

**INTERPRETATION IC 90.1-2010-29 OF
ANSI/ASHRAE/IES STANDARD 90.1-2010
Energy Standard for Buildings Except Low-Rise Residential Buildings**

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Request from: Junaid Bin Naseer, KEO Office, Mezzanine Floor, Jazeera Tower, P.O. Box 27594, Abu Dhabi.

Reference: This request for interpretation refers to the requirements presented in ANSI/ASHRAE/IES Standard 90.1-2010, Table G3.1 Section 6, regarding lighting controls.

Background: I am currently working on a Serviced Apartment project. We currently have a complete designed (proposed) lighting layout of the apartment including bedrooms, dining rooms, lounge, & restroom.

The exception in Clause “d” states that “For multifamily *dwelling units*, hotel/motel guest rooms, and other *spaces* in which *lighting systems* are connected via receptacles and are not shown or provided for on building plans, assume identical lighting power for the *proposed* and *baseline building designs* in the simulations.”

On the other hand, Clause “a”, Section 6, Table G3.1 states, “Where a complete *lighting system* exists, the actual lighting power for each *thermal block* shall be used in the model.”

The exception to Clause “d” confuses me when we are doing hotel apartments, serviced apartments, or normal apartment buildings.

I believe this exception to Clause “d” only applies to cases where the residential apartment or hotels are core & shell. In our case, Clause “a” will suffice as we have a complete layout and on top of that, we don’t know what kind of lamps or other lighting fixtures will be installed by user using plug switches. If exception to Clause “d” is followed all times for apartment type buildings, then proposed design cannot take credit for efficient lighting system.

Interpretation No.1: Clause A applies in all cases of building typologies including but not limited to apartments, hotels/motels, serviced apartments when complete proposed design is available. The exception to Clause “d” only applies when apartment’s buildings are core & shell.

Question No.1: Is this interpretation correct?

Answer No.1: No.

Comment: Your interpretation is incorrect because clause “a” only applies to existing installed lighting systems and would not be applicable to the project you describe with a complete lighting design. Furthermore, clause “d” applies to any building that does not have a complete lighting design and intends to use lighting connected via receptacles.

In the background you mention claiming savings for an efficient lighting design. Please note that ASHRAE 90.1-2010 does not regulate dwelling unit lighting power. Therefore, the lighting power in the dwelling units of multifamily buildings must be the same in both the Baseline and Proposed designs. ASHRAE 90.1-2010 Appendix G does not allow energy savings credit to be claimed for an efficient lighting design in a dwelling unit. It would be up to the Rating Authority to approve a methodology for documenting energy cost savings that result from the design of an efficient dwelling unit lighting system.

Background: The baseline building lighting for the same project requires automatic and manual controls as per Section 9.4 whereas no automatic daylighting is required for baseline.

Section G1.2 states that “All requirements of Sections 5.4, 6.4, 7.4, 8.4, 9.4, and 10.4 are met...” whereas Section 9.4.1.4 Automatic Daylighting Control for Primary Side lighting areas & Section 9.4.1.5 Automatic Daylighting Controls for Top lighting also requires that daylighting is included for conditions listed under the respected section. Moreover, section Baseline Building Lighting System, section Lighting (Table G3.1-6) of User Manual 90.1-2010 also states that baseline requires daylighting controls when conditions of Section 9.4.1.4 & Section 9.4.1.5 are met.

Interpretation No.2: Sections 5.4, 6.4, 7.4, 8.4, 9.4 & 10.4 supersede the sections to Appendix G whenever a contradictory statement (as I understand) is presented between different. In case, where requirements of Section 9.4 are met as whole and in our case baseline is meeting those requirements, therefore daylighting controls will be simulated for baseline design.

Question No.2: Is this interpretation correct?

Answer No.2: No.

Comments: In the specific case you describe, there is not a contradiction between 90.1-2010 Appendix G and Section 9.4, therefore your interpretation is not correct. However, you are correct in stating that the Baseline design does need to include applicable daylighting controls required by Section 9.4.

We understand there may be confusion created by the parenthetic example in the last sentence that suggests automatic daylighting controls should not be included in the Baseline. The sentence in Table G3.1-6 saying “No other lighting controls shall be modeled in the baseline...”, is referring to lighting controls beyond the minimum required by Section 9.4. The intent of this sentence is to clarify that only mandatory lighting controls need to be included in the Baseline Building Design.