

**INTERPRETATION IC 90.1-2007-36 OF
ANSI/ASHRAE/IESNA STANDARD 90.1-2007
Energy Standard for Buildings Except Low-Rise Residential Buildings**

Date Approved: January 21, 2018

Request from: Junaid Bin Naseer, AECOM, International Tower, Abu Dhabi.

Reference: This request for interpretation refers to the requirements presented in ANSI/ASHRAE/IESNA Standard 90.1-2007, Sections 5.4 and G1.2, regarding mandatory requirements for the Performance Method.

Background: The Abu Dhabi government has a green rating standard similar to LEED which is known as Estidama. The Estidama rating system is compulsory for all new projects and has a mandatory credit which is Resourceful Energy where it is required by designers to comply with it by achieving minimum 12% energy performance over baseline. The baseline is defined by ASHRAE 90.1 Appendix G.

Our doubts are on mandatory credits and its application when using Appendix G for compliance. The performance rating section states that design shall meet all requirement of Sections 5.4, 6.4, 7.4, 8.4, 9.4, and 10.4 which relate to mandatory requirements in those specific sections.

The project we are working on is a high rise mixed use tower which contains retails and restaurants at lower floors and residential units from first floor and above. The lower floors glazing U-Values are different from Residential Units due to higher visibility requirement from outside to inside. The glazing U-Value for lower floors i.e. Retail and Restaurant is 2.0 W/m².K and SHGC of 0.56 whereas the residential part has a U-Value of 1.8 W/m².K and SHGC of 0.25. Due to uninsulated balconies and curtain walls the weighted average U-Values of above grade walls is 1.40 W/m².K.

SHGC values and Wall U-Values are higher than requirements of Table 5-5.1. Moreover, when complying with section 5.4 the clause 5.4.1 requires complying with Section 5.5, i.e. Prescriptive Building Option OR Section 5.6 Building Envelope Trade off option. The Section 5.4 as seen above spills to Section 5.5 which leads to complying with more than mandatory requirements.

In our case Appendix G is used for compliance, therefore, we believe that proposed design should meet with Appendix G purely by tradeoffs and by achieving lower energy cost than the baseline rather than meeting prescriptive requirements of the standard..

Interpretation No.1: When using Appendix G as a performance rating method, the proposed building design is not required to meet the Section 5.5 prescriptive glazing SHGC or wall U-Value if it can be demonstrated that the proposed building performance is better than the baseline building performance.

Question No.1: Is this interpretation correct?

Answer No.1: Yes.

Comments No.1: If the project is using Appendix G as a performance rating method, the proposed design fenestration SHGC is not required to meet the prescriptive performance value listed in Table 5-5.1 when the proposed building performance is shown to be lower than the baseline building performance.

Interpretation No.2: If the answer to interpretation no. 1 is YES, then the same logic can be applied to Sections 5.4, 6.4, 7.4, 8.4, 9.4, and 10.4.

Question No.2: Is this interpretation correct?

Answer No.2: No.

Comments No.2: Per Section G1.2, Sections 5.4, 6.4, 7.4, 8.4, 9.4, and 10.4 are mandatory requirements which must be included in the *baseline building design* and *proposed design* when using Appendix G as a *performance rating method*.