

Table R402.1.1 Insulation and Fenestration Requirements by Component^a

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	0.32	0.55	NR	49	20 or 13+5 ^h	13/17	30 ^g	15/19	10, 2 ft	15/19
6	0.32	0.55	NR	49	20+5 or 13+10 ^h	15/20	30 ^g	15/19	10, 4 ft	15/19
7 and 8	0.32	0.55	NR	49	20+5 or 13+10 ^h	9/21	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 of the insulation, the installed R-value of the installation 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 a 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.

Additional Resources

US Dept. of Energy:
www.energy.gov

Building Performance Institute:
www.bpi.org

RESCheck Download:
www.energycodes.gov/rescheck

Residential Energy Services Network:
www.resnet.us/energy-rating

Energy Star:
www.energystar.gov

Division of Energy & Climate
 1203 College Park Drive
 Suite 101
 Dover, DE 19904

Phone: (302)735-3480
 Fax: (302)739-1840
www.dnrec.delaware.gov/energy



Residential Changes in Delaware from the 2009 to the 2012 International Energy Conservation Code


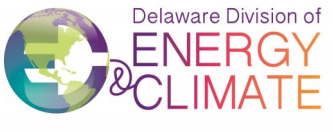


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What changes have been made?

A summary of changes found in the 2012 International Energy Conservation Code (IECC) can be found below. This edition will replace the currently enforced 2009 IECC. As before, the total UA (REScheck) and performance paths are permitted alternatives to a prescriptive approach.

The 2012 IECC was adopted May 1, 2014 and will be enforceable **November 11, 2014**.

If you would like additional information regarding these changes, or any additional requirements, please visit www.dnrec.delaware.gov/energy.

2012 IECC	Changes
R401.3	Energy sticker must now include duct blast and blower door test results.
Table R402.1.1	See highlighted areas of included table (<i>see back of pamphlet</i>).
R402.2.3	Eave baffles are now required for vented attic spaces.
R402.2.12	Conditioned sunrooms that are separated from the structure with an insulated (exterior) door may reduce the ceiling R-value to R-19 and the wall insulation to R-13.
R402.3.5	Window and door U-values for conditioned sunrooms that are separated from the structure with an insulated (exterior) door may be increased to 0.45 and skylight U-values may be increased to 0.70.
R402.4.1.2	An exception has been added to increase the amount of allowed leakage for homes below 2000 sq.ft. if it is tested to have an air leakage rate no greater than: 5 ACH-50 for homes with <1,500 sq.ft. of CFA, or 4 ACH-50 for homes with 1,500-2,000 sq.ft. of CFA.
402.4.2.2*	Visual inspection for air leakage will no longer be performed. All structures are now required to pass blower door testing to verify it is sealed properly.
R402.4.2	The requirement for new wood burning fireplaces to have a gasketed door has been changed to requiring tight fitting flue dampers and outdoor combustion air in lieu of a gasketed door.
R403.2.2	Duct leakage rates are now: 1. Post-construction test: Total leakage less than or equal to 6 cfm per square feet of conditioned floor area when tested at the pressure differential of 25 Pa. 2. Rough-in test: Total leakage less than or equal to 6 cfm per square feet of conditioned floor area when tested at the pressure differential of 25 Pa.
R403.2.2.1	Air handlers must be factory tested and labeled showing that they have an air leakage of less than or equal to 2% of the design air flow.

2012 IECC	Changes
R403.2.3	Building framing cavities cannot be used as ducts or plenums except as returns run exclusively through conditioned space.
R403.3.1	Pipe insulation is now required to be protected from damage including but not limited to sunlight, moisture, equipment maintenance, and wind.
R403.4.2	Piping insulation is now required in the following locations: 1. Piping larger than 3/4 inch nominal diameter. 2. Piping serving more than one dwelling unit. 3. Piping located outside the conditioned space. 4. Piping from the water heater to a distribution manifold. 5. Piping under a floor slab. 6. Buried piping.
R403.5	Mechanical ventilation is now required for the entire structure and must meet the requirements of either the IRC or the IMC, as applicable, or with other approved means of ventilation.
R403.5.1	If a whole house ventilation unit is used for mechanical ventilation, it must comply with Table R403.5.1 in the 2012 IECC.
R403.6	In addition to the Manual J calculations, a Manual S is now required per the 2012 IECC and a Manual D is now required per the 2012 IRC.
R404.1	The amount of high efficiency lamps in permanent fixtures has increased from 50% up to 75%.

*Section appeared in 2009 IECC; has been removed in 2012 version of IECC.

Who can conduct duct blast and/or blower door tests?

All testing for duct and building envelope tightness must be conducted by a certified Duct and Envelope Tightness (DET) verifier.

A certified DET verifier shall be:

- ⇒ A certified Home Energy Rating Systems (HERS) rater;
- ⇒ A certified Home Performance with Energy Star contractor;
- ⇒ A Building Performance Institute (BPI) Heating Professional,¹ Building Analyst,² or Envelope Professional;²

OR

- ⇒ An individual who has successfully completed a course that is approved by the Department of Natural Resources & Environmental Control (DNREC).

¹BPI Heating Professionals may conduct duct blast tests **ONLY**.

²BPI Building Analysts and Envelope Professionals may conduct blower door tests **ONLY**.