NAECA (indicated as ''NAECA'' in formula). The formula is heating efficiency increase factor = AFUE (HSPF) home − AFUE (or HSPF) NAECA divided by AFUE (HSPF) NAECA.

Cooling efficiency increase factor = the increase factor in the cooling equipment efficiency measured by the Seasonal Energy Efficiency Ratio (SEER) above that required by NAECA.

The formula being cooling equipment=SEER home—SEER NAECA divided by SEER NAECA.

The cooling multiplier for the Uo Zone is from the following table:

Uo zone	Cooling multiplier (Cm)
1	0.60 (Florida only).
1	0.20 (All other locations).
2	0.07.
3	0.03.

(e) U values for any glazing (e.g., windows, skylights, and the glazed portions of any door) must be based on tests using AAMA 1503.1–1988, Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors, and Glazed Wall Sections, or the National Fenestration Rating Council 100, 1997 Edition, Procedure for Determining Fenestration Product U-factors. In the absence of tests, manufacturers are to use the residential window U values contained in Chapter 29, Table 5 of the 1997 ASHRAE Handbook of Fundamentals, Inch-Pound Edition. In the event that the classification of the window type is indeterminate, the manufacturer must use the classification that gives the higher U value. Where a composite of materials from two different product types is used, the product is to be assigned the higher U value. For the purpose of calculating U_o values, storm windows are treated as an additional pane.

(f) *Annual energy used based compliance.* As an alternative, homes may demonstrate compliance with the annual energy used implicit in the coefficient of heat transmission (Uo) requirement. The annual energy use determination must be based on generally accepted engineering practices. The general requirement is to demonstrate that the home seeking compliance approval has a projected annual energy use, including both heating and cooling, less than or equal to a similar ''base case'' home that meets the standard. The energy use for both homes must be calculated based on the same assumptions; including assuming the same dimensions for all boundaries between conditioned and unconditioned spaces, site characteristics, usage patterns and climate.

[58 FR 55011, Oct. 25, 1993, as amended at 70 FR 72047, Nov. 30, 2005]

§ 3280.509 Criteria in absence of specific data.

In the absence of specific data, for purposes of heat-loss/gain calculation, the following criteria shall be used:

(a) *Infiltration heat loss.* In the absence of measured infiltration heat loss data, the following formula shall be used to calculate heat loss due to infiltration and intermittently operated fans exhausting to the outdoors. The perimeter calculation shall be based on the dimensions of the pressure envelope.

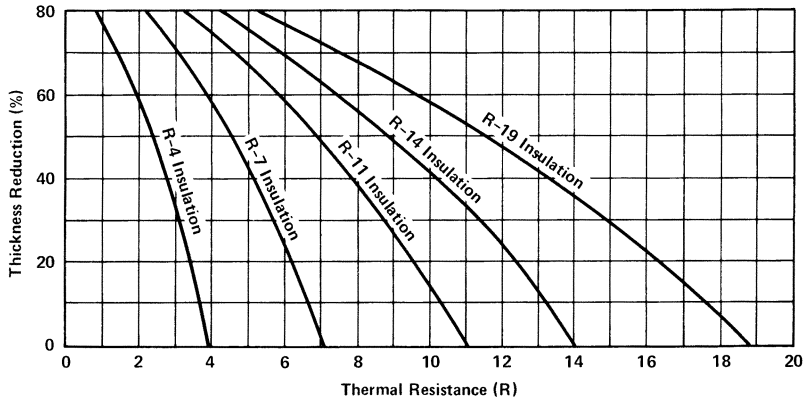
Infiltration Heat-Loss=0.7 (T) (ft. of perimeter), BTU/hr.

where: T=70 minus the heating system capacity certification temperature stipulated in the Heating Certificate, in F.

(b) *Framing areas.*

Wall	15 percent of wall area less windows and doors.
Floor and Ceiling	10 percent of the area.

(c) *Insulation compression.* Insulation compressed to less than nominal thickness shall have its nominal R-values reduced for that area which is compressed in accordance with the following graph:



When insulation is installed over the framing members the thermal performance of the insulation is reduced due to compression at the framing members. The Resistance value of the insulation between the framing members is reduced by 12.5 percent for framing members 16″ O.C., 8.5 percent for framing members 24″ O.C., and 4 percent for framing members 48″ O.C.

(d) *Air supply ducts within floor cavity.* Air supply ducts located within a floor cavity shall be assumed to be heating or cooling the floor cavity to living space temperatures unless the duct is structurally isolated by the framing system or thermally insulated from the rest of the floor cavity with a thermal insulation at least equal to R–4.

(e) *Air supply ducts within ceiling cavity.* Where supply ducts are located in ceiling cavities, the influence of the duct on cavity temperatures shall be considered in calculating envelope heat loss or heat gain.

(f) The supply duct loss (and/or heat gain where applicable—See § 3280.511) shall be calculated using the actual duct surface area and the actual thickness of insulation between the duct and outside of the manufactured home. If there is an air space of at least ½ inch between the duct and the insulation, heat loss/gain need not be calculated if the cavity in which the duct is located is assumed to be at living space temperature. The average temperature inside the supply duct, including ducts installed outside the manufactured home, shall be assumed to be 130 F for purposes of calculation of heat loss and 60 F for heat gain.

(g) *Return air cavities.* Cavities used as return air plenums shall be considered to be at living space temperature.

§ 3280.510 Heat loss certificate.

The manufactured home manufacturer shall permanently affix the following ''Certificate'' to an interior surface of the home that is readily visible to the homeowner. The ''Certificate'' shall specify the following:

(a) *Heating zone certification.* The design zone at which the manufactured home heat loss complies with § 3280.506(a).

(b) *Outdoor certification temperature.* The lowest outdoor temperature at which the installed heating equipment will maintain a 70°F temperature inside the home without storm sash or insulating glass for Zones 1 and 2, and with storm sash or insulating glass for Zone 3 and complying with § 3280.508 and § 3280.509.

(c) *Operating economy certification temperature.* The temperature to be specified for operating economy and energy conservation shall be 20°F or 30% of the design temperature difference, whichever is greater, added to the temperature specified as the heating system capacity certification temperature without storm windows or insulating glass in Zones 1 and 2 and with storm windows or insulating glass in Zone 3. Design temperature difference is 70°