



Suggested Amendments to the 2024 International Energy Conservation Code



State and local HBAs should consider these amendments during the adoption of the 2024 International Energy Conservation Code to help maintain cost-effective and affordable code provisions. These amendments are intended to offer additional compliance options, add clarity, or improve consistency.

Each amendment is shown in legislative text (underline and strikethrough) and includes a supporting reason explaining why the jurisdiction should consider them. Additional supporting documents and information are available on the NAHB website.

From the Summary Table on the next page, choose the amendment you are interested in and click on a link to view the content.

This document is available upon request in a “MS Word” format so that you can copy and or change any portion of the document to fit your precise needs. If you would like the word document sent to you or if you have questions, please contact:

Nathan Kahre

Sr. Program Manager, Codes & Standards

202-266-8566

nkahre@nahb.org

Summary Table

E1. Alternative to Continuous Insulation in Attic Knee Walls

This amendment modifies the prescriptive wall insulation for attic knee walls allowing for cavity-only insulation for shorter attic knee walls in Climate Zones 3 through 6.

E2. Wall Insulation for Additions

This modification coordinates wall insulation requirements for additions with wall insulation requirements for new construction. Language like section R408.2.9 for new construction is added to the list of exceptions for building thermal envelope requirements for additions.

E3. Offsite Renewable Energy for R408 and Appendix RG

This amendment adds an option to section R408 and Appendix RG to allow credits for offsite renewable energy through community solar or a power purchase agreement.

E4. Slab Edge Insulation in Heavy Termite Infestation

This amendment adds a footnote to Table R402.1.2 and R402.1.3 to coordinate the requirements of the tables with the exception for slab-edge insulation in jurisdictions designated as having a very heavy termite infestation.

E5. Administrative Requirements for Renewable Energy

This amendment streamlines the process for implementation of renewable energy resources.

E6. Coordinated Amendment of E3 and E5

This amendment coordinates the language of amendment E3 and amendment E5 into a single amendment for those jurisdictions that decide to adopt both amendments.

E1. Alternative to Continuous Insulation in Attic Knee Walls

This amendment modifies the prescriptive wall insulation for attic knee walls allowing for cavity-only insulation for shorter attic knee walls in Climate Zones 3 through 6.

Revise as follows:

R402.2.3 Attic knee wall. Wood attic *knee wall* assemblies that separate *conditioned space* from unconditioned attic spaces shall comply with Table R402.1.3 for wood frame walls. Steel attic *knee wall* assemblies shall comply with Section R402.2.7. Such knee walls shall have an *air barrier* between conditioned and unconditioned space.

R402.2.3.1 Roof truss framing separating conditioned and unconditioned space. Where wood vertical roof truss framing members are used to separate *conditioned space* and unconditioned space, they shall comply with Table R402.1.3 for wood frame walls. Steel frame vertical roof truss framing members used to separate conditioned space and unconditioned space shall comply with Section R402.2.7.

Exception: Attic knee walls and roof truss framing that comply with all of the following:

1. The attic knee wall or roof truss framing assembly is provided with an air barrier and is insulated to not less than R-15 in Climate Zone 3 and not less than R-20 in Climate Zones 4-6.
2. The attic knee wall or roof truss framing assembly is not more than 5 feet in height.
3. One additional credit is achieved above the minimum number of credits required by Section R408.

Reason:

This amendment adds an alternate insulation method for shorter attic knee walls up to 5 feet in height. Energy neutrality is maintained by requiring an additional credit in section R408 that offsets energy impact. This option can be used to optimize costs and reduce complexity at the site by allowing cavity-only insulation. The modification increases the cavity insulation requirements, adds limits on the height of the attic knee wall for the applicable climate zones, and requires the home to achieve one additional credit under R408. The requirement for the additional credit has been selected based on an Ekotrope analysis that showed increased energy consumption of not more than 0.7% when comparing this alternate knee wall insulation package to the baseline configuration in the prescriptive table for above-grade walls.

Based on costs in the 2021 IECC Residential Cost Effectiveness Analysis from Home Innovation, this amendment can save almost \$1.50 per square foot of knee wall area in Climate Zones 4-6.

