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Legacy report on the 2000 International Building Code®, the 2000 International Residential Code®, the 2002 Accumulative Supplement to the International Codes™, the BOCA® National Building Code/1999, the 1999 Standard Building Code® and the 1997 Uniform Building Code™

DIVISION: 06—WOOD AND PLASTICS  
Section: 06120—Structural Panels

EVALUATION SUBJECT:

INSULSPAN STRUCTURAL INSULATED PANELS

MANUFACTURER:

INSULSPAN, INC.  
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ADDITIONAL LISTEES:

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P.O. BOX 38  
BLISSFIELD, MI 49228

1.0 SUBJECT

Insulspan Structural Insulated Panels

2.0 PROPERTY FOR WHICH EVALUATION IS SOUGHT

- 2.1 Structural
- 2.2 Surface Burning Characteristics
- 2.3 Fire Resistance

3.0 DESCRIPTION

3.1 General

The Insulspan Structural Insulated Panels are structural oriented strand board (OSB) sandwich panels which are 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. In order to join adjacent panels in the field during installation, spline studs 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.

3.2 Material Specifications

3.2.1 Foam Core - the foam core is polystyrene, expanded from BASF beads (NER-479) or NOVA Chemicals Inc. beads (NER-236, Dylite M77) by board manufacturers under the supervision of a an accredited quality control agency. Nominal density is 1 pcf. The panels are available in insulation thicknesses of 3 1/2 and 5 1/2 inches (88.9 and 139.7 mm) for wall and floor applications and 3 1/2, 5 1/2, 7 1/4, 9 1/4, and 11 1/4 inches (88.9, 139.7, 184.2, 235, 285.8 mm) for roof applications. The foam core has a flame spread rating of not more than seventy-five (75) and a smoke developed rating of not more than four hundred fifty (450) when tested in accordance with ASTM E84 in a thickness of 5 inches (127 mm).

3.2.2 OSB skins - the OSB skins are APA or TECO rated sheathing, Exposure 1, 3/8 inch (9.5 mm) thick (24/0) or 7/16 inch (11.1 mm) thick (24/16), 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 (2440 mm) by 28 feet (8534 mm).

3.2.3 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 3/4 inch (44.5 mm) thick 1.9E DF Micro-llam LVL (NER-481). Alternatively, 3 inch (76.2 mm) wide, 5/8 inch (15.9 mm) 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.

3.2.4 Adhesive - qualified adhesives are used to bond the OSB skins to the foam core and are identified in the manufacturer's quality control manual.

3.2.5 Nails - in addition to glue, nails are used to attach OSB skins to spline studs. Such nails are 6d or 8d (as may be required for racking loads) common nails meeting Federal Specification FF-N-105B and have a minimum F<sub>y</sub> of 100,000 psi (690 MPa). When OSB or plywood surface splines are used, staples or fasteners shall be used as specified elsewhere in this report.

3.3 Structural Design

Standard panels are 4 ft. or 8 ft. (1220 or 2440 mm) in width and vary in height up to 28 ft. (8534 mm), and are illustrated in Figure 1.

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

Allowable loads for the panels are set forth in the tables at the end of this report.

### 3.4 Fire Resistance

Floor/ceiling, roof and wall assemblies constructed using Insulspan structural insulated panels can provide fire resistance ratings per ASTM E119. One floor/ceiling and roof/ceiling assembly and one wall assembly have been evaluated by this report.

Floor assemblies and roof/ceiling assemblies required to have a fire resistance ratings per ASTM E119 of ONE HOUR shall meet the construction requirements of Figure 2. Wall assemblies required to have a fire resistance ratings per ASTM E119 of ONE HOUR shall meet the construction requirements of Figure 3.

## 4.0 INSTALLATION

When required by the applicable Code, each structure built using Insulspan Structural Insulated Panels shall be designed by a registered architect or engineer and drawings must be provided which bear their registered stamp or seal when applying for a building permit. Such drawings shall contain specific instructions with regard to connections, erection, and installation of the panels and shall be available at all times on the job site during installation.

