



**PREMIER SIPS**  
STRUCTURAL INSULATED PANELS

# LOAD CHARTS

**PREMIER**  
BUILDING SYSTEMS

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## TABLE OF CONTENTS

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|   |    |
|---|----|
| Premier SIPS Structural Review .....  | 3  |
| Premier SIPS R-value .....  | 4  |
| Premier SIPS Weight .....   | 4  |
| Splines .....   | 5  |
| Load Chart #1A - Uniform Axial Loads - Type S Spline.....                         | 6  |
| Load Chart #1B - Uniform Axial Loads - Type L Spine.....                          | 7  |
| Load Chart #1C - Allowable Combined Axial & Transverse Loads - Type S Spline..... | 8  |
| Load Chart #1D - Allowable Combined Axial & Transverse Loads - Type L Spine.....  | 9  |
| Load Chart #2A - Axial Point Loads.....   | 10 |
| Load Chart #3A - Wall Uniform Transverse Loads .....                              | 11 |
| Load Chart #3B - Curtain Wall Uniform Transverse Loads.....                       | 12 |
| Load Chart #4A - Shear Loads - Seismic Design Categories A-C.....                 | 13 |
| Load Chart #4B - Shear Loads - Seismic Design Categories A-F.....                 | 14 |
| Load Chart #5A - Header: SIP Header Uniform Loads.....                            | 15 |
| Load Chart #5B - Header: Premier 1 PLY Insulated Header Beams Uniform Loads.....  | 16 |
| Load Chart #5C - Header: Premier 2 PLY Insulated Header Beams Uniform Loads.....  | 17 |
| Load Chart #6A - Roof/Floor Uniform Transverse Loads - Type S Spline .....        | 18 |
| Load Chart #6B - Roof/Floor Uniform Transverse Loads - Type I Spline .....        | 19 |
| Load Chart #6C - Roof/Floor Uniform Transverse Loads - Type L Spine .....         | 20 |
| Load Chart #7A - Roof/Floor Diaphragms Loads - Type S Spline .....                | 21 |
| Premier Screw Length Guide.....   | 22 |
| Premier Wood Screws.....  | 23 |
| Premier Light Duty Metal Screws.....  | 24 |
| Premier Heavy Duty Metal Screws.....  | 25 |
| Nail and Screw Withdrawal Loads - 7/16 in. OSB .....                              | 26 |
| Nail and Screw Withdrawal Loads - 5/8 in. OSB.....                                | 27 |
| Nail and Screw Withdrawal Loads - 3/4 in. OSB.....                                | 26 |

## PREMIER SIPS STRUCTURAL REVIEW

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### ARCHITECT/ENGINEERING REVIEW

The Load Charts for Premier SIPS have been developed from national testing standards, testing at independent laboratories, and qualified structural engineers. These charts cover most common construction requirements. Each building project should be reviewed by an architect/engineer to determine the suitability of Premier SIPS. Extrapolating design capacities for conditions outside the scope of the load charts is not recommended.

### BUILDING CODES

Premier SIPS are recognized as being in compliance with the 2015, 2018 and 2021 International Building Code and 2015, 2018 and 2021 International Residential Code. Premier SIPS should be designed to comply with the deflection limits of the applicable building code.

### EVALUATION REPORTS

The International Code Council Evaluation Service (ICC-ES) has reviewed the independent testing, structural engineering, third party inspections, and QC program for Premier SIPS and has issued Evaluation Report ESR-4524, Listing Report ESL-1207, and Listing Report ESL-1208.



## PREMIER SIPS R-VALUES & U-FACTORS

| R-VALUES      |                  |          |                  |          |                  |          |
|---------------|------------------|----------|------------------|----------|------------------|----------|
| SIP Thickness | R-value at 75 °F |          | R-value at 40 °F |          | R-value at 25 °F |          |
|               | EPS Core         | GPS Core | EPS Core         | GPS Core | EPS Core         | GPS Core |
| 4-1/2"        | 15               | 18       | 16               | 19       | 17               | 20       |
| 6-1/2"        | 18               | 28       | 24               | 29       | 26               | 30       |
| 8-1/4"        | 30               | 36       | 32               | 37       | 33               | 39       |
| 10-1/4"       | 37               | 45       | 40               | 47       | 42               | 49       |
| 12-1/4"       | 45               | 55       | 48               | 57       | 51               | 59       |

| U-FACTORS     |                   |          |                   |          |                   |          |
|---------------|-------------------|----------|-------------------|----------|-------------------|----------|
| SIP Thickness | U-Factor at 75 °F |          | U-Factor at 40 °F |          | U-Factor at 25 °F |          |
|               | EPS Core          | GPS Core | EPS Core          | GPS Core | EPS Core          | GPS Core |
| 4-1/2"        |                   |          |                   |          |                   |          |
| 6-1/2"        |                   |          |                   |          |                   |          |
| 8-1/4"        |                   |          |                   |          |                   |          |
| 10-1/4"       |                   |          |                   |          |                   |          |
| 12-1/4"       |                   |          |                   |          |                   |          |

## PREMIER SIPS WEIGHT

| SIP WEIGHT    |              |
|---------------|--------------|
| SIP Thickness | Weight (psf) |
| 4-1/2"        | 3.3          |
| 6-1/2"        | 3.5          |
| 8-1/4"        | 3.7          |
| 10-1/4"       | 3.9          |
| 12-1/4"       | 4.0          |

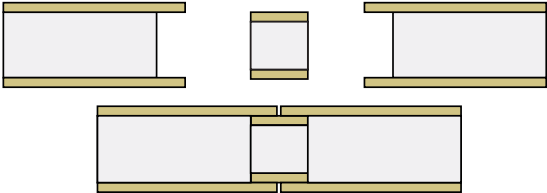
Premier SIPS can be provided with custom 5/8 in. or 3/4 in. OSB facings. Add 1.3 psf to above SIP weight for 5/8 in. OSB facings. Add 2.2 psf to above SIP weight for 3/4 in. OSB facings.

# SPLINES

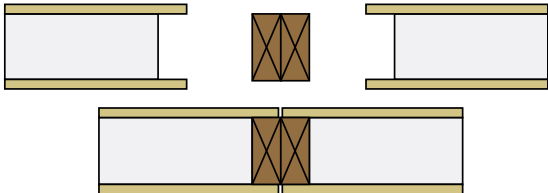
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Premier SIPS are connected by splines. There are three types of spline connections, listed below. Splines vary based on their intended purpose. If splines are simply acting as a connection between panels, the “Type S” spline meets this requirement while eliminating thermal bridging. If the purpose of the spline is also to provide additional structural support, “Type I” or “Type L” splines can be used. Determination of proper spline for the application can be determined by the use of Premier’s Load Charts on the following pages.

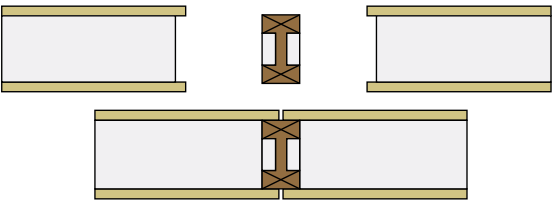
**TYPE S SPLINE**



**TYPE L SPLINE**



**TYPE I SPLINE**



## LOAD CHART #1A

| LOAD CHART #1A<br>Uniform Axial Loads - PLF <sup>1-4</sup><br>Type S Spline |                  |      |      |      |      |      |
|---|------------------|------|------|------|------|------|
| SIP Thickness   | SIP Height (ft.) |      |      |      |      |      |
|   | 8'               | 10'  | 12'  | 16   | 20'  | 24'  |
| 4-1/2"  | 3500             | 2553 | 2453 | 2117 | NA   | NA   |
| 6-1/2"  | 4250             | 4043 | 3373 | 3923 | 2817 | 2183 |
| 8-1/4"  | 4917             | 4327 | 4473 | 4197 | 3497 | 3067 |
| 10-1/4"   | 4600             | 4414 | 4228 | 4417 | 3389 | 3248 |
| 12-1/4"   | 3889             | 3959 | 4028 | 4408 | 3837 | 3333 |

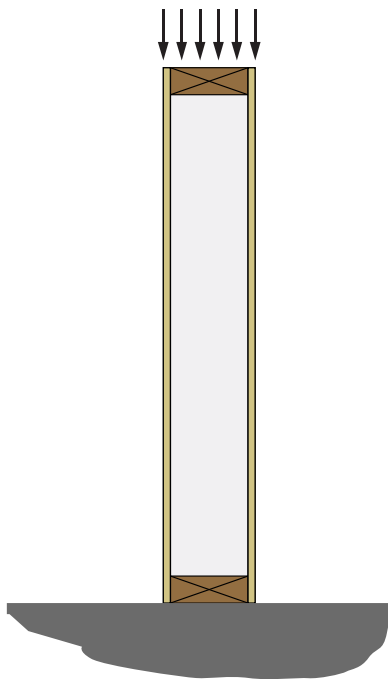
<sup>1</sup> Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load.

<sup>2</sup> Uniform axial loads.

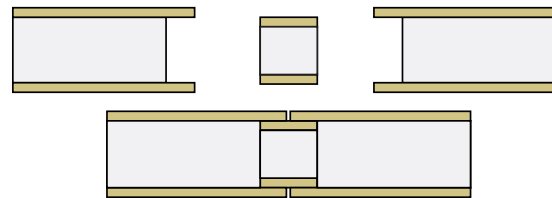
<sup>3</sup> Both facings must bear on the supporting foundation or structure.

<sup>4</sup> Tabulated values for 8-foot (2.44 m) walls apply to SIPs constructed with OSB strength axis oriented either parallel or perpendicular to supports.

