

Existing Homes

Additions, alterations and repairs to existing homes, conducted after March 1, 2015, must comply with the requirements in Chapter 4. The following are circumstances where existing homes must comply with the Code.

- ★ **Additions:** Any extension or increase in the conditioned space floor area or height of a building or structure.
- ★ **Alterations:** Any construction, retrofit or renovation to an existing structure other than repair or addition. Also, a change in a building, electrical, gas, mechanical or plumbing system that involves an extension, addition or change to the arrangement, type or purpose of the original installation.
- ★ **Repairs:** The reconstruction or renewal of any part of an existing building for the purpose of its maintenance or to correct damage.
- ★ **Changes in Space Conditioning:** Any nonconditioned or low-energy space that is altered to become conditioned space.
- ★ **Changes in Use:** Spaces undergoing a change in use that would result in an increase in demand for either fossil fuel or electrical energy.
- ★ Major renovations to homes under an Act 250 permit that trigger an Act 250 permit amendment request would need to follow Stretch Code requirements after December 1, 2015.
- ★ **Historic Buildings:** Construction, repair, alteration, restoration and movement of structures, and change of occupancy related to a historic building need to comply unless a "Historic Building Exemption Report" has been submitted to the State Historic Preservation Office (SHPO) and has been signed by the owner or registered design professional demonstrating that compliance with a particular provision would threaten, degrade or destroy the historic form, fabric or function of the building. The SHPO will review and validate the exemption request. A template for the report is available on both the SHPO and PSD websites.

Section 4.1

Exceptions

The following building conditions do not have to comply with any of the Code requirements:

1. Unaltered portions of the existing building or building supply system.
2. Storm windows installed over existing fenestration
3. Connections or repairs to, or maintenance of existing mechanical systems do not constitute an alteration to that system.

4. Where ducts from an existing heating and cooling system are extended to an addition, duct systems with less than 40 linear feet in unconditioned spaces are not required to be tested.
5. Glass-only replacements in an existing sash and frame.
6. Existing ceiling, wall or floor cavities exposed during construction, provided that these cavities are filled with insulation.
7. Construction where the existing roof, wall or floor cavity is not exposed.
8. Reroofing projects where neither the sheathing nor the insulation is exposed. If either the sheathing or insulation is exposed, then the cavity needs to be filled with insulation; this does not require building the roof up. Roofs without insulation in the cavity and where the sheathing or insulation is exposed during reroofing must be insulated either above or below the sheathing.
9. Alterations that replace less than 50% of the permanent light fixtures in the space where the alteration is taking place, provided that such alterations do not increase the installed interior lighting power.
10. Alterations or repairs that replace only the bulb and ballast within the existing light fixtures in a space provided that the alteration does not increase the installed interior lighting power.

Section 4.2

Compliance

Portions of the building that are altered must be brought into full compliance with the code that relates to that portion of the building with above exceptions. An addition shall be deemed to comply with this code where the addition alone complies or where the existing building and addition comply with this code as a single building. Alterations and repairs shall be such that the existing building or structure is no less conforming to the provisions of this code than the existing building or structure was prior to the alteration.

Compliance can be achieved through any of the compliance paths, which include the following approaches: Prescriptive (see Table 4-1), REScheck software (see Chapter 6), or a Home Energy Rating System (HERS) rating (see Chapter 7). For renovations, remodeling, or additions, a Home Energy Rating can be used to demonstrate compliance by rating the entire building, including the new and remodeled portions. Rating the entire building requires including both the existing and new sections of the building, to meet either the maximum HERS of 60 for base code or 54 for stretch code.

Table 4-1

Prescriptive Requirements Existing Homes ~ Additions, Alterations and Repairs	
<i>Component</i>	<i>Requirement</i>
1. Ceiling R-Value*	R-49
2. Above-Grade Wall R-value*	R-13 + 10
3. Floor R-value*	R-30
4. Basement/Crawl Space Wall R-value	R-15/20
5. Slab Edge R-value	R-15, 4ft
6. Heated Slab R-value (Edge and Under)	R-15
7. Window and Door U-value	0.32
8. Skylight U-value	0.55
9. Maximum Air Leakage	Complete Air Sealing Checklist or 3 ACH50
10. Maximum Duct Leakage	CFM25 / 100 CFA

*Or insulation level sufficient to fill cavity

Table Qualifiers

These guidelines apply to all "Prescriptive Requirements" tables in this Handbook.

