Design Manual

Detailed planning and designing information on Premier Structural Insulated Panels (SIPs)
Introduction

Premier SIPs, North America’s largest manufacturer of Structural Insulated Panels (SIPs), has been manufacturing SIPs for more than 20 years. Our testing and analysis programs have produced an extensive and comprehensive amount of data that allows us to help design professionals optimize designs with respect to both structural and energy concerns.

Arming yourself with this accurate data helps you streamline the design process and make informed, dependable decisions. Premier’s proprietary data is based upon hard facts. That’s a benefit on which you rely on throughout the life of your project.

Our Design Guide covers product testing, loading criteria, R-values, SIPs details, SIPs product specifications, accessory information and guidelines for storage and handling of your Premier SIPs.

Local codes, climates and practices will direct the designer or contractor in the application of ventilation, house wraps, vapor barriers, exterior finishes and thermal barriers. Premier has many resources to aid in the entire process. Along with our engineers and technical division, we strive to provide you with the most current information in this quickly changing market place. Our staff is prepared to help early and often to ensure that your project starts smoothly and finishes strong.
Guidelines for Premier SIPS Design & Installation

- Fill all voids with expanding foam.
- Project must meet local code.
- Confirm your installation date at least two weeks prior to requesting on-site assistance.
- Schedule a preconstruction meeting with your installation crew (concrete, plumbing, electrical, siding, roofing, etc.).
- Inventory materials when you receive them.
- Check all SIPS for proper cuts and recesses.
- Double check SIPS sizes and compare to shop drawings before installation.
- Engineered details take precedence over Premier SIPS details.
- Premier SIPS details regarding mastic and SIPS tape need to be followed.
- Any changes required at the job site should be communicated with the technical representative.
- Make sure your foundation or floor is level and square.
- Fabricate and pre-install dimensional or I-joist spline material as specified.
- Review engineering for hold downs if applicable.
- Make sure to pre-drill the top and bottom plates for the vertical electrical chases in the wall panels.
- Do not put plumbing inside SIPS.
- Do not cut the skins (OSB) for extra electrical chases or plumbing.
- Do not pick up the SIPS by the edge of the top skin.
- Remove debris from sill plate before you place the SIP wall panel on it.
- Use mastic on all connections as shown in the PBS details.
- Make sure that both of the wall SIPS skins are bearing on the floor.
- Follow proper nailing requirements according to details and job specific engineering.
- Plumb each SIP in each direction, then secure with nails.
- Do not apply interior or exterior materials over wet SIPS.

Testing

**Extensive Testing = Accurate Data**

Full scale destructive testing has been conducted on Premier SIPS to obtain the structural design capacities contained in our load charts. Extrapolating design capacities for conditions outside the scope of the load charts is not recommended.

**A History of Third Party Monitored Testing**

Premier credits a reputation for quality to testing that began in 1968. In 1997 we charted our widest course yet by embarking on an industry leading comprehensive structural test program. These full scale destructive tests by independent code recognized laboratories have allowed Premier to achieve some of the highest load capacities of any SIPS products in the industry.
### PBS Panel R-Values

<table>
<thead>
<tr>
<th>Core Thickness</th>
<th>R-Value at 75°</th>
<th>R-Value at 40°</th>
<th>R-Value at 25°</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-1/2&quot;</td>
<td>15</td>
<td>16</td>
<td>17</td>
</tr>
<tr>
<td>5-1/2&quot;</td>
<td>23</td>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td>7-1/4&quot;</td>
<td>30</td>
<td>32</td>
<td>33</td>
</tr>
<tr>
<td>9-1/4&quot;</td>
<td>37</td>
<td>40</td>
<td>42</td>
</tr>
<tr>
<td>11-1/4&quot;</td>
<td>45</td>
<td>49</td>
<td>51</td>
</tr>
</tbody>
</table>

### PBS Panel Weights

<table>
<thead>
<tr>
<th>Core Thickness</th>
<th>OSB Skin Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/16&quot;</td>
<td>7/16&quot;</td>
</tr>
<tr>
<td>5/8&quot;</td>
<td>5/8&quot;</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>3/4&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Core Thickness</th>
<th>OSB Skin Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-1/2&quot;</td>
<td>3.3</td>
</tr>
<tr>
<td>5-1/2&quot;</td>
<td>3.5</td>
</tr>
<tr>
<td>7-1/4&quot;</td>
<td>3.7</td>
</tr>
<tr>
<td>9-1/4&quot;</td>
<td>3.9</td>
</tr>
<tr>
<td>11-1/4&quot;</td>
<td>4.0</td>
</tr>
</tbody>
</table>

### Load Charts with a Built in Safety Factor

(Refer to current Listing Reports for up to date load tables)

All of Premier’s load charts have a built-in safety factor. We have taken our SIPs products’ ultimate load at failure and divided this number by 3. The result is then used as the design load value.

<table>
<thead>
<tr>
<th>Table 1: Maximum Allowable Uniform Transverse Load (psf) – Type S Panels</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel Core Thickness (in)</strong></td>
<td><strong>Deflection Limit</strong></td>
</tr>
<tr>
<td>3.5</td>
<td>L/360</td>
</tr>
<tr>
<td></td>
<td>L/240</td>
</tr>
<tr>
<td></td>
<td>L/180</td>
</tr>
<tr>
<td>5.5</td>
<td>L/360</td>
</tr>
<tr>
<td></td>
<td>L/240</td>
</tr>
<tr>
<td></td>
<td>L/180</td>
</tr>
<tr>
<td>7.25</td>
<td>L/360</td>
</tr>
<tr>
<td></td>
<td>L/240</td>
</tr>
<tr>
<td></td>
<td>L/180</td>
</tr>
<tr>
<td>9.25</td>
<td>L/360</td>
</tr>
<tr>
<td></td>
<td>L/240</td>
</tr>
<tr>
<td></td>
<td>L/180</td>
</tr>
<tr>
<td>11.25</td>
<td>L/360</td>
</tr>
<tr>
<td></td>
<td>L/240</td>
</tr>
</tbody>
</table>

1. Table values assume a simply supported panel with 1.5 in. of continuous bearing on facing at supports. Permanent loads, such as dead load, shall not exceed 0.25 times the tabulated load. Panels shall use OSB surface splines not less than 7/16 in. thick inserted below the facing on each side of the panel.
2. Deflection limit shall be selected by building designer based on the serviceability requirements of the structure and the requirements of adopted building code.
3. Tabulated values for 8 ft walls apply to panels constructed with the OSB strength axis oriented either parallel or perpendicular to supports. Tabulated values for other lengths are based on the strong-axis of the facing material oriented parallel to the span direction.
4. Panels spanning 4 ft shall be a minimum of 8 ft long spanning a minimum of two 4 ft spans. No single span condition is allowed.
5. For wall panel capacities utilizing a zero bearing configuration (Figure 2), the allowable load shall be determined using C_v=0.86.
6. An asterisk (*) indicates the value shown is governed by the average peak load divided by 3.
Table 2: Maximum Allowable Uniform Transverse Load (psf) – Type I Panels

<table>
<thead>
<tr>
<th>Panel Core Thickness (in)</th>
<th>Deflection Limit</th>
<th>4</th>
<th>8</th>
<th>10</th>
<th>12</th>
<th>14</th>
<th>16</th>
<th>18</th>
<th>20</th>
<th>22</th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.25</td>
<td>L/360</td>
<td>132</td>
<td>136</td>
<td>93</td>
<td>60</td>
<td>50</td>
<td>40</td>
<td>31</td>
<td>21</td>
<td>19</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>L/240</td>
<td>318*</td>
<td>148*</td>
<td>107*</td>
<td>91</td>
<td>75</td>
<td>59</td>
<td>45</td>
<td>31</td>
<td>27</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>L/180</td>
<td>318*</td>
<td>148*</td>
<td>107*</td>
<td>92*</td>
<td>87</td>
<td>78</td>
<td>60</td>
<td>41</td>
<td>36</td>
<td>30</td>
</tr>
<tr>
<td>9.25</td>
<td>L/360</td>
<td>197</td>
<td>164*</td>
<td>124*</td>
<td>72</td>
<td>67</td>
<td>61</td>
<td>48</td>
<td>34</td>
<td>29</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>L/240</td>
<td>336*</td>
<td>164*</td>
<td>124*</td>
<td>107*</td>
<td>96</td>
<td>84*</td>
<td>76</td>
<td>65</td>
<td>56</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>L/180</td>
<td>336*</td>
<td>164*</td>
<td>124*</td>
<td>107*</td>
<td>96</td>
<td>84*</td>
<td>76</td>
<td>65</td>
<td>56</td>
<td>47</td>
</tr>
<tr>
<td>11.25</td>
<td>L/360</td>
<td>258</td>
<td>143*</td>
<td>103*</td>
<td>86</td>
<td>83</td>
<td>77*</td>
<td>61</td>
<td>42</td>
<td>37</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>L/240</td>
<td>318*</td>
<td>143*</td>
<td>103*</td>
<td>93*</td>
<td>85</td>
<td>77*</td>
<td>68</td>
<td>59*</td>
<td>54</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>L/180</td>
<td>318*</td>
<td>143*</td>
<td>103*</td>
<td>93*</td>
<td>85</td>
<td>77*</td>
<td>68</td>
<td>59*</td>
<td>54</td>
<td>49*</td>
</tr>
</tbody>
</table>

1 Table values assume a simply supported panel with 1.5 in. of continuous bearing on facing at supports. Permanent loads, such as dead load, shall not exceed 0.25 times the tabulated load. Splines consist of one wood I-beam, 2.25 in. wide flange (minimum) with a depth equal to the core thickness, spaced not to exceed 48 in. on center.

2 Deflection limit shall be selected by building designer based on the serviceability requirements of the structure and the requirements of adopted building code.

3 Tabulated values for 8 ft walls apply to panels constructed with the OSB strength axis oriented either parallel or perpendicular to supports. Tabulated values for other lengths are based on the strong-axis of the facing material oriented parallel to the span direction.

4 Panels spanning 4 ft shall be a minimum of 8 ft long spanning a minimum of two 4 ft spans. No single span condition is allowed.

* An asterisk (*) indicates the value shown is governed by the average peak load divided by 3.
Table 3: Maximum Allowable Uniform Transverse Load (psf) – Type L Panels

<table>
<thead>
<tr>
<th>Panel Core Thickness (in)</th>
<th>Deflection Limit&lt;sup&gt;2&lt;/sup&gt;</th>
<th>Panel Span (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4&lt;sup&gt;*&lt;/sup&gt;</td>
<td>8</td>
</tr>
<tr>
<td>3.5</td>
<td>L/360</td>
<td>103</td>
</tr>
<tr>
<td></td>
<td>L/240</td>
<td>225</td>
</tr>
<tr>
<td></td>
<td>L/180</td>
<td>297</td>
</tr>
<tr>
<td>5.5</td>
<td>L/360</td>
<td>307</td>
</tr>
<tr>
<td></td>
<td>L/240</td>
<td>307</td>
</tr>
<tr>
<td></td>
<td>L/180</td>
<td>307</td>
</tr>
<tr>
<td>7.25</td>
<td>L/360</td>
<td>253</td>
</tr>
<tr>
<td></td>
<td>L/240</td>
<td>288</td>
</tr>
<tr>
<td></td>
<td>L/180</td>
<td>288</td>
</tr>
<tr>
<td>9.25</td>
<td>L/360</td>
<td>286</td>
</tr>
<tr>
<td></td>
<td>L/240</td>
<td>326</td>
</tr>
<tr>
<td></td>
<td>L/180</td>
<td>326</td>
</tr>
<tr>
<td>11.25</td>
<td>L/360</td>
<td>327</td>
</tr>
<tr>
<td></td>
<td>L/240</td>
<td>327</td>
</tr>
<tr>
<td></td>
<td>L/180</td>
<td>327</td>
</tr>
</tbody>
</table>

Table values assume a simply supported panel with 1.5 in. of continuous bearing on facing at supports. Permanent loads, such as dead load, shall not exceed 0.25 times the tabulated load. Splines consist of #2 or better, Hem-Fir, 1.5 in. wide with a depth equal to the core thickness, spaced to provide not less than two members for every 48 in. of panel width.