### AXIAL LOAD



### TYPE S SPLINE



## LOAD CHART #1B

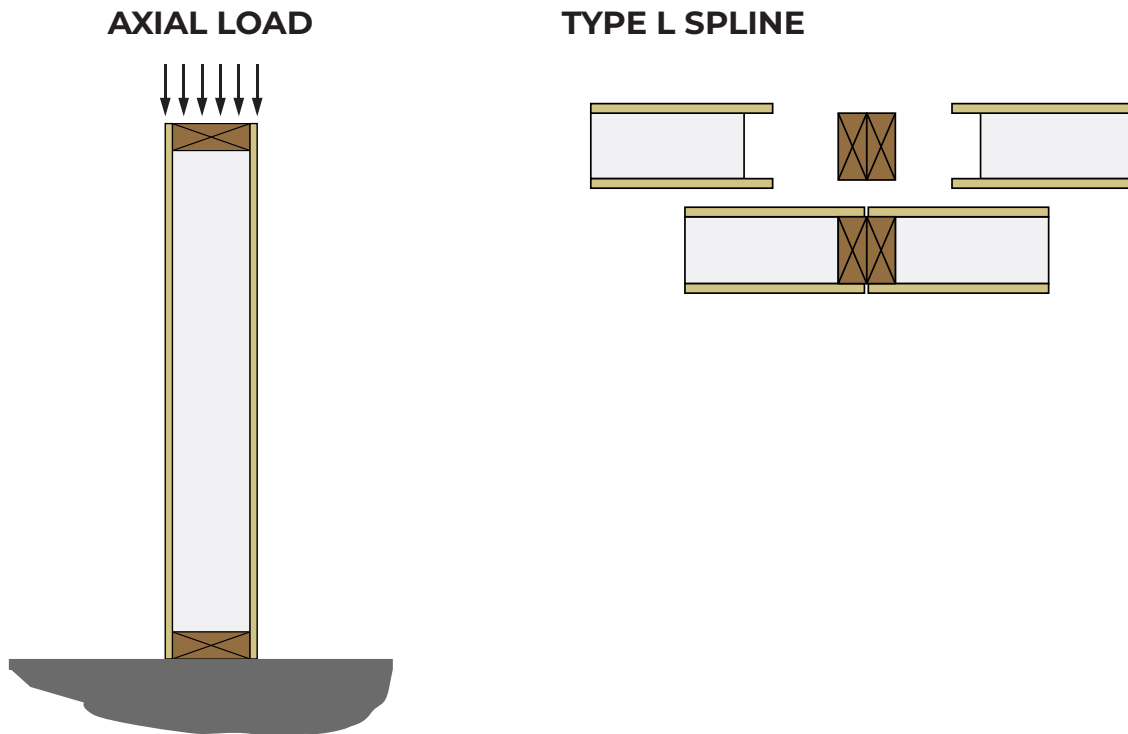
| LOAD CHART #1B<br>Uniform Axial Loads - PLF <sup>1-4</sup><br>Type L Spline |                  |      |      |      |      |      |
|---|------------------|------|------|------|------|------|
| SIP Thickness   | SIP Height (ft.) |      |      |      |      |      |
|   | 8'               | 10'  | 12'  | 16'  | 20'  | 24'  |
| 4-1/2"  | 4723             | 3903 | 3273 | 2623 | NA   | NA   |
| 6-1/2"  | 5850             | 5890 | 4277 | 4310 | 2933 | 2837 |
| 8-1/4"  | 6807             | 6110 | 5557 | 5180 | 4837 | 4083 |
| 10-1/4"   | 5473             | 5709 | 5946 | 5948 | 4729 | 4250 |
| 12-1/4"   | 5667             | 5474 | 5281 | 5775 | 4729 | 4223 |

<sup>1</sup> Splines consist of No. 2 or better, Hem-Fir, 1-1/2 inch (38.1 mm) wide with depth equal to the core thickness, spaced to provide no less than two members for every 48 inches (1219.2 mm) of SIPs width. Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load.

<sup>2</sup> Uniform axial loads.

<sup>3</sup> Both facings must bear on the supporting foundation or structure.

<sup>4</sup> Tabulated values for 8-foot (2.44 m) walls apply to SIPs constructed with OSB strength axis oriented either parallel or perpendicular to supports.



## LOAD CHART #1C

| LOAD CHART #1C<br>Wall Allowable Combined Loads <sup>1-5</sup><br>Type S Spline |                       |                  |      |      |      |      |      |
|---|-----------------------|------------------|------|------|------|------|------|
| SIP Thickness   | Uniform Loads         | SIP Height (ft.) |      |      |      |      |      |
|   |                       | 8'               | 10'  | 12'  | 16'  | 20'  | 24'  |
| 4-1/2"  | Axial Load (PLF)      | 3500             | 2553 | 2452 | 2117 | NA   | NA   |
|   | Transverse Load (PSF) | 55               | 44   | 36   | 22   | NA   | NA   |
| 6-1/2"  | Axial Load (PLF)      | 4250             | 4043 | 3373 | 3923 | 2817 | 2183 |
|   | Transverse Load (PSF) | 67               | 53   | 44   | 33   | 24   | NA   |
| 8-1/4"  | Axial Load (PLF)      | 4917             | 4327 | 4473 | 4194 | 3497 | 3067 |
|   | Transverse Load (PSF) | 75               | 60   | 50   | 37   | 30   | 22   |
| 10-1/4"   | Axial Load (PLF)      | 4600             | 4414 | 4228 | 4417 | 3389 | 3248 |
|   | Transverse Load (PSF) | 83               | 66   | 55   | 41   | 33   | 27   |
| 12-1/4"   | Axial Load (PLF)      | 3889             | 3959 | 4028 | 4408 | 3837 | 3333 |
|   | Transverse Load (PSF) | 89               | 72   | 60   | 45   | 36   | 30   |

<sup>1</sup> Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load.

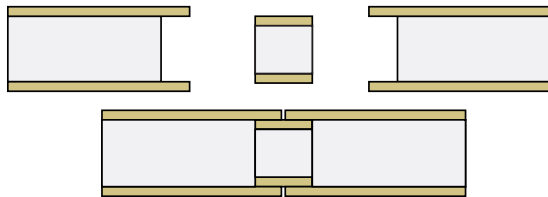
<sup>2</sup> Uniform combined axial (PLF) & transverse (PSF) loads.

<sup>3</sup> Both facings must bear on the supporting foundation or structure.

<sup>4</sup> Tabulated values for 8-foot (2.44 m) walls apply to SIPs constructed with OSB strength axis oriented either parallel or perpendicular to supports.

<sup>5</sup> Transverse loads shown are derived from Load Chart #3A at L/240

### TYPE S SPLINE





## LOAD CHART #1D

| <b>LOAD CHART #1D</b><br><b>Wall Allowable Combined Loads<sup>1-5</sup></b><br><b>Type L Spline</b> |                       |                  |      |      |      |      |      |
|---|-----------------------|------------------|------|------|------|------|------|
| SIP Thickness   | Uniform Loads         | SIP Height (ft.) |      |      |      |      |      |
|   |                       | 8'               | 10'  | 12'  | 16'  | 20'  | 24'  |
| 4-1/2"  | Axial Load (PLF)      | 4723             | 3903 | 3273 | 2623 | NA   | NA   |
|   | Transverse Load (PSF) | 91               | 61   | 45   | 23   | NA   | NA   |
| 6-1/2"  | Axial Load (PLF)      | 5850             | 5890 | 4277 | 4310 | 2933 | 2837 |
|   | Transverse Load (PSF) | 182              | 112  | 80   | 49   | 29   | 182  |
| 8-1/4"  | Axial Load (PLF)      | 6807             | 4325 | 4473 | 4194 | 3496 | 3067 |
|   | Transverse Load (PSF) | 188              | 133  | 117  | 80   | 44   | 24   |
| 10-1/4"   | Axial Load (PLF)      | 5473             | 5709 | 5946 | 5948 | 4729 | 4250 |
|   | Transverse Load (PSF) | 188              | 147  | 134  | 108  | 68   | 53   |
| 12-1/4"   | Axial Load (PLF)      | 5667             | 5474 | 5281 | 5775 | 4729 | 4223 |
|   | Transverse Load (PSF) | 188              | 167  | 153  | 110  | 83   | 70   |

<sup>1</sup> Splines consist of No. 2 or better, Hem-Fir, 1-1/2 inch (38.1 mm) wide with depth equal to the core thickness, spaced to provide no less than two members for every 48 inches (1219.2 mm) of SIPs width. Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load.

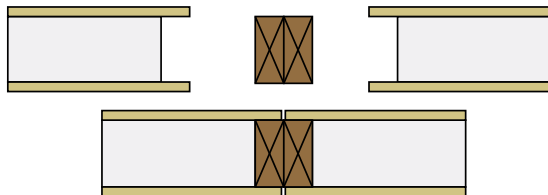
<sup>2</sup> Uniform combined axial (PSF) and transverse (PSF) loads.

<sup>3</sup> Both facings must bear on the supporting foundation or structure.

<sup>4</sup> Tabulated values for 8-foot (2.44 m) walls apply to SIPs constructed with OSB strength axis oriented either parallel or perpendicular to supports.

<sup>5</sup> Transverse loads shown are derived from Load Chart #6C at L/240

### TYPE L SPLINE

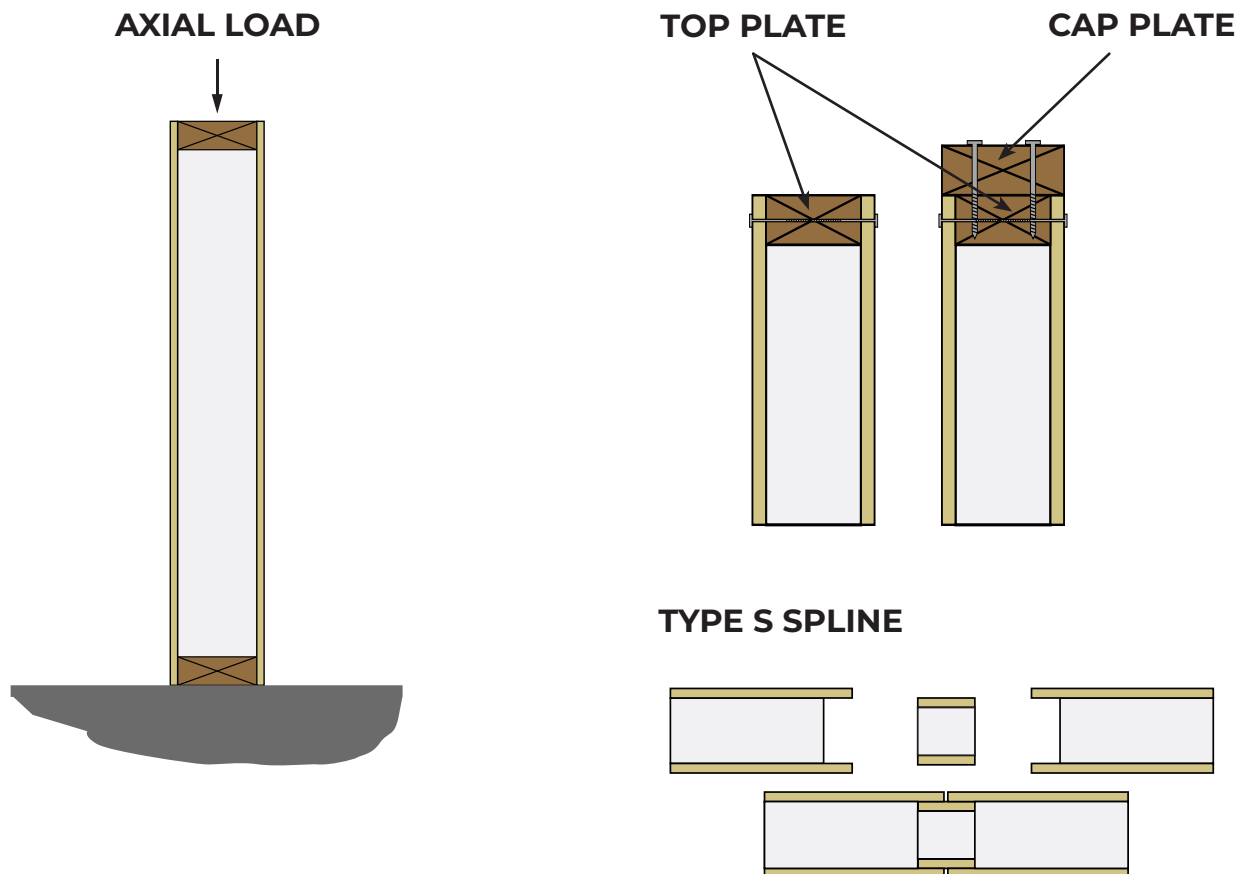


## LOAD CHART #2A

| <b>LOAD CHART #2A</b><br>Axial Point Loads - LBS <sup>1-2</sup><br>Type S Spline                        |                         |                     |
|---|-------------------------|---------------------|
| Top Plate Configuration   | 1-1/2"<br>BEARING WIDTH | 3"<br>BEARING WIDTH |
| Single 2x No. 2 or better Hem-Fir Plate   | 2040                    | 2450                |
| Single 2x No. 2 or better Hem-Fir Plate with 2x No. 2 or Better Cap Plate Ripped to Total Width of SIP. | 4030                    | 4678                |

<sup>1</sup> Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load.

