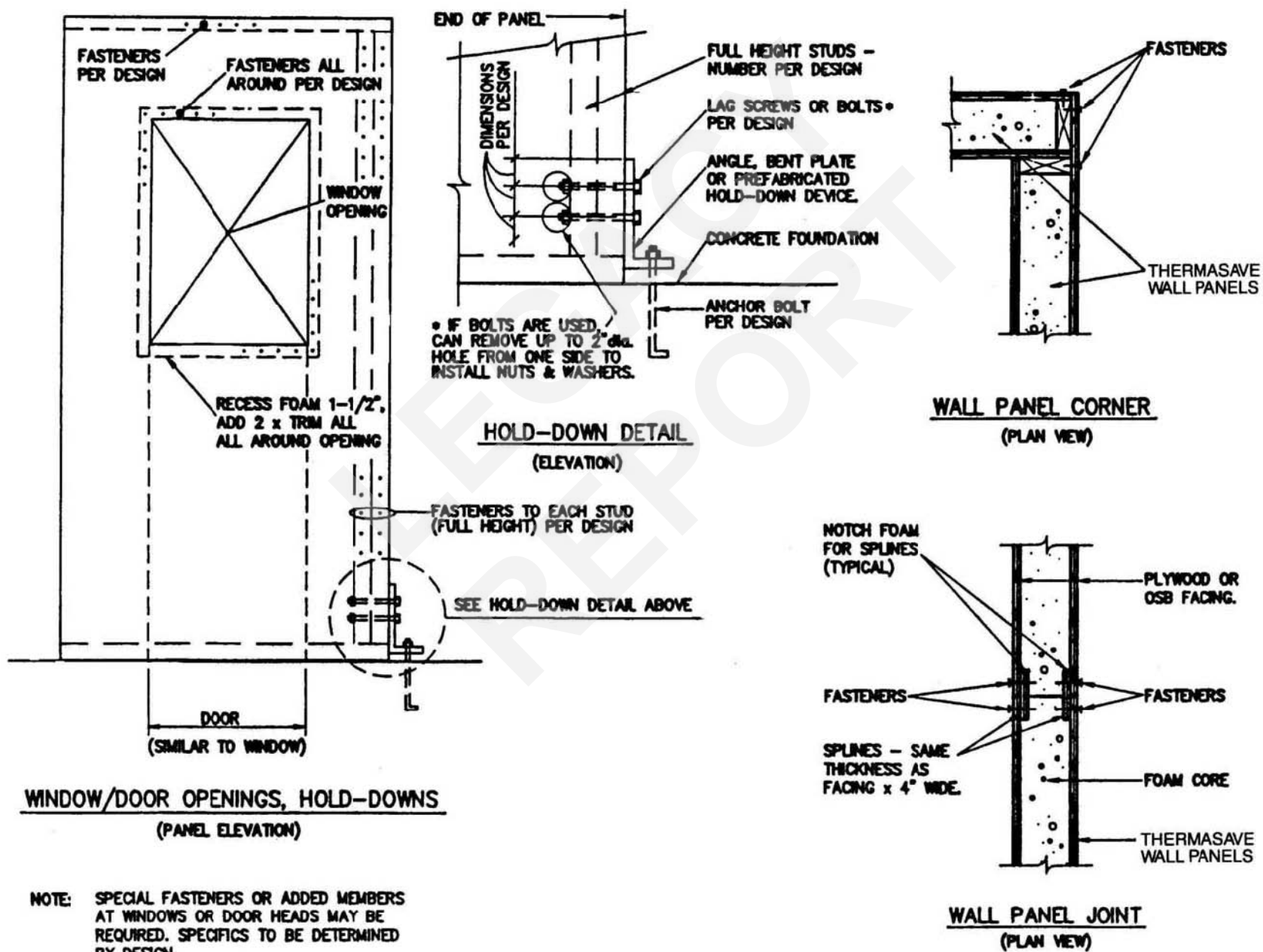


FIGURE 2

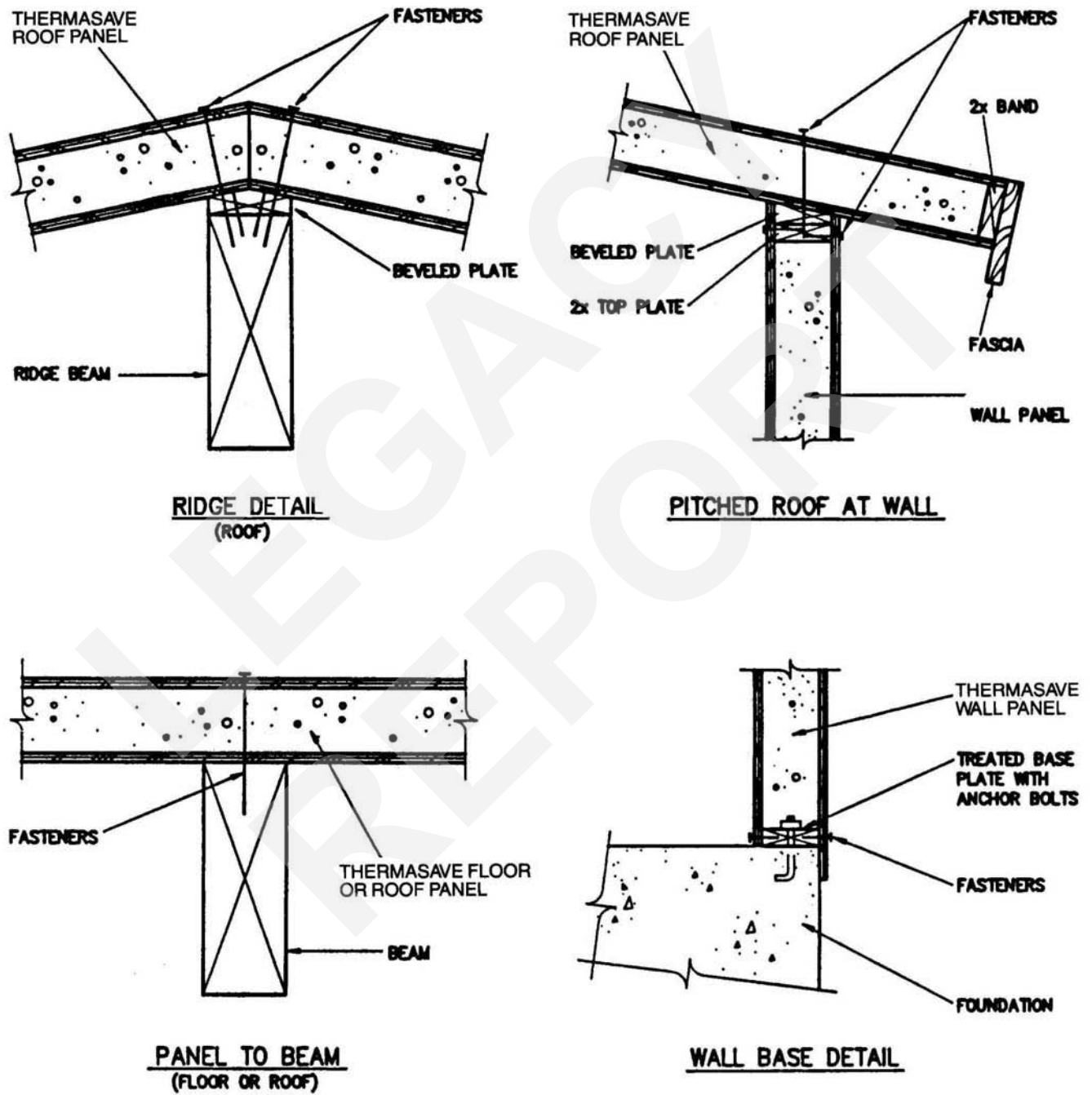


FIGURE 3

6.0 SUBSTANTIATING DATA

- 6.1** Manufacturer's specifications, drawings, and installation instructions.
- 6.2** Test reports on structural load testing under ASTM E72, shear wall, axially loaded, and transverse loading, facings of OSB or plywood and engineering calculations, Daniel H. Brown, P.E. Consultant, August 28, 1996, testing performed 1988 to 1989 at APA - The Engineering Wood Association laboratory, report signed and sealed by Daniel H. Brown, P.E.
- Shear Wall Tests, May 22, 1989.
 - Shear Wall design and Test, January 9, 1989.
 - Axial Load Wall Design, May 22, 1989.
 - Axially loaded wall design and tests, January 9, 1989.
 - Transverse load test, May 22, 1989.
 - Header calculations, May 22, 1989.
 - Engineering evaluation of Type X gypsum wallboard substitution for regular gypsum wallboard, November 14, 1997.
 - Letter of independence and resume, April 1, 1997.
- 6.3** Test report on transverse load testing under ASTM E72, EBA Engineering Inc., report 0999-0102, February 2, 1989, signed by Lance Duncan. Letter of independence, April 3, 1997, signed by Kurt O. Stangl.
- 6.4** Test reports under ASTM E72, facings of cement board, FIBEROCK® Panels and gypsum wallboard, PFS/TECO, signed by Eddie McKinney, Ronald H. Reindl, AIA and Richard M. Reinhard, P.E.
- Transverse load, #97-08, 05/20/97.
 - Racking resistance, #96-08a, 05/20/97.
 - Racking resistance, #97-08b, 06/17/97.
 - Transverse load, #97-08c, 06/17/97.
 - Density ASTM C271, #97-08d, 07/17/97.
 - Concentrated load ASTM E661, #97-08e, 07/17/97.