2 Deflection limits shall be selected by the building designer based on the serviceability requirements of the structure and the requirements of adopted building code.

3 Tabulated values for 8 ft walls apply to panels constructed with the OSB strength axis oriented either parallel or perpendicular to supports. Tabulated values for other lengths are based on the strong-axis of the facing material oriented parallel to the span direction.

4 Panels spanning 4 ft shall be a minimum of 8 ft long spanning a minimum of two 4 ft spans. No single span condition is allowed.

* An asterisk (*) indicates the value shown is governed by the average peak load divided by 3.

Table 4: Maximum Allowable Uniform Axial Load (pf) – Type S Panels

<table>
<thead>
<tr>
<th>Panel Core Thickness (in)</th>
<th>Panel Span (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8</td>
</tr>
<tr>
<td>3.5</td>
<td>3500</td>
</tr>
<tr>
<td>5.5</td>
<td>4250</td>
</tr>
<tr>
<td>7.25</td>
<td>4917</td>
</tr>
<tr>
<td>9.25</td>
<td>4600</td>
</tr>
<tr>
<td>11.25</td>
<td>3889</td>
</tr>
</tbody>
</table>

Splines consist of OSB surface splines not less than 7/16 in. thick inserted below the facing on each side of the panel. Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load.

* Uniform Axial loads may be applied in accordance with Section 5.5.1. Concentrated point loads shall be addressed in accordance with Section 5.5.2 and Table 6.

3 Both facings must bear on the supporting foundation or structure.

4 Tabulated values for 8 ft walls apply to panels constructed with the OSB strength axis oriented either parallel or perpendicular to supports.

* Limited by 1/8 in. deflection (compression)

Table 5: Maximum Allowable Uniform Axial Loads (pf) – Type L Panels

<table>
<thead>
<tr>
<th>Panel Core Thickness (in)</th>
<th>Panel Span (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8</td>
</tr>
<tr>
<td>3.5</td>
<td>4723</td>
</tr>
<tr>
<td>5.5</td>
<td>5850</td>
</tr>
<tr>
<td>7.25</td>
<td>6807</td>
</tr>
<tr>
<td>9.25</td>
<td>5473</td>
</tr>
<tr>
<td>11.25</td>
<td>5667</td>
</tr>
</tbody>
</table>

Splines consist of #2 or better, Hem-Fir, 1.5 in. wide with a depth equal to the core thickness, spaced to provide not less than two members for every 48 in. of panel width. Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load.

* Axial loads shall be applied concentrically to the top of the panel through repetitive members spaced not more than 24 in. on center. Such members shall be fastened to a rim board or similar member to distribute along the top of the SIP panel.

3 Both facings must bear on the supporting foundation or structure.

4 Tabulated values for 8 ft walls apply to panels constructed with the OSB strength axis oriented either parallel or perpendicular to supports.

* Limited by 1/8 in. deflection (compression)
This listing report is intended to indicate that NTA Inc. has evaluated product described and has found it to be eligible for labeling. Product not labeled as specified shall not exceed 0.50 times the tabulated load.

Table 6: Maximum Allowable Axial Compression Point Loads (lbs) – Type S Panels

<table>
<thead>
<tr>
<th>Top Plate Configuration</th>
<th>1.5” Minimum Bearing Width</th>
<th>3” Minimum Bearing Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single 2x4 #2 or Better Hem-Fir Plate</td>
<td>2040</td>
<td>2450</td>
</tr>
<tr>
<td>Single 2x4 #2 or Better Hem-Fir Plate with 1-1/8 in. wide, 1.3E Rim Board Cap Plate</td>
<td>4030</td>
<td>4678</td>
</tr>
</tbody>
</table>

Top plate secured to facings as required in Section 6.3

2 Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load.

3 Concentrated loads shall be applied concentrically to the top of the panel.

4 Tabulated values are based on the strong-axis of the facing material oriented parallel to the span direction.

Table 7: Maximum Allowable Uniform SIP Header Vertical Loads (pfl) 3-1/2 in. through 11-1/4 in. Core Thickness

<table>
<thead>
<tr>
<th>Header Depth (in)</th>
<th>Deflection Limit</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>L/480</td>
<td>740</td>
<td>384</td>
<td>228</td>
<td>142</td>
</tr>
<tr>
<td></td>
<td>L/360</td>
<td>740</td>
<td>384</td>
<td>229</td>
<td>142</td>
</tr>
<tr>
<td></td>
<td>L/240</td>
<td>740</td>
<td>384</td>
<td>229</td>
<td>142</td>
</tr>
<tr>
<td>18</td>
<td>L/480</td>
<td>798</td>
<td>574</td>
<td>385</td>
<td>311</td>
</tr>
<tr>
<td></td>
<td>L/360</td>
<td>798</td>
<td>574</td>
<td>385</td>
<td>311</td>
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<tr>
<td></td>
<td>L/240</td>
<td>798</td>
<td>574</td>
<td>385</td>
<td>311</td>
</tr>
<tr>
<td>24</td>
<td>L/480</td>
<td>886</td>
<td>629</td>
<td>429</td>
<td>361</td>
</tr>
<tr>
<td></td>
<td>L/360</td>
<td>886</td>
<td>629</td>
<td>429</td>
<td>361</td>
</tr>
<tr>
<td></td>
<td>L/240</td>
<td>886</td>
<td>629</td>
<td>429</td>
<td>361</td>
</tr>
</tbody>
</table>

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.

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

3 Minimum depth of facing above opening.

4 Deflection limit shall be selected by building designer based on the serviceability requirements of the structure and the requirements of adopted building code.

Table 8: Maximum Allowable Uniform Header Loads (pfl) (Panel Splice a minimum of 6 in. from edge of opening) 3-1/2 in. through 11-1/4 in. Core Thickness

<table>
<thead>
<tr>
<th>Header Depth (in)</th>
<th>Deflection Limit</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>L/480</td>
<td>345</td>
<td>243</td>
<td>156</td>
<td>99</td>
</tr>
<tr>
<td></td>
<td>L/360</td>
<td>450</td>
<td>295</td>
<td>190</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td>L/240</td>
<td>630</td>
<td>382</td>
<td>236</td>
<td>153</td>
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<tr>
<td>18</td>
<td>L/480</td>
<td>705</td>
<td>388</td>
<td>254</td>
<td>235</td>
</tr>
<tr>
<td></td>
<td>L/360</td>
<td>750</td>
<td>482</td>
<td>302</td>
<td>281</td>
</tr>
<tr>
<td></td>
<td>L/240</td>
<td>750</td>
<td>482</td>
<td>302</td>
<td>281</td>
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<tr>
<td>24</td>
<td>L/480</td>
<td>698</td>
<td>556</td>
<td>368</td>
<td>350</td>
</tr>
<tr>
<td></td>
<td>L/360</td>
<td>896</td>
<td>556</td>
<td>368</td>
<td>350</td>
</tr>
<tr>
<td></td>
<td>L/240</td>
<td>896</td>
<td>556</td>
<td>368</td>
<td>350</td>
</tr>
</tbody>
</table>

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.

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

3 Minimum depth of facing above opening.

4 Deflection limit shall be selected by building designer based on the serviceability requirements of the structure and the requirements of adopted building code.
### Table 9: Allowable In-Plane Shear Strength (Pounds per Foot) for SIP Shear Walls 3.5 in. through 11.25 in. core thickness

<table>
<thead>
<tr>
<th>Spline Type</th>
<th>Framing Minimum SG</th>
<th>Minimum Facing Connections</th>
<th>Shear Strength (pfl)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block, Surface or Lumber Spline (Type S, Type L)</td>
<td>0.50</td>
<td>0.113’x 2-1/2” nails, 6” oc</td>
<td>410</td>
</tr>
<tr>
<td>Block, Surface or Lumber Spline (Type S, Type L)</td>
<td>0.50</td>
<td>0.113’x 2-3/8” nails, 6” oc stagger (2 rows)</td>
<td>460</td>
</tr>
<tr>
<td>Block, Surface or Lumber Spline (Type S, Type L)</td>
<td>0.42</td>
<td>0.113’x 2-3/8” nails, 6” oc stagger (2 rows)</td>
<td>700</td>
</tr>
<tr>
<td>Block, Surface or Lumber Spline (Type S, Type L)</td>
<td>0.42</td>
<td>0.148’x 2-3/8” nails, 3” oc stagger (2 rows)</td>
<td>1000</td>
</tr>
</tbody>
</table>

1 Maximum in-plane shear dimension ratio shall not exceed 2:1 (height : width) for resisting wind or seismic loads.
2 Chords, hold-downs and connections to other structural elements must be designed by a registered design professional in accordance with accepted engineering practice.
3 Spline type at interior panel-to-panel joints only, solid chord members are required at each end of each shear wall segment.
4 Required connections must be made on each side of the panel. Dimensional or engineered lumber shall have an equivalent specific gravity not less than specified.

### Table 10: Allowable In-Plane Shear Strength (Pounds per Foot) for SIP Shear Walls (Seismic Loads in Seismic Design Categories A, B, C, D, E and F)1,2

<table>
<thead>
<tr>
<th>Spline Type</th>
<th>Framing Minimum SG</th>
<th>Minimum Facing Connections</th>
<th>Shear Strength (pfl)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block, Surface or Lumber Spline (Type S, Type L)</td>
<td>0.50</td>
<td>0.113’x 2-1/4” nails, 6” oc</td>
<td>360</td>
</tr>
<tr>
<td>Block, Surface or Lumber Spline (Type S, Type L)</td>
<td>0.50</td>
<td>0.113’x 2-1/4” nails, 6” oc</td>
<td>360</td>
</tr>
<tr>
<td>Block, Surface or Lumber Spline (Type S, Type L)</td>
<td>0.50</td>
<td>0.113’x 2-3/8” nails, 3” oc Staggered (3/8” edge distance and 3/4” edge distance)</td>
<td>720</td>
</tr>
<tr>
<td>Block, Surface or Lumber Spline (Type S, Type L)</td>
<td>0.50</td>
<td>0.113’x 2-3/8” nails, 2” oc Staggered (3/8” edge distance and 3/4” edge distance)</td>
<td>920</td>
</tr>
</tbody>
</table>

1 Maximum in-plane shear dimension ratio are defined in Section 5.8.2.
2 Chords, hold-downs and connections to other structural elements must be designed by a registered design professional in accordance with accepted engineering practice.
3 Spline type at interior panel-to-panel joints only, solid chord members are required at each end of each shear wall segment.
4 Required connections must be made on each side of the panel. Dimensional or engineered lumber shall have an equivalent specific gravity not less than specified.
Table 11: Maximum Allowable In-Plane Shear (Pounds per Foot) For Diaphragms Subjected to Wind or Seismic Loading

