



REScheck Software Version 4.4.1 Compliance Certificate

Energy Code: **2009 IECC**
Location: **Montpelier, Vermont**
Construction Type: **Single Family**
Glazing Area Percentage: **12%**
Heating Degree Days: **7426**
Climate Zone: **6**

Construction Site:

Owner/Agent:

Designer/Contractor:

Compliance: Passes using UA trade-off

Compliance: **6.6% Better Than Code** Maximum UA: **61** Your UA: **57**

The % Better or Worse Than Code index reflects how close to compliance the house is based on code trade-off rules.
It DOES NOT provide an estimate of energy use or cost relative to a minimum-code home.

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Glazing or Door U-Factor	UA
Ceiling 1: Flat Ceiling or Scissor Truss	229	20.0	6.5		8
Wall 1: Wood Frame, 16" o.c.	449	14.0	6.5		19
Window 1: Vinyl Frame:Double Pane with Low-E	55			0.290	16
Door 1: Solid	22			0.200	4
Floor 1: All-Wood Joist/Truss:Over Outside Air	221	12.0	7.5		10

Compliance Statement: The proposed building design described here is consistent with the building plans, specifications, and other calculations submitted with the permit application. The proposed building has been designed to meet the 2009 IECC requirements in REScheck Version 4.4.1 and to comply with the mandatory requirements listed in the REScheck Inspection Checklist.

Name - Title

Signature

Date



REScheck Software Version 4.4.1

Inspection Checklist

Ceilings:

- Ceiling 1: Flat Ceiling or Scissor Truss, R-20.0 cavity + R-6.5 continuous insulation

Comments: _____

Above-Grade Walls:

- Wall 1: Wood Frame, 16" o.c., R-14.0 cavity + R-6.5 continuous insulation

Continuous insulation specified for this above-grade wall has consistent R-value rating across full area of the wall.

Comments: _____

Windows:

- Window 1: Vinyl Frame:Double Pane with Low-E, U-factor: 0.290

For windows without labeled U-factors, describe features:

#Panes ____ Frame Type _____ Thermal Break? ____ Yes ____ No

Comments: _____

Doors:

- Door 1: Solid, U-factor: 0.200

Comments: _____

Floors:

- Floor 1: All-Wood Joist/Truss:Over Outside Air, R-12.0 cavity + R-7.5 continuous insulation

Comments: _____

Floor insulation is installed in permanent contact with the underside of the subfloor decking.

Air Leakage:

- Joints (including rim joist junctions), attic access openings, penetrations, and all other such openings in the building envelope that are sources of air leakage are sealed with caulk, gasketed, weatherstripped or otherwise sealed with an air barrier material, suitable film or solid material.
- Air barrier and sealing exists on common walls between dwelling units, on exterior walls behind tubs/showers, and in openings between window/door jambs and framing.
- Recessed lights in the building thermal envelope are 1) type IC rated and ASTM E283 labeled and 2) sealed with a gasket or caulk between the housing and the interior wall or ceiling covering.
- Access doors separating conditioned from unconditioned space are weather-stripped and insulated (without insulation compression or damage) to at least the level of insulation on the surrounding surfaces. Where loose fill insulation exists, a baffle or retainer is installed to maintain insulation application.
- Wood-burning fireplaces have gasketed doors and outdoor combustion air.

Air Sealing and Insulation:

- Building envelope air tightness and insulation installation complies by either 1) a post rough-in blower door test result of less than 7 ACH at 33.5 psf OR 2) the following items have been satisfied:
 - (a) Air barriers and thermal barrier: Installed on outside of air-permeable insulation and breaks or joints in the air barrier are filled or repaired.
 - (b) Ceiling/attic: Air barrier in any dropped ceiling/soffit is substantially aligned with insulation and any gaps are sealed.
 - (c) Above-grade walls: Insulation is installed in substantial contact and continuous alignment with the building envelope air barrier.
 - (d) Floors: Air barrier is installed at any exposed edge of insulation.
 - (e) Plumbing and wiring: Insulation is placed between outside and pipes. Batt insulation is cut to fit around wiring and plumbing, or sprayed/blown insulation extends behind piping and wiring.
 - (f) Corners, headers, narrow framing cavities, and rim joists are insulated.
 - (g) Shower/tub on exterior wall: Insulation exists between showers/tubs and exterior wall.

Sunrooms:

- Sunrooms that are thermally isolated from the building envelope have a maximum fenestration U-factor of 0.50 and the maximum skylight U-factor of 0.75. New windows and doors separating the sunroom from conditioned space meet the building thermal envelope requirements.

Materials Identification and Installation:

- Materials and equipment are installed in accordance with the manufacturer's installation instructions.
- Insulation is installed in substantial contact with the surface being insulated and in a manner that achieves the rated R-value.
- Materials and equipment are identified so that compliance can be determined.
- Manufacturer manuals for all installed heating and cooling equipment and service water heating equipment have been provided.
- Insulation R-values and glazing U-factors are clearly marked on the building plans or specifications.

