New Hampshire Residential Energy Code Application

for Certification of Compliance for New Construction, Additions and/or Renovations of Detached One- and Two-family dwellings and multi-family dwellings (townhouses) not over 3 stories

EC-1 Form

Minimum Provisions from 2018 IRC Chapter 11 Effective Date: July 1, 2022

Owner/Owner Builder: Company Name: (if applicable)			**General Contractor:** Company Name:		
Name:			Name:		
Mail Address:			Mail Address:		
Town/City:	State:	Zip:	Town/City:	State:	Zip:
Phone:	Cell:		Phone:	Cell:	
E-Mail:			E-Mail:		

Location of Proposed Structure:

Tax Map #: Lot #:

Street:

Town/City: County:

Type of Construction:

○ **Residential** ○ **Small Commercial**

○ New Building ○ Renovation ○ Addition

○ Thermally Isolated Sunroom

○ Modular Home: the site contractor must submit this form detailing supplementary rooms and Floor and/or Basement insulation unless the floor insulation is installed or provided by the manufacturer and no heated space is added.

Zone 5 ○ Cheshire, Hillsborough, Rockingham Strafford

Zone 6 ○ All other NH counties **and town of Durham**

Total New Conditioned* Floor Area:

_____ ft²

Basement or Crawl Space type: (*a conditioned space is one being heated/cooled, containing uninsulated ducts or w/ a fixed opening into conditioned space. Walls must be insulated)

Conditioned? ○ Yes (Walls must be insulated) ○ No

☐ Full Basement ☐ Walk Out Basement

☐ Slab on Grade ☐ Other _____

Structure is EXEMPT because:

☐ Mobile Home ☐ On an historic register

Form Submitted by:

☐ Owner ☐ Builder ☐ Other _____

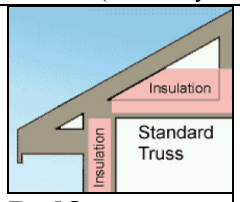
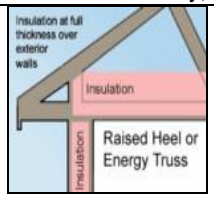
I hereby certify that all the information contained in this application is true and correct, and construction shall comply in all respects with the terms and specifications of the approval given by the local municipal code official or New Hampshire Department of Energy.

Signature_____ **Print Name**_____ **Date**_____

Official Use Only		
Date Complete Application Received:	**Approved by:**	**Date:**
Approval Number:	**Stamp:**	

Directions: Complete the "Your Proposed Structure" columns. No measurements or calculations are needed. Copies of plans are NOT needed. If you at least meet the Energy Code requirements, your project will be approved. Write N/A in any section that does not apply to your project. If your planned structure does meet these requirements, consider downloading REScheck http://www.energycodes.gov/rescheck to explore energy modelling options. **Please submit pages 1 and 2 only.**

YOUR PROPOSED STRUCTURE

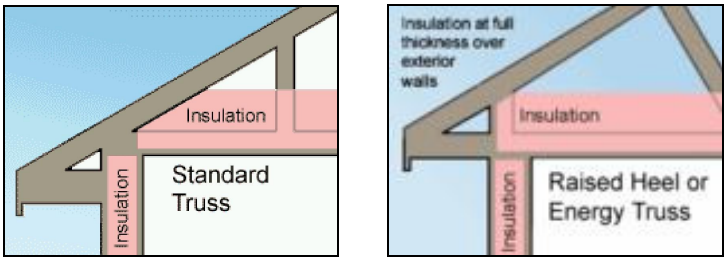
Building Section	Required R or U Values	Write Planned R and U Values	Brands / Models / insulation type and thickness (if known)
Window U Factor (lower U is better)	**U .30** (maximum) **U-.32** (if log walls in Zone 5) **U-.30** (if log walls in Zone 6) **U .45** (Thermally Isolated Sunrooms only)	Write in U-Value	Check if ☐ **Sunroom** ☐ **Log Walls**
Skylights	**U .55 (or less)** **U .70** (Thermally Isolated Sunrooms only)		
Flat Ceiling[i] *or* **Flat Ceiling with Raised or Energy Trusses R-value**	 **R-49** (Zone 5 or 6) if using the above construction technique **R-49** if log walls  **R-38** (Zone 5 or 6) if maintaining the full R value over the plates **R-49** if log walls	Write in R-Value → If using only R-38 in Zone 5 or 6 you must check this box	NOTE: R-38 will satisfy the requirement for R-49 if the full R-38 insulation value is maintained over the outside plates. **If using only R-38 (Zone 5 or 6), you must certify that you will maintain R-38 over the plates by checking the box below.** ☐ ***By checking this box, I certify that this structure is being built with a raised energy truss or that the full R-value of the ceiling insulation will be maintained over the outside plates.***
Sloped or Cathedral Ceiling	**R-30** (Zone 5 & 6) if less than 500 ft sq or 20% of total ceiling area or as above **R-24** (Thermally Isolated Sunrooms only)	Write in R-Value	Check if ☐ **Sunroom**
Above Grade Wall[ii] **R-value**	**Zone 5:** **R-20** Cavity Insulation only *or* **R-13** *plus* **R-5** Cavity *plus* Continuous Insulation **R-13** (Thermally Isolated Sunrooms only) **Zone 6:** **R-20** plus R-5 Cavity *plus* Continuous Insulation *or* **R-13** *plus* **R-10** Cavity *plus* Continuous Insulation **R-13** (Thermally Isolated Sunrooms only)	Write in R-Value	Log homes must comply with ICC400-2012, have an average minimum wall thickness of 5" or greater with specific gravity of ≤0.5 or 7" with specific gravity >0.5. Check if ☐ **Sunroom** ☐ **Log Walls**
Door U-Value	**U .30** (maximum)	Write in U-Value	One opaque door in the thermal envelope is exempt from the U-factor requirement.
Floor R Value (e.g., floor over Basement or garage)	**R-30** *or* Insulation sufficient to fill joist cavity minimum R-19	Write in R-Value	If conditioning the basement you must insulate **Basement Walls.** If not, you may insulate either **Floor** or **Basement Walls** and **Slab Edge (if ≤ 1' of grade)**
Basement or Crawl Space Wall R Value	For *both* Zone 5 and Zone 6 **R-19** Cavity Insulation or **R-15** Continuous Insulation	Write in R-Value	

