

SLAB-ON-GRADE INSULATION FOR NEW DWELLINGS OREGON RESIDENTIAL SPECIALTY CODE (ORSC)

This document highlights the intent of the Oregon Residential Specialty Code (ORSC) when installing perimeter insulation to slab-on-grade floors and provides compliant construction detail examples.

SECTION N1104.7—SLAB-ON-GRADE FLOORS

Section N1104.7 of the ORSC requires that the perimeter of slab-on-grade floors shall be insulated. The insulation shall extend downward from the top of the slab for a minimum of 24 inches *or* downward to the bottom of the slab, *then* horizontally beneath the slab for a minimum *total* distance of 24 inches. Table N1101.1(1) specifies this requirement along with the minimum insulation value of R-15.

There is an exception for monolithic slabs that allows for the insulation to extend downward from the top of the slab to the bottom of the thickened edge.

Section N1104.7.1 requires that slab-on-grade floors with hydronic heat insulate the entire underside of the slab to R-10 *in addition* to perimeter insulation.

The perimeter insulation is allowed to be installed on the exterior of the slab *or* the interior (if not a monolithic slab). The minimum total distance of 24 inches may be a combination of the horizontal and vertical planes. If a horizontal plane is used on the *exterior* of the slab, it must be a minimum of 12 inches below finish grade.

**TABLE N1101.1(1)
PRESCRIPTIVE ENVELOPE REQUIREMENTS^a**

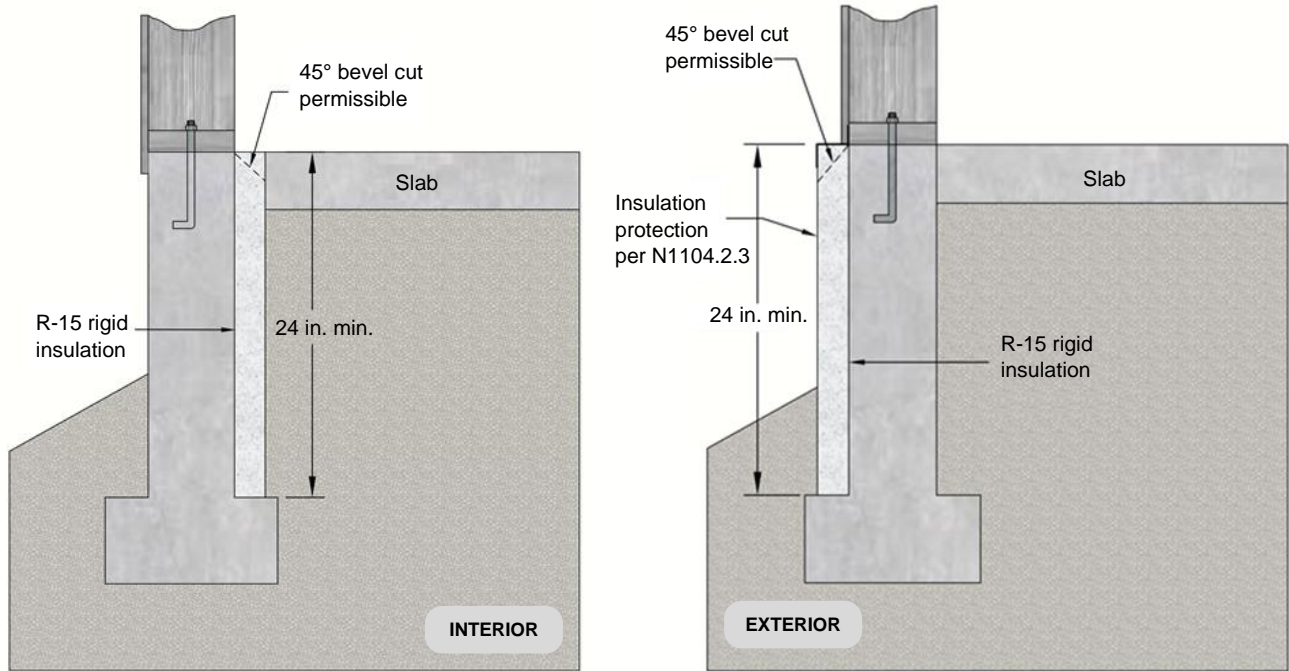
BUILDING COMPONENT	STANDARD BASE CASE		LOG HOMES ONLY	
	Required Performance	Equiv. Value ^b	Required Performance	Equiv. Value ^b
Wall insulation—above grade	U-0.059 ^c	R-21 Intermediate ^c	Note d	Note d
Wall insulation—below grade ^e	C-0.063	R-15 c.i./R-21	C-0.063	R-15/R-21
Flat ceilings ^f	U-0.021	R-49	U-0.020	R-49 A ^h
Vaulted ceilings ^g	U-0.033	R-30 Rafter or R-30A ^{g, h} Scissor Truss	U-0.027	R-38A ^h
Underfloors	U-0.033	R-30	U-0.033	R-30
Slab-edge perimeter ^m	F-0.520	R-15	F-0.520	R-15
Heated slab interior ⁱ	n/a	R-10	n/a	R-10
Windows ^j	U-0.27	U-0.27	U-0.27	U-0.27
Skylights	U-0.50	U-0.50	U-0.50	U-0.50
Exterior doors ^k	U-0.20	U-0.20	U-0.54	U-0.54
Exterior doors with > 2.5 ft ² glazing ^l	U-0.40	U-0.40	U-0.40	U-0.40