Duct Insulation:

- Supply ducts in attics are insulated to a minimum of R-8. All other ducts in unconditioned spaces or outside the building envelope are insulated to at least R-6.

Duct Construction and Testing:

- Building framing cavities are not used as supply ducts.
- All joints and seams of air ducts, air handlers, filter boxes, and building cavities used as return ducts are substantially airtight by means of tapes, mastics, liquid sealants, gasketing or other approved closure systems. Tapes, mastics, and fasteners are rated UL 181A or UL 181B and are labeled according to the duct construction. Metal duct connections with equipment and/or fittings are mechanically fastened. Crimp joints for round metal ducts have a contact lap of at least 1 1/2 inches and are fastened with a minimum of three equally spaced sheet-metal screws.

Exceptions:

Joint and seams covered with spray polyurethane foam.

Where a partially inaccessible duct connection exists, mechanical fasteners can be equally spaced on the exposed portion of the joint so as to prevent a hinge effect.

Continuously welded and locking-type longitudinal joints and seams on ducts operating at less than 2 in. w.g. (500 Pa).

- Duct tightness test has been performed and meets one of the following test criteria:
 - (1) Postconstruction leakage to outdoors test: Less than or equal to 17.7 cfm (8 cfm per 100 ft² of conditioned floor area).
 - (2) Postconstruction total leakage test (including air handler enclosure): Less than or equal to 26.5 cfm (12 cfm per 100 ft² of conditioned floor area) pressure differential of 0.1 inches w.g.
 - (3) Rough-in total leakage test with air handler installed: Less than or equal to 13.3 cfm (6 cfm per 100 ft² of conditioned floor area) when tested at a pressure differential of 0.1 inches w.g.
 - (4) Rough-in total leakage test without air handler installed: Less than or equal to 8.8 cfm (4 cfm per 100 ft² of conditioned floor area).

Heating and Cooling Equipment Sizing:

- Additional requirements for equipment sizing are included by an inspection for compliance with the International Residential Code.
- For systems serving multiple dwelling units documentation has been submitted demonstrating compliance with 2009 IECC Commercial Building Mechanical and/or Service Water Heating (Sections 503 and 504).

Circulating Service Hot Water Systems:

- Circulating service hot water pipes are insulated to R-2.
- Circulating service hot water systems include an automatic or accessible manual switch to turn off the circulating pump when the system is not in use.

Heating and Cooling Piping Insulation:

- HVAC piping conveying fluids above 105 degrees F or chilled fluids below 55 degrees F are insulated to R-3.

Swimming Pools:

- Heated swimming pools have an on/off heater switch.
- Pool heaters operating on natural gas or LPG have an electronic pilot light.
- Timer switches on pool heaters and pumps are present.

Exceptions:

Where public health standards require continuous pump operation.

Where pumps operate within solar- and/or waste-heat-recovery systems.

- Heated swimming pools have a cover on or at the water surface. For pools heated over 90 degrees F (32 degrees C) the cover has a minimum insulation value of R-12.

Exceptions:

Covers are not required when 60% of the heating energy is from site-recovered energy or solar energy source.

Lighting Requirements:

- A minimum of 50 percent of the lamps in permanently installed lighting fixtures can be categorized as one of the following:
 - (a) Compact fluorescent
 - (b) T-8 or smaller diameter linear fluorescent
 - (c) 40 lumens per watt for lamp wattage ≤ 15
 - (d) 50 lumens per watt for lamp wattage > 15 and ≤ 40
 - (e) 60 lumens per watt for lamp wattage > 40

Other Requirements:

- Snow- and ice-melting systems with energy supplied from the service to a building shall include automatic controls capable of shutting off the system when a) the pavement temperature is above 50 degrees F, b) no precipitation is falling, and c) the outdoor temperature is above 40 degrees F (a manual shutoff control is also permitted to satisfy requirement 'c').

Certificate:

- A permanent certificate is provided on or in the electrical distribution panel listing the predominant insulation R-values; window U-factors; type and efficiency of space-conditioning and water heating equipment. The certificate does not cover or obstruct the visibility of the circuit directory label, service disconnect label or other required labels.

NOTES TO FIELD: (Building Department Use Only)



2009 IECC Energy Efficiency Certificate

Insulation Rating	R-Value
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Ceiling / Roof	26.50
Wall	20.50
Floor / Foundation	19.50
Ductwork (unconditioned spaces):	_____

Glass & Door Rating	U-Factor	SHGC
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Window	0.29	0.30
Door	0.20	NA

Heating & Cooling Equipment	Efficiency
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Heating System: _____	_____
Cooling System: _____	_____
Water Heater: _____	_____

Name: _____ Date: _____

Comments: