IRC

Add new definitions to Section R202

EXTENDED PLATE WALL (EPW). A wood framing method for constructing exterior walls using top and bottom plates that are wider than the width of the studs such that rigid foam sheathing can be inset between the top and bottom plates, and between the studs and the exterior wood structural panel sheathing. Sheathing is fastened directly to the bottom and top plates and through the rigid foam sheathing to the studs.

FOAM PLASTIC INSULATING SHEATHING (FPIS). A rigid foam board typically made from extruded polystyrene (XPS), expanded polystyrene (EPS) or Polyisocyanurate (PIC) and used to provide a layer of continuous insulation for house walls or other components.

Add new abbreviations

EPW Extended Plate Wall

FPIS Foam Plastic Insulating Sheathing

Add new section to IRC Chapter 6.

602.13 Extended Plate Wall (EPW). Framing, wood structural panel sheathing, connections, wall bracing, and anchorage for the EPW shall be in accordance with all applicable provisions of Sections R602.1 through R602.12 as modified by the provisions of Section R602.13. EPW shall be limited to Seismic Design Category A, B, and one and two-family dwellings in C. EPW shall be constructed by one of three framing combinations per Table R602.13.1.

Table R602.13.1 Braced Wall Wood Framing Construction Requirements for EPW

EPW Configuration	Nominal Lumber Dimensions		Thickness
	Studs	Plates	Rigid Foam[2]
2x4/2x6	2x4	2x6	2-in.
2x6/2x8	2x6	2x8	1-3/4-in.
2x6/2x7.5[1]	2x6	2x7.5[1]	2-in.

[1]Actual 7.5-in. width plates are available as engineered lumber.

[2] Rigid foam thickness is achieved by installing one or more layers of foam.