m. Minimum 24-inch horizontal or vertical below-grade.

SECTION DRAWING EXAMPLES

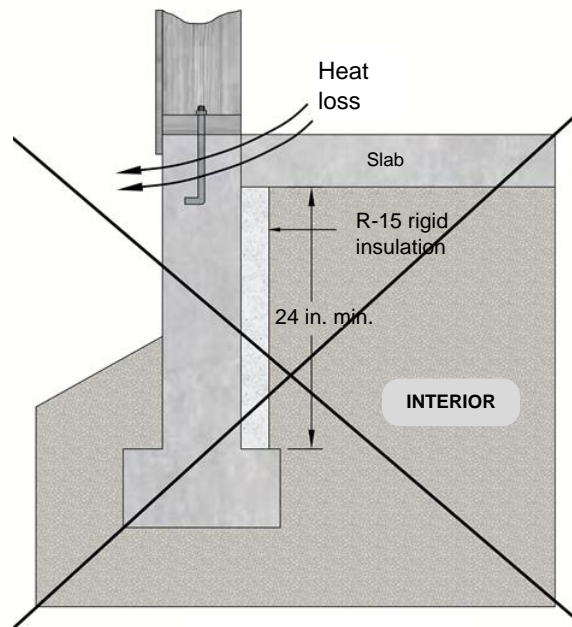
ACCEPTABLE

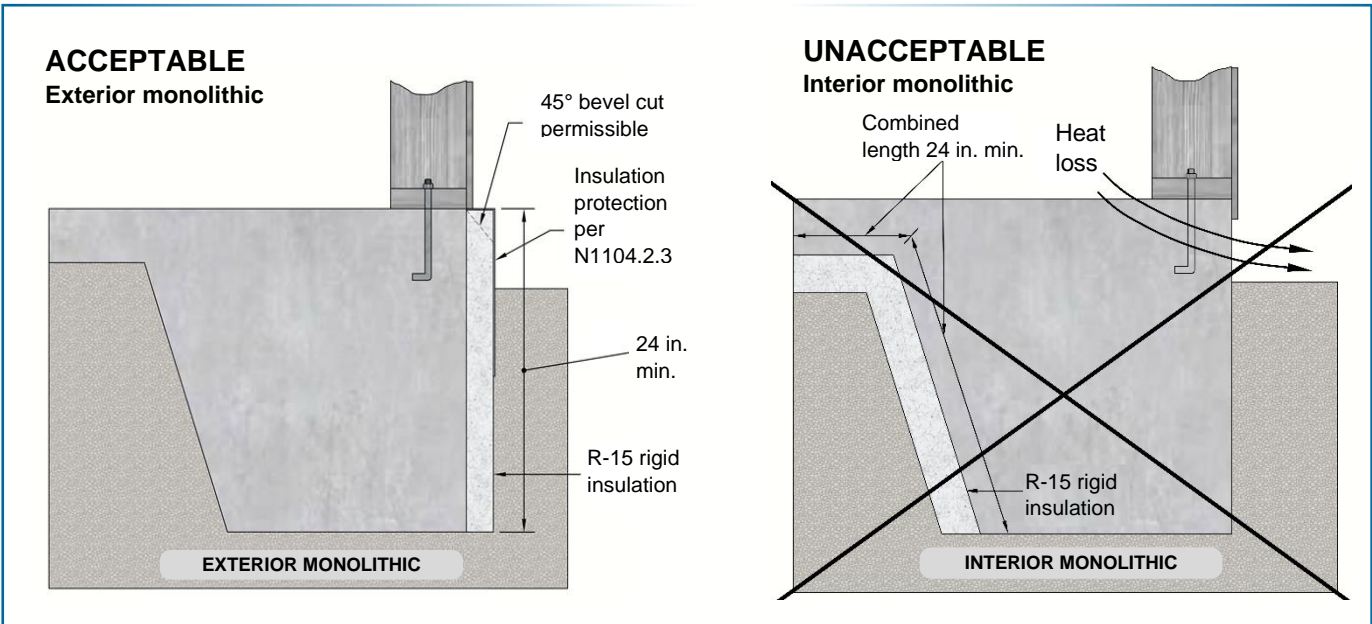
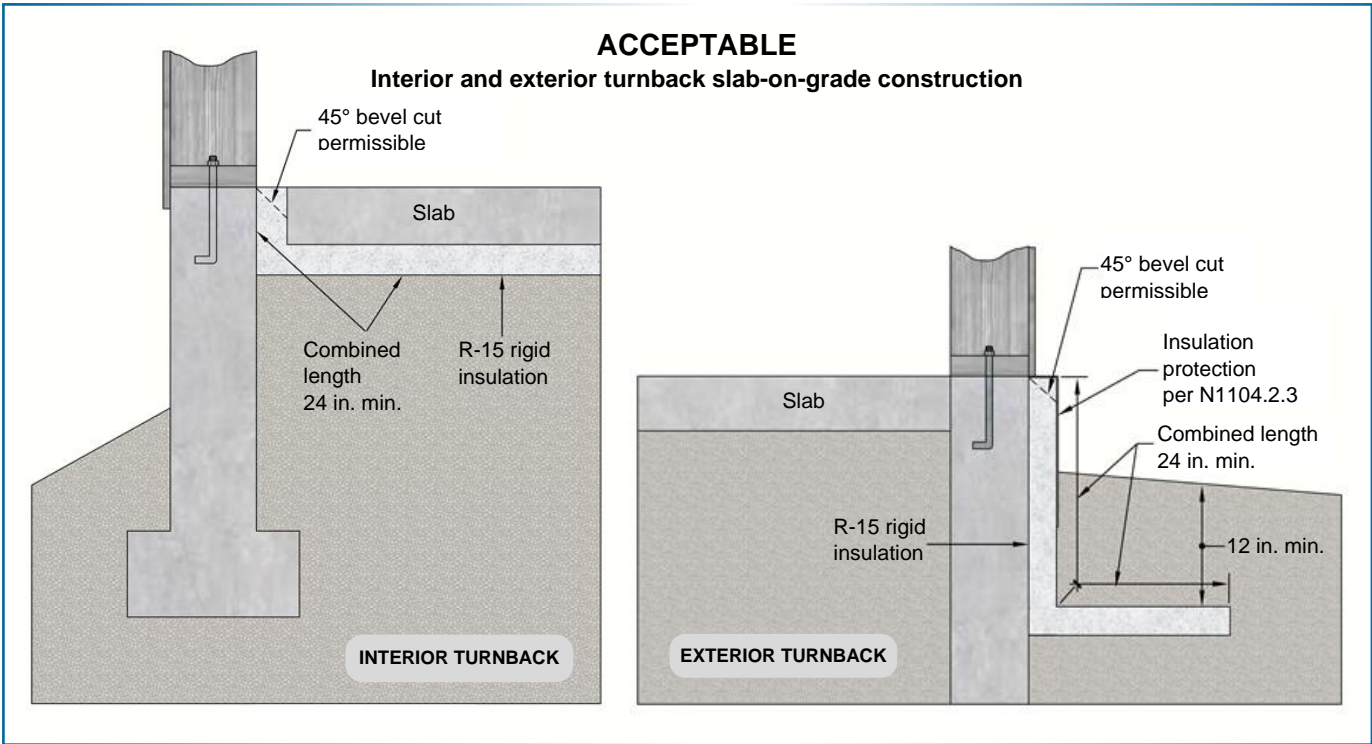
Perimeter insulation configurations for stem wall slab-on-grade construction



UNACCEPTABLE

Interior stem wall slab-on-grade construction





CONCLUSION

There are many ways to properly insulate slab-on-grade floors with perimeter insulation. There are also many ways to *not* properly insulate slab-on-grade floors with perimeter insulation. The section drawings provide clarity through a few scenarios, but not all possible scenarios, relative to what is intended by the ORSC.

As with all site-specific matters, the division’s technical team recommends beginning development discussions early in the initial planning stages. This technical recommendation also reminds the end user that local building officials retain broad local flexibility and discretionary authority.