<table>
<thead>
<tr>
<th>Interior Supports(^2) (Figure 4a)</th>
<th>Surface Spline(^2) (Figure 4b)</th>
<th>Boundary(^3) (Figure 4c)</th>
<th>Shear Strength (plf)</th>
<th>Max. Aspect Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBS #14 Panel Screw with 1&quot; penetration 12&quot; oc</td>
<td>0.113&quot; x 2.5&quot; nails, 3&quot; oc 7/16&quot; x 4&quot; OSB Spline</td>
<td>PBS #14 Panel Screw with 1&quot; penetration 12&quot; oc</td>
<td>0.113&quot; x 2.5&quot; nails, 6&quot; oc</td>
<td>430</td>
</tr>
<tr>
<td>PBS #14 Panel Screw with 1&quot; penetration 12&quot; oc</td>
<td>0.113&quot; x 2.5&quot; nails, 3&quot; oc, 2 rows, staggered 7/16&quot; x 4&quot; OSB Spline</td>
<td>PBS #14 Panel Screw with 1&quot; penetration 3&quot; oc</td>
<td>0.113&quot; x 2.5&quot; nails, 4&quot; oc</td>
<td>530</td>
</tr>
<tr>
<td>PBS #14 Panel Screw with 1&quot; penetration 2&quot; oc</td>
<td>0.113&quot; x 2.5&quot; nails, 3&quot; oc, 2 rows, staggered 7/16&quot; x 4&quot; OSB Spline</td>
<td>PBS #14 Panel Screw with 1&quot; penetration 2&quot; oc</td>
<td>0.113&quot; x 2.5&quot; nails, 1.5&quot; oc</td>
<td>750</td>
</tr>
<tr>
<td>PBS #14 Panel Screw with 1&quot; penetration 4&quot; oc</td>
<td>0.113&quot; x 2.5&quot; nails, 3&quot; oc, 2 rows, staggered 7/16&quot; x 4&quot; OSB Spline</td>
<td>PBS #14 Panel Screw with 1&quot; penetration 4&quot; oc</td>
<td>0.113&quot; x 2.5&quot; nails, 3&quot; oc</td>
<td>915</td>
</tr>
<tr>
<td>PBS #14 Panel Screw with 1&quot; penetration 4&quot; oc</td>
<td>0.113&quot; x 2.5&quot; nails, 6&quot; oc, 2 rows, staggered 23/32&quot; x 4&quot; OSB Spline</td>
<td>PBS #14 Panel Screw with 1&quot; penetration 4&quot; oc</td>
<td>0.113&quot; x 2.5&quot; nails, 6&quot; oc</td>
<td>1130</td>
</tr>
</tbody>
</table>

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

2. Interior supports shall be spaced not to exceed 12 ft on center and have a minimum width of 3.5 in. 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.

3. Top spline only, at interior panel-to-panel joints. Specified fasteners are required on both sides of panel joint. See Figures 4b.

4. Boundary spline shall be solid 1.5 inch wide, minimum, and have a specific gravity of 0.42 or greater. Boundary supports shall have a minimum width of 3.5 in. and a specific gravity of 0.42 or greater. Specified spline fasteners are required through both facings. See Figure 4c.

---

Table 12: Fire Rated Assemblies

<table>
<thead>
<tr>
<th>Designation</th>
<th>Orientation</th>
<th>Type</th>
<th>Rating</th>
<th>Directory</th>
</tr>
</thead>
<tbody>
<tr>
<td>U524</td>
<td>Vertical</td>
<td>Bearing Wall</td>
<td>1-Hour</td>
<td>Underwriters Laboratories</td>
</tr>
<tr>
<td>P517</td>
<td>Horizontal</td>
<td>Ceiling</td>
<td>1-Hour</td>
<td>Underwriters Laboratories</td>
</tr>
<tr>
<td>P822</td>
<td>Horizontal</td>
<td>Floor/Ceiling</td>
<td>1-Hour</td>
<td>Underwriters Laboratories</td>
</tr>
<tr>
<td>PRS021109-24</td>
<td>Vertical</td>
<td>Bearing Wall</td>
<td>1-Hour</td>
<td>NTA, Inc.</td>
</tr>
<tr>
<td>PRS021109-23</td>
<td>Horizontal</td>
<td>Ceiling</td>
<td>1-Hour</td>
<td>NTA, Inc.</td>
</tr>
</tbody>
</table>

1. Construction details and assembly status shall be obtained from the fire resistance directory of the noted organization. NTA, Inc. assemblies may be obtained from www.ntainc.com.
### Table 13: Wind Speed vs. Pressure

<table>
<thead>
<tr>
<th>Mean Roof Height (ft)</th>
<th>90 MPH</th>
<th>100 MPH</th>
<th>110 MPH</th>
<th>120 MPH</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>-15.1</td>
<td>-18.3</td>
<td>-22.2</td>
<td>-18.7</td>
</tr>
<tr>
<td>20</td>
<td>-15.1</td>
<td>-19.5</td>
<td>-23.4</td>
<td>-18.7</td>
</tr>
<tr>
<td>25</td>
<td>-15.1</td>
<td>-20.4</td>
<td>-24.3</td>
<td>-18.7</td>
</tr>
<tr>
<td>40</td>
<td>-16.5</td>
<td>-22.5</td>
<td>-26.3</td>
<td>-20.4</td>
</tr>
<tr>
<td>45</td>
<td>-16.9</td>
<td>-23.1</td>
<td>-26.9</td>
<td>-20.9</td>
</tr>
<tr>
<td>50</td>
<td>-17.5</td>
<td>-23.6</td>
<td>-27.3</td>
<td>-21.7</td>
</tr>
<tr>
<td>55</td>
<td>-18.0</td>
<td>-24.0</td>
<td>-27.8</td>
<td>-22.3</td>
</tr>
<tr>
<td>60</td>
<td>-18.4</td>
<td>-24.5</td>
<td>-28.2</td>
<td>-22.8</td>
</tr>
</tbody>
</table>

**Net Design wind pressure**
- 15.1
- 18.7
- 22.6
- 26.9

### Table 14: Premier Insul-Beam II Header Loads (plf)

#### Table 14a: Premier Insul-Beam II Header Loads (plf)

<table>
<thead>
<tr>
<th>No. of Trimmer Studs</th>
<th>Deflection</th>
<th>Header Span (ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2'</td>
</tr>
<tr>
<td>1</td>
<td>L/480</td>
<td>3150</td>
</tr>
<tr>
<td></td>
<td>L/360</td>
<td>3150</td>
</tr>
<tr>
<td></td>
<td>L/240</td>
<td>3150</td>
</tr>
<tr>
<td>2</td>
<td>L/480</td>
<td>6300</td>
</tr>
<tr>
<td></td>
<td>L/360</td>
<td>6300</td>
</tr>
<tr>
<td></td>
<td>L/240</td>
<td>6300</td>
</tr>
</tbody>
</table>

#### Table 14b: Premier Insul-Beam II Header Loads (plf)

<table>
<thead>
<tr>
<th>No. of Trimmer Studs</th>
<th>Deflection</th>
<th>Header Span (ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>9'</td>
</tr>
<tr>
<td>1</td>
<td>L/480</td>
<td>700</td>
</tr>
<tr>
<td></td>
<td>L/360</td>
<td>700</td>
</tr>
<tr>
<td></td>
<td>L/240</td>
<td>700</td>
</tr>
<tr>
<td>2</td>
<td>L/480</td>
<td>1085</td>
</tr>
<tr>
<td></td>
<td>L/360</td>
<td>1400</td>
</tr>
<tr>
<td></td>
<td>L/240</td>
<td>1400</td>
</tr>
</tbody>
</table>

*Values listed for each deflection represent the least value of the bearing capacity of the trimmer, shear or bending capacity of the header or the actual deflection at the design load. Refer to Technical Bulletin #30 for supporting headers in Premier SIPs wall panels (www.premiersips.com).

*Note: Trimmer stud design capacities must be reviewed.*
Premier SIPs Accessories

Premier has designed, developed and tested compatible accessories in order for your Premier SIP products to have the maximum performance. As the largest SIPs manufacturer in North America you can be sure that these accessories have proven themselves in the field year after year.

Premier SIPs Screw Fasteners ............................. 11
Premier SIPs Mastic............................................. 13
Premier SIPs Tape................................................. 13
Premier SIPs Building Wrap................................. 14
Recommended SIPs installation tools.................... 14

Accessories: Premier SIPs Screw Fasteners

Premier SIPs screw fasteners are factory made and supplied by Premier SIPs with your order. The fasteners were developed specifically for connecting Premier SIPs to each other, beams, purlins and posts of wood and light gauge metal.

Advantages:

• Corrosion resistant coating
• Excellent pull-out resistance
• State of the art tempering and coating technology
• Developed specifically for the attachment of Premier SIPs to beams, purlins, and posts of wood and light gauge metal
• Sizes from 5” to 18” in increments of 1”

SIPs Screw Fastener Specifications

<table>
<thead>
<tr>
<th>Diameter, Thread &amp; Point</th>
<th>Inches</th>
<th>Millimeter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head Diameter</td>
<td>.635”</td>
<td>16.13mm</td>
</tr>
<tr>
<td>Thread Diameter</td>
<td>.255” / 2.45”</td>
<td>6.48mm / 6.22mm</td>
</tr>
<tr>
<td>Shank O.D.</td>
<td>.190” / .212”</td>
<td>4.83mm / 5.38mm</td>
</tr>
</tbody>
</table>

Premier SIPs Screw Length Guide (Roof Panel Size)

<table>
<thead>
<tr>
<th>Pitch</th>
<th>4 1/2”</th>
<th>6 1/2”</th>
<th>8 3/8”</th>
<th>10 3/8”</th>
<th>12 3/8”</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/12</td>
<td>6”</td>
<td>8”</td>
<td>10”</td>
<td>12”</td>
<td>14”</td>
</tr>
<tr>
<td>4/12</td>
<td>6”</td>
<td>8”</td>
<td>10”</td>
<td>12”</td>
<td>14”</td>
</tr>
<tr>
<td>6/12</td>
<td>7”</td>
<td>9”</td>
<td>10”</td>
<td>12”</td>
<td>14”</td>
</tr>
<tr>
<td>8/12</td>
<td>7”</td>
<td>9”</td>
<td>11”</td>
<td>13”</td>
<td>15”</td>
</tr>
<tr>
<td>10/12</td>
<td>8”</td>
<td>10”</td>
<td>12”</td>
<td>14”</td>
<td>16”</td>
</tr>
<tr>
<td>12/12</td>
<td>8”</td>
<td>10”</td>
<td>12”</td>
<td>14”</td>
<td>16”</td>
</tr>
</tbody>
</table>

This chart will provide roughly a 1” penetration into the top plate.

Pull Out Strength: 1 inch penetration = 980 lbs.

Shear Capacity in Panels: 1 inch penetration > 830 lbs. (Failure of OSB occurs at this point)

These values are ultimate values. Appropriate safety factors should be applied to obtain design values.
Screw Fastener Capacities in OSB

In order to finish a project that utilizes Premier Panels for the walls and roof of the structure, many types of materials need to be fastened to the panels. These materials can include, siding, roofing materials, other structural elements, cabinets, and a host of other items.

In many of these applications screws are the preferred fasteners. Data on the pullout and lateral withdrawal capacities of screws into OSB have not been readily accessible. To help clarify the performance of screws installed in OSB, a major manufacturer of OSB, took it upon itself to generate data on various screws installed in OSB. The OSB was exposed to three different environments. Fifteen repetitions of both direct and lateral withdrawal of each screw type, in each of the three environmental conditions were conducted. The following tables summarize the lowest, ultimate average, value achieved for a particular screw type when installed in three different thicknesses of OSB.

