Home Innovation RESEARCH LABS™

Introduction: The Extended Plate & Beam Wall System

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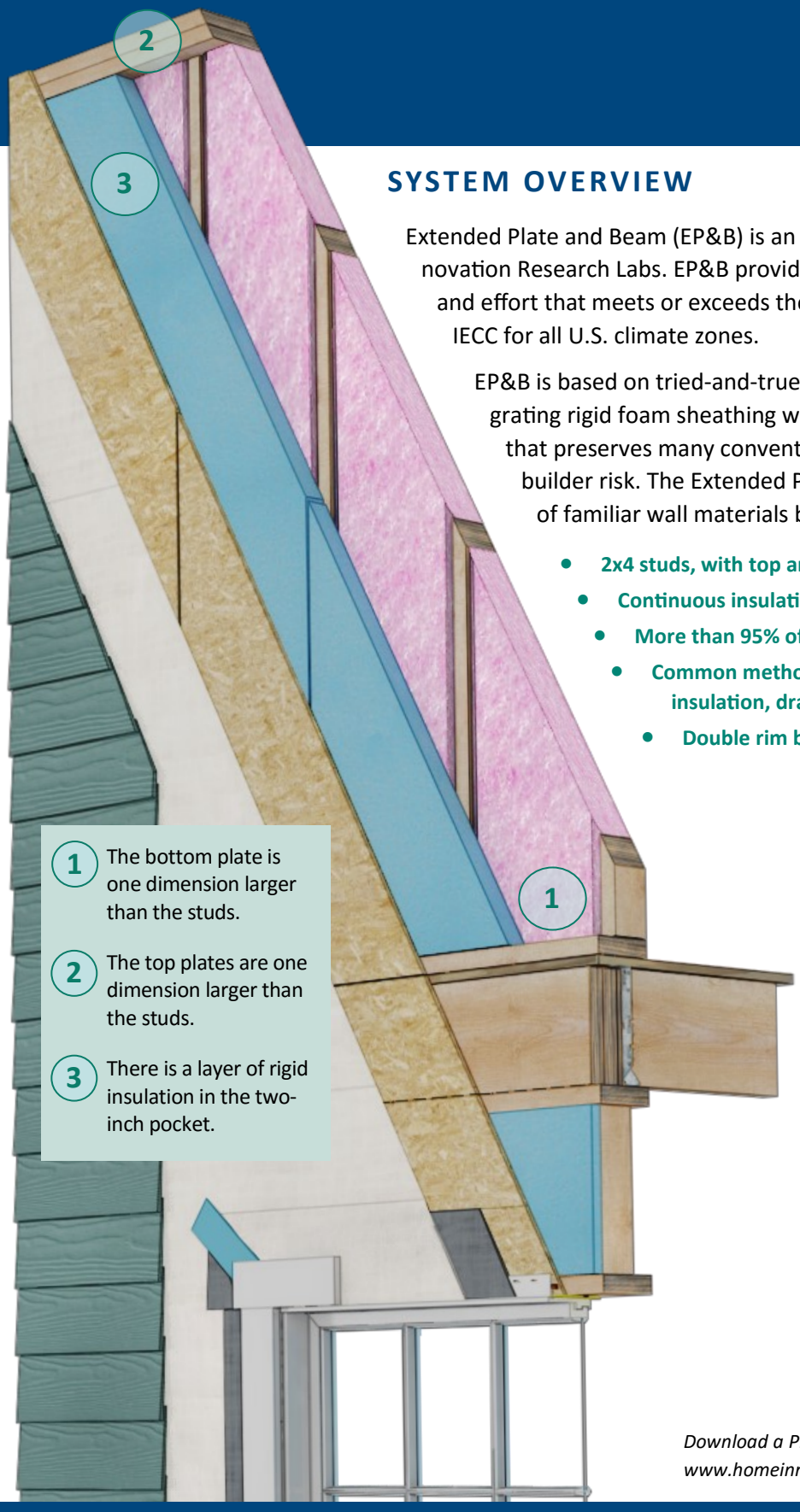


1. The bottom plate is one dimension larger than the studs.
2. The top plates are one dimension larger than the studs.
3. There is a layer of rigid insulation in the two-inch pocket.

SYSTEM OVERVIEW

Extended Plate and Beam (EP&B) is an advanced wall system developed by Home Innovation Research Labs. EP&B provides a high-performing wall at reasonable cost and effort that meets or exceeds the prescriptive insulation requirements of the IECC for all U.S. climate zones.

EP&B is based on tried-and-true lumber construction methodologies, integrating rigid foam sheathing with standard framing practices into a system that preserves many conventional construction features and minimizes builder risk. The Extended Plate and Beam (EP&B) wall system is composed of familiar wall materials but in a different configuration:

- **2x4 studs, with top and bottom plate extensions of 2x6**
- **Continuous insulation exterior to the wall cavity, interior to the WSP**
- **More than 95% of the wall area free of thermal bridging**
- **Common methods and materials for framing, air sealing, insulation, drainage plane and siding attachment**
- **Double rim board (beam) that is also a header**

EP&B ADVANTAGES

The rigid foam layer keeps cavities warmer to improve moisture performance, and keeps wall surfaces warmer to increase comfort

EP&B walls cost an average of $0.55/SF LESS than an IECC R-13+10 c.i. prescriptive wall — that can translate to $100's per house