Slab Edge[iii] R Value	**R-10** **2′** (Zone 5) **4′** (Zone 6) (see drawing pg 3) ***add*** **R-5** if the Slab is heated or **R-15** under entire heated slab if a log home.	Write in R-Value	Check if ☐ **Heated Slab**
Air Sealing	A blower door test is **required**. The test must demonstrate an air exchange rate of ***three*** Air Changes per Hour (ACH) or less @ 50 Pa.	Blower Door	If required by the code official, an approved third party may be required to conduct the blower door test.

Submit pages 1 and 2 to local municipal code official or NH Department of Energy at energycodes@energy.nh.gov
Phone: 603.271.3670 Fax: 603.271.3878

Footnotes to Residential Energy Code Application for Certification of Compliance

[i] Ceilings with attic spaces: R-38 in Zone 5 or 6 will be deemed 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 or the full R-value is maintained. This is often accomplished by using a raised heel or energy truss as shown in the diagram below or by using higher R-value insulation over the plates.

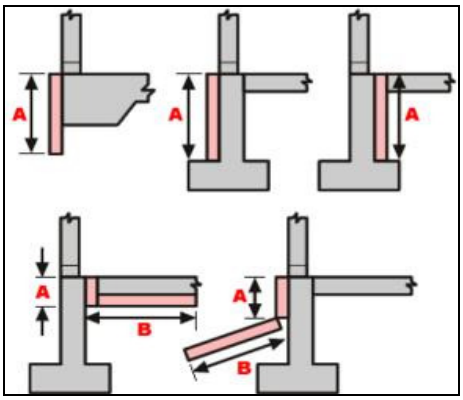


[ii] R-20 + R-5 means R-20 cavity insulation plus R-5 continuous insulation. If structural sheathing covers 25 percent or less of the exterior, R-5 sheathing is not required where the structural sheathing is placed. If structural sheathing covers more than 25 percent of exterior, the structural sheathing must be supplemented with insulated sheathing of at least R-2.

[iii] Slab edge insulation must start at the top of the slab edge and extend a total of two (Zone 5) or four feet (Zone 6). Insulation may go straight down, out at an angle away from the building, or along the slab edge and then under the slab. A slab is a concrete floor within 1' of grade level. See diagram below.

The top edge of insulation installed between the exterior wall and the interior slab may be mitered at a 45 degree angle away from the exterior wall.

Allowable Slab Insulation Configurations



A or A+ B must equal two feet in Zone 5 or four feet in Zone 6

MODULAR HOMES must be certified by the NH Department of Safety. Unless the floor insulation is provided by the manufacturer this form may be submitted. This form may also be submitted if the basement is to be insulated or supplementary heated space is added to the home upon or after it is set.

2018 International Residential Code (IRC) effective July 1, 2022
Residential Energy Code Requirements IRC Chapter 11
The following list is intended as a general summary of energy related requirements.
Please consult the 2018 IRC Chapter 11 for complete requirements.