**Average Direct Withdrawal (Pullout) - lbs.**

<table>
<thead>
<tr>
<th>Screw Size</th>
<th>7/16” OSB</th>
<th>5/8” OSB</th>
<th>3/4” OSB</th>
</tr>
</thead>
<tbody>
<tr>
<td>#6 Deck Screw</td>
<td>177</td>
<td>272</td>
<td>324</td>
</tr>
<tr>
<td>#8 Deck Screw</td>
<td>182</td>
<td>309</td>
<td>359</td>
</tr>
<tr>
<td>#10 Deck Screw</td>
<td>198</td>
<td>355</td>
<td>363</td>
</tr>
<tr>
<td>#12 Roofing Screw</td>
<td>190</td>
<td>312</td>
<td>360</td>
</tr>
<tr>
<td>#14 Roofing Screw</td>
<td>177</td>
<td>340</td>
<td>393</td>
</tr>
</tbody>
</table>

These values are ultimate values. Appropriate safety factors should be applied to obtain design values.

**Average Lateral Withdrawal (Shear) - lbs.**

<table>
<thead>
<tr>
<th>Screw Size</th>
<th>7/16” OSB</th>
<th>5/8” OSB</th>
<th>3/4” OSB</th>
</tr>
</thead>
<tbody>
<tr>
<td>#6 Deck Screw</td>
<td>198</td>
<td>273</td>
<td>295</td>
</tr>
<tr>
<td>#8 Deck Screw</td>
<td>118</td>
<td>197</td>
<td>224</td>
</tr>
<tr>
<td>#10 Deck Screw</td>
<td>143</td>
<td>260</td>
<td>301</td>
</tr>
<tr>
<td>#12 Roofing Screw</td>
<td>436</td>
<td>581</td>
<td>561</td>
</tr>
<tr>
<td>#14 Roofing Screw</td>
<td>466</td>
<td>630</td>
<td>797</td>
</tr>
</tbody>
</table>

These values are ultimate values. Appropriate safety factors should be applied to obtain design values.

**Application:**

- Dimensional 2x’s require a minimum 1” penetration.
- Wall connections require that screws be used 2’ o.c.
- Roof connections require that screws be used 1’ o.c.
- Frequency of screw fasteners depend on the imposed loads that the SIPs panels must resist. Follow the requirements specified on your shop drawings.
Accessories: Premier SIPS Mastic

Premier SIPS mastic shown on our plans and in our specifications is supplied by Premier Buildings Systems with your order. Premier SIPS mastic has been specifically formulated to help seal Premier SIPS connections. Consisting of polymers that are designed to remain flexible, Premier’s mastic provides a seal against water vapor transmission and air infiltration. Premier SIPS mastic should be installed according to Premier SIPS’ recommended installation guidelines.

Advantages:

• Sealant for all types of SIPS construction
• Permanent, non-brittle formula
• Gunable at low temperatures
• Withstands cold and free-thaw cycles
• Retains flexibility with age
• Resistant to moisture, dampness and temperature fluctuation
• Impervious to water wash-out
• Seals foam, wood products and many other materials

SIPS Mastic Estimating Chart

<table>
<thead>
<tr>
<th>Panel Size</th>
<th>Amount of SIPS Mastic (29 oz. Tubes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4’ x 8’</td>
<td>0.91</td>
</tr>
<tr>
<td>4’ x 10’</td>
<td>1.06</td>
</tr>
<tr>
<td>4’ x 12’</td>
<td>1.22</td>
</tr>
<tr>
<td>4’ x 16’</td>
<td>1.52</td>
</tr>
<tr>
<td>4’ x 20’</td>
<td>1.82</td>
</tr>
<tr>
<td>4’ x 24’</td>
<td>2.13</td>
</tr>
<tr>
<td>8’ x 8’</td>
<td>1.22</td>
</tr>
<tr>
<td>8’ x 10’</td>
<td>1.37</td>
</tr>
<tr>
<td>8’ x 12’</td>
<td>1.52</td>
</tr>
<tr>
<td>8’ x 16’</td>
<td>1.82</td>
</tr>
<tr>
<td>8’ x 20’</td>
<td>2.13</td>
</tr>
<tr>
<td>8’ x 24’</td>
<td>2.43</td>
</tr>
</tbody>
</table>

This chart has been calculated with a 3/8” diameter bead on wood-to-foam and foam-to-foam interfaces and a 3/16” diameter bead on wood-to-wood interfaces

Accessories: Premier SIPS Tape

Premier SIPS tape is a patented, pressure-sensitive, highly durable and superior tape that prevents moist air from penetrating the seams between panels and along roof lines. The tape is formulated with a permeance of less than 1. The combination of the OSB skins and the SIPS tape meets the building code requirements for vapor retarders.

Advantages:

• High peel and shear strength
• Self-healing
• VOC free
• No odors or fumes; meets air quality criteria for use as an interior sealant
• In-service temperature range of -60˚ F to 300˚ F
• Does not stain
• Quick & easy installation – no priming required
• Excellent resistance to water, most chemicals and vapor transmission
• For surface preparation and tape installation guidelines refer to Premier’s Installation Guidelines.
Accessories: Premier Building Wrap

- **Strong & Durable**: Premier SIPs building wrap is cross woven to resist tearing around fasteners and will hold-up during installation.
- **Moisture Protection**: Premier SIPs building wrap is water resistant and provides reliable protection in finished wall assemblies.
- **Breathable**: Premier SIPs building wrap is micro-perforated to allow moisture vapor to escape.
- **Stable**: Premier SIPs building wrap is treated to resist excessive degradation from normal UV exposure for up to 300 days.
- **Simple Application**: The lightweight design and familiar installation processes makes installing Premier SIPs building wrap products simple and efficient. Premier SIPs building wrap products are also translucent to make locating studs, openings and corners easy.
- **74 gsm micro-perforated white building wrap = 9/10’ x 150’ per roll**

Premier SIPs Building Wrap Tensile Strength (MD/CD) = 46/36 lbs/inch - ASTM D 828

Water Vapor Transmission = 63 g/m²/24 hours - ASTM E 96

Method A Water Vapor Permeance = 9 perms - ASTM E 96

Method A Water Resistance = 60 minutes - ASTM D 779

Accessories: Recommended SIPs Installation Tools

- One or two 29 oz. caulking guns
- Hand saw
- Pry bars
- Sledge hammers
- Mineral spirits
- String line
- Lifting eyebolts
- Lifting plates
- Framers square
- Loose 8d and 16d sinker nails
- Dunnage for supporting panels
- Expanding foam
- Fall arrest gear for roofs (if applicable)
- Chalk line
- Levels (4’ or longer)
- Two 5’–6’ 3/4” bar clamps
- Paint scrapers
- Ladders—step & extension
- Come-along with 2” trucking ratchet straps or
  - A device similar to Jimmy’s Strapjack Panel Puller for pulling panels together
  - 1/2” drill motor for 1 1/2” chase holes
  - 1 1/2” x 12” auger bit
  - One or two 3/8” drill motors
  - Chain saw with 14”–16” bar and chain saw guide for site fabrication
  - One or two circular saws
  - Power planer
  - Foam Scoop and/or Avalon hot knife
  - T-30 star-drive bits for panel screws
  - Nail gun or 1/2” crown staple gun
  - Reciprocating saw
Storage & Handling

Your panels will usually arrive on a flatbed truck. Depending on the site, panels should be off-loaded to a clean, flat area with sufficient maneuvering room. (A fork-lift will speed the off-load process.)

Panels do not come in any particular order. This allows for minimized shipping costs by taking full advantage of the space available on the truck. It is advisable to sort the panels as you off load them. This process will require room to shift and stack the panels accordingly.

Sort and stack all of the panels by panel ID number and move them as close to their final location as possible. Place at least three stickers a maximum of 4’ on center (o.c.) under the panel stacks to ensure that the panels remain flat. The stickers should be a minimum of 3 ½” wide.

Inventory the panels as you off-load them. If one is missing or damaged, have driver make note of it on bill of lading, and then call Premier SIPs immediately. We will work to correct the problem as soon as possible.

Remember, you are working with a wood product that may swell after prolonged exposure to moisture. Keep all panels and accessories protected from the elements prior to installation. If splines swell, installation may be hampered.
SECTION 061200
STRUCTURAL INSULATED PANELS
PART 1 GENERAL

1.01 SUMMARY
A. Section Includes: Structural Insulated Panels (SIPs).
B. Related Sections: Section(s) related to this section include:
   1. Section 06100 Rough Carpentry
   2. Section 06090 Wood and Plastics Fastenings

1.02 SYSTEM DESCRIPTION
A. Structural Insulated Panels (SIPs) consist of oriented strand board (OSB) laminated with structural adhesives to an insect resistant EPS insulation core, and SIP Manufacturer supplied connecting splines, sealants, and SIP screws.

1.03 REFERENCES
D. DOC PS2 – Performance Standard for Wood-based Structural-Use Panels.
E. ICC ES AC04 – Acceptance Criteria for Sandwich Panels.
F. ICC ES AC05 – Acceptance Criteria for Sandwich Panel Adhesives.
J. EPA - Registered products listing.

1.04 SUBMITTALS
A. Product Data:
   1. SIP Code Compliance: Submit a code report / material listing report for SIPs showing evidence of compliance with code requirements as an alternate method of construction. Submit current compliance report from an International Accreditation Service (IAS) Accredited Product Certification Agency that has demonstrated compliance with ISO Guide 65, General requirements for bodies operating product certification systems, showing conformance to the International Building Code (IBC) and International Residential Code (IRC).
      a. Shear Wall use: The submitted code report / material listing report shall include all load cases for transverse, axial and racking shear loading for the SIPs. The report must demonstrate that the SIPs may be used as shear walls in all Seismic Design Categories A, B, C, D, E and F.
   3. Manufacturer’s Instructions: Submit SIP Manufacturer’s construction detail book and load design charts.
B. Calculations: Submit structural calculations by a design professional registered in the state the project is being constructed in and qualified to perform the design work.
C. Shop Drawings: Submit shop drawings for SIPs showing layout, elevations, product components and accessories.
D. Quality Assurance Submittals - Submit the following:
   1. SIPs: Submit SIP product certificate showing compliance to Third Party Quality Control program of Underwriters Laboratories, Inc.
   2. EPS Core: Submit EPS Insulation manufacturer’s certificate showing compliance to Third Party Quality Control program of Underwriters Laboratories, Inc.
   3. Labels: Submit a copy of the label approved by the Inspection Agency certifying that manufacture of panels complies with specified performance characteristics and physical properties.
   4. SIPA Manufacturer Member in Good Standing: Submit SIPA certificate as evidence showing SIP Manufacturer is a SIPA manufacturing member in good standing.
5. **Formaldehyde Emission Rates:** Submit evidence that the SIP manufacturer has tested the panels in accordance with ASTM E1333 by and IAS accredited testing laboratory and the result of the testing shows formaldehyde levels below .03 ppm.

E. **Fire Resistant Assemblies** - Submit the following:
   1. Submit UL construction number or a code report / material listing report describing each fire-rated assembly.
   2. Submit UL certificate showing flame spread and smoke developed information.

