This document is for Designers using the BuildSMART System.
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Permanent insulting form system for frost protected shallow foundations comprised of termite treated expanded polystyrene (EPS) in two structural capacities: applied loads of 1.5 psf and 3.0 psf. The J-Form System significantly streamlines the construction process and reduces cost. Perimeter trench, stem walls, spread footings, and all that formwork are NOT REQUIRED.

Slab edge shape, dimensions and insulation thicknesses are variable to meet project engineering requirements.

Refer to J-Form QuickGUIDE at this link.

Refer to BuildSMART Resources page at this link for typical details showing interface with adjoining materials.
BuildSMART Wall Panel

Provide horizontal wing insulation or compacted gravel fill trench to frost depth per ASCE 32-01

Sill plate by Contractor

BuildSMART J-Form

Compacted granular fill

Undisturbed earth

Grade beam or spread footing determined by Project Designer

Underslab insulation thickness determined by Project Designer

Concrete slab
The Building Envelope Wall System is developed for all types of wood frame buildings in North America. BuildSMART Systems are produced per order - to comply with the architectural design intent and requirements of each project.

**Energy Efficiency Made Simple**

- **BuildSMART Roof Band**, sealed to wall panels top and bottom with **PROSOCO R-Guard Joint & Seam**
- Huber Liquid Flash by builder
- Furred down ceiling
- OSB or plywood vapor/air barrier sealed with **PROSOCO R-Guard Joint & Seam** by builder
- **PROSOCO R-Guard Joint & Seam** all around panels to seal at vapor/air barrier
- **BuildSMART Wall Panel with PHI certified window installed and sealed**
- Sub-floor
- **BuildSMART Floor Band**, sealed to wall panels top and bottom with **PROSOCO R-Guard Joint & Seam**
- Floor truss, TJs or wood joists
- Vapor/Air Barrier wrapped over edge and sealed at concrete and sill plate
- Concrete slab on grade (or basement, not shown) with underslab waterproofing membrane
- **PROSOCO R-Guard Joint & Seam** installed at ends of all sills plates, top plates and bottom plates
- **BuildSMART J-Form** with fiberglass and EIFS parging
- **BuildSMART underslab termite treated EPS insulation**
- Frost protected shallow foundation of compacted gravel
- Perforated foundation drainpipe

*BuildSMART provided components are green. PROSOCO products are orange. Builder responsibilities are gray.*
**STUD FRAME**

2x4 or 2x6 at 16” or 24” on center spacing. Project designers determine stud frame requirements based on industry norm structural considerations and thermal performance requirements for the project. 2x8 frame is also available and is a special request.

BuildSMART Studs, plates and headers are [Weyerhaeuser TimberStrand LSL](https://www.weyerhaeuser.com/timberstrand) which provide the necessary quality and dimensional consistency that BuildSMART requires. LSL provide a straight and true substrate for drywallers, cabinet makers and tile setters – eliminating jobsite rework. Engineered LSL plates and headers also virtually eliminate “shrinkage” in multi-story wood frames – eliminating expensive call-backs.

Stud cavities accommodate cavity insulation which is provided and installed by Builder.

**STRUCTURAL SHEATHING**

Typical: 7/16” OSB for non-rated assemblies, or 7/16” [LP FlameBlock](https://www.lpmaterials.com/) for 1-hr fire rated assemblies per [Intertek 60-01](https://www.intertek.com/). Project designers determine fire rating requirements.

Structural sheathing is nailed to framing per industry standard. BuildSMART also adheres and air seals the sheathing to the framing to form a continuous building air barrier. Thus, every panel can be a shear wall (unless window opening spacing prevents).

For special shear conditions, plywood sheathing can be provided.

**CONTINUOUS EXTERIOR INSULATION**

Every BuildSMART exterior wall panel includes continuous exterior insulation (CEI) for one simple reason. Building science experts have confirmed that exterior insulation is required to avoid moisture damage (rot) and the formation of mold (a serious health hazard) due to condensation within the stud cavity. BuildSMART is committed to be an easy solution to common building industry challenges and this is a big one. Many new buildings are failing. The cost of repair and remediation is very high and completely avoidable by using the BuildSMART system.

Standard Pricing is applied to expanded polystyrene (EPS) continuous rigid insulation (CEI) 2” to 8 ½” thick. Special pricing is applied to CEI that is 9” to a maximum of 11 ½” thick.

**WEATHER RESISTIVE BARRIER**

7/16” [Huber ZIP System](https://www.huberbuilding.com/) has a weather resistive surface applied to OSB board. This widely used WRB sheathing board makes building wrap unnecessary, can be easily sealed at joints and provides substrate for lightweight siding fasteners.

**OPTION:**

**Vertical Furring Strips:** As an option, BuildSMART can preinstall pretreated vertical furring strips in parallel with studs and around window openings. Furring strips are provided for jobsite attachment of rainscreen subframes and other heavier siding types. Considerable jobsite labor is saved with factory installation of furring strips.

**WINDOWS AND DOORS**

BuildSMART will factory install windows and doors from two manufacturers that meet our rigorous requirements for quality and customer service. Designers can choose from the following window and door lines with the following exception. To protect air barrier performance and the 10-year BuildSMART System materials warranty, BuildSMART will not factory install single hung, double hung, or sliders.
**WINDOW PLACEMENT**

The BuildSMART System can accommodate window opening sizes as indicated below in **Wall Panel Dimensions**. The minimum distance from building corner to a window opening is CEI thickness + stud depth + 4 ½”.

**WINDOW MANUFACTURERS PRODUCT LINES AND OPTIONS**

- **Klearwall PassiVE windows** and doors, FutureProof, Alu-P and AluClad.
- **Alpen windows and doors**, Tyrol and Zenith Series.
- **ProVia entry doors**, Heritage and Legacy.

