ECLIPSE ENGINEERING
A CUSHING TERRELL COMPANY

STRUCTURAL CALCULATIONS

Ingram Stagecoach
23620 Fraysher Lane
Steamboat Springs, CO 80467

Digitally signed by Jamie Garcia
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Date: 2024.07.11 15:03:24-07'00'

Prepared For:

Insulspan Inc
9012 E. US Highway 223
Blissfield, MI 49228
(800) 726-3510

Please note: As a specialty engineer, Eclipse Engineering has reviewed only the adequacy of the SIP panels to support the vertical and lateral loads of the above noted structure. We neither take responsibility for any other element nor the integrity of the structure as a whole.

ECLIPSE ENGINEERING

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Project Description

Eclipse Engineering Project Number	202405242
Project Name	Ingram Stagecoach
Legal Description of Property	23620 Fraysher Ln.
Project Location	Steamboat Springs, CO 80467

Client	Insulspan-Delta
Address	#1 - 600 Chester Road
	Delta, BC V3M 5V8
Contact	Nancy Yao
Phone	(800) 726-3510

Building Department

Name	Routt County
Governing Code(s)	2021 IBC

Geotechnical and Gravity Design Data

Ground Snow Load, P_g (psf)	113.0
Roof Exposure	Partially Exposed
Importance Factor, I	1
Roof Live Load (psf)	87
Floor Live Load (psf)	n/a
Assumed Soil Bearing Pressure (psf)	n/a
Soils Report?	n/a
Frost Depth (inches)	n/a

Wind Design Data

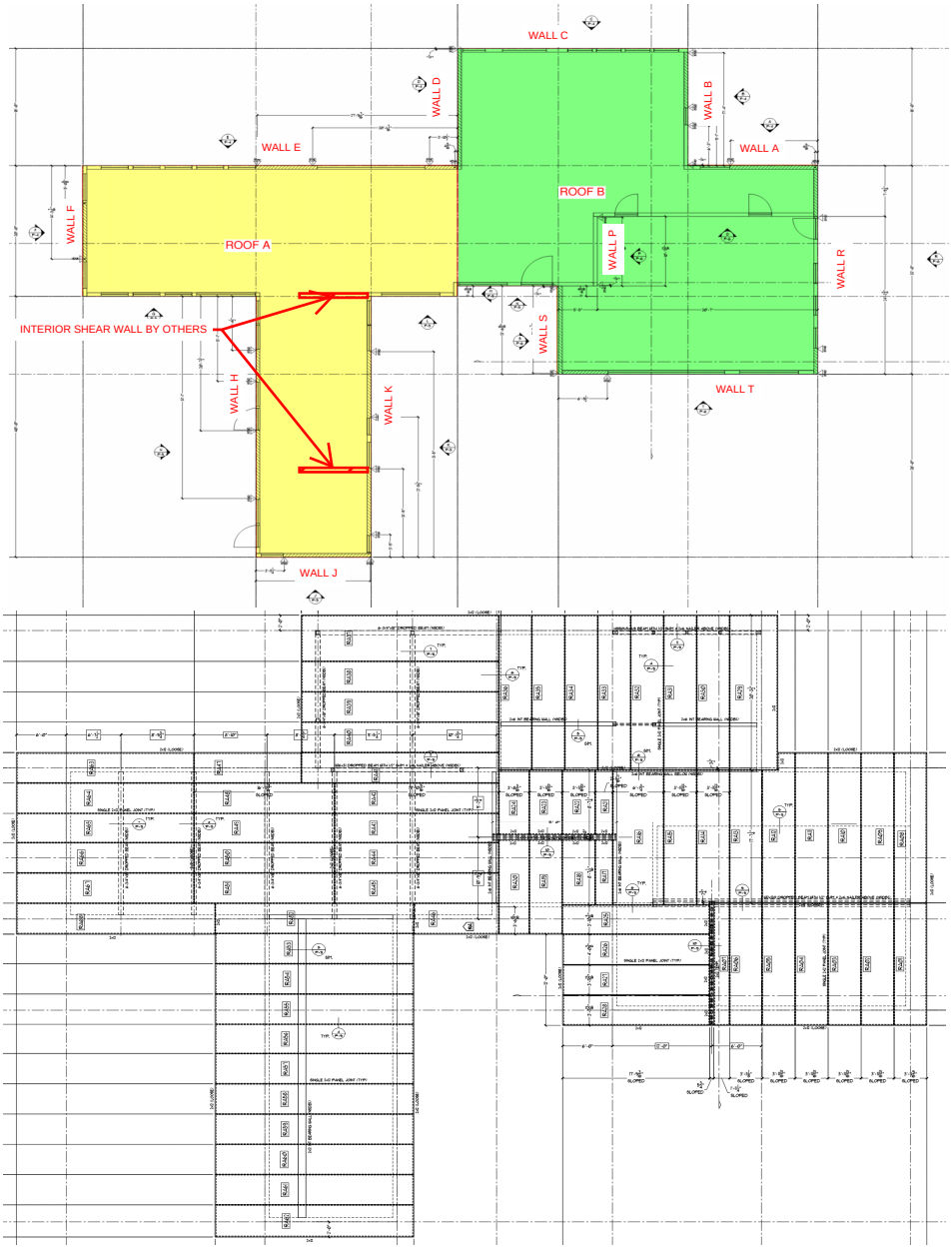
Basic Wind Speed (MPH)	115
Exposure Classification	C
Risk Category	II
Importance Factor	1.0
Internal Pressure Coefficient, G_{cpi}	+/- 0.18

Seismic Design Data

Risk Category	II
Importance Factor	1.00
Site Class	C (PER EOR)
Seismic Design Category	B (PER EOR)
% Snow used for Seismic	20
Seismic Force Resisting System	A15. Light-frame (wood) walls sheathed with wood structural panels rated for shear resistance
Response Modification Factor, R	6 1/2

Plan Key

(NTS)


WALL C
WALL D
WALL B
WALL E
WALL A
ROOF B
WALL F
ROOF A
WALL P
WALL R
INTERIOR SHEAR WALL BY OTHERS
WALL S
WALL H
WALL K
WALL T
WALL J

Project Name	Ingram Stagecoach	**Name**	K. Czyzio
Project #	202405242	**Date**	5/29/2024

Roof Dead Loads

Roof Label	SIP Roof	
Description	12.25" SIP Roof	
Misc	PV Array	5
	Per EOR	20
Total Load	**25.0 psf**	

Wall Dead Loads

Roof Label	Exterior Walls	
Description	SIPS	
Framing	SIPS	3.5
Framing Spacing	5-1/2" SIP Core with 7/16" Skin	
Interior Finish	1/2" Gyp	2.2
Siding	Per Owner	4
Insulation		0
Sheathing		0
	Misc. Incidentals	2
Total Load	**12.0 psf**	

Project	Ingram Stagecoach	**Name**	K. Czyzio
Project #	202405242	**Date**	5/27/2024

ROOF SNOW LOAD

Ground Snow Load (p_g):	113	psf
Minimum Roof Snow per Building Dept. :	85	psf
Importance Factor (I):	1	
Exposure Factor (C_e):	1	

Roof	Roof slope:	Thermal Factor (C_t):	Slope Factor (C_s):	Flat Roof SL (p_f)	Sloped Roof SL (p_s)	Design Load, p_s
Main Roof	0/12	1.1	1	87.01	87.01	**87**
Exterior Roof	0/12	1.2	1	94.92	94.92	**95**

Project	Ingram Stagecoach	**Name**	K. Czyzio
Project #	202405242	**Date**	5/27/2024

-Method 1

Basic Wind Speed (V) =	115 mph	
Exposure Category =	C	(ASCE 7 Section 26.7)
Topographic Factor (k_{zt}) =	1.0	(ASCE 7 Section 26.8)
Velocity Pres. Factor (k_z) =	0.85	(ASCE 7 - Table 28.3-1)
Wind Direction Factor (k_d) =	0.85	(ASCE 7 Section 26.6 - Table 26.6-1)
Velocity Pressure (q) =	24.46 psf	(ASCE 7 Section 28.3.2)
Mean Roof Height (h) =	13.50 ft	
Roof Angle (theta) =	2 °	
Internal Pres. Factor (Gcpi) =	0.18 + or -	(ASCE 7 Table 26.11-1)

Wind Loading on End

L_{min} =	50 ft
a =	5 ft
2a =	10 ft

Wind Loads (MWFRS) - Perpendicular to Ridge (ASD)

Transverse Loads — Building Surface (ASCE 7 Figure 28.4-1)

	1	2	3	4	5	6	1E	2E	3E	4E
GC_{pf}:	0.40	-0.69	-0.37	-0.29	-0.45	-0.45	0.61	-1.07	-0.53	-0.43
p (psf):	5.87	-10.13	-5.43	-4.26	-6.60	-6.60	8.95	-15.70	-7.78	-6.31

Net Zones	1E & 4E	1 & 4	2E & 3E	2 & 3
p (psf):	15.26	10.13	-0.28	-0.16

Wind Loads (MWFRS) - Parallel to Ridge (ASD)

Transverse Loads — Building Surface (ASCE 7 Figure 28.4-1)

	1	2	3	4	5	6	1E	2E	3E	4E	5E	6E
GC_{pf}:	-0.45	-0.69	-0.37	-0.45	0.40	-0.29	-0.48	-1.07	-0.53	-0.48	0.61	-0.43
p (psf):	-6.60	-10.13	-5.43	-6.60	5.87	-4.26	-7.04	-15.70	-7.78	-7.04	8.95	-6.31

Net Zones	5E & 6E	5 & 6
p (psf):	15.26	10.13

Wind Loads (C&C) - 10 ft² ***Monoslope Roof 3-10°*** ***(ASD)***

Building Surface (ASCE 7 Figure 30.4….)

	1+	2+	3+	1-	2-	3-	4+	5+	4-	5-
GC_p:	0.3	0.3	0.3	-1.1	-1.6	-2.6	1	1	-1.1	-1.4
GC_{pi}:	0.18	0.18	0.18	-0.18	-0.18	-0.18	0.18	0.18	-0.18	-0.18
p (psf):	7.04	7.04	7.04	-18.79	-26.12	-40.80	17.32	17.32	-18.79	-23.19

	Overhang 1	2	3
GC_p:	n/a	n/a	n/a
p (psf):	n/a	n/a	n/a

Wind Loads (C&C) - 100 ft² ***Monoslope Roof 3-10°*** ***(ASD)***

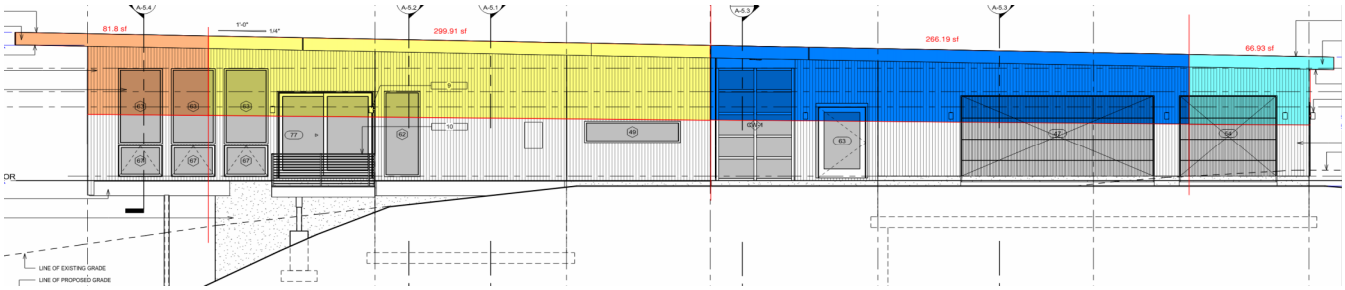
Building Surface (ASCE 7 Figure 30.4….)

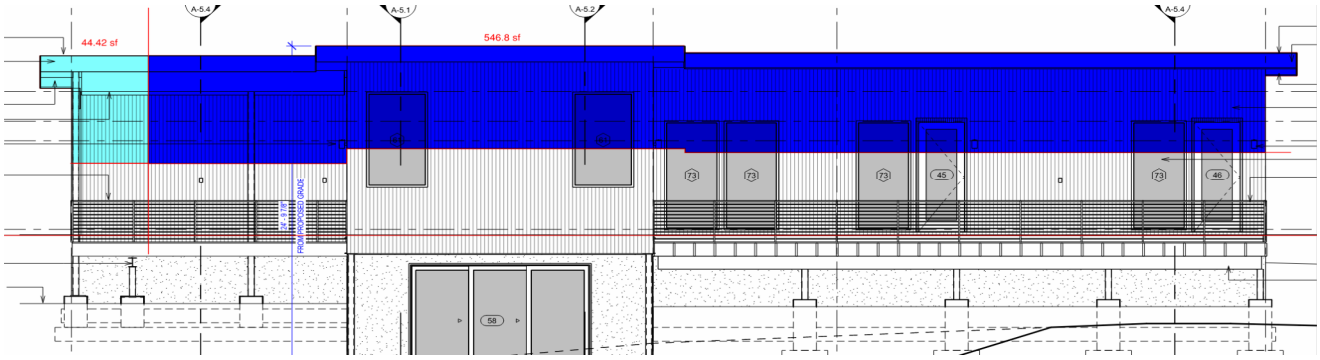
	1+	2+	3+	1-	2-	3-	4+	5+	4-	5-
GC_p:	0.2	0.2	0.2	-1.1	-1.5	-1.6	0.8	0.8	-0.9	-1.1
GC_{pi}:	0.18	0.18	0.18	-0.18	-0.18	-0.18	0.18	0.18	-0.18	-0.18
p (psf):	5.58	5.58	5.58	-18.79	-24.66	-26.12	14.38	14.38	-15.85	-18.79

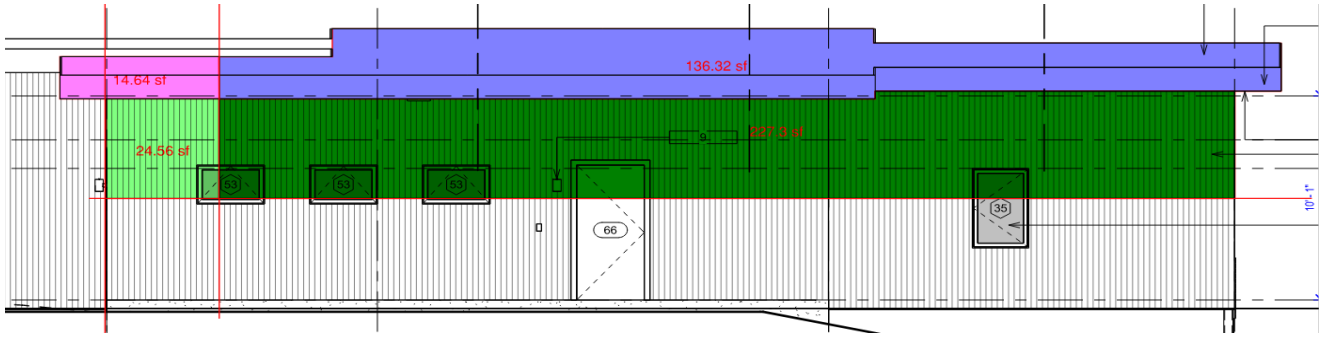
	Overhang 1	2	3
GC_p:	n/a	n/a	n/a
p (psf):	n/a	n/a	n/a

Wind Area Map

(NTS)







Project	Ingram Stagecoach	**Name**	K. Czyzio
Project #	202405242	**Date**	5/27/2024

Wind Force Distribution: Calculated Wind Pressure

Minimum Projected Wind Loading

Wall = 16 psf
Roof = 8 psf

ASD Load Factor: 0.6
LRFD Load Factor: 1.0

Case A: Wind Parallel to Ridge (ASD)

Diaphragm	MWFRS Zone		Pressure (psf)	Surface Type	Governing Pressure (psf)	Tributaries (ft) Height	Tributaries (ft) Width	Area (ft.^{2}) Wall	Area (ft.^{2}) Roof	Area (ft.^{2}) Parapet	Force (lbs.)
Roof A	Wall	1 & 4	10.13	Wall	10.13			300	0	0	3038
Roof A	Wall End	1E & 4E	15.26	Wall	15.26			82	0	0	1249
Total Shear								382	0	0	**4287**
Roof B	Wall	1 & 4	10.13	Wall	10.13			266	0	0	2696
Roof B	Wall End	1E & 4E	15.26	Wall	15.26			67	0	0	1023
Total Shear								333	0	0	**3718**

Case B: Wind ⊥ to Ridge (ASD)

Diaphragm	MWFRS Zone		Pressure (psf)	Surface Type	Governing Pressure (psf)	Tributaries (ft) Height	Tributaries (ft) Width	Area (ft.^{2}) Wall	Area (ft.^{2}) Roof	Area (ft.^{2}) Parapet	Force (lbs.)
Roof A	Wall	1 & 4	10.13	Wall	10.13			547	0	0	5537
Roof A	Wall End	1E & 4E	15.26	Wall	15.26			44	0	0	678
Total Shear								591	0	0	**6215**
Roof B	Wall	1 & 4	10.13	Wall	10.13			227	0	0	2302
Roof B	Wall End	1E & 4E	15.26	Wall	15.26			25	0	0	375
Roof B	Roof	2 & 3	-0.16	Roof	4.80			0	136	0	654
Roof B	Roof End	2E & 3E	-0.28	Roof	4.80			0	15	0	70
Total Shear								252	151	0	**3402**

SEISMIC COEFFICIENT C_S : ELF PROCEDURE

Seismic Design Criteria

Building Occupancy Risk Category		Risk Category =	II	Table 1.5-1
Seismic Importance Factor (I_e)		I_e =	1.00	Table 1.5-2
Site Soil Classification		Site Class =	C	11.4.2
Structure Height (h_n)		h_n =	13.50 ft	12.8.2.1
Short-Period Acceleration Parameter (S_S)		S_S =	0.597 g	11.4.1
One Second Acceleration Parameter (S_1)		S_1 =	0.103 g	
Seismic Design Category (SDC)		SDC =	B (per EOR)	11.6
Long-Period Transition Period (T_L)		T_L =	4 sec	12.8.1.1
Site Adjusted Short-Period Acceleration (S_{MS})	$S_{MS} = F_a S_S$	S_{MS} =	0.753 g	11.4.3
Site Adjusted One Second Acceleration (S_{M1})	$S_{M1} = F_v S_1$	S_{M1} =	0.155 g	
Design Short-Period Acceleration (S_{DS})	$S_{DS} = \left(\frac{2}{3}\right) S_{MS}$	S_{DS} =	0.502 g	11.4.4
Design One Second Acceleration (S_{D1})	$S_{D1} = \left(\frac{2}{3}\right) S_{M1}$	S_{D1} =	0.103 g	
Approximate Fundamental Period, conservative (T_a) (For All Other Structural Systems)	$T_a = 0.02 * h_n^{0.75}$	T_a =	0.141 sec	12.8.2.1

Seismic Response Coefficient: Perpendicular to Ridge

Seismic Force-Resisting System	R	Ω_0	C_d [b]	$h_{n\,max}$	Table 12.2-1
A15. Light-frame (wood) walls sheathed with wood structural panels rated for shear resistance	6 1/2	3	4	NL	
		For $h_{n\,max}$	NL=Not Limited NP=Not Permitted		
Seismic Response Coefficient Minimum ($C_{s\,min}$)		$C_{s\,min}$ =	0.022		12.8.1.1
Seismic Response Coefficient Maximum ($C_{s\,max}$)		$C_{s\,max}$ =	0.112		
Seismic Response Coefficient (C_{sPerp})		**C_{sPerp} =**	**0.077**		