F. **Warranty:** Submit SIP manufacturer’s standard warranty document.

1.05 **QUALITY ASSURANCE**
A. **Installer Qualifications:** Installer shall be experienced in performing work of this section and should have specialized in installation of work similar to that required for this project.
B. **Source Limitations:** Obtain all SIPs through one manufacturer. All accessories to be furnished or recommended by the SIP manufacturer.
C. **SIP Manufacturer** shall be a Manufacturing Member, in good standing, of the Structural Insulated Panel Association (SIPA).

1.06 **REGULATORY REQUIREMENTS**
A. SIPs shall be recognized for compliance in a current IAS accredited evaluation report or material listing report compliant with the 2009 IBC and 2009 IRC.
B. **Pre-installation Meeting:** Conduct pre-installation meeting to verify project requirements, foundation/structural system/substrate conditions, SIP manufacturer’s installation instructions and SIP manufacturer’s warranty requirements. Comply with Division 1 Project Management and Coordination (Project Meetings) Section.

1.07 **DELIVERY, STORAGE & HANDLING**
A. **Ordering:** Comply with SIP manufacturer’s ordering instructions and lead time requirements to avoid construction delays.
B. **Delivery:** Deliver materials from SIP manufacturer with identification labels or markings intact.
C. **Off-load SIPs** from truck and handle using fork lift or other means to prevent damage to SIPs.
D. SIPs shall be fully supported in storage and prevented from contact with the ground. Stack SIPs on pallets or on supports at a maximum of four feet on center.
E. SIPs shall be fully protected from weather. Protect against exposure to rain, water, dirt, mud, and other residue that may affect SIP performance. Cover stored SIPs with breathable protective wraps. SIPs shall be stored in a protected area.

1.08 **WARRANTY**
A. **Project Warranty:** Refer to Conditions of the Contract for project warranty provisions.
B. **Manufacturer’s Warranty:** SIP Manufacturer’s warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.
   1. **Warranty Period:** Twenty (20) years from the date of issue of the warranty.

**PART 2 PRODUCTS**

2.01 **MANUFACTURES / SUPPLIERS**
A. Premier SIPs, 19757 57th Avenue East, Puyallup, WA 98375 Phone 800-275-7086
B. Premier SIPs, 1155 Business Park Drive-Bldg “A”, Dixon, CA 95620-4303. Phone 707-678-6900

2.02 **MATERIALS**
A. SIPs consisting of the following:
   1. EPS core UL certified for fire and physical properties of ASTM C578 Type I EPS with borate insect resistant treatment. Insulation manufacturer shall provide Third Party UL certificate.
   2. OSB identified with APA or PFS performance mark with Exposure I durability rating and performance in accordance with DOC PS-2 span rating 24/16 or greater.
   3. Laminating Adhesives shall be in conformance with ICC ES AC05 – Acceptance Criteria for Sandwich Panel Adhesives

2.03 **ACCESSORIES**
A. Splines: OSB, Premier SIP Spline, or I-beam for use in joining SIPs shall be supplied by SIPs manufacturer.
B. Fasteners: corrosion resistant SIP screws compatible with SIP system shall be provided by the SIPs manufacturer.
   1. Wood Screws for attachment to wood members
   2. Heavy Duty Metal Screws for attachment to metal members (16 gauge to 1/4”)
   3. Light Duty Metal Screws for attachment to metal decks (18 gauge or thinner)
C. **SIP Mastic:** Shall be specifically designed for use with SIPs. Mastic must be compatible with all components of the SIP. Mastic shall be provided by the SIP manufacturer.
D. Dimensional Lumber: SPF, #2 or better, or engineered equivalent unless otherwise required by structural drawings.
E. Vapor Retarder SIP Tape: Tape with an adhesive suitable for indoor use, min. 6 inch wide for use on SIP joints, 18 inch wide for use at roof beams. SIP Tape shall be supplied by the SIP manufacturer.

2.04 FABRICATION
A. Sizes: SIPs shall be fabricated in accordance with approved Shop Drawings
B. Thermal Resistance, R-value
   2.05 4 1/2” (114 mm) thick SIP with R-value of 15.0 at 75°F and an R-value of 16.2 at 40°F
   2.06 6 1/2” (165 mm) thick SIP with R-value of 22.7 at 75°F and an R-value of 24.5 at 40°F
   2.07 8 1/4” (210 mm) thick SIP with R-value of 29.5 at 75°F and an R-value of 31.8 at 40°F
   2.08 10 1/4” (260 mm) thick SIP with R-value of 37.2 at 75°F and an R-value of 40.2 at 40°F
   2.09 12 1/4” (311 mm) thick SIP with R-value of 44.9 at 75°F and an R-value of 48.5 at 40°F

2.010 PRODUCT SUBSTITUTIONS
A. Substitutions: No substitutions permitted.

2.011 RELATED MATERIALS
A. Related Materials: Refer to other sections for related materials as follows:
   1. Dimensional Lumber: SPF #2 or better or pre-engineered equivalent: Refer to Division 6 Carpentry Sections.

2.012 SOURCE QUALITY
A. Source Quality Assurance: Each SIP component required shall be supplied by SIP manufacturer and shall be obtained from selected SIP manufacturer or its approved supplier.
   1. Each SIP shall be labeled indicating UL or other ISO Guide 65 approved Third Party certification.
   2. Provide evidence of UL Third Party inspection and labeling of all insulation used in manufacture of SIPs.
   3. SIP manufacturer shall provide Lamination/R-Value Warranty documents for building owner acceptance and execution. Manufacturer’s standard forms will be submitted.
   4. Provide SIPs with EPS treated for insect resistance. Treatment shall be EPA registered.
   5. Dimensional Tolerance - shall comply with values listed in the manufacturer’s Quality Control Manual.
B. Source Quality: Obtain SIPs from a single manufacturer.

PART 3 EXECUTION
3.01 MANUFACTURER’S INSTRUCTIONS
A. Compliance: Comply with manufacturer’s ICC-ES or material listing report, Load Design Charts, Detail Book, Shop Drawings, and Product data, including product technical bulletins, for installation.

3.02 EXAMINATION
A. Site Verification of Conditions: Verify substrate conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer’s instructions.
   1. Verify conditions of foundation/structural system/substrate and other conditions which affect installation of SIPs. Any adverse conditions shall be reported in writing to the SIP manufacturer and the design professional. Do not proceed with installation until adverse conditions are corrected.

3.03 INSTALLATION
A. SIP Installation:
   1. SIP Supports: Provide level and square foundation/structural system/substrate that support wall and/or roof SIPs. For wall SIPs, hold sill plate back from edge of rim board 1/2” (12 mm) to allow full bearing of OSB skins. Provide 1 1/2” (38 mm) diameter access holes in plating to align with electrical wire chases in SIPs. Provide adequate bracing of SIPs during erection. Remove debris from plate area prior to SIP placement.
   2. SIP Fastening: Connect SIPs by nails or staples as shown on drawings. Screws of equal strength may be substituted for nails and staples as specified by engineer. SIP mastic must be used together with each fastening techniques. Where SIP Screw Fasteners are used, provide a minimum of 1” (25.4 mm) penetration into support. Join SIPs using plates and splines. Secure attachment with nails, staples, or screws, and SIP mastic. Apply SIP mastic following SIP manufacturer recommendations.
   3. SIP Tape: Provide SIP Tape at joints between SIP wall panels, roof panels and at intersection of SIP roof and wall panels and as shown in SIP Manufacturer’s details.
   4. Vapor Retarders: Provide vapor retarders mandated by building code.
   5. Thermal Barriers: Interior surfaces of SIPs shall be finished with a minimum 15-minute thermal barrier, such as gypsum wallboard, nominal 1” (25 mm) wood paneling, or other approved materials. Apply code approved thermal barriers according to SIP manufacturer’s recommendations.
6. Restrictions: Do not install SIPs directly on concrete. Do not put plumbing in SIPs without consulting SIP manufacturer. Do not over cut skins for field-cut openings and do not cut skins for electrical chases. SIPs shall be protected from exposure to solvents and their vapors that damage the EPS foam core.

7. Remove and replace insulated wall or roof SIPs which have become excessively wet or damaged before proceeding with installation of additional SIPs or other work.

3.04 FIELD QUALITY REQUIREMENTS

A. Manufacturer’s Field Services: Upon Owner’s request, provide manufacturer’s field service consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer’s instructions.

1. Site Visits:

3.05 PROTECTION

A. Protection: Protect installed product and finish surfaces from damage during construction.

1. Roof SIPs: Protect roof SIPs from weather by roofing materials to provide temporary protection at the end of the day or when rain or snow is imminent.

2. After installation, cover SIPs to prevent contact with water on each exposed SIP edges and faces.

END OF SECTION
Details

The following details are provided as a general guideline only. Details relating to your project will be provided on your project specific shop drawings. As with any individual design, engineering may dictate changes in panel details or configurations. Your final shop drawings should be reviewed in great detail to aid in assembly and root out design inconsistencies. The design professional, general and framing contractors all have a role in this important process.

General Details

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<td>PBS-318</td>
<td>Plumb Cut Ridge / Hip Ridge without Blocking</td>
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<td>PBS-319</td>
<td>Cantilevered Ridge with Blocking</td>
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REFER TO TECHNICAL BULLETINS #28 & #32 FOR SIP TAPE APPLICATION
REFER TO TECHNICAL BULLETINS #28 & #32 FOR SIP TAPE APPLICATION
PREMIER SCREWS @24" O.C. U.N.O. W/ 1" MIN PENETRATION INTO TIMBER FRAME

FRAME MEMBER

SPACER BOARD AS REQUIRED

PREMIER SPLINE SEE DETAIL PBS-005

GYPSUM WALL BOARD PER CODE REQUIREMENTS

PREMIER SPLINE SEE DETAIL PBS-005

SPACER BOARD AS REQUIRED

FRAME MEMBER

Gypsum Wall Board Per Code Requirements

PREMIER SCREWS @24" O.C. or PER ENGINEERING W/ 1" MIN PENETRATION INTO TIMBER FRAME

FRAME MEMBER

SPACER BOARD AS REQUIRED

PREMIER SPLINE SEE DETAIL PBS-005

GYPSUM WALL BOARD PER CODE REQUIREMENTS
General Details: Panel to Steel Connection

**PBS-004**

**BLOCKING MIN.** 3 1/2" WIDE

**PREMIER SCREWS @ 12" O.C. U.N.O.**

**STEEL GIRT OR PURLIN MEMBER**

**LAG SCREWS INTO 2x BLOCKING TO TOP CHORD OF TRUSS OR STEEL BEAM. SEE ENGINEER OF RECORD**

**BLOCKING MIN. 3 1/2" WIDE**

**STEEL BEAM OR COLUMN MEMBER**

**PREMIER METAL TAPPING SCREWS @ 12" O.C. U.N.O.**

**PREMIER SCREWS @ 12" O.C. W/ 1" MINIMUM PENETRATION U.N.O.**
PBS FLOOR, WALL, OR ROOF PANEL

PREMIER SPLINE

PREMIER MASTIC TYPICAL EACH SIDE

1/8" GAP

FASTEN SPLINES WITH 8d NAILS @ 6" O.C. OR EQUIVALENT. U.N.O.

SIP TAPE ON (WINTER) WARM SIDE OF PANEL

REFER TO TECHNICAL BULLETINS #28 & #32 FOR SIP TAPE APPLICATION
General Details: Spline Connection for Shearwalls

PBS WALL PANEL DESIGNED AS A SHEARWALL

PREMIER SPLINE

PREMIER MASTIC TYPICAL EACH SIDE AT FOAM-TO-FOAM INTERFACE ONLY

1/8" GAP

FASTEN SPLINES WITH 8d NAILS @ 6" O.C. OR EQUIVALENT U.N.O.