## 5.0 IDENTIFICATION

All Insulspan Structural Insulated Panels shall be identified by a stamp indicating the panel type, NER-520, the manufacturer's name and/or trademark, and the PFS Corporation logo.

## 6.0 EVIDENCE SUBMITTED

- 6.1 Manufacturer's quality control manual.
- 6.2 Manufacturer's installation Guide
- 6.3 Report of tests conducted in accordance with ASTM E72, prepared by PFS Corporation:
  - Report #PFS 84-116, signed by Edwin Schaffer, Ph. D., P.E.
  - Report #PFS 86-50, signed by Edwin Schaffer, Ph. D., P.E.
  - Report #PFS 91-32, signed by Ronald H. Reindl, A.I.A.
  - Report #PFS 84-17, signed by Edwin Hodgson and Ralph L. Tonn, P.E.
  - Report #PFS 99-37, signed by James A. Rothman, P.E.
- 6.4 Report of tests conducted in accordance with ASTM E119:
  - prepared by Southwest Research Institute, SwRI Project No. 01-8305-029, dated June 1985, signed by Nigel R. Stamp, Jesse J. Beitel, and Dr. Gordon E. Hartzell.
  - prepared by Southwest Research Institute, SwRI Project No. 01-2305-311, dated June 1999, signed by Andre Garabedian and Alex B. Wenzel.
- 6.5 Report of tests conducted in accordance with UL 1256, prepared by Southwest Research Institute, SwRI Project No. 01-2303-273, dated June 23, 1999, signed by Anthony L. Saucedo and Alex B. Wenzel.

- 6.6 Structural calculations and allowable load tables, prepared by Steven Winter Associates, Inc., signed and sealed by George Thomas Bible, P.E., R.A.
- 6.7 Manufacturer's published allowable load tables dated September 9, 1999.
- 6.8 Report entitled *Comparative Tests for NES Qualification of New Adhesive and New Bead Applicator*, Report No. CI 59908 prepared by CI Professional Services, Inc., dated May 29, 1999, signed by Terence J. Cavanagh.
- 6.9 Engineering report on analysis of results of comparative tests concerning qualification of new adhesive and new bead applicator, prepared by TJC and Associates, Inc., TJCAA Project No. 19920, dated May 24, 1999, signed and sealed by Terence Cavanagh.
- 6.10 Letter and supporting calculations concerning percentage of allowable load present in walls tested for fire resistance, prepared by PFS Corporation, dated May 9, 2000, signed by James A. Rothman, P.E.
- 6.11 Letters clarifying issues related to fire testing of the floor-ceiling assembly, prepared by Southwest Research Institute, dated August 21, 2000 and October 9, 2000, signed by Andre Garabedian and Alex B. Wenzel.
- 6.12 Letter discussing fire performance of UL 1256 fire tests (general fire behavior and spline options), prepared by PFS Corporation, dated June 23, 2000, signed by Michael J. Slifka, P.E.

