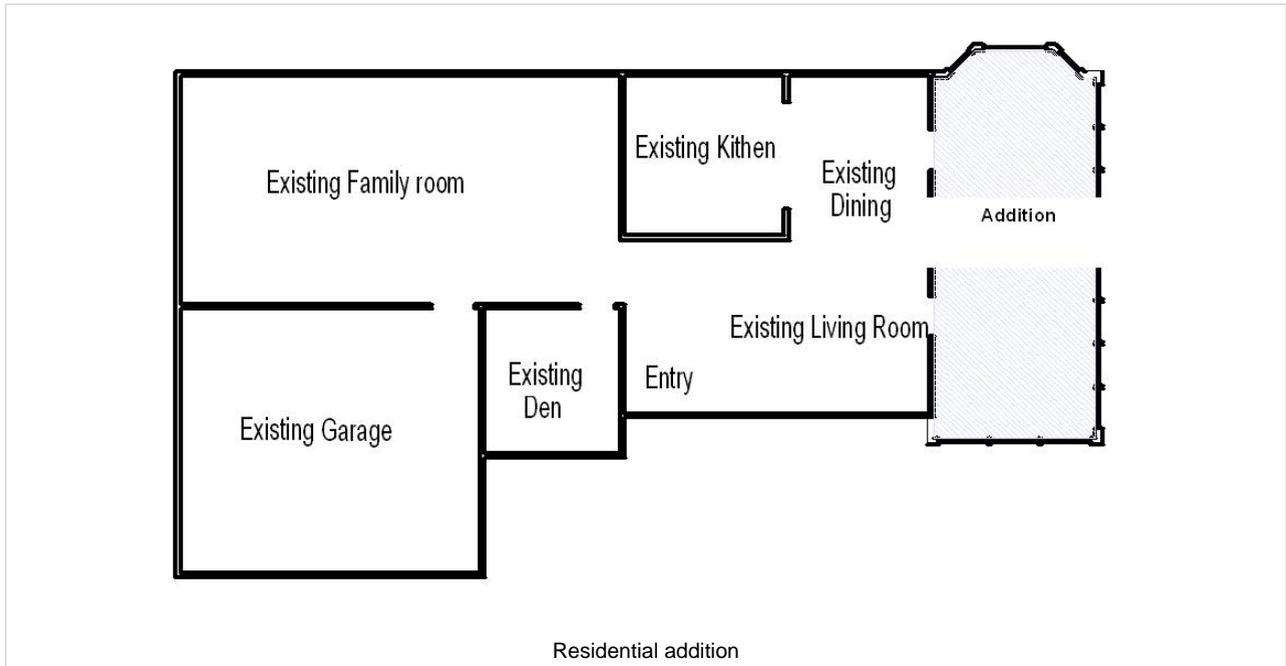




How Does the Energy Code Deal with Additions?



Although not specifically defined in the code, building codes typically define an addition as any increase in a building's habitable floor area, which can be interpreted as any increase in the conditioned floor area.

Additions include new construction, such as a conditioned bedroom or sunspace. Additions also include existing spaces converted from unconditioned to conditioned spaces (converting an existing porch to a conditioned sunroom).

The addition (the newly conditioned floor space) complies with the code if it complies with all of the applicable code requirements. For example, requirements applicable to the addition of a new room would most likely include:

- Insulating the exterior walls, ceiling, and floor to the levels specified in the code.
- Sealing all joints and penetrations.
- Installing a vapor retarder in unventilated framed walls, floors, and ceilings.
- Identifying installed insulation R-values and window U-factors.
- Insulating and sealing any ducts in unconditioned portions or exterior components (walls, ceilings, or floors) of the new space.

There are three approaches to make an addition comply with the energy code:

1. The addition as defined above meets all code requirements. This approach does not require that the original portion of the building meet code requirements.
2. If the building combined with the addition complies with the code, the addition will also comply, regardless of whether the addition complies alone. For example, a sunroom that does not comply with the code is added to a house. If the entire house (with the sunroom) complies, the addition also complies.
3. Additions less than 500 sq ft. (46.5 sq meters) of conditioned floor area may meet the prescriptive envelope requirements in the table. To use this table, the total area of windows, doors, and skylights cannot exceed 40% of the gross wall and roof area of the addition.



1. Floors over outside air must meet ceiling R-value requirements.
2. Basement walls must be insulated to the level required in the code.
3. The slab R-value requirements are for unheated slabs. Add an additional R-2 for heated slabs.
4. The crawl space wall R-value requirements are for walls of unventilated crawl spaces only.
5. The maximum U-factor for replacement skylights is 0.5 in Zone 5-19 (2003 IECC has additional requirements for minimum wall and ceiling R-values).
6. The area-weighted average solar heat gain coefficient (SHGC) of all windows, glazed doors, and skylights cannot exceed 0.4 in Zones 1-7.
7. The area-weighted average U-factor for all windows, doors, and skylights in the addition must not exceed the fenestration U-factor requirements.

If your addition does not comply with the energy code:

- Increase the insulation R-values in the ceiling, walls, and/or floor if possible.
- Upgrade the windows (the lower the u-factor of the window, the better the window).
- Decrease the window area.
- If feasible, upgrade insulation levels in the existing part of the house (i.e. the attic). If you try this option, you will need to demonstrate compliance for the entire house, not just the addition.