PENNSYLVANIA UNIFORM CONSTRUCTION CODE

SUMMARY OF KEY RESIDENTIAL ENERGY CODE REQUIREMENTS

The 2021 IECC with Pennsylvania specific amendments went into effect on **January 1, 2026**. This document summarizes changes to the building envelope-related requirements in the updated code for Pennsylvania.

CODE CHANGE HIGHLIGHTS

- Section R408 'Additional Efficiency Package Options' is not required.
- Wall insulation requirements are more stringent in climate zone 5.
- The Pennsylvania Housing Research Center offers an alternative compliance path that is summarized on the second page of this document and is available at: ***https://www.phrc.psu.edu/Publications/Housing-and-Land-Development-Standards-and-Guidelines.aspx***

BUILDING ENVELOPE AND DUCT REQUIREMENTS

PRESCRIPTIVE	CLIMATE ZONE 4	CLIMATE ZONE 5
Wood Frame Wall	R-20 or R-13+5 ci / U-0.060	R-23 or R-13+7.5ci or R-20+3.8ci / U-0.051
Ceilings	R-49 / U-0.026	
Crawl Space Walls	R-13 or R-10ci / U-0.065	R-19 or R-15ci / U-0.055
Fenestration	U-0.30 / SHGC-0.40	U-0.30
Floors	R-19 / U-0.047	R-30 / U-0.033
Mass Wall[a]	R-8/13 / U-0.098	R-13/17 / U-0.082
Basement Walls	R-13 or R-10ci / U-0.059	R-19 or R-15ci / U-0.050
Slab R-value and Depth	R-10, 2 ft.	R-10, 4 ft. or R-15, 3 ft.

DUCT LEAKAGE

MEASUREMENT	CFM25 / 100 SQ. FT.
Rough-in (installed air handler)	4
Rough-in (air handler not installed)	3
Post-construction	4

DUCT R-VALUE

R-VALUE
R-8[b]

AIR LEAKAGE

CLIMATE ZONE	MEASUREMENT
ALL CLIMATE ZONES	3 ACH50

MAXIMUM ENERGY RATING INDEX (ERI)

CLIMATE ZONE 4	CLIMATE ZONE 5
62	61

a. The second R-value applies when more than half is installed on the interior side.

b. In attics. R-6 in other portions of the building. R-6 and R-4.2 respectively for ducts <3 inches.

ACCESS THE PENNSYLVANIA AMENDMENTS TO THE 2021 IECC HERE:

https://s3.amazonaws.com/state-bill-supporting-docs/3f37b430-c3a4-4f5c-84ac-70aa1434d55c.pdf

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PENNSYLVANIA ALTERNATIVE RESIDENTIAL ENERGY PROVISIONS (2025 PA-ALT)

SUMMARY OF KEY RESIDENTIAL ENERGY CODE REQUIREMENTS

The Pennsylvania Housing Research Center (PHRC) develops these alternative provisions (2025 PA-Alt) that are designed to be equivalent to the 2025 Pennsylvania Uniform Construction Code.

LINK TO THE 2025 PA-AL

The full text of the 2025 Pennsylvania Alternative Residential Energy Provisions is available here: ***https://www.phrc.psu.edu/Publications/Housing-and-Land-Development-Standards-and-Guidelines.aspx***. The modified prescriptive envelope table and the energy enhancement options are below. Duct and envelope leakage requirements align with the Pennsylvania Uniform Construction Code. At least one Energy Enhancement Option is required.

BUILDING ENVELOPE REQUIREMENTS

PRESCRIPTIVE	CLIMATE ZONE 4	CLIMATE ZONE 5
Wood Frame Wall[a]	R-20 or R-13+5 ci / U-0.060	R-23 or R-13+7.5ci or R-20+3.8ci / U-0.051
Ceilings	R-49 / U-0.026	
Crawl Space Walls	R-13 or R-10ci / U-0.065	
Fenestration	U-0.30 / SHGC-0.40	U-0.30
Floors	R-19 / U-0.047	R-30 / U-0.033
Mass Wall[b]	R-8/13 / U-0.098	R-13/17 / U-0.082
Basement Walls	R-13 or R-10ci / U-0.059	
Slab R-value and Depth	R-10, 2 ft.	R-10, 4 ft. or R-15, 3 ft.

a. If using ≤19% framing factor, wall R can be reduced to R-18 and R-20.
b. The second R-value applies when more than half is installed on the interior side.