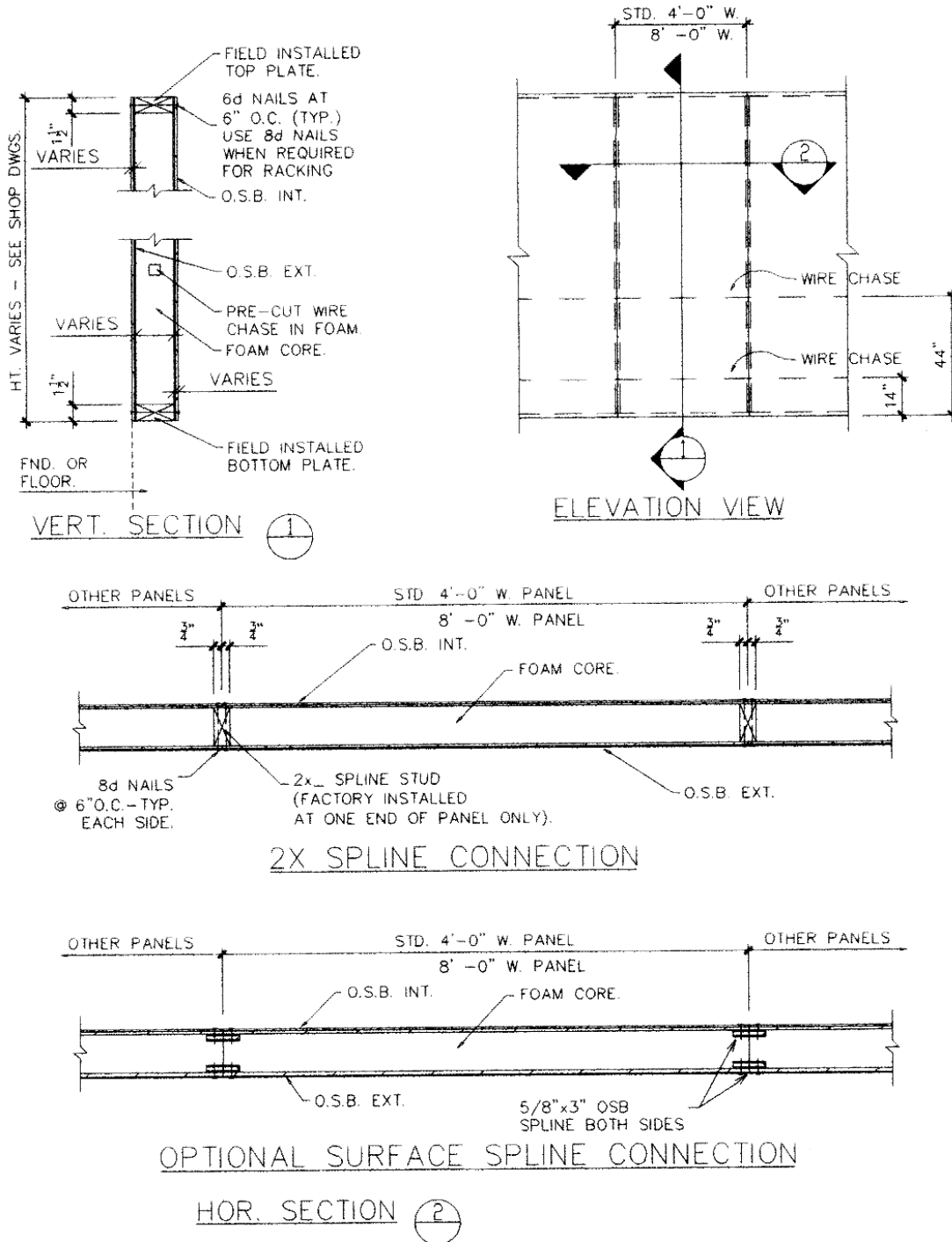
## 7.0 CONDITIONS OF USE

The ICC-ES Subcommittee for the National Evaluation Service finds that Insulspan Structural Insulated Panels as described in this report comply with or are suitable alternatives to the 2000 *International Building Code*<sup>®</sup>, the 2000 *International Residential Code*<sup>®</sup>, the 2002 *Accumulative Supplement to the International Codes*<sup>™</sup>, the BOCA<sup>®</sup> *National Building Code/1999*, the 1999 *Standard Building Code*<sup>®</sup> and the 1997 *Uniform Building Code*<sup>™</sup>, subject to the following conditions:

- 7.1 The Insulspan Structural Insulated Panels are fabricated and erected to comply with this report. Design loads shall be determined in accordance with the applicable code and loadings on the panels shall not exceed the allowable loads noted in the allowable load tables at the end of this report. Additionally, for plastered ceilings, the live load deflection shall be limited to 1/360th of the span.
- 7.2 Design calculations and details for specific applications using Insulspan Structural Insulated Panels shall be furnished to the code official verifying compliance with this report and the applicable code. The individual preparing such documents shall possess the necessary credentials regarding competency and qualifications as required by the applicable code and the professional registration laws of the state where the construction is under taken.
- 7.3 Panels having core thicknesses of greater than 5 1/2 inches (139.7 mm) shall have 7/16 inch (11.1 mm) thick skins only and are limited to roof applications only.
- 7.4 The scope of this report is limited to an evaluation of the structural capacity of the panels and the fire resistance rating of assemblies using the panels. Panel connections and other issues concerning the panel's incorporation into the structural system of a building are not within the scope of this report.

- 7.5 The panel core shall be separated from the interior of the building by an approved 15 minute thermal barrier installed as prescribed in the applicable code.
- 7.6 The exterior of the wall panels and roof panels shall be covered with an approved exterior wall covering or an approved roof covering respectively.
- 7.7 The use of the panels shall be limited to buildings where combustible construction is permitted by the applicable code.
- 7.8 This report does not include an evaluation of panels whose components are preservative treated or fire retardant treated wood.
- 7.9 No cutting or routing of the panels shall be permitted except as shown on approved drawings.
- 7.10 The foam plastic core shall be manufactured from beads listed in Section 3.2.1 of this report, with no additional additives applied by the block molder.
- 7.11 This report is subject to periodic re-examination. For information on the current status of this report, contact the ICC-ES.

FIGURE 1\*



# INSULSPAN

## 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 INCHES DEFLECTION CRITERION = L/360 PANEL THICKNESS					SKIN THICKNESS = 7/16 INCHES 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'
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 INCHES DEFLECTION CRITERION = L/360 PANEL THICKNESS					SKIN THICKNESS = 7/16 INCHES 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'
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 INCHES DEFLECTION CRITERION = L/360 PANEL THICKNESS					SKIN THICKNESS = 7/16 INCHES 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'
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 INCHES DEFLECTION CRITERION = L/360 PANEL THICKNESS					SKIN THICKNESS = 7/16 INCHES 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'
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'

See Page 9 of this report for footnotes

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Table 1. Allowable Spans for Transverse Loads on Insulspan Panels

9/9/99

## INSULSPAN

### MAXIMUM ALLOWABLE HEIGHTS FOR AXIAL LOADS

SKIN THICKNESS = 7/16 IN.  
 PANEL THICKNESS = 4-3/8 IN.

AXIAL LOAD (NON-BEARING) 0 PLF										
ECCENTRICITY = 0 IN.						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 1000 PLF										
ECCENTRICITY = 0 IN.						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 2000 PLF										
ECCENTRICITY = 0 IN.						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 3000 PLF										
ECCENTRICITY = 0 IN.						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 2. Allowable Heights for Axial Loads on Insulspan Panels – 4-3/8 Inch thick

## INSULSPAN

### MAXIMUM ALLOWABLE HEIGHTS FOR AXIAL LOADS

SKIN THICKNESS = 7/16 IN.  
 PANEL THICKNESS = 6-3/8 IN.

AXIAL LOAD (NON-BEARING) 0 PLF										
ECCENTRICITY = 0 IN.						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 1000 PLF										
ECCENTRICITY = 0 IN.						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'	18'	17'
LVL	27'	24'	21'	19'	17'	27'	24'	21'	19'	17'

AXIAL LOAD 2000 PLF										
ECCENTRICITY = 0 IN.						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 3000 PLF										
ECCENTRICITY = 0 IN.						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 3. Allowable Heights for Axial Loads on Insulspan Panels – 6-3/8 Inch thick

## INSULSPAN MAXIMUM ALLOWABLE HEIGHTS FOR AXIAL LOADS

SKIN THICKNESS = 7/16 IN.  
PANEL THICKNESS = 4-1/4 IN.