Seismic Response Coefficient: Parallel to Ridge

Seismic Force-Resisting System	R	Ω_0	C_d [b]	$h_{n\,max}$	Table 12.2-1
A15. Light-frame (wood) walls sheathed with wood structural panels rated for shear resistance	6 1/2	3	4	NL	
		For $h_{n\,max}$	NL=Not Limited NP=Not Permitted		
Seismic Response Coefficient Minimum ($C_{s\,min}$)		$C_{s\,min}$ =	0.022		12.8.1.1
Seismic Response Coefficient Maximum ($C_{s\,max}$)		$C_{s\,max}$ =	0.112		
Seismic Response Coefficient (C_{sPar})		**C_{sPar} =**	**0.077**		

$$C_{s\,min} = max \begin{cases} 0.01 \\ 0.044 S_{DS} I_e \\ \frac{0.5 S_1}{R/I_e} \quad S_1 \geq 0.6g \end{cases} \qquad C_{s\,max} = \begin{cases} \frac{S_{D1}}{T_a (R/I_e)} & T_a \leq T_L \\ \frac{S_{D1} T_L}{T_a^2 (R/I_e)} & T_a > T_L \end{cases}$$

$$C_s = \begin{cases} C_{min} & \frac{S_{DS}}{R/I_e} < C_{min} \\ \frac{S_{DS}}{R/I_e} & C_{min} \leq \frac{S_{DS}}{R/I_e} \leq C_{max} \\ C_{max} & C_{max} < \frac{S_{DS}}{R/I_e} \end{cases}$$

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Seismic Force Distribution

Project No. 202405242
Project Name Ingram Stagecoach
Date 5/27/2024

Roof A			Roof B		
Roof Area =	2,791	ft^2	Roof Area =	2,385	ft^2
Roof DL =	20	psf	Roof DL =	25	psf
Roof SL =	87	psf	Roof SL =	87	psf
Seismic wt of LL =	17	psf	Seismic wt of LL =	17	psf
Wall DL =	12	psf	Wall DL =	12	psf
Wall Trib Height =	6	ft	Wall Trib Height =	5	ft
Building Perimeter =	224	ft	Building Perimeter =	200	ft
Est. Weight =	120,511	lbs	Est. Weight =	113,124	lbs
Roof Height =	13.50	ft	Roof Height =	11.00	ft

Total Seismic Weight = 233,635 lbs

Base Shear

C_s ASD =	0.054	
ρ =	1.300	
V =	**16,419 lbs**	(ASCE 7 Eqn 12.8-1)

Vertical Force Distribution Factor

$\sum w_i h_i^k$ = 2,871,268 lb-ft (ASCE 7 Eqn 12.8-12)

Roof A Cvx =	0.567	(ASCE 7 Eqn 12.8-12)
Roof B Cvx =	0.433	

Vertical Force Distribution

Roof A Force =	**9,303 lbs**	(ASCE 7 Eqn 12.8-11)
Roof B Force =	**7,116 lbs**	

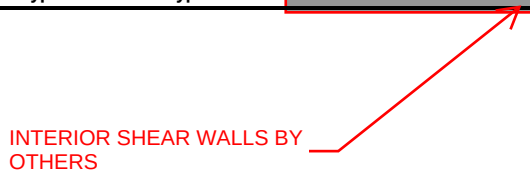
Project	Ingram Stagecoach	**Name**	K. Czyzio
Project #	202405242	**Date**	6/27/2024

Total Diaphragm Loads (ASD)

Diaphragm	Force Parallel to Ridge (lb)		Force ⊥ to Ridge (lb)		Diaphragm Depth (ft)	Diaphragm Length (ft)	Worst Case Shear (plf)	Diaphragm Capacity (plf)	Diaphragm Type	Utilization
	Wind	Seismic	Wind	Seismic						
Roof A	4287	9303	6215	9303	78	52	89	265	6" SIP Screw Spacing	0.34
Roof B	3718	7116	3402	7116	50	50	71	266	6" SIP Screw Spacing	0.27

* Include 7' Trib from Roof B

Wall Type	**SIP Wall**	**Interior Wall (GL 3)**	**Interior Wall (GL 4.5)**	**SIP Wall**	**SIP Wall**	**SIP Wall**	**SIP Wall**	**SIP Wall**	**SIP Wall**	**SIP Wall**	**SIP Wall**
Wall Label	**Wall E**	**By Others**	**By Others**	**Wall J**	**Wall F**	**Wall H**	**Wall K**	**Wall D**	**Wall S**	**Wall P**	**Wall B**
Perforated?	No	No	No	No	No	No	No	No	No	No	No
Tributary Diaphragm Width (ft)	28	21	20	9.00	12	20	14	6	16	16	18
Diaphragm	Roof A	Roof A	Roof A	Roof A	Roof A	Roof A	Roof A	Roof A	Roof B	Roof B	Roof B
Shear Direction	**Perpendicular**	**Perpendicular**	**Perpendicular**	**Perpendicular**	**Parallel**	**Parallel**	**Parallel**	**Parallel**	**Parallel**	**Parallel**	**Parallel**
Wind Shear (lbs)	2231	1673	1594	717	989	1649	1154	1015	1190	1190	1339
Seismic Shear (lbs)	3340	2505	2385	1073	2147	3578	2505	2070	2277	2277	2562
Wall Length (ft)	8.58	8.42	10.33	12.17	9.33	10.67	10.17	18.50	13.50	10.58	8.50
Shear Line Wall Length (ft)	8.58	8.42	10.33	12.17	9.33	10.67	10.17	18.50	24.08	24.08	8.50
Wall Height (ft)	12.00	12.00	12.00	12.00	12.58	12.00	11.75	11.50	10.67	11.17	10.83
H:W Ratio	1.40	1.43	1.16	0.99	1.35	1.12	1.16	0.62	0.79	1.06	1.27
Seismic Unit Shear (plf)	389	297	231	88	230	335	246	112	95	95	301
Wind Unit Shear (plf)	260	199	154	59	106	155	113	55	49	49	157
Seismic Unit Strength (plf)	557	380	260	349	349	349	349	349	349	349	349
Wind Unit Strength (plf)	557	533	365	349	349	349	349	349	349	349	349
Seismic Utilization	**0.70**	**0.78**	**0.89**	**0.25**	**0.66**	**0.96**	**0.71**	**0.32**	**0.27**	**0.27**	**0.86**
Wind Utilization	**0.47**	**0.37**	**0.42**	**0.17**	**0.30**	**0.44**	**0.33**	**0.16**	**0.14**	**0.14**	**0.45**
Final Shear Wall Type	**Type B**	**SW4**	**SW6**	**Type A**	**Type A**	**Type A**	**Type A**	**Type A**	**Type A**	**Type A**	**Type A**



Wall Type	SIP Wall		SIP Wall	SIP Wall
Wall Label	**Wall R**		**Wall T**	**Wall A**
Perforated?	No		No	No
Tributary Diaphragm Width (ft)		9	16	34
Diaphragm	Roof B		Roof B	Roof B
Shear Direction	**Parallel**		**Perpendicular**	**Perpendicular**
Wind Shear (lbs)	669		1089	2313
Seismic Shear (lbs)	1281		2277	4839
Wall Length (ft)	4.00		6.33	11.67
Shear Line Wall Length (ft)	11.25		6.33	11.67
Wall Height (ft)	10.08		10.75	10.67
H:W Ratio	2.52		1.70	0.91
Seismic Unit Shear (plf)	114		360	415
Wind Unit Shear (plf)	59		172	198
Seismic Unit Strength (plf)	277		349	557
Wind Unit Strength (plf)	277		349	557
Seismic Utilization	**0.41**		**1.03**	**0.74**
Wind Utilization	**0.21**		**0.49**	**0.36**

Final Shear Wall Type	**Type A**	**Type A**	**Type B**

Project	Ingram Stagecoach	**Name**	K. Czyzio
Project #	202405242	**Date**	6/27/2024

EDGE FASTENER HOLDOWN

Using the edge nailing, there is an innate holdown provided to the SIP panels. The strength provided by 8 nails, which is within 2 feet of the panel edge, is used to estimate this innate holdown capacity.

Fastener	8d Box Nail
Spacing	6" o.c.
Nail Capacity	56 lb
Load Duration, C_D	1.6
# Nails	4
Hold Down Capacity	**358 lb**

OVERTURNING

Negative values for "Uplift" denote compression

Panel	P (plf) (0.6DL)	V (lb)	L_{panel} (ft)	H_{panel} (ft)	M_{Axial} (lb-ft)	M_{Shear} (lb-ft)	$M_{overturn}$	Uplift (lb)	Holdown	End Framing
Wall E	48	3340	8.58	12.00	1767	40074	38308	4106	**STHD14**	(2) 2x
Wall J	48	1073	12.17	12.00	3555	12881	9326	408	**Negligible**	
Wall F	108	2147	9.33	12.58	4701	27007	22307	2032	**STHD10**	(2) 2x
Wall D	96	2070	18.50	11.50	16428	23800	7372	40	**Negligible**	
Wall S	144	1277	13.50	10.67	13122	13621	499	-321	**NA**	
Wall P	24	1000	10.58	11.17	1343	11175	9832	571	**Negligible**	
Wall R	48	1281	4.00	10.08	384	12910	12526	2773	**STHD10**	(2) 2x
Wall T	108	2277	6.33	10.75	2164	24477	22314	3167	**STHD14**	(2) 2x
Wall A	60	4839	11.67	10.67	4086	51627	47542	3715	**STHD14**	(2) 2x
Wall H	158	3578	10.67	12.00	9017	42937	33920	2821	**STHD14**	(2) 2x
Wall K	158	2505	10.17	11.75	8192	29430	21238	1730	**STHD10**	(2) 2x
Wall B	108	2562	8.50	10.83	3902	27742	23841	2446	**STHD10**	(2) 2x

NOTE MINIMUM HOLDOWN REQUIREMENTS SHOWN. EOR TO SPECIFY FINAL HOLDOWN SIZE

Roof Panels

All panels in this spreadsheet have simple spans and simple supports

Panel Span Label	Worst Case Roof	11'-6" MAX SPAN
Dead Δ Criteria (L/)	360	360
Snow D Criteria (L /)	240	240
Total D Criteria (L /)	180	180
K = Time effect factor	2	2
Dead Load (psf)	20	20
Roof RTU Load (psf)	0	0
Roof PV Load (psf)	5	5
Snow Load (psf)	87	87
Effective Span (ft)	13	11
(inches)	0	6
Total Uniform Load (psf)	**112**	**112**
Panel Size	**12-inch**	**12-inch**
Panel Type	**Type L**	**Type L**
[1]Allowble Strength	**111**	**112**
Utilization	**1.01**	**1.00**
[1]Deflection (in) @ L/360	0.433	0.383
[1]Load (psf) @ L/360	**111**	**112**
[1]Deflection (in) @ L/240	0.650	0.575
[1]Load (psf) @ L/240	**111**	**112**
[1]Deflection (in) @ L/180	0.867	0.767
[1]Load (psf) @ L/180	**111**	**112**
[4]Total Deflection (in)	0.70	0.47
Span / deflection	**221**	**294**
Check total deflection	**0.81**	**0.61**
[2]Snow Deflection (in)	0.51	0.30
Span / deflection	**306**	**463**
Check Live deflection	**0.78**	**0.52**
[3]Dead Deflection (in)	0.20	0.17
Span / deflection	**799**	**806**
Check dead deflection	**0.45**	**0.45**

Footnotes:

1. Value is derrived from the code report.
2. Value is interpolated from code report published values.
3. Value is interpolated from code report published values and multiplied by K (time effect factor)
4. Value included time effect factor, K, for permanent loads
5. All values are from the ESR-1295 code report

All panels in this spreadsheet have simple spans and simple supports

Wall Label	Wall A	Wall B	Wall F	Wall Q
Wind D Criteria (L /)	240	240	240	240
K = Time effect factor	2	2	2	2
Roof Dead Load (psf)	20	20	20	20
Roof RTU Load (psf)	0	0	0	0
Roof PV Load (psf)	5	5	5	5
Roof Snow Load (psf)	87	87	87	87
Wall Dead Load (psf)	12	12	12	12
Wall Wind Load (psf)	21.4	19.6	18.8	17.4

Axial Load Tributary Inputs

Roof Tributary Width (ft)	3.83	2	3	8.75
Roof Overhang (ft)	2	2	6	0
Wall Tributary Height (ft)	0	0	0	0
Bearing Wall Width (ft)	2.25	6.42	9.33	3
Axial Load Tributary Width (ft)	2.25	7.75	9.33	3

Transverse Load Tributary Inputs

Wind Loading Tributary Width (ft)	4.33	7.75	9.33	4.58
Resultant Point Load (lbs)	1002.75	1642.63	2190.92	892.18
Uniform Distributed Wind Load (psf)	41.15	23.63	18.79	26.63

SIP Height	10	10	12	11
(ft) (inches)	10	10	6	2
Total Uniform Gravity Load (plf)	**146**	**121**	**812**	**790**
Total Transverse (Wind) Load (psf)	**41.2**	**23.6**	**14.1**	**20.0**
Panel Size	**6-inch**	**6-inch**	**6-inch**	**6-inch**
Panel Type	**Type S**	**Type S**	**Type S**	**Type S**
[4]Allowable Axial Strength (plf)	**2735**	**2735**	**2735**	**2735**
Axial Strength Check	**OKAY**	**OKAY**	**OKAY**	**OKAY**
[4]Allowable Transverse Strength (psf)	**46**	**46**	**39**	**39**
Transverse Strength Check	**OKAY**	**OKAY**	**OKAY**	**OKAY**
Governing Load Case	ASD LC 5	ASD LC 5	ASD LC 6	ASD LC 6
Strength Used in Axial	0.05	0.04	0.30	0.29
Strength Used in Bending	0.89	0.51	0.36	0.51
Total Strength Used	**0.95**	**0.56**	**0.66**	**0.80**
Combined Forces Check	**OKAY**	**OKAY**	**OKAY**	**OKAY**

Deflection Checks

Deflection (in) @ L/360	0.361	0.361	0.417	0.372
[1]Load (psf) @ L/360	**29**	**29**	**24**	**24**
Deflection (in) @ L/240	0.542	0.542	0.625	0.558
[1]Load (psf) @ L/240	**43**	**43**	**36**	**36**
Deflection (in) @ L/180	0.722	0.722	0.833	0.744
[1]Load (psf) @ L/180	**46**	**46**	**39**	**39**
[4]Wind Deflection (in)	0.27	0.25	0.33	0.27
Span/Deflection	**483**	**527**	**460**	**495**
Deflection Check	**OKAY**	**OKAY**	**OKAY**	**OKAY**

Footnotes:

1. Value is interpolated from the code report
2. Value is interpolated from code report published values and multiplied by K (time effect factor)
3. Value included time effect factor, K, for permanent loads
4. All Values are from ESR-1295

All panels in this spreadsheet have simple spans and simple supports

Header Label	Wall B	Wall J	Wall R
Dead Δ Criteria (L/)	360	360	360
Snow/Live D Criteria (L /)	240	240	240
Total D Criteria (L /)	180	180	180
K = Time effect factor	2	2	2
Roof Dead Load (plf)	20	20	20
Roof RTU Load (plf)	0	0	0
Roof PV Load (plf)	5	5	5
Roof Snow Load (plf)	87	87	87
Wall Dead Load (psf)	12	12	12

Tributary width inputs

Roof Tributary Width (ft)	2	2	2
Roof Overhang (ft)	2	2	2
Wall Tributary Height (ft)	0	0	0
Total Uniform Axial Load (plf)	448	448	448
Header Span (ft)	2	3	3
(inches)	7	1	1
Total Uniform Load (plf)	**428**	**428**	**428**
Header Depth (in)	**12**	**12**	**12**
Header Type	**Non-Spliced**	**Non-Spliced**	**Non-Spliced**
[1]**Allowble Strength**	**1000**	**1000**	**1000**
Check Strength	**OKAY**	**OKAY**	**OKAY**
Deflection (in) @ L/480	0.065	0.077	0.077
[1]Load (plf) @ L/480	1000	1000	1000
Deflection (in) @ L/360	0.086	0.103	0.103
[1]Load (plf) @ L/360	1000	1000	1000
Deflection (in) @ L/240	0.129	0.154	0.154
[1]Load (plf) @ L/240	1000	1000	1000
[3]Total Deflection (in)	0.06	0.07	0.07
Span / deflection	**528**	**528**	**528**
Check total deflection	**OKAY**	**OKAY**	**OKAY**
[1]Live Deflection (in)	0.04	0.05	0.05
Span / deflection	**690**	**690**	**690**
Check live deflection	**OKAY**	**OKAY**	**OKAY**
[2]Dead Deflection (in)	0.01	0.02	0.02
Span / deflection	**2250**	**2250**	**2250**
Check dead deflection	**OKAY**	**OKAY**	**OKAY**

Header Support Calcs			
Spline at Support?	NO	NO	NO
True Header Depth (in)			
Nail spacing (in)	6	6	3
Support Reaction (lbs)	579	691	691
8d Nail Capacity to OSB (lbs)	65	65	65
Required Nails Per Support	9	11	11
Acutal Nails Per Support	0	0	0
Support Check	**N/A**	**N/A**	**N/A**

1. Value is interpolated from the code report
2. Value is interpolated from code report published values and multiplied by K (time effect factor)
3. Value included time effect factor, K, for permanent loads

Project	Ingram Stagecoach	**Name**	K. Czyzio
Project #	202405242	**Date**	5/29/2024

