



International Energy Conservation Code Envelope & Embodied Energy Subcommittee

Meeting Notes

January 5, 2023
11:00 AM to 2:00 PM EST

Committee Chair: Tom Culp, Birch Point Consulting

Committee Vice Chair: Emily Lorenz, IIBEC

1. **Call to order.**
2. **Meeting Conduct.** Chair reminded attendees of the ICC policies concerning antitrust, ICC CP7 and ethics.
3. **Roll Call/Establish Quorum** – A quorum was established.

Name	Organization		Name	Organization	
*Culp, Tom (chair)	Glazing Industry Code Cmte; Aluminum Extruders Council	x	Guttman, Maureen	Energy Solutions	x
*Lorenz, Emily (vice chair)	Intl Inst of Building Enclosure Consultants	x	Humble, Jonathan	Amer Iron & Steel Institute	x
Altenhofen, David	RWDI	x	*Johnson, Greg	Natl Multifamily Housing Council	x
*Belcher, Matt	Enhanced Bldg Systems		*Kochkin, Vladimir	National Association of Homebuilders	x
Bradley, Jeff	American Wood Council	x	Melley, Michele	State of CT	
*Brooks, Scott	Disney		*Ross, Bob	Austin Ind. School District	
*Burton, Richard	City of Lincoln, NE	x	Sanders, Helen	Façade Tectonics Inst.	x
Cinnamon, Tony	Wiss, Janney, Elstner	x	Spiriev, Bistra	GA Finance & Investment	
*Churchill Norbert, Zepherinus	CARICOM	x	*Tillou, Mike	PNNL	x
*Clausing, Chris	Clausing Builders	x	VanGeem, Martha	Masonry Alliance for Codes and Standards	x

*Crandell, Jay	American Chemistry Council's Foam Sheathing Coalition	x	Weston, Teri	Air Barrier Assoc of Amer.	x
DeWein, Mike	North Branch Services		Zani, Andrea	Permasteelisa	x

*Member of main IECC Commercial Committee

4. **Assign Note Taker.** Jeff Bradley
5. **Approval of Agenda** Agenda approved
6. **Approval of Notes** – December 15, 2022 meeting notes were accepted for file
7. **Administrative issues**—Culp reminded attendees of process. 20-minute check-in, 2 minutes per speaker, please raise hand to be recognized.
8. **New Business**
9. **ACTION items – Fenestration and Air Leakage related proposals**

Culp stepped down as chair of meeting; Lorenz to chair.

Fenestration:

CED1-090 - fenestration ratings

Note that Helen replaced the proposal and changed reason statement from original.

Motion: Approve as Modified, Tom Culp. Second by Greg Johnson

Modification:

Revise as follows:

C303.1.3 Fenestration product rating. *U*-factors, *solar heat gain coefficient* (SHGC), and *visible transmittance* (VT) of fenestration products shall be determined as follows:

1. For windows, doors and skylights, *U*-factor, SHGC, and VT ratings shall be determined in accordance with NFRC 100 and NFRC 200.
2. Where required for garage doors and rolling doors, *U*-factor ratings shall be determined in accordance with either NFRC 100 or ANSI/DASMA 105.

U-factors, SHGC, and VT shall be determined by an accredited, independent laboratory, ~~and labeled and labeled~~ and certified by ~~one of the following means:~~ the manufacturer by a label affixed to the product or a ~~signed and dated~~ label certificate specific to the ~~products in the project.~~

~~For the Total Building Performance option in Section C407, where fenestration label certificates are provided, the U factor, SHGC, and VT shall be based on either the proposed project specific size(s) and configuration(s) for all fenestration products using label certificates, or based on the NFRC 100 standard sizes and configurations for all fenestration. Physical testing of fenestration at the project size and configuration fenestration to verify U factor is not required.~~

Products lacking such a *labeled U*-factor shall be assigned a default *U*-factor from Table C303.1.3(1) or Table C303.1.3(2). ~~The solar heat gain coefficient (SHGC) and visible transmittance (VT) of glazed fenestration products (windows, glazed doors and skylights) shall be determined in accordance with NFRC 200 by an accredited, independent laboratory, and labeled and certified by the manufacturer.~~ Products lacking such a *labeled* SHGC or VT shall be assigned a default SHGC or VT from Table C303.1.3(3). For Tubular Daylighting Devices, VT_{annual} shall be measured and rated in accordance with NFRC 203.