AXIAL LOAD (NON-BEARING) 0 PLF										
ECCENTRICITY = 0 IN.						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	19'	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 1000 PLF										
ECCENTRICITY = 0 IN.						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 2000 PLF										
ECCENTRICITY = 0 IN.						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 3000 PLF										
ECCENTRICITY = 0 IN.						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 4. Allowable Heights for Axial Loads on Insulspan Panels – 4-1/4 Inch thick

## INSULSPAN MAXIMUM ALLOWABLE HEIGHTS FOR AXIAL LOADS

SKIN THICKNESS = 3/8 IN.  
PANEL THICKNESS = 6-1/4 IN.

AXIAL LOAD (NON-BEARING) 0 PLF										
ECCENTRICITY = 0 IN.						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 1000 PLF										
ECCENTRICITY = 0 IN.						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 2000 PLF										
ECCENTRICITY = 0 IN.						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 3000 PLF										
ECCENTRICITY = 0 IN.						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

Table 5. Allowable Heights for Axial Loads on Insulspan Panels – 6-1/4 Inch thick



### 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

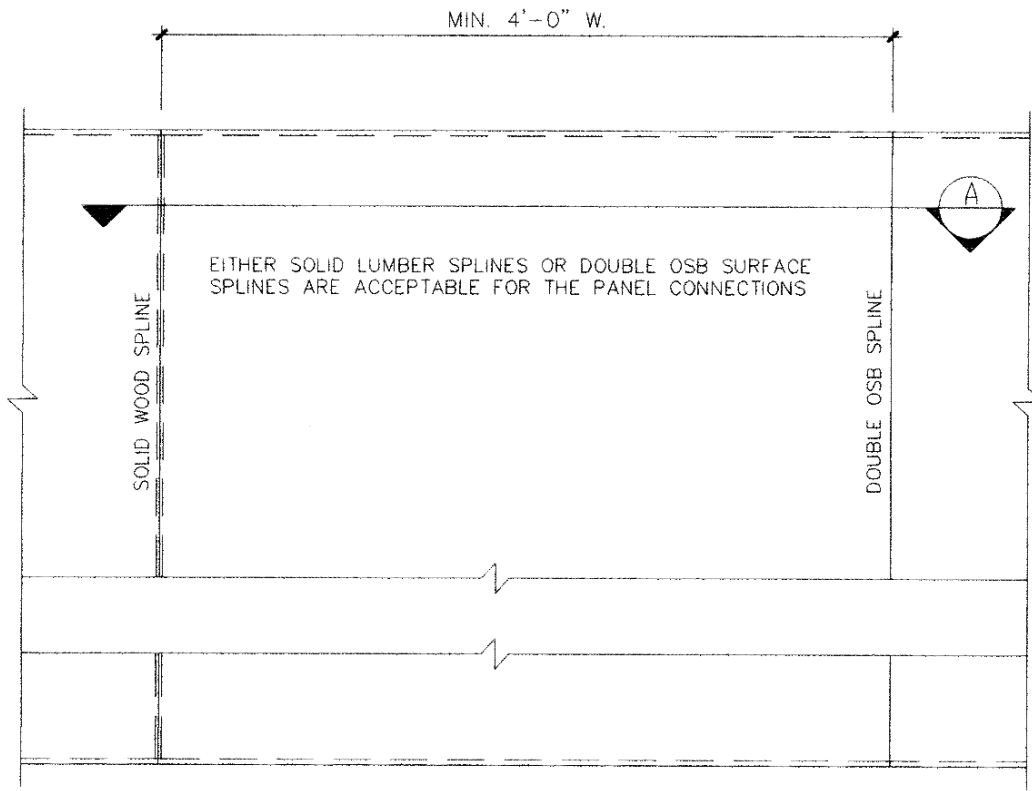
Panels shall be made of two equal layers of APA or TECO rated OSB sheathing. The core shall be nominal 1.0 pcf density (min. 0.9 pcf) EPS (expanded polystyrene) foam adhered to the sheathing with glue and set under pressure. In panels with spline studs, the skins shall be nailed to the spline studs with 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 (76.2 mm) wide, 5/8 inch (15.9 mm) 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 (25.4 mm) long, No. 6 screws at 6 inches (152 mm) 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 criterion shall be used. For roof panels with slopes of 3 in 12 or greater, the deflection criterion 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.