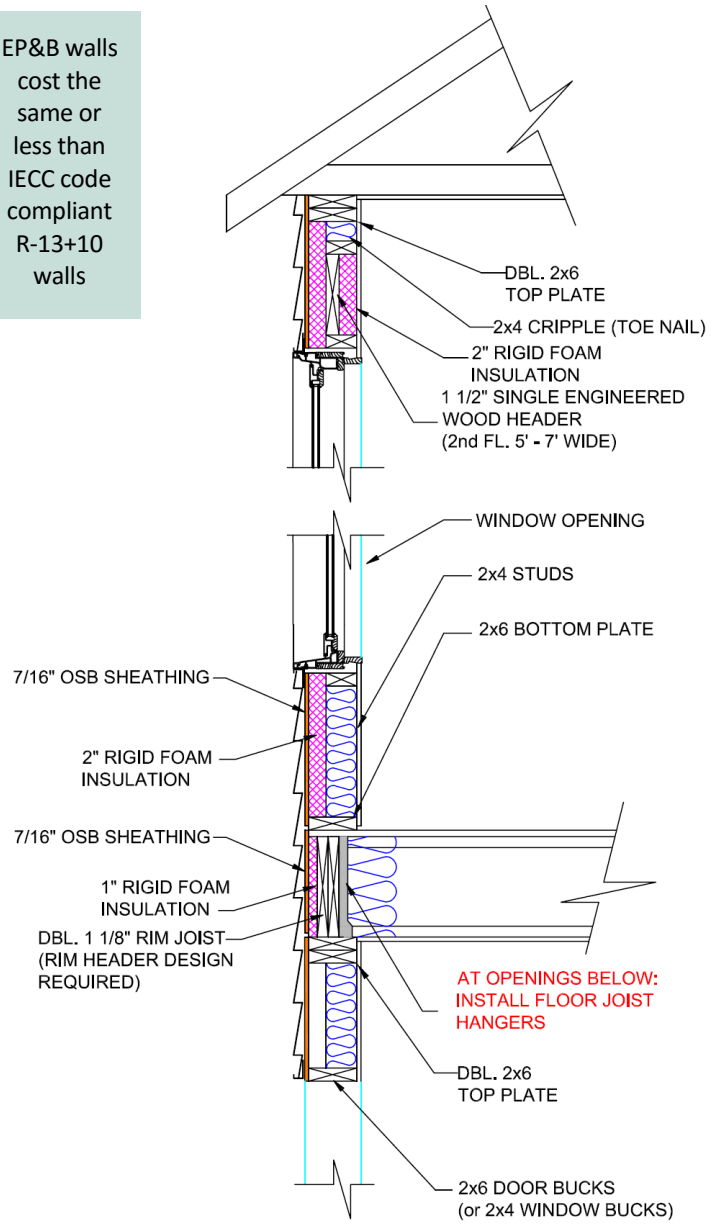
Because the OSB protects the foam layer, EP&B is a good candidate for wall panelization

An EP&B wall can be configured to meet or exceed the prescriptive requirements of every U.S. Climate Zone

Download a PDF of the full-length EP&B Construction guide here: www.homeinnovation.com

EP&B CONSTRUCTION SUMMARY

EP&B walls cost the same or less than IECC code compliant R-13+10 walls



EP&B 2-Story Wall Detail *(First Floor Bottom Plate Detail Not Shown)*

EP&B Connection Schedule *(Use IRC Table R602.3(1) for all other)*
Note: Staples are Not an Acceptable Substitute for Nails

Connection	Nails	Schedule
Perimeter (edge) of Wood Sheathing	3.5 in. x 0.131 in.	3 in. o.c.
Field of Wood Sheathing	3.5 in. x 0.131 in.	6 in. o.c.
Corner studs in contact with each other	3 in. x 0.131 in.	12 in. o.c.
Corners: WSP from both intersecting walls to a common 2x framing member	2.5 in. x 0.131 in.	6 in. o.c.
Corner studs separated by up to 2 in. of rigid foam, 2 options	5 in. x 0.135 in.	6 in. o.c.
	6 in. x 0.190 in. SIP screws	12 in. o.c.

1. Siding
2. Weather Resistive Barrier
3. Wood sheathing
4. Rigid foam
5. Framing/insulation
6. Drywall

- Extended plates provide a 2-in. pocket for rigid foam insulation
- Windows are framed with 2x4's; a 1x6 sill can be added for additional support if desired
- Doors are framed with either 2x4's (typical) or 2x6's (sliders or heavy-duty)
- Structural wood sheathing is attached directly to the extended plates, for shear resistance
- Double rim provides load transfer between floors
- Double rim can act as a header for the openings below (joist hangers required)

Lab tests confirm good structural performance with the double rim located at the exterior plane. ***Insetting a double or single rim by 1 in.*** allows for an exterior ***continuous insulation layer.*** A 2 in. inset is allowed if the WSP spans the entire wall/rim assembly, and if the scheduled connection is made at the sill plate.

A ***single rim board is not sufficiently strong*** to perform the duty of a header. With a single rim, utilize typical headers of solid or manufactured lumber.

Install both wood and foam sheathing ***vertically***; align joints with studs and ***alternate spacing*** so wood and foam joints are not coincident.

Caulk between WSP and top and bottom plates for a good first-line-of-defense air seal.

Prescriptive requirements for the EP&B wall system will be submitted for inclusion into building codes soon. The use of the EP&B wall system in a specific project must be approved by the design professional for that project. The specifications for the EP&B wall system provided in this Guide are intended for use consistent with the scope of the International Residential Code (IRC), and are not approved for high-seismic or high-wind areas.