County of Pulaski

ENERGY COMPLIANCE

The information herein is the most common for how to gain compliance with the energy code for residential projects and is not representative of all the conditions you may encounter.

Contact and locate us…

Building and Zoning Departments
Pulaski County Administration Building
First Floor
143 Third St. NW, Suite 1
Pulaski, VA 24301
540-980-7710 (telephone)
540-980-7717 (fax)

Hours of Operation
Monday - Friday
7:30 am - 4:30 pm

Environmental Health Department
Pulaski County Administration Building
Basement
143 Third St. NW
Pulaski, VA 24301
540-980-994-5037

Miss Utility
Always call 811 before you dig.

Virginia Department of Professional and Occupational Regulation
1-804-367-8500
www.dpor.virginia.gov

Who should apply for the permit?

Homeowners may obtain permits. However, it is strongly recommended your properly licensed contractor pull the permit as the responsible party so the county can better assist you in gaining compliance for defective work.

NEW HOMES, ADDITIONS AND SUNROOMS

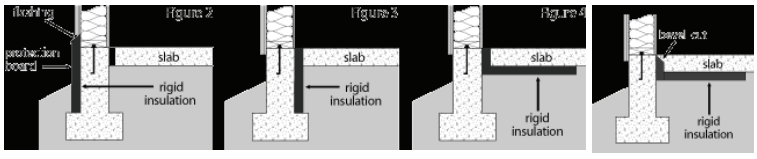
Consider the following when complying with the energy conservation requirements of the 2012 Virginia Residential Code.

- ◊ A **conditioned space** is an area within a building that is heated or cooled or has a fixed opening to an area that is heated or cooled.
- ◊ A **basement wall** is more than 50 percent below grade and encloses a conditioned space.
- ◊ Windows, skylights and glass doors are considered **glazing.**
- ◊ An **R-value** is a measurement of a material's thermal resistance (the higher, the better).
- ◊ A **U-factor** measures the ability of a material (glass) or assembly (window) to transfer heat (the lower the better).

DESIGN VALUES

Using the table below, install insulation or glazing with the R-values or U-factors shown, respectively. Higher insulation R-values are permitted provided their dimensions properly fit in the intended cavity. Glazing with lower U-factors than required are also permitted.

Element	New Homes, additions	Sunrooms
U-factor (maximum)		
Windows[1]	0.35	0.45
Doors[1]	0.35	0.45
Skylights[1]	0.45	0.70
R-value (minimum)		
Ceilings	38	19
Walls (wood framed)	15 or 13+1	13
Walls (concrete, CMU)	8/13	8/13
Floors	19	19
Basement Walls	10/13	10/13
Slab-on-grade[5]	10, 2F	10, 2F
Crawl Space Walls[6]	10/13	10/13



SLAB-ON-GRADE INSULATION REQUIREMENTS
(Insulation must extend from the slab edge to a length of 24" vertically and/or horizontally.)

REQUIRED INSPECTIONS FOR ENERGY COMPLIANCE

Air barrier: N1102.4.1.3

Tested air leakage is less than 5 ACH when tested with a door blower at a pressure of 50 pascals. Testing shall occur after rough-in installation of penetrations of the building envelope, including penetrations for utilities, plumbing, electrical, ventilation and combustion appliances.

- Blower Door Test:
  - Exterior windows, doors, fireplace and stove doors shall be closed – but not sealed.
  - Dampers shall be closed, but not sealed; including exhaust, intake, makeup air, back draft and flue dampers.
  - Interior doors shall be open.
  - Exterior openings for continuous ventilation systems and heat recovery ventilators shall be closed and sealed.
  - Heating and cooling system(s) shall be turned off.
  - HVAC ducts shall not be sealed.
  - Supply and return registers shall not be sealed.

If you choose this option the only energy inspection that our offices will perform will be the inspection of the thermal building envelope which includes the following items: Insulation of slabs, walls, ceilings, under floors, conditioned crawl spaces, attics and all items from 1102.4.1.1.1

- Visual Inspection Option:

Items listed in Table N1102.4.1.1 (R-402.4.1.1) must be inspected and field verified. All localities are requiring the visual inspection to be performed by an Approved Third Party Inspection Agency, Independent from the installers. Agency must be pre-approved. Must provide checklist of all items inspected per N1102.4.1.2.2 Must be submitted prior to issuance of the Certificate of Occupancy.

- Third Party Inspectors must be certified in one of the following categories.
  - BPI – Building Performance Institute
  - Resnet
  - AEE – Association of Energy Engineers
  - Other Approved Agencies

The Third Party Information MUST be submitted prior for approval of the Certification of the Third Party Agency.

- Final Inspection:
  - All test results shall be submitted at the final inspection request. Door blower, duct, third party, etc.
  - Insulators Certificate in place.
  - Programmable thermostat installed.
  - 50% of lights energy efficient.
  - Above Code Programs – All certificates submitted to the Building Officials office – PRIOR to request for final inspection.

INSULATORS ARE REQUIRED TO OBTAIN A PERMIT FOR ENERGY CONSERVATION WORK.

- N1102/IECC R402

N1102.4.1.3 (R402.4.1.3) Leakage Rate - The building or dwelling shall not have a leakage rate exceeding 5 Air Changes per hour (ACH)

Note: new section in IRC, R303.4 Mechanical Ventilation requires whole-house mechanical ventilation WHEN LESS THAN 5 ACH is obtained as verified by Blower Door Testing.

- N1102.2.3/IECC R402.2.3 Eave Baffle - Required in attic where air-permeable insulation is used.

TABLE N1102.4.1.1 (R402.4.1.1)
AIR BARRIER AND INSULATION INSTALLATION

COMPONENT	CRITERIA [a, b]
Air barrier and thermal barrier	A continuous air barrier shall be installed in the building envelope. Exterior thermal envelop contains a continues air barrier. Breaks or joints in the air barrier shall be sealed. Air permeable insulation shall not be used as a sealing material.
Ceiling/attic	The air barrier in any dropped ceiling/soffit shall be aligned with the insulation and any gaps in the air barrier sealed. Access openings, drop down stair or knee wall doors to unconditioned attic spaces shall be sealed.
Walls	Cavities within corners and headers shall be insulated by completely filling the cavity with a material having a minimum thermal resistance of R-3 per inch. The junction of the foundation and sill plate shall be sealed. The junction of the op plate and top of exterior walls shall be sealed. Exterior thermal envelope insulation for framed walls shall be installed in substantial contact and continuous alignment with the air barrier. Knee walls shall be sealed.
Windows, skylights and doors	The space between window/door jambs and framing and skylights and framing shall be sealed.
Rim joists	Rim joists shall be insulated and include the air barrier.
Floors (including above-garage and cantilevered floors)	Insulation shall be installed to maintain permanent contact with underside of subfloor decking. The air barrier shall be installed at any exposed edge of insulation.
Crawl space walls	Where provided in lieu of floor insulation, insulation shall be permanently attached to the crawlspace walls. Exposed earth in unvented crawl spaces shall be covered with a Class I vapor retarder with overlapping joints taped.
Shafts, penetrations	Duct shafts, utility penetrations, and flue shafts opening to exterior or unconditioned space shall be sealed.
Narrow cavities	Batts in narrow cavities shall be cut to fit, or narrow cavities shall be filled by insulation that on installation readily conforms to the available cavity space.
Garage separation	Air sealing shall be provided between the garage and conditioned spaces.
Recessed lighting	Recessed light fixtures installed in the building thermal envelope shall be air tight, IC rated, and sealed to the drywall.
Plumbing and wiring	Batt insulation shall be cut neatly to fit around wiring and plumbing in exterior walls, or insulation that on installation ready conforms to available space shall extend behind piping and wiring.
Shower/tub on exterior wall[c]	Exterior walls adjacent to showers and tubs shall be insulated, and an air barrier shall be installed on the interior side of the exterior wall, adjacent to the shower or tub.
Electrical/phone box on exterior walls	The air barrier shall be installed behind electrical or communication boxes or air-sealed boxes shall be installed.
HVAC register boots	HVAC register boots that penetrate building thermal envelope shall be sealed to the subfloor or drywall
Fireplace	An air barrier shall be installed on fireplace walls. Fireplaces shall have gasketed doors or tight-fitting flue dampers.

a. In addition, inspection of log walls shall be in accordance with the provisions of ICC-400.
b. Structural integrity of headers shall be in accordance with the applicable building code.
c. Air barriers used behind showers and tubs on exterior walls shall be of a permeable material that does not cause the entrapment of moisture in the stud cavity.