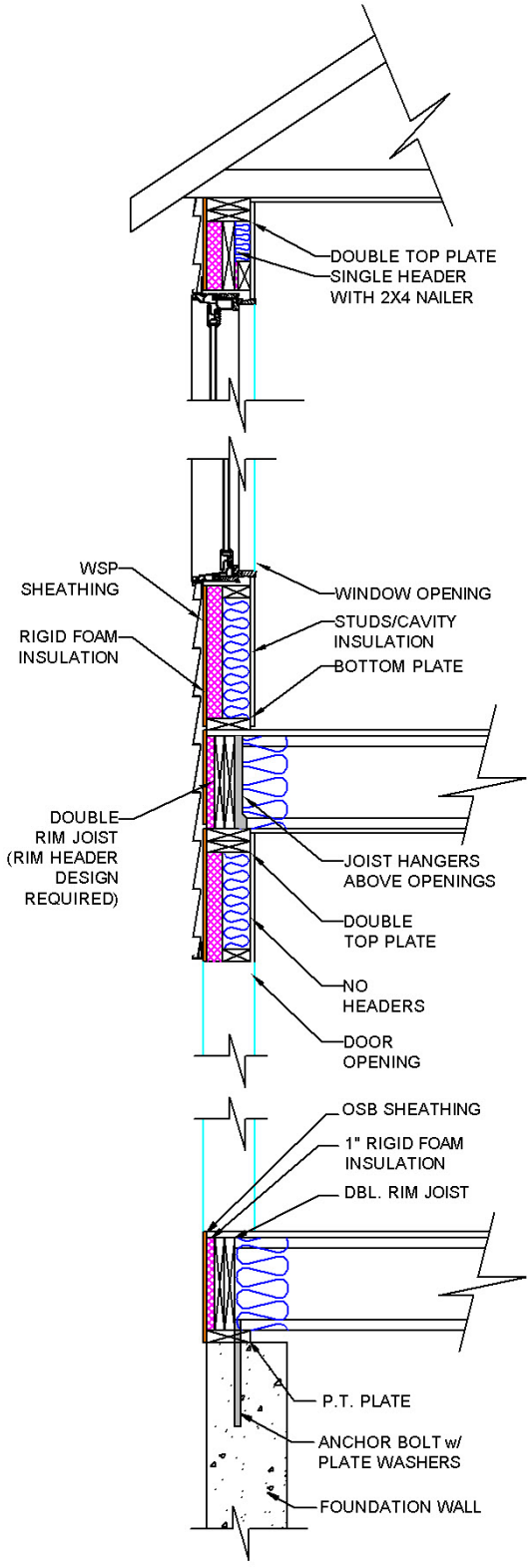

Figure R602.13.1 Extended Plate Wall (EPW) System, section view

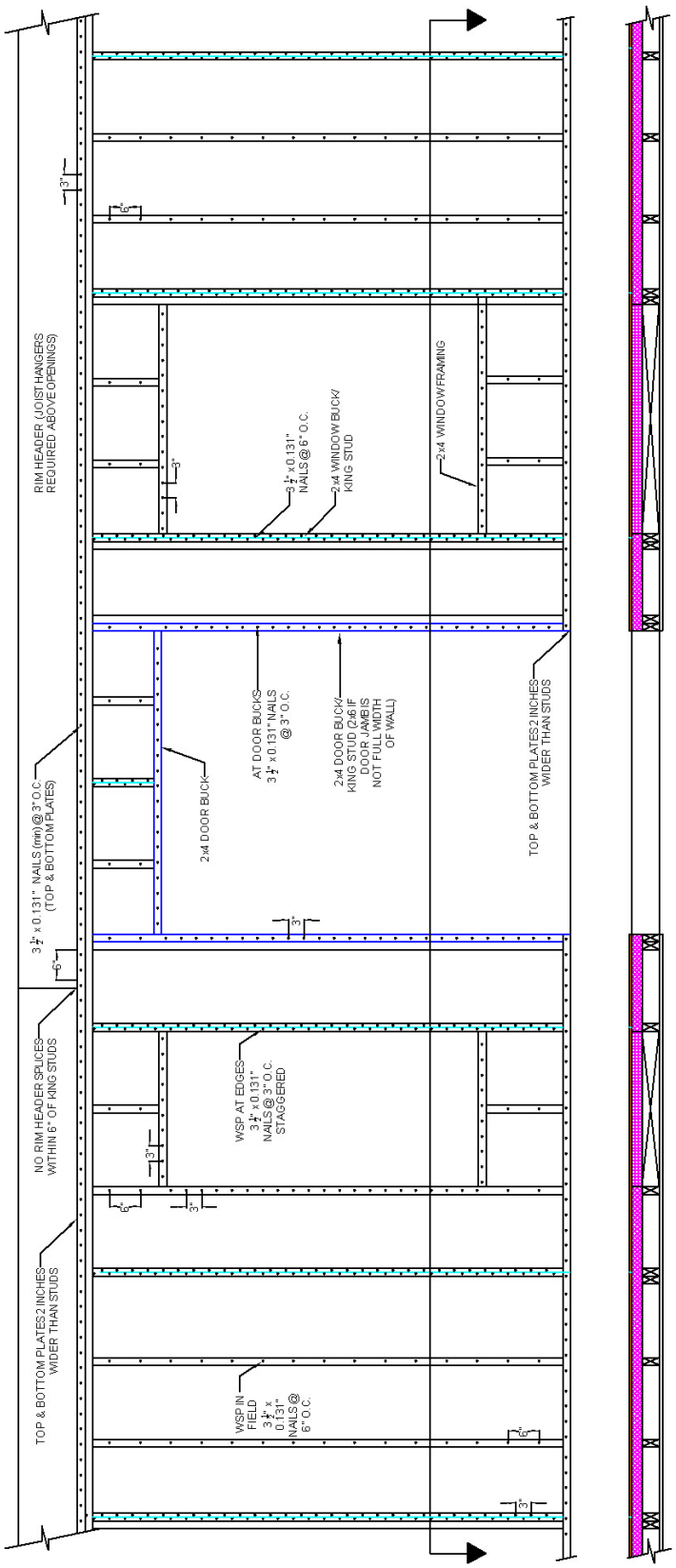

Figure R602.13.2 EP&B Wall, Interior Elevation View

602.13.1 Plates. The bottom and double top plate shall be wider than the width of the studs by not more than 2 inches, in accordance with Table R602.13.1 and Figure R602.13.1 and Figure R602.13.2.

602.13.2 Wood structural panel sheathing attachment. Wood structural panel (WSP) sheathing of thickness from 3/8-in. to 15/16-in. shall be installed vertically and attached to wall plates and studs per Table R602.13.4.

602.13.3 Horizontal joints in wood structural panels. Where used as part of wall bracing, each wood structural panel shall be continuous between the extended top and bottom plates. Blocking of panel edges shall not be an acceptable alternative to continuous vertical wood structural panels for the EPW. The vertical joint between two wood structural panels shall occur only at the location of a stud and shall be fastened through FPIS in accordance with perimeter nailing per Table R602.13.4.

602.13.4 Wall Bracing. Wall bracing shall be in accordance with the WSP Bracing Method in Table R602.10.4 except the fasteners' diameters and spacing shall be in accordance with Table R602.13.4. All provisions applicable to the use of the WSP Bracing Method, including provisions for mixing bracing methods, shall be applicable to EPW.

