




2015 PENNSYLVANIA UNIFORM CONSTRUCTION CODE

SUMMARY OF KEY ENVELOPE CHANGES



There can be a lot of uncertainty and misinformation when new energy codes take effect. Below is a summary of the most important changes impacting the building envelope requirements of Pennsylvania's 2015 Uniform Construction Code (UCC). The start date for compliance with the new code is **October 1, 2018**.

TOP 3 TAKEAWAYS OF THE NEW ENERGY CODE

1 Energy Rating Index (ERI) Compliance Path and Backstop. This new compliance path represents a huge change in the Pennsylvania Uniform Construction Code. Market adoption of this approach won't occur overnight, but a new option is available to builders that includes reasonable mandatory ERI minimum insulation levels at the 2009 IECC (or 2015 IECC if renewable energy is used for compliance).

2 Prescriptive Insulation Improvements. The thermal envelope was improved from the 2009 IECC to 2015 IECC efficiency levels.

3 Buried Ducts 2018 IECC Language. New options are available to gain credit for locating ducts in ceiling insulation when using a vented attic.

KEY CHANGES TO BUILDING ENVELOPE REQUIREMENTS OF THE 2015 PA UCC

CODE PATH	2015 CODE SECTION	CHANGE SUMMARY
Prescriptive	R402.1.2 – Wood framed wall	R-values & U-factors have been improved <ul style="list-style-type: none"> Walls – R-20 or R-13+5 / U-0.060 in CZ 4&5 R-20+5 or R-13+10 or R-18+6.5 / U-0.045 in CZ 6
	R402.1.2 – Ceilings	R-values & U-factors have been improved <ul style="list-style-type: none"> Ceilings – R-49 / U-0.026
	R402.1.2 – Windows + Skylights	U-factors and SHGCs have been improved <ul style="list-style-type: none"> Windows – U-0.32/0.40 SHGC in CZ 4; U-0.32 in CZ 5&6 Skylights – U-0.55
	R402.1.2 – Below grade walls	R-values & U-factors have been improved <ul style="list-style-type: none"> Walls – CZ 4 R-10/13 / U-0.059; CZ 5&6 R-15/19 / U-0.050
	R403.3.6 – Ducts buried in ceiling insulation	New option for including ducts contained within ceiling insulation
	R403.3.7 – Ducts located in conditioned space	New benefit for including well-sealed ducts contained within ceiling insulation
Mandatory	R402.4 – Air leakage	Air leakage target improved and testing is now mandatory <ul style="list-style-type: none"> Tested air exchange rate – 5 ACH50

Note: All R-values are minimums and U-Values maximums.



WHAT IS ERI?

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The Energy Rating Index (ERI) provides a new path for code compliance. If you are using the ERI path, you must meet a certain numerical score, from 0-100, to achieve energy code compliance. The score of 100 on the scale is designed to align with the 2006 IECC model code. With ERI, a lower score means a more energy-efficient home. Certified software must be used to determine code compliance. In Pennsylvania, the target ERI score is 61 in Climate Zones 5 and 6, and 62 in Climate Zone 4. While the ERI is a performance path approach, it also carries certain mandatory elements. For example, if a builder uses the ERI path, the insulation levels must still meet or exceed the prescriptive levels found in the 2009 IECC.

How does it relate to HERS?

Technically speaking, the ERI path is distinct from the Home Energy Rating System (HERS), as other approved home rating programs could, in theory, be used for ERI compliance. As a matter of practice today, using the ERI path means builders need to use HERS for demonstration of building code compliance.

What do ERI and HERS have to do with renewable energy?

The HERS system allows for the use of renewable energy to reduce your score, so effectively ERI does as well. However, to ensure that renewable energy is not used as a substitute for more permanent and reliable energy efficiency measures, the code contains backstop provisions. If ERI is used for compliance, **and** renewable energy is incorporated, builders must construct a building envelope that meets the prescriptive envelope requirements of the 2015 IECC.

This summary is offered for informational purposes only. It does not purport to be an exhaustive analysis of code changes or provide advice that will ensure guaranteed compliance with any energy code provision. Please consult with local authorities before finalizing your installation plans.



FAQ

What are buried ducts?

Buried ducts consist of heating and cooling ductwork that is installed in a vented attic, but located within the ceiling insulation. The new code language on this practice outlines two approaches, (1) deeply buried ducts and (2) ducts considered inside conditioned space. The first (1) permits the use of the ceiling insulation surrounding the duct to be used when determining duct insulation performance. The second (2) outlines air sealing requirements and insulation requirements that, when met, allow the duct to be modeled as being in conditioned space for the purposes of the performance path for code compliance.

Prior to the inclusion of this code language, buried ducts were prohibited in some jurisdictions as no guidelines for adequate performance were outlined within the code. Code compliance was met via alternative materials, design, and methods of construction and equipment provisions in the International Residential Code (IRC).

For more information on the requirements for buried ducts, check with your local building department, see sections R403.3.6 and R403.3.7 of the 2018 IECC, or review the recent **TechSpec report** (<https://www.homeinnovation.com/-/media/%20Files/Reports/TechSpec-Buried-Ducts-2017.pdf>) on buried ducts by Home Innovation Research Labs.



ADDITIONAL INFORMATION

- **Learn more about the ERI compliance path here:**

<https://www.energycodes.gov/resource-center/training-courses/2015-iecc-%E2%80%93-energy-rating-index-eri-compliance-alternative>

Get the Facts for a Stronger Business

Learn more about fiber glass and mineral wool insulation at InsulationInstitute.org



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