G. Eades - Chair
Version: **2/28/22**

March 7, 2022

IECC-C Modeling Subcommittee Meeting – Notes

Monday March 7, 2022 –2:00-4:00 PM EST

Join via WebEx

Attendance:

#	Voting Members, Effective 12/06/21	Present	Guests	Present
1	Eades, Greg - EPA (Chair)	✓	Bryan Holland - NEMA	
2	Eley, Charles - Architecture 2030 (VC)	✓	Tom Culp – Glazing Industry Code Committee and Aluminum Extruders Council	
3	Anderson, Courtney - City and Co. Denver	✓	Jim Ranfone - AGA	
4	Bomer, Bryan - Montgomery Co., MD	✓	Shannon Corcoran - AGA	
5	Burk, Diana - NBI		Eric Lacey – Responsible Energy Codes Alliance	
6	Dalzell, John - Boston Planning and Dev.	✓	Martha VanGeem – Masonry Alliance for Codes and Standards and Concrete Codes and Standards	
7	Edwards, Ben - Mathis Consulting	✓	Kim Cheslak - NBI	
8	Giunta, Frank – Trane Technologies	✓	Mike Moore – Broan-NuTone	
9	Goldstein, David - NRDC	✓	Anurag Goel – evVerid Systems	
10	Gowri, Krishnan - Intertek Inc	✓	Theresa Weston - ABAA	
11	Grew, Milton - City of East Harford		Jerry Phelan - Covestro	
12	Harbeck, Nicolas - AHRI		Amanda Hickman – Hickman Group	
13	Harris, Stephen - University of Texas	✓	Greg Johnson – National Multifamily Housing Council	
14	Hernandez, Alfonso - Gensler	✓	Jay Crandell - FSC	
15	Hoffman, Emily - NYC	✓	Joe Cain - SEIA	
16	Jakobs, Diane - Rheem	✓	Marwa Zaatari	
17	Lessans, Mark - Johnson Controls		Payam Bozorchami	
18	McCullough, Anna - Group 14 Eng.	✓	J. Kettler	
19	Mock, Don - Howard County	✓	Kevin Rose - NEEA	
20	Panigrahi, Amiya - TTUHSC	✓	Doug Powell – University of Texas	
21	Port, Darren - NEEP	✓	Maria Karpman	
22	Rosenberg, Mike – PNNL (Consultant)	✓	Nicholas Ross – State of Connecticut	
23	Waite, Mike - ACEEE	✓	Helen Walter-Terrinoni - AHRI	
			Laura Petrillo-Groh - AHRI	
			Aaron Phillips – Asphalt Roofing	

Agenda:

1. Introductions/Attendance
2. Determination of quorum and review of agenda
3. Meeting Note Taker: Diane Jakobs
4. Schedule
    a. Modeling SC meets the first and third Mondays of every month, 12/6/2021 until 12/5/2022, from 2:00 PM to 4:00 PM.
    b. Next meeting is scheduled on 3/21/22 at 2 PM EDT

5. Approval of meeting notes
    a. 2/7/2022 ✓

6. Announcements
    a. C406 Work Group Update – Diana Burk
    b. Appendix CC Work Group Update – Charles Eley

Working Group Reports

Both Reported by Charles Eley:

C406 Work Group Update – Diana Burk had a good meeting. Looked at presentation from Reid Hart (PNNL). Complicated proposal. No votes were taken. Meeting set up for every other Thursday. Next meeting will be this Thursday, March 10th.

Appendix CC Work Group – Feb 17th meeting. Review of all code change proposals that were placed into one document. Two recommendations are being considered that should resolve 9 or 10 comments. Work Group meets tomorrow. Hope to come back to E4C Subcommittee within a month.

7. Old Business, Tabled Motions
    a. Revised CCP Review
        i. CEPI-207 Source vs Site Energy – James Ranfone/Shannon Corcoran

    Presented by Jim Ranfone, AGA:

    Added two tables from ASHRAE 105-2021. Concern was that the first proposal was too conservative. Proposal allows other sources for data. Similar proposal in the Residential Code with a link to data.

    Discussion:

    Charles Eley, Architecture 2030 (VC) Big improvement in the addition of the two tables. Charles would prefer Infinite Energy Efficiency Approach. Could go one step farther. Charles proposed another approach that would only address fossil fuels. The proposed Table C407.2.2 is not bad.

    Steve Rosenstock, Edison Electric Institute– This proposal is an improvement. Table 1 is an avoided value. Incorrectly merges all fossil fuels to be the same. All fossil fuels are not the same. Remove Table C407.2.1.