Table R602.13.4 Braced Wall Fastener Requirements for EPW

Minimum nail length and diameter	Maximum Fastener Spacing	
	At Perimeter of WSP[1]	In Field of WSP
3-1/2-in. x 0.131 in.	3-in. oc	6-in. oc

1. Perimeter nailing includes fastening of panel edges directly to top and bottom plates and through FPIS to studs.

602.13.4.1 Simplified Wall Bracing. With the exception of Section R602.12.2 Item 2 and Section R602.12.3 Item 1, provisions of Section R602.12 shall be applicable to the EPW. The fastening schedule for wood structural panels shall be in accordance with the additional requirements of Table R602.13.4.

602.13.5 Rim joist. Rim joists supporting an EPW shall be single or double-member solid-sawn or engineered lumber. Single member rim joists shall be inset by 1 inch. Double member rim joists are permitted to be installed flush to the exterior face of the wall, or inset by 1 inch from the exterior face of the wall to provide space for exterior rigid insulation. Rim joists are permitted to be inset by 2 inches from the exterior framing surface to provide space for exterior rigid insulation only if the WSP sheathing spans from the top plate all the way to the sill plate and is fastened to the sill plate in accordance with schedule of Table R602.13.4. The aspect ratio for braced wall panels in this case shall be based on the entire length of the WSP sheathing from the top plate to the sill. The minimum bearing length requirements for the floor joists shall be satisfied or joists shall be supported with metal hangers.

602.13.6 Rim joist used as rim header. Solid-sawn or engineered lumber single or double member rim joists are permitted to support EPW above openings as rim board headers in accordance with the provisions of R602.7.2 or an equivalent alternative and no additional headers are required at openings. Rim headers shall not have splice joints over an opening and the first splice joint to each side of the opening shall occur a minimum of 6-in. away from the opening edge and past the outermost king studs. Floor joists above such openings shall be supported with metal hangers selected by a licensed professional based on design loads.

602.13.6 Headers. Where the rim joist is not used as a header, construct headers in accordance with Section R602.7.

602.13.7 Door bucks. Where door jamb depth is less than the thickness of the EPW, the rough opening of the door framing shall be constructed using extended studs of width equal to the top and bottom plates of the EPW to allow full attachment of the door jamb to the framing. Where door jamb depth equals the thickness of the EPW, no changes in framing are required, as shown in Figure R602.13.2. All other provisions of IRC Section R609 shall be applicable to the EPW.

602.13.8 Foam plastic sheathing. Foam plastic insulative sheathing (FPIS) shall comply with ASTM C578 or ASTM C1289, with a minimum compressive strength of 15 psi.

602.13.8.1 Foam plastic sheathing installation. Foam plastic sheathing with a maximum total thickness of 2 inches shall be cut to stud length and installed flat against the exterior stud plane of the EPW, between extended top and bottom plate(s). Total combined permeance of FPIS and any attached vapor retarder facer or film shall not exceed 1.5 perms. Any one-sided vapor retarder FPIS facer or film shall be oriented to the interior side. Spray foam is permitted to be applied to the interior cavity side of the foam plastic. FPIS shall be installed vertically, and the vertical joint between panels of rigid foam sheathing shall not occur at the same stud where there is a joint between wood structural panels; vertical FPIS joints must be offset from vertical WSP joints by at least one stud bay.

602.13.9 Cold-Formed Steel Wall Framing. EPW is not an approved framing method for cold-formed steel framing members.

602.13.10 Wall Coverings. Interior and exterior coverings and wall finishes for the EPW shall be in accordance with all applicable provisions of Sections R701 through R703 as modified by the provisions of Section R602.13.11 through R602.13.14.

602.13.11 Interior Wall Coverings - Vapor Retarder. A vapor retarder on the interior side of the EPW frame shall be in accordance with Section R702.7 except:

1. Class I vapor retarder shall not be permitted.
2. Class II vapor retarder shall be kraft paper or an approved equivalent.
3. Class III vapor retarders for EPW shall be permitted in accordance with Table R602.13.1.
4. Where spray foam is installed to the interior cavity side of the foam plastic sheathing, it is permitted to use combined rigid foam and spray foam R-value for use with Table R602.13.1.

Table R602.13.1 CLASS III VAPOR RETARDERS FOR EPW

Climate Zone	Permitted Use of Class III Vapor Retarders		
	2x4/2x6 EP&B	2x6/2x8 EP&B	2x6/2x7.5* EP&B
CZ 5	Permitted	Permitted	Permitted
CZ 6	Permitted	Design Required	Design Required
CZ 7	Permitted	Design Required	Design Required

602.13.12 Exterior Wall Coverings. EPW shall provide the building with a weather-resistant exterior wall envelope and shall include water resistance as described in Section R703.1.1, wind resistance as described in Section R703.1.2, and a water-resistive barrier as described in Section R703.2.