 - Axial load, #97-08f, 07/17/97.
 - Fasteners ASTM D1761, #97-08g, 07/17/97.
 - Full scale ceiling diaphragm ASTM E455, #97-08h, 07/17/97.
 - Full scale ceiling diaphragm, #97-08hh, 07/17/97.
- 6.5** Engineering analysis of load testing and load tables:
- 6.5.1** Engineering Review and analysis, ThermaSAVE Building Panels, prepared by Fred S. Cardwell, P.E., FSC W.O. #343-001, January 15, 1998, signed and sealed.
- 6.5.2** Evaluation of ThermaSAVE Building Panels, Daniel H. Brown, P.E., April 28, 1998, signed and sealed.
- 6.6** Test report on room corner fire test of ThermaSAVE, 11¹/₄ inch foam core with ⁷/₁₆ inch OSB facings on each face, interior of panel protected with ¹/₂ inch gypsum wallboard, Weyerhaeuser Company Fire Technology Unit, July 21, 1988, signed by Kenneth D. Fuller.
- 6.7** Test report on thermal barrier fire test of ThermaSAVE, Weyerhaeuser Company Fire Technology Unit, July 21, 1988, signed by Kenneth D. Fuller.
- 6.8** Test report on surface burning characteristics under ASTM E84, 2 inch EPS with metal clad ThermaSAVE, Weyerhaeuser Company Fire Technology Unit, June 1988, signed by Kenneth D. Fuller and James A. White.
- 6.9** Surface burning characteristics testing under ASTM E84 for Expanded Polystyrene (EPS) is covered under:
- 6.9.1** EPS Boards are covered in ICC-ES Legacy Reports ER-3414, Premier Industries, Inc., dba Insulfoam,

Insulfoam EPS boards, ER-4525, Henry Products, Inc., RoyLite EPS boards, and ICC-ES ESR-1006, AFM Corporation, AFM EPS Boards.

- 6.9.2** EPS bead suppliers are covered in ICC-ES Legacy Reports NER-236, Nova Chemical, NER-479 BASF Corporation, NER-384, Huntsman Chemical Corporation, and NER-238 Styrochem International, Inc.
