

North Carolina's 2018 Energy Code

How does it work?

Residential Energy Rating Index (ERI)

What is the ERI?

The ERI is a new optional performance-based energy code compliance pathway available in North Carolina's residential 2018 NCECC. Builders can select this option to obtain energy code compliance by obtaining a low enough (good enough) Home Energy Rating (HERS Score).

When is it used?

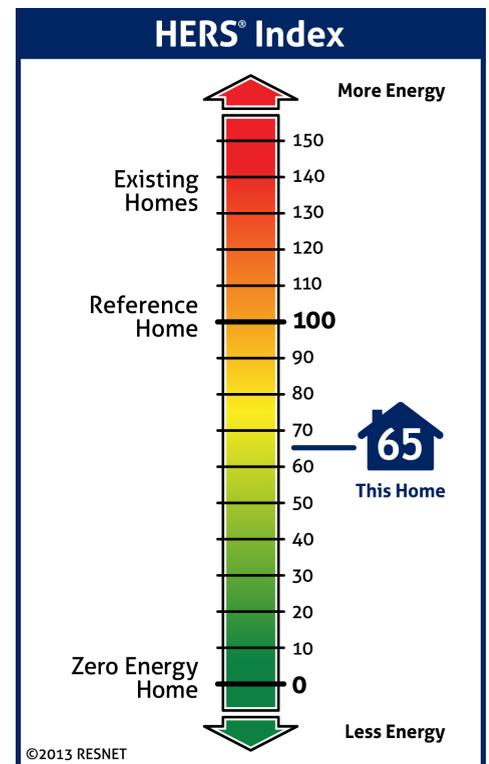
Residential Builders can choose to use the ERI pathway during the start of a new home build. Throughout the project, third party inspectors will verify energy and performance-based requirements that will result in meeting code.

What are the benefits?

Builders can use this pathway as a flexible alternative to prescriptive methods that allows trade-offs resulting in an energy efficient home that also passes code. Code Officials can save time by accepting the third party's inspections and documentation, but should review it closely.

Who performs the work?

The Builder makes the decision to pursue this pathway and a third party Home Energy Rater (HERS Rater) completes the energy model, performs on-site inspections and creates the paperwork that the Code Official will need in order to sign-off on the home meeting the minimum requirements.



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What documentation is required?

Computer-based energy modeling and in-home performance testing must be completed. HERS Raters performing this work will produce compliance reports and checklists that must be provided to the Code Official for verification that the home passes the minimum ERI requirements.

What are the minimum requirements?

Compliance is based on the climate zone of the home. No matter what energy or performance measures or products are implemented, all homes must meet the mandatory “backstop” requirements for insulation and fenestration levels, which are set to the levels from the 2012 NCECC.

What are the minimum ERI/HERS Scores to pass?

In order to meet the minimum ERI, homes must meet or exceed these ERI or HERS Scores through: CZ3: 65, CZ4: 67, CZ5: 67. These scores increase in stringency in 2022 to: CZ3: 61, CZ4: 63, CZ5: 63.

Do renewable energy systems count?

Renewable energy systems like Solar PV help lower the ERI or HERS Score for the better, but cannot solely be responsible for a home passing the minimum ERI values. Section R406.4.2 has a separate table of values that are more stringent for homes that use ANY amount of renewable energy

Additional Resources:

1. [RESNET website](#) with information about the HERS Index and ERI
2. [Short video](#) on how Code Officials can work with the ERI pathway
3. [Detailed presentation](#) on how Code Officials can work with the ERI
4. [ICC site with ERI reference](#) or codes.iccsafe.org/content/NCECC2018
5. [Additional 2018 NCECC summaries](#) and information from NCBPA

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ERI targets by climate zone:

MAXIMUM ENERGY RATING INDEX Without calculation of on-site renewable energy

Climate Zone	Jan 1, 2019 – Dec 31, 2022	Jan 1, 2023 and forward
3	65	61
4	67	63
5	67	63

MAXIMUM ENERGY RATING INDEX Including calculation of on-site renewable energy

Climate Zone	Jan 1, 2019 – Dec 31, 2022	Jan 1, 2023 and forward
3	51	47
4	54	50
5	55	51

Minimum backstop values from the 2012 NCECC:

TABLE R402.1.2
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT^a

CLIMATE ZONE	FENESTRATION U-FACTOR ^{b,i}	SKYLIGHT ^b U-FACTOR	GLAZED FENESTRATION SHGC ^{b,k}	CEILING R-VALUE ^m	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE ^l	FLOOR R-VALUE	BASEMENT ^c or WALL R-VALUE	SLAB ^d R-VALUE & DEPTH	CRAWL SPACE ^c WALL R-VALUE
3	0.35	0.55	0.30	38 or 30ci	15	5/13 or 5/10ci	19	5 (NR) / 13	0	5/13
2012 NCECC	0.35	0.65	0.30	30	R-13	5/10	19	10/13	0	5/13
4	0.35	0.55	0.30	38 or 30ci ^l	15 or 13+2.5 ^h	5/13 or 5/10ci	19	10/15	10	10/15
2012 NCECC	0.35	0.6	0.30	38 or 30ci	15 or 13+2.5	5/10	19	10/13	10	10/13
5	0.35	0.55	NR	38 or 30ci ^l	19 ^h or 13+5 ⁿ or 15+3 ^h	13/17 or 13/12.5 ci	30 ^g	10/15	10	10/19
2012 NCECC	0.35	0.6	NR	38 or 30ci	15 or 13+5 or 15+3	13/17	30	10/13	10	10/13