Window and door color: Selected from manufacturer’s standard range of colors.

Window and door hardware: Selected from manufacturer’s standard range of hardware offerings. Door blanks can be factory installed for Builder provided, drilled and installed special door hardware.

**SAMPLING OF MAXIMUM AVAILABLE WINDOW AND DOOR SIZES**

This table is for quick reference to get a general idea of maximum available window and door sizes. It is a simplification of all the available window options from Klearwall and Alpen, the two manufacturers that have satisfied BuildSMART’s criteria. The following table does not show all window sizes and options available.

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Window Operation</th>
<th>Maximum Width</th>
<th>Width Variations</th>
<th>Maximum Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Klearwall</td>
<td>Tilt &amp; Turn</td>
<td>36”</td>
<td></td>
<td>66”</td>
</tr>
<tr>
<td>Klearwall</td>
<td>Casement</td>
<td>36”</td>
<td></td>
<td>66”</td>
</tr>
<tr>
<td>Klearwall</td>
<td>Fixed</td>
<td>68”</td>
<td>2-Pane = 80”</td>
<td>96”</td>
</tr>
<tr>
<td>Klearwall</td>
<td>Swing Door</td>
<td>42”</td>
<td></td>
<td>84”</td>
</tr>
<tr>
<td>Alpen</td>
<td>Tilt &amp; Turn</td>
<td>White = 59”</td>
<td>Color (foil) = 54”</td>
<td>78”</td>
</tr>
<tr>
<td>Alpen</td>
<td>Casement</td>
<td>36”</td>
<td></td>
<td>72”</td>
</tr>
<tr>
<td>Alpen</td>
<td>Fixed</td>
<td>60”</td>
<td></td>
<td>60”</td>
</tr>
<tr>
<td>Alpen</td>
<td>Swing Door</td>
<td>White = 58”</td>
<td></td>
<td>97.5”</td>
</tr>
<tr>
<td>Alpen</td>
<td>Swing Door</td>
<td>White = 54”</td>
<td></td>
<td>105”</td>
</tr>
<tr>
<td>Alpen</td>
<td>Swing Door</td>
<td>Color (foil) = 54”</td>
<td></td>
<td>101”</td>
</tr>
</tbody>
</table>

Select from available Klearwall and Alpen lines of casement, tilt and turn, awning, hopper and fixed windows, and swing doors. BuildSMART cannot fabricate panels with pre-installed windows and doors outside of these operation types. Refer to [https://klearwall.com/](https://klearwall.com/) and [https://thinkalpen.com/](https://thinkalpen.com/)
WALL PANEL DIMENSIONS

9’ - 6” Max

12’ - 0” Max

WALL PANELS MORE THAN 9’-6” HEIGHT

9’-6” to 12’-0”
Height from bottom plate to 1st top plate of the BuildSMART Panel (not including field installed the second top plate orril plate on slab)

9’-6”
Maximum spacing of 9’ wide structure at panel / panel joints

11 ½”
Minimum vertical dimension of header and top plate (as determined by Structural Engineer)

4”
Minimum structure at bottom plate

CEI thickness + 8 ½”
Minimum dimension for structure at building corners

BuildSMART will optimize project Panelization
Panels above 12’-0” height, tapered panels or the like will incur “custom” costs.
WALL PANELS UP TO 9’-6” HEIGHT

Siding systems are provided and installed at the jobsite by Builder. This BuildSMART strategy supports the designer's freedom of aesthetic effect without visible seams at panel edges. Any style and look can be applied to the BuildSMART System.

While the concept of factory installed siding seems obvious, the reality is that siding systems are not designed to be shipped already on a wall surface. Additional protection to panel faces could be provided, with costly impact on packaging and pallet density on each truck, but the short distance from truck to final installed position would inevitably be damage prone and would very likely require rework due to jobsite damage.

BUILDSMART INTERIOR STRUCTURE AND LID SYSTEM

Manufactured panelized interior wall systems generally are limited to framing for load bearing walls and non-bearing partitions. The Interior Wall System is provided for all types of wood frame buildings in North America and is intended for use with BuildSMART’s Building Envelope System for exterior walls. BuildSMART Systems are produced per order - to comply with the architectural design intent and requirements of each project.
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**OPTIONS:**

1. Ladder wall assemblies, with factory installed 2x4 cross members, for T-intersections with the exterior wall, can be provided in the Building Enclosure package. Ladder walls simplify the interior wall installation and allow typical stud bay insulation strategies.
2. Second Top Plate (STP) in quantity equal to the linear feet of interior wall.

**TOP AIR BARRIER – “THE LID OPTION”**

The ceiling lid that supports the roof insulation is comprised of 7/16" OSB or ZIP System boards: strips at the perimeter and at bearing walls, 4x8 sheets in the field. All joints are jobsite sealed with PROSOCO R-Guard Joint & Seam. Boards and sealant form the top air barrier and complete the continuous air enclosure all around the building.

OSB or ZIP System “Lid Strips” in quantity equal to the upper most level linear feet of bearing wall + exterior wall. Lid Strips are 12” wide and are jobsite installed at top of bearing walls above the builder installed second top plate.

OSB or ZIP System “Lid” in quantity equal to the square feet of upper most level. The Lid forms the air barrier, sealed to and continuous with the wall air barrier. Specify if “overage” is desired.

PROSOCO R-Guard Joint & Seam in quantity required to air seal each side of the Lid Strip and/or at panel joints in the Lid. Specify if “overage” is desired.

Thank you! Energy savings and quiet, heathier living are just around the corner.