    Courtney Anderson, City and Co Denver – Incentivizes gas over electric? Jim - Detectable way to communicate gas versus other energy sources. Reflects all of the losses associated with the use of different energy sources. EPA uses source energy. Courtney – If a building uses gas is it more likely to be code compliant than an electric building? Jim – The factor has nothing to do with code compliance. Courtney – can't allow the use of natural gas in buildings. Jim – Method to calculate carbon emissions. Hesitate to say that proposal is doing this to promote natural gas. Kim Cheslak, NBI – Wants an answer to Courtney's question. Will this show that natural gas building will be better than an all-electric building? Jim – This method shows the reality of energy usage in the real world. Electricity coming from the plug in the wall is not 100% carbon

free. Kim Cheslak, NBI– Still has not gotten the answer. There are other ways.

David Goldstein, NRDC – Agree with Charles and Steve. Something that approximates carbon emissions is desirable. Doesn't want multiple methods. Doesn't want user to be able to calculate 5 different ways and pick a number. Wants one value that a jurisdiction can choose.

Mike Waite, ACEEE, The 2020 eGRID values have been released. Why use 2018? Installed equipment will be used for many years. Numbers representing a particular date do not represent the life of the equipment.

Vote: 0 accept, 1 reject, 17 revise

Greg Eades, EPA and Chair – Desire is one table
Joe Cain, SEIA – Who will revise?
Greg – We will put together a work group. Would someone like to lead a work group?
Krishnan Gowri, Intertek Inc. volunteered to lead work group.

8. New Business
   a. CEPI-205 Increase C407 Maximum Renewable Energy Credit – Joe Cain

Joe Cain – SEIA prefers strong envelope backstop with no limit on renewable use. Propose a 15% limit to come closer to 0 energy or 0 carbon. Will do the same with other areas of the code. Offers a bigger limit because 5% is so close to no incentive and does not allow for driving toward 0 energy. Added offsite community solar facility to drive toward 0 energy.

Discussion:
Bryan Bomer, Montgomery Co., MD – Community solar facility – How would that be administered? Joe Cain – Would entertain striking the Community solar facility.

Charles Eley, Architecture 2030 (VC) – Another proposal strikes limit. The issue here is how much do we want to allow on site solar to be played for energy efficiency. In IGCC there is a requirement for solar but no allowance against energy efficiency. How is this does is different from ASHRAE 189 and IGCC is that it allows tradeoff between renewables and energy Efficiency. Speaking against CEPI-205 in part because of CEPI 193.

Michael Rosenburg, PNNL – What is meant by envelope backstop? Joe – There is another proposal that establishes a envelope backstop in IECC.

Greg Johnson, National Multifamily Housing Council – Generally supportive of proposal. Building envelope will be advanced to the main committee. Opportunity to present to public. Rejection to the reference to community solar facility but thinks that it should be renewable not solar because the end of life for solar equipment may be best managed by a facility. 5% is not an incentive for onsite renewable. Change to 15% is a modest increase.

Jay Crandell, Foam Sheathing Committee of the American Chemistry Council – 5% is no way a restriction for the application of renewables. It is preventing 0 sum tradeoff and subsidizes solar. Not using solar as a power producer. There is no limit on solar. Residential has moved toward backstop and changed to 0 % credit.

Eric Lacey – Net effect of this is that it allows 10% increase in energy use.

Ben Edwards, Mathis Consulting – 5% was Ben's recommendation but they were trying to get an incentive for solar. Energy conservation code and the backstops

David Goldstein, NRDC – Uncomfortable for tradeoff of solar against efficiency. Depends on the rest of the standard.

Joe Cain, SEAE – This is a response to comments. There is a restriction on solar. Must buy from the grid is not correct. Those who act on the envelope, you are only acting on space heating and cooling. Zero sum gain is to reduce all demands and then offset all demands with renewables. There should be a move toward a holistic approach.

Jay Crandell, FFC – Comments made are in line with laws of thermodynamics

Vote: 2 Accept 18 Reject 0 Revise

b. CEPI-209 Table C407.4.1(1) Envelope Requirements – Jay Crandell
Envelope section of the code does not change with which path is followed.

Discussion:

Charles Eley, Architecture 2030 (VC) – In support

Krishnan Gowri, Intertek Inc. – The question is related to the thermal envelope certificate. How would it be addressed in C407? Jay – What materials did you use? Basic documentation of what was done and modeled. Krishan – It looks like an input documentation. Kim Cheslak, nbi – Jay I don't disagree. Difficulty is with C402.2.6. Could someone think that you have to use a radiant