Design Loads	DL (psf)	LL (psf)	SL (psf)
Roof	25		87
Walls	12		

Member Label	Wall C	Wall C - 3'	Wall E	Wall F	Wall G	Wall H	Wall K	Wall K - 7.75'	Wall N
Description									
Loading Type:	Distributed	Distributed	Distributed	Distributed	Distributed	Distributed	Distributed	Distributed	Distributed
Effective Span (ft)	6.1	3.1	3.8	4.1	8.2	3.8	4.1	6.0	7.0
Live Load Deflection Limit (L/)	360	360	360	360	360	360	360	360	360
Total Load Deflection Limit (L/)	240	240	240	240	240	240	240	240	240
Load Tributary Widths/Height (ft) (ft^2)									
Roof	8	8	4	9	4	8	8	8	7
Walls	3.5	3.5		2					
Governing Design Loads									
Total Load (plf) (lb)	938	938	448	1,032	448	896	896	896	784
Governing Load Combo	D + S	D + S	D + S	D + S	D + S	D + S	D + S	D + S	D + S
Load dist. from left support, a (ft)									
Design Forces									
Max Shear (lb)	2,852	1,445	840	2,105	1,830	1,680	1,828	2,688	2,744
Shear @ "d" from support (lb)	2,490	1,161	737	1,708	1,657	1,409	1,557	2,343	2,442
Max Moment (lb-ft)	4,334	1,112	788	2,147	3,738	1,575	1,864	4,032	4,802
Member Information									
Type	Sawn	Sawn	Sawn	Sawn	Sawn	Sawn	Sawn	Sawn	Sawn
Species/Grade	SPF #2	SPF #2	SPF #2	SPF #2	SPF #2	SPF #2	SPF #2	SPF #2	SPF #2
Size	2x10	2x8	2x6	2x10	2x10	2x8	2x8	2x10	2x10
Quantity	3	2	2	3	2	2	2	3	3
Beam Width, b (in)	4.5	3	3	4.5	3	3	3	4.5	4.5
Beam Depth, d (in)	9.25	7.25	5.5	9.25	9.25	7.25	7.25	9.25	9.25
Allowable Stress Adjustments									
C_D	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
C_r	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
C_F	1.10	1.20	1.30	1.10	1.10	1.20	1.20	1.10	1.10
C_V	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(Fb) C_M	1	1	1	1	1	1	1	1	1
(Fv) C_M	1	1	1	1	1	1	1	1	1
(Fcperp) C_M	1	1	1	1	1	1	1	1	1
(E) C_M	1	1	1	1	1	1	1	1	1
Ci, (Fb, Fv)	1	1	1	1	1	1	1	1	1
Ci, (E)	1	1	1	1	1	1	1	1	1
F'_b	1,107	1,208	1,308	1,107	1,107	1,208	1,208	1,107	1,107
F'_v	155	155	155	155	155	155	155	155	155
$F'_{c\ perp}$	425	425	425	425	425	425	425	425	425
E'	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000
Shear Check									
Applied Stress (psi)	90	80	67	62	90	97	107	84	88
Utilization	**0.58**	**0.52**	**0.43**	**0.40**	**0.58**	**0.63**	**0.69**	**0.54**	**0.57**
Check	OK	OK	OK	OK	OK	OK	OK	OK	OK
Bending Check									
Applied Stress (psi)	811	508	625	402	1,048	719	851	754	898
Utilization	**0.73**	**0.42**	**0.48**	**0.36**	**0.95**	**0.60**	**0.70**	**0.68**	**0.81**
Check	OK	OK	OK	OK	OK	OK	OK	OK	OK
Required Bearing Length (in)	**1.49**	**1.13**	**0.66**	**1.10**	**1.44**	**1.32**	**1.43**	**1.41**	**1.43**
Deflection Check									
Live Load Deflection (in)	0.052	0.011	0.027	0.012	0.126	0.023	0.033	0.049	0.079
Span / Deflection	1,417	3,498	1,692	4,167	778	1,938	1,505	1,474	1,061
Utilization	**0.25**	**0.10**	**0.21**	**0.09**	**0.46**	**0.19**	**0.24**	**0.24**	**0.34**
Check	OK	OK	OK	OK	OK	OK	OK	OK	OK
Total Load Deflection	0.069	0.014	0.034	0.015	0.162	0.030	0.042	0.063	0.102
Span / Deflection	1,051	2,596	1,315	3,162	605	1,505	1,169	1,145	824
Utilization	**0.23**	**0.09**	**0.18**	**0.08**	**0.40**	**0.16**	**0.21**	**0.21**	**0.29**
Check	OK	OK	OK	OK	OK	OK	OK	OK	OK

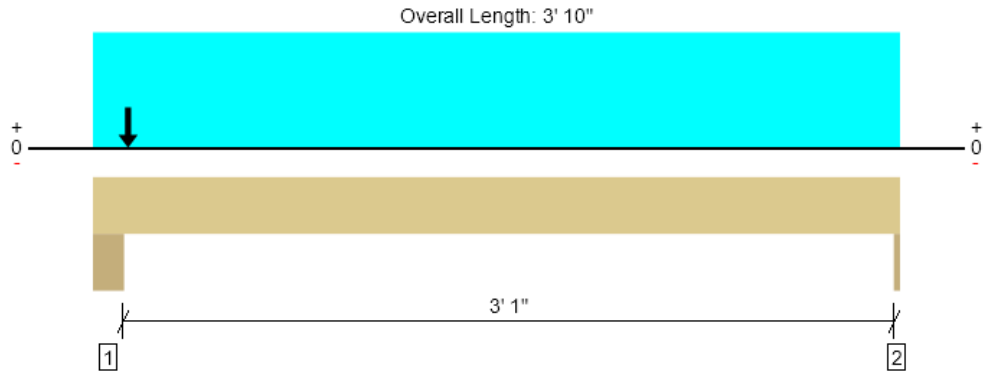
Project	Ingram Stagecoach	**Name**	K. Czyzio
Project #	202405242	**Date**	5/29/2024

Design Loads	DL (psf)	LL (psf)	SL (psf)
Roof	25		87
Walls	12		

Member Label	Wall Q	Wall T
Description		
Loading Type:	Distributed	Distributed
Effective Span (ft)	3.2	8.3
Live Load Deflection Limit (L/)	360	360
Total Load Deflection Limit (L/)	240	240
Load Tributary Widths/Height (ft) (ft^2)		
Roof	8.75	9.5
Walls		2
Governing Design Loads		
Total Load (plf) (lb)	980	1,088
Governing Load Combo	D + S	D + S
Load dist. from left support, a (ft)		
Design Forces		
Max Shear (lb)	1,553	4,488
Shear @ "d" from support (lb)	1,257	3,950
Max Moment (lb-ft)	1,231	9,257
Member Information		
Type	Sawn	LVL
Species/Grade	SPF #2	2.0E
Size	2x8	1.75x11.875
Quantity	2	3
Beam Width, b (in)	3	5.25
Beam Depth, d (in)	7.25	11.875
Allowable Stress Adjustments		
C_D	1.15	1.15
C_r	1.00	1.00
C_F	1.20	1.00
C_V	1.00	1.00
(Fb) C_M	1	1
(Fv) C_M	1	1
(Fcperp) C_M	1	1
(E) C_M	1	1
Ci, (Fb, Fv)	1	1
Ci, (E)	1	1
F'_b	1,208	2,994
F'_v	155	328
$F'_{c\ perp}$	425	750
E'	1,400,000	2,000,000
Shear Check		
Applied Stress (psi)	87	95
Utilization	**0.56**	**0.29**
Check	OK	OK
Bending Check		
Applied Stress (psi)	562	900
Utilization	**0.47**	**0.30**
Check	OK	OK
Required Bearing Length (in)	**1.22**	**1.14**
Deflection Check		
Live Load Deflection (in)	0.013	0.059
Span / Deflection	2,933	1,684
Utilization	**0.12**	**0.21**
Check	OK	OK
Total Load Deflection	0.017	0.077
Span / Deflection	2,279	1,279
Utilization	**0.11**	**0.19**
Check	OK	OK

Roof, Wall R

1 piece(s) 5 1/2" x 9" 24F-V4 DF Glulam



Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	24013 @ 6"	26813 (7.50")	Passed (90%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	1162 @ 1' 4 1/2"	10057	Passed (12%)	1.15	1.0 D + 1.0 S (All Spans)
Pos Moment (Ft-lbs)	2039 @ 2' 2"	17078	Passed (12%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.005 @ 2' 2"	0.111	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.007 @ 2' 2"	0.167	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

Member Length : 3' 10"
System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Critical positive moment adjusted by a volume/size factor of 1.00 that was calculated using length L = 3' 4".
- The effects of positive or negative camber have not been accounted for when calculating deflection.
- The specified glulam is assumed to have its strong laminations at the bottom of the beam. Install with proper side up as indicated by the manufacturer.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Trimmer - DF	7.50"	7.50"	6.72"	5380	18633	24013	None
2 - Trimmer - DF	1.50"	1.50"	1.50"	562	1885	2447	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	3' 10" o/c	
Bottom Edge (Lu)	3' 10" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 3' 10"	N/A	12.0	--	
1 - Uniform (PSF)	0 to 3' 10"	13'	25.0	87.0	ROOF
2 - Point (lb)	2"	N/A	4650	16182	Roof Beam

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The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Kelton Czyzio Eclipse Engineering (810) 429-9793 kczyzio@eeimt.com	Home Gravity Framing

Weyerhaeuser

ECLIPSE ENGINEERING

King Stud Schedule

Project	Ingram Stagecoach	**Name**	K. Czyzio
Project #	202405242	**Date**	5/27/2024

Wind C&C Areas	10 sq-ft	100 sq-ft
Wind Load (psf)	23.2	18.8

King Stud Description	**Wall C**	**Wall E**	**Wall F**	**Wall H**	**Wall K**	**Wall L**	**Wall N**	**Wall R**	**Wall T**
Loading Type:	Distributed	Distributed	Distributed	Distributed	Distributed	Distributed	Distributed	Distributed	Distributed
Stud Height (ft)	11.3	12.5	12.6	12.1	11.8	11.8	11.5	10.1	10.1
Live Load Deflection Limit (L/)	180	180	180	180	180	180	180	180	180
Wall Opening Width (ft)	6.08	3.75	4.08	7.58	7.75	8.08	6.67	3.08	16.17
C&C Area (ft2)	6.08	23.4375	25.6632	45.7832	45.53125	47.47	38.3525	15.5232	81.4968
Governing Design Loads									
Total Load (plf) (lb)	71	42	46	81	83	86	73	35	159
Governing Load Combo	0.6W	0.6W	0.6W	0.6W	0.6W	0.6W	0.6W	0.6W	0.6W
Design Forces									
Max Shear (lb)	403	264	288	491	488	507	418	178	802
Shear @ "d" from support (lb)	386	254	277	472	469	487	401	170	766
Max Moment (lb-ft)	1,141	825	905	1,482	1,434	1,489	1,202	448	2,022
Member Information									
Type	Sawn	Sawn	Sawn	Sawn	Sawn	Sawn	Sawn	Sawn	Sawn
Species/Grade	SPF #2	SPF #2	SPF #2	SPF #2	SPF #2	DF #2	DF #2	DF #2	DF #2
Size	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6
Quantity	1	1	1	2	2	2	1	1	2
Beam Width, b (in)	1.5	1.5	1.5	3	3	3	1.5	1.5	3
Beam Depth, d (in)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Adjustment Factors									
C_D	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
C_r	1	1	1	1	1	1	1	1	1
C_F	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
C_V	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
(Fb) C_M	1	1	1	1	1	1	1	1	1
(Fv) C_M	1	1	1	1	1	1	1	1	1
(Fcperp) C_M	1	1	1	1	1	1	1	1	1
(E) C_M	1	1	1	1	1	1	1	1	1
Ci, (Fb, Fv)	1	1	1	1	1	1	1	1	1
Ci, (E)	1	1	1	1	1	1	1	1	1
F'_b	1,820	1,820	1,820	1,820	1,820	1,872	1,872	1,872	1,872
F'_v	216	216	216	216	216	288	288	288	288
$F'_{c\ perp}$	425	425	425	425	425	625	625	625	625
E'	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,600,000	1,600,000	1,600,000	1,600,000
Shear Check									
Applied Stress (psi)	70	46	50	43	43	44	73	31	70
Utilization	**33%**	**21%**	**23%**	**20%**	**20%**	**15%**	**25%**	**11%**	**24%**
Bending Check									
Applied Stress (psi)	1,810	1,309	1,436	1,176	1,138	1,181	1,907	711	1,604
Utilization	**99%**	**72%**	**79%**	**65%**	**63%**	**63%**	**102%**	**38%**	**86%**
Deflection Check									
Live Load Deflection (in)	0.634	0.558	0.620	0.468	0.612	0.389	0.602	0.246	0.556
Span / Deflection	215	269	244	310	230	362	229	491	218
Utilization	**84%**	**67%**	**74%**	**58%**	**78%**	**50%**	**79%**	**37%**	**83%**
Stud Pack	**(1) 2x6**	**(1) 2x6**	**(1) 2x6**	**(2) 2x6**	**(2) 2x6**	**(2) 2x6**	**(1) 2x6**	**(1) 2x6**	**(2) 2x6**

Project	Ingram Stagecoach	**Name**	K. Czyzio
Project #	202405242	**Date**	5/27/2024

Wood Fastener Shear Capacity

Description	Type A AB's	TYPE A A35	TYPE A SILL	TYPE B AB'S	TYPE B A35	TYPE B SILL
Fastener	5/8" AB - 1.5" Side Member	A35 Clip	10d Box Nail (OSB to Wood)	5/8" AB - 1.5" Side Member	A35 Clip	10d Box Nail (OSB to Wood)
Spacing (in)	48	32	8	32	24	6
No. per spa	1	1	2	1	1	2
Duration, C_D	1.6	1.6	1.6	1.6	1.6	1.6
Toe-Nail, C_{tn}	1	1	1	1	1	1
End-Grain, C_{eg}	1	1	1	1	1	1
Shear Load (plf)	360	360	226	398	398	398
Z (lb)	930	590	70	930	590	70
Z' (plf)	372	354	336	558	472	448
Utilization	0.97	1.02	0.67	0.71	0.84	0.89

Wind Uplift

Typical Roof Beam

Beam OC Spacing:	9	ft	
Wind Uplift Pressure (factored):	40.80	psf	
Roof Dead Load (factored):	12	psf	
Factored Uplift:	28.80	psf	
Uplift Per Linear ft on beam:	259.21	plf	
Screw withdrawl Capacity:	195	lbf	(Assume 1" penetration into wood beam)
Required screw spacing:	9	in	

Space SIP Screws @ 9" oc.

Capacity = 260 lbf > 259 lbf, OKAY

Roof Overhang

Tributary Length	13	ft	
Wind Uplift Pressure (factored):	40.80	psf	
Roof Dead Load (factored):	12	psf	
Factored Uplift:	28.80	psf	
Uplift Per Linear ft on wall:	374.41	plf	
Screw withdrawl Capacity:	195	lbf	(Assume 1" penetration into wood beam)
Required screw spacing:	6	in	

Space SIP Screws @ 6" oc.

Capacity = 390 lbf > 375 lbf, OKAY

Diaphragm Chord Design

Project	Ingram Stagecoach	**Name**	K. Czyzio
Project #	202405242	**Date**	5/27/2024

Diaphragm	Roof A	Roof B
Dimensions:		
Length (ft)	60	50
Depth (ft)	52	50
Cantilever Length (ft)	N/A	N/A
Distributed Loads:		
Wind Load (plf)	103.58	68.03
Sesimic Load (plf)	155.05	142.31
Diaphragm Information:		
Diaphragm Type	Simple Span	Simple Span
L (for cantilever)	N/A	n/a
Moment Calcs:		
M1 (lb-ft)	n/a	n/a
M2 (lb-ft)	n/a	n/a
Max Moment (lb-ft)	69772	44472
Nail Loading:		
Max Tension (lbs)	1342	889
16d Nail Cap (lbs)	93	93
Nail Spacing:		
Lap Splice Length (ft)	4	4
Req. Spacing (in)	**10**	**16**

ICC EVALUATION SERVICE®

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ICC-ES Evaluation Report
ESR-1295

Reissued February 2021
Revised November 2021
This report is subject to renewal February 2023.

DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES
Section: 06 12 00—Structural Panels

REPORT HOLDER:

PFB AMERICA CORPORATION

EVALUATION SUBJECT:

INSULSPAN STRUCTURAL INSULATING PANEL SYSTEM

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2021, 2018, 2015, 2012 and 2009 *International Building Code*® (IBC)
- 2021, 2018, 2015, 2012 and 2009 *International Residential Code*® (IRC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)†

†The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

For evaluation for compliance with codes adopted by Los Angeles Department of Building and Safety (LADBS), see ESR-1295 LABC and LARC Supplement.

Properties evaluated:

- Structural
- Fire resistance

1.2 Evaluation to the following green code(s) and/or standards:

- 2019 California Green Building Standards Code (CALGreen), Title 24, Part 11
- 2020, 2015, 2012 and 2008 ICC 700 *National Green Building Standard*™ (ICC 700-2020, ICC 700-2015, ICC 700-2012 and ICC 700-2008)

Attributes verified:

See Section 3.1

2.0 USES

The Insulspan Structural Insulating Panel System consists of structural insulated roof and floor panels, and load-bearing or nonload-bearing wall panels for Type V construction. The panels are alternatives to walls, floors and roofs designed in accordance with IBC Section 2306, Panels used in one-hour fire-resistance rated assemblies must be installed in accordance with Section 4.2.4 of this report.

When panels are installed under the IRC, an engineered design is required in accordance with IRC Section R301.1.3. Use of the panels under 2021, 2018 and 2015 IRC Section R610 or 2012 and 2009 IRC Section R613 is outside the scope of this evaluation report.

3.0 DESCRIPTION

3.1 General:

Insulspan Structural Insulating Panels are factory-assembled, laminated sandwich panels produced at locations listed in Table 1 of this report. The panels consist of expanded polystyrene (EPS) foam plastic cores with wood-based structural-use sheathing facings. The panels are manufactured in two configurations as noted in Sections 3.1.1 and 3.1.2.

The attributes of the sandwich panels have been verified as conforming to the provisions of (i) CALGreen Sections A4.404.3.3 for premanufactured building systems; (ii) ICC 700-2020, ICC 700-2015 and ICC 700-2012 Section 601.5 and 11.601.5 for prefabricated components; and (iii) ICC 700-2008 Section 601.5 for prefabricated components. Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

3.1.1 OSB Surface Spline or Block Spline Panels: These types of panels are produced in widths ranging from 4 feet (1219 mm) to 8 feet (2438 mm), and lengths ranging from 8 feet (2438 mm) to 24 feet (7315 mm). The core of these panel types is recessed on the ends to receive 2-inch (nominal thickness) solid sawn dimensional lumber sized to match the thickness of the panel core. The core is recessed along the longitudinal edges to receive either two 3-inch-wide-by-$^{7}/_{16}$-inch-thick (76 mm by 11.1 mm) OSB surface splines, or one 3-inch wide (76 mm) block spline having a thickness to match the thickness of the sandwich panel core. (See Section 3.2.4 for a description of the splines.) See Figure 1 for illustrations of these panel types.

3.1.2 Dimensional Lumber Spline Panel: This type of panel is produced in maximum 4-foot (1219 mm) widths and lengths up to 24 feet (7315 mm). The EPS core of this panel type is recessed along the longitudinal edges and ends to receive nominally 2-by solid sawn dimensional lumber sized to match the core thickness of the panel. See Figure 1 for additional information on this panel type.

3.2 Materials:

3.2.1 Core: The core material is Type I expanded polystyrene (EPS) foam plastic with nominal thicknesses ranging from $3^1/_2$ inches to $11^1/_4$ inches. The EPS is a Type I expanded polystyrene with a nominal density of 1 pcf, complying with ASTM C578. The EPS has a flame spread index of not more than 75 and a smoke developed index of not more than 450 when tested in accordance with ASTM E84. The EPS is supplied by manufacturers having ICC-ES evaluation reports, who are listed in the ICC-ES approved Insulspan quality-control documentation.

3.2.2 Facing: Panel facing material is $^7/_{16}$-inch-thick (11.1 mm), Exposure 1 oriented strand board (OSB) with a span rating of 24/16, and complying with the performance-rated panel requirements specified in U.S. Department of Commerce Product Standard PS-2. The OSB is supplied by manufacturers listed in the ICC-ES approved quality control documentation.

3.2.3 Adhesive: The adhesive is a Type II, Class 2, laminating adhesive as specified in the ICC-ES approved quality control documentation. The adhesive complies with the ICC-ES Acceptance Criteria for Sandwich Panel Adhesives (AC05).

3.2.4 Splines: There are three types of splines: OSB surface splines, block splines and solid sawn dimensional lumber. OSB surface splines are 3-inch-wide-by-$^7/_{16}$-inch-thick (76 by 11.1 mm) OSB, as described in Section 3.2.2, that are installed into recesses in the panel core, along the longitudinal edges of the panels, behind the panel facers on both faces of the panels. Block splines are 3-inch-wide (76 mm) sections of Insulspan sandwich panels manufactured with a total thickness to match the core thickness of the sandwich panel for which the block spline is to be used. The dimensional lumber splines are nominally 2-by, No. 2 spruce-pine-fir, or better, dimensional lumber members sized in depth to match the core thickness, unless noted otherwise in this evaluation report.

