

Public Code Change Proposal Form

To Amend the 2024 Illinois Energy Conservation Code

CDB Use Only
Proposal No. R06
Section R402.1.2, R402.1.3
Date Submitted 12/30/24

Name:	Elizabeth Reese
Jurisdiction/Company:	Huntsman Corporation
Submitted on Behalf of:	Huntsman Building Solutions
Address:	3315 E Division St, Arlington, TX 76011
Phone:	817-269-4579
Email:	ereese@huntsmanbuilds.com

Synopsis

This proposal creates a new prescriptive U-factor and R-value for roof deck insulation installed in unvented attics.

Related Sections Impacted by this Amendment:

R402.1.2 and R402.1.3

Revise as Follows (In strike-thru / underline format):

(Show proposed code language here as modifications to the 2024 IECC model code using ~~red strike-thru for deletions~~ and blue underline for new text.) All black text should be identical to the model code.

R402.1.2 Insulation and fenestration criteria

The building thermal envelope shall meet the requirements of table R402.1.2 based on the climate zone in Chapter 3. Assemblies shall have a U-factor or F-factor equal or less than that specified in Table R402.1.2. Fenestrations shall have a U-factor and glazed fenestration SHGC equal to or less than that specified in Table R402.1.2.

R402.1.2.1 Unvented Attics

Unvented attic and unvented enclosed rafter assemblies insulated, and air sealed with air impermeable insulation may be installed with a maximum U-Factor of 0.034 insulation, with the following requirements:

1. The house shall attain a blower door test result $< 2.5 \text{ ACH}_{50}$.
2. The house shall require a positive, balanced or hybrid whole house mechanical ventilation system that does not rely solely on a negative pressure strategy (must be).
3. Where insulation is installed below the roof deck and the exposed portion of roof rafters are not already covered by the full depth of the air-impermeable insulation, the exposed portion of the roof rafters shall be insulated by minimum R-3 unless directly covered by drywall/finished ceiling. Roof rafters are not required to be covered by minimum R-3 if a continuous insulation is installed above the roof deck.
4. Indoor heating, cooling, and ventilation equipment (including ductwork) shall be inside the building thermal envelope.

R402.1.3 R-value alternative

Assemblies with an R-value of insulation materials equal to or greater than that specified in Table R402.1.3 shall be an alternative to the U-factor or F-factor in Table 402.1.2

R402.1.3.1 Unvented Attics

Unvented attic and unvented enclosed rafter assemblies insulated, and air sealed with air impermeable insulation may be installed with a minimum R-value of R-30 insulation, with the following requirements:

1. The house shall attain a blower door test result $< 2.5 \text{ ACH}_{50}$.
2. The house shall require a positive, balanced or hybrid whole house mechanical ventilation system that does not rely solely on a negative pressure strategy (must be).
3. Where insulation is installed below the roof deck and the exposed portion of roof rafters are not already covered by the full R-30 of the air-impermeable insulation, the exposed portion of the roof rafters shall be insulated by minimum R-3 unless directly covered by drywall/finished ceiling. Roof rafters are not required to be covered by minimum R-3 if a continuous insulation is installed above the roof deck.
4. Indoor heating, cooling, and ventilation equipment (including ductwork) shall be inside the building thermal envelope.

Reason:

Illinois Energy Conservation Code does not differentiate between unvented and vented attics. Unvented attics are more energy efficient and resilient than traditional vented attics. To construct a typical unvented attic, spray foam, an air-impermeable insulation, is applied in direct contact with the underside of the structural roof sheathing and on all gable end walls. The result is an attic encapsulated or “sealed” with spray foam insulation which is also sealed to the top of the exterior walls. The insulation layer forms a continuous “air barrier” in the attic to seal the space from outdoor air. By moving the insulation and air pressure boundary to the underside of the roof deck, temperature and humidity conditions in the attic can be kept reasonably close to those conditions within the occupied interior of the building.

Unvented attics create a more efficient home because all the mechanical equipment and duct work is operating inside conditioned space.

Currently, unvented attics in Illinois are required to comply with ceiling insulation requirements in table R402.1.2 or R402.1.3. This requires builders to install more insulation than is needed, which increases costs, decreases affordability, and provides little to no benefit to the homeowner in terms of energy efficiency.

Creating a new prescriptive insulation requirement will provide builders with flexibility to comply with the Illinois Energy Conservation Code while reducing costs, improving home affordability, and will reduce emissions via preventing duct leakage and increasing air tightness.

Cost Impact:

This is a voluntary option for builders and will reduce costs associated with complying with the 2024 Illinois Energy Conservation Code.

I hereby grant and assign to CDB or State of Illinois all rights in copyright I may have in any authorship contributions I make to CDB or the State of Illinois in connection with any proposed amendments or public comment, in its original form submitted or revised form, including written and verbal modifications. I understand that I have no rights in any CDB or State of Illinois publications that use such contributions in the form submitted by me or another similar form and certify that such contributions are not protected by the copyright of any other person or entity.

Signature (for release of copyrights):



A proponent shall not submit multiple amendments to the same code section. When a proponent submits multiple amendments to the same section, the proposals shall be considered as incomplete proposals. The proponent of the proposal shall be notified and the proposal shall be held until the deficiencies are corrected, with a final date set for receipt of a corrected submittal. If the corrected amendment is received after the final date, the proposal shall not be

considered by the ILECAC. This restriction shall not apply to amendments that attempt to address differing subject matter within a code section.