



# Montgomery County Building Regulations

## Prescriptive Energy Code Requirements for 1, 2 and 3 Family Dwellings

Based upon 2006 International Energy Conservation Code Requirements for Zone 5

Job Name \_\_\_\_\_ Date \_\_\_\_\_

Job Address \_\_\_\_\_ Township/City \_\_\_\_\_

Building Envelope Requirements									
Zone	Maximum		Minimum Insulation R-Value						
	Window and Glass Door U-Factor <sup>4</sup>	Skylight Glazing U-Factor	Ceiling R Value <sup>9</sup>	Wood Frame Wall R-Value	Mass Wall R-Value <sup>5</sup>	Floor R-Value <sup>8</sup>	Basement Wall R-Value <sup>6, 7</sup>	Slab Perimeter R-Value <sup>3</sup>	Crawlspace Wall R-Value <sup>2, 6</sup>
5	.35	.60	R-38	R-19 or R-13 + 5 <sup>1</sup>	R-13	R-30	R-10 / 13	R-10 / 15	R-10 / 13
Thermally Isolated Sunrooms (greater than 40% glazing). <sup>10,11</sup>									
5	.50	.60	R-24	R-13	R-13	R-30	R-10 / 13	R-10 / 15	R-10 / 13

1. Exterior wall R-value includes insulation in wall and exterior continuous sheathing. "13+5" means R-13 cavity insulation plus R-5 insulated sheathing. If structural sheathing covers 25 percent or less of the exterior, insulating sheathing is not required where structural sheathing is used. If structural sheathing covers more than 25 percent of exterior, structural sheathing shall be supplemented with insulated sheathing of at least R-2. Make sure the construction is capable of insulating per this table and show the required R-values on the plans. For example, 2x4 walls will not hold R-19 batt insulation. Submit manufacturer's insulation R-values for the sheathing if this option is used.
2. Per IECC 402.2.8: As an alternative to insulating floors over crawl spaces, crawl space walls shall be permitted to be insulated when the crawl space is not vented to the outside. Crawl space wall insulation shall be permanently fastened to the wall and extend downward from the floor to the finished grade level and then vertically and/or horizontally for at least an additional 24 inches (610 mm). Exposed earth in unvented crawl space foundations shall be covered with a continuous vapor retarder. All joints of the vapor retarder shall overlap by 6 inches and be sealed or taped. The edges of the vapor retarder shall extend at least 6 inches up the stem wall and shall be attached to the stem wall.
3. Slab perimeter insulation depth is 2 feet minimum, from the top of the slab. Use R-15 for heated slabs. A heated slab is defined as a slab-on-grade construction in which the heating elements, hydronic tubing, or hot air distribution system is in contact with, or placed within or under the slab.
4. Submit documentation from the manufacturer to verify window and glass door U-factors.
5. Mass walls for the purposes of this form shall be considered walls of concrete block, concrete, insulated concrete form (ICF), masonry cavity, brick (other than brick veneer), earth (adobe, compressed earth block, rammed earth) and solid timber/logs. The provisions of IECC Section 402.1.1 for mass walls shall be applicable when at least 50 percent of the required insulation R-value is on the exterior of, or integral to, the wall. Walls that do not meet this criterion for insulation placement shall meet the wood frame wall insulation requirements of Section 402.1.1.
6. The first R-value applies to continuous insulation, the second to framing cavity insulation; either insulation meets the requirement.
7. Per IECC 402.2.6 Basement walls associated with conditioned basements shall be insulated from the top of the basement wall down to 10 feet (3048 mm) below grade or to the basement floor, whichever is less. Walls associated with unconditioned basements shall meet this requirement unless the floor overhead is insulated in accordance with IECC Sections 402.1.1 and 402.2.5.
8. May be less than R-30 if floor joist depth is insufficient, but must completely fill the framing cavity. R-19 minimum.
9. Per IECC 402.2.1 R-30 shall be deemed to satisfy the requirement for R-38 wherever the full height of uncompressed R-30 insulation extends over the wall top plate at the eaves. Per IECC 402.2.2 when the design of the roof/ceiling assembly does not allow sufficient space for the required insulation, the minimum required insulation for such roof/ceiling assemblies shall be R-30. This reduction of insulation from the requirements shall be limited to 500 sq. ft. of ceiling area.
10. When using the >40% category the sunroom must be thermally isolated from the rest of the house. New walls, doors and windows separating the sunroom from the conditioned space shall meet the building thermal envelope requirements.
11. Sunroom glazing determination. Use this formula only if using sunroom guideline. Determine percent of glass in the exterior wall envelope:  
 A = Gross exterior wall area, including window and door rough openings. A = \_\_\_\_\_ Sq. Ft.  
 B = Total area of windows, skylights and glass doors rough openings. B = \_\_\_\_\_ Sq. Ft.  
 Formula to determine percent of window area =  $(B \div A) \times 100$   
 B \_\_\_\_\_  $\div$  A \_\_\_\_\_ = \_\_\_\_\_  $\times$  100 = \_\_\_\_\_ %  
 Example: 300  $\div$  600 = .5  $\times$  100 = 50 %

**Additional Notes:**

Per IECC 403.2.1: Supply and return ducts shall be insulated to a minimum of R-8. Ducts in floor trusses shall be insulated to a minimum of R-6. Exception: Ducts or portions thereof located completely inside the building thermal envelope

Per IECC 403.3: Mechanical system piping capable of carrying fluids above 105 ° F (41 ° C) or below 55 ° F (13 ° C) shall be insulated to a minimum of R-2.

Per IECC 403.4: All circulating service hot water piping shall be insulated to at least R-2. Circulating hot water systems shall include an automatic or readily accessible manual switch that can turn off the hot water circulating pump when the system is not in use.