4.0 DESIGN AND INSTALLATION

4.1 Design:

The allowable uniform transverse load, uniform axial compression load for bearing walls and axial compression concentrated load for bearing walls are as shown in Tables 2 through 8. Unless noted otherwise, the allowable uniform transverse loads are for panels installed under simply supported, single span conditions.

The allowable racking shear loads in Table 9 are applicable to the panels used as shearwalls in Seismic Design Categories as indicated therein.

The seismic-force-resisting system consisting of the sandwich panel shear walls, in whole or in part, shall be designed and detailed in accordance with Sections 2305 and 2306 of the IBC by the registered design professional.

Where loading conditions result in the panels resisting combined loads, the sum of the ratios of applied loads over allowable loads must be less than 1.0.

4.2 Installation:

4.2.1 General: The panels must be installed in accordance with the manufacturer's published installation instructions and this report. A copy of the installation instructions must be available at all times on the jobsite during installation. Panel locations must comply with the report and the plans and specifications approved by the code official.

The panels must be connected to each other along their edges with the splines described in Section 3.2.4 of this report, as specified by the applicable tables in this report. Unless noted otherwise in this report, OSB facings of the panels must be attached to the splines with 8d box nails, or equivalent, spaced at a maximum of 6 inches (152 mm) on center.

Top and bottom plates installed into the recessed core of the ends of the wall panels must be dimensional lumber, sized to match the core thickness, and fastened to both panel facings with 8d box nails, or equivalent, spaced at a maximum of 6 inches (152 mm) on center, unless noted otherwise in this evaluation report.

Wall openings must be framed with conventional materials, designed to the satisfaction of the code official.

The wall panels used as bearing walls must be installed in the manner described in the footnotes in Tables 6 through 8. When used as shear walls, the wall panels must be installed in accordance with Table 9.

Unless noted otherwise in this report, an EPS-compatible sealant is applied along butting EPS core surfaces and any dimensional lumber surfaces, and along the bottom of the panel base plate before panel placement. Typical installation details are shown in Figures 1 through 6. Structural calculations must be prepared to substantiate the details for the specific installation and loading conditions.

4.2.2 Thermal Barrier:

4.2.2.1 Wall, Roof and Floor: One-half-inch-thick (12.7 mm) regular gypsum wallboard, complying with ASTM C36 or ASTM C1396, must be installed on the interior surface of wall and roof panels, and the bottom side of floor panels having occupied space below the floor panel. The wallboard must be fastened to the face of the panels with minimum $1^1/_4$-inch-long (31.7 mm), No. 6, Type W drywall screws spaced in accordance with ASTM C840 for use under the IBC, or Table R702.3.5 of the IRC, using 16-inch-on-center (406.4 mm) framing spacing guidelines.

4.2.2.2 Floor: An approved thermal barrier must be installed over the top surface of the floor panels, such as minimum $^7/_{16}$-inch-thick (76 mm) wood-based structural-use sheathing installed in accordance with the applicable code.

4.2.3 Panel Cladding:

4.2.3.1 Roof Covering: The roof covering must comply with Chapter 15 of the IBC, or IRC Section R901, as applicable. Roofs with hot-asphalt or hot-coal tar pitch are prohibited. Underlayment and flashing must be installed in accordance with the applicable code.

4.2.3.2 Exterior Wall Covering: The exterior face of wall panels is required to be covered with a wall covering complying with the applicable code or recognized in a current ICC-ES evaluation report. A water-resistive barrier must be installed over the panels in accordance with 2021 and 2018 IBC Section 1403.2 (2015, 2012 and 2009 IBC Section 1404.2) or IRC Section R703.2, as applicable, prior to application of the wall covering. Where Portland cement plaster is used, compliance with IBC Section 2510 and 2512 or IRC Section R703.6.3, as applicable, is necessary.

All exterior panel joints must be sealed with a compatible acrylic latex caulk before covering.

4.2.4 One-hour Fire-resistance-rated Limited Load-bearing Wall: Walls constructed with the $6^1/_2$-inch-thick (165 mm), dimensional lumber spline panels, described in Section 3.1.2, with double lumber splines and covered with two layers of $^5/_8$-inch-thick (15.9 mm), Type X gypsum wallboard on both faces of interior walls, or two layers of $^5/_8$-inch-thick (15.9 mm) Type X wallboard on the interior face of exterior walls and two layers of $^5/_8$-inch-thick (15.9 mm) Type X gypsum sheathing on the exterior face of exterior walls, are one-hour fire-resistance-rated limited load-bearing walls when installed in accordance with this section of this report. Panels with the two layers of gypsum wallboard on only the interior face of exterior walls are rated for exposure to fire on the side of the wall with the gypsum wallboard (interior face) and are subject to the limitations noted in 2009 IBC Section 705.5. The maximum allowable axial load is 91 percent of the allowable axial load noted in Table 7 for panels with a $6^1/_2$-inch (16.5 mm) thickness, or 2,400 plf (35.0 kN/m), whichever is less. The EPS core of the panels must be recessed at the top and bottom of the panel for the installation of nominally 2-by spruce-pine-fir lumber top and bottom plates sized to match the panel's core thickness. Double 2-by No. 2 spruce-pine-fir wood splines must be installed in the vertical panel edges spaced a maximum of 48-inches (1219 mm) on center. The OSB facings of the panels must be secured to the top plate, bottom plate and splines with 8d common nails spaced at 4 inches (102 mm) on center. The $^5/_8$-inch-thick-by-4-foot-wide (15.9 mm by 1219 mm), Type X gypsum wallboard must be applied vertically in two layers. The first layer must be installed without horizontal joints and with vertical edges aligned over the center of the vertical splines of the sandwich panels. The first layer of Type X gypsum wallboard must be attached with $2^1/_2$-inch long (63.5 mm), No. 6, Type W wallboard screws spaced at 8 inches (203 mm) on center, 1 inch (25.7 mm) from the gypsum wallboard edges and ends. The field area of the gypsum wallboard must be secured with $1^1/_4$-inch-long (31.7 mm), No. 6, Type W wallboard screws spaced at 16 inches (406 mm) on center both horizontally and vertically. The second layer of Type X gypsum wallboard must be installed without horizontal joints, and with the vertical edges offset 24 inches (610 mm) from the first layer joints. The second layer must be attached with $2^1/_2$-inch long (63.5 mm), No. 6, Type W wallboard screws spaced at 8 inches on center, $1^1/_2$ inches (38 mm) from the gypsum wallboard edges and ends, and spaced at 16 inches (406 mm) on center both horizontally and vertically in the field of the gypsum wallboard. The joints of the second layer of gypsum wallboard must be covered with joint tape and compound in accordance with ASTM C840 or GA-216. Screw heads on the second layer of gypsum wallboard must be covered with joint compound in accordance with ASTM C840 or GA-216.

4.3 Special Inspection:

Where Insulspan SIP shear walls are installed in buildings in IBC Seismic Design Categories C, D, E and F; Seismic Design Categories C, D_0, D_1, D_2 and E for townhouses under the IRC; or Seismic Design Categories D_0, D_1, D_2 and E for detached one and two-family dwellings under the IRC, periodic inspections of the fastening and anchoring of the shear wall assembly within the seismic-force-resisting system must be provided. Inspection must include connection of the assemblies to drag struts and hold-downs, in accordance with 2021, 2018 and 2015 IBC Section 1705.11.1 or 1705.12.2, 2012 IBC Section 1705.10.1 or 1705.11.2, 2009 IBC Section 1706.2 or 1707.3, as applicable, unless these are exempted by 2021, 2018, 2015 and 2012 IBC Section 1704.2 or 2009 IBC Section 1704.1.

5.0 CONDITIONS OF USE

The Insulspan Structural Insulating Panel System described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 The panels must be fabricated, identified and installed in accordance with this report and the manufacturer's published installation instructions. In the event of a conflict between this report and the manufacturer's published installation instructions, the more restrictive governs.

5.2 Design loads to be resisted by the panels must be determined in accordance with the applicable code, and must be equal to, or less than, the values given in Tables 2 through 10 of this report.

5.3 All construction documents specifying the building panels described in this report must comply with the design limitations of this report. Design calculations and details for the specific applications must be furnished to the code official verifying compliance with this report and applicable codes. The transfer of vertical loads and lateral loads from the roof or floor diaphragm into the shear wall and from the shear wall to the foundation must be addressed in the calculations. When Insulspan SIP shear walls are used in building that are more than one story tall, calculations and details must be submitted to the code official showing the load path for the transfer of lateral and overturning forces from the upper-story shear walls to the foundation. The documents must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

5.4 All floor-to-wall and roof-to-wall details must be designed such that gravity loads are applied to the wall panels as described in the footnotes to Tables 6 through 8.

5.5 Connection and attachments of the panel are outside the scope of this report and must be addressed in the design calculations and details.

5.6 When used as shear walls under the IBC or IRC, the panels are recognized for use in Seismic Design Categories A, B and C, except as provided for in Section 4.1. Use of the sandwich panel shear walls in Seismic Design Categories D, E and F in combination with other types of lateral force–resisting systems is outside the scope of this report.

5.7 Special inspections shall be as required in Section 4.3.

5.8 The foam plastic insulation of the panels must be separated from the interior of the building with a thermal barrier, installed in accordance with Section 4.2.2 of this report.

5.9 Use of the panels in occupancies that require concentrated floor live loads under IBC Section 1607.4 is outside the scope of this report.

5.10 Use of the panels is limited to Type V construction.

5.11 Use of the foam plastic in areas subject to damage from termites must be in accordance with 2021, 2018, 2015 and 2009 IBC Section 2603.8, or 2012 IBC 2603.9, and 2021, 2018, 2015, 2012 and 2009 IRC Section R318.4, as applicable.

5.12 The panels must be installed such that the panel facings are protected against decay and termites in accordance with 2021, 2018 and 2015 IBC Sections 2304.12.1.2 and 2304.12.1.5, or 2012 and 2009 IBC Sections 2304.11.2.2 and 2304.11.2.6, or 2021, 2018, 2015, 2012 and 2009 IRC Sections R317 and R318,

as applicable.

5.13 The panels and their attachments must be subject to inspection by the code official prior to covering with an approved water-resistive barrier or roof covering.

5.14 For installations of the roof panels, justification must be submitted to the code official demonstrating that the panels with the roof covering comply as a Class A, B, or C roof assembly, as required by IBC Section 2603.6, with the classification complying with the minimum classification requirements of the building.

5.15 For use of the panels under the IRC, the panels are limited to an engineered design under IRC Section R301.1.3, with engineering performed in accordance with this evaluation report.

5.16 The panels are produced at the Blissfield, Michigan, and Delta, British Columbia manufacturing facilities noted in Table 1, under a quality-control program with inspections of both facilities by ICC-ES.

6.0 EVIDENCE SUBMITTED

6.1 Data in accordance with the ICC-ES Acceptance Criteria for Sandwich Panels (AC04), dated June 2019 (Editorially revised December 2020), including Appendix A of AC04.

6.2 Reports of tests conducted in accordance with ASTM E119.

6.3 Report of a room corner fire test conducted in accordance with NFPA 286.

7.0 IDENTIFICATION

7.1 The panels must have a label containing the name and address of the sandwich panel manufacturer (as noted in Table 1), the product panel number, and the evaluation report number (ESR-1295). Bundles of Block splines are delivered to the jobsite with shipping documents from the sandwich panel manufacturers noted in Table 1.

7.2 The report holder's contact information is the following:

PFB AMERICA CORPORATION
300, 2891 SUNRIDGE WAY NE
CALGARY, ALBERTA T1Y 7K7
CANADA
(403) 569-4330

www.insulspan.com

TABLE 1—MANUFACTURING LOCATIONS

INSULSPAN SIP MANUFACTURING PLANTS	PLANT IDENTIFICATION NUMBER
PFB Manufacturing, LLC 245 N. Jipson Street Blissfield, MI 49228-1167	81
Plasti-Fab Ltd. Unit 1, 600 Chester Road Annacis Business Park Delta, British Columbia V3M 5Y3 Canada	80

TABLE 2—ALLOWABLE UNIFORM TRANSVERSE LOADS FOR FACE SUPPORTED PANELS WITH BLOCK SPLINES OR OSB SURFACE SPLINES (psf)[1,2,3,4]

THICKNESS (inches)		DEFLECTION LIMITS	PANEL SPAN (feet)														
Panel	Core		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
4 1/2[5]	3 5/8	L/180	*121*	*97*	*81*	*68*	*56*	*47*	*39*	*32*	*27*	—	—	—	—	—	—
		L/240	*121*	*97*	*81*	64	50	39	32	26	21	—	—	—	—	—	—
		L/360	101	73	55	42	33	26	21	17	14	—	—	—	—	—	—
6 1/2	5 5/8	L/180	*136*	*109*	*91*	*78*	*68*	*60*	*54*	*46*	*39*	—	—	—	—	—	—
		L/240	*136*	*109*	*91*	*78*	*68*	*60*	52	43	36	—	—	—	—	—	—
		L/360	*136*	*109*	84	66	53	43	35	29	24	—	—	—	—	—	—
8 1/4[6]	7 3/8	L/180	*151*	*120*	*100*	*86*	*75*	*67*	*60*	*55*	*50*	*44*	*38*	*33*	*29*	*26*	*23*
		L/240	*151*	*120*	*100*	*86*	*75*	*67*	*60*	*55*	50	44	38	33	29	25	22
		L/360	*151*	*120*	*100*	*86*	73	60	50	42	36	30	26	22	19	17	15
10 1/4[6]	9 3/8	L/180	*159*	*127*	*106*	*91*	*79*	*71*	*63*	*58*	*53*	*49*	*43*	*37*	*33*	*29*	*26*
		L/240	*159*	*127*	*106*	*91*	*79*	*71*	*63*	*58*	*53*	*49*	*43*	*37*	*33*	*29*	*26*
		L/360	*159*	*127*	*106*	*91*	*79*	*71*	*63*	*58*	51	44	38	33	29	26	23
12 1/4	11 3/8	L/180	*167*	*134*	*111*	*95*	*83*	*74*	*67*	*61*	*56*	*51*	*48*	*43*	*37*	*33*	*30*
		L/240	*167*	*134*	*111*	*95*	*83*	*74*	*67*	*61*	*56*	*51*	*48*	*43*	*37*	*33*	*30*
		L/360	*167*	*134*	*111*	*95*	*83*	*74*	*67*	*61*	*56*	*51*	*48*	*43*	*37*	*33*	*30*

For **SI:** 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 psf = 47.9 Pa.

[1]The tabulated values are for panels with single span simply supported conditions with the panels supported each end on minimum 1 1/2-inch wide continuous supports in contact with the face of the panels, such as roof and floor panels.
[2]Tabulated values are applicable to panels installed with either the block or OSB surface splines described in Section 3.1.1 installed at the longitudinal panel joints.
[3]Tabulated values are applicable to panels installed with the strong axis of the OSB panel facers parallel to the panel span.
[4]Values printed in italics are based on panel strength rather than stiffness.
[5]The 4 1/2-inch thick roof panels, having a minimum width of 4 feet, subject to concentrated roof maintenance live loads must be limited to a maximum span of 8 feet.
[6]The 8 1/4-inch and 10 1/4 inch thick roof panels, having a minimum width of 4 feet, subject to concentrated roof maintenance live loads must be limited to a maximum span of 16 feet.

TABLE 3—ALLOWABLE UNIFORM TRANSVERSE LOADS FOR END SUPPORTED PANELS WITH BLOCK OR OSB SURFACE SPLINES (psf)[1,2,3,4]

THICKNESS (inches)		DEFLECTION LIMITS	Panel Span (feet)										
Panel	Core		8	9	10	11	12	13	14	15	16	17	18
4 1/2	3 5/8	L/180	*25*	*22*	*20*	*18*	*17*	—	—	—	—	—	—
		L/240	*25*	*22*	*20*	*18*	*17*	—	—	—	—	—	—
		L/360	22	19	17	15	14	—	—	—	—	—	—
6 1/2	5 5/8	L/180	*35*	*31*	*28*	*25*	*23*	—	—	—	—	—	—
		L/240	*35*	*31*	*28*	*25*	*23*	—	—	—	—	—	—
		L/360	*35*	*31*	*28*	*25*	23	—	—	—	—	—	—
8 1/4	7 3/8	L/180	*44*	*39*	*35*	*32*	*29*	*27*	*25*	*23*	*22*	*21*	*19*
		L/240	*44*	*39*	*35*	*32*	*29*	*27*	*25*	*23*	*22*	*21*	*19*
		L/360	*44*	*39*	*35*	*32*	*29*	*27*	*25*	22	19	17	15
10 1/4	9 3/8	L/180	*49*	*43*	*39*	*35*	*32*	*30*	*28*	*26*	*24*	*23*	*22*
		L/240	*49*	*43*	*39*	*35*	*32*	*30*	*28*	*26*	*24*	*23*	*22*
		L/360	*49*	*43*	*39*	*35*	*32*	*30*	*28*	*26*	*24*	*23*	*22*

For **SI:** 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 psf = 47.9 Pa.

[1]The tabulated values are for panels with single span simply supported conditions with the panels supported each end by lumber plates installed in the core recesses each end of the panel, such as wall panels. The design of the lumber plate connection to the structure must be justified to the satisfaction of the code official. The lumber plates must be 2-inch nominal width, No. 2 Spruce-pine-fir, or better, for 2 x 4 and 2 x 6 plates and No. 2 Hem-Fir, or better, for 2 x 8 and 2 x 10 plates. The OSB panel facers must be attached to the lumber plates as described in Section 4.2.1.
[2]Tabulated values are applicable to panels installed with either the block or OSB surface splines described in Section 3.1.1 installed at the longitudinal panel joints.
[3]Values tabulated for an 8-foot span length are applicable to panels installed with the strong axis of the OSB panel facer oriented either parallel or perpendicular to the panel span. The OSB panel facer strong axis must be oriented parallel to the panel span for all other span lengths.
[4]Values printed in italics are based on average peak loads divided by 3.

TABLE 4—ALLOWABLE UNIFORM TRANSVERSE LOADS FOR FACE SUPPORTED PANELS WITH DIMENSIONAL LUMBER SPLINES (psf)[1,2,3]

THICKNESS (inches)		DEFLECTION LIMITS	PANEL SPAN (feet)																
Panel	Core		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
4 1/2[4]	3 5/8	L/180	189	142	110	87	70	57	47	39	32	27	23	—	—	—	—	—	—
		L/240	142	106	82	65	52	42	35	29	24	20	17	—	—	—	—	—	—
		L/360	94	71	55	43	35	28	23	19	16	14	12	—	—	—	—	—	—
6 1/2[5]	5 5/8	L/180	*248*	*199*	*165*	*142*	*124*	*110*	*99*	89	74	62	52	44	37	32	28	24	21
		L/240	*248*	*199*	*165*	*142*	*124*	101	82	67	55	46	39	33	28	24	21	18	16
		L/360	246	181	138	107	84	67	54	45	37	31	26	22	19	16	14	12	11
8 1/4[6]	7 3/8	L/180	*267*	*214*	*178*	*153*	*134*	*119*	*107*	*97*	*89*	*78*	*67*	*58*	*51*	*45*	*41*	*36*	33
		L/240	*267*	*214*	*178*	*153*	*134*	*119*	*107*	*97*	86	71	60	51	43	37	32	28	25
		L/360	*267*	*214*	*178*	*153*	130	104	84	69	57	48	40	34	29	25	21	19	16
10 1/4	9 3/8	L/180	*295*	*236*	*196*	*168*	*147*	*131*	*118*	*107*	*98*	*90*	*78*	*68*	*59*	*53*	*47*	*42*	*38*
		L/240	*295*	*236*	*196*	*168*	*147*	*131*	*118*	*107*	*98*	*90*	*78*	*68*	*59*	*53*	*47*	*42*	*38*
		L/360	*295*	*236*	*196*	*168*	*147*	*131*	*118*	100	85	72	61	53	45	39	34	30	27
12 1/4	11 3/8	L/180	*322*	*258*	*215*	*184*	*161*	*143*	*129*	*117*	*107*	*99*	*91*	*79*	*69*	*61*	*55*	*49*	*44*
		L/240	*322*	*258*	*215*	*184*	*161*	*143*	*129*	*117*	*107*	*99*	*91*	*79*	*69*	*61*	*55*	*49*	*44*
		L/360	*322*	*258*	*215*	*184*	*161*	*143*	*129*	*117*	*107*	98	85	74	64	56	50	44	39

For **SI:** 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 psf = 47.9 Pa.