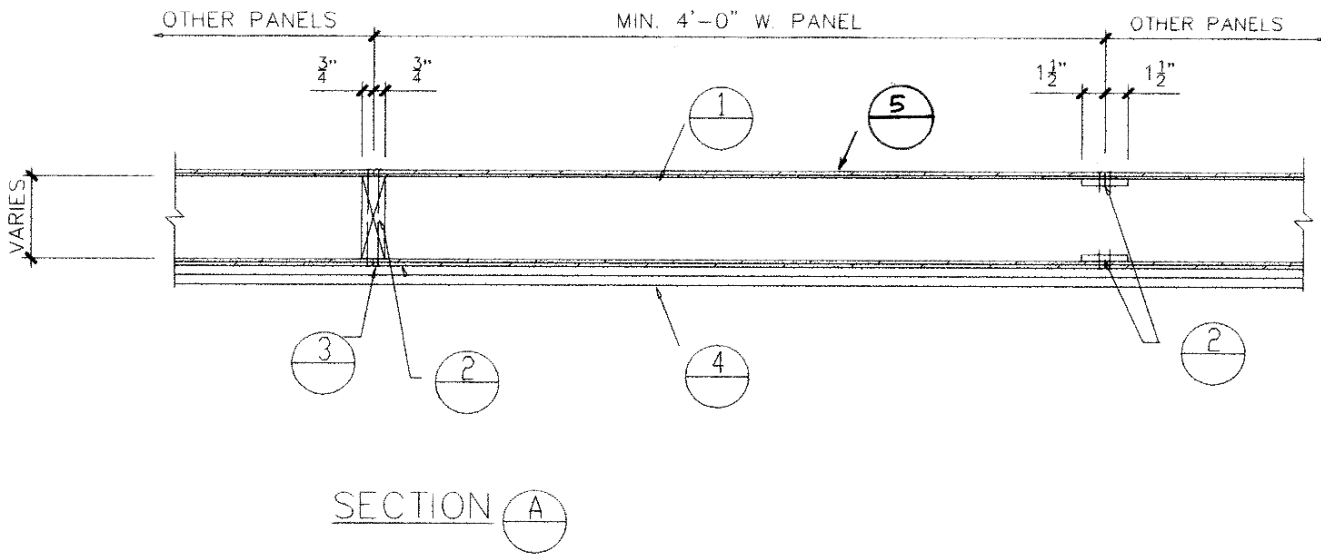
### Footnotes for Axial Load Tables

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 (76.2 mm) wide, 5/8 inch (15.9 mm) 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 (25.4 mm) long, No. 6 screws at 6 inches (152 mm) on center on each side of the joint

1. Values shown are allowable heights due to dead load plus live load.
2. Allowable loads are based on axial loads being applied over the entire panel width.
3. A 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 4'-0" o.c., use tables for single splines.
11. All values are based on INSULSPAN - Axial Load Tables (A.1 - A.200), "©INSULSPAN 1999", dated September 9, 1999.



