

2024 IECC

NBI has submitted public comments into the ICC process to advance the 2024 IECC. The proposed public comments cover a wide range of measures and improve the code by adding additional efficiency, clarifying requirements, and creating greater flexibility for code users and local jurisdictions. Learn more at newbuildings.org/code_policy/2024-iecc-national-model-energy-code-base-codes.

Add new definition as follow:

SUBSTANTIAL ENERGY ALTERATION. An *alteration* that includes replacement of two or more of the following:

1. 50% or more of the area of interior wall-covering material of the *building thermal envelope*.
2. 50% or more of the area of the exterior wall-covering material of the *building thermal envelope* or fenestration.
3. Space-conditioning equipment constituting 50% or more of the total input capacity of the space heating or space cooling equipment serving the building.
4. Water-heating equipment constituting 50% or more of the total input capacity of all the water heating equipment serving the *building*.
5. 50% or more of the luminaires in the *building*.

Revise text as follow:

**TABLE R408.2
CREDITS FOR ADDITIONAL ENERGY EFFICIENCY**

Measure Number	Measure Description	Climate Zone 0 & 1	Climate Zone 2	Climate Zone 3	Climate Zone 4	Climate Zone 4C	Climate Zone 5	Climate Zone 6	Climate Zone 7	Climate Zone 8
R408.2.10	<u>Higher efficacy lighting</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>

R408.2.10. Higher efficacy lighting. All spaces shall be provided with hard wired lighting with a lamp efficacy of 90 lm/W or a luminaire efficacy of 55 lm/W.

R502.2.5 Additional Efficiency Requirements Packages. ~~Additions shall comply with Section R506~~ comply with sufficient measures from Table R408.2 to achieve not less than 5 credits. *Alterations* to the existing building that are not part of the *addition*, but permitted with the *addition*, shall be permitted to be used to achieve this requirement.

Exceptions:

1. *Additions* that increase the building’s total conditioned floor area by less than 25 percent.
2. *Additions* that do not include the addition or replacement of equipment covered in Sections R403.5 or R403.7.

3. *Additions* that do not contain conditioned space.
4. Where the *addition* alone or the existing building and addition together comply with Section R405 or R406

R503.1.5 Additional Efficiency Requirements Packages. ~~Alterations shall comply with Section R506 where the alteration contains replacement of two or more of the following, Substantial energy alterations shall comply with sufficient measures from Table R408.2 to achieve not less than 1 credits.~~

1. ~~HVAC unitary systems or HVAC central heating or cooling equipment serving the work area of the alteration.~~
2. ~~Water heating equipment serving the work area of the alteration.~~
3. ~~50 percent or more of the lighting fixtures in the work area of the alteration.~~
4. ~~50 percent or more of the area of interior surfaces of the thermal envelope in the work area of the alteration.~~
5. ~~50 percent or more the area of the building's exterior wall envelope.~~

Exceptions:

1. *Alterations* that are permitted with an addition complying with Section R502.3.5.
2. *Alterations* that comply with Section R405 or R406.

R506

ADDITIONAL EFFICIENCY PACKAGE OPTIONS

R506.1 General. ~~Where required in Section R502 or R503, the building shall comply with one or more additional efficiency package options in accordance with the following:~~

1. ~~Enhanced envelope performance in accordance with Section R408.2.1.~~
2. ~~More efficient HVAC equipment performance in accordance with Section R408.2.2.~~
3. ~~Reduced energy use in service water heating in accordance with Section R408.2.3.~~
4. ~~More efficient duct thermal distribution system in accordance with Section R408.2.4.~~
5. ~~Improved air sealing and efficient ventilation system in accordance with Section R408.2.5.~~

Reasons Statement:

This public comment does two things: it correlates the language with changes that were approved for Section R408 and it clarifies the language.

Alignment

The approved language [in R503.1.5](#) was constructed to work with the 2021 version of Section R408, but Section R408 was ultimately modified for the public comment draft in ways that made it incompatible with this language. This public comment adapts the language to make it compatible with the new credit approach in R408. Since there are no more packages and R408 incorporates a target table, the new Section R506 is not necessary and has been struck. The additions and alterations sections just reference that table directly.

- **Target Setting:** The public comment sets the targets at 5 credits (about 50% of the target for new buildings) for subject additions and 1 credit for subject alterations. The new table approach is more flexible but provides less credit for existing systems that meet the “substantial alteration” definition.

- **Additional Credit Option:** The credit table has no credit options for lighting. Since the definition of “substantial alteration” includes alterations to the lighting, the lack of a lighting option is problematic. Therefore, this PC adds an additional credit option for lighting that sets an efficacy requirement higher than the requirements in the main body of the code. It also requires that spaces have hard-wired lighting that meets the requirement to ensure that there are actually savings.

Language clarifications

During the committee hearing process for this language and related language in the commercial section, this new code section received substantial support, but there were some concerns, particularly the clarity of the language, the alteration threshold for the requirement and the compliance criteria.

- **Clarity of the Language:** The original language was structured so that only "substantial" alterations would be subject to the requirements. This was done by creating an exception that effectively defined an alteration that was not substantial and exempted those alterations. During the committee process, concerns were raised about how this was a confusing way to structure the requirement even if the language itself was reasonably clear. In order to increase clarity, the language was reconfigured so that the threshold would not be defined through the exception. This public comment defines a new term: "substantial energy alteration" and only makes this specific kind of alteration subject to the requirements. The definition of the term is largely the same as the exception, except expressed in terms of what it is instead of what it isn't. This is clearer since alterations that are not substantial energy alterations will not even need to look at the section. This term was chosen because it follows an approach to substantial alterations that is already in the code. The International Existing Building Code (IEBC) has a definition for "substantial structural alteration" that sets a threshold for alterations to the structure that are considered substantial enough for special requirements. This definition does the same thing, it creates a threshold for alterations to the energy systems that are substantial enough for special requirements. This definition is mirrored in a public comment for the commercial section.
- **Threshold:** The other concern raised was that the original language defined the substantial alteration as one that impact more than 50% of the systems serving the alteration area. Concerns were raised that the area of an alteration is difficult to define. Concerns were also raised that even if the alteration area is defined, it could be easy for substantial alterations to a limited part of the building to meet the threshold but hard for them to achieve points, particularly areas of the building served by central systems. To address this issue, this public comment changes the threshold for the alteration from just the alteration area to the entire building. While there is some loss in stringency, this will be much easier to understand, much clearer to enforce, and much easier to comply with.
- **Compliance Criteria:** The third concern was related to clarity about what portion of the building would have to comply with the credit criteria to achieve the credit. It was not entirely clear whether the entire building would have to comply with the credit criteria or only the alteration. This was of special concern for multi-tenant buildings where portions of the building that are not part of the alteration may be inaccessible. The public

comment adds language to make it clear that only the alteration needs to comply with the credits. But it also includes language to ensure that only portions of the alteration that cross that 50% impact threshold are able to be used.