Vote: 13-0-2 (including CNV)

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Reason: As modified, this proposal clarifies that either a label affixed to the product or a label certificate for the project in compliance with NFRC 100 and 200 may be provided for fenestration. This is also consistent with how ASHRAE 90.1 handles fenestration labeling.

CED1-125 - adds separate fenestration U-factors for group R

Motion: Motion for disapproval by Tom Culp. Seconded by Greg Johnson

Vote: 13-1-3 (with CNV)

Reason: This proposal adds unnecessary complexity and would erroneously apply to not only multifamily as intended but also hotels and motels. There are also problems with wording of the definition, footnote, and exception. No analysis of cost effectiveness of the lower U-factors was provided.

CED1-126 - updates fixed fenestration U-factors

Motion: Approve as Submitted, Tom Culp. Seconded by Helen Sanders

Vote: 13-0-1 (including CNV)

Reason: Because these reductions in U-factors are technically feasible and cost-effective.

CED1-127 - brings in orientation requirements from 90.1

Motion: Approve as Modified, Michael Tillou. Seconded by Jonathan Humble.

Modification:

NORTH-ORIENTED. facing within 67.5 degrees of true north in the northern hemisphere; ~~(however, or facing within 67.5 degrees of true south in the southern hemisphere.)~~→

SOUTH-ORIENTED. facing within 45 degrees of true south in the northern hemisphere; ~~(however, or facing within 45 degrees of true north in the southern hemisphere.)~~→

EAST-ORIENTED. facing within 45 degrees of true east to the south and within less than 22.5 degrees of true east to the north in the northern hemisphere; ~~(however, or facing within 45 degrees of true east to the north and within less than 22.5 degrees of true east to the south in the southern hemisphere.)~~→

WEST-ORIENTED. facing within 45 degrees of true west to the south and within less than 22.5 degrees of true west to the north in the northern hemisphere; ~~(however, or facing within 45 degrees of true west to the north and within less than 22.5 degrees of true west to the south in the southern hemisphere.)~~→

Vote: 7-6-3 (Including CNV)

Reason: As modified this proposal introduces requirements to ensure the energy efficient design of fenestration with East and West orientations.

CED1-141 - modifies automated window shading credit

Motion: Approve as Modified, Martha VanGeem. Second by Helen Sanders

Modification:

Revise as follows:

C406.3.4 G03 Automated Shading Load Management. Where fenestration on east, south, and west exposures exceeds is greater than 20 percent of wall area, load management credits shall be achieved as follows:

1. Automatic exterior shading devices or dynamic glazing that are capable of reducing solar gain (SHGC) through sunlit fenestration by at least not less than 50 percent when fully closed shall receive the full credits in Tables C406.3(1) through C406.3(9). The exterior shades shall have fully open and fully closed SHGC determined in accordance with AERC 1.
2. Automatic interior shading devices with a minimum solar reflectance of not less than 0.50 for the surface facing the fenestration shall receive 40 percent of the credits in Tables C406.3(1) through C406.3(9).
3. All shading devices, dynamic glazing, or shading attachments shall:
 - 3.1 Provide at least not less than 90 percent coverage of the total fenestration on east, south, and west exposures in the building to achieve the credits determined in items 1 or 2. Alternatively, provide not less than at least 70 percent coverage of the total fenestration on the south and west exposures in the building to achieve 50 percent of the credits determined in items 1 or 2.
 - 3.2 Be automatically controlled and shall modulate in multiple steps or continuously the amount of solar gain and light transmitted into the space in response to peak periods and either daylight levels or solar intensity.
 - 3.3 Include a manual override located in the same enclosed space as the shaded vertical fenestration that shall override operation of automatic controls for no longer than four hours. Such override shall be locked out during peak periods.

Vote: 14-0-1 (Including CNV)

Reason: The alternative approach for reduced credits for a reduced automatic shading area allows flexibility for certain building types and configurations.