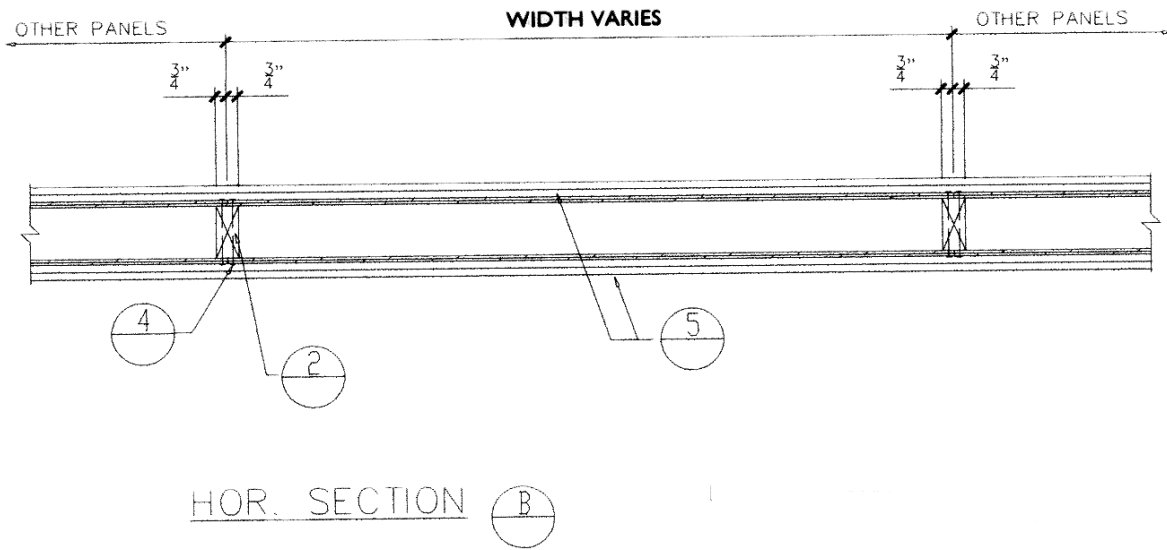
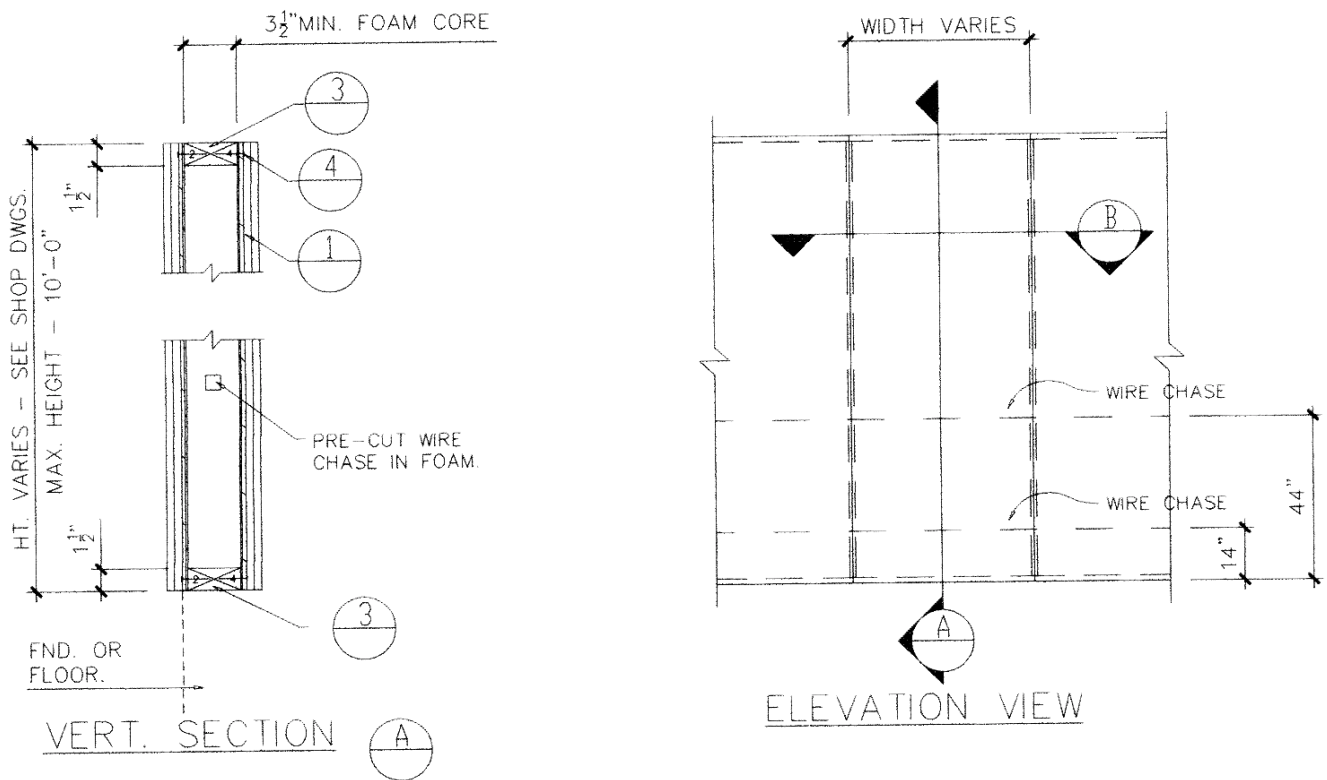
PLAN VIEW