SIP TAPE REQUIRED ON (WINTER) WARM SIDE OF PANEL

REFER TO TECHCIAL BULLETINS #28 & #32 FOR SIP TAPE APPLICATION

PBS-005a SPLINE CONNECTION FOR SHEARWALLS PREMIER SIPS
General Details: I-Joist Spline Connection

PBS-006

PREMIER SIPS

FASTEN SPLINES WITH 8d NAILS @ 6" O.C. OR EQUIVALENT EACH SIDE. U.N.O.

SIP TAPE ON (WINTER) WARM SIDE OF PANEL

REFER TO TECHNICAL BULLETINS #28 & #32 FOR SIP TAPE APPLICATION

PBS FLOOR, WALL, OR ROOF PANEL

PREMIER APPROVED I-JOIST

1/8" GAP

PREMIER MASTIC TYPICAL EACH SIDE

PBS-006 I-JOIST SPLINE CONNECTION 11-9-10

PREMIER SIPS
General Details: Double 2x Lumber Connection  

PBS-007  

PBS FLOOR, WALL, OR ROOF PANEL  

16d NAILS @ 12" O.C. IN (2) TWO ROWS, STAGGERED. W/ MASTIC BETWEEN 2x MEMBERS OR SINGLE 3" WIDE MEMBER  

PREMIER MASTIC TYPICAL EACH SIDE  

1/8" GAP  

FASTEN SPLINES WITH 8d NAILS @ 6" O.C. OR EQUIVALENT EACH SIDE. U.N.O.  

SIP TAPE ON (WINTER) WARM SIDE OF PANEL REFER TO TECHNICAL BULLETINS #28 & #32 FOR SIP TAPE APPLICATION  

PBS-007  
DOUBLE 2x LUMBER CONNECTION  
PREMIER SIPS  
11-9-10  
28
General Details: Spline Fastened at Top Only

PBS-008

PREMIER SPLINE

PREMIER MASTIC TYPICAL EACH SIDE

PBS FLOOR, WALL, OR ROOF PANEL

SIP TAPE ON (WINTER) WARM SIDE OF PANEL
REFER TO TECHNICAL BULLETINS #28 & #32 FOR SIP TAPE APPLICATION

PREMIER SCREWS PER ENGINEERING
W/ 1" MINIMUM PENETRATION INTO SUPPORT BELOW

1/8" GAP

FASTEN SPLINES WITH 8d NAILS @ 3" O.C. OR EQUIVALENT. U.N.O.

SIP TAPE ON (WINTER) WARM SIDE OF PANEL
REFER TO TECHNICAL BULLETINS #28 & #32 FOR SIP TAPE APPLICATION

MIN 3" WIDE BEAM, PANELS REQUIRE MIN 1 1/2" BEARING.

PBS-008 SPLINE FASTENED AT TOP ONLY 11-9-10
PREMIER SIPS
General Details: Panel to Plate Connection

- **STANDARD ELECTRICAL CHASE**
  - (STANDARD HEIGHTS ARE 16" AND 45" FROM BOTTOM OF PANEL)

- **8d NAILS @ 6" O.C. OR EQUIVALENT EACH SIDE.**
  - U.N.O.

- **3/8"-1/2" PREMIER MASTIC**
  - TYPICAL EACH SIDE AND TOP

- **PREMIER WALL PANEL**

- **HELPFUL HINT:**
  - SLIGHTLY CHAMFER TOP OF 2x OR WOOD MEMBER
PREMIER CAP
STANDARD 2x LUMBER,
1 1/8" OSB, OR 1 1/8" OSL
(RIMBOARD) WHICH HAS
BEEN RIPPED TO OVERALL
WIDTH OF PANEL, MAY BE
USED TO INCREASE WALL
HEIGHT OR TO INCREASE
POINT LOADING CAPACITY.
SEE POINT LOAD CHART.

12d OR 16d
NAILS @ 12" O.C.
U.N.O.

PREMIER MASTIC
TYPICAL EACH
SIDE AND BOTTOM

8d NAILS @ 6" O.C.
OR EQUIVALENT
EACH SIDE. U.N.O.

FIELD INSTALL
PANEL TOP AND
BOTTOM PLATES
8d NAILS @ 6" O.C. OR EQUIVALENT EACH SIDE, U.N.O.

CONTINUOUS PREMIER MASTIC TYPICAL EACH SIDE

(3) 16d NAILS INTO VERTICAL PLATE

PRE-DRILL TOP AND BOTTOM PLATES FOR ELECTRICAL CHASES PRIOR TO INSTALLING WALLS

PREMIER SCREWS @ 24" O.C. TYPICAL U.N.O.

CONTINUOUS PREMIER MASTIC TYPICAL EACH SIDE

STANDARD ELECTRICAL CHASE

TOP PLATE

GYPSUM WALL BOARD PER CODE REQUIREMENTS
General Details: Wall Panel Angled Corner

PBS-012

8d NAILS @ 6" O.C. OR EQUIVALENT EACH SIDE. U.N.O.

DOUBLE 2x BEVEL SPLINE W/ 16d NAILS @ 12" O.C. IN (2) TWO ROWS, STAGGERED W/ PREMIER MASTIC BETWEEN 2x'S. U.N.O.

PREMIER MASTIC TYPICAL EACH SIDE

SIP TAPE REQUIRED

PBS WALL PANEL

SIP TAPE ON (WINTER) WARM SIDE OF PANEL

GYPSUM WALL BOARD.

(3) 16d NAILS INTO VERTICAL PLATE

TOP PLATE

PBS WALL PANEL

GYPSUM WALL BOARD.

PREMIER MASTIC TYPICAL EACH SIDE
**General Details: SIP Tape Application**  
**PBS-013**

**Panel Spline**  
(i.e. Box Spline, Lumber, etc...)

**In Plane Panel Joint**  
(INSTALL LAST)

**Notes:**

**Surface Preparation**  
All surfaces must be clean, dry and free of dirt, oil, and any other contaminants. Do not apply SIP tape on the underside of roof panels prior to the installation of the roofing underlayment and final roof covering. Surface temperature of the material PBS SIP tape is being applied to should be 20° F or warmer.

**Tape Installation**  
Center tape over joint, remove backing and press firmly into place. Press from the center outward to ensure a tight seal. After tape has been installed remove bubbles and wrinkles with a roller or similar tool.

**Joints Over Beams**  
Roll out tape centered over beam prior to panel installation and secure with staples. After panels are installed and secured over tape, remove backing and press firmly into place.

**Overlaps and "T" Joints**  
Tape for panel to panel corners and panel joints over beams should be installed before in plane panel joints. Overlap tape a minimum of 3" at "T" joints and when continuing a seam to insure an air tight seal.

**Panel Joint Over Beam**  
(INSTALL FIRST)

NOTE:  
18" SIP TAPE USED AT PANEL TO PANEL CONNECTION OVER BEAMS

*Refer to PBS Technical Bulletins #28 & #32 for SIP Tape Application.
Field/Floor Details: Recessed Sill Plate

PBS-101 8-16-07

Field Install Panel Bottom Plate w/ 16d nails @ 12" o.c. U.N.O.

8d nails @ 6" o.c. or equivalent each side. U.N.O.

Treated Sill Plate

Premier Mastic Typical each side and bottom

Standard Electrical Chase

PBS Wall Panel

Gypsum Wall Board

Slab

Anchor bolts as required by code.
**Floor/Foundation Details: Capillary Break on Slab**

- **PBS-102**

- **Field Install Panel Bottom Plate w/ 16d Nails @ 12” O.C. U.N.O.**

- **Capillary Break Required (Use 2x Treated Plate Cut to Same Width of Panel)**

- **Premier Mastic Typical Each Side and Bottom**

- **Gypsum Wall Board**

- **Standard Electrical Chase**

- **Premier SIPS Panel Wall**

- **8d Nails @ 6” O.C. or Equivalent Each Side. U.N.O.**

- **Anchor Bolts as Required by Code.**

- **Slab**
Floor/Foundation Details: Panel/Foundation Connection

- **PBS-103**

- **8-16-07**

- **SILL SEALER**

- **PANEL / FOUNDATION CONNECTION**

- **16d NAILS @ 12" O.C.**
  - **U.N.O.**

- **PREMIER MASTIC**
  - **TYPICAL EACH SIDE AND BOTTOM**

- **INSECT CLIP**
  - **OR FLASHING**

- **R-TECH™ EPS PERIMETER INSULATION**

- **CONCRETE OR MASONRY FOUNDATION WALL OR CONCRETE SLAB ON GRADE**

- **STANDARD ELECTRICAL CHASE**

- **PBS WALL PANEL**

- **GYPSUM WALL BOARD**

- **8d NAILS @ 6" O.C.**
  - **OR EQUIVALENT EACH SIDE. U.N.O.**

- **CAPILLARY BREAK REQUIRED**
  - **(2x TREATED SILL PLATE CUT TO WIDTH OF PANEL)**

- **SILL SEALER**

- **ANCHOR BOLTS AS REQUIRED BY CODE.**

- **EXTERIOR FINISH AND HOUSE WRAP AS REQUIRED BY CODE**

- **PREMIER SIPS**

**PBS-103 PANEL / FOUNDATION CONNECTION 8-16-07 PREMIER SIPS**
Floor/Foundation Details: Hold Down Connection

**PBS-104**

- **Hold Down Connection**
- **HOLD DOWN ANCHOR**
- **PER ENGINEERING**
- **PBS WALL PANEL**
- **BOTTOM PLATE**
- **TREATED PLATE**
- **SILL SEALER**
- **CONCRETE WALL OR SLAB**
- **FASTENERS AS REQUIRED TO ATTACH POST TO HOLD DOWN**
- **FILL W/ RIGID OR EXPANDABLE FOAM, REPLACE OSB.**
- **TENSION/COMPRESSION POST IN END OF SHEAR WALL AS REQUIRED BY ENGINEERING**

**PREMIER SIPS**

**PBS-104**

**HOLD DOWN CONNECTION**

**8-16-07**

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Floor/Foundation Details: Strap Hold Down Connection

PBS-105

PREMIER SIPS

8-16-07

NOTE:
METAL STRAP MAY BE ATTACHED
OVER THE OUTSIDE OF THE PBS
PANEL. USE FASTENERS THAT WILL
NOT AFFECT FINISHING OF THE WALL.
Floor/Foundation Details: Foundation Framing 1

- CONCRETE OR MASONRY FOUNDATION WALL
- 7/16" MIN SUB-FLOOR OVER PANEL
- TREATED SILL PLATE
- STANDARD ELECTRICAL CHASE
- SILL SEALER
- OPTIONS SILL SEALER
- ANCHOR BOLTS AS REQUIRED BY CODE.
- INSECT CLIP OR FLASHING
- R-TECH™ EPS PERIMETER INSULATION
- PBS FLOOR PANEL
- PBS WALL PANEL
- GYPSUM WALL BOARD
- PBS FLOOR PANEL
- PREMIER MASTIC TYPICAL EACH SIDE AND BOTTOM
- OPTIONAL PREMIER SCREW
- PREMIER SCREW AS REQUIRED
- FIELD INSTALL PANEL BOTTOM PLATE W/ 16d NAILS @ 12" O.C. U.N.O.
- 8d NAILS @ 6" O.C. OR EQUIVALENT EACH SIDE. U.N.O.
- EXTERIOR FINISH AND HOUSE WRAP AS REQUIRED BY CODE

PREMIER SIPS

8-16-07
TYPICAL FLOOR JOISTS RUN PERPENDICULAR TO WALL

8d NAILS @ 6" O.C. OR EQUIVALENT EACH SIDE

FIELD INSTALL PANEL BOTTOM PLATE W/ 16d NAILS

INSECT CLIP OR FLASHING

EXTERIOR FINISH AND HOUSE WRAP AS REQUIRED BY CODE

PREMIER MASTIC (TYPICAL)

PREFERRED SIPS

STANDARD ELECTRICAL CHASE

WALL PANEL

SUB-FLOOR OVER FLOOR JOISTS

GYPSON WALL BOARD

TREATED 2x SILL PLATE

OPTIONAL SILL SEALER

ANCHOR BOLTS AS REQUIRED BY CODE

CONCRETE OR MASONRY FOUNDATION WALL

FIELD INSTALL PANEL BOTTOM PLATE W/ 16d NAILS

8d NAILS @ 6" O.C. OR EQUIVALENT EACH SIDE

INSECT CLIP OR FLASHING

EXTERIOR FINISH AND HOUSE WRAP AS REQUIRED BY CODE

PREMIER MASTIC (TYPICAL)

PREFERRED SIPS

STANDARD ELECTRICAL CHASE

WALL PANEL

SUB-FLOOR OVER FLOOR JOISTS

GYPSON WALL BOARD

TREATED 2x SILL PLATE

OPTIONAL SILL SEALER

ANCHOR BOLTS AS REQUIRED BY CODE

CONCRETE OR MASONRY FOUNDATION WALL
ADDITIONAL 2x BLOCKING AT STRUCTURAL MEMBER IN WALL.

