

**INTERPRETATION IC 90.1-2004-23 OF  
ANSI/ASHRAE/IESNA STANDARD 90.1-2004  
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 90.1-2004, Section G3 and Table G3.1, regarding building envelope and the calculation of proposed and baseline building performance.

**Background:** Table G3.1 Item No. 5 Building Envelope states that for the Baseline Building Performance, "Equivalent dimensions shall be assumed for each exterior envelope component type as in the proposed design; i.e., the total gross area of exterior walls shall be the same in the proposed and baseline building designs."

**Interpretation:** In the case of an energy-saving design feature to tilt the exterior walls to deflect sun rays in a cooling-dominated climate, the baseline building design shall be modeled with vertical, untilted walls of the same total gross area as the proposed building design.

Refer to the accompanying drawing showing how the designed walls, tilted 15 degC from vertical, deflect sun rays. It is noted that tilting walls from vertical INCREASES the exterior wall surface area versus an untilted wall with the same floor height; however, the baseline building design will have this increased wall surface area due to the provision that "Equivalent dimensions shall be assumed for each exterior envelope component type as in the proposed design; i.e., the total gross area of exterior walls shall be the same in the proposed and baseline building designs."

**Question:** Is this interpretation correct?

**Answer:** No.

**Comments:** The 90.1-2004 User's Manual states "For new buildings, the basic concept is that the baseline building be the same as the proposed building, except that each of the components is assumed to just meet the applicable mandatory provisions and the applicable prescriptive requirements of the Standard, as further defined in Appendix G..." On page G-14, the tilt of the building envelope is specifically addressed:

**Baseline Building Envelope**

The budget building design has the same physical shape characteristics as the proposed design, including:

- Same conditioned floor area;
- Same roof, wall, glazing (up to the maximum allowable window-to-wall-ratio [WWR]), and other surface areas;
- Same surface tilts and orientations.

Since tilt is not specified for baseline building walls by ASHRAE 90.1-2004, the proposed and baseline building's wall tilt should be modeled identically.

It should also be noted that the proposed building should be modeled so that the building shades itself. The baseline building should be modeled so that it does not shade itself.

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