E2. Wall Insulation for Additions

This modification coordinates wall insulation requirements for additions with wall insulation requirements for new construction. Language like section R408.2.9 for new construction is added to the list of exceptions for building thermal envelope requirements for additions.

Revise as follows:

R502.2 Prescriptive compliance. Additions shall comply with Sections R502.2.1 through R502.2.5.

R502.2.1 Building thermal envelope. New building thermal envelope assemblies that are part of the addition shall comply with **Sections R402.1, R402.2, R402.4.1 through R402.4.5, and R402.5.**

Exceptions:

1. New building thermal envelope assemblies are exempt from the requirements of **Section R402.5.1.2.**
2. For buildings in climate zones 4 and 5, the maximum U-factor of 0.060 shall be permitted to be used for wood frame walls for compliance with Table R402.1.2 where complying with one or more of the following:
 1. Primary space heating serving the addition is provided by a heat pump that meets one of the efficiencies in R408.2.2.
 2. All installed water heaters serving the addition are heat pumps that meet one of the efficiencies in R408.2.3.
 3. In addition to the number of credits required by Section R502.2.5, two additional credits from R408 are achieved.
 4. *Renewable energy resources* are permanently installed that have the rated capacity to produce a minimum of 1.0 watt of *on-site renewable energy* per square foot of the *addition's conditioned floor area.*

Reason:

This amendment allows the same flexibility given under new construction to additions. Section R408.2.9 allows for an increase in the U-value of the prescriptive wall insulation requirements by trading off insulation values with other additional efficiency options. This amendment allows for the same flexibility in additions by including similar language in the building thermal envelope exceptions. Additional efficiency options include the use of a heat pump space heater, heat pump water heater, additional efficiency credits, or renewable energy systems.

E3. Offsite Renewable Energy for R408 and Appendix RG

This amendment adds an option to section R408 and Appendix RG to allow credits for offsite renewable energy through community solar or a power purchase agreement.

SECTION R202 DEFINITIONS

COMMUNITY RENEWABLE ENERGY FACILITY (CREF). A facility that produces energy from *renewable energy resources* and that is qualified as a community energy facility under applicable jurisdictional statutes and rules.

FINANCIAL RENEWABLE ENERGY POWER PURCHASE AGREEMENT (FPPA). A financial arrangement between a renewable electricity generator and a purchaser wherein the purchaser pays or guarantees a price to the generator for the project's renewable generation. Also known as a "financial power purchase agreement" and "virtual power purchase agreement."

PHYSICAL RENEWABLE ENERGY POWER PURCHASE AGREEMENT (PPPA). A contract for the purchase of renewable electricity from a specific renewable electricity generator by a purchaser of renewable electricity.

Revise R408.2.7 as follows

SECTION R408 ADDITIONAL EFFICIENCY REQUIREMENTS

R408.2.7 Renewable energy. *Renewable energy resources* shall meet the requirements of R408.2.7.1 or R408.2.7.2. ~~be permanently installed that have the rated capacity to produce a minimum of 1.0 watt of on-site renewable energy per square foot of conditioned floor area.~~ To qualify for this option, renewable energy certificate (REC) documentation shall meet the requirements of Section R404.4.

R408.2.7.1 On-site Renewable energy. *Renewable energy resources* shall be permanently installed on-site that have the rated capacity to produce not less than 1.0 watt of *on-site renewable energy per square foot of conditioned floor area.*

R408.2.7.2 Off-site Renewable energy. *Renewable energy resources* whether provided from a *community renewable energy facility (CREF)* or contracted from a physical or financial renewable energy power purchase agreement for not less than 1.0kWh per square foot of *conditioned floor area* on an annual basis.

R408.2.7.2.1 Renewable energy contract. The renewable energy shall be delivered or credited to the building site under an energy contract with a duration of not less than 15 years. The contract shall be structured to survive a partial or full transfer of ownership of the building property.

