

## MARYLAND ENERGY CODE

### A Law that Lowers Energy Bills, Keeps Homes Safe

If you are a homeowner embarking on a home improvement project or are building a home, and you plan to do the work yourself or act as the general contractor, you should know that Maryland enforces the 2012 International Energy Conservation Code (IECC). This law ensures that homeowners pay lower energy bills thanks to high efficiency systems. The energy code impacts:

- lighting systems
- windows and doors
- insulation in walls, roofs, and floors
- heating and cooling equipment
- building air leakage and ventilation
- service hot water systems
- pools and spas

Prior to starting any construction, check with your local building authority to determine the code inspection scheduling and expectations.

## CODE COMPLIANCE

### What do you need to do?

Residential projects have two pathways to demonstrate compliance: prescriptive (like a recipe in a cookbook) and performance (which generally involves architects and will not be covered here). The prescriptive path has several mandatory

elements that must be followed for a project to pass inspection. When you submit your plans to the code office, make sure the plans display the mandatory prescriptive components necessary to meet the code.

## PRESCRIPTIVE APPROACH

To demonstrate prescriptive compliance, plans submitted for permit review must contain detailed information that shows the plan reviewer what is to be installed in the home (check with your local building department for plan submittal requirements). Table 1 indicates required values for some building components under the prescriptive approach by climate zone. Note: Only Garrett County is in Climate Zone 5. Consult the building code or code department for a complete list of required elements.

## 2012 CODE SAVES MORE THAN ENERGY - IT SAVES MONEY AS WELL

Maryland's move from 2009 to 2012 IECC, while adding some to construction costs, significantly reduces the energy consumption of homes. More importantly, Maryland residents living in energy code-compliant homes can expect to save considerable money over the life of a typical mortgage based on energy savings. DOE calculates that energy life-cycle savings for a home is just over \$5,300 for most of Maryland homeowners. In Garrett County, the savings are over \$6,700 for the same 30-year period.

**Table 1: Some Key Prescriptive Energy Code Requirements**

Building Element	Climate Zone 4	Climate Zone 5
Fenestration U-Factor*	0.35	0.32
Skylight U-Factor	0.55	0.55
Glazed Fenestration SHGC**	0.40	N/A
Ceiling R-Value***	R-49	R-49
Wood-Frame Wall R-Value	R-20 cavity or R-13 cavity and R-5 continuous	R-20 cavity or R-13 cavity and R-5 continuous
Mass Wall R-Value****	R-8/R-13	R-13/R-17
Floor R-Value	R-19	R-30
Basement Wall R-Value	R-10 continuous or R-13 cavity	R-15 continuous or R-19 cavity
Slab R-Value and depth (ft.)	R-10 at 2 ft.	R-10 at 2 ft.
Crawl Space Wall R-Value	R-10 continuous or R-13 cavity	R-15 continuous or R-19 cavity
Duct R-Value	Supply in attic : R-8 Inside thermal envelope: N/A All other ducts: R-6	Supply in attic : R-8 Inside thermal envelope: N/A All other ducts: R-6
Duct Tightness (cfm/100 ft <sup>2</sup> )	<=4 or <=3 if air handler not installed	<=4 or <=3 if air handler not installed
Building Air Leakage	<= 3 Air Changes/Hour (ACH)	<= 3 ACH

\*Fenestration U-Factor is another way to describe the insulation value of a window. The lower the value, the better it is insulated.  
 \*\*SHGC (solar heat gain coefficient) is the fraction of incident solar radiation admitted through a window. The lower a window's SHGC, the less solar heat it transmits.  
 \*\*\*R-Value is a measure of the capacity of a material, such as insulation, to impede heat flow. Higher values indicate better insulation.  
 \*\*\*\*Second R-value is used if more than half the insulation is located on the interior surface of the mass wall.

If your project involves building a new home, an addition, or major structural changes to existing exterior walls or ceilings, you may be required to demonstrate a minimum level of air tightness. Air tightness is measured through a **blower door test**, which is required by the code to demonstrate compliance. A list of firms qualified to perform this test is found at [energy.maryland.gov/codes/index.html](http://energy.maryland.gov/codes/index.html). The responsibility for assuring that your chosen provider has been accepted by your local building official lies with you.

New **ductwork** in a home must undergo a similar test (assuming some of the ductwork is located outside of the conditioned space, such as in the attic, or unconditioned crawlspace or basement). A list of firms qualified to perform this test can be found at the above web address.

After plans have been approved by your local code authority, periodic **inspections** of the project are typically performed. Common inspection periods for energy-related items include:

- prior to or just after the foundation or slab has been poured
- rough frame inspection prior to the installation of insulation
- insulation inspection before coverage with drywall, and
- during the installation of fireplaces or stoves.

Check with your local building authority to fully understand when inspections occur, what needs to be shown during these inspections, and the implications of not being ready when inspections are performed. Although they may administer the same code, municipalities' processes vary.

Code compliance requires the completion and posting of an **energy efficiency certificate**. The certificate lists the energy characteristics of the building materials and systems installed in your project and assigns a responsible party (builder, contractor, or design professional) to sign off that the project accurately reflects these features. Ask your local building authority for guidance about the certificate and its placement.

Further advice on the Maryland Energy Code can be obtained at your local building department or by contacting the free consultation service established by the Maryland Energy Administration linked from [energy.maryland.gov](http://energy.maryland.gov)