	Air Leakage Code Section N1102.4	The building thermal envelope shall be constructed to limit air leakage in accordance with the requirements of IRC Sections R1102.4.1 through R1102.4.4. The building thermal envelope must be durably sealed to limit infiltration. See Table N1102.4.1.1 for a list of thermal envelope elements and installation criteria. Building envelope air tightness shall be verified to comply by Blower Door testing to not exceed air leakage of 3 Air Changes per Hour (ACH) at 50 Pascals pressure. The local Building Official may require an independent 3rd party to conduct the test.
	Testing Code Section N1102.4.1.2	The Blower Door Test is the required method to demonstrate code compliance with the air leakage requirement. Blower Door Test conducted by: _____ Result (at 50 Pa): _____CFM Interior Volume_____ CF _____ACH
	Fireplaces Code Section N1102.4.2	New wood-burning fireplaces shall have tight-fitting flue dampers or doors and outdoor combustion air.
	Recessed Lighting Code Section N1102.4.5	Recessed lights in the thermal envelope must be type IC rated and labeled as meeting ASTM E 283 and sealed with a gasket or caulk between the housing and the interior wall or ceiling covering.
	High-Efficacy Lighting Code Section N1104.1	Not less than 90 percent of the lamps in permanently installing lighting fixtures shall be high-efficacy lamps or not less than 75 percent of the permanently installed lighting fixtures shall contain only high-efficacy lamps.
	Materials and Insulation Identification Code Section N1101.5 and N1101.10	Materials, systems and equipment shall be identified in a manner that will allow a determination of code compliance. Manufacturer manuals for all installed heating, cooling and service water heating equipment must be provided. Insulation R-values, glazing and door U-values and heating and cooling equipment efficiency must be clearly marked on the building plans, drawings or specifications.
	Pull-Down Attic Stairs, Attic Hatch, and Knee Wall Doors Code Section N1102.2.4	Should be insulated to a level equal to the surrounding surfaces and tightly sealed and weather-stripped at the opening.
	Full size Attic or Basement Entry Doors Code Section N1102.3.4	All doors leading from a conditioned space into an unconditioned attic or enclosed attic or basement stairwell should be insulated and weather-stripped exterior rated door units meeting the U-factor requirement. One door is exempt.
	Duct Insulation Code Section N1103.3.1	**Supply and return** ducts in attics must be insulated to at least R-8 where 3 in. diameter or greater and not less than R-6 for ducts smaller than 3 in. diameter.. Supply and return ducts in other portions of the building must be insulated to at least R-6 where 3 in. diameter or greater and not less than R-4.2 for ducts smaller than 3 in. diameter. Exception: Ducts or portions thereof located completely inside the building thermal envelope.

	Duct Construction Code Sections N1103.3.2 and N1103.3.5	Ducts, air handlers and filter boxes shall be sealed. Joints and seams must comply with the *Int. Mech. Code* or Section M1601.4.1 of the *International Residential Code*. Building framing cavities **shall not** be used as ducts or plenums (neither supply nor return).
	Duct Testing Code Sections 1103.3.3	Ducts shall be pressure tested to determine air leakage by either 1) rough-in test or 2) post-construction test. Rough in Test: Ducts must be no leakier than 4 CFM per 100 sqft of conditioned floor area with air handler installed or 3 CFM per 100sqft without the air handler installed. Post Construction: Ducts must be no leakier than 4 CFM per 100 sqft of conditioned floor area. See Code for further requirement details. Test conducted by: _____ Duct test result at 25 Pa:_____Post construction or _____Rough-in test
	Temperature Controls Code Section N1103.1&1.1	At least one thermostat must be provided for each separate heating and cooling system. The thermostat controlling the primary system must be equipped with a programmable thermostat. Heat pumps having supplementary electric-resistance heat must have controls that, except during defrost, prevent supplemental heat operation when the heat pump compressor can meet the heating load
	Mechanical System Piping Insulation Code Section 1103.4	Mechanical system piping capable of conveying fluids at temperatures above 105°F or below 55°F must be insulated to R-3.
	Circulating Hot Water Systems Code Section N1103.5	Controls for circulating hot water system pumps shall start based on the identification of a demand for hot water within the occupancy. The controls shall automatically turn off the pump when the water in the circulation loop is at the desired temperature and when there is no demand for hot water. Circulating domestic hot water system piping shall be insulated to R-3.
	Mechanical Ventilation Code Section N1103.6	The building shall be provided with ventilation that meets the requirements of Section M1507 of this code or the International Mechanical Code, as applicable, or with other approved means of ventilation. Outdoor air intakes and exhausts must have automatic or gravity dampers that close when the ventilation system is not operating.
	Equipment Sizing Code Section N1103.7	Heating and cooling equipment shall be sized in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies. Equipment shall have an efficiency rating equal to or greater than applicable federal standards.
	Certificate Code Section N1101.14	A permanent certificate, completed by the builder or registered design professional, must be posted on or in the electrical distribution panel. It must list the R-values of insulation installed in or on the ceiling, walls, foundation, and ducts outside the conditioned spaces; U-factors and SHGC for fenestration. The certificate must also list the type and efficiency of heating, cooling and service water heating equipment.
	Existing Buildings and Structures See **Appendix J** of IRC	The purpose of these provisions is to encourage continued use of existing buildings and structures. Work in existing buildings shall be classified into categories of repair, renovation, alteration and reconstruction. Consult this Appendix for specific requirements related to work in existing buildings.