<sup>2</sup> Tabulated values are based on the strong-axis of the facing material oriented parallel to the span direction.



## LOAD CHART #3A

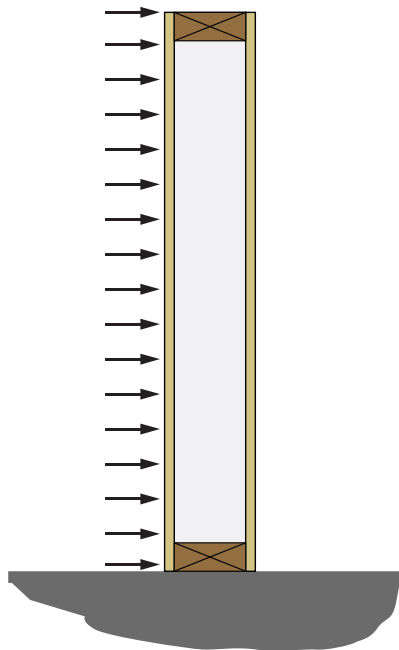
| <b>LOAD CHART #3A</b>                              |                  |                  |     |     |     |     |     |     |     |     |
|--|------------------|------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Wall Uniform Transverse Loads - PSF <sup>1-3</sup> |                  |                  |     |     |     |     |     |     |     |     |
| Type S Spline                                      |                  |                  |     |     |     |     |     |     |     |     |
| SIP Thickness                                      | Deflection Limit | SIP Height (ft.) |     |     |     |     |     |     |     |     |
|  |                  | 8'               | 10' | 12' | 14' | 16' | 18' | 20' | 22' | 24' |
| 4-1/2"   | L/360            | 32               | 23  | 18  | 14  | 11  | NA  | NA  | NA  | NA  |
|  | L/240            | 48               | 35  | 27  | 21  | 16  | NA  | NA  | NA  | NA  |
|  | L/180            | 55               | 44  | 36  | 28  | 22  | NA  | NA  | NA  | NA  |
| 6-1/2"   | L/360            | 51               | 38  | 29  | 23  | 19  | 15  | 12  | NA  | NA  |
|  | L/240            | 67               | 53  | 44  | 35  | 28  | 23  | 19  | NA  | NA  |
|  | L/180            | 67               | 53  | 44  | 38  | 33  | 29  | 24  | NA  | NA  |
| 8-1/4"   | L/360            | 67               | 51  | 40  | 32  | 26  | 22  | 18  | 15  | 13  |
|  | L/240            | 75               | 60  | 50  | 42  | 37  | 33  | 27  | 23  | 19  |
|  | L/180            | 75               | 60  | 50  | 42  | 37  | 33  | 30  | 26  | 22  |
| 10-1/4"  | L/360            | 83               | 66  | 52  | 43  | 35  | 29  | 25  | 21  | 18  |
|  | L/240            | 83               | 66  | 55  | 47  | 41  | 36  | 33  | 30  | 27  |
|  | L/180            | 83               | 66  | 55  | 47  | 41  | 36  | 33  | 30  | 27  |
| 12-1/4"  | L/360            | 89               | 72  | 60  | 51  | 44  | 37  | 32  | 27  | 23  |
|  | L/240            | 89               | 72  | 60  | 51  | 45  | 40  | 36  | 32  | 30  |
|  | L/180            | 89               | 72  | 60  | 51  | 45  | 40  | 36  | 32  | 30  |

<sup>1</sup> Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load.

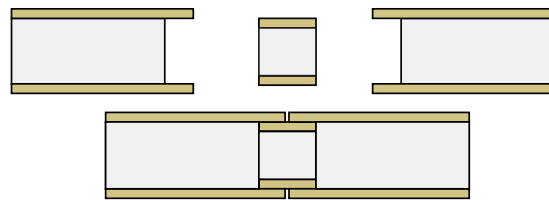
<sup>2</sup> Deflection limit shall be selected by building designer based on the serviceability requirements of the structure and the requirements of applicable building code. Values are based on loads of short duration only.

<sup>3</sup> Table values for 8-foot (2.44 m) spans apply to SIPs constructed with the OSB strength axis oriented either parallel or perpendicular to span direction. Table values for other spans are based on the OSB strength axis parallel to the span direction..

### TRANSVERSE LOAD



### TYPE S SPLINE



## LOAD CHART #3B

| <b>LOAD CHART #3B</b>                                      |                  |                  |    |     |     |     |     |     |     |     |     |
|--|------------------|------------------|----|-----|-----|-----|-----|-----|-----|-----|-----|
| Curtain Wall Uniform Transverse Loads - PSF <sup>1-3</sup> |                  |                  |    |     |     |     |     |     |     |     |     |
| Type S Spline  |                  |                  |    |     |     |     |     |     |     |     |     |
| SIP Thickness  | Deflection Limit | SIP Height (ft.) |    |     |     |     |     |     |     |     |     |
|  |                  | 4' <sup>4</sup>  | 8' | 10' | 12' | 14' | 16' | 18' | 20' | 22' | 24' |
| 4-1/2"   | L/360            | 100              | 32 | 23  | 18  | 14  | 11  | NA  | NA  | NA  | NA  |
|  | L/240            | 143              | 48 | 35  | 27  | 21  | 16  | NA  | NA  | NA  | NA  |
|  | L/180            | 143              | 63 | 47  | 36  | 28  | 22  | NA  | NA  | NA  | NA  |
| 6-1/2"   | L/360            | 105              | 51 | 38  | 29  | 23  | 19  | 15  | 12  | NA  | NA  |
|  | L/240            | 162              | 76 | 57  | 44  | 35  | 28  | 23  | 19  | NA  | NA  |
|  | L/180            | 191              | 80 | 61  | 50  | 42  | 36  | 30  | 24  | NA  | NA  |
| 8-1/4"   | L/360            | 120              | 67 | 51  | 40  | 32  | 26  | 22  | 18  | 15  | 13  |
|  | L/240            | 179              | 94 | 71  | 57  | 48  | 40  | 33  | 27  | 23  | 19  |
|  | L/180            | 179              | 94 | 71  | 57  | 48  | 41  | 36  | 32  | 26  | 22  |
| 10-1/4"  | L/360            | 131              | 86 | 66  | 52  | 43  | 35  | 29  | 25  | 21  | 18  |
|  | L/240            | 168              | 94 | 75  | 63  | 54  | 47  | 41  | 36  | 32  | 27  |
|  | L/180            | 168              | 94 | 75  | 63  | 54  | 47  | 41  | 36  | 33  | 28  |
| 12-1/4"  | L/360            | 132              | 94 | 75  | 63  | 53  | 44  | 37  | 32  | 27  | 23  |
|  | L/240            | 163              | 94 | 75  | 63  | 54  | 47  | 42  | 37  | 34  | 31  |
|  | L/180            | 163              | 94 | 75  | 63  | 54  | 47  | 42  | 37  | 34  | 31  |

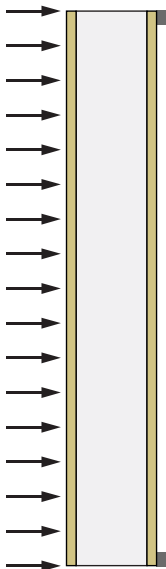
<sup>1</sup> Table values assume a simply supported SIP with 1-1/2 inches (38.1 mm) of continuous bearing. Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load. Values do not include the dead weight of the SIP.

<sup>2</sup> Deflection limit shall be selected by building designer based on the serviceability requirements of the structure and the requirements of applicable building code. Values are based on loads of short duration only and do not consider the effects of creep.

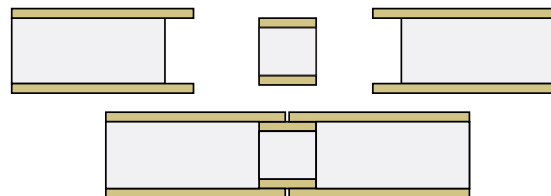
<sup>3</sup> Table values for 8-foot (2.44 m) spans apply to SIPs constructed with the OSB strength axis oriented either parallel or perpendicular to span direction. Table values for other spans are based on the OSB strength axis parallel to the span direction.

<sup>4</sup> SIPs shall be a minimum of 8-foot (2.44 m) long spanning two 4-foot (1.22 m) spans.

### TRANSVERSE LOAD



### TYPE S SPLINE



## LOAD CHART #4A

| <b>LOAD CHART #4A</b>  |   |   |   |                     |
|--|---|---|---|---------------------|
| <b>Shear Loads - PLF<sup>1-7</sup> Seismic Design Categories A-C</b> |   |   |   |                     |
| <b>Type S or Type L Spline</b>                                       |   |   |   |                     |
| Framing<br>Minimum SG  | Minimum Facing Connections <sup>4</sup>                     |   |   | Shear Load<br>(PLF) |
|  | Chord <sup>4,5</sup>  | Plate   | Spline  |                     |
| 0.50   | 0.113" x 2-1/2" nails<br>6" on center                       | 0.113" x 2-1/2" nails<br>6" on center                       | (7/16" OSB Faced x 3" wide Box/Block Spline)<br>0.113" x 2-1/2" nails, 6" on center                                   | 410                 |
| 0.50   | 0.113" x 2-3/8" nails<br>6" on center<br>Staggered (2 rows) | 0.113" x 2-3/8" nails<br>6" on center                       | (7/16" OSB Faced x 3" wide Box/Block Spline)<br>0.113" x 2-3/8" nails, 6" on center <sup>6</sup>                      | 460                 |
| 0.42   | 0.113" x 2-3/8" nails<br>6" on center<br>Staggered (2 rows) | 0.113" x 2-3/8" nails<br>4" on center<br>Staggered (2 rows) | (7/16" OSB Faced x 3" wide Box/Block Spline)<br>0.113" x 2-3/8" nails, 4" on center <sup>6</sup>                      | 700                 |
| 0.42   | 0.148" x 2-3/8" nails<br>6" on center<br>Staggered (2 rows) | 0.148" x 2-3/8" nails<br>3" on center                       | (23/32" OSB Faced x 3" wide Box/Block Spline)<br>0.148" x 2-3/8" nails, 3" on center stagger<br>(2 rows) <sup>7</sup> | 1000                |

<sup>1</sup> Wind and seismic loads in seismic design categories A, B, C.

<sup>2</sup> Aspect ratio (height:width) does not exceed 2:1.

