

**NC Department of Insurance
Office of the State Fire Marshal - Engineering Division
1429 Rock Quarry Rd, Raleigh, NC
919-647-0000**

Simulated Performance Alternative

Code: Energy Code
Section: NC Energy Code R405.1,
NC Residential Code N1105.1

Date: 8/16/2024

Question:

Section R405.1 states: “A North Carolina registered design professional is required to perform the analysis if required by North Carolina licensure laws.”

So, has this been asked and addressed by the appropriate NC licensing board if the analysis referred to in this code section is required to be performed by a registered design professional?

R405.1 Scope. This section establishes criteria for compliance using simulated energy performance analysis. Such analysis shall include those items identified in Table R405.5.2(1), as applicable. A North Carolina registered design professional is required to perform the analysis if required by North Carolina licensure laws.

Answer:

Yes. The question above was posed to the NC Board of Examiners for Engineers and Land Surveyors, and the full response, Attachment A, followed by the initial request, Attachment B, is included after this summary.

To summarize, the work required to comply with the Section R405 (N1105) compliance pathway is opined, by the North Carolina Board of Examiners for Engineers and Land Surveyors, to be work that does need to be prepared by a licensed Professional Engineer.

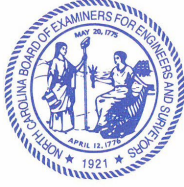
Therefore, when providing the required analysis to the code official when the section R405.1 (N1105.1) compliance path is chosen by the permit holder, the expectation is for the work to have been performed by a registered design professional from the state of North Carolina, and the work product would bear their seal.

Bear in mind some software manufacturer’s provide software packages that can do multiple compliance paths, including the Energy Rating Index (N1106.1, R406.1), but this web interpretation is addressing only the Simulated Performance Alternative (N1105, R405).

Keywords

Ekotrope, PowerDoe

ATTACHMENT A – NCBELS Response



**NORTH CAROLINA BOARD OF EXAMINERS
FOR ENGINEERS AND SURVEYORS**
4601 Six Forks Rd Suite 310
Raleigh, North Carolina 27609

May 12, 2022

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**Andrew L. Ritter
Executive Director**

Office of State Fire Marshal
Attn: Dan Dittman, PE
1202 Mail Service Center
Raleigh, NC 27699-1202

Re: NC Energy Code Question

Dear Mr. Dittman:

The North Carolina Board of Examiners for Engineers and Surveyors administers the provisions of the Engineering and Land Surveying Act, Chapter 89C, of the North Carolina General Statutes.

At a recent Engineering Committee meeting of the Board your question about whether Simulated Energy Performance Alternative analysis needs to be done by a Professional Engineer was considered.

Based upon the Committee's review of your e-mail dated March 8, 2022 and attached letter on the subject, the Committee opined that the analysis needs to be performed by an appropriately licensed Professional Engineer. The Committee concurred with your position that this analysis requires someone to be knowledgeable of the application of engineering principles in order to protect the health, safety and welfare of the public.

Should you have any questions about this letter, or this determination, please feel free to contact this office.

Sincerely,

Andrew L. Ritter
Executive Director

Telephone
(919) 791-2000

EMAIL Address
ncbels@ncbels.org

WEB Site
www.ncbels.org

ATTACHMENT B – Request for ruling pertaining to Section R405.1 – registered design professional



MIKE CAUSEY
INSURANCE COMMISSIONER & STATE FIRE MARSHAL

BRIAN TAYLOR, CHIEF STATE FIRE MARSHAL

North Carolina Board of Examiners
for Engineers and Surveyors
ATTN: Statute and Rule Questions (Board Counsel)
4601 Six Forks Road, Suite 310
Raleigh, North Carolina 27609

Dear NCBELS:

This letter is to request an interpretation of the Board's Rules concerning when the work is required to be performed by a NC Professional Engineer regarding the simulated energy performance alternative allowed in the NC Building code.

Background

Section R405.1 of the NC Energy Code, states: "... a NC registered design professional is required to perform the analysis if required by North Carolina licensure laws."

A similar request was made to the Board concerning a different non-prescriptive path, Section R406.2, and the Board's determination was that a HERS rater could perform the analysis, i.e., the analysis in that section would not require a registered design professional. However, that question was only addressing the ERI pathway of R406.2, and not the Simulated Performance Alternative of R405.1.

For various reasons, the use of the Simulated Performance Alternative is increasing, and the question has arisen more often, "Is this analysis required to be performed by a registered design professional?" My standard response has been it does, in my opinion, due to the wide variety of

¹ <https://www.ncbels.org/wp-content/uploads/2019/03/2017.pdf>

6. Committee Reports

Engineering Committee - Chair (Mr. Shields)

- Mr. Shields stated the committee received ...
- The Committee was presented with a surveying report ...
- **A request was received to allow energy raters to be a qualified profession. Support for adding certified energy raters (residential only) that should be qualified to do this service would be included as a fourth category in the NC Energy Code. The Committee did not constitute this as engineering so it would not have to be restricted to Professional Engineers.**

The Engineering Committee was presented with a question regarding wetland delineation ...

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possible combinations, but also the knowledge that is required by the user to thoroughly understand what the inputs and outputs are or represent. This knowledge includes standard engineering coursework, such as heat transfer, electrical power, thermodynamics and controls. The design of the thermal envelope, including moisture control, power systems, and ventilation/infiltration influences human comfort and ventilation, and the operating characteristics of a structure including short-term and long-term moisture management in building materials.

A single model can be replicated to apply to dozens, if not hundreds of houses, so the impact is not trivial if there is a lack of knowledgeable application of engineering principles and those houses are built and later determined to be incorrect.

Question for Board

I am asking the Board to rule on this section of the code, R405.1, and companion language of N1105.1, as to whether the work mentioned therein is required, under NC GS 89C, to be performed by a registered design professional or not.

Sincerely,



Dan Dittman, PE
Chief Energy Code Consultant
919-647-0012
Dan.dittman@ncdoi.gov

Office of State Fire Marshal
1202 Mail Service Center
Raleigh, NC 27699-1202

End of Web Interpretation