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Energy Compliance Information

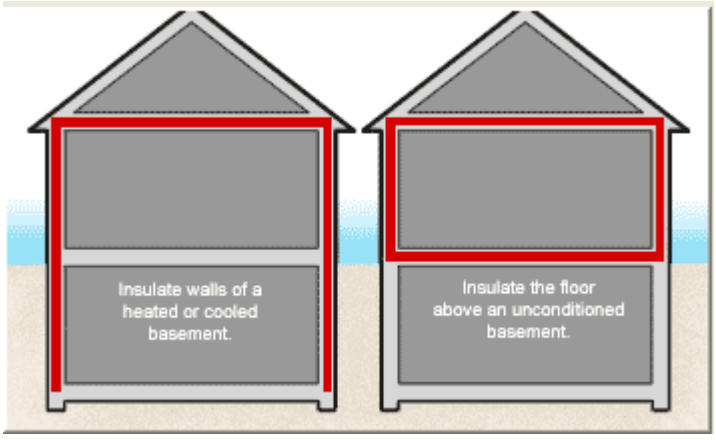
Meeting the energy code in today's structures requires the integration of all systems within the thermal envelope, including the HVAC system(s), insulation and sealing. There are three methods to show compliance with the energy code: prescriptive, RES*check* (formerly MEC*check*), and performance.

The **RES*check*** has been used for many years, and many of you are most familiar with this method. The software is available at the DOE website, either to download or use over the web; just Google Rescheck.

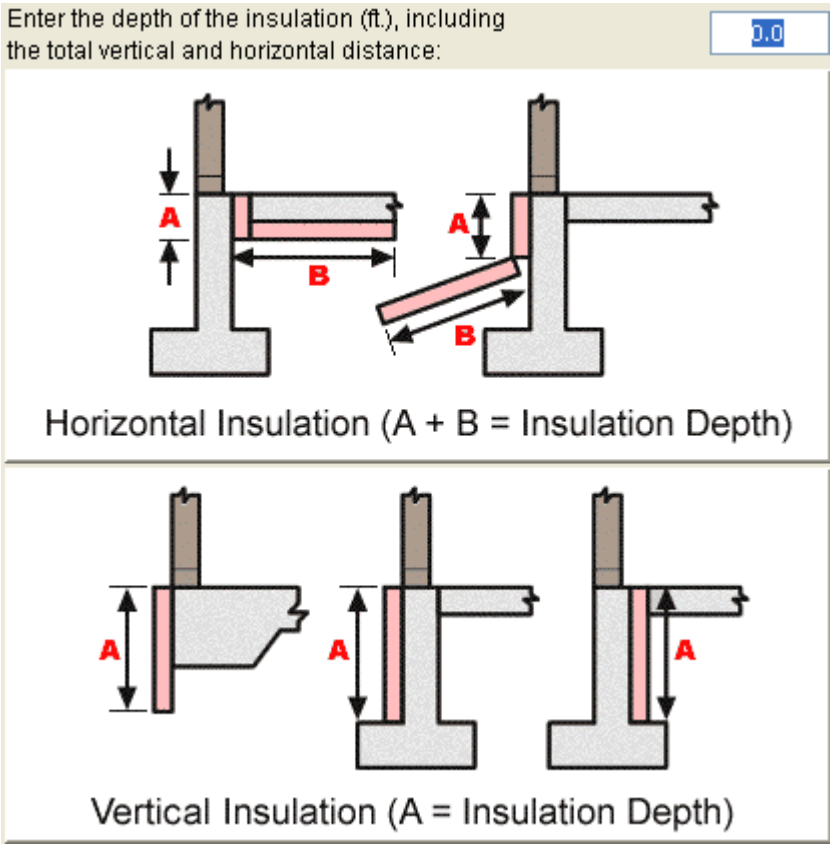
The second method is to use the ***prescriptive*** R- and U-values for our zone 6; I consider this the easiest since a lot of take-off information is not required to input into the RES*check*.

The third method is a ***performance-based*** method. Frankly, I have never had anyone choose this method, as it requires an analysis of the performance of the proposed structure to be compared to another comparable existing home. It is still an option available should you choose.

The ***thermal envelope*** is defined as where the insulation is placed in the structure which encloses the ***conditioned space***. This is always the exterior walls (excluding garage), and can be either the roof or ceiling, and either the basement walls or ceiling. If an area is considered to be within the thermal envelope, it must be insulated and receive conditioned air.



