DURHAM New Hampshire Residential Energy Code Application

for New Construction, Additions and/or Renovations of Detached One- and Two-family dwellings, Townhouses, and Groups R-2, R-3 & R-4 3 stories or less in height above grade plane

Minimum Provisions from 2021 IECC Residential Effective Date: January 29, 2021

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:

Durham NH 03894 | Strafford

Type of Construction:

○ **1&2 Family Dwelling** ○ **R-1, R-2, R-3**

○ 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 6 ○ **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)

Conditioned?

○ Yes (Walls and slab must be insulated)

○ No (ceiling and slab edge must be insulated)

☐ Full Basement ☐ Walk Out Basement

☐ Slab on Grade ☐ Other _____

Attic type: (a conditioned space is one being heated/cooled, containing uninsulated ducts or w/ a fixed opening into conditioned space)

Conditioned?

○ Yes (Must be completely insulated)

○ No (floor/joists area must be insulated)

☐ Finished

☐ Unfinished

☐ Other _____

Structure is EXEMPT because:

☐ Mobile Home ☐ Manufactured Home

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 and the State NH Building and Energy Codes.

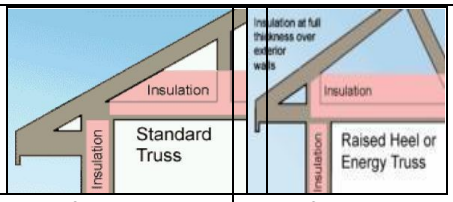
Signature_____ **Print Name**_____ **Date**_____

RETURN PAGES 1 & 2 With Building Permit Application and RETURN Pages 4 & 5 With Request For CO

Durham New Hampshire Energy Code

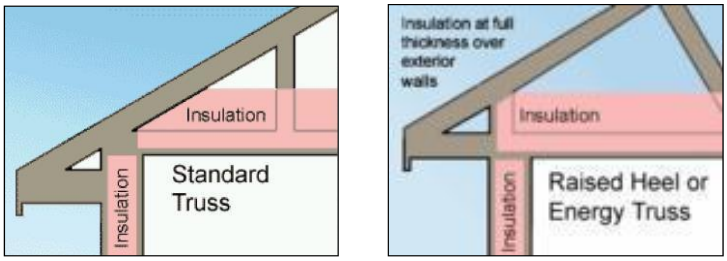
Directions: Complete the "Your Proposed Structure" columns. No measurements or calculations are needed. Copies of plans are required. Write N/A in any section that does not apply to your project. If your planned structure does not meet these requirements, consider downloading REScheck http://www.energycodes.gov/rescheck to explore energy modelling options.

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 .45** (Thermally Isolated Sunrooms only)	Write in U-Value	Check if ☐ **Sunroom** ☐ **Log Walls**
Skylights	**U .55 (or less)**		
Flat Ceiling[i] ***or*** **Flat Ceiling with Raised or Energy Trusses R-value**	 **R-60** if using the above construction technique **R-49** if log walls **R-49** if maintaining the full R value over the plates **R-49** if log walls	Write in R-Value ⟶ If using only R-49 in Zone 5 or 6 you must check this box	NOTE: R-49 will satisfy the requirement for R-60 if the full R-49 insulation value is maintained over the outside plates. **If using only R-49 (Zone 5 or 6), you must certify that you will maintain R-49 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** only up to 500 ft sq or 20% of total ceiling area, whichever is less. **R-24** (Thermally Isolated Sunrooms only)	Write in R-Value	Check if ☐ **Sunroom**
Above Grade Wall[ii] **R-value**	(Cavity *plus* Continuous Insulation) **R-20** *plus* **R-5ci or** **R-13** *plus* **R-10ci or** only **R-20ci** **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 (Basement ceiling)	**R-30** minimum, *with* insulation sufficient to fill joist cavity causing contact with subfloor	Write in R-Value	If conditioning the basement, you must insulate **Basement Walls & Slab.** If not, you may insulate either **Floor** or **Basement Walls** and **Slab Edge**
Basement or Crawl Space Wall R Value	Zone 6 **R-19** Cavity Insulation **or** **R-15** Continuous Insulation **or** **R-13** Cavity + **R-5** Continuous	Write in R-Value	
Slab Edge[iii] **R Value**	**R-10 slab edge 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 ☐ **Conditioned Basement**
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.		An approved third party is be required to conduct the blower door test. Ducts shall be tested per R403.3.5

Footnotes to Residential Energy Code Application for Certification of Compliance

Ceilings with attic spaces: R-49 in Zone 5 or 6 will be deemed to satisfy the requirement for R-60 wherever the full height of uncompressed R-49 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.