(note: CED1-142 will be grouped with the other envelope backstops later)

CED1-195 - provide feedback to Modeling SC on fenestration energy credit

Motion: No motion, feedback provided

Lorenz stepped down as chair of meeting; Culp took back chair of the meeting.

Air leakage:

CED1-129 - CZ2 exception limited to single wythe concrete masonry buildings

Motion: Motion for Disapproval by Martha VanGeem. Second by Greg Johnson

Vote: 8-4-1 (Including CNV)

Reason: Reason statement and cost justification did not provide enough information for this change in the IECC.

CED1-130 - wording tweak regarding wind load

Motion: Approve as Submitted by Theresa Weston. Second by Maureen Guttman

Vote: 7-4-2 (Including CNV)

Reason: Design wind loads has specific structural meaning and may causes confusion to the intent of this section.

CED1-131 - adds depressurization as well as pressurization

Motion: Approve as Submitted by Theresa Weston, Second by Helen Sanders

Vote: 14-0-1 (Including CNV)

Reason: This proposal adds the option of inspection with the building under depressurization in addition to the current requirement for the building to pressurized. ASTM E1186 contains instructions for conducting the evaluation under either depressurization or pressurization. In some situations, depressurization may be more efficient than pressurization to conduct the inspection.

CED1-132 - applicability to group R and I occupancies

Motion: Table until next meeting by Theresa Weston. Second by Martha VanGeem.

Vote: Voice vote – No opposed, unanimous in favor.

Reason: N/A

CED1-133 - exception from 3rd party testing

Motion: Motion to disapprove by Greg Johnson. Second by Theresa Weston.

Vote: 12-0-1 (Including CNV)

Reason: Vendors should not be certifiers of their own products.

CED1-185 – Energy Credits updates – under Modeling Subcommittee, but Envelope SC is second reviewer to look at envelope changes, including air leakage.
Approved by Modeling as modified 14-0-1.

Motion: As Modified by Martha VanGeem. Second by Jay Crandell

Modification:

For envelope portions and further modified to change E03 in tables to "reduced air leakage" as in E03 description.

Vote: 12-0-2 (Including CNV)

Reason: For envelope portions and further modified to change E03 in tables to "reduced air leakage" as in E03 description : based on revised PNNL analysis.

10. Upcoming meetings—first and third Thursdays of every month

- a. Jan 19, 2023, 11:00 AM to 2:00 PM ET
Action Items on Deck:

Air leakage:

CED1-132 - applicability to group R and I occupancies

Roofs:

CED1-089 – Roof replacement definition

CED1-102 – Minimum tapered insulation thickness errata

CED1-103 – Restore suspended ceiling section

CED1-118 – Roof assembly change to roof-ceiling construction

Possible subcommittee proposal on low sloped roof definition.

CED1-122 – Expands cool roof requirements

CED1-123 – Radiant barrier exception to cool roof requirements

CED1-124 – Language clarifications for cool roof section

CED1-144 – Title and wording changes for roof, ceiling, attic alterations

CED1-145 – Remove redundant sentence for C503.2.1

CED1-146 – Roof replacement

CED1-147 – Roof alterations title, approved entity

CED1-148 – Curb insulation for mechanical equip (also send to HVAC?)

- b. Feb 2, 2023, 11:00 AM to 2:00 PM ET
c. Feb 16, 2023, 11:00 AM to 2:00 PM ET
d. Mar 2, 2023, 11:00 AM to 2:00 PM ET
e. Mar 16, 2023, 11:00 AM to 2:00 PM ET

11. Adjourn

FOR FURTHER INFORMATION BE SURE TO VISIT THE ICC WEBSITE:

[ICC Energy webpage](#)

The monograph of Code Changes and Public Comments to the IECC Commercial Public Comment Draft #1 is posted [here](#).

An update to the IECC Commercial Public Comment Draft #1 that includes errata from staff and public comment is also [posted](#).

FOR ADDITIONAL INFORMATION, PLEASE CONTACT:

Committee Chair: Tom Culp, Birch Point Consulting, culp@birchpointconsulting.com

Committee Vice Chair: Emily Lorenz, IIBEC, emilyblorenz@gmail.com

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We have started an interested-party email list for various subcommittee communications. Please contact Tom Culp to be placed on that email list.