SILL SEALER OPTIONSAL

PREMIER SCREW

TYPICAL EACH SIDE AND BOTTOM

PREMIER MASTIC

8d NAILS @ 6" O.C. OR EQUIVALENT EACH SIDE. U.N.O.

FIELD INSTALL PANEL BOTTOM PLATE W/ 16d NAILS @ 16" O.C. U.N.O.

EXTERIOR FINISH AND HOUSE WRAP AS REQUIRED BY CODE

STRUCTURAL MEMBER IN WALL PANEL

7/16" MIN SUB-FLOOR OVER PANEL

INSECT CLIP OR FLASHING

R-TECH™ EPS PERIMETER INSULATION

CONCRETE OR MASONRY FOUNDATION WALL

ANCHOR BOLTS AS REQUIRED BY LOCAL CODE. U.N.O.

OPTIONAL SILL SEALER

TREATED SILL PLATE

OPTIONAL PREMIER SCREW

PREMIER SCREW

OPTIONAL PREMIER SCREW

PBS FLOOR PANEL

GYPSUM WALL BOARD

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Floor/Foundation Details: Floor Blocking

PREMIER SPLINE OR OTHER PANEL CONNECTION AS REQUIRED BY DESIGN

FULL BEARING BLOCKING REQUIRED UNDER POINT LOADS

CONTINUOUS RIM BETWEEN SUPPORT MEMBERS

8d NAILS @ 6" O.C. OR EQUIVALENT U.N.O.

PREMIER SIPS
External finish and house wrap as required by code.

Field install panel bottom plate w/ 16d nails @ 16" O.C. U.N.O.

Premier mastic typical each side and bottom.

Field install panel bottom plate w/ 16d nails @ 16" O.C. U.N.O.

Nail bottom each skin 6" O.C. U.N.O.

8d nails @ 6" O.C. or equivalent each side.

Optional premier screw.

Premier mastic typical each side.

Typical each side and bottom.

Exterior finish and house wrap as required by code.

Standard electrical chase.

PBS wall panel.

Gypsum wall board.

Sub-floor over floor joists.

Floor joists.

Gypsum wall board.

PBS wall panel.

Field install panel bottom plate w/ 16d nails @ 16" O.C. U.N.O.

Nail bottom each skin 6" O.C. U.N.O.

8d nails @ 6" O.C. or equivalent each side.

Optional premier screw.

Premier mastic typical each side.

Exterior finish and house wrap as required by code.

Standard electrical chase.

PBS wall panel.

Gypsum wall board.

Sub-floor over floor joists.

Floor joists.

Gypsum wall board.

PBS wall panel.
PREMIER SCREW AS REQUIRED
NAIL BOTTOM EACH SKIN 6" O.C. U.N.O.
PREMIER MASTIC TYPICAL EACH SIDE AND BOTTOM
NAIL BOTTOM EACH SKIN 6" O.C. U.N.O.
8d NAILS @ 6" O.C. OR EQUIVALENT EACH SIDE
OPTIONAL PREMIER SCREW
PREMIER SCREW AS REQUIRED
PREMIER MASTIC TYPICAL EACH SIDE

EXTERIOR FINISH AND HOUSE WRAP AS REQUIRED BY CODE
FIELD INSTALL PANEL BOTTOM PLATE W/ 16d NAILS @ 12" O.C. U.N.O.
PREMIER MASTIC TYPICAL EACH SIDE AND BOTTOM
Gypsum WALL BOARD
7/16" MIN SUB-FLOOR OVER PANEL
FLOOR PANEL
Gypsum WALL BOARD
PBS WALL PANEL
PBS WALL PANEL
STANDARD ELECTRICAL CHASE
PANEL BOTTOM PLATE W/ 16d NAILS @ 12" O.C. U.N.O.
FIELD SCAB OSB TO HEADER EACH SIDE USE 2 ROWS 8d NAILS @ 12" O.C.

INSUL-BEAM II - HEADER

CONTINUOUS TOP PLATE BREAKS MIN. 1' BEYOND PANEL JOINTS

KING STUD AS REQUIRED BY ENGINEER

TRIMMERS AS REQUIRED BY INSUL-BEAM II - HEADER CHART

2x

STANDARD ELECTRICAL CHASE

PBS WALL PANELS

INSUL-BEAM HEADER

8-17-07

PREMIER SIPS
Wall Details: Panel as Header

PBS-202

CONTINUOUS TOP PLATE BREAKS 1' BEYOND PANEL JOINTS

PBS WALL PANEL

PREMIER SPLINE IN OPENING. SEE LOAD CHART FOR CAPACITY.

STANDARD ELECTRICAL

WINDOW WITHOUT PANEL BREAK

WINDOW WITH PANEL BREAK

CONTINUOUS TOP PLATE BREAKS 1' BEYOND PANEL JOINTS

PBS WALL PANEL

SEE PREMIER DESIGN MANUAL FOR HEADER CHART FOR CAPACITIES

PREMIER SIPS

PBS-202 PANEL AS HEADER 8-17-07

PREMIER SIPS
HEADER OVER OPENING
USE INSUL-BEAM II™ HEADER,
CONVENTIONAL HEADER
OR PER ENGINEER

INSTALL FIRST

INSTALL SECOND

INSTALL FIRST

INSTALL SECOND

PBS WALL PANEL

PBS SILL PANEL
(WINWINDOW FILLER)
Wall Details: Typical Opening Framing

PBS-204

PREMIER WALL PANEL

PREMIER MASTIC TYPICAL EACH SIDE AND TOP.

8d NAILS @ 6" O.C. OR EQUIV. EACH SIDE. U.N.O.

FIELD INSTALL PANEL TOP AND BOTTOM 2x IN PANEL.

INSTALL HORIZONTAL 2x FIRST

INSTALL VERTICAL 2x SECOND

PBS-204 TYPICAL OPENING FRAMING 8-17-07
PREMIER SIPS
Wall Details: Truss Bearing  PBS-205

- ROOF SHEATHING
- TRUSS
- WIND WASH BLOCKING BETWEEN TRUSSES
- SOFFIT VENT AS REQUIRED
- 2x TOP PLATE
- PBS WALL PANEL
- TRUSS ANCHORAGE BY ENGINEER
- PREMIER MASTIC TYPICAL EACH SIDE
- 8d NAILS @ 6" O.C. OR EQUIVALENT EACH SIDE: U.N.O.

PBS Wall Panel

PREMIER SIPS

8-17-07
NOTES:
1. FACTORY PROVIDED HORIZONTAL ELECTRICAL CHASES ARE STANDARD 16" AND 45" ABOVE BOTTOM OF PANEL AND ROUGHLY 48" O.C. VERTICALLY UNLESS PRIOR ARRANGEMENTS HAVE BEEN MADE BEFORE PANEL MANUFACTURING.
2. PANEL INSTALLER SHOULD FIELD DRILL AND MARK EVERY ELECTRICAL CHASE ON SUB-FLOOR.
3. FOLLOW LOCAL CODE REQUIREMENTS FOR ELECTRICAL INSTALLATION.
4. ALL PENETRATIONS ARE REQUIRED TO BE FOAMED IN PLACE AFTER ELECTRICAL ROUGH IN IS DONE.

SAVE PLUG WITH OSB SKIN TO REINSTALL AFTER WIRING IS COMPLETE

FIELD DRILLED TOP PLATES

FIELD DRILLED BOTTOM PLATES, WHERE REQUIRED

4" HOLE CUT WITH HOLE SAW

PBS WALL PANELS

STANDARD ELECTRICAL CHASES

PREMIER SIPS
Wall Details: Electrical Box Installation

**IMPORTANT:**
Low expanding foam sealant around box and in chase.

- **PBS WALL PANEL**
- **COVER PLATE**
- **SWITCH/OUTLET BOX**
- **SURFACE MOUNTED ELECTRICAL BOX**
- **U.L. LISTED NM-B RATED WIRE**
- **STANDARD ELECTRICAL CHASE**
- **GYPSUM WALL BOARD**
OPTIONAL 2-3 PREMIER SCREWS FROM OUTSIDE INTO INTERIOR FRAMING

#6 SCREWS @ 12" O.C. STAGGERED

BOTTOM PLATE

PBS WALL PANELS

STANDARD INTERIOR WALL FRAMING

PBS WALL PANELS

INTERIOR WALL CONNECTION

PREMIER SIPS

PBS-208 8-17-07
FOR TYPICAL CABINET LOADINGS, FASTEN CABINET TO PANELS FOLLOWING CABINET MANUFACTURER’S RECOMMENDATIONS. FOR EXTREME CABINET LOADS CONSULT PREMIER BUILDING SYSTEMS BEFORE INSTALLATION.
CONSULT LOCAL BUILDING CODES FOR ACCEPTANCE.
Wall Details: Insul-Beam Above Opening

LOAD BEARING PANEL ABOVE HEADER

2x PLATE

NOTE: SIP TAPE NOT SHOWN FOR CLARITY

PLATE RIPPED TO SAME WITH OF PANEL ABOVE AS REQUIRED BY ENGINEER

FIELD SCAB OSB BY OTHERS

INSUL-BEAM II HEADER

3/8"-1/2" PREMIER MASTIC TYPICAL EACH SIDE AND TOP

2x PLATE

NOTE: SIP TAPE NOT SHOWN FOR CLARITY

LOAD BEARING PANEL ABOVE HEADER
Roof Details: Beveled Block Wall/Roof 1

PBS ROOF PANEL

PREMIER SCREWS
@ 12" O.C. U.N.O.
W/ 1" MIN
PENETRATION
INTO TOP PLATE

PREMIER MASTIC

2x TOP PLATE

PBS WALL PANEL

SIP TAPE
REFER TO TECHNICAL BULLETINS #28
& #32 FOR SIP TAPE APPLICATION

BEVELED 2x BLOCKING
TOE NAIL W/ 16d NAILS
@ 12" O.C. TOP AND
BOTTOM AFTER ALL
ELECTRICAL HAS BEEN
COMPLETED

PROVIDES ACCESS
FOR ELECTRICAL

8d NAILS @ 6" O.C.,
OR EQUIVALENT
EACH SIDE. U.N.O.

