

COMPLIANCE WORKSHEET

2021 PENNSYLVANIA ALTERNATIVE RESIDENTIAL ENERGY PROVISIONS (PA-ALT)

PROJECT

ADDRESS OF JOB _____
PERMIT APPLICANT _____
PERMIT # (to be filled out by code office) _____
DATE _____ DATE ON PLANS _____
CLIMATE ZONE _____ PHONE # _____

About the 2021 PA-Alt:

Per the Pennsylvania Department of Labor & Industry at <https://www.dli.pa.gov/ucc/Pages/UCC-Codes.aspx>

The UCC regulations [34 Pa. Code Chapter 403.21 (d)(1)] provide for the use of an alternative to Chapter 11 of the International Residential Code (or Chapter 4 (RE) of the International Energy Conservation Code), to demonstrate compliance with the energy conservation requirements of the UCC. This alternative compliance path, which can be obtained by clicking on the link below, was developed by the Pennsylvania Housing Research Center at Penn State and is entitled "Pennsylvania Alternative Energy Provisions". **Access the 2021 PA-Alt at <https://bit.ly/2021PA-Alt>.**

How to use the 2021 PA-Alt:

- This worksheet is only intended to aid in permit application submission. The entirety of the 2021 PA Alternative Residential Energy Provisions must be followed, including all mandatory provisions.
- Entrance requirements:** To utilize the PA-Alt, the building owner or agent must choose at least one of the energy enhancement options in Table PA104.

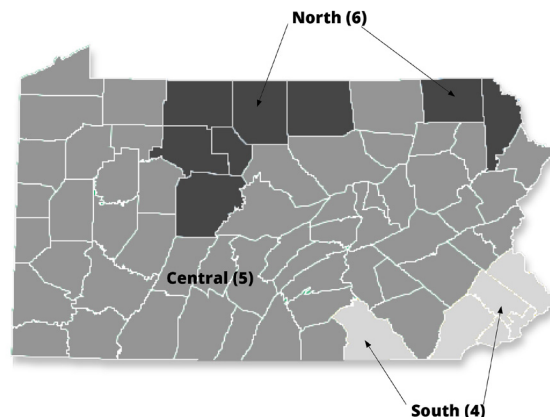
Entrance option selected:

- Insulation and fenestration criteria.** The building thermal envelope shall meet the requirements of Table PA301 based on the climate zone specified in PA201.

Climate Zone	Fenestration ^b U-factor	Skylights ^b U-factor	Glazed Fenestration SHGC ^{b,e}	Ceiling R-value	Wood Frame Wall R-value	Mass Wall R-value ^h	Floor R-value	Basement ^c Wall R-value	Slab ^d R-value and depth	Crawlspace ^c Wall R-value
Proposed										

PA201.1 Climate Zones:

- South (4):** Bucks, Chester, Delaware, Montgomery, Philadelphia, York
- Central (5):** All other counties
- North (6):** Cameron, Clearfield, Elk, McKean, Potter, Susquehanna, Tioga, Wayne



2021 PENNSYLVANIA ALTERNATIVE RESIDENTIAL ENERGY PROVISIONS: REFERENCE TABLES

Table PA104
Energy Enhancement Options

Option	Description	Minimum efficiency by climate zone			
		South (4)	Central (5)	North (6)	
1	Ductless heat pumps ^a	8.5 HSPF and 15 SEER	10 HSPF and 15 SEER	10 HSPF and 15 SEER	
2	All air ducts located inside the thermal envelope	Compliant	Compliant	Compliant	
3	Geothermal or water source heat pump installed ^a	Compliant	Compliant	Compliant	
4	Improved efficiency air source heat pump installed ^a	9.5 HSPF and 19 SEER	9.5 HSPF and 19 SEER	11 HSPF and 19 SEER	
5	Improved efficiency condensing furnace installed ^a	92 AFUE	95 AFUE	95 AFUE	
6	Exterior continuous insulation	R20+10	R20+10	R20+15	
7	Improved efficiency windows	U-factor = 0.21	U-factor = 0.19	U-factor = 0.15	
8	Package: Improved efficiency windows and higher attic R-value with raised heel truss ^b	Windows	U-factor = 0.25	U-factor = 0.21	U-factor = 0.19
		Attic	R-value = 60	R-value = 60	R-value = 60
9	Package: Improved efficiency windows and heat pump water heater	Windows	U-factor = 0.25	U-factor = 0.21	U-factor = 0.19
		Heat Pump Water Heater	Compliant	Compliant	Compliant

Notes:

- For multiple cooling systems, all systems shall meet or exceed the minimum efficiency requirements in this section and shall be sized to serve 100 percent of the cooling design load. For multiple heating systems, all systems shall meet or exceed the minimum efficiency requirements in this section and shall be sized to serve 100 percent of the heating design load.
- Full height of uncompressed insulation shall extend over the top plate at the eaves.

Table PA301
Insulation and Fenestration Requirements by Component^a

Climate Zone	Fenestration ^b U-factor	Skylights ^b U-factor	Glazed Fenestration SHGC ^{b,e}	Ceiling R-value	Wood Frame Wall R-value	Mass Wall R-value ^h	Floor R-value	Basement ^c Wall R-value	Slab ^d R-value and depth	Crawlspace ^c Wall R-value
South (4)	0.32	0.55	0.4	38	20 ⁱ or 13+5 ^g	8/13	19	10/13	10, 2 ft	10/13
Central (5)	0.30	0.55	NR	49	20 ⁱ or 13+5 ^g	13/17	30 ^f	10/13	10, 2 ft	10/13
North (6)	0.30	0.55	NR	49	23, 20+5 ^g , or 13+10 ^g	15/20	30 ^f	10/13	10, 4 ft	10/13

Notes:

- R-values are minimums. U-factors and SHGC are maximums. Where insulation is installed in a cavity that is less than the label or design thickness of the insulation, the installed R-value of the insulation shall be not less than the R-value specified in the table.
- The fenestration U-factor column excludes skylights. The SHGC column applies to all glazed fenestration.
Exception: In Climate Zones 1 through 3, skylights shall be permitted to be excluded from glazed fenestration SHGC requirements provided that the SHGC for such sky lights does not exceed 0.30.
- "10/13" means R-10 continuous insulation on the interior or exterior of the home or R-13 cavity insulation on the interior of the basement wall. "15/19" means R-15 continuous insulation on the interior or exterior of the home or R-19 cavity insulation on the interior of the basement wall. Alternatively, compliance with "15/19" shall be R-13 cavity insulation on the interior of the basement wall plus R-5 continuous insulation on the interior or exterior of the home.
- For heated slabs, refer to requirements in 2018 IRC Table N1102.1.2 (R402.1.2) and 2018 IRC Section N1102.2.10 (R402.2.10).
- There are no SHGC requirements in the Marine Zone.
- Alternatively, insulation sufficient to fill the framing cavity providing not less than an R-value of R-19.
- The first value is cavity insulation, the second value is continuous insulation. Therefore, as an example, "13+5" means R-13 cavity insulation plus R-5 continuous insulation.
- Mass walls shall be in accordance with Section N1102.2.5. The second R-value applies where more than half of the insulation is on the interior of the mass wall.
- R-18 insulation shall be permitted in place of R-20 requirement provided the wall framing factor is 20% or less or exterior walls with 24" on center nominal vertical stud spacing.