<sup>3</sup> Shear wall height-width ratios greater than 2:1, but not exceeding 3.5:1, are permitted for assemblies using lumber splines provided the allowable shear strength values in the table are multiplied by 2w/h.

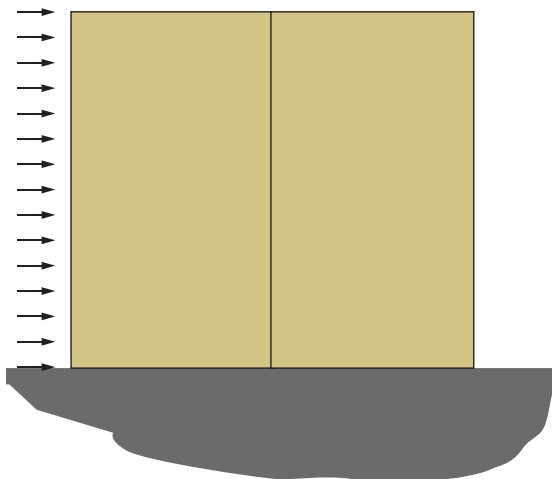
<sup>4</sup> Required connections must be made on each side of the SIPs. Dimensional or engineered lumber shall have an equivalent specific gravity not less than specified.

<sup>5</sup> Chords, hold-downs and connections to other structural elements must be designed by a registered designer professional in accordance with accepted engineering practice.

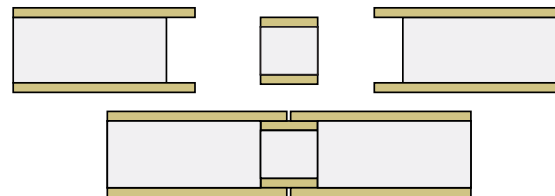
<sup>6</sup> 4 inch (101.6 mm) wide spline.

<sup>7</sup> 4 inch (101.6 mm), 23/32 inch (18.25 mm) thick facing.

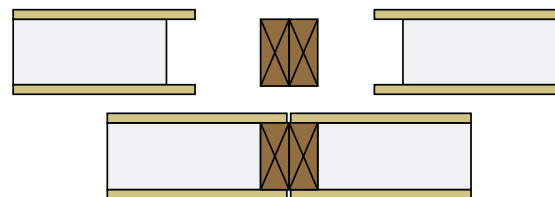
### SHEAR LOAD



### TYPE S SPLINE



### TYPE L SPLINE



## LOAD CHART #4B

| <b>LOAD CHART #4B</b>  |   |   |  |                                    |
|--|---|---|--|------------------------------------|
| <b>Shear Loads - PLF<sup>1-7</sup> Seismic Design Categories A-F • Type S or Type L Spline</b> |   |   |  |                                    |
| Framing<br>Minimum SG <sup>4</sup>   | Minimum Facing Connections <sup>4</sup>   |   |  | Shear Load <sup>2-3</sup><br>(PLF) |
|  | Chord <sup>5</sup>  | Plate   | Spline <sup>4</sup>  |                                    |
| 0.50   | 0.113" x 2-1/4" nails,<br>6" on center  | 0.113" x 2-1/4" nails,<br>3" on center  | (7/16" facing thickness,<br>3" wide Box/Block spline)<br>0.113" x 2-1/4" nails, 6" on center   | 360                                |
| 0.50   | 0.113" x 2-1/4" nails,<br>6" on center  | 0.113" x 2-1/4" nails,<br>6" on center  | (3/4" facing thickness,<br>3" wide Box/Block spline)<br>0.113" x 2-1/4" nails, 6" on center  | 360                                |
| 0.50   | 0.113" x 2-3/8" nails,<br>3" on center staggered<br>(3/8" edge distance<br>and 3/4" edge<br>distance) | 0.113" x 2-3/8" round head<br>nails, 3" on center<br>staggered (3/8" and 3/4"<br>edge distances)  | (23/32" thick facing 3" wide<br>Box/Block spline) 0.113" x 2-3/8"<br>nails, 3" on center staggered<br>(3/8" edge distance and<br>3/4" edge distance) | 720                                |
| 0.50   | 0.113" x 2-3/8" nails,<br>2" on center staggered<br>(3/8" edge distance<br>and 3/4" edge<br>distance) | 0.113" x 2-3/8" round head<br>nails, 2" on center,<br>staggered (3/8" and 3/4"<br>edge distances) | (23/32" thick facing 3" wide<br>Box/Block spline) 0.113" x 2-3/8"<br>nails, 3" on center staggered<br>(3/8" edge distance and<br>3/4" edge distance) | 920                                |

<sup>1</sup> Seismic loads in seismic design categories A, B, C, D, E and F. Walls shall be designed using the seismic design coefficients and limitations provided in ASCE 7-10 for light-framed walls sheathing with wood structural panels rated for shear resistance. SIP walls shall use the following factors for design: Response Modification Coefficient,  $R = 6.5$ ; System Overstrength Factor,  $\Omega_0 = 3.0$ ; Deflection Amplification Factor,  $C_d = 4.0$ .

<sup>2</sup> Aspect ratio (height:width) does not exceed 1:1 for Type S spline or 2:1 for Type L spline.

<sup>3</sup> Shear wall height-width ratios greater than 2:1, but not exceeding 3.5:1, are permitted for assemblies using lumber splines provided the allowable shear strength values in the table are multiplied by  $2w/h$ .

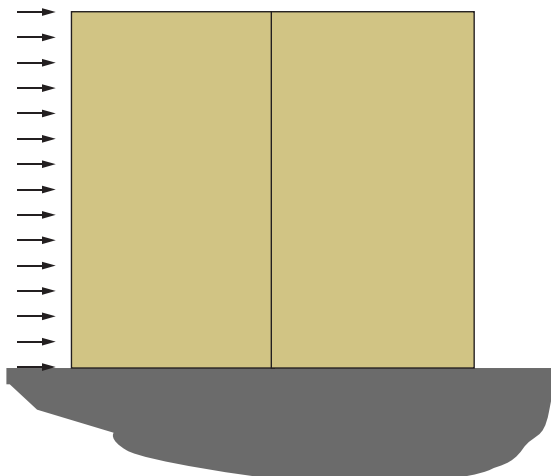
<sup>4</sup> Required connections must be made on each side of the SIP. Dimensional or engineered lumber shall have an equivalent specific gravity not less than specified in the table for the framing.

<sup>5</sup> Chords, hold-downs and connections to other structural elements must be reviewed and approved by a registered design professional.

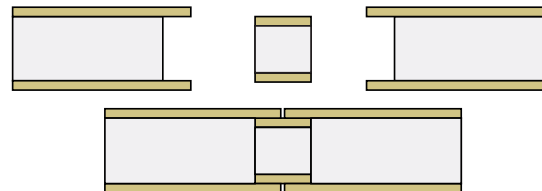
<sup>6</sup> Solid chord members are required at each end of each shear wall segment. Dimensional double lumber splines must be interconnected using 10d common nails ([0.148-inch-diameter x 3 inches (3.8 mm x 76 mm)] spaced 5-inches (127 mm) on center.

<sup>7</sup> 3 inch (76.2 mm) wide, 3/4 inch (19 mm) thick facing.

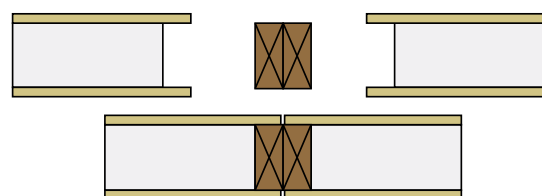
### SHEAR LOAD



### TYPE S SPLINE



### TYPE L SPLINE



## LOAD CHART #5A

| LOAD CHART #5A                                |                            |                               |                   |     |     |     |
|---|----------------------------|-------------------------------|-------------------|-----|-----|-----|
| SIP Header Uniform Loads - PLF <sup>1-5</sup> |                            |                               |                   |     |     |     |
| Header Depth <sup>3</sup><br>(inches)         | Header Spline <sup>5</sup> | Deflection Limit <sup>4</sup> | Header Span (ft.) |     |     |     |
|   |                            |                               | 4'                | 8'  | 10' | 12' |
| 12"   | NO                         | L/480                         | 740               | 384 | 228 | 142 |
|   |                            | L/360                         | 740               | 384 | 229 | 142 |
|   |                            | L/240                         | 740               | 384 | 229 | 142 |
|   | YES <sup>5</sup>           | L/480                         | 345               | 243 | 156 | 99  |
|   |                            | L/360                         | 450               | 295 | 190 | 125 |
|   |                            | L/240                         | 630               | 382 | 236 | 153 |
| 18"   | NO                         | L/480                         | 798               | 574 | 385 | 311 |
|   |                            | L/360                         | 798               | 574 | 385 | 311 |
|   |                            | L/240                         | 798               | 574 | 385 | 311 |
|   | YES <sup>5</sup>           | L/480                         | 705               | 388 | 254 | 235 |
|   |                            | L/360                         | 750               | 482 | 302 | 281 |
|   |                            | L/240                         | 750               | 482 | 302 | 281 |
| 24"   | NO                         | L/480                         | 886               | 629 | 429 | 361 |
|   |                            | L/360                         | 886               | 629 | 429 | 361 |
|   |                            | L/240                         | 886               | 629 | 429 | 361 |
|   | YES <sup>5</sup>           | L/480                         | 698               | 556 | 368 | 350 |
|   |                            | L/360                         | 896               | 556 | 368 | 350 |
|   |                            | L/240                         | 896               | 556 | 368 | 350 |

<sup>1</sup> Vertical loads only. Lateral loads shall be transferred to the edges of the openings through continuous plate(s) designed in accordance with accepted engineering practice. Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load.

<sup>2</sup> Tabulated values are based on the strong-axis of the facing material oriented perpendicular to the direction of the header span.

<sup>3</sup> Minimum depth of facing above opening.

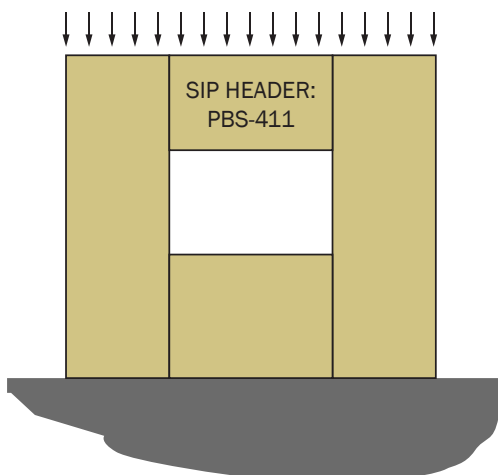
<sup>4</sup> Deflection limit shall be selected by building designer based on the serviceability requirements of the structure and requirements of applicable building code.

<sup>5</sup> SIP header may contain a spline a minimum of 6 inches from edge of opening.

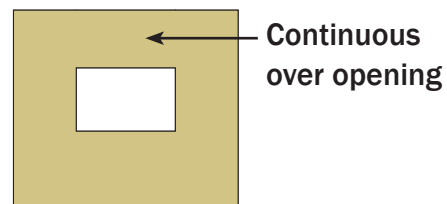
### HEADER LOAD

#### 4-PIECE ASSEMBLY: NO HEADER SPLINE

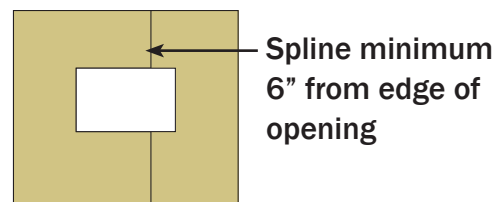
Note: Engineer to review SIP header nailing



### NO HEADER SPLINE



### HEADER WITH SPLINE

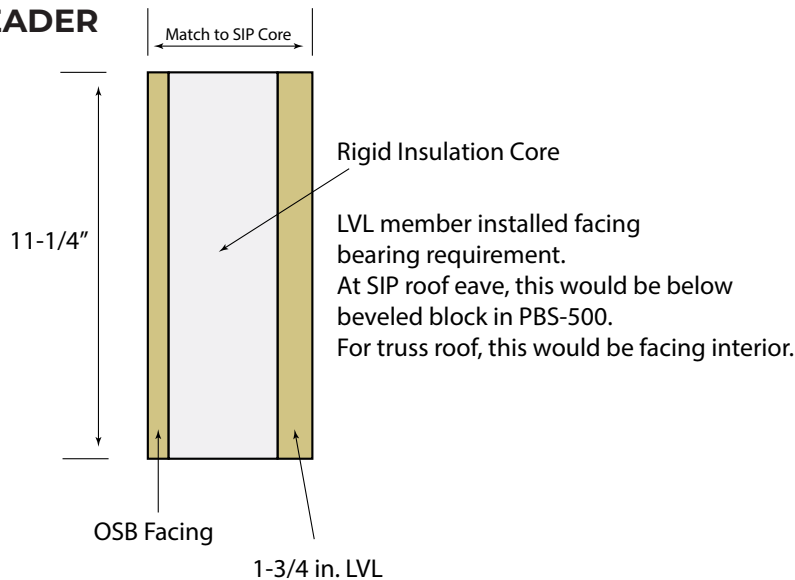


## LOAD CHART #5B

| <b>LOAD CHART #5B</b>  |            |                   |      |      |      |      |      |     |     |
|--|------------|-------------------|------|------|------|------|------|-----|-----|
| <b>Premier 1 PLY Insulated Header Beams Uniform Loads - PLF <sup>1</sup></b> |            |                   |      |      |      |      |      |     |     |
| No. of Trimmer Studs   | Deflection | Header Span (ft.) |      |      |      |      |      |     |     |
|  |            | 2'                | 3'   | 4'   | 5'   | 6'   | 7'   | 8'  |     |
| 1  | L/480      | 1968              | 1312 | 984  | 787  | 656  | 562  | 492 |     |
|  | L/360      | 1968              | 1312 | 984  | 787  | 656  | 562  | 492 |     |
|  | L/240      | 1968              | 1312 | 984  | 787  | 656  | 562  | 492 |     |
| 2  | L/480      | 3937              | 2625 | 1968 | 1575 | 1312 | 1125 | 901 |     |
|  | L/360      | 3937              | 2625 | 1968 | 1575 | 1312 | 1125 | 984 |     |
|  | L/240      | 3937              | 2625 | 1968 | 1575 | 1312 | 1125 | 984 |     |
| No. of Trimmer Studs   | Deflection | Header Span (ft.) |      |      |      |      |      |     |     |
|  |            | 9'                | 10'  | 11'  | 12'  | 13'  | 14'  | 15' | 16' |
| 1  | L/480      | 437               | 393  | 346  | 267  | 210  | 168  | 136 | 112 |
|  | L/360      | 437               | 393  | 357  | 328  | 280  | 224  | 182 | 150 |
|  | L/240      | 437               | 393  | 357  | 328  | 302  | 281  | 262 | 225 |
| 2  | L/480      | 632               | 461  | 346  | 267  | 210  | 168  | 136 | 112 |
|  | L/360      | 843               | 615  | 462  | 356  | 280  | 224  | 182 | 150 |
|  | L/240      | 875               | 769  | 635  | 534  | 420  | 336  | 273 | 225 |

<sup>1</sup> Values listed for each deflection represent the least value of the bearing capacity of the trimmer, shear or bearing capacity of the header or the actual deflection at the design load. Trimmer stud design capacities must be reviewed. LVL denotes 1-3/4" x 11-1/4" 2.0E RedLam material where E = 2,000,000 psi, Fb = 3,125 psi, Fv = 285 psi, and Fc-perp = 750 psi. Duration factors have not been applied to these capacities. The effects of long-term loading have not been included.

### 1 PLY HEADER



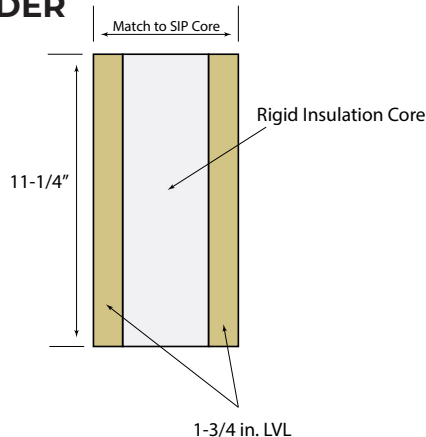


## LOAD CHART #5C

| LOAD CHART #5C  |            |                   |      |      |      |      |      |      |     |
|---|------------|-------------------|------|------|------|------|------|------|-----|
| Premier 2 PLY Insulated Header Beams Uniform Loads - PLF <sup>1</sup> |            |                   |      |      |      |      |      |      |     |
| No. of Trimmer Studs  | Deflection | Header Span (ft.) |      |      |      |      |      |      |     |
|   |            | 2'                | 3'   | 4'   | 5'   | 6'   | 7'   | 8'   |     |
| 1   | L/480      | 3937              | 2625 | 1968 | 1575 | 1312 | 1125 | 984  |     |
|   | L/360      | 3937              | 2625 | 1968 | 1575 | 1312 | 1125 | 984  |     |
|   | L/240      | 3937              | 2625 | 1968 | 1575 | 1312 | 1125 | 984  |     |
| 2   | L/480      | 7875              | 5250 | 3937 | 3150 | 2625 | 2250 | 1802 |     |
|   | L/360      | 7875              | 5250 | 3937 | 3150 | 2625 | 2250 | 1968 |     |
|   | L/240      | 7875              | 5250 | 3937 | 3150 | 2625 | 2250 | 1968 |     |
| No. of Trimmer Studs  | Deflection | Header Span (ft)  |      |      |      |      |      |      |     |
|   |            | 9'                | 10'  | 11'  | 12'  | 13'  | 14'  | 15'  | 16' |
| 1   | L/480      | 875               | 787  | 693  | 534  | 420  | 336  | 273  | 225 |
|   | L/360      | 875               | 787  | 715  | 656  | 560  | 446  | 364  | 300 |
|   | L/240      | 875               | 787  | 715  | 656  | 650  | 562  | 525  | 450 |
| 2   | L/480      | 1265              | 922  | 693  | 534  | 420  | 336  | 273  | 225 |
|   | L/360      | 1687              | 1230 | 924  | 712  | 560  | 448  | 364  | 300 |
|   | L/240      | 1750              | 1538 | 1271 | 1068 | 840  | 672  | 546  | 450 |

<sup>1</sup> Values listed for each deflection represent the least value of the bearing capacity of the trimmer, shear or bearing capacity of the header or the actual deflection at the design load. Trimmer stud design capacities must be reviewed. LVL denotes 1-3/4" x 11-1/4" 2.0E RedLam material where E = 2,000,000 psi, Fb = 3,125 psi, Fv = 285 psi and Fc-perp = 750 psi. Duration factors have not been applied to these capacities. The effect of long-term loading have not been included.

### 2 PLY HEADER



## LOAD CHART #6A

| <b>LOAD CHART #6A</b>                                    |                  |                 |    |     |     |     |     |     |     |     |     |
|--|------------------|-----------------|----|-----|-----|-----|-----|-----|-----|-----|-----|
| Roof/Floor Uniform Transverse Loads - PSF <sup>1-4</sup> |                  |                 |    |     |     |     |     |     |     |     |     |
| Type S Spline  |                  |                 |    |     |     |     |     |     |     |     |     |
| SIP Thickness  | Deflection Limit | SIP Span (ft.)  |    |     |     |     |     |     |     |     |     |
|  |                  | 4' <sup>4</sup> | 8' | 10' | 12' | 14' | 16' | 18' | 20' | 22' | 24' |
| 4-1/2"   | L/360            | 100             | 32 | 23  | NA  | NA  | NA  | NA  | NA  | NA  | NA  |
|  | L/240            | 143             | 48 | 35  | NA  | NA  | NA  | NA  | NA  | NA  | NA  |
|  | L/180            | 143             | 63 | 47  | NA  | NA  | NA  | NA  | NA  | NA  | NA  |
| 6-1/2"   | L/360            | 105             | 51 | 38  | 29  | 23  | NA  | NA  | NA  | NA  | NA  |
|  | L/240            | 162             | 76 | 57  | 44  | 35  | NA  | NA  | NA  | NA  | NA  |
|  | L/180            | 191             | 80 | 61  | 50  | 42  | NA  | NA  | NA  | NA  | NA  |
| 8-1/4"   | L/360            | 120             | 67 | 51  | 40  | 32  | 26  | 22  | NA  | NA  | NA  |
|  | L/240            | 179             | 94 | 71  | 57  | 48  | 40  | 33  | NA  | NA  | NA  |
|  | L/180            | 179             | 94 | 71  | 57  | 48  | 41  | 36  | NA  | NA  | NA  |
| 10-1/4"  | L/360            | 131             | 86 | 66  | 52  | 43  | 35  | 29  | 25  | 21  | NA  |
|  | L/240            | 168             | 94 | 75  | 63  | 54  | 47  | 41  | 36  | 32  | NA  |
|  | L/180            | 168             | 94 | 75  | 63  | 54  | 47  | 41  | 36  | 33  | NA  |
| 12-1/4"  | L/360            | 132             | 94 | 75  | 63  | 53  | 44  | 37  | 32  | 27  | 23  |
|  | L/240            | 163             | 94 | 75  | 63  | 54  | 47  | 42  | 37  | 34  | 31  |
|  | L/180            | 163             | 94 | 75  | 63  | 54  | 47  | 42  | 37  | 34  | 31  |

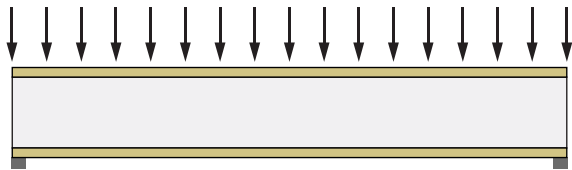
<sup>1</sup> Table values assume a simply supported SIP with 1-1/2 inches (38.1 mm) of continuous bearing. Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load. Values do not include the dead weight of the SIP.

<sup>2</sup> Deflection limit shall be selected by building designer based on the serviceability requirements of the structure and the requirements of applicable building code. Values are based on loads of short duration only and do not consider the effects of creep.

