International Energy Conservation Code
Envelope & Embodied Energy Subcommittee

Meeting Notes

December 15, 2022
11:00 AM to 2:00 PM EST

1. **Call to order**. Meeting was called to order at 11:00 AM EST
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	X	*Kochkin, Vladimir	National Association of Homebuilders	X
Bradley, Jeff	American Wood Council	X	Melley, Michele	State of CT	X
*Brooks, Scott	Disney		*Ross, Bob	Austin Ind. School District	X
*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		*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	X	Zani, Andrea	Permasteelisa	X

*Member of main IECC Commercial Committee

4. **Assign Note Taker.** Jonathan Humble
5. **Approval of Agenda.** Agenda approved.
6. **Approval of Minutes**. December 1, 2022 meeting notes were accepted for file.
7. **Administrative issues.** None presented.
8. **New Business.** None presented.
9. **ACTION items**

   a. **CED1-137-22** - adds point and linear thermal bridging terms

   Motion: Disapprove. Mike Tillou motioned, second by Maureen Guttman.

   Vote: 17-0-3 CNV

   Reason Statement: The proposal recommends changes to C402.7, exception number 2, that significantly alters the original intent.

   Assignment: Chair noted that the ENV Subcommittee has an opportunity to develop a committee generated proposal related to the thermal bridging definition or other items in CED1-137. Those interested in discussing the thermal bridging definition outside of the subcommittee meetings are asked to prepare any proposals for consideration during the January 2023 meetings (those indicating interest: Jay Crandell, Bob Zabcik, Jonathan Humble, Helen Sanders, Stephan Hoffman, Ivan Lee, Cheryl Saldanha).

   b. **CED1-139-22** - pointer to vertical fenestration section

   Motion: As-Modified. Motion by Jay Crandell, second by Helen Sanders.

   Vote: 19-0-1 CNV

   Modification: C402.7.2 Cladding supports. Linear elements supporting opaque cladding shall be off-set from the structure with attachments that allow the continuous insulation, where present, to pass behind the cladding support element except at the point of attachment.

   Exceptions:

   1. An *approved* design where the above-grade wall *U*-factor used for compliance accounts for the cladding support element *thermal bridge*.
   2. Anchoring for curtain wall and window wall systems where curtain wall and window wall systems comply~~ing~~ with C402.7.4.

Reason Statement: This modification clarifies that thermal bridging in curtainwall and window wall is considered in the fenestration section of the thermal bridging provisions (i.e. they are not exempt from thermal bridging mitigation requirements), while still excepting curtainwall and window wall anchoring systems from the provisions dealing with linear thermal bridging for cladding attachment. Including this exception for anchoring systems is important to avoid confusion with other provisions or standards that consider curtainwall and window wall under the category of cladding.

c. **CED1-138-22** - add option for approved parapet thermal break

Motion: As-Submitted. Motion by Theresa Weston, second by Mike Tillou.

Vote: 12-3-3 CNV

Reason Statement: The proposed wording change will make it easier for current structural thermal break products on the market to meet the thermal performance requirements.

d. **CED1-140-22** - remove misplaced reference to beams under fenestration

Withdrawn – This is address in an erratum to a public review draft.

e. **CED1-107-22** - add option for including floor edges and balconies in above grade wall U-factor

Motion: As-Modified. Motion by Emily Lorenz, second by Helen Sanders.

Modification:

C402.1.2.1.5 Area-weighted Averaging of Above-Grade Wall U-factors. ~~For~~ Where above-grade walls ~~which~~ include more than one assembly ~~component~~ type or a penetration of the opaque wall area, the area weighted U-factor of the ~~entire~~ above-grade wall ~~may~~ is permitted to be determined by ~~accepted~~ an *approved* method~~engineering practice~~.

Revise as follows:

C402.7.1 Balconies and floor decks. Balconies and concrete floor decks shall not penetrate the building thermal envelope. Such assemblies shall be separately sup-ported or shall be supported by structural attachments or elements that minimize thermal bridging through the building thermal envelope.

Exceptions: Balconies and concrete floor decks shall be permitted to penetrate the building thermal envelope where:
1. an area-weighted U-factor is used for above-grade wall compliance ~~which~~ that includes a U-factor of 0.8 Btu/h-°F-ft for the area of the above grade wall penetrated by the concrete floor deck in accordance with Section C402.1.2.1.5, or
2. an approved thermal break device of not less than R-10 is installed in accordance with the manufacturer's instructions, or .
3. An *approved* design where the above-grade wall U-factor used for compliance accounts for all balcony and concrete floor deck thermal bridges.