[1]The tabulated values are for panels with single span simply supported conditions, with the panels supported each end on minimum 1 1/2-inch wide continuous supports in contact with the face of the panels, such as roof and floor panels.
[2]The tabulated values are applicable to panels installed with the strong axis of the OSB panel facer parallel to the panel span, and with the dimensional lumber splines described in Section 3.2.4 installed at 4 feet on center, parallel to the panel span. The 2 x 4 and 2 x 6 splines must be No. 2 spruce-pine-fir, or better, and the 2 x 8, 2 x 10 and 2 x 12 splines must be No. 2 hem fir, or better. The OSB panel facers must be attached to the splines as described in Section 4.2.1.
[3]Values printed in italics are based on average peak loads divided by 3.
[4]The 4 1/2-inch thick roof panels, subject to concentrated roof maintenance live loads must be limited to a maximum span of 8 feet.
[5]The 6 1/2-inch thick roof panels, subject to concentrated roof maintenance live loads must be limited to a maximum span of 14 feet.
[6]The 8 1/4-inch thick roof panels, subject to concentrated roof maintenance live loads must be limited to a maximum span of 18 feet.

TABLE 5—ALLOWABLE UNIFORM TRANSVERSE LOADS FOR END SUPPORTED PANELS WITH DIMENSIONAL LUMBER SPLINES (psf)[1,2,3]

THICKNESS (inches)		DEFLECTION LIMITS	PANEL SPAN (feet)												
Panel	Core		8	9	10	11	12	13	14	15	16	17	18	19	20
4 1/2	3 5/8	L/180	*46*	*41*	*37*	*33*	*31*	28	23	—	—	—	—	—	—
		L/240	*46*	*41*	*37*	30	25	21	17	—	—	—	—	—	—
		L/360	38	30	25	20	16	14	12	—	—	—	—	—	—
6 1/2	5 5/8	L/180	*45*	*40*	*36*	*33*	*30*	*28*	*26*	*24*	*23*	*21*	*20*	*19*	*18*
		L/240	*45*	*40*	*36*	*33*	*30*	*28*	*26*	*24*	*23*	*21*	20	18	16
		L/360	*45*	*40*	*36*	*33*	29	25	22	19	17	15	13	12	11
8 1/4	7 3/8	L/180	*44*	*39*	*35*	*32*	*29*	*27*	*25*	*24*	*22*	*21*	*20*	*19*	*18*
		L/240	*44*	*39*	*35*	*32*	*29*	*27*	*25*	*24*	*22*	*21*	*20*	*19*	*18*
		L/360	*44*	*39*	*35*	*32*	*29*	*27*	*25*	*24*	*22*	*21*	*20*	18	16
10 1/4	9 3/8	L/180	*43*	*38*	*35*	*31*	*29*	*27*	*25*	*23*	*22*	*20*	*19*	*18*	*17*
		L/240	*43*	*38*	*35*	*31*	*29*	*27*	*25*	*23*	*22*	*20*	*19*	*18*	*17*
		L/360	*43*	*38*	*35*	*31*	*29*	*27*	*25*	*23*	*22*	*20*	*19*	*18*	*17*

For **SI:** 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 psf = 47.9 Pa.

[1]The tabulated values are for panels with single span simply supported conditions, with the panels supported each end by lumber plates installed in the core recesses each end of the panel, such as wall panels. The design of the lumber plate connection to the structure must be justified to the satisfaction of the code official.
[2]The tabulated values are applicable to panels installed with the strong axis of the OSB panel facer parallel to the panel span, and with the dimensional lumber splines described in Section 3.2.4 installed at 4 feet on center, parallel to the panel span. The 2 x 4 and 2 x 6 splines must be No. 2 spruce-pine-fir, or better, and the 2 x 8 and 2 x 10 splines must be No. 2 hem fir, or better. The OSB panel facers must be attached to the splines and the lumber end plates as described in Section 4.2.1.
[3]Values printed in italics are based on average peak loads divided by 3.

TABLE 6—ALLOWABLE UNIFORM AXIAL LOADS FOR WALL PANELS WITH BLOCK OR OSB SURFACE SPLINES (plf)[1,2,3,4,5,6]

THICKNESS (inches)		WALL PANEL HEIGHT (feet)										
Panel	Core	8	9	10	11	12	13	14	15	16	17	18
4 1/2	3 5/8	2865	2728	2592	2455	2318	—	—	—	—	—	—
6 1/2	5 5/8	2765	2755	2745	2735	2725	2714	2704	2694	2684	2674	2664
8 1/4	7 3/8	2678	2664	2651	2637	2623	2610	2596	2582	2568	2555	2541
10 1/4	9 3/8	2578	2560	2543	2525	2507	2490	2472	2454	2436	2419	2401

For **SI:** 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 plf = 14.6 N/m.

[1]The tabulated loads are uniform axial loads applied concentrically to the full thickness of the panels, including panel facings.
[2]The tabulated values are for panels installed with the strong axis of the OSB panel facers parallel to the wall height (panel span).
[3]The tabulated values are for wall panels installed with a dimensional lumber top plate recessed into the core of the panel and a 2 x nominal lumber cap plate having a width equal to, or greater than, the panel thickness. The lumber must be No. 2 spruce-pine-fir, or better, for 2 x 4 and 2 x 6 plates, and No. 2 hem-fir, or better, for larger lumber sizes.
[4]The tabulated values are for wall panels with a single dimensional lumber bottom plate recessed into the panel core, installed over minimum 3/4-inch thick wood structural-use panel sheathing installed over floor joists spaced at 16-inches on center, perpendicular to the wall panel. The tabulated values are also applicable to wall panels installed with a recessed dimensional lumber bottom plate ,installed over a minimum 2 x nominal lumber sill plate having a width equal to, or greater than, the panel thickness.
[5]The OSB panel facers must be attached to the lumber end plates as described in Section 4.2.1.
[6] The maximum allowable axial load is limited to 71 percent of the reported allowable axial load when panels are used as shear walls.

TABLE 7—ALLOWABLE UNIFORM AXIAL LOADS FOR WALL PANELS WITH DIMENSIONAL LUMBER SPLINES (plf)[1,2,3,4,5,6]

THICKNESS (inches)		WALL PANEL HEIGHT (feet)												
Panel	Core	8	9	10	11	12	13	14	15	16	17	18	19	20
4 1/2	3 5/8	2321	2260	2200	2139	2078	2018	1957	—	—	—	—	—	—
6 1/2	5 5/8	2508	2566	2624	2681	2739	2797	2855	2912	2970	3028	3086	3143	3201
8 1/4	7 3/8	2672	2696	2720	2745	2769	2793	2817	2841	2865	2890	2914	2938	2962
10 1/4	9 3/8	2672	2696	2720	2745	2769	2793	2817	2841	2865	2890	2914	2938	2866

For **SI:** 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 plf = 14.6 N/m.

[1]The tabulated loads are uniform axial loads applied concentrically to the full thickness of the panels, including panel facings.
[2]The tabulated values are for panels installed with the strong axis of the OSB panel facers parallel to the wall height (panel span) and with the dimensional lumber splines described in Section 3.2.4 installed at 4 feet on center.
[3]The tabulated values are for wall panels installed with a dimensional lumber top plate recessed into the core of the panel and a 2 x nominal lumber cap plate having a width equal to, or greater than, the panel thickness. The lumber must be No. 2 spruce-pine-fir, or better, for 2 x 4 and 2 x 6 plates, and No. 2 hem-fir, or better, for larger lumber sizes.
[4]The tabulated values are for wall panels with a single dimensional lumber bottom plate recessed into the panel core, installed over minimum 3/4-inch thick wood structural-use panel sheathing installed over floor joists spaced at 16-inches on center, perpendicular to the wall panel. The tabulated values are also applicable to wall panels installed with a recessed dimensional lumber bottom plate, installed over a minimum 2 x nominal lumber sill plate having a width equal to, or greater than, the panel thickness.
[5]The OSB panel facers must be attached to the lumber end plates as described in Section 4.2.1.
[6] The maximum allowable axial load is limited to 71 percent of the reported allowable axial load when panels are used as shear walls.

TABLE 8—ALLOWABLE CONCENTRATED AXIAL LOADS FOR WALL PANELS WITH BLOCK OR OSB SURFACE SPLINES (lb spaced at 2 feet on center)[1,2,3,4,5]

THICKNESS (inches)		WALL PANEL HEIGHT (feet)
Panel	Core	8
4 1/2	3 5/8	4445
6 1/2	5 5/8	4414
8 1/4	7 3/8	4387
10 1/4	9 3/8	4356

For **SI:** 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 plf = 14.6 N/m.

[1]The tabulated loads are concentrated axial loads spaced at 24 inches on center and applied concentrically to the full thickness of the panels, including panel facings.
[2]The tabulated values are for panels installed with the strong axis of the OSB panel facers parallel or perpendicular to the wall height (panel span).
[3]The tabulated values are for wall panels installed with a dimensional lumber top plate recessed into the core of the panel and a 2 x nominal lumber cap plate having a width equal to, or greater than, the panel thickness. The lumber must be No. 2 spruce-pine-fir, or better, for 2 x 4 and 2 x 6 plates, and No. 2 hem-fir, or better, for larger lumber sizes.
[4]The tabulated values are for wall panels with a single dimensional lumber bottom plate recessed into the panel core, installed over minimum 3/4-inch thick wood structural-use panel sheathing installed over floor joists at 16-inches on center, perpendicular to the wall panel. The tabulated values are also applicable to wall panels installed with a recessed dimensional lumber bottom plate, installed over a minimum 2 x nominal lumber sill plate having a width equal to, or greater than, the panel thickness.
[5]The OSB panel facers must be attached to the lumber end plates as described in Section 4.2.1.

TABLE 9—ALLOWABLE LATERAL IN-PLANE RACKING SHEAR LOAD FOR SHEAR WALL ASSEMBLIES CONSISTING OF INSULSPAN SIPs [1,2,3,4,5,6,7,8]

INSTALLATION CONFIGURATION	SPLINE TYPE	Minimum SIP Thickness (inches)	Bottom Plate	Top Plate	End Posts	NAIL SPACING (inches)	ALLOWABLE SHEAR LOADS (plf)
A[9]	Surface or Block	4.5	Single 2-by	Double 2-by	Double 2-by or Single 4-by	Single row at 6″ o.c.[10]	349
B	Surface or Block	4.5	Single 2-by	Double 2-by	Double 2-by or Single 4-by	Single row at 3″ o.c.[10]	557
C[9]	Double 2-by	4.5	Single 2-by	Double 2-by	Double 2-by or Single 4-by	Single row at 6″ o.c.[10]	366
D	Double 2-by	4.5	Single 2-by	Double 2-by	Double 2-by or Single 4-by	Single row at 3″ o.c.[10]	639
E	4X Lumber	6.5	Single 4-by	Single 4-by	Single 4-by	Single row at 4″ o.c.[10,12]	591
F	4X Lumber	6.5	Single 4-by	Single 4-by	Single 4-by	Two staggered rows, 2" o.c. (4″ o.c. each row)[11,12]	881

For **SI:** 1 inch = 25.4 mm, 1 plf = 14.6 N/m.

[1]The panels must be installed with the strong axis of the OSB facers oriented vertically.
[2]The maximum shearwall height-to-length ratio is 1:1.
[3] The double top plates and double end posts must be nailed together with 10d box nails spaced at 4 inches on center in two staggered rows (8 inches on center for each row).
[4]The shearwall end posts and splines must be continuous between, and bearing on the top and bottom plates.
[5] For the 4.5-inch thick SIP, the dimensional lumber bottom plates, top plates and end posts must be No. 2 spruce-pine-fir, or better. For the 6.5-inch thick SIP, the dimensional lumber bottom plates, top plates and end posts must be No. 2 Douglas fir-larch, or better.
[6]The splines must be as described in Section 3.2.4.
[7]The nails used to attach the OSB facers of the panels to the bottom plates, top plates, splines and end posts must be 8d box nails spaced a minimum of ¾ inch from the edges and ends of the sandwich panels. The nails must have a minimum bending yield strength, F_{yb}, of 100 ksi (689 MPa) and must comply with ASTM F1667.
[8] All of the installation configurations are recognized for use in Seismic Design Categories A, B and C.
[9]Installation configurations A and C are also recognized as both load-bearing and nonload-bearing shear walls for use in Seismic Design Categories D, E and F with the seismic design coefficient of R = 6.5, Ω_o = 3.0, and C_d = 4.0 under the following provisions:
a. When used as load-bearing panels, the allowable axial load must be determined in accordance with Table 6 and 7, as applicable, of this report.
b. A hold-down device must be attached to the vertical studs at each end of the shear wall assembly. Installation of the hold-down devices must be in accordance with the hold-down device manufacturer's instructions and as designed by the registered design professional.
c. The wall panels must be installed in a manner such that both facings of the wall panels are equally and uniformly restrained at the top and bottom of the panels. The member, element or structure supporting the shear wall and the vertical restraint provided to the facers of the SIPs at the top and bottom of wall panel must be designed and detailed by a registered design professional.
d. Shearwalls must be supported by a rigid foundation, such as a concrete foundation.
e. Installation Configuration A may be used with a maximum shearwall height-to-length ratio of 3.5:1, provided the maximum wall height is 96 inches and no splines are used in the shearwall assembly. Wall heights greater than 96 inches are outside the scope of this report.
[10]For nail spacings of 3, 4 and 6-inches, the rows of nails must be ¾ inch from the edges and ends of the sandwich panels.
[11]For nails installed into the shearwall perimeter (top plate, bottom plate and end posts), the first row of nails must be ¾ inch from the sandwich panel edges and the second row of nails must be $1^1/_2$ inches from the first row. For nails installed into the vertical splines, the first row of nails must be $^5/_8$ inch from the sandwich panel edge and the second row of nails must be $1^1/_8$ inches from the first row.
[12]Each 2 x member of the double end posts and vertical spline must be fastened to the top and bottom plates with 3—10d box end nails. Each 4 x end post and spline must be attached to the top and bottom plates with 4-10d box toenails.