Walk-outs and slab-on-grade need the slab insulated by one of the methods shown below:



Regardless of the method you choose, the information submitted must correlate with the information provided on your plans as far as insulation values, U-values of windows, efficiency of the HVAC system, and input data shown on the gasline schematic. The heat loss/heat gain submittals must also correlate with the information on the plans concerning building component types, square footages, and U- and R-values. I check all to see that they match, and I require you to assure they match prior to submittal, as this is one of the most-often written comments at plan review.

Consequently, **as of I July 1, 2011 this Energy Compliance Worksheet must be submitted at application.**

Information which impacts energy-compliance worksheet:

Fuel-fired appliances requiring outside combustion air must be in a **space separated** from the conditioned portion of the dwelling by insulated walls and ceiling, where applicable. All ducts, both supply and return, shall be insulated to a minimum of R-8, and water lines shall be protected from freezing in this room. All present-day construction is considered unusually tight, requiring all combustion air be supplied from the exterior. There shall be a gasketed, tight-fitting door to the room.

New homes with 90+ HVAC systems must extend both pipes to the exterior.

All HVAC ducts must be sealed. This means both transverse and longitudinal joints. Air leaking from ducts keeps the vent at the end of the line from getting the air required.

As tight as we are building homes these days, kitchen hoods over 400 cfm require make-up air, and there is to be an interlock between the fan switch and the make-up air system.

If the home has an unfinished basement, and you wish to size the HVAC system for this space, this must be indicated in the hl/hg calculations, and then the insulation must be on the exterior walls of the basement, and the ducts do not have to be insulated. There will need to be one supply and one return duct opening into the basement, and the HVAC system must be two-stage or multi-stage.

Conversely, if the HVAC system is not sized for the future basement finish, the insulation shall be placed in the floor between the main floor and basement, all ducts in the basement must be insulated to a minimum of R-8, and there shall be no openings of the ducts into the unfinished space.

Heat Loss/Heat Gain calculations are to be done for the home, and our climate data is 5-degrees for heating and 91-degrees for cooling. Our base altitude is about 5525', close to that of Cedar City if you are using a program that makes you name a city, but our heating and cooling days are to be those listed above. I have Manual J/S and Manual D summary sheets and one must be filled out for each HVAC unit in the house. Make sure the HL/HG calculations are done using the correct R- and U-values for the different components as shown on the plans and in your energy-compliance worksheet.

Home Energy Compliance Worksheet

Required for all new home permits submitted beginning 7/1/11

Applicant Name: _____

Address of structure: _____

Basic structure information:

Basement:

_____ Unfinished square feet _____ finished square feet _____crawl space square feet

One story home, total square feet: _____ two story home, total square feet: _____

Thermal Envelope:

Insulation R-values and type: (fiberglass batts or blown-in, cellulose blown-in, spray foam (open or closed cell), rigid, etc.

_____ Attic/ceiling _____ Cathedral ceiling

_____ Above-grade walls _____Basement/crawl walls

_____ Floors over outside air _____ Floors over unconditioned space

_____ Walk-out slab-on-grade

Window U-values: _____ Glass door U-values: _____ Solid door U-values: _____

Method of obtaining energy compliance:

_____ REScheck _____Prescriptive _____ Performance

Number of each type of furnace and efficiency:

_____ 90+ (must run both pipes to exterior) Other: _____%

Number and Type of water heaters: _____ gas _____ electric

_____ Standard _____ Direct Vent _____ Instantaneous

All unvented crawl spaces shall have the ground covered with a Class I vapor retarder, with joints overlapped 6” and taped or sealed, and it must extend up the crawl space walls 6” and be attached and sealed to the walls.

Attic Options: vented or unvented (choose one)

_____ vented attics shall have insulation on the attic floor and be ventilated at a rate of 1/150 or 1/300 per code depending upon the location of the ventilation openings; all ducts in this space need to be insulated, both supply and return.

_____ unvented attics are completely contained within the building thermal envelope, with the insulation on the underside of the roof; ducts located in this area do not need to be insulated.

Crawl Space options: vented or unvented (choose one)

_____Vented crawl spaces have openings in the foundation and receive their ventilation from outdoors; the floor above this area is insulated as are the ducts in the space. The ventilation openings are sized depending upon whether a Class I vapor retarder material is covering the ground.

_____Unvented crawl spaces have the walls insulated, but the ducts don't have to be insulated, and have no openings to the exterior, but receive air by one of two ways:

> _____1. Continuously operated mechanical exhaust with a duct or transfer grille from the conditioned space per the code.
>
> _____2. Conditioned air supply and return are provided in this area per the code with ducts and openings or transfer grilles.