

COMPLIANCE WORKSHEET

2018 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 2018 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 University and is entitled "Pennsylvania Alternative Energy Provisions". **Access the PA-Alt at <http://bit.ly/2018PA-Alt>.**

How to use the 2018 PA-Alt:

- This worksheet is only intended to aid in permit application submission. The entirety of the 2018 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.

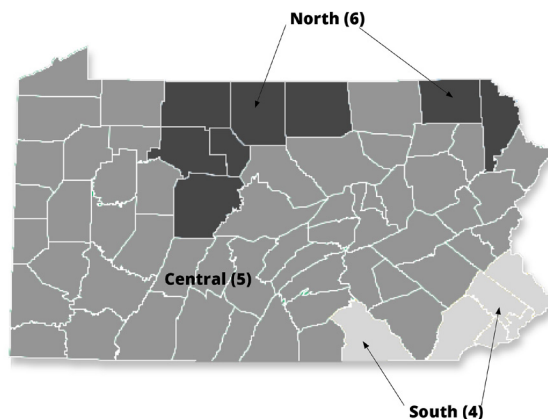
Entrance option selected:

- 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 U-factor | Glazed Fenestration SHGC | Ceiling R-value | Wood Frame Wall R-value | Mass Wall R-value ^c | Floor R-value | Basement ^d Wall R-value | Slab ^e R-value and depth | Crawlspace ^d 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



2018 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 | 8.5 HSPF | 8.5 HSPF | 8.5 HSPF | |
| 2 | All air ducts located inside the thermal envelope | Compliant | Compliant | Compliant | |
| 3 | Solar photovoltaic system installed | 1.4 kW | 1.7 kW | 3.4 kW | |
| 4 | Geothermal or water source heat pump installed | Compliant | Compliant | Compliant | |
| 5 | Improved efficiency air source heat pump installed | 8.7 HSPF | 9.0 HSPF | 10.0 HSPF | |
| 6 | Improved efficiency furnace installed | 90 AFUE | 90 AFUE | 90 AFUE | |
| 7 | Exterior continuous insulation | R20+10 | R20+10 | | |
| 8 | Improved airtightness | 3.0 ACH50 | 3.0 ACH50 | 3.0 ACH50 | |
| 9 | Improved efficiency windows | U-factor = 0.25 | U-factor = 0.23 | U-factor = 0.19 | |
| 10 | Package: Improved efficiency windows and higher attic R-value with raised heel truss ^a | Windows | U-factor = 0.27 | U-factor = 0.25 | U-factor = 0.25 |
| | | Attic | R-value = 60 | R-value = 60 | R-value = 60 |
| 11 | Package: Improved efficiency windows and heat pump water heater | Windows | U-factor = 0.27 | U-factor = 0.25 | U-factor = 0.23 |
| | | Heat Pump Water Heater | Compliant | Compliant | Compliant |

Notes:

- a. 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 U-factor | Glazed Fenestration SHGC | Ceiling R-value | Wood Frame Wall R-value | Mass Wall R-value ^c | Floor R-value | Basement ^d Wall R-value | Slab ^e R-value and depth | Crawlspace ^d Wall R-value |
|--------------|------------------------------------|--------------------|--------------------------|-----------------|--------------------------------------|--------------------------------|-----------------|------------------------------------|-------------------------------------|--------------------------------------|
| South (4) | 0.35 | 0.55 | 0.4 | 38 | 20 ^h or 13+5 ^g | 8/13 | 19 | 10/13 | 10, 2 ft | 10/13 |
| Central (5) | 0.32 | 0.55 | NR | 49 | 20 ^h or 13+5 ^g | 13/17 | 30 ^f | 10/13 | 10, 2 ft | 10/13 |
| North (6) | 0.32 | 0.55 | NR | 49 | 23, 20+5, 18+6.5, or 13+10 | 15/20 | 30 ^f | 10/13 | 10, 4 ft | 15/19 |

Notes:

- a. R-values are minimums. U-factors and solar heat gain coefficient (SHGC) are maximums. R-19 batts compressed in to nominal 2 x 6 framing cavity such that the R-value is reduced by R-1 or more shall be marked with the compressed batt R-value in addition to the full thickness R-value.
- b. The fenestration U-factor column excludes skylights.
- c. The second R-value applies when more than half the insulation is on the interior.
- d. The first R-value applies to continuous insulation on the interior or exterior of the home, the second to framing cavity insulation at the interior of the basement wall; either insulation meets the requirement.
- e. R-5 shall be added to the required slab edge R-values for heated slabs.
- f. Or insulation sufficient to fill the framing cavity, R-19 minimum. Floor insulation may also be reduced to R-19 if installed above an unconditioned basement.
- g. "13 + 5" means R-13 cavity insulation plus R-5 insulated sheathing. If structural sheathing covers 40% or less of the exterior, continuous insulation R-value shall be permitted to be reduced by no more than R-3 in the locations where structural sheathing is used - to maintain a consistent total sheathing thickness.
- h. 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" o.c. nominal vertical stud spacing.