Add to RG101.3 as follows:

RG101.3.1 Off-site Renewable energy. This section shall be permitted to be used to meet the requirements for one of the two measures for compliance with Section RG101.3. *Renewable energy resources* whether provided from a *community renewable energy facility (CREF)* or contracted from a physical or financial renewable energy power purchase agreement for not less than 1.0kWh per square foot of *conditioned floor area* on an annual basis.

RG101.3.1.1 Renewable energy contract. The renewable energy shall be delivered or credited to the building site under an energy contract with a duration of not less than 15 years. The contract shall be structured to survive a partial or full transfer of ownership of the building property.

Reason:

This amendment allows for the inclusion of offsite renewable energy in points for R408 and Appendix RG. Definitions in this amendment are consistent with definitions added to the 2024 IECC in Appendix RC and with ASHRAE 90.1. Renewable energy no matter the source can reduce energy bills for homeowners. Allowing offsite renewable energy for energy code compliance will increase flexibility for homeowners and home builders. This flexibility may decrease costs and increase the adoption of more renewable energy production in communities.

For communities that want to adopt both amendment E3 and E5 see amendment E6 for an amendment with coordinated legislative language.

E4. Slab Edge Insulation in Heavy Termite Infestation

This amendment adds a footnote to Table R402.1.2 and R402.1.3 to coordinate the requirements of the tables with the exception for slab-edge insulation in jurisdictions designated as having a very heavy termite infestation.

Revise as follows:

TABLE R402.1.2 MAXIMUM ASSEMBLY U-FACTORS^a AND FENESTARTION REQUIREMENTS

Portions of table not shown remain unchanged.

CLIMATE ZONE	0	1	2	3	4 except Marine	5 and Marine 4	6	7 and 8
UNHEATED SLAB F-FACTOR ^h	0.73	0.73	0.73	0.54	0.54	0.54	0.48	0.48

For SI: 1 foot – 304.8mm.

h. A maximum F-factor of 0.73 shall apply in jurisdictions designated by the code official as having a very heavy termite infestation.

TABLE R402.1.3 INSULATION MINIMUM R-VALUES AND FENESTARTION REQUIREMENTS

Portions of table not shown remain unchanged.

CLIMATE ZONE	0	1	2	3	4 except Marine	5 and Marine 4	6	7 and 8
SLAB ^{d,e} R-VALUE & DEPTH	0	0	0	10ci, 2 ft	10ci, 4 ft	10ci, 4 ft	10ci, 4 ft	10ci, 4ft

For SI: 1 foot – 304.8mm.

e. Slab-edge insulation is not required in jurisdictions designated by the code official as having a very heavy termite infestation.

Reason:

This amendment adds a new footnote to Table R402.1.2 and Table R402.1.3 to coordinate with existing Section R402.2.10 addressing slab-edge insulation in areas with very heavy termite infestation. The footnotes clarify that slab edge insulation is not required to be modeled in the reference home when following the Total Building Performance Pathway in these areas. This change keeps parity between the prescriptive and performance paths. The code change proposal neither increases nor decreases the cost of construction.

E5. Administrative Requirements for Renewable Energy

This amendment streamlines the process for implementation of renewable energy resources.

Revise as follows:

~~**R404.4 Renewable energy certificate (REC) documentation.** Where renewable energy generation is used to comply with this code, the documentation shall be provided to the *code official* by the property owner or owner's authorized agent which demonstrates that where RECs or EACs are associated with that portion of renewable energy used to comply with this code, the RECs or EACs shall be retained, or retired, on behalf of the property owner.~~

~~**R406.7.3 Renewable energy certificate (REC) documentation.** Where on-site renewable energy renewable energy power production is included in the calculation of an ERI, documentation shall comply with Section R404.4.~~

~~**R408.2.7 Renewable energy.** Renewable energy resources shall be permanently installed and have the rated capacity to produce not less than 1.0 watt of on-site renewable energy per square foot of conditioned floor area. To qualify for this option, renewable energy certificate (REC) documentation shall meet the requirements of Section R404.4.~~

~~**R103.2 Renewable energy certificate (REC) documentation.** Where renewable energy certificates (RECs) are associated with renewable energy power production required documentation shall comply with Section R404.4.~~

Reason:

