



Georgia State Minimum Standard Energy Code

March 18, 2024

Automated Shading Proposed Amendments – Response to Comments

Dear SCAC Energy Subcommittee Members,

Together with the proponents of amendments to the Georgia 2015 IECC related to automated shading, we would like to address concerns raised by Eric Lacey. Despite Mr. Lacey's contention, these proposals are very well supported, provide many additional options for builders and architects, and help support an advanced technology to advance energy efficiency in Georgia.

Item 2025-4 (Section C406)

Mr. Lacey objects to inclusion of automated shading as an additional efficiency package option in the commercial energy code, because although he admits similar language **was approved for the 2024 IECC by an overwhelming 26-1 vote**, it was included under the Renewables and Load Management Credit subsection new to 2024 IECC. I was a voting member of the 2024 IECC commercial consensus committee and chair of the envelope subcommittee, and voted in favor of this item, so I can help confirm the details of the IECC process. While it is true that automated shading was included under the new Renewables and Load Management Credit subsection for the 2024 IECC, Georgia has made the decision to stay with the 2015 IECC as the base document for this cycle, so we adapted the language to fit into the current structure as explained in the reason statement. The 2015 IECC also already includes on-site renewable energy as one of the packages, so this is the appropriate and obvious place for both efficiency, renewable, and load management options. Also, this same credit – which **was proposed and developed by U.S. Department of Energy (DOE) and Pacific Northwest National Laboratory (PNNL)**, not us – **is included in ASHRAE 90.1-2022** where efficiency and load management credits are considered together and assigned the appropriate energy credit.

If anything, this technology warrants specific inclusion because **it provides both energy efficiency and load management benefits** to both the building owner and grid, which is becoming increasingly important to address as part of energy supply resiliency. When Georgia eventually updates to an energy credit structure such as in the 2024 IECC, we would support including this measure under that subsection, but it still warrants inclusion in the current energy code as proposed **to save building and homeowners money on their utility bills and increase occupancy comfort**.

Mr. Lacey also questions the equivalency to the other existing package options. We note that **the existing packages already vary to each other**, which is part of the reason PNNL and the IECC and ASHRAE 90.1 committees moved to a point credit system in recent editions. Some variability is inherent, and we support moving to a point system when Georgia determines it is appropriate, but in the meantime, in our opinion, this is the appropriate location and format. The analysis conducted by PNNL to determine energy credits for IECC and ASHRAE 90.1 show that **the automated shading credit can provide similar or more energy savings than increased**

insulation, reduced air leakage, enhanced lighting controls, or improved service hot water heating in occupancies such as multifamily, offices, and schools in addition to its load management and grid benefits.

Item 2025-5 (Section C402.4.3.3)

This proposal would include automated shading as an option in the prescriptive path the same as dynamic glazing and reference the appropriate standard from the Attachments Energy Rating Council (AERC).

Mr. Lacey objects to this proposal on the basis that an IECC proposal was rejected in 2019 by the commercial consensus committee with the reason “We should not allow non-permanent devices for trade-off.” We will simply point out that **the proposal specifically includes the wording “permanently mounted shading attachments”**. Additionally, **automated shading systems are designed to be permanently installed** for long lifetime, similar to the lifetime of electrochromic glazing controls or shades-between-the-glass already recognized by the code and NFRC as dynamic glazing. This simply adds language to treat permanently mounted automated shading similar to existing language for other types of dynamic glazing – **to not include it in the code would be prejudicial against this technology**.

Mr. Lacey also questions the determination of SHGC for automated shading attachments in comparison to SHGC for windows. **The proposal specifies that SHGC and VT be determined in accordance with the appropriate standard, AERC 1**. Perhaps Mr. Lacey is not familiar with the Attachments Energy Rating Council, founded and supported by the U.S. Department of Energy (<https://aercenergyrating.org>) as a non-profit organization to rate the energy performance of fenestration attachments **similar to how NFRC rates the performance of windows**. **Lawrence Berkeley National Laboratory (LBNL), Pacific Northwest National Laboratory (PNNL), National Renewable Energy Laboratory (NREL), and Oakridge National Laboratory (ONL) all participated in development of AERC 1 along with fenestration industry experts, energy advocates, utilities, and market transformation organizations**.

Mr. Lacey also claims automated shading is not the same as low SHGC windows. Correct – it can be better. Once the SHGC of a window is lowered, it can never be raised even when advantageous. On the other hand, both dynamic glazing and automated shading can be controlled to change the solar gain entering the space, allowing energy performance to be optimized by the hour, day, and season and/or in response to environmental conditions. In addition to improved energy efficiency, automated shading and dynamic glazing are also enabling technologies for peak load control and grid response.

Item 2025-6 (Section C407.5.1(1)) and

Item 2025-7 (Section R405.5.2(1))

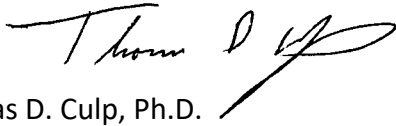
These proposals would clarify how to address shading in the performance analysis similar to how it is addressed in Appendix G of ASHRAE 90.1-2013 and all subsequent editions. Simply put, **no credit is given for manual shading, but credit is given ONLY for automatically controlled shading**.

Similar to item 2025-5, Mr. Lacey again objects to this proposal on the basis that an IECC proposal was rejected in 2019 by the commercial consensus committee with the reason “The performance

path should not allow non-permanent solutions.” Again, we will simply point out that the proposal specifically includes the wording “**automatically controlled permanently attached shading devices**” (emphasis added). Furthermore, this is the same way shading is already included in the performance modeling of Appendix G of ASHRAE 90.1-2013 and subsequent editions. Conversely, **not including these proposals would leave the code open without clarity on how to address shading in performance modeling.**

Thank you for your time, attention, and consideration, and we are happy to provide further information and answer any questions.

Best regards,

A handwritten signature in black ink, appearing to read "Thomas D. Culp". The signature is fluid and cursive, with a large, sweeping flourish at the end.

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