- 6.10** Test reports on 15 minute room corner fire testing evaluation ThermaSAVE with cement board facings, Southwest Research Institute, signed by Jason P. Huczek and Marc L. Janssens, Ph.D.:
- 6.10.1** SwRI project No. 01.10085.01.414a, February 2004.
- 6.10.2** SwRI Project No. 01.10085.01.414b, February 2004. Included window opening.
- 6.11** Test reports on load testing under ASTM E72, Timber Products Inspection, TP Project #04-016, signed by Steve Harrell, Gwo-Huang Chen, Ph.D., EIT and Walter Boyles:
- 6.11.1** Racking Shear Tests, 2/12/2004, 8 x 8 panels, 3¹/₂ inch EPS and ⁵/₁₆ inch cement board.
- 6.11.2** Transverse Load Tests, 2/12/2004, 4 x 8 panels, 11¹/₄ inch EPS and ⁷/₁₆ inch cement board.
- 6.11.3** Axial load Tests, 2/12/2004, 4 x 8 panels, 3¹/₂ inch EPS and ⁵/₁₆ inch cement boards.
- 6.11.4** Axial load Test, 2/13/2004, 4 x 8 panels, 11¹/₄ EPS and ⁵/₁₆ inch cement boards.
- 6.11.5** Transverse load Tests, 2/13/2004, 4 x 8 panels, 3¹/₂ and 11¹/₄ inch EPS and ⁷/₁₆ inch cement boards.
- 6.11.6** Racking shear Tests, 2/13/2004, 8 x 8 panels, 11¹/₄ inch EPS and ⁵/₁₆ inch and ⁵/₁₆ inch cement boards. Panel 1 fastened 3 inches o.c, panel 2 fastened 4 inches o.c. and Panel 3 fastened 6 inches o.c.
- 6.12** Engineering analysis evaluating load testing of cement board facings, CBM Engineers, Inc., March 1, 2004, signed, sealed and dated by Joseph P. Colaco, P.E. 3/3/04.
- 6.13** Quality Control Procedure for ThermaSAVE Sandwich Panels, January 2004, signed by H. H. Haddock, 02/24/04 with third party quality assurance by Timber Products Inspection, Inc., signed by Gwo-Huang Chen, 2/20/04.

