

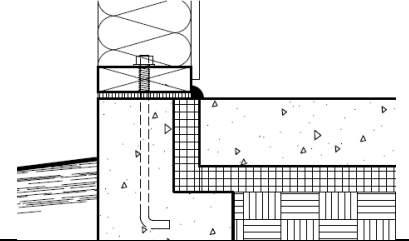
# Efficiency Vermont

## Guidelines for Meeting Insulation Requirements for Efficiency Vermont Certified Homes Version 2.0

This guide provides common approaches for insulation and framing in support of Efficiency Vermont's residential new construction program – additional criteria must be met to earn Efficiency Vermont Certified certification. The insulation values given are minimum amounts needed to meet program requirements; keep depths in mind when deciding on your framing and insulation. The strategies and materials provided are common examples seen in the field; however, there are other options. To learn more, call Efficiency Vermont at 1-888-921-5990 and ask about Efficiency Vermont Certified homes. These requirements are in effect as of January 1, 2018.

\*\*\*\*\* All insulation installed must meet Grade 1 insulation quality installation. \*\*\*\*\*

## Slab on grade / walk-out basement

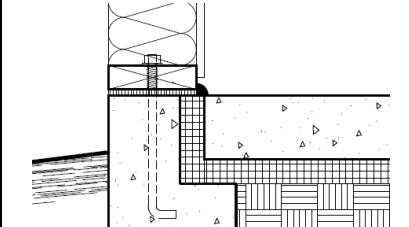
Required	Detail	Material*	Thickness
R-15 at slab edge		Extruded Polystyrene (XPS) (blue, pink or green board)	3"
		Expanded Polystyrene (EPS) (white bead)	4"

\*Additional Notes:

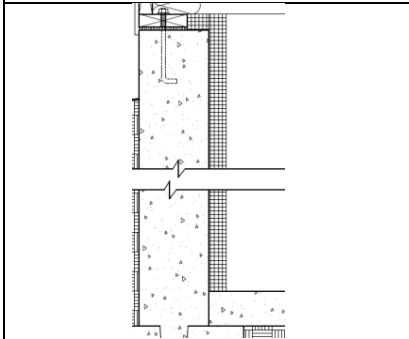
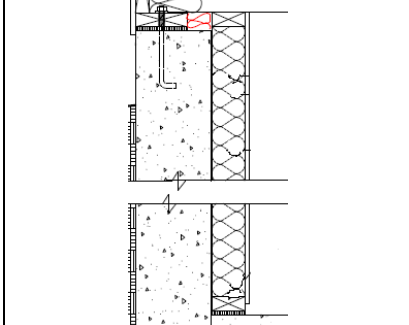
Insulation must extend from top of slab edge for 4 feet either horizontally or down, vertically.

Insulation must align with insulation on walls above.

## Heated slab

Required	Detail	Material	Thickness
R-15 under slab		XPS	3"
		EPS	4"

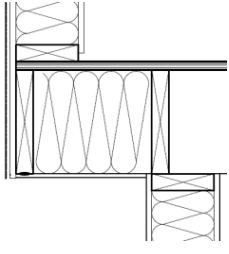
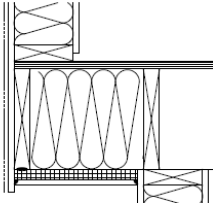
## Foundation

Required	Detail	Material*	Thickness
Option #1 R-15 continuous		Polyisocyanurate (PIC): Interior ONLY	2.5"
		XPS: Interior or Exterior	3"
		EPS or mineral fiber board: Interior or Exterior	4"
Option #2 R-20 Cavity  2x6 stud-wall		Cellulose	5.5"
		Mineral wool	5.5"
		Open or closed cell spray foam	5.5" open cell / 3.5" closed cell

\*Additional note:

If using air permeable insulation such as cellulose or mineral wool, avoid vapor barrier material on warm side of basement cavity wall insulation.

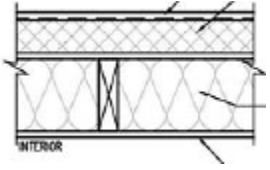
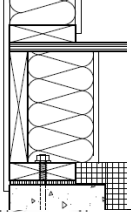
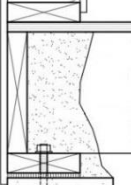
## Exposed / cantilevered floors

Required	Detail	Material*	Thickness
R-38 Cavity		Cellulose	10.5" (requires 2x12 framing)
		Fiberglass batts	10.25" (rated R-38 → requires 2x12 framing)
		XPS	8" (requires 2x10 framing)
		Closed cell spray foam (CCF)	6.5" (requires 2x8 framing)
Alternative	Detail	Material*	Thickness
R-30 cavity <b>plus</b> R-5 continuous		Cellulose, plus XPS or PIC	2x10 full cavity plus 1"
		Fiberglass batts, plus XPS or PIC	2x10 full cavity plus 1"
		CCF, plus XPS or PIC	5" cavity plus 1"
		XPS or PIC, both cavity and continuous	6" cavity plus 1"

\*Additional note:

Insulation must be in contact with the warm floor above. For insulation other than spray foam, the easiest way to achieve this is to fill the entire cavity with insulation.

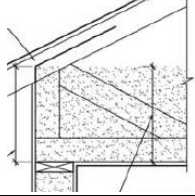
## Above grade walls and Rim/band joists

Above grade walls			
Required*	Detail	Material	Thickness
R-5 continuous  Minimum R-26 total wall assembly		Cellulose, fiberglass, mineral wool, open or closed cell foam, XPS, PIC	See "Residential New Construction <i>Continuous Insulation Reference</i> "
Rim/band joists			
Required*	Detail	Material	Thickness
R-5 continuous  Minimum R-26 total assembly		Cellulose, fiberglass, mineral wool, open or closed cell foam, XPS, PIC	See "Residential New Construction <i>Continuous Insulation Reference</i> "
		Closed Cell Spray Foam or rigid foam board	3.5" CCSF or XPS/PIC cavity with 1" min XPS continuous

\*Additional notes on Above grade walls and Rim/band joists:

It is critical to design smartly to avoid moisture and other issues. Refer to the Residential New Construction *Continuous Insulation Reference* (2-page guide) for pointers.

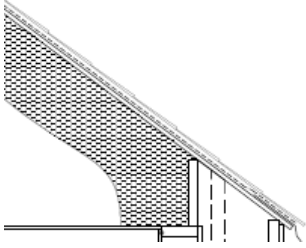
## Attics

Required R-60	Detail	Material	Thickness
		Cellulose	18"
		Blown fiberglass	20"

Additional note:

Must have 8" minimum depth of insulation at exterior edge of wall top plate.

## Cathedral Ceilings/Slopes

Required R-49	Detail	Material	Thickness
		Cellulose (dense-packed)	13.25" (requires 14" TJI or comparable rafter)
		Mineral wool	12.25" (requires 14" TJI or comparable rafter)
		CCF	8" (requires 2x10 rafters)
		XPS	10" (requires 2x12 rafters)

Additional note:

Insulation must be in contact with ceiling when using cellulose or mineral wool insulation.

## Windows and Doors

Windows and Doors: U-factor 0.28 or **less**