Vote: 16-0-2 CNV

Reason Statement: The proposed change clarifies the intent of Section C402.7.1 and adds new language that aligns with the requirements for other types of thermal bridges. It also corrects the units for chi factor.

f. **CED1-135-22** - moves thermal bridging to appendix

Motion: Disapprove. Motion by Helen Sanders, second by David Altenhofen

Vote: 9-5-3 CNV

Reason Statement: Studies performed for this committee by PNNL has shown thermal bridging is a significant contributor to energy performance degradation in buildings. Mandatory requirements for thermal bridge mitigations are needed to ensure improvements in building energy performance occur in a reasonable time frame. Moving the thermal bridging requirements to an appendix will result in an excessive delay to widespread adoption. There is sufficient time for the industry to understand and adjust the requirements of the code, especially since the performance requirement created by the thermal bridging provisions is not very stringent. Many in the architectural, engineering and construction community are pushing for these provisions to be mandatory, and are ready for them. Similar or more stringent requirements have been put in place in Seattle and British Columbia without adoption issues.

g. **CED1-136-22** - adds climate zone 4 to exempted climate zones

Motion: As Submitted. Motion Martha VanGeem, second by Vladimir

Vote: 5-10-3 CNV, Motion Failed

Motion: Disapproval. Motion by Helen Sanders, second by Andrea Zani

Vote: 11-4-3 CNV, Motion Passed

Reason Statement: Major types of thermal bridges that have a significant effect on energy performance and other factors and should be mitigated in climate zone 4 because of the benefits to energy savings, resilience, durability, and comfort in much of that zone. Thermal bridging mitigation provisions have been adopted in New York City and Seattle which are also in climate zone 4. The ASHRAE 90.1 thermal bridging requirements also cover climate zones 4-8, and which also considered cost-effective.

h. **CED1-096-22** - adds option to use 90.1 thermal bridging provisions

Motion: As Submitted. Motion by Martha VanGeem, second by Bob Ross.

Vote: 8-8-2, Motion Failed

Motion: Disapproval. Motion by Jay Crandell, second by Maureen Gutman.

Vote: 7-8-2, Motion Failed

Assignment: Chair to prepare request to have the IECC Commercial Committee review and vote on this subject, because no consensus could be reached at the Subcommittee.

i. **CED1-097-22** - adds option to use ACI/TMS Code-122.1-21

Motion: As Submitted. Motion by Martha VanGeem, second by Vladimir Kochkin.

Vote: 7-8-1 Motion Failed.

Motion: Disapproval. Motion by Jay Crandell, second by David Altenhofen

Vote: 9-6-1 Motion Passed.

Reason Statement: ACI/TMS 122.1 exempts climate zone 4, so including it as an optional compliance path would create an inconsistency with the current language and prior action on CED1-136.

j. CED1-093-22 - remove all thermal bridging references

Motion: Disapproval. Motion by Helen Sanders, second by David Altenhofen.

Vote: 12-1-4 CNV

Reason Statement: Studies performed for this committee by PNNL has shown thermal bridging is a significant contributor to energy performance degradation in buildings. Mandatory requirements for thermal bridge mitigations are needed to ensure improvements in building energy performance occur in a reasonable time frame. Waiting 3 years for the next code update cycle is too long of a time. There is sufficient time for the industry to understand and adjust to the requirements of the code, especially since the performance requirement created by the thermal bridging provisions is not very stringent. Many in the architectural, engineering and construction community are pushing for these provisions to be mandatory, and are ready for them. Similar or more stringent requirements have been put in place in Seattle and British Columbia without adoption issues.

k. **CED1-087-22** - add thermal bridging to envelope inspections

Motion: As Submitted. Motion by Jay Crandell, second by Emily Lorenz.

Vote: 13-0-4 CNV

Reason Statement: This proposal clarifies the inspection of thermal bridges, and also corrects a section title.

Additional note: CEPC1-001 is a public comment on thermal bridging, but no action is required.

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

a. Jan 5, 2023, 11:00 AM to 2:00 PM ET
Tentatively: Fenestration and Air Leakage.
Action Items on Deck:

Fenestration:
CED1-090 - fenestration ratings
CED1-125 - adds separate fenestration U-factors for group R
CED1-126 - updates fixed fenestration U-factors
CED1-127 - brings in orientation requirements from 90.1
CED1-141 - modifies automated window shading credit
(note: CED1-142 will be grouped with the other envelope backstops later)
CED1-195 - provide feedback to Modeling SC on fenestration energy credit

Air leakage:
CED1-129 - CZ2 exception limited to single wythe concrete masonry buildings
CED1-130 - wording tweak regarding wind load
CED1-131 - adds depressurization as well as pressurization
CED1-132 - applicability to group R and I occupancies
CED1-133 - exception from 3rd party testing
CED1-134 - italics, use defined term

b. Jan 19, 2023, 11:00 AM to 2:00 PM ET
(tentatively: continued air leakage, roofs)

c. Feb 2, 2023, 11:00 AM to 2:00 PM ET

d. Feb 16, 2023, 11:00 AM to 2:00 PM ET

e. Mar 2, 2023, 11:00 AM to 2:00 PM ET

f. Mar 16, 2023, 11:00 AM to 2:00 PM ET

11. **Adjourn:** The meeting was adjourned at 2:00 PM Eastern.