7.0 CODE REFERENCES

Standard Building Code®—1999 Edition

Section 103.7	Alternate Materials and Methods
Section 608	Type VI Construction
Chapter 16	Structural Loads
Chapter 17	Structural Tests and Inspections
Chapter 23	Wood
Section 2301	General – Wood
Section 2301.4	Quality of Materials
Section 2304.1.4	Foam Plastic
Section 2307	Floor Framing
Section 2308	Vertical Framing
Section 2308.2	Bracing of Exterior Stud Walls
Section 2309	Roof and Ceiling Framing
Section 2603	Foam Plastic Insulation
Section 2603.3	Protection from Termite Damage

1998 *International One- and Two-Family Dwelling Code*®

Section 108	Alternate Materials and Systems
Section 301	Design Criteria
Section 317	Foam Plastic
Section 318	Flame-spread and Smoke Density
Chapter 5	Floors
Chapter 6	Wall Construction
Chapter 7	Wall Covering
Chapter 8	Roof-Ceiling Construction
Chapter 9	Roof Coverings

Florida Building Code 2001 - Building

Section 103.7	Alternate Materials and Methods
Section 608	Type VI Construction
Chapter 16	Structural Loads
Chapter 17	Structural Tests and Inspections
Chapter 23	Wood
Section 2301	General – Wood
Section 2301.4	Quality of Materials
Section 2304.1.4	Foam Plastic Insulation
Section 2307	Floor Framing
Section 2308	Vertical Framing
Section 2308.2	Bracing of Exterior Stud Walls
Section 2309	Roof and Ceiling Framing
Section 2603	Foam Plastic Insulation
Section 2603.3	Protection from Termite Damage

8.0 COMMITTEE FINDINGS

The Subcommittee on Evaluation in review of the data submitted finds that, in their opinion, the ThermaSAVE Building Panels as described in this report conform with or are suitable alternates to that specified in the *Standard Building Code*®, the 1998 *International One- and Two-Family Dwelling Code*®, and the Florida Building Code 2001—Building or Supplements thereto.

9.0 LIMITATIONS

- 9.1 This Legacy Evaluation Report and the installation instructions, when required by the building official, shall be submitted at the time of permit application.
- 9.2 Each structure built using ThermaSAVE Building Panels shall be designed by a registered design professional, architect or engineer.
- 9.3 The ThermaSAVE Building Panels shall be fully protected from the interior of the building by an approved 15 minute thermal barrier, except when using minimum 1/2 inch (12.7 mm) gypsum wallboard,

minimum 1/2 inch (12.7 mm) thick FIBEROCK® Panels or minimum 5/16 Inch (7.94 mm) thick cement board as interior facings.

- 9.4 Design loads to be resisted by ThermaSAVE Building Panels shall be determined under Chapter 16 of the *Standard Building Code*®. Loadings on the panels shall not exceed the recommended by the manufacturer as shown in Table Nos. 1, 2, 3, and 4 of this legacy evaluation report.
- 9.5 The ThermaSAVE Building Panels shall be used only in buildings of combustible Type VI Construction.
- 9.6 Wall and roof coverings shall be in accordance with Section 5.3 of this evaluation report.
- 9.7 No heat producing fixtures, lights, electrical wiring, or piping may be installed in the panels unless protected by a method approved by the code official or documented by test reports by an approved testing laboratory.
- 9.8 When ThermaSAVE Building Panels used in areas of very heavy termite infestation (see Figure 2304.1.4 SBC), they shall be installed in accordance with Section 5.6 of this evaluation report.
- 9.9 The building panels have not been evaluated for use in High Velocity Hurricane Zones (Broward and Dade Counties) as covered in the Florida Building Code 2001 Building.
- 9.10 Manufacturing of the ThermaSAVE Building Panels is at ThermaSAVE Worldwide, LLC, 2020 County Road 200, Florence, AL under a quality control program with inspections by Timber Products Inspection, Inc. (AA-664).

10.0 IDENTIFICATION

Each ThermaSAVE Building Panel covered by this report shall be labeled with the manufacturer's name and/or trademark, and the number of this report for field identification.

11.0 PERIOD OF ISSUANCE

SEE THE CURRENT EVALUATION REPORT INDEX FOR STATUS OF THIS LEGACY EVALUATION REPORT.