

Current North Carolina Energy Conservation Code Requirements for Climate Zone 3

Insulation and Fenestration Requirements by Component

Window U Factor	Skylight U Factor	Window SHGC	Ceiling R-Value	Wood Frame Wall R Value	Mass Wall R Value	Floor R Value	Basement Wall R-Value	Slab R Value	Crawl Space Wall R Value
0.35	0.55	0.30	38 or 30CI	15 or 13+2.5	5/13 or 5/10CI	19	5/13	0*	5/13

*Insulating the home's slab will increase Duke Energy Progress Residential New Construction (DEP RNC) rebate amounts, will decrease (i.e., improve) the home's Home Energy Rating System (HERS) Index score, and (when properly implemented) will improve the home's comfort and energy efficiency.

1. For window values, the numbers listed in the above chart are maximum values. For building assemblies, the insulation values are minimum values.
2. Other items to note in the chart:
 - a. "CI" refers to "continuous insulation" (i.e., rigid foam board)
 - b. When two values are separated by a "+" sign, the first value will be cavity insulation and the second will be CI (thus, "13+2.5" would mean R-13 cavity insulation plus R-2.5 CI.
 - c. When two values are separated by a "/", the first value refers to CI at either the interior OR the exterior of the assembly, and the second value refers to framed cavity insulation at the interior of the building assembly (thus, "5/13" would mean R-5 CI either inside or outside the wall assembly, or R-13 cavity insulation at the interior of the wall assembly).

Mechanical System Efficiency Requirements

- **Heating:** 80 AFUE or greater for gas furnaces; 7.5 HSPF2 or greater for air source heat pumps
- **Cooling:** Minimum 14.3 SEER2 for air conditioners and heat pumps
- **Water Heating:** 0.67 EF or higher for gas-fired water heaters; 0.95 EF for electric water heaters

High-Efficiency Residential Option (HERO): Additional Voluntary Criteria for Increasing Energy Efficiency

Though not required for ENERGY STAR New Homes certification, using the NC HERO Code as a minimum standard will increase the likelihood of certification and will increase DEP RNC rebates.

Wind ow U Factor	Skyli ght U Factor	Wind ow SHG C	Ceillin g R-Valu e	Wood Frame Wall R Valu e	Mass Wall R Valu e	Floor R Value	Bas eme nt Wall R-Valu e	Slab R Value	Crawl Space Wall R Valu e
0.32	0.55	0.25	38 or 30CI	19, 13+5 , or 15+3	5/13 or 5/10CI	19	5/13	5	5/13

ENERGY STAR New Homes

In a Nutshell...

- A) Each home will have a different minimum HERS Index score to attain ENERGY STAR certification (this is based on a “reference home,” which factors in size, number of bedrooms, and other factors). The home energy rater (HERS rater) for the project can issue the builder with a preliminary HERS Index score *at the design phase* of the project to include “what if?” scenarios so that necessary changes can be implemented during the build process.
- B) As a segue, use 2018 NC ECC as a guide and communicate with the rater at the design phase on which upgrades (if any) are needed to hit the mark for the home’s minimum Index score. It is a common misconception that ultra-efficient mechanical systems or (sometimes costly) improvements to the building shell are required for ES certification.
- C) ENERGY STAR New Homes certification differs from NC Energy Conservation Code in just a couple ways (*the home must still meet ES program requirements **and** meet the minimum score*):
- 1) The home must have a whole-house ventilation system (a.k.a., “fresh air”), it must be tested by a HERS rater, and must meet ENERGY STAR program requirements.
 - 2) The HVAC contractor must be accredited for ES New Homes installations**. Credentialing is handled by the Air Conditioning Contractors of America (ACCA) or Advanced Energy. ACCA’s Quality Assurance Program can be found [here](#); Advanced Energy’s accredited contractor directory is located [here](#).
- D) Having said this, methods to assist the builder in successful ES certification include: 1) Keeping ducts (if any) in conditioned space; and

2) Opting for encapsulated attics; and building on sealed crawlspaces or finished basements. E) Versions? Revisions?

1) “Versions” refer to major changes in ENERGY STAR program requirements. ES Version 3.1 is currently used in NC.

2) “Revisions” refer to clarifications, simplifications, and improvements of the ES program checklists; the Revision used for the home’s documentation is based on the permit date. Builders may use later revisions, if desired.

a) If the home was permitted on or after January 1, 2025, use Revision 13 (or

Revision 14). b) If the was permitted on or after January 1, 2026, use Revision 14.

**In lieu of using an accredited HVAC contractor, the HERS Rater may perform ANSI/ACCA/RESNET Standard 310 HVAC Grading to attain certification. This involves added work for the rater (in the field and in the office), so surcharges will apply. Speak to your rater for details. *For simplicity, choosing an accredited HVAC contractor will usually be the smoother path to certification.*