INTERPRETATION IC 90.1-2019-12 OF
ANSI/ASHRAE/IES STANDARD 90.1-2019
Energy Standard for Buildings Except Low-Rise Residential Buildings

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Reference: This request for interpretation refers to ANSI/ASHRAE/IES Standard 90.1-2019 Section 3 definition of indirectly conditioned spaces.

Background Interpretation No.1: Section 3 definition of includes the following criteria for identifying indirectly conditioned spaces:

> c. ***indirectly conditioned space:*** an *enclosed space* within a *building* that is not a *heated space* or a *cooled space*, which is heated or cooled indirectly by being connected to adjacent *spaces*, provided
>
> > 1. the product of the *U-factors* and surface areas of the *space* adjacent to connected *spaces* exceeds the combined sum of the product of the *U-factor*s and surface areas of the *space* adjoining the outdoors, *unconditioned spaces*, and to or from *semiheated spaces* (e.g., corridors) ….

It is unclear whether slabs on grades and other surfaces adjacent to ground should be accounted for when determining whether space is indirectly conditioned.

Interpretation No.1: Slab-on-grade floors are considered to be adjacent to the outdoors and shall be included in the UA calculations when determining whether a space is indirectly conditioned.

Question No.1: Is this interpretation correct?

Answer No.1: Yes

Comments No.1:

Above grade spaces with a slab on grade: The standard applies this criteria to above grade spaces, and where the above grade space includes a slab on grade assembly, the slab on grade F factor should be included in the overall UA ratio.

In all cases, when these spaces are indirectly conditioned, they are still conditioned spaces and the building thermal envelope would need to be insulated to the level required for that assembly, climate, and space conditioning category.

Background Interpretation No.2: Tables 5.5-0 to 5.5-8 use *F-factor* to characterize performance of slab-on-grade floors and *C-factor* for below-grade walls.

F-factor: the perimeter heat loss factor for *slab-on-grade floors* (Btu/h·ft·°F).

> ***thermal conductance (C-factor):*** time rate of steady-state heat flow through unit area of a material or *construction*, induced by a unit temperature difference between the body surfaces (Btu/h·ft2·°F). Note that the *C-factor* does not include soil or air films.

The definition in Section 3 quoted in Background 1 above requires using "…the combined sum of the product of the *U-factor*s and surface areas of the *space* adjoining the outdoors…" when establishing whether the space is indirectly conditioned.

It is unclear whether the *C-factor* should be used in lieu of *U-factor* for below grade walls, and whether the product of *F-factor* and *slab-on-grade* perimeter must be used in lieu of the product of *U-factor* and surface area for slabs on grade.

Interpretation No.2: Should the *C-factor* for below grade walls be used to evaluate if a below grade space is an indirectly conditioned space?

Question No.2: Is this interpretation correct?

Answer No.2: No

Comments No. 2: For below grade spaces the standard does not provide a means to evaluate if a space is an indirectly conditioned space.