Renewable energy certificates are the tool used to represent the non-power benefits of renewable energy and are generally issued when one megawatt-hour of electricity is produced. These certificates are an accepted legal instrument through which renewable energy generation and use claims are substantiated in the U.S. renewable energy market but are prohibitively complex to administer at the residential scale. From a process standpoint, the home builder will make the decision about whether to include renewable energy in the compliance of the code and the home builder will submit documentation to the building code official to determine compliance with the code. A homeowner or third-party owner will then take over ownership of the renewable energy system and its associated environmental attributes when the home is purchased, and the renewable energy system is either purchased or leased. If they were to sell the Renewable Energy Credits (RECs), they would sell them to a utility or other buyer that would not have visibility into whether renewable energy was used to comply with the energy code. Also, some utilities require RECs be transferred to the utility as a condition of interconnection. The requirement around retaining ownership of RECs conflicts with policies outside of the energy code and would be onerous for the homeowner or home builder to document and the code official to interpret. This amendment removes Section R404.4 for documentation of RECs as part of code compliance along with all references to Section R404.4 from the main text of the code and appendices.

For communities that want to adopt both amendment E3 and E5 see amendment E6 for an amendment with coordinated legislative language.

E6. Coordinated Amendment of E3 and E5

This amendment coordinates the language of amendment E3 and amendment E5 into a single amendment for those jurisdictions that decide to adopt both amendments.

Revise as follows:

~~**R404.4 Renewable energy certificate (REC) documentation.** Where renewable energy generation is used to comply with this code, the documentation shall be provided to the *code official* by the property owner or owner's authorized agent which demonstrates that where RECs or EACs are associated with that portion of renewable energy used to comply with this code, the RECs or EACs shall be retained, or retired, on behalf of the property owner.~~

~~**R406.7.3 Renewable energy certificate (REC) documentation.** Where on-site renewable energy renewable energy power production is included in the calculation of an ERI, documentation shall comply with Section R404.4.~~

~~**R408.2.7 Renewable energy.** *Renewable energy resources* shall meet the requirements of R408.2.7.1 or R408.2.7.2. ~~be permanently installed that have the rated capacity to produce a minimum of 1.0 watt of on-site renewable energy per square foot of conditioned floor area.~~ To qualify for this option, renewable energy certificate (REC) documentation shall meet the requirements of Section R404.4.~~

~~**R408.2.7.1 On-site Renewable energy.** *Renewable energy resources* shall be permanently installed on-site that have the rated capacity to produce not less than 1.0 watt of *on-site renewable energy per square foot of conditioned floor area.*~~

~~**R408.2.7.1 On-site Renewable energy.** *Renewable energy resources* shall be permanently installed on-site that have the rated capacity to produce not less than 1.0 watt of *on-site renewable energy per square foot of conditioned floor area.*~~

~~**R408.2.7.2 Off-site Renewable energy.** *Renewable energy resources* whether provided from a *community renewable energy facility (CREF)* or contracted from a physical or financial renewable energy power purchase agreement for not less than 1.0kWh per square foot of *conditioned floor area* on an annual basis.~~

~~**R408.2.7.2.1 Renewable energy contract.** The renewable energy shall be delivered or credited to the building site under an energy contract with a duration of not less than 15 years. The contract shall be structured to survive a partial or full transfer of ownership of the building property.~~

~~**RG101.3.1 Off-site Renewable energy.** This section shall be permitted to be used to meet the requirements for one of the two measures for compliance with Section RG101.3. *Renewable energy resources* whether provided from a *community renewable energy facility (CREF)* or contracted from a physical or financial renewable energy power purchase agreement for not less than 1.0kWh per square foot of *conditioned floor area* on an annual basis.~~

RG101.3.1.1 Renewable energy contract. The renewable energy shall be delivered or credited to the building site under an energy contract with a duration of not less than 15 years. The contract shall be structured to survive a partial or full transfer of ownership of the building property.

~~**RI103.2 Renewable energy certificate (REC) documentation.** Where renewable energy certificates (RECs) are associated with renewable energy power production required documentation shall comply with Section R404.4.~~

Reason:

Refer to reason statements from proposed amendments E3 and E5.