



Setting the **Standards** for
Home Energy Efficiency

Interpretation: Default Efficiency for Electric Furnaces and Electric Radiant in Minimum Rated features

Designation IR301-2022-005

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Reference: This request for interpretation refers to the requirements presented in
Standard:
ANSI/RESNET/IC
C 301-2022

Page Number(s): page 95
Section(s): 4.5 Minimum Rated features
Table(s): Table 4.5.2(4)
Relating to: Electric furnace units and Rating

Background: _____

Default values in this table for electric resistance furnaces and electric resistance radiant systems are given with units of HSPF and a “Rating” or value of 3.413 for each type. When entering a system in HERS Rating software such as Ekotrope with units of HSPF, the seasonal performance is reduced based on the outdoor temperature and past studies of air source heat pump performance. It makes no sense to derate electric resistance heaters for outdoor temperatures in the same way as air source heat pumps, because all of the components are typically in conditioned space or a buffer space like a attic or basement. We should instead use COP of 1.0 or an adjusted efficiency of 100%. Using these units will not make the software derate the system performance like an ASHP for outdoor temperatures. Note that the software will still derate performance for wasted distribution of heat when the equipment is located outside of conditioned space.

Interpretation: _____

The correct entry for default electric resistance furnace or default electric resistance radiant systems should be a COP of 1.0 or an adjusted efficiency of 100%.

Question: Is this Interpretation correct?

SDC Answer: Yes

SDC Comments: The SDC300 agrees that in Table 4.5.2(4) for “DEFAULT VALUES FOR MECHANICAL SYSTEM EFFICIENCY (NOT AGE-BASED)”, the Units for “Electric Furnace” and “Electric Radiant” should be listed as “COP” rather than “HSPF” and the Rating should be listed as “1.0”. This will be revised in a future amendment to the Standard. However, Section 4.5.2.3 does not require the use of these default values so Ratings may use a COP of 1.0 or an efficiency of 100%, as determined in accordance with Section 4.5.2.3.