- A Thermal Values:** Use the nominal thermal values listed by the manufacturer. If the home's design specifies a component that has two different thermal values (i.e., R-38 ceiling and R-49 ceiling), an average R-value must be calculated for comparison. (See Section 3.5a.)
- B Wall R-Values:** "13+10" means R-13 cavity insulation plus R-10 insulated sheathing. R-25 can be met through any combination of cavity and continuous insulation. If structural sheathing covers 40% or less of the exterior, the continuous insulation R-value can be reduced by up to R-3 to maintain a consistent total sheathing thickness on areas of the walls covered by structural sheathing. If structural sheathing covers more than 40% of exterior, structural sheathing shall be supplemented with insulated sheathing of at least R-2. However, the insulation strategy (including the insulated sheathing R-value) and vapor retarder specification must comply with Section 2.1c for moisture vapor control.
- C Window U-Values:** Window U-value is the average U-value for all glazing, including windows, and sliding and patio doors. Replacement windows must have an average U-value of 0.32. (See Section 3.5b to calculate average U-values.)
- D Window and Door Exemptions:** You can exclude up to 15 square feet of glazed fenestration area from the calculation of average U-value for windows, and one door (up to 24 square feet) from the calculation of average U-value for doors.
- E Default Thermal Values:** See Appendix B. Flat and sloped ceiling R-values assume standard truss. However, if a raised truss is used, the requirement for R-49 may be reduced to R-38 and the requirement for R-60 may be reduced to R-49. See page 38 for an example.
- F Ceilings Without Attics:** For ceilings without attic spaces (vaulted ceilings), R-30 is allowed for up to 500 square feet or 20% of the total insulated ceiling area, whichever is less.
- G Ceilings With Attics:** For ceilings with attic spaces, R-38 is allowed to satisfy the requirement for R-49 wherever the full height of uncompressed R-38 insulation extends over the wall top plate at the eaves.
- H Slab Edge Insulation:** Thermal values in this table require the following configurations: slab edge insulation must extend 4 feet or a combination of depth and width that equals 4 feet. Exemption: Up to 8 lineal feet of exposed slab edge may be insulated to R-10.
- I Basement/Crawl Space R-Values:** "15/20" means R-15 continuous insulated sheathing on the interior or exterior of the home or R-20 cavity insulation at the interior of the basement wall. "15/20" is allowed to be met with R-13 cavity insulation on the interior of the basement wall plus R-5 continuous insulated sheathing on the interior or exterior of the home. Crawl space wall insulation must cover the full height of the wall and extend to a depth 12 inches below grade and basement wall insulation must cover the full height of the basement wall.
- J Hatches:** Access hatches and doors must be insulated to the same level as the surrounding surface. Vertical doors that provide access to attic spaces must meet the window and door requirements from Table 5-1.
- K Unconditioned Spaces:** Components that enclose unconditioned spaces do not need to be considered.
- L Heated Slabs:** In addition to R-15 slab edge insulation, R-15 insulation is required beneath the entire slab for radiant or directly heated slabs.
- M Thermal Values That Do Not Apply:** Ignore the values in the table if the building component is not part of the home.
- N Sunrooms:** All sunrooms must meet the basic requirements and the Prescriptive requirements outlined above. For sunrooms with *thermal isolation*, the minimum ceiling insulation R-values must be R-30; the minimum wall R-value must be R-13; and the maximum fenestration U-factor must be 0.45.
- O Eave Baffle:** Eave baffles must be installed over soffit and eave vents where air-permeable insulation is used in vented attics.
- P Unvented Attics:** Unvented attics must meet the requirements of Section C.1d
- Q Floors:** Floors must be insulated to R-30 or to a level sufficient to fill the framing cavity.