ENERGY ENHANCEMENT OPTIONS

	OPTIONS – MINIMUM EFFICIENCIES		CLIMATE ZONE 4	CLIMATE ZONE 5
1	**Ductless heat pumps**		8.6 HSPF2 and 18 SEER2	
2	**All air ducts located inside the thermal envelope**		Compliant	
3	**Geothermal or water source heat pump installed**		Compliant (COP 3.6)	
4	**Improved efficiency air source heat pump installed**		7.7 HSPF2 and 16.2 SEER2	8.4 HSPF2 and 18.1 SEER2
5	**Improved efficiency condensing furnace installed**		92.5 AFUE	
6	**Exterior continuous insulation**		R-20+10	R-20+15
7	**Improved efficiency windows**		U-0.21	U-0.19
8	*Package:* **Improved efficiency windows** *and* **higher attic R-value with raised heel truss**[c]	Windows	U-0.25	U-0.21
		Attic	R-60	
9	*Package:* **Improved efficiency windows** *and* **heat pump water heater**	Windows	U-0.25	U-0.21
		Heat pump water heater	UEF-3.5	

c. Full height of uncompressed insulation shall extend over the top plate at the eaves.

ACCESS THE PENNSYLVANIA AMENDMENTS TO THE 2021 IECC HERE:

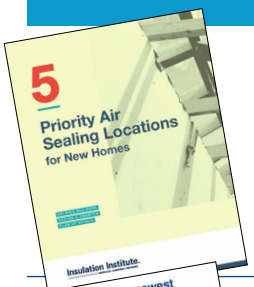
www.pa.gov/content/dam/copapwp-pagov/en/dli/documents/ucc/documents/2021%20icc%20code%20adoption%20final%20report.pdf

ENERGY-EFFICIENT, COST-EFFECTIVE CONSTRUCTION WITH FIBERGLASS AND MINERAL WOOL INSULATION

As code levels advance, **keep informed about innovative practices** to meet or exceed code requirements using cost-effective fiberglass and mineral wool insulation.

The following resources in the table below are just a subset of the many guides available from the **Insulation Institute** to help you achieve new performance requirements with proven approaches.

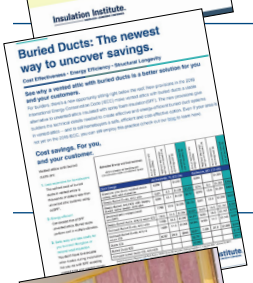
INSULATION INSTITUTE RESOURCES



Air Leakage

As states adopt more stringent energy codes, some builders may experience challenges meeting new mandatory air leakage requirements. Fiberglass and mineral wool insulation is the low-cost solution for homebuilders to meet or surpass code air leakage rate requirements of 3 or 5 air changes per hour depending on climate zone. For homeowners, an airtight building envelope results in energy savings and increased thermal comfort.

https://insulationinstitute.org/wp-content/uploads/2018/05/N090-5-Air-Sealing-Locations-for-New-Homes.pdf



Ducts Buried Within Ceiling Insulation

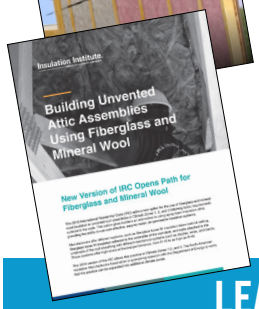
Deeply buried ducts in attics is an easy way to lower energy code compliance costs for builders using the simulated energy performance path. Homeowners can benefit from energy savings realized from lower-capacity, lower-cost HVAC systems.

https://insulationinstitute.org/wp-content/uploads/2019/03/N087-Buried-Ducts-The-newest-way-to-uncover-savings.pdf

Proper Installation of Insulation

Grade I installation delivers superior energy efficiency and is increasingly required by state energy codes. Insulation installation jobs that fail to meet Grade I criteria can mean construction delays due to callbacks, HERS rating penalties, and failed code inspections. Grade I installation is readily achievable by following basic guidelines as recommended by manufacturers. NAIMA offers free online training for installers.

www.grade1insulation.org



Unvented Attics Using Fiberglass and Mineral Wool Insulation

Unvented attics can be constructed by installing fiberglass or mineral wool insulation below the roof deck instead of using more costly materials like spray foam. In addition, fiberglass and mineral wool insulation products are green certified and do not carry recommended occupancy restrictions due to product off-gassing after installation. Starting with the 2018 IRC, this practice is outlined in detail within the code. Homeowners benefit from lower construction costs and the use of a safe product.

https://insulationinstitute.org/wp-content/uploads/2018/05/BuildingUnventedAtticAssemblies-N089.pdf

LEARN MORE TO SEE HOW THE ENERGY CODE SAVES YOU MONEY:

https://insulationinstitute.org/wp-content/uploads/2024/10/Modern-Energy-Codes-Save-Money-Infographic.pdf

Get the Facts for a Stronger Business

Learn more about fiberglass and mineral wool insulation at InsulationInstitute.org

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PUB.NO. N109 12/25