SECTION A

**NOTE:** See footnotes on Page 12 for descriptions of numbered elements

**FIGURE 2\***  
**FLOOR/CEILING ASSEMBLY - ONE HOUR**



**NOTE:** See footnotes on Page 12 for descriptions of numbered elements

**FIGURE 3\***  
**WALL ASSEMBLY - ONE HOUR (Limited Load Bearing)**

\*THESE DRAWINGS ARE FOR ILLUSTRATION PURPOSES ONLY. THEY ARE NOT INTENDED FOR USE AS CONSTRUCTION DOCUMENTS FOR THE PURPOSE OF DESIGN, FABRICATION OR ERECTION.

**Footnotes for Figure 2 - Floor/Ceiling and Roof/Ceiling Assembly - One Hour**

1. **Insulspan Panels** - 48 inches (1220 mm) wide (minimum), 5-1/2 inch (88.9 mm) thick (maximum) EPS core having 7/16 inch (11.1 mm) 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 (76.2 mm) wide, 5/8 inch (15.9 mm) 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 (152 mm) on center. When using OSB surface splines, the surface splines shall be installed using a gap filling expanding foam sealant and 1 inch (25.4 mm) long, No. 6 drywall screws at 6 inches (152 mm) on center on each side of the joint.
4. **Gypsum Wallboard** -a ceiling surface consisting of two layers of 5/8 inch (15.9 mm) thick Type X gypsum wallboard. The gypsum panels are attached to the Insulspan panels using 2 inch (51 mm) long, A-point, bugle head drywall screws at 6 inches (152 mm) on center along the sheet perimeters and on a 12 inch (304 mm) x 12 inch (304 mm) 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 - Wall Assembly - One Hour (Limited Load Bearing)**

1. **Insulspan Panels** - 3-1/2 inch (88.9 mm) or 5-1/2 inch (140 mm) thick EPS core having 3/8 inch (9.52 mm) or 7/16 inch (11.1 mm) thick OSB skins. Structural load shall not exceed 27.4 % of allowable load nor 1250 lb/ft (18.2kN/m).
2. **Splines**- 2x wood studs @ 48 inches (1220 mm) 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 (152 mm) on center at panel edges (vertical splines) and at top and bottom plates.
5. **Gypsum Wallboard** -Two layers of 1/2 inch (12.7 mm) thick USG FireCode "C" installed on each side of the assembly. Installation of wallboard on the interior side only of exterior walls is permitted in jurisdictions using the 1999 *Standard Building Code*® or the BOCA® *National Building Code/1999* when such walls are located greater than 5 feet (1524 mm) from a property line or assumed property line.

The **first layer** of gypsum wallboard is installed horizontally over the Insulspan panels using a continuous 3/8 inch diameter bead of construction adhesive (Miracle DSA 20 drywall adhesive) at 24 inches (609 mm) on center across the width of the panels and 1 inch (25.4 mm) long No. 6 bugle head drywall screws at 8 inches (203 mm) on center along the perimeter and 12 inches (304 mm) 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 (41.3 mm) long bugle head drywall screws.