

**INTERPRETATION IC 90.1-2007-12 OF
ANSI/ASHRAE/IESNA STANDARD 90.1-2007
Energy Standard for Buildings Except Low-Rise Residential Buildings**

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Reference: This request for interpretation refers to the requirements presented in ANSI/ASHRAE/IESNA Standard 90.1-2007, Section 11.1.2, Table 11.3.1, and Table G3.1, regarding baseline and proposed simulations for compliance.

Background: An addition is being added to an existing building and the designer is required to meet the requirements of Section 11 of ASHRAE Standard 90.1 -2007 to illustrate code compliance and Appendix G to achieve LEED points.

1. Section 11.1.2 Trade-Offs Limited to Building Permit states “future building components shall be identical for both the energy cost budget and the design energy cost calculations. Future building components shall meet the prescriptive requirements of Sections 5.5, 6.5, 7.5 and either 9.5 or 9.6.” Table 11.3.1.5.d Column A “Permanent shading devices such as fins, overhangs, and light shelves shall be modeled.” Table 11.3.1.5.c Column B – No shading projections are to be modeled.”
2. Appendix G, Table G3.1 number 5.a, states “The building shall be modeled so it does not shade itself.”

Interpretation No.1: Section 11.1.2 indicates that to meet code the baseline does not have to include shading devices (fins, overhangs, etc.). The proposed design shall contain the external shading devices. Shading by an adjacent building that the addition is attached must be included in both the baseline and proposed energy models.

Question No.1: Is this interpretation correct?

Answer No.1: No.

Comments: In Chapter 11, neither the proposed nor the budget building design contain any criteria related to shading of the addition by adjacent buildings, the existing building, or the addition shading itself. So, it is not required that shading from adjacent buildings be included in the designs. However, per the requirements of Table 11.3.1, No. 1, Design Model, Budget Building Design the inclusion or exclusion of shading by an adjacent or existing building shall be consistent between the Budget and Proposed Building Designs.

It should also be noted, Section 11 covers the modeling requirements for the budget building design, not the baseline building design which is defined in Appendix G of 90.1. This response covers on the requirements set forth for the budget building design described in Section 11 only.

For the budget building design, Section 11.1.2 states that only items covered by the permit may vary between the budget and the proposed building designs. Section 11.1.2 also states that the

unmodified existing conditions shall be identical for both the proposed and budget building designs. Table 11.3.1, No. 1, Design Model, Budget Building Design (Column B) states that “Except as specifically instructed in this table, all building systems and equipment shall be modeled identically in the budget building design and proposed building design.”

Therefore, any portion of the existing building that is included in the model and is not being modified must be modeled identically in the Budget and Proposed Building designs. In addition, any portion of the model that is not specifically allowed to differ per Table 11.3.1 must be identical in the baseline and proposed building designs.

Table 11.3.1, No. 5, Building Envelope, covers the requirements for the proposed and budget building design envelopes which includes shading. Exception d for the proposed building design states that manually operated fenestration shading devices should not be modeled and that permanent shading devices such as fins, overhangs, and light shelves shall be modeled. Item c for the budget building design states that no shading projections for the fenestration should be modeled.

Interpretation No.2: Section G3.1.5.a is intended for the baseline model to not contain any shading devices (fins, overhangs, etc.) but not to negate shading from the existing building the addition is connected to. Interpretation that allows the proposed addition energy model to not include shading by the adjacent building in the baseline allows 50% horizontal skylight area which is clearly not the intent of the standard.

Question No.2: Is this interpretation correct?

Answer No.2: No.

Comments: Table G3.1, No. 5 Building Envelope, Baseline Building Performance, additional requirement a., states that the baseline building design shall be modeled so that it does not shade itself. As stated in the User’s manual, “If the proposed building has a shape that shades itself during portions of the day, for instance a donut or “L” shaped building, the self-shading is ignored in the baseline building. Such features are credited to the proposed building when they are a benefit.”

However, it should be noted that Appendix G is not an alternate compliance path for minimum standard compliance. To comply with Standard 90.1, the building must meet all of the mandatory and prescriptive requirements of Chapters 5, 6, 7, 8, 9, and 10 or meet all mandatory requirements and comply with the provisions in Chapter 11.