602.13.13 Flashing. Flashing for EPW shall comply with the provisions of Section 703.4. Fluid applied membranes for pan flashing at exterior window and door openings shall not be installed in EPW. Mechanically attached, self-adhered flexible membrane pan flashing shall be installed as described in Section R703.4 item 1.1., shall span from framing across both the rigid foam layer and the WSP layer, and extend to the surface of the exterior wall finish or to the water-resistive barrier for subsequent drainage.

602.13.14 Cladding Attachment. Cladding attachment over EPW shall comply with the provisions of Section 703.3 including Table R703.3.2.

IECC

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Add new abbreviations

EPW Extended Plate Wall

FPIS Foam Plastic Insulating Sheathing

Add new section to IECC Chapter 4

R402.1.6 Extended Plate Wall (EPW). EPW wall systems constructed in accordance with all applicable provisions of IRC Sections R602.1 through R602.13 and utilizing a layer of rigid foam shall satisfy the prescriptive minimum cavity and continuous insulation R-value requirements of Table R402.1.2 for wood frame walls. Use FPIS manufacturer's technical specifications for both cavity insulation and continuous insulation to determine the associated R-value per inch for meeting the thermal resistance minimum requirement of each layer according to the configurations of IRC Table R602.13.1.

Add footnote to IECC Table R402.1.2

l. EPW exterior wall systems utilizing cavity and continuous insulation of the required R-values shall satisfy the prescriptive minimum insulation requirement for Climate Zone 3-8.

TABLE R402.1.1
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT[a, k]

CLIMATE ZONE	FENESTRATION *U*-FACTOR[b]	SKYLIGHT[b] *U*-FACTOR	GLAZED FENESTRATION SHGC[b, e]	CEILING *R*-VALUE	WOOD FRAME WALL *R*-VALUE	MASS WALL *R*-VALUE[i]	FLOOR *R*-VALUE	BASEMENT[c] WALL *R*-VALUE	SLAB[d] *R*-VALUE & DEPTH	CRAWL SPACE[c] WALL *R*-VALUE
1	NR	0.75	0.25	30	13	3/4	13	0	0	0
2	0.40	0.65	0.25	38	13	4/6	13	0	0	0
3	0.35	0.55	0.25	38	20 or 13+5[h]	8/13	19	5/13[f]	0	5/13
4 except Marine	0.35	0.55	0.40	49	20 or 13+5[h]	8/13	19	10 /13	10, 2 ft	10/13
5 and Marine 4	0.35	0.60	NR	38	20 or 13+5[h]	13/17	30[g]	10/13	10, 2 ft	10/13
6	0.35	0.60	NR	49	20 or 13+5[h]	15/19	30[g]	15/19	10, 4 ft	10/13
7 and 8	0.32	0.55	NR	49	20+5 or 13+10[h]	19/21	38[g]	15/19	10, 4 ft	15/19

For SI: 1 foot = 304.8 mm.

a. *R*-values are minimums. *U*-factors and SHGC are maximums. When insulation is installed in a cavity which is less than the label or design thickness of the insulation, the installed *R*-value of the insulation shall not be less than the *R*-value specified in the table.

b. The fenestration *U*-factor column excludes skylights. The SHGC column applies to all glazed fenestration. Exception: Skylights may be excluded from glazed fenestration SHGC requirements in Climate Zones 1 through 3 where the SHGC for such skylights does not exceed 0.30.

c. "15/19" means R-15 continuous insulation on the interior or exterior of the home or R-19 cavity insulation at the interior of the basement wall. "15/19" shall be permitted to be met with R-13 cavity insulation on the interior of the basement wall plus R-5 continuous insulation on the interior or exterior of the home. "10/13" means R-10 continuous insulation on the interior or exterior of the home or R-13 cavity insulation at the interior of the basement wall.

d. R-5 shall be added to the required slab edge *R*-values for heated slabs. Insulation depth shall be the depth of the footing or 2 feet, whichever is less in Climate Zones 1 through 3 for heated slabs.

e. There are no SHGC requirements in the Marine Zone.

f. Basement wall insulation is not required in warm-humid locations as defined by Figure R301.1 and Table R301.1.

g. Or insulation sufficient to fill the framing cavity, R-19 minimum.

h. First value is cavity insulation, second is continuous insulation or insulated siding, so "13+5" means R-13 cavity insulation plus R-5 continuous insulation or insulated siding. If structural sheathing covers 40 percent or less of the exterior, continuous insulation *R*-value shall be permitted to be reduced by no more than R-3 in the locations where structural sheathing is used – to maintain a consistent total sheathing thickness.

i. The second *R*-value applies when more than half the insulation is on the interior of the mass wall.

j. Reserved.

k. For residential log home building thermal envelope construction requirements, see Section R402.6.