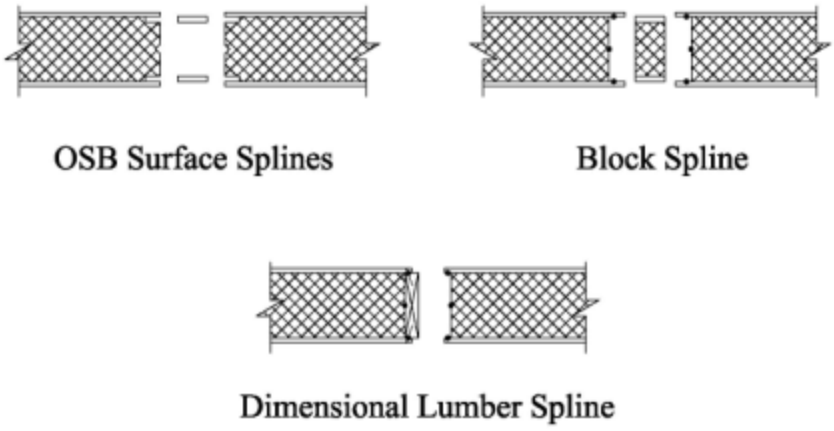

FIGURE 1—TYPE OF LONGITUDINAL SPLINES

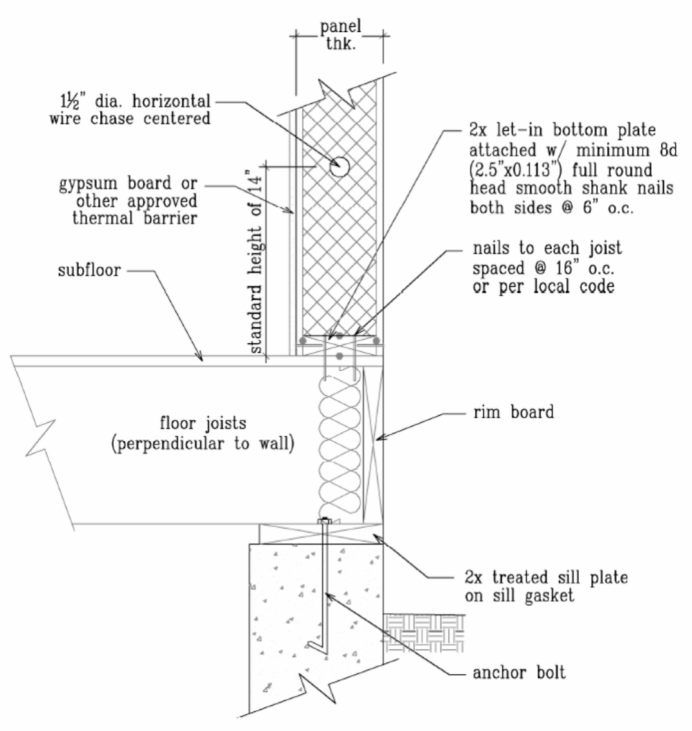

FIGURE 2—TYPICAL WALL PANEL ON FLOOR

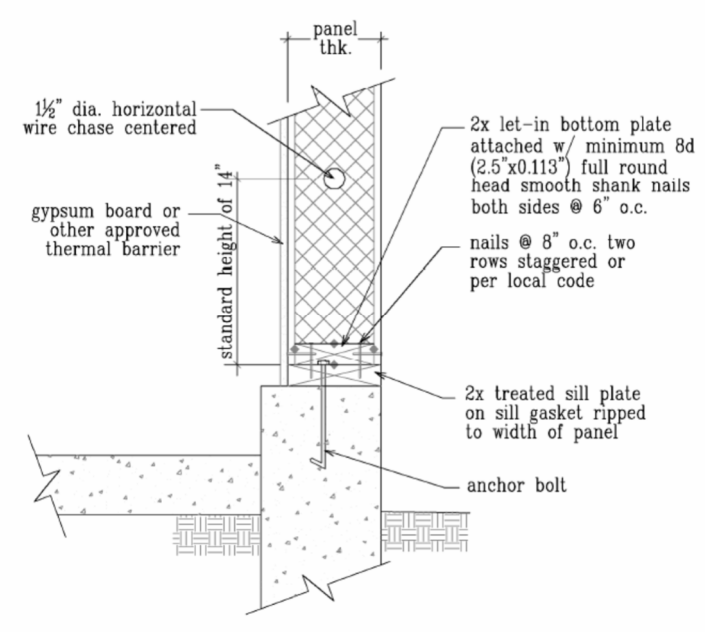

FIGURE 3—TYPICAL WALL PANEL ON FOUNDATION

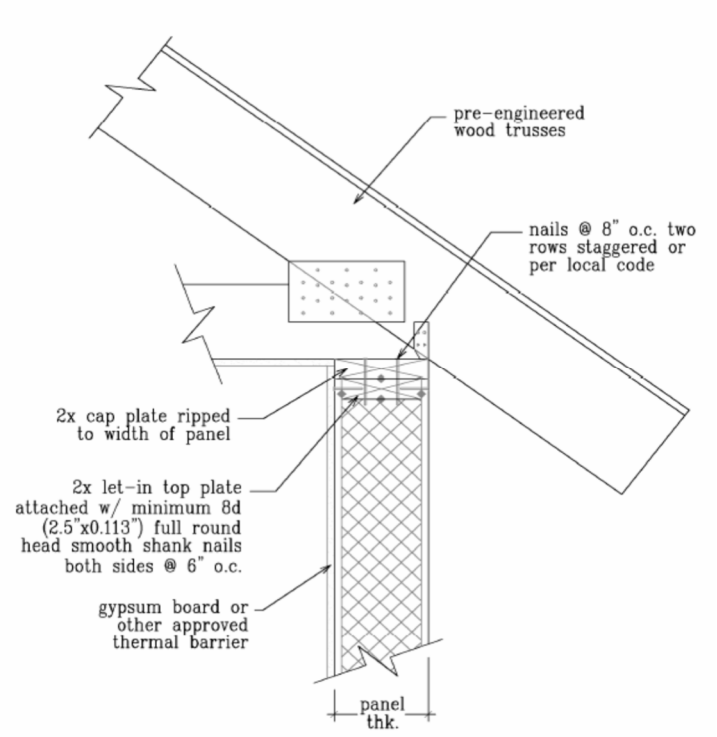

FIGURE 4—TYPICAL ROOF TRUSS TO WALL PANEL

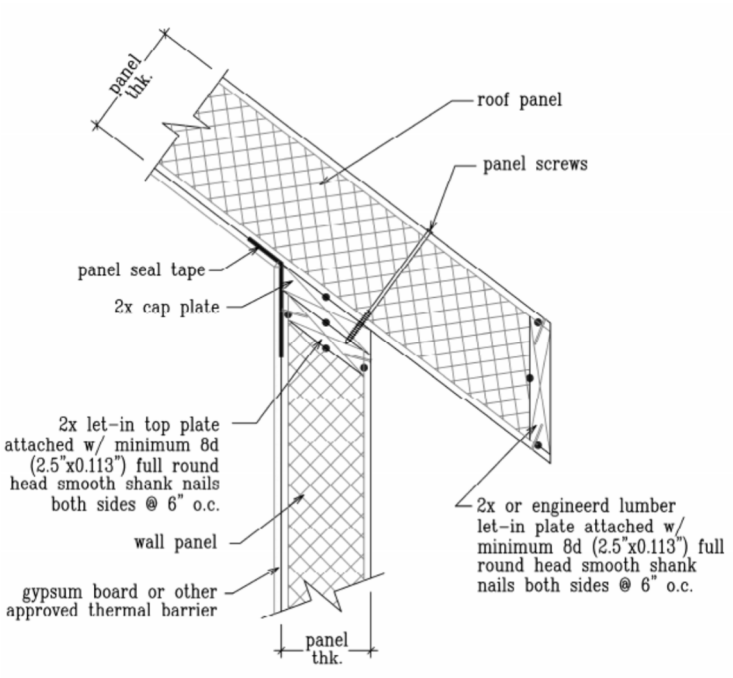

FIGURE 5—WALL PANEL TO ROOF PANEL WITH BEVELED TOP PLATE

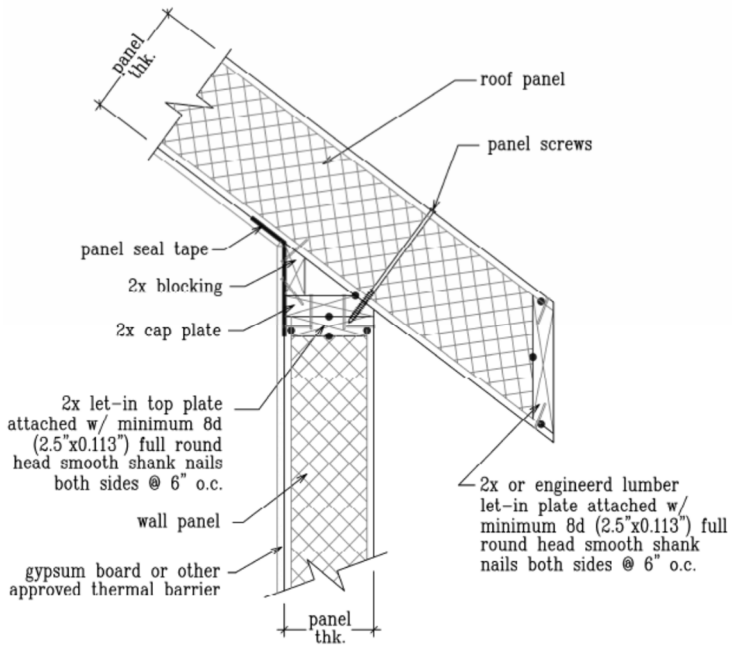

FIGURE 6—WALL PANEL TO ROOF PANEL WITH 2X BLOCKING

DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES
Section: 06 12 00—Structural Panels

REPORT HOLDER:

PFB AMERICA CORPORATION

EVALUATION SUBJECT:

INSULSPAN STRUCTURAL INSULATING PANEL SYSTEM

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Insulspan Structural Insulating Panel System, described in ICC-ES evaluation report ESR-1295, has also been evaluated for compliance with the codes noted below as adopted by the Los Angeles Department of Building and Safety (LADBS).

Applicable code editions:

- 2020 *City of Los Angeles Building Code* (LABC)
- 2020 *City of Los Angeles Residential Code* (LARC)

2.0 CONCLUSIONS

The Insulspan Structural Insulating Panel System, described in Sections 2.0 through 7.0 of the evaluation report ESR-1295, complies with the LABC Chapters 7, 23 and 26, and the LARC, and is subject to the conditions of use described in this supplement.

3.0 CONDITIONS OF USE

The Insulspan Structural Insulating Panel System described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report ESR-1295.
- The design, installation, conditions of use and identification are in accordance with the 2018 *International Building Code®* (IBC) provisions noted in the evaluation report ESR-1295.
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 16 and 17, as applicable.
- Under the LARC, an engineered design in accordance with LARC Section R301.1.3 must be submitted.

This supplement expires concurrently with the evaluation report, reissued February 2021 and revised November 2021.

ICC-ES Evaluation Report

ESR-1295 CBC and CRC Supplement

Issued February 2021
Revised November 2021
This report is subject to renewal February 2023.

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DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES
Section: 06 12 00—Structural Panels

REPORT HOLDER:

PFB AMERICA CORPORATION

EVALUATION SUBJECT:

INSULSPAN STRUCTURAL INSULATING PANEL SYSTEM

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the Insulspan Structural Insulating Panel System, described in ICC-ES evaluation report ESR-1295, has also been evaluated for compliance with the code*(s)* noted below.

Applicable code edition*(s)*:

- 2019 *California Building Code* (CBC)

For evaluation of applicable chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) and Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

- 2019 *California Residential Code* (CRC)

2.0 CONCLUSIONS

2.1 CBC:

The Insulspan Structural Insulating Panel System, described in Sections 2.0 through 7.0 of the evaluation report ESR-1295, complies with CBC Chapters 7, 16, and 26, provided the design and installation are in accordance with the 2018 *International Building Code®* (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapters 16 and 26, as applicable.

2.1.1 OSHPD: The applicable OSHPD Sections of the CBC are beyond the scope of this supplement.

2.1.2 DSA: The applicable DSA Sections of the CBC are beyond the scope of this supplement.

2.2 CRC:

The Insulspan Structural Insulating Panel System, described in Sections 2.0 through 7.0 of the evaluation report ESR-1925, complies with CRC Sections R301 and R316, provided the design and installation are in accordance with the 2018 *International Residential Code®* (IRC) provisions noted in the evaluation report ESR-1295.

This evaluation report supplement expires concurrently with the evaluation report ESR-1295, reissued February 2021 and revised November 2021.

ICC-ES Evaluation Report

ESR-1295 FBC Supplement

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DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES
Section: 06 12 00—Structural Panels

REPORT HOLDER:

PFB AMERICA CORPORATION

EVALUATION SUBJECT:

INSULSPAN STRUCTURAL INSULATING PANEL SYSTEM

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Insulspan Structural Insulating Panel System, described in ICC-ES evaluation report ESR-1295, has also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2017 *Florida Building Code—Building*
- 2017 *Florida Building Code—Residential*

2.0 CONCLUSIONS

The Insulspan Structural Insulating Panel System, described in Sections 2.0 through 7.0 of the evaluation report ESR-1295, complies with the *Florida Building Code—Building* and the *Florida Building Code—Residential*, provided the design and installation are in accordance with the 2015 *International Building Code®* `provisions noted in the evaluation report under the following conditions:

- Installation of the foam plastic in areas subject to damage from termites must meet the requirements of Sections 1403.8 and 2603.8 of the *Florida Building Code—Building* and Sections R318.7 and R318.8 of the *Florida Building Code—Residential*, as applicable.
- Installation of the panels must be installed such that the panel facings are protected against decay and termites to meet the requirements of Sections 2304.12.1.2 and 2304.12.1.5 of the *Florida Building Code—Building* and Sections R317.1(2) and (5) and R318 of the *Florida Building Code—Residential*, as applicable.

Use of the Insulspan Structural Insulating Panel System for compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* and the *Florida Building Code—Residential* has not been evaluated, and is outside the scope of this supplemental report.

For products falling under Florida Rule 9N-3, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the evaluation report, reissued February 2021 and revised November 2021.

INSULSPAN™

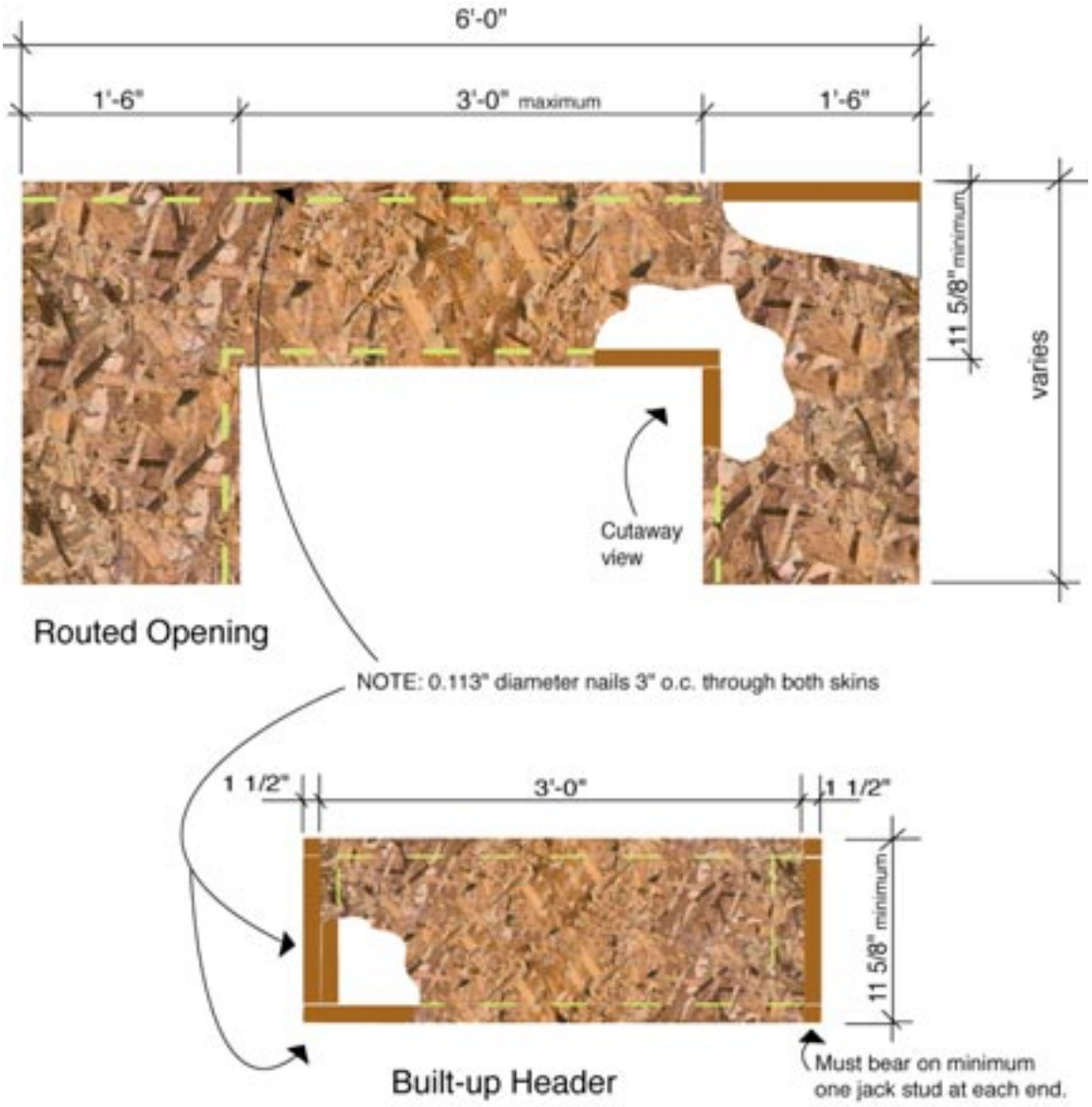
STRUCTURAL INSULATED PANEL SYSTEM

Technical Bulletin

No. 103 September 30,2002

Allowable Header Loads

Tests have been performed at the Insulspan Test Facility to compare the performance of SIP headers which have been built up as a box beam vs. headers which remain after a door or window has been cut out of a larger panel, termed here a “Routed Opening”. All of the lumber used to frame the openings was #2 or better SPF. The OSB facings were attached to the lumber with 0.113” diameter nails spaced 3” on center through both sides on all edges. The header supports were fixed supports as they would be in actual installed condition. The load was applied through two point loads located at the _ points of the header. The values listed below have been converted to allowable uniform loads. The clear span of the headers was 3’-0” for both cases. The depth of the headers was 11 5/8”. The routed opening header had 1’-6” of material to each side of the opening and is considered to be the minimum amount required to achieve the extra stiffness observed with the routed opening. Furthermore, the top plate over the routed panel header must be continuous over the opening and at least 1’-6” past the end of the opening to use the stiffer values. No contribution from adhesive was observed in the tests nor can any adhesive be relied on in construction to stiffen or strengthen the header. No extrapolation from the data is allowed. See the attached figure for clarification of dimensions. For a deflection criteria of L/360, both header types were limited by deflection. Insulspan does not recommend that headers be designed to deflect more than L/360. If less deflection is desired, then the allowable load can be reduced in proportion to the extra amount of stiffness required.



The allowable loads for the two header configurations are as follows:

Table 1. Allowable loads for 3'-0" span for 11 5/8" headers nailed 3" o.c.

Header -Type	Allowable Load [PLF]
Built – up	938
Routed	1324

INSULSPAN®
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BULLETIN NO.	112
ISSUED:	May 27, 2014
REPLACES:	June 17, 2010

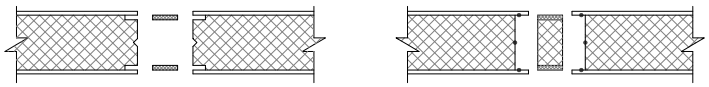
Technical Bulletin

Roof & Floor Panel Transverse Load Design Charts - US Model Codes

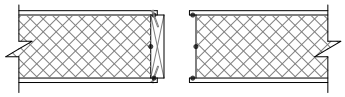
This bulletin provides transverse design loads for the Insulspan® Structural Insulating Panel (SIP) System when used as a component in roof or floor systems designed in accordance with the 2012, 2009 and 2006 **International Building Code®** and **International Residential Code®**. Insulspan has completed structural testing of the Insulspan SIP System for this application using a third party testing laboratory following the requirements of ASTM E72, **Standard Test Methods of Conducting Strength Tests of Panels for Building Construction.**

The attached **Roof and Floor Transverse Design Load** charts dated January 20, 2014 summarize total design loads with the following vertical joint configurations:

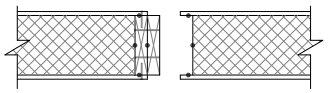
- Table R-1-S – OSB Surface Spline or Insulspline



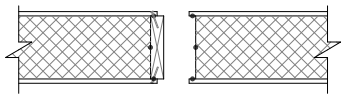
- Table R-2-L – Single 2x Lumber



- Table R-3-DL – Double 2x Lumber



- Table R-4-LVL – Single 1.8E LVL



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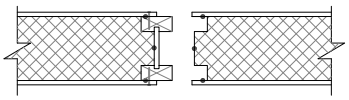
- Table R-5-I – Wood I-Joist



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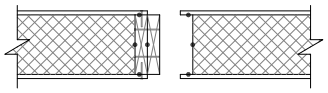
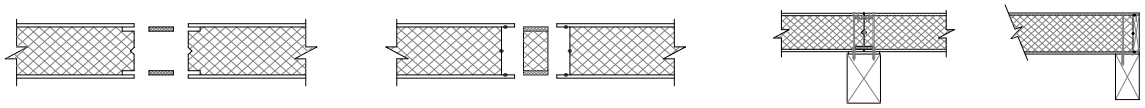
- Table R-6-DLVL – Double 1.8E LVL



Contact:
East:1-800-726-3510
West:1-866-848-8855
www.insulspan.com

Table R-1-S ROOF AND FLOOR TRANSVERSE DESIGN LOAD (psf)



OSB SURFACE SPLINES OR INSULSPLINES																
Thickness		Allowable	PANEL SPAN (feet)													
SIP	EPS	Deflection	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
4 1/2"	3 5/8"	L/360	94	73	55	42	33	26	21	17	14	–	–	–	–	–	–
		L/240	**121**	**97**	**81**	64	50	39	32	26	21	–	–	–	–	–	–
		L/180	**121**	**97**	**81**	**68**	**56**	**47**	**39**	**32**	**27**	–	–	–	–	–	–
6 1/2"	5 5/8"	L/360	**136**	**109**	84	66	53	43	35	29	24	–	–	–	–	–	–
		L/240	**136**	**109**	**91**	**78**	**68**	**60**	52	43	36	–	–	–	–	–	–
		L/180	**136**	**109**	**91**	**78**	**68**	**60**	**54**	**46**	**39**	–	–	–	–	–	–
8 1/4"	7 3/8"	L/360	**151**	**120**	**100**	**86**	73	60	50	42	36	30	26	22	19	17	15
		L/240	**151**	**120**	**100**	**86**	**75**	**67**	**60**	**55**	**50**	**44**	**38**	**33**	**29**	25	22
		L/180	**151**	**120**	**100**	**86**	**75**	**67**	**60**	**55**	**50**	**44**	**38**	**33**	**29**	**26**	**23**
10 1/4"	9 3/8"	L/360	**159**	**127**	**106**	**91**	**79**	**71**	**63**	**58**	51	44	38	33	29	26	23
		L/240	**159**	**127**	**106**	**91**	**79**	**71**	**63**	**58**	**53**	**49**	**43**	**37**	**33**	**29**	**26**
		L/180	**159**	**127**	**106**	**91**	**79**	**71**	**63**	**58**	**53**	**49**	**43**	**37**	**33**	**29**	**26**
12 1/4"	11 3/8"	L/360	**167**	**134**	**111**	**95**	**83**	**74**	**67**	**61**	**56**	**51**	**48**	**43**	**37**	**33**	**30**
		L/240	**167**	**134**	**111**	**95**	**83**	**74**	**67**	**61**	**56**	**51**	**48**	**43**	**37**	**33**	**30**
		L/180	**167**	**134**	**111**	**95**	**83**	**74**	**67**	**61**	**56**	**51**	**48**	**43**	**37**	**33**	**30**

Revision : January 20, 2014

Notes:

1. The tabulated values are total design loads for panels with nominal 2" wide bearing at supports based upon design requirements of International Building Code® and International Residential Code®. Values printed in **bold type** are based on panel strength rather than stiffness.
2. The span of a sloped roof panel must be measured along the slope. Design loads are to be calculated as normal loads acting perpendicular to the face of the panel.
3. Insulspan SIP System must be assembled as per Insulspan Installation Guide and recommended assembly details.
4. Insulspan SIP skins are nailed to the vertical OSB splines at panel joints using minimum 8d box nails @ 6" on center or equivalent.
5. Insulspan SIP System core material is molded expanded polystyrene (EPS) insulation complying with the requirements of ASTM C 578, type I.
6. Insulspan SIP System exterior skins are minimum 7/16-inch thick structural grade oriented strand board (OSB) conforming to DOC PS2, exposure 1.
7. Roof panels subject to concentrated roof maintenance live loads must be limited to maximum span of 8 feet for 4 1/2" roof panels and 16 feet for 8 1/4" or 10 1/4" roof panels.
8. An approved thermal barrier, such as 7/16-inch thick wood-based structural-use sheathing, must be installed over the top surface of floor panels.

Table R-2-L ROOF AND FLOOR TRANSVERSE DESIGN LOAD (psf)

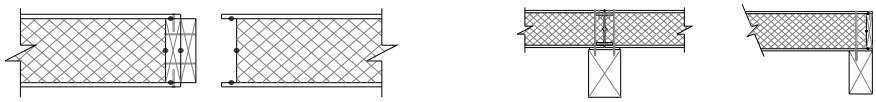
SINGLE 2 x LUMBER SPLINES @ 4'-0" On Center																		
Thickness		Allowable	PANEL SPAN (feet)															
SIP	EPS	Deflection	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
4 1/2"	3 5/8"	L/360	94	71	55	43	35	28	23	19	16	14	12	–	–	–	–	–	–
		L/240	142	106	82	65	52	42	35	29	24	20	17	–	–	–	–	–	–
		L/180	**189**	**142**	**110**	87	70	57	47	39	32	27	23	–	–	–	–	–	–
6 1/2"	5 5/8"	L/360	246	181	138	107	84	67	54	45	37	31	26	22	19	16	14	12	11
		L/240	**248**	**199**	**165**	**142**	**124**	101	82	67	55	46	39	33	28	24	21	18	16
		L/180	**248**	**199**	**165**	**142**	**124**	**110**	**99**	**87**	**74**	**62**	**52**	44	37	32	28	24	21
8 1/4"	7 3/8"	L/360	**267**	**214**	**178**	**153**	130	104	84	69	57	48	40	34	29	25	21	19	16
		L/240	**267**	**214**	**178**	**153**	**134**	**119**	**107**	**97**	86	71	60	51	43	37	32	28	25
		L/180	**267**	**214**	**178**	**153**	**134**	**119**	**107**	**97**	**89**	**78**	**67**	**58**	**51**	**45**	**41**	**36**	33
10 1/4"	9 3/8"	L/360	**295**	**236**	**196**	**168**	**147**	**131**	**118**	100	85	72	61	53	45	39	34	30	27
		L/240	**295**	**236**	**196**	**168**	**147**	**131**	**118**	**107**	**98**	**90**	**78**	**68**	**59**	**53**	**47**	**42**	**38**
		L/180	**295**	**236**	**196**	**168**	**147**	**131**	**118**	**107**	**98**	**90**	**78**	**68**	**59**	**53**	**47**	**42**	**38**
12 1/4"	11 3/8"	L/360	**322**	**258**	**215**	**184**	**161**	**143**	**129**	**117**	**107**	98	85	74	64	56	50	44	39
		L/240	**322**	**258**	**215**	**184**	**161**	**143**	**129**	**117**	**107**	**99**	**91**	**79**	**69**	**61**	**55**	**49**	**44**
		L/180	**322**	**258**	**215**	**184**	**161**	**143**	**129**	**117**	**107**	**99**	**91**	**79**	**69**	**61**	**55**	**49**	**44**

Revision : January 20, 2014

Notes:

1. The tabulated values are total design loads for panels with nominal 2" wide bearing at supports based upon design requirements of International Building Code® and International Residential Code®. Values printed in **bold type** are based on panel strength rather than stiffness.
2. The span of a sloped roof panel must be measured along the slope. Design loads are to be calculated as normal loads acting perpendicular to the face of the panel.
3. Insulspan SIP System must be assembled as per Insulspan Installation Guide and recommended assembly details.
4. Acceptable 2x4 or 2x6 lumber for assembly of the Insulpsan SIP System is SPF #2 & better; acceptable 2x8, 2x10 or 2x12 lumber is Hem Fir #2 & better.
5. Insulspan SIP skins are nailed to the vertical lumber splines at panel joints using minimum 8d box nails @ 6" on center or equivalent.
6. Insulspan SIP System core material is molded expanded polystyrene (EPS) insulation complying with the requirements of ASTM C 578, type I.
7. Insulspan SIP System exterior skins are minimum 7/16" thick structural grade oriented strand board (OSB) conforming to DOC PS2, exposure 1.
8. Roof panels subject to concentrated roof maintenance live loads must be limited to maximum span of 8 feet for 4 1/2" roof panels, 14 feet for 6 1/2" roof panels and 18 feet for 8 1/4" roof panels
9. An approved thermal barrier, such as 7/16-inch thick wood-based structural-use sheathing, must be installed over the top surface of floor panels.

Table R-3-DL ROOF AND FLOOR TRANSVERSE DESIGN LOAD (psf)



DOUBLE 2 x LUMBER SPLINES @ 4'-0" On Center																		
Thickness		Allowable	PANEL SPAN (feet)															
SIP	EPS	Deflection	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
4 1/2"	3 5/8"	L/360	162	115	68	54	40	33	26	22	18	15	13	–	–	–	–	–	–
		L/240	**195**	147	100	79	59	49	39	33	27	23	20	–	–	–	–	–	–
		L/180	**195**	**162**	**129**	103	78	65	52	44	36	31	26	–	–	–	–	–	–
6 1/2"	5 5/8"	L/360	246	200	155	119	84	69	55	46	38	32	27	24	21	18	16	14	13
		L/240	**248**	**210**	**173**	**148**	**124**	103	82	69	57	49	41	36	31	27	24	21	19
		L/180	**248**	**210**	**173**	**148**	**124**	**111**	**99**	**87**	**74**	63	52	47	41	36	32	29	26
8 1/4"	7 3/8"	L/360	**267**	**228**	**190**	166	142	115	89	75	62	53	45	39	34	30	26	23	21
		L/240	**267**	**228**	**190**	**169**	**148**	**129**	**111**	**100**	**90**	78	66	57	49	44	39	35	31
		L/180	**267**	**228**	**190**	**169**	**148**	**129**	**111**	**100**	**90**	**82**	**75**	**69**	**63**	57	51	46	41
10 1/4"	9 3/8"	L/360	**295**	**245**	**196**	**190**	**185**	**160**	**136**	116	97	83	70	61	53	47	41	37	33
		L/240	**295**	**245**	**196**	**190**	**185**	**160**	**136**	**120**	**105**	**96**	**88**	**81**	**75**	**69**	**64**	56	48
		L/180	**295**	**245**	**196**	**190**	**185**	**160**	**136**	**120**	**105**	**96**	**88**	**81**	**75**	**69**	**64**	**59**	**55**
12 1/4"	11 3/8"	L/360	**322**	**268**	**215**	**202**	**190**	**175**	**161**	**142**	**123**	**111**	**99**	88	78	69	61	54	48
		L/240	**322**	**268**	**215**	**202**	**190**	**175**	**161**	**142**	**123**	**111**	**99**	**91**	**84**	**78**	**72**	**67**	**63**
		L/180	**322**	**268**	**215**	**202**	**190**	**175**	**161**	**142**	**123**	**111**	**99**	**91**	**84**	**78**	**72**	**67**	**63**

Revision : January 20, 2014

Notes:

1. The tabulated values are total design loads for panels with nominal 2" wide bearing at supports based upon design requirements of International Building Code® and International Residential Code®. Values printed in **bold type** are based on panel strength rather than stiffness.
2. The span of a sloped roof panel must be measured along the slope. Design loads are to be calculated as normal loads acting perpendicular to the face of the panel.
3. Insulspan SIP System must be assembled as per Insulspan Installation Guide and recommended assembly details.
4. Acceptable 2x4 or 2x6 lumber for assembly of the Insulpsan SIP System is SPF #2 & better; acceptable 2x8, 2x10 or 2x12 lumber is Hem Fir #2 & better.
5. Insulspan SIP skins are nailed to the vertical lumber splines at panel joints using minimum 8d box nails @ 6" on center or equivalent.
6. Insulspan SIP System core material is molded expanded polystyrene (EPS) insulation complying with the requirements of ASTM C 578, type I.
7. Insulspan SIP System exterior skins are minimum 7/16" thick structural grade oriented strand board (OSB) conforming to DOC PS2, exposure 1.
8. Roof panels subject to concentrated roof maintenance live loads must be limited to maximum span of 10 feet for 4 1/2" roof panels and 16 feet for 6 1/2" roof panels
9. An approved thermal barrier, such as 7/16-inch thick wood-based structural-use sheathing, must be installed over the top surface of floor panels.

Table R-4-LVL ROOF AND FLOOR TRANSVERSE DESIGN LOAD (psf)

SINGLE LVL SPLINES @ 4'-0" On Center																		
Thickness		Allowable	PANEL SPAN (feet)															
SIP	EPS	Deflection	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
4 1/2"	3 5/8"	L/360	142	102	63	49	36	30	24	20	17	14	12	–	–	–	–	–	–
		L/240	**189**	140	92	72	53	44	35	30	25	21	18	–	–	–	–	–	–
		L/180	**189**	154	120	95	70	58	47	40	33	28	24	–	–	–	–	–	–
6 1/2"	5 5/8"	L/360	246	192	138	111	84	69	54	45	37	31	26	22	19	17	15	13	12
		L/240	**248**	**215**	**183**	153	124	103	82	68	55	47	39	33	28	24	21	19	17
		L/180	**248**	**215**	**183**	162	142	120	99	87	74	63	52	44	37	32	28	25	23
8 1/4"	7 3/8"	L/360	**267**	**228**	**190**	160	130	107	84	70	57	48	40	34	29	26	23	20	18
		L/240	**267**	**228**	**190**	**182**	**174**	143	113	99	86	73	60	51	43	38	33	30	27
		L/180	**267**	**228**	**190**	**182**	**174**	**157**	**140**	119	98	84	71	62	54	48	43	38	34
10 1/4"	9 3/8"	L/360	**295**	**245**	**196**	**189**	**183**	153	123	104	85	73	62	54	46	41	36	32	28
		L/240	**295**	**245**	**196**	**189**	**183**	**175**	**167**	144	122	105	89	77	66	58	51	46	41
		L/180	**295**	**245**	**196**	**189**	**183**	**175**	**167**	**156**	**145**	129	114	99	84	74	65	58	52
12 1/4"	11 3/8"	L/360	**322**	**268**	**215**	**202**	**190**	**184**	**178**	150	123	106	90	78	67	59	52	46	41
		L/240	**322**	**268**	**215**	**202**	**190**	**184**	**178**	**172**	**167**	148	129	113	97	86	75	67	59
		L/180	**322**	**268**	**215**	**202**	**190**	**184**	**178**	**172**	**167**	**157**	**148**	136	124	109	95	85	76

Revision : January 20, 2014

Notes:

1. The tabulated values are total design loads for panels with nominal 2" wide bearing at supports based upon design requirements of International Building Code® and International Residential Code®. Values printed in **bold type** are based on panel strength rather than stiffness.
2. The span of a sloped roof panel must be measured along the slope. Design loads are to be calculated as normal loads acting perpendicular to the face of the panel.
3. Insulspan SIP System must be assembled as per Insulspan Installation Guide and recommended assembly details.
4. Acceptable LVL for assembly of the Insulpsan SIP System is 1.8E LVL or better.
5. Insulspan SIP skins are nailed to the vertical LVL splines at panel joints using minimum 8d box nails @ 6" on center or equivalent.
6. Insulspan SIP System core material is molded expanded polystyrene (EPS) insulation complying with the requirements of ASTM C 578, type I.
7. Insulspan SIP System exterior skins are minimum 7/16" thick structural grade oriented strand board (OSB) conforming to DOC PS2, exposure 1.
8. Roof panels subject to concentrated roof maintenance live loads must be limited to maximum span of 8 feet for 4 1/2" roof panels and 14 feet for 6 1/2" roof panels.
9. An approved thermal barrier, such as 7/16-inch thick wood-based structural-use sheathing, must be installed over the top surface of floor panels.

Table R-5-I ROOF AND FLOOR TRANSVERSE DESIGN LOAD (psf)

WOOD I-JOIST SPLINES @ 4'-0" On Center																		
Thickness		Allowable	PANEL SPAN (feet)															
SIP	EPS	Deflection	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
8 1/4"	7 3/8"	L/360	**215**	**195**	**175**	**152**	**130**	107	84	70	57	48	40	34	29	25	22	20	18
		L/240	**215**	**195**	**175**	**152**	**130**	**117**	**105**	95	86	73	60	51	43	38	33	30	27
		L/180	**215**	**195**	**175**	**152**	**130**	**117**	**105**	**97**	**90**	80	71	62	54	48	43	39	35
10 1/4"	9 3/8"	L/360	**290**	**240**	**190**	**167**	**145**	**132**	**120**	102	85	73	61	53	45	39	34	30	27
		L/240	**290**	**240**	**190**	**167**	**145**	**132**	**120**	**110**	**100**	**90**	**80**	70	60	54	48	43	38
		L/180	**290**	**240**	**190**	**167**	**145**	**132**	**120**	**110**	**100**	**90**	**80**	79	78	70	62	56	50
12 1/4"	11 3/8"	L/360	**315**	**257**	**200**	**180**	**160**	**145**	**130**	**120**	**110**	97	85	74	64	57	50	44	39
		L/240	**315**	**257**	**200**	**180**	**160**	**145**	**130**	**120**	**110**	**102**	**95**	**87**	**80**	72	64	58	52
		L/180	**315**	**257**	**200**	**180**	**160**	**145**	**130**	**120**	**110**	**102**	**95**	**87**	**80**	**75**	**70**	67	65

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Notes:

1. The tabulated values are total design loads for panels with nominal 2" wide bearing at supports based upon design requirements of International Building Code® and International Residential Code®. Values printed in **bold type** are based on panel strength rather than stiffness.
2. The span of a sloped roof panel must be measured along the slope. Design loads are to be calculated as normal loads acting perpendicular to the face of the panel.
3. Insulspan SIP System must be assembled as per Insulspan Installation Guide and recommended assembly details.
4. Acceptable wood I-joists for assembly of the Insulpsan SIP System are Nascor NJH, Jager JSI2000 and Trus Joist TJI 100C or better.
5. Insulspan SIP skins are nailed to the vertical wood I-joist splines at panel joints using minimum 8d box nails @ 6" on center or equivalent.
6. Insulspan SIP System core material is molded expanded polystyrene (EPS) insulation complying with the requirements of ASTM C 578, type I.
7. Insulspan SIP System exterior skins are minimum 7/16" thick structural grade oriented strand board (OSB) conforming to DOC PS2, exposure 1.
8. An approved thermal barrier, such as 7/16-inch thick wood-based structural-use sheathing, must be installed over the top surface of floor panels.

Table R-6-DLVL ROOF AND FLOOR TRANSVERSE DESIGN LOAD (psf)

DOUBLE LVL SPLINES @ 4'-0" On Center																			
Thickness		Allowable	PANEL SPAN (feet)																
SIP	EPS	Deflection	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
4 1/2"	3 5/8"	L/360	**200**	141	82	63	45	36	28	23	19	16	14	12	10	–	–	–	–
		L/240	**200**	160	121	94	67	54	42	35	29	25	21	18	16	–	–	–	–
		L/180	**200**	179	158	123	88	72	56	47	39	33	28	24	21	–	–	–	–
6 1/2"	5 5/8"	L/360	**248**	**215**	**183**	143	104	84	65	54	43	37	31	27	23	20	18	16	14
		L/240	**248**	**215**	**183**	166	150	122	95	79	63	54	45	39	33	29	26	23	21
		L/180	**248**	**215**	**183**	**169**	**156**	140	124	103	82	70	58	51	44	39	34	30	27
8 1/4"	7 3/8"	L/360	**267**	**228**	**190**	**184**	**179**	144	110	92	75	64	53	46	39	34	30	26	23
		L/240	**267**	**228**	**190**	**184**	**179**	**165**	**152**	130	109	93	77	66	56	49	43	38	34
		L/180	**267**	**228**	**190**	**184**	**179**	**165**	**152**	**143**	**135**	117	100	86	73	64	56	50	44
10 1/4"	9 3/8"	L/360	**295**	**245**	**196**	**190**	**185**	**179**	**174**	148	122	104	87	75	64	56	49	43	38
		L/240	**295**	**245**	**196**	**190**	**185**	**179**	**174**	**164**	**154**	140	126	110	94	82	71	63	55
		L/180	**295**	**245**	**196**	**190**	**185**	**179**	**174**	**164**	**154**	**147**	**140**	131	122	107	92	82	72
12 1/4"	11 3/8"	L/360	**322**	**268**	**215**	**202**	**190**	**186**	**182**	**177**	**172**	151	130	113	97	85	73	65	57
		L/240	**322**	**268**	**215**	**202**	**190**	**186**	**182**	**177**	**172**	**164**	**156**	148	141	125	109	97	85
		L/180	**322**	**268**	**215**	**202**	**190**	**186**	**182**	**177**	**172**	**164**	**156**	**150**	**145**	**141**	**137**	123	110

Revision : January 20, 2014

Notes:

1. The tabulated values are total design loads for panels with nominal 2" wide bearing at supports based upon design requirements of International Building Code® and International Residential Code®. Values printed in **bold type** are based on panel strength rather than stiffness.
2. The span of a sloped roof panel must be measured along the slope. Design loads are to be calculated as normal loads acting perpendicular to the face of the panel.
3. Insulspan SIP System must be assembled as per Insulspan Installation Guide and recommended assembly details.
4. Acceptable LVL lumber for use with the Insulspan SIP System is 1.8E LVL or better.
5. Insulspan SIP skins are nailed to the vertical double LVL splines at panel joints using minimum 8d box nails @ 6" on center or equivalent.
6. Insulspan SIP System core material is molded expanded polystyrene (EPS) insulation complying with the requirements of ASTM C 578, type I.
7. Insulspan SIP System exterior skins are minimum 7/16" thick structural grade oriented strand board (OSB) conforming to DOC PS2, exposure 1.
8. Roof panels subject to concentrated roof maintenance live loads must be limited to maximum span of 10 feet for 4 1/2" roof panels and 18 feet for 6 1/2" roof panels.
9. An approved thermal barrier, such as 7/16-inch thick wood-based structural-use sheathing, must be installed over the top surface of floor panels.