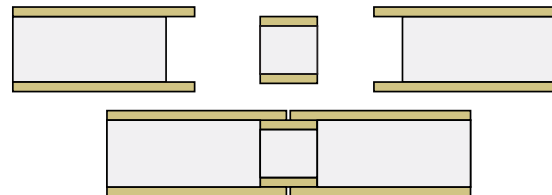
<sup>3</sup> Table values for 8-foot (2.44 m) spans apply to SIPs constructed with the OSB strength axis oriented either parallel or perpendicular to span direction. Table values for other spans are based on the OSB strength axis parallel to the span direction.

<sup>4</sup> SIPs shall be a minimum of 8-foot (2.44 m) long spanning two 4-foot (1.22 m) spans.

### TRANSVERSE LOAD



### TYPE S SPLINE



## LOAD CHART #6B

| <b>LOAD CHART #6B</b>                                    |                  |                 |     |     |     |    |    |    |    |    |    |
|--|------------------|-----------------|-----|-----|-----|----|----|----|----|----|----|
| Roof/Floor Uniform Transverse Loads - PSF <sup>1-4</sup> |                  |                 |     |     |     |    |    |    |    |    |    |
| Type I Spline  |                  |                 |     |     |     |    |    |    |    |    |    |
| SIP Thickness  | Deflection Limit | SIP Span (feet) |     |     |     |    |    |    |    |    |    |
|  |                  | 4 <sup>4</sup>  | 8   | 10  | 12  | 14 | 16 | 18 | 20 | 22 | 24 |
| 10-1/4"  | L/360            | 197             | 164 | 124 | 72  | 67 | 61 | 48 | 34 | 29 | 24 |
|  | L/240            | 336             | 164 | 124 | 107 | 96 | 84 | 70 | 49 | 43 | 36 |
|  | L/180            | 336             | 164 | 124 | 107 | 96 | 84 | 76 | 65 | 56 | 47 |
| 12-1/4"  | L/360            | 258             | 143 | 103 | 86  | 83 | 77 | 61 | 42 | 37 | 32 |
|  | L/240            | 318             | 143 | 103 | 93  | 85 | 77 | 68 | 59 | 54 | 46 |
|  | L/180            | 318             | 143 | 103 | 93  | 85 | 77 | 68 | 59 | 54 | 49 |

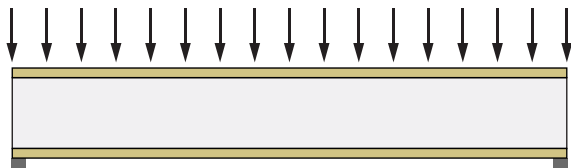
<sup>1</sup> Table values assume a simply supported SIP with 1-1/2 inches (38.1 mm) of continuous bearing. Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load. Splines consist of Premier I-beam, 2-1/4 inch (57.2 mm) wide flange (minimum) with a depth equal to the core thickness, spaced not to exceed 48 inches (1219.2 mm) on center.

<sup>2</sup> Deflection limit shall be selected by building designer based on the serviceability requirements of the structure and the requirements of applicable building code.

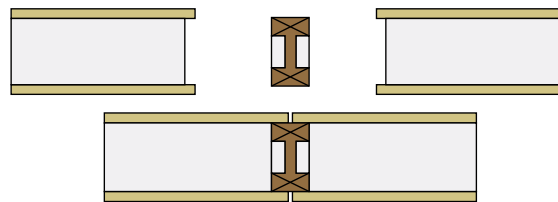
<sup>3</sup> Table values for 8-foot (2.44 m) spans apply to SIPs constructed with the OSB strength axis oriented either parallel or perpendicular to span direction. Table values for other spans are based on the OSB strength axis parallel to the span direction.

<sup>4</sup> SIP shall be a minimum of 8 foot (2.44 m) long spanning a minimum of two 4-foot (1.22 m) spans.

### TRANSVERSE LOAD



### TYPE I SPLINE



## LOAD CHART #6C

| <b>LOAD CHART #6C</b>                                    |                  |                 |     |     |     |     |     |    |    |    |    |
|--|------------------|-----------------|-----|-----|-----|-----|-----|----|----|----|----|
| Roof/Floor Uniform Transverse Loads - PSF <sup>1-4</sup> |                  |                 |     |     |     |     |     |    |    |    |    |
| Type L Spline  |                  |                 |     |     |     |     |     |    |    |    |    |
| SIP Thickness  | Deflection Limit | SIP Span (feet) |     |     |     |     |     |    |    |    |    |
|  |                  | 4 <sup>4</sup>  | 8   | 10  | 12  | 14  | 16  | 18 | 20 | 22 | 24 |
| 4-1/2"   | L/360            | 103             | 45  | 33  | 24  | NA  | NA  | NA | NA | NA | NA |
|  | L/240            | 225             | 68  | 47  | 34  | NA  | NA  | NA | NA | NA | NA |
|  | L/180            | 297             | 91  | 61  | 45  | NA  | NA  | NA | NA | NA | NA |
| 6-1/2"   | L/360            | 307             | 129 | 57  | 42  | 34  | 25  | 20 | NA | NA | NA |
|  | L/240            | 307             | 182 | 87  | 61  | 49  | 37  | 30 | NA | NA | NA |
|  | L/180            | 307             | 182 | 112 | 80  | 65  | 49  | 39 | NA | NA | NA |
| 8-1/4"   | L/360            | 253             | 171 | 82  | 66  | 54  | 41  | 32 | 23 | NA | NA |
|  | L/240            | 288             | 188 | 128 | 100 | 81  | 61  | 48 | 35 | NA | NA |
|  | L/180            | 288             | 188 | 133 | 117 | 105 | 80  | 63 | 45 | NA | NA |
| 10-1/4"  | L/360            | 286             | 188 | 117 | 101 | 80  | 58  | 47 | 36 | 32 | 27 |
|  | L/240            | 326             | 188 | 147 | 134 | 120 | 90  | 71 | 52 | 47 | 41 |
|  | L/180            | 326             | 188 | 147 | 134 | 121 | 106 | 93 | 68 | 61 | 53 |
| 12-1/4"  | L/360            | 327             | 188 | 167 | 141 | 116 | 91  | 75 | 58 | 47 | 36 |
|  | L/240            | 327             | 188 | 167 | 153 | 132 | 110 | 97 | 83 | 69 | 53 |
|  | L/180            | 327             | 188 | 167 | 153 | 132 | 110 | 97 | 83 | 83 | 70 |

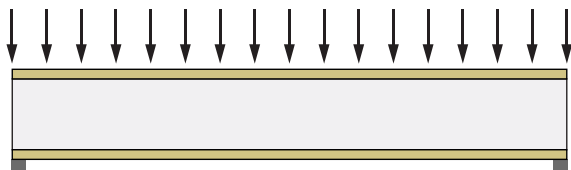
<sup>1</sup> Table values assume a simply supported SIP with 1-1/2 inches (38.1 mm) of continuous bearing. Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load. Splines consist of No. 2 or better Hem-Fir, 1-1/2 inches (38.1 mm) wide with a depth equal to the core thickness, spaced to provide not less than two members for every 48 inches (1219.2 mm) of SIP width.

<sup>2</sup> Deflection limit shall be selected by building designer based on the serviceability requirements of the structure and the requirements of applicable building code.

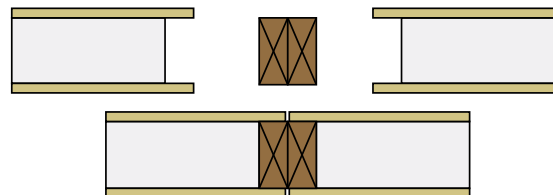
<sup>3</sup> Table values for 8-foot (2.44 m) spans apply to SIPs constructed with the OSB strength axis oriented either parallel or perpendicular to span direction. Table values for other spans are based on the OSB strength axis parallel to the span direction.

<sup>4</sup> SIP shall be a minimum of 8 foot (2.44 m) long spanning two 4-foot (1.22 m) spans. No single span condition is allowed.

### TRANSVERSE LOAD



### TYPE L SPLINE



## LOAD CHART #6D

| <b>LOAD CHART #6D</b>                              |                  |         |       |     |     |    |    |    |    |
|--|------------------|---------|-------|-----|-----|----|----|----|----|
| Roof/Floor - Transverse Loads - PSF <sup>1-9</sup> |                  |         |       |     |     |    |    |    |    |
| Type RB I" Spline                                  |                  |         |       |     |     |    |    |    |    |
| SIP Thickness                                      | Deflection Limit | 10      | 12    | 14  | 16  | 18 | 20 | 22 | 24 |
|  |                  | 10-1/4" | L/360 | 117 | 101 | 80 | 58 | 47 | 36 |
| L/240  | 147              |         | 134   | 120 | 90  | 71 | 52 | 47 | 41 |
| L/180  | 147              |         | 134   | 121 | 106 | 93 | 68 | 61 | 53 |
| 12-1/4"  | L/360            | 167     | 141   | 116 | 91  | 75 | 58 | 47 | 36 |
|  | L/240            | 167     | 153   | 132 | 110 | 97 | 83 | 69 | 53 |
|  | L/180            | 167     | 153   | 132 | 110 | 97 | 83 | 83 | 70 |

<sup>1</sup> CHART VALUES ARE POUNDS PER SQUARE FOOT.

<sup>2</sup> I-BEAM SPLINE MUST BE CONTINUOUS, SPACED 4' O.C., AND CONNECTED TO SIP FACING WITH 8d BOX (0.113) NAILS 6" O.C.

<sup>3</sup> CONTINUOUS SUPPORT WITH A MINIMUM I-BEAM SPLINE BEARING OF 1-1/2" AT EACH END REQUIRED.

<sup>4</sup> CHART IS BASED UPON UNIFORM LOADS.