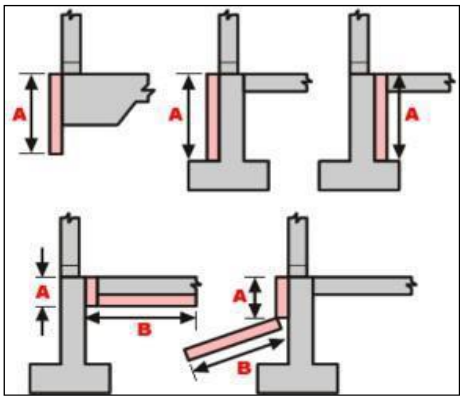


R-20 + R-5 means R-20 cavity insulation plus R-5 continuous insulated sheathing. If structural sheathing covers 25 percent or less of the exterior, R-5 sheathing is not required where the structural sheathing is placed. If structural sheathing covers more than 25 percent of exterior, the structural sheathing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

Slab edge insulation must start at the top of the slab edge and extend a total of **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 four feet for 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.

Check list of Summary of energy related requirements 2021 IECC

√ Check here		Certification No.:
	Air Leakage Section R402.4	The building thermal envelope shall be constructed to limit air leakage in accordance with the requirements of IECC Sections R402.4.1 through R402.4.5. The building thermal envelope must be durably sealed to limit infiltration. See Table 402.4.1.1 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 requires an independent 3rd party to conduct the test.
	Testing Section 403.4.1.2	The Blower Door Test is the required method to demonstrate code compliance with the air leakage requirement.
	Fireplaces Section 402.4.2	New wood-burning fireplaces shall have tight-fitting flue dampers or doors and outdoor combustion air.
	Recessed Lighting Section 402.4.5	Recessed lights in the thermal envelope must be type IC rated and labeled as meeting ASTM E 283 with an air leakage rate of not greater than 2.0 cfm at pressure differential of 1.57 psf. Recessed luminaires shall be sealed with a gasket or caulk between the housing and the interior wall or ceiling covering.
	High-Efficacy Lighting Section R404	Not less than 90 percent of the lamps in permanently installing lighting fixtures shall be high-efficacy lamps.
	Materials and Insulation Identification	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. All other ducts must be insulated to at least R-6. Exception: Ducts or portions thereof located completely inside the building thermal envelope.
	Duct Construction Code Sections R403.3 and R403.4	Ducts, air handlers and filter boxes shall be sealed. Building framing cavities **shall not** be used as ducts or plenums (neither supply nor return).

	Duct Testing Code Sections R403.3.5	Ducts shall be pressure tested to determine air leakage by either 1) rough-in test or 2) post-construction test. See Code for requirement details.
	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 R403.4	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 R403.5.1	Circulating service water systems must include an automatic or readily accessible manual switch that can turn off the hot water circulating pump when the system is not in use.
	Hot Water pipe Insulation R403.5.2	Service hot water system piping shall be insulated to R-3.
	Mechanical Ventilation Code Section R403.6	Outdoor air intakes and exhausts must have automatic or gravity dampers that close when the ventilation system is not operating.
	Mechanical Ventilation Testing Code Section R403.6.3	Systems shall be tested and verified to provide the minimum ventilation flow rates required by Section R403.6
	Equipment Sizing Code Section R403.7	Heating and cooling equipment shall be sized in accordance with ACCA Manual S based on the loads calculated in accordance with ACCA Manual J.
	Certificate Code Section R401.3	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 Chapter 5	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.