HELPFUL HINT:
WEDGE BEHIND BEVELED BLOCK
CAN BE A GOOD PLACE TO RUN
ELECTRICAL WIRES AFTER ROOF
PANEL SCREWS ARE IN PLACE.

OPTIONAL PBS EPS
WEDGE INFILL OR
EXPANDABLE FOAM

PBS-301 BEVELED BLOCK PANEL WALL/ROOF 11-9-10
PREMIER SIPS
Roof Details: Beveled Block Wall/Roof 2  PBS-302

HELPFUL HINT:
WEDGE BEHIND BEVELED BLOCK CAN BE A GOOD PLACE TO RUN ELECTRICAL WIRES AFTER SCREWS ARE IN PLACE.
Roof Details: Beveled Wall/Roof Connection  

PBS-303

PBS ROOF PANEL

PREMIER SCREWS
12" O.C. U.N.O.
W/ 1" MIN PENETRATION INTO TOP PLATE

SIP TAPE
REFER TO TECHNICAL BULLETINS #28 & #32 FOR SIP TAPE APPLICATION

8d NAILS @ 6" O.C.
OR EQUIVALENT EACH SIDE. U.N.O.

2x TOP PLATE

PREMIER MASTIC

PBS WALL PANEL

PREMIER SIPS

BEVELED PANEL WALL/ROOF CONNECTION  11-9-10
Roof Details: Ridge Cap Detail

PBS-304

EPS FOAM RIDGE CAP, FIELD INSTALL W/ EXPANDING FOAM AND ADHESIVE

PREMIER SCREWS @ 12" O.C. U.N.O. W/ 1" MIN PENETRATION INTO STRUCTURAL SUPPORT, NOT CANT STRIP. U.N.O.

8d NAILS @ 6" O.C. OR EQUIVALENT EACH SIDE

PBS ROOF PANEL

SIP TAPE REFER TO TECHNICAL BULLETINS #28 & #32 FOR SIP TAPE APPLICATION

LOW EXPANDING FOAM

FIELD INSTALLED WOOD CANT STRIP

STRUCTURAL SUPPORT MIN 3" WIDE FOR MIN 1 1/2" BEARING FOR PANEL EACH SIDE

IMPORTANT SEAL WELL W/ EXPANDING FOAM

PREMIER MASTIC TYPICAL EACH SIDE AND BOTH FACES

PBS-304 RIDGE CAP DETAIL
PREMIER SIPS

11-9-10
Roof Details: 12:12 Pitch Ridge Detail

PBS-305

12:12 PITCH RIDGE DETAIL
PREMIER SIPS

PBS-305

PREMIER MASTIC TYPICAL EACH SIDE AND FACE

PREMIER SCREW @ 12" O.C. U.N.O.
W/MINIMUM 1" PENETRATION INTO BEARING MEMBER

PREMIER SCREW @ 12" O.C. U.N.O.

8d NAILS @ 6" O.C. OR EQUIVALENT EACH SIDE, U.N.O.

FIELD INSTALLED WOOD CANT STRIP

SIP TAPE REFER TO TECHNICAL BULLETINS #28 & #32 FOR SIP TAPE APPLICATION

STRUCTURAL SUPPORT MIN 3" WIDE FOR 1 1/2" MIN BEARING FOR PANELS EACH SIDE
Roof Details: Roof Valley Connection

PBS-306 PREMIER SIPS

Premier Screws @ 12" O.C. U.N.O. W/ 1" Min Penetration into Support

SIP Tape
Refer to Technical Bulletins #28 & #32 for SIP Tape Application

Premier Mastic
Typical Each Side and Both Faces

PBS Roof Panel

Valley Flashing

8d Nails @ 6" O.C. or Equivalent Each Side

Double Beveled 2x Spline

Bevel Block @ Valley Beams Required. Attached to Beam Prior to Panel Roof Installation.

Structural Support Member Min 3" Wide for 1 1/2" Min Bearing for Each Panel

PBS-306 ROOF VALLEY CONNECTION 11-9-10
PREMIER SIPS
Roof Details: 2x Panel Joint Connection

CONSULT LOAD DESIGN CHARTS FOR ALLOWABLE PANEL SPANS

PREMIER MASTIC
 typical each side and bottom

LUMBER MUST BE CONTINUOUS BETWEEN SUPPORTS.

EDGE MATERIAL
2x LUMBER OR ENGINEERED EQUIVALENT

SIP TAPE REQUIRED ON (WINTER) WARM SIDE OF PANEL OVER 2x JOINT

REFER TO TECHNICAL BULLETINS #28 & #32 FOR SIP TAPE APPLICATION

PBS-308 2x PANEL JOINT CONNECTION 11-9-10
PREMIER SIPS
Roof Details: I-Joist Panel Connection  PBS-309

CONSULT LOAD DESIGN CHARTS FOR ALLOWABLE PANEL SPANS

PREMIER MASTIC TYPICAL EACH SIDE AND BOTTOM

I-JOIST MUST BE CONTINUOUS BETWEEN SUPPORTS.

SIP TAPE REQUIRED ON (WINTER) WARM SIDE OF PANEL OVER I-JOIST JOINT

REFER TO TECHNICAL BULLETINS #28 & #32 FOR SIP TAPE APPLICATION

PBS-309  I-JOIST PANEL CONNECTION  11-9-10
PREMIER SIPS
ALL FLOOR/ROOF OPENINGS MUST BE APPROVED BY A LICENSED ENGINEER.

NOTE:
FOR OPENINGS LARGER IN SIZE THAN SHOWN ABOVE OR FOR OPENINGS THAT CUT THROUGH SPLINES, ADDITIONAL FRAMING TO SUPPORT PANEL EDGES MAY BE NEEDED PER ENGINEERING REQUIREMENTS.

ROOF/FLOOR OPENINGS 8-20-07

PREMIER SIPS
NOTE:
1. PROTECT EPS CORE FROM TEMPERATURES OF 160°F OR ABOVE. USE ZERO CLEARANCE INSULATING MATERIAL DESIGNED FOR HIGH TEMPS AS REQUIRED.
PREMIER VENTED INSUL-LAM INSULATION

SEE INSULFOAM BROCHURE FOR SPECIFICATIONS

TWO PART INSUL-LAM

NOTE:
- THESE ARE NON-STRUCTURAL PANELS.
- OPTIONAL THICKNESSES AVAILABLE.

8-20-07

VENTED/NON-VENTED INSUL-LAM
PREMIER SIPS

68
Panel Details: Floor/Roof Fastening Patterns

Panels up to 16'-0" long require (4) Premier screws per support for single and two span conditions U.N.O.

Panels greater than 16'-0" long require (6) Premier screws per support for single and two span conditions U.N.O.

Panels any length with multiple span conditions require (4) Premier screws per support U.N.O.

Note: All panels are shown 4' wide.

Premier SIPS
Roof Details: Eave Details

NOTE:
- SEE LOAD DESIGN CHARTS FOR MAXIMUM OVERHANG.
Roof Details: Roof to ICF Wall Connection

PBS-315

ROOF TO ICF WALL CONNECTION

PREMIER SIPS

8-20-07

ANCHOR BOLTS PER CODE

PREMIER MASTIC

2x PRESSURE TREATED TOP PLATE

ICF OR CONC. WALL

HELPFUL HINT:
WEDGE BEHIND BEVELED BLOCK
CAN BE A GOOD PLACE TO RUN
ELECTRICAL WIRES AFTER
SCREWS ARE IN PLACE.

PREMIER SCREWS
@ 12" O.C. OR
PER ENGINEERING
W/ 1" MIN
PENETRATION INTO TOP PLATE

BEVELED 2x BLOCKING
TOE NAIL W/ 16d NAILS
@ 12" O.C. TOP AND
BOTTOM AFTER ALL
ELECTRICAL HAS BEEN
COMPLETED

PROVIDES ACCESS
FOR ELECTRICAL

OPTIONAL
PBS EPS
WEDGE INFILL
OR EXPANDABLE
FOAM

PBS ROOF PANEL
NOTE: THIS DETAIL IS ONLY PERMITTED WHEN DESIGNED BY A LICENSED STRUCTURAL ENGINEER.
Roof Details: Plumb Cut Ridge/Hip Ridge with Blocking

- PBS-317

PREMIER MASTIC TYPICAL EACH SIDE AND BOTH FACES

PREMIER SCREWS @ 12" O.C. U.N.O. W/ 1" MIN PENETRATION INTO BEAM

8d NAILS @ 6" O.C. OR EQUIVALENT EACH SIDE

SIP TAPE

REFERR TO TECHNICAL BULLETINS #28 & #32 FOR SIP TAPE APPLICATION

STRUCTURAL SUPPORT MIN 3" WIDE TO PROVIDE 1 1/2" MIN BEARING FOR EACH ROOF PANEL WITH SOLID BLOCKING AT RIDGE.

DOUBLE BEVELED LUMBER SPLINE

BEVEL BLOCK @ RIDGE BEAM REQUIRED. ATTACH TO BEAM PRIOR TO SETTING ROOF PANELS.

PBS-317 PLUMB CUT RIDGE / HIP RIDGE WITH BLOCKING

PREMIER SIPS

11-9-10
Roof Details: Plumb Cut Ridge/Hip Ridge without Blocking

PREMIER SCREWS @ 12" O.C. U.N.O. w/ 1" MIN PENETRATION INTO BEAM

MIN 2" GAP, MAX 1" GAP FILLED WITH COMPATIBLE EXPANDING FOAM

SIP TAPE
REFER TO TECHNICAL BULLETINS #28 & #32 FOR SIP TAPE APPLICATION

STRUCTURAL SUPPORT MIN 5 1/8" WIDE WITHOUT SOLID BLOCKING IN ROOF PANELS AT RIDGE

BEVEL BLOCK @ RIDGE BEAM REQUIRED. ATTACH TO BEAM PRIOR TO SETTING ROOF PANELS.
Roof Details: Cantilevered Ridge with Blocking

PBS-319

PBS ROOF PANEL

3 ROWS OF 16d NAILS @ 12" O.C.
OR AS REQUIRED BY ENGINEERING

PREMIER MASTIC
TYPICAL EACH SIDE
AND BOTH FACES

8d NAILS @ 6" O.C.
OR EQUIVALENT
EACH SIDE

DOUBLE BEVELED
LUMBER SPLINE

SIP TAPE
REFER TO TECHNICAL BULLETINS #28
& #32 FOR SIP TAPE APPLICATION

ROOF PANEL CAN NOT EXCEEDE 6'
CANTILEVER FOR THIS CONDITION,
SupportING WALL OR BEAM MAX 6' AWAY
FROM EACH SIDE OF RIDGE.

REFER TO PBS TECHNICAL
BULLETIN #3 FOR
CANTILEVERED ROOF
PANEL CAPACITIES.

11-9-10

Premier Sips
Regional Field Offices

**Northwest**
19727 57th Ave E.
Puyallup, WA 98375
T 253.271.3056
F 253.271.3265

**Southwest**
1155 Business Park Dr.
Dixon, CA 95620
T 707-678-6900
F 707-678-2962

**Central**
270 Foss Flats Rd.
Belgrade, MT 59714
T 406-388-5553
F 406-388-5557

**Technical Center**
17001 Fish Point Rd.
#101
Prior Lake, MN 55372
800-469-8870 ext 104

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