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Technical Bulletin

BULLETIN NO.	116
ISSUED:	August 9, 2019
REPLACES:	May 29, 2017

Insulspan SIP System for use in Roof or Floor Diaphragm Assemblies NTA Listing Report NLR-1071

(4 pages attached)

This bulletin addresses use of the ***Insulspan® SIP System*** for constructing diaphragm assemblies typically used for roof or floor applications that are required to provide resistance to seismic or wind loads. NTA Listing Report NLR-1071 provides diaphragm assemblies for ***Insulspan SIP System*** with a minimum 8 ¼" (210 mm) ***Insulspan SIP*** thickness based upon the applicable sections of ASTM E455 Standard, *Test Method for Static Load Testing of Framed Floor or Roof Diaphragm Constructions for Buildings*.

Determination of the intended load condition is essential to developing the proper fastening patterns for panel to panel connection splines and panel to support attachments. The engineer of record for the project is the source for this design information.

General descriptions of the ***Insulspan SIP System*** listed diaphragm assemblies are provided in Table 1. Refer to the attached copy of NTA Listing Report NLR-1071 for detailed requirements for diaphragm assemblies.

Table 1 – NTA Assembly Reports - Insulspan SIP System

Panel to Panel Connection	Boundary Splines	Boundary Support Connection	Spline Nail Spacing
OSB Spline or Insulated Spline Interior panel to panel joints	2" x	SIP screws @ 6" on center 0.190" shank diameter 0.255" thread o.d. Min. 2.750" thread length 0.625" head diameter	0.131" x 2-1/2" nails @ 6" on center
OSB Spline or Insulated Spline Interior panel to panel joints	2" x	SIP screws @ 4" on center 0.190" shank diameter 0.255" thread o.d. Min. 2.750" thread length 0.625" head diameter	0.131" x 2-1/2" nails @ 4" on center
OSB Spline or Insulated Spline Interior panel to panel joints	2" x	SIP screws @ 2" oc 0.190" shank diameter 0.255" thread o.d. Min. 2.750" thread length 0.625" head diameter	0.131" x 2-1/2" nails @ 2" on center staggered 3/8"

Contact:
800-726-3510 East, Midwest
866-848-8855 West
www.Insulspan.com

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Nappanee, IN 46550
Phone: 574-773-7975
Fax: 574-773-2260

NLR-1071
Issued Date: 03/29/2019
Revised Date: 07/30/2019
This report is subject to annual review

NTA Listing Report

Report Holder
Plasti-Fab Ltd.
300, 2891 Sunridge Way NE
Calgary, Alberta T1Y 7H9
Canada

Manufacturing Location(s)	
PFB Manufacturing, LLC **245 N. Jipson St.** **Blissfield, MI 49228-1167**	**Plasti-Fab Ltd.** **#1, 600 Chester Road,** **Annacis Business Park** **Delta, BC V3M 5Y3**

1. Product
1.1 ***Insulspan Structural Insulated Roof Panels*** **for use in diaphragm assemblies**

2. Standards
NTA, Inc. is listing the above product(s) for compliance with the applicable sections of the following standards:
2.1 ASTM E455 Standard Test Method for Static Load Testing of Framed Floor or Roof Diaphragm Constructions for Buildings

3. **Manufacturing Quality Control**
NTA, Inc. has evaluated the manufacturer's quality system in accordance with:
3.1 NTA IM 036 Quality System Requirements

4. Description
4.1 Structural Insulated Panels. *Insulspan Structural Insulated Panels* consisting of minimum nominal 7-3/8 inch thick expanded polystyrene (EPS) core laminated between two sheets of minimum 7/16 inch thick oriented strand board (OSB). SIP Panels shall be labeled in accordance with ESR-1295.

4.2 Splines. *Insulspan Structural Insulated Panels* for use in diaphragm assemblies are interconnected with insulated OSB (Block) splines, 3-in. wide and thickness equal to the core thickness of the SIP, along the full length of the spline connection. Surface splines consisting of 7/16 inch thick OSB may also be used.

4.3 Chords and Boundary Splines. Diaphragm assemblies recognized in this report shall use solid lumber 1.5-in. wide minimum with a specific gravity of 0.42 or greater for chords and boundary support members

4.4 Fasteners. Assemblies shall be fastened in accordance with Figure 1 and Table 1.

5. Design
5.1 Design Approval. Where required by the authority having jurisdiction, structures using *Insulspan Structural Insulated 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.

5.2 Connection to Structure. Designed in accordance with accepted engineering practice to transfer forces to the structure.

5.3 Design Loads. Design loads to be resisted by the SIP panels shall be as required under the applicable building code. Loads on the panels shall not exceed the loads noted in this report.

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6. Installation

6.1 General. *Insulspan Structural Insulated Panels* shall be fabricated, identified and erected in accordance with this report, the approved construction documents and the applicable code. 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 times on the jobsite during installation.

7. Evidence Submitted

Evaluation evidence and data are on file with NTA, Inc. NTA, Inc. is accredited by the International Accreditation Service (IAS) as follows:

ISO 17020 Inspection Agency (AA-682)
ISO 17025 Testing Laboratory (TL-259)
ISO 17065 Product Certification Agency (PCA-102)

The scope of accreditation related to testing, inspection or product certification pertain only to the test methods and/or standard referenced therein. Design parameters and the application of building code requirements, such as special inspection, have not been reviewed by IAS and are not covered in the accreditation.

8. Findings

All products referenced herein are manufactured under an in-plant Quality Assurance program to ensure that the production quality meets or exceeds the requirements of the standards noted herein and the criteria as established by NTA, Inc. Furthermore, product must comply with the requirements of this listing report.

This listing report is subject to annual review.

9. Markings

Each eligible product shall be permanently marked to provide the following information:

9.1 The name of the report holder
9.2 Identifier for the production facility
9.3 Project or batch number

Each eligible product may be permanently marked to provide the following information:

9.4 The NTA, Inc. listing mark, shown below.
9.5 NTA's NLR No. NLR-1071

CERTIFIED
NLR-1071

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**Table 1: Allowable In-Plane Shear Strength (Pounds per Foot)
for Horizontal Diaphragms Subjected to Wind or Seismic Loading**

Minimum Nominal SIP Core Thickness (in.)	Minimum Connections			Shear Strength (plf)	Apparent Shear Stiffness, G_a (kips/in.)	Max. Aspect Ratio
	Surface Spline[1] (Figure 1a)	Support Element (Figure 1b)	Boundary Spline[2] (Figure 1c)			
7-3/8	0.131-in. x 2-1/2-in. nails, 6-in. on center	10-in. length, 0.190-in. shank diameter, 0.255-in. thread o.d., 2.750-in. thread length, 0.625-in. head diameter SIP screw, 6-in. on center	0.131-in. x 2-1/2-in. nails, 6-in. on center	265	13	3:1
	0.131-in. x 2-1/2-in. nails, 4-in. on center	10-in. length, 0.190-in. shank diameter, 0.255-in. thread o.d., 2.750-in. thread length, 0.625-in. head diameter SIP screw, 4-in. on center	0.131-in. x 2-1/2-in. nails, 4-in. on center	330	21	3:1
	0.131-in. x 2-1/2-in. nails, 2-in. on center staggered 3/8-in. (Figure 1c)	10-in. length, 0.190-in. shank diameter, 0.255-in. thread o.d., 2.750-in. thread length, 0.625-in. head diameter SIP screw, 3-in. on center	0.131-in. x 2-1/2-in. nails, 2-in. on center staggered 3/8-in. (Figure 1c)	575	34	3:1

[1]Surface or block spline only at interior panel-to-panel joints. Specified fasteners are required on both sides of panel joint through the top surface only, as shown in Figure 1a.
[2]Boundary spline shall be solid lumber 1-1/2-in. wide minimum and have a specific gravity of 0.42 or greater. Specified fasteners are required through both facings as shown in Figure 1b.

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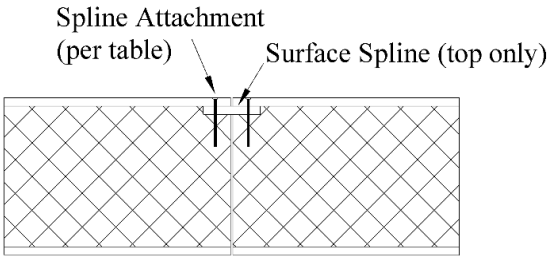

Figure 1a: Surface Spline

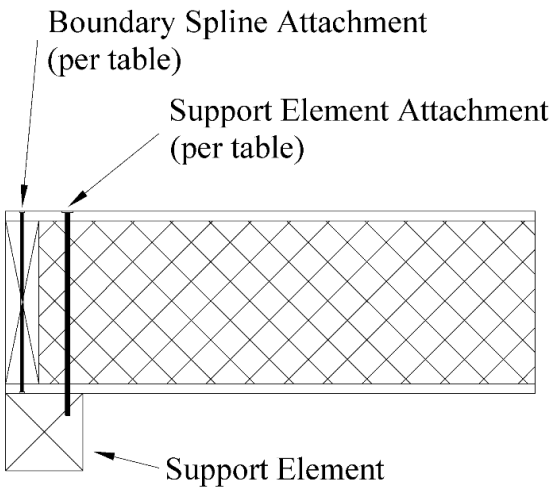

Figure 1b: Support Element

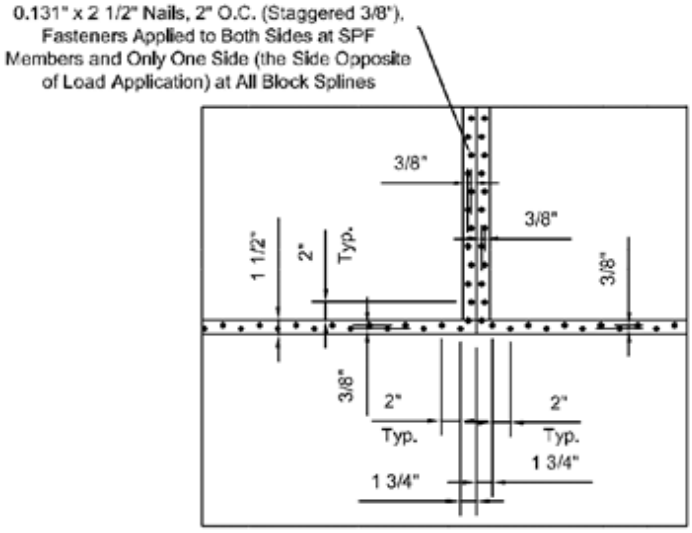

Figure 1c: Boundary Splines

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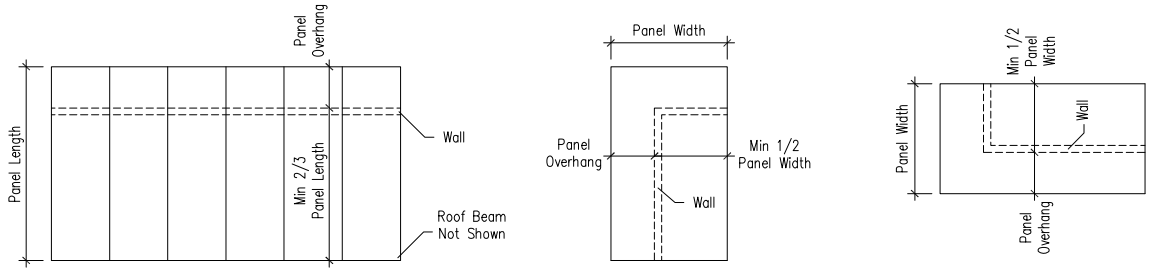
Technical Bulletin

BULLETIN NO.	124
ISSUED:	June 18, 2010
REPLACES:	March 2, 2009

Roof Panel Overhang Design Chart - US Model Codes

Table R-OH-3 ROOF PANEL TRANSVERSE DESIGN LOAD (psf)



Revision : June 18, 2010

Thickness		Allowable	ROOF PANEL OVERHANG (FEET) AT EAVE OR GABLE WALLS											
			OSB Splines			Single 2x @ 4'-0" on center					Double 2x @ 4'-0" on center				
SIP	EPS	Deflection	2	3	4	2	3	4	5	6	2	3	4	5	6
6 1/2"	5 5/8"	L/360	**136**	84	53	246	138	84	54	37	246	155	84	55	38
		L/240	**136**	**91**	**68**	**248**	**165**	**124**	82	55	**248**	**173**	**124**	82	57
		L/180	**136**	**91**	**68**	**248**	**165**	**124**	**99**	**74**	**248**	**173**	**124**	**99**	**74**
8 1/4"	7 3/8"	L/360	**151**	**100**	73	**267**	**178**	130	84	57	**267**	**190**	142	89	62
		L/240	**151**	**100**	**75**	**267**	**178**	**134**	**107**	86	**267**	**190**	**148**	**111**	**90**
		L/180	**151**	**100**	**75**	**267**	**178**	**134**	**107**	**89**	**267**	**190**	**148**	**111**	**90**
10 1/4"	9 3/8"	L/360	**159**	**106**	**79**	**295**	**196**	**147**	**118**	85	**295**	**196**	**185**	**136**	97
		L/240	**159**	**106**	**79**	**295**	**196**	**147**	**118**	**98**	**295**	**196**	**185**	**136**	**105**
		L/180	**159**	**106**	**79**	**295**	**196**	**147**	**118**	**98**	**295**	**196**	**185**	**136**	**105**
12 1/4"	11 3/8"	L/360	**167**	**111**	**83**	**322**	**215**	**161**	**129**	**107**	**322**	**215**	**190**	**161**	**123**
		L/240	**167**	**111**	**83**	**322**	**215**	**161**	**129**	**107**	**322**	**215**	**190**	**161**	**123**
		L/180	**167**	**111**	**83**	**322**	**215**	**161**	**129**	**107**	**322**	**215**	**190**	**161**	**123**

Notes:

1. The tabulated values are total design loads in compliance with 2006 International Building Code® and International Residential Code®.
2. The span of a sloped roof panel must be measured along the slope. Design loads are to be calculated as normal loads acting perpendicular to the face of the panel.
3. Insulspan SIP System must be assembled as per Insulspan Installation Guide and recommended assembly details.
4. Acceptable 2x6 lumber is SPF #2 & better; acceptable 2x8, 2x10 and 2x12 lumber is Hem Fir #2 & better.
5. Insulspan SIP skins are nailed to the splines at vertical panel joints using minimum 8d box nails @ 6" on center or equivalent.
6. Insulspan SIP System core material is molded expanded polystyrene (EPS) insulation complying with the requirements of ASTM C 578, type I.
7. Insulspan SIP System exterior skins are minimum 7/16" thick structural grade oriented strand board (OSB) conforming to DOC PS2, exposure 1.
8. The tabulated values are for roof panels with overhang along length direction. Roof panels with overhang along width direction are considered equivalent to roof panels with OSB splines.

Contact:
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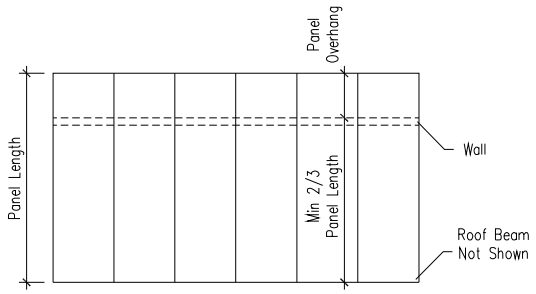
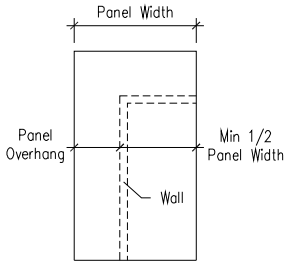
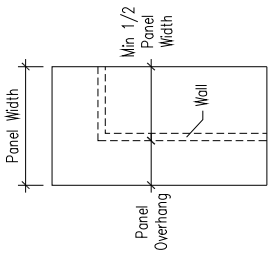
Table R-OH-4 ROOF PANEL TRANSVERSE DESIGN LOAD (psf)







Revision : June 18, 2010

Thickness		Allowable	ROOF PANEL OVERHANG (FEET) AT EAVE OR GABLE WALLS														
			Single LVL @ 4' on center					Double LVL @ 4' on center					Wood I @ 4'-0" on center				
SIP	EPS	Deflection	2	3	4	5	6	2	3	4	5	6	2	3	4	5	6
6 1/2"	5 5/8"	L/360	246	138	84	54	37	**248**	**183**	104	65	43					
		L/240	**248**	**183**	**142**	82	55	**248**	**183**	150	95	63					
		L/180	**248**	**183**	**142**	**99**	**74**	**248**	**183**	**156**	124	82					
8 1/4"	7 3/8"	L/360	**267**	**190**	130	84	57	**267**	**190**	**179**	110	75	**215**	**175**	**130**	84	57
		L/240	**267**	**190**	**174**	113	86	**267**	**190**	**179**	**152**	109	**215**	**175**	**130**	**105**	86
		L/180	**267**	**190**	**174**	**140**	98	**267**	**190**	**179**	**152**	**135**	**215**	**175**	**130**	**105**	**90**
10 1/4"	9 3/8"	L/360	**295**	**196**	**183**	123	85	**295**	**196**	**185**	**174**	122	**290**	**190**	**145**	**120**	85
		L/240	**295**	**196**	**183**	**167**	122	**295**	**196**	**185**	**174**	**154**	**290**	**190**	**145**	**120**	**100**
		L/180	**295**	**196**	**183**	**167**	**145**	**295**	**196**	**185**	**174**	**154**	**290**	**190**	**145**	**120**	**100**
12 1/4"	11 3/8"	L/360	**322**	**215**	**190**	**178**	123	**322**	**215**	**190**	**182**	**172**	**315**	**200**	**160**	**130**	**110**
		L/240	**322**	**215**	**190**	**178**	**167**	**322**	**215**	**190**	**182**	**172**	**315**	**200**	**160**	**130**	**110**
		L/180	**322**	**215**	**190**	**178**	**167**	**322**	**215**	**190**	**182**	**172**	**315**	**200**	**160**	**130**	**110**

Notes:

1. The tabulated values are total design loads compliance with 2006 International Building Code® and International Residential Code®.
2. The span of a sloped roof panel must be measured along the slope. Design loads are to be calculated as normal loads acting perpendicular to the face of the panel.
3. Insulspan SIP System must be assembled as per Insulspan Installation Guide and recommended assembly details.
4. Acceptable LVL lumber is 1.8E LVL & better; acceptable wood-I joists are Nascor NJH, Jager JSI2000 or Trus Joist TJI 100C & better.
5. Insulspan SIP skins are nailed to the splines at vertical panel joints using minimum 8d box nails @ 6" on center or equivalent.
6. Insulspan SIP System core material is molded expanded polystyrene (EPS) insulation complying with the requirements of ASTM C 578, type I.
7. Insulspan SIP System exterior skins are minimum 7/16" thick structural grade oriented strand board (OSB) conforming to DOC PS2, exposure 1.
8. The tabulated values are for roof panels with overhang along length direction. Roof panels with overhang along width direction are considered equivalent to roof panels with OSB splines.