INTERPRETATION IC 90.1-2007-24 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 5 and Tables G3.1 and 5.5, regarding Appendix G Modeling requirements for the proposed and baseline building.

Background: At the moment, we are modeling a buried building with a green roof (as part of the energy efficiency strategy) according to the Appendix G of the ASHRAE Standard 90.1-2007. This building is a cultural center, including painting expo areas and a theatre scenario with high energy consumption request in order to accomplish with the indoor comfort conditions. The question regards the base case and the proposed one. The base case model must be buried as well? or it should be modeled as a regular building from ground floor, with the exposed envelope?

Appendix G, Table G3.1, "Modeling Requirements for Calculating Proposed and Baseline Building Performance", Section 5 - "Building Envelope" mentions both must have the same "total gross area of exterior walls".

In Section 5 of the mentioned standard, Table 5.5, regarding "Building Envelope Requirements for Climate Zone the item "walls" is composed by "Above-Grade" and "Below-Grade".
Is it then, the total gross area resulting from the sum of "below-grade" and "above-grade" walls that should be the same for the base case and the proposed one? or, is it the below-grade and above-grade independently considered to equal the baseline and proposed case components?

Interpretation: Considering that placing a building underground is an energy efficiency strategy, the total gross area of our building envelope will be the same for the proposed and the baseline building, but the “above-grade” and the “below-grade” may vary as part of the passive design strategy and reduce total energy consumption. Appendix G does not apply well for buried buildings, it lacks of specific information for modeling such strategy. Our interpretation implies to model the base case as a regular building with conditioned areas “above-grade”. For the proposed building modeling we will incorporate the passive design strategy locating most of the conditioned areas “below-grade” and demonstrating the feasibility and results of the energy consumption reduction.

Question: Is this interpretation correct?

Answer: No

Comments: Under Standard 90.1-2007 you would need to apply the definitions of above-grade and below grade walls to the Proposed Design building envelope and select appropriate baseline U-values from Tables 5.1.1-5.1.8. Any Proposed deviation from these requirements would be at the discretion of the Rating Authority.

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