



**New Hampshire Electric Cooperative
ENERGY STAR Qualified Homes
Rebate Program 2008**

RECOMMENDED / REQUIRED GUIDELINES

Building Shell

Building must meet NH energy code requirements

Fiberglass Batt Insulation can not be installed over strapping . The Insulation and the Pressure/Air Barriers must be continuous , in full contact with each other and aligned for the home to meet Minimum Standards.

There must be an effective vapor barrier on all building envelope surfaces.

Flat Attics:

R-49 Recommended

All access hatches and pull down stairs must be insulated & sealed (ideally a minimum 4" rigid foam cover w/ weather-stripped seals)

Slopes Ceilings:

R-38 Recommended

Knee Wall Voids:

The sloped roof surfaces must be insulated and sheet rocked the same as the interior sloped ceilings

Note: This applies to eave spaces where slopes are to be insulated and dry walled instead of knee walls

Above Grade Walls: (including common walls with garage and walk-in attic)

R-21 Recommended

A batt fiberglass wall to an open attic must be minimum R-19 with house wrap (Tyvar/Tyvex) covering attached to the cold side

Walls to a mechanical room must be R-19 and sheet rocked on both sides per fire code

A vapor barrier, not craft paper, must be installed properly prior to installation of shower/tub/hot tub assembly **on an exterior wall**

Floors:

Floor over cold basement must be R-19minimum - R-30 recommended, Including stairwell step walls

Fiberglass insulation must be properly installed with permanent contact with sub floor

Floor over garage must be R-30 minimum and completely fill the cavity - R-38 recommended **Air barrier must be installed at any exposed edges of insulation**

Over outside and cantilevered overhangs - must have 100% contact with all sides (must fill cavity)

Solid blocking must be installed between joists which span from conditioned to unconditioned space

Rim & Band Joists:

Same Insulation value as Above Grade Walls - 4" rigid foam board or 4" spray foam is Highly Recommended or **Air barrier must be installed at exposed edge of insulation**

Foundation Walls:

It is strongly recommended that foundation walls and slab be insulated to R-10

If the basement ceiling is not insulated the foundation walls must be insulated to a minimum R-10 continuous or R-13 framed
Foundation walls should be insulated on either the exterior or interior and extend from the footing to the top of the concrete (not cut off at grade level if on the exterior)

Interior stairwell walls leading to unconditioned basement must be R-13

Exterior Bulkhead and Walk-in entry doors must be insulated and weather-stripped exterior entry units

Slab:

An unheated slab on grade must be R-10 minimum

A heated slab on grade must be R-12 minimum

Insulation four foot down the slab perimeter wall for slab on grade

Note: INSULTARP is not permitted. There is no specific insulation requirement for slab below grade

Windows:

Minimum U factor of 0.35

The NFRC stickers need to remain on the windows until first inspection

Doors:

Exterior Doors - R-3 Minimum weather-stripped units rated as exterior doors

Garage Entry Doors - must meet fire code requirement

Air Sealing

Ceiling:



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All plumbing, electrical, mechanical, and chimney penetrations **MUST** be tightly sealed with foam, caulk or metal panning
 All access hatches and pull down stairs must have a minimum 4" rigid foam cover w/ weather-stripped seals

Walls:

Window/door jambs and rough openings must be sealed with Low-Expansion Foam
 All vent terminations must be sealed with foam or caulk, high-temp caulking where applicable
 Use air tight electrical boxes or **foam the knockouts**
 Seal all utility penetrations through the walls

Basement:

It is recommended that the basement perimeter be well sealed
 Bulkhead entry door must be **an** insulated and weather-stripped exterior entry door
 Weather-strip doors leading from conditioned space to unconditioned basement

Mechanical Systems

HVAC Mechanicals:

Warm air furnace systems should be rated at 90% AFUE or greater
 Boiler systems should be rated at 85% AFUE or greater
 Central air conditioning equipment should be rated at a SEER 13 or greater
 Maximum over sizing limit on AC components is **15** percent. (Next available size may be used)
 Stand alone Hot Water heaters should have an Energy Factor of 0.60 or better
 If DHW is off the boiler, it must have an indirect storage tank
 All combustion equipment (fossil fueled) and clothes dryers must be vented to the building exterior
 All combustion equipment (fossil fueled) in conditioned spaces must have dedicated combustion supply air

Distribution Systems:

All Supply and Return ductwork must be tightly sealed with mastic or foil tape (Duct tape is not permitted)
 All Supply and Return runs must be dedicated ductwork. (No Building Frame Cavities can be used for the HVAC system)
 Domestic hot water lines in unconditioned space must be insulated to R-3
 Heating distribution pipes **in unconditioned areas** must be insulated to R-4
 Heating distribution ductwork **in unconditioned areas**, supplies and returns must be insulated to R-8
 HVAC system must provide a means for balancing air and water systems

Ventilation Systems:

An HRV unit - or - High Quality 1.5> sone Bath Fan(s) rated for continuous operation is **REQUIRED**
 Ventilation must be independently controlled by a 24 hour timer, time delay switch, other approved control
 All ventilation must be exhausted to the outside of the dwelling (not into soffits)
 All kitchen range hoods (**propane**) must be vented to the outside of the dwelling

Health & Safety

All fossil fueled heating plants and dryers must be vented to the building exterior
 Any heating devices in conditioned spaces need dedicated combustion air
 It is recommended a carbon monoxide alarm be installed according to manufacturer instructions
 All clothes dryers must be vented to the building exterior

Fiberglass Insulation

FIBERGLASS BATTS, ALTHOUGH ACCEPTABLE AS A MATERIAL **MUST** BE INSTALLED CORRECTLY AND PERFECTLY TO ACHIEVE ITS DESIGNED PURPOSE AND R-VALUE AND TO MEET NEW HAMPSHIRE ENERGY CODE. THERE IS A DIFFERENCE BETWEEN THE ADVERTISED R-VALUE AND THE EFFECTIVE R-VALU

- o Craft-faced fiberglass batts **MUST** have the paper flange stapled to the face of the stud and must **NOT** be side-stapled
- o If unfaced - a poly vapor barrier **MUST** be installed or vapor retardant paint applied to warm side
- o If using strapping - fiberglass batts **WILL NOT** pass ENERGY STAR nor meet NH Energy Code - alternate insulation should be used
- o Fiberglass batts **MUST** be fully lofted (not compressed) and completely fill the stud/joist cavity on ALL 6 sides (front to back, right to left, and top to bottom) Batts must be in full contact with **NO** gaps
- o Batts must **NOT** be tucked under/behind fixtures, plumbing or wiring



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<p>*** Fiberglass batts when installed properly provide a moderate insulative R-Value per inch, however, fiberglass DOES NOT stop air flow. The home MUST be properly air sealed prior to insulation. If air infiltration exists, it will freely penetrate through fiberglass thus significantly reducing a home's energy efficiency.</p>	