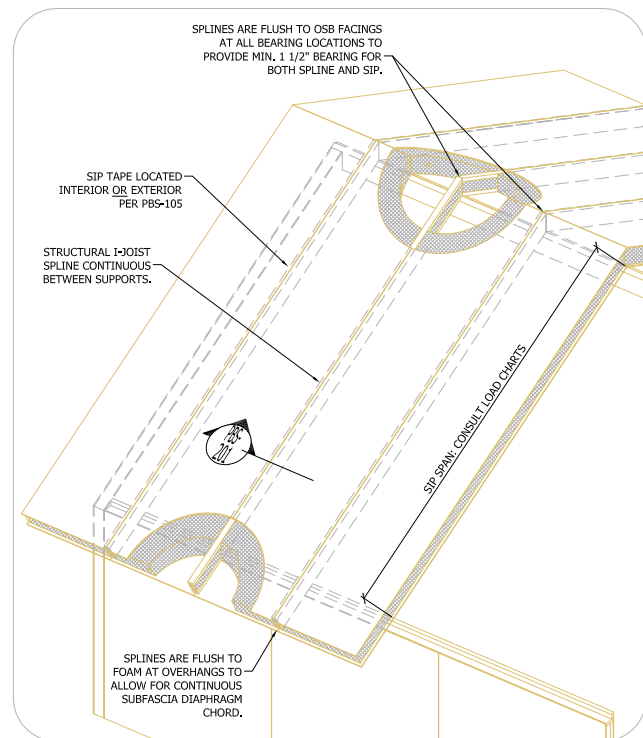
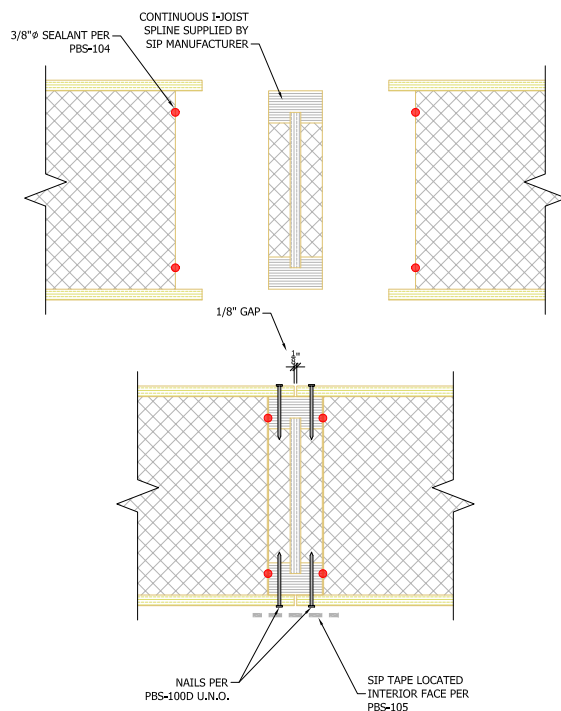
<sup>5</sup> LOADS LIMITED BY DEFLECTION OR ULTIMATE FAILURE LOAD DIVIDED BY A FACTOR OF SAFETY OF THREE.

<sup>6</sup> FLOORS MUST HAVE A MINIMUM 7/16" THICK OSB OR EQUIVALENT OVERLAY.

<sup>7</sup> FOR SLOPED SIPS, THE LOADING CONDITIONS AND SIP CAPACITIES SHOULD BE REVIEWED BASED UPON THE INCLINED SIP LENGTH.

<sup>8</sup> VALUES ARE FOR TOTAL LOAD (DEAD LOAD + LIVE LOAD).

<sup>9</sup> DEFLECTION BASED UPON KCR=1.0. FOR LONG TERM DEFLECTION UNDER SUSTAINED LOAD (CREEP), ADDITIONAL DEFLECTION MUST BE EVALUATED.



## LOAD CHART #7A

| LOAD CHART #7A  |   |  |   |                            |                                      |                      |
|---|---|--|---|----------------------------|--------------------------------------|----------------------|
| Roof/Floor Diaphragms Loads - PLF <sup>1, 5</sup> • Type S Spline |   |  |   |                            |                                      |                      |
| Minimum Connections <sup>2</sup>                                  |   |  |   | Allowable Shear Load (PLF) | G' Apparent Shear Stiffness (lbf/in) | Maximum Aspect Ratio |
| Interior Supports <sup>2</sup>                                    | Spline <sup>3</sup>   | Boundary <sup>4</sup>                                  |   |                            |                                      |                      |
|   |   | Support  | Spline                                  |                            |                                      |                      |
| PBS No. 14 SIP Screw with 1" penetration 12" on center            | 0.113" x 2-1/2" nails, 3" on center 7/16" x 3" OSB Box/Block Spline                     | PBS No. 14 SIP Screw with 1" penetration 12" on center | 0.113" x 2-1/2" nails, 6" on center     | 430                        | 24000                                | 4:1                  |
| PBS No. 14 SIP Screw with 1" penetration 12" on center            | 0.113" x 2-1/2" nails, 3" on center, 2 rows, staggered 7/16" x 3" OSB Box/Block Spline  | PBS No. 14 SIP Screw with 1" penetration 3" on center  | 0.113" x 2-1/2" nails, 4" on center     | 460                        | 30300                                | 4:1                  |
| PBS No. 14 SIP Screw with 1" penetration 2" on center             | 0.113" x 2-1/2" nails, 3" on center, 2 rows, staggered 7/16" x 3" OSB Box/Block Spline  | PBS No. 14 SIP Screw with 1" penetration 2" on center  | 0.113" x 2-1/2" nails, 1-1/2" on center | 655                        | 41300                                | 4:1                  |
| PBS No. 14 SIP Screw with 1" penetration 4" on center             | 0.113" x 2-1/2" nails, 3" on center, 2 rows, staggered 7/16" x 3" OSB Box/Block Spline  | PBS No. 14 SIP Screw with 1" penetration 4" on center  | 0.113" x 2-1/2" nails, 3" on center     | 795                        | 93700                                | 3:1                  |
| PBS No. 14 SIP Screw with 1" penetration 4" on center             | 0.113" x 2-1/2" nails, 6" on center, 2 rows, staggered 23/32" x 4" OSB Box/Block Spline | PBS No. 14 SIP Screw with 1" penetration 4" on center  | 0.113" x 2-1/2" nails, 6" on center     | 1130                       | 110600                               | 3:1                  |

<sup>1</sup> The maximum diaphragm length-to-width ratio shall not exceed 4: 1. Load may be applied parallel to continuous panel joints.

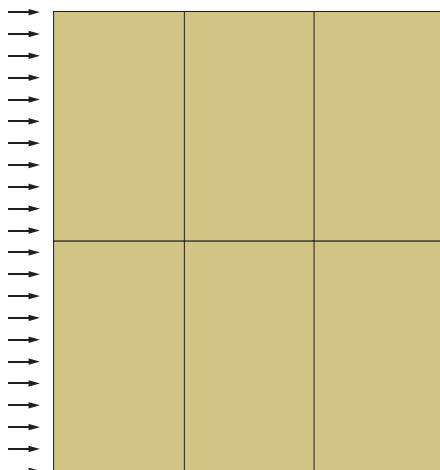
<sup>2</sup> Interior supports shall be spaced not to exceed 12 feet (3.66 m) on center and have a minimum width of 3-1/2 inches (88.9 mm) and a specific gravity of 0.42 or greater. Specified fasteners are required on both sides of panel joint where panels are joined over a support. See Figure 4A.

<sup>3</sup> Box/Block Spline fastened at top only, at interior panel-to-panel joints. Specified fasteners are required on both sides of panel joint. See Figure 4B.

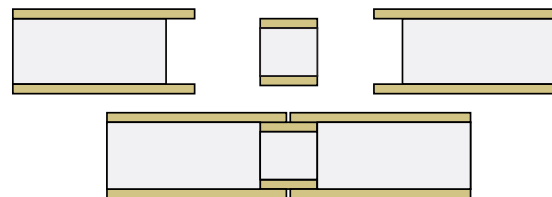
<sup>4</sup> Boundary spline shall be solid 1-1/2 inches (38.1 mm) wide, minimum, and have a specific gravity of 0.42 or greater. Boundary supports shall have a minimum width of 3-1/2 inches (88.9 mm) and a specific gravity of 0.42 or greater. Specified spline fasteners are required through both facings. See Figure 4C.

<sup>5</sup> Diaphragms shall be designed by a registered design professional in accordance with accepted engineering practice.

### DIAPHRAGM LOAD



### TYPE S SPLINE

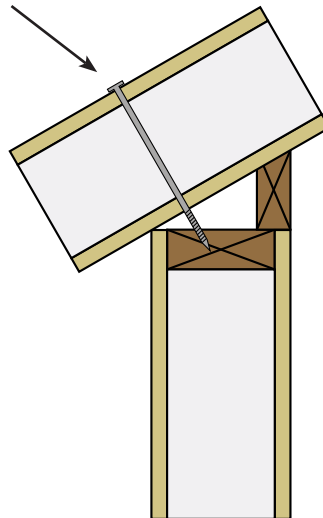


## PREMIER SCREW LENGTH GUIDE

| SIP THICKNESS <sup>1</sup> |        |        |        |         |         |
|----------------------------|--------|--------|--------|---------|---------|
| Slope                      | 4-1/2" | 6-1/2" | 8-1/4" | 10-1/4" | 12-1/4" |
| 2/12                       | 6"     | 8"     | 10"    | 12"     | 14"     |
| 4/12                       | 6"     | 8"     | 10"    | 12"     | 14"     |
| 6/12                       | 7"     | 9"     | 10"    | 12"     | 14"     |
| 8/12                       | 7"     | 9"     | 11"    | 13"     | 15"     |
| 10/12                      | 8"     | 10"    | 12"    | 14"     | 16"     |
| 12/12                      | 8"     | 10"    | 12"    | 14"     | 16"     |

<sup>1</sup> Minimum 1" thread penetration required.

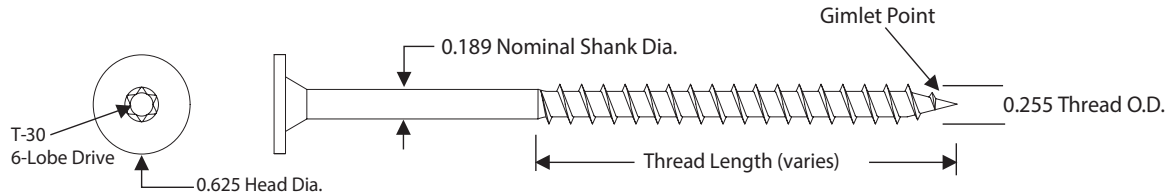
### PREMIER SCREW



**NOTE:**

Premier Screw Length Guide provides recommended Premier SIPS Screw length required based on SIP thickness and roof slope.

## PREMIER WOOD SCREWS



| WOOD SCREW PROPERTIES      |                          |  |  |
|----------------------------|--------------------------|--|--|
| Tensile (lbs)<br>AISI S904 | Shear (lbs)<br>AISI S904 | Bending Yield Strength - Fyb (psi)<br>ASTM F1575 | Corrosive Resistance<br>ASTM D6294, ETAG 006 |
| 3555                       | 2580                     | 185,000  | <15% Red Rust<br>after 30 cycles             |

| WITHDRAWAL: LUMBER & ENGINEERED WOOD - LBS./IN. <sup>1,2</sup> |               |                 |               |               |               |               |                |
|--|---------------|-----------------|---------------|---------------|---------------|---------------|----------------|
| SPF/HF<br>(0.42)   |               | DF/SP<br>(0.50) |               | LVL<br>(0.50) |               | LSL<br>(0.50) | OSB<br>(7/16") |
| Face<br>Grain  | Edge<br>Grain | Face<br>Grain   | Edge<br>Grain | Face<br>Grain | Edge<br>Grain | Face<br>Grain | Face           |
| 799  | 615           | 899             | 702           | 556           | 495           | 711           | 265            |

<sup>1</sup> Load values include fastener tip.

<sup>2</sup> 1" fastener embedment into face / edge grain.

| WITHDRAWAL: CONCRETE & CMU - LBS. <sup>1</sup> |                      |                  |
|--|----------------------|------------------|
| 2500 psi<br>Concrete                           | 5000 psi<br>Concrete | CMU <sup>2</sup> |
| 682  | 869                  | 713              |

<sup>1</sup> Fastener penetrates 1" into concrete or CMU clock, including the tip.

