



PLANNING AND BUILDING DIVISION

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HEATING AN ACCESSORY BUILDING



HABITABLE BUILDINGS*

Energy Code requirements for heating Habitable Buildings such as Accessory Dwelling Units or Common Buildings

Larimer County has allowed unheated detached accessory buildings to be built on monolithically poured slabs that do not extend down below frost line. As long as the structure remains unheated the frost force moves horizontally below the foundation causing no frost heave problems. However, once the structure is heated the frost force moves upward on the heated structure causing frost heave damage. To protect against frost uplift, a shallow frost foundation system may be used, which calls for slab perimeter insulation protection. The energy code states that the slab perimeter insulation shall be R-10 for 2 feet (vertical, horizontal or both). When pulling a permit to change the use from an accessory structure to an accessory dwelling unit, information needs to be submitted on whether the structure is on a shallow monolithically poured slab and slab perimeter insulation is being added, or the foundation extends below frost line (30 inches in Larimer County). Other energy conservation requirements in the 2009 IRC are R-38 ceiling insulation, R-20 wall insulation, and windows with a U-value of 0.35 or less. Be aware that section M1401.3 of the 2009 International Residential Code & Section 312.1 of the International Mechanical Code require heating and cooling equipment to be sized based on heating loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies.

*Buildings with bedrooms but no kitchens such as garage with a bedroom above, will be considered habitable accessory buildings and will be called a Common Building.





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UNINHABITABLE BUILDINGS

Energy code requirements for heating Uninhabitable Buildings such as shops, garages, barns, and studios.

Below are amendments to the 2009 IRC approved in Larimer County for uninhabitable accessory buildings. When applying for a permit, indicate how you are meeting the energy code by marking one of the methods listed below.

Accessory buildings. Fully enclosed accessory buildings and attached garages not containing habitable space may be conditioned subject to the following thermal and envelope criteria:

1. Such spaces meet the criteria for thermal isolation and any HVAC equipment installed therein is sized for a peak design load assuming a maximum Winter Indoor Design Dry-bulb Temperature of (60°F) and a minimum Summer Indoor Design Dry-bulb Temperature of (80°F).
2. The walls are insulated with insulation having a minimum R-value of R-13.
3. The roof/ceiling is insulated with insulation having a minimum R-value of R-30.
4. Windows have a maximum U-factor of .45 & in total do not exceed 10% of the floor area.
5. Doors have a minimum R-value of 3 and are sealed to prevent infiltration to the extent practical as determined by the building official.

Exceptions:

The following accessory buildings do not need to meet requirements 1-5 above.

1. Accessory/Agricultural buildings heated or cooled in their interior for short periods of time and switched with a timer of 2 hours or less.
2. Accessory/Agricultural buildings which are neither heated nor cooled by regulated fuel or electrical energy. (Examples of non-regulated fuels are wood, wood pellets, corn cobs & waste oil)
3. Accessory/Agricultural buildings that have restricted thermostats limiting heat to 50° F.

Seasonal buildings. These buildings do not need to be heated by a primary heat source and can be heated with a fireplace or woodstove; however, you do need to protect plumbing lines from freezing by draining them every winter.