<sup>2</sup> Concrete Masonry unit (CMU) conforming to ASTM C90.

| HEAD PULL-THRU - LBS. |     |
|-----------------------|-----|
| 7/16" OSB             | SIP |
| 490                   | 630 |

| LATERAL LOAD RESISTANCE - LBS. |             |      |
|--------------------------------|-------------|------|
| Main Member                    | Side Member | Load |
| SPF <sup>1,2</sup>             | 8-1/4" SIP  | 943  |

<sup>1</sup> 1-3/4" fastener embedment into edge grain, including tip.

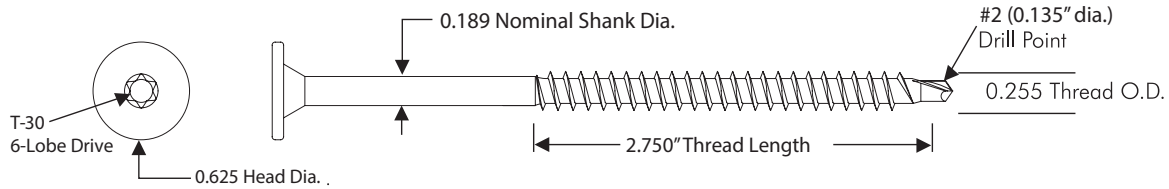
<sup>2</sup> 1" fastener embedment into face grain, including tip.

### NOTE:

Premier Wood Screw properties are provided. All values are average ultimate values. As determined by the project architect/engineer, appropriate safety factors must be used in design.



## PREMIER LIGHT DUTY METAL SCREWS



| LIGHT DUTY METAL SCREW PROPERTIES |                          |  |  |
|-----------------------------------|--------------------------|--|--|
| Tensile (lbs)<br>AISI S904        | Shear (lbs)<br>AISI S904 | Bending Yield Strength - Fyb (psi)<br>ASTM F1575 | Corrosive Resistance<br>ASTM D6294, ETAG 006 |
| 3390                              | 2490                     | 185,000  | <15% Red Rust<br>after 30 cycles             |

| WITHDRAWAL: CORRUGATED STEEL DECK - LBS. |                    |                    |                    |                    |                    |                     |
|--|--------------------|--------------------|--------------------|--------------------|--------------------|---------------------|
| 24 ga.<br>(36 ksi)                       | 22 ga.<br>(36 ksi) | 22 ga.<br>(85 ksi) | 20 ga.<br>(36 ksi) | 18 ga.<br>(36 ksi) | 16 ga.<br>(36 ksi) | 16 ga.<br>(100 ksi) |
| 250                                      | 381                | 435                | 449                | 694                | 896                | 1186                |

\* Minimum 3/4" penetration of fastener through deck from underside of deck.

| WITHDRAWAL: LUMBER & ENGINEERED WOOD - LBS./IN. <sup>1</sup> |               |                 |               |               |               |               |                |
|--|---------------|-----------------|---------------|---------------|---------------|---------------|----------------|
| SPF/HF<br>(0.42)   |               | DF/SP<br>(0.50) |               | LVL<br>(0.50) |               | LSL<br>(0.50) | OSB<br>(7/16") |
| Face<br>Grain  | Edge<br>Grain | Face<br>Grain   | Edge<br>Grain | Face<br>Grain | Edge<br>Grain | Face<br>Grain | Face           |
| 662  | 497           | 732             | 720           | 540           | 469           | 646           | 284            |

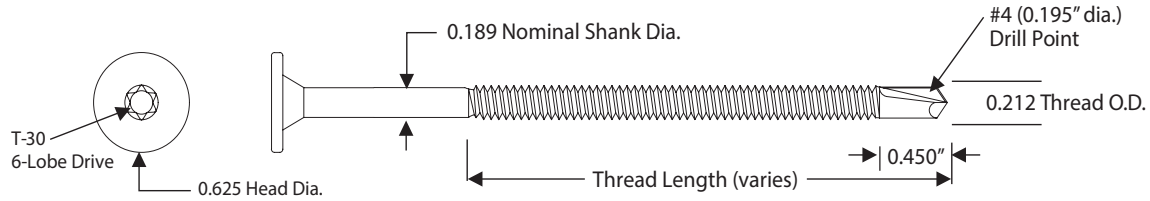
<sup>1</sup> Load values include fastener tip.

| HEAD PULL-THRU - LBS |     |
|----------------------|-----|
| 7/16" OSB            | SIP |
| 490                  | 630 |

**NOTE:**

Premier Light Duty Metal Screw properties are provided. All values are average ultimate values. As determined by the project architect/engineer, appropriate safety factors must be used in design.

## PREMIER HEAVY DUTY METAL SCREWS



| HEAVY DUTY METAL SCREW PROPERTIES |                          |  |  |
|-----------------------------------|--------------------------|--|--|
| Tensile (lbs)<br>AISI S904        | Shear (lbs)<br>AISI S904 | Bending Yield Strength - Fyb (psi)<br>ASTM F1575 | Corrosive Resistance<br>ASTM D6294, ETAG 006 |
| 3855                              | 2625                     | 185,000  | <15% Red Rust<br>after 30 cycles             |

| WITHDRAWAL: CORRUGATED STEEL DECK - LBS. <sup>1</sup> |                     |                    |                  |                   |                  |
|---|---------------------|--------------------|------------------|-------------------|------------------|
| 16 ga.<br>(36 ksi)                                    | 16 ga.<br>(100 ksi) | 12 ga.<br>(50 ksi) | 1/8"<br>(36 ksi) | 3/16"<br>(60 ksi) | 1/4"<br>(60 ksi) |
| 491   | 794                 | 1255               | 1454             | 3098              | 3814             |

<sup>1</sup> Minimum (3) threads of penetration of fastener through deck as measured from underside of steel.

| HEAD PULL-THRU - LBS. |     |
|-----------------------|-----|
| 7/16" OSB             | SIP |
| 490                   | 630 |

| LATERAL LOAD RESISTANCE - LBS.     |             |      |
|------------------------------------|-------------|------|
| Main Member                        | Side Member | Load |
| 1/8" Structural Steel <sup>1</sup> | 8-1/4" SIP  | 929  |

<sup>1</sup> Minimum (3) threads of penetration of fastener through steel as measured from underside of steel.

### NOTE:

Premier Heavy Duty Metal Screw properties are provided. All values are average ultimate values. As determined by the project architect/engineer, appropriate safety factors must be used in design.

## NAIL AND SCREW WITHDRAWAL LOADS

### 7/16 IN. OSB

Fasteners shall be long enough to penetrate OSB by at least 1/4 in. Please refer to APA Technical Topics TT-109 for complete details.

| <b>WOOD SCREWS WITHDRAWAL LOADS</b> |       |       |       |       |       |       |       |
|-------------------------------------|-------|-------|-------|-------|-------|-------|-------|
| Gauge                               | #6    | #7    | #8    | #9    | #10   | #12   | #14   |
| Diameter (in.)                      | 0.138 | 0.151 | 0.164 | 0.177 | 0.190 | 0.216 | 0.242 |
| lbs                                 | 56    | 61    | 66    | 72    | 77    | 87    | 98    |

| <b>RINK SHANK NAIL WITHDRAWAL LOADS</b> |       |       |       |       |       |       |       |       |
|---|-------|-------|-------|-------|-------|-------|-------|-------|
| Diameter (in.)                          | 0.091 | 0.094 | 0.097 | 0.113 | 0.120 | 0.128 | 0.135 | 0.148 |
| lbs                                     | 36    | 37    | 38    | 45    | 48    | 51    | 53    | 59    |

| <b>SMOOTH SHANK NAIL WITHDRAWAL LOADS</b> |       |       |       |       |       |       |       |       |
|---|-------|-------|-------|-------|-------|-------|-------|-------|
| Diameter (in.)                            | 0.092 | 0.099 | 0.113 | 0.120 | 0.128 | 0.131 | 0.135 | 0.148 |
| lbs                                       | 9     | 10    | 11    | 12    | 13    | 13    | 13    | 14    |

**NOTE:**

Nail and Screw withdrawal design loads when installed in the 7/16 in. OSB facing of a SIP.

## NAIL AND SCREW WITHDRAWAL LOADS

### 5/8 IN. OSB

Fasteners shall be long enough to penetrate OSB by at least 1/4 in. Please refer to APA Technical Topics TT-109 for complete details.

| <b>WOOD SCREWS WITHDRAWAL LOADS</b> |       |       |       |       |       |       |       |
|-------------------------------------|-------|-------|-------|-------|-------|-------|-------|
| Gauge                               | #6    | #7    | #8    | #9    | #10   | #12   | #14   |
| Diameter (in.)                      | 0.138 | 0.151 | 0.164 | 0.177 | 0.190 | 0.216 | 0.242 |
| lbs                                 | 75    | 83    | 90    | 97    | 104   | 118   | 133   |

| <b>RINK SHANK NAIL WITHDRAWAL LOADS</b> |       |       |       |       |       |       |       |       |
|---|-------|-------|-------|-------|-------|-------|-------|-------|
| Diameter (in.)                          | 0.091 | 0.094 | 0.097 | 0.113 | 0.120 | 0.128 | 0.135 | 0.148 |
| lbs                                     | 49    | 51    | 52    | 61    | 64    | 69    | 73    | 80    |

| <b>SMOOTH SHANK NAIL WITHDRAWAL LOADS</b> |       |       |       |       |       |       |       |       |
|---|-------|-------|-------|-------|-------|-------|-------|-------|
| Diameter (in.)                            | 0.092 | 0.099 | 0.113 | 0.120 | 0.128 | 0.131 | 0.135 | 0.148 |
| lbs                                       | 12    | 13    | 15    | 16    | 17    | 17    | 18    | 20    |

**NOTE:**

Nail and Screw withdrawal design loads when installed in the 5/8 in. OSB facing of a SIP.

## NAIL AND SCREW WITHDRAWAL LOADS

### 3/4 IN. OSB

Fasteners shall be long enough to penetrate OSB by at least 1/4 in. Please refer to APA Technical Topics TT-109 for complete details.

| WOOD SCREWS WITHDRAWAL LOADS |       |       |       |       |       |       |       |
|------------------------------|-------|-------|-------|-------|-------|-------|-------|
| Gauge                        | #6    | #7    | #8    | #9    | #10   | #12   | #14   |
| Diameter (in.)               | 0.138 | 0.151 | 0.164 | 0.177 | 0.190 | 0.216 | 0.242 |
| lbs                          | 92    | 100   | 109   | 117   | 126   | 143   | 161   |

| RINK SHANK NAIL WITHDRAWAL LOADS |       |       |       |       |       |       |       |       |
|----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Diameter (in.)                   | 0.091 | 0.094 | 0.097 | 0.113 | 0.120 | 0.128 | 0.135 | 0.148 |
| lbs                              | 59    | 61    | 63    | 74    | 78    | 83    | 88    | 96    |

| SMOOTH SHANK NAIL WITHDRAWAL LOADS |       |       |       |       |       |       |       |       |
|------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Diameter (in.)                     | 0.092 | 0.099 | 0.113 | 0.120 | 0.128 | 0.131 | 0.135 | 0.148 |
| lbs                                | 15    | 16    | 18    | 19    | 21    | 21    | 22    | 24    |

**NOTE:**

Nail and Screw withdrawal design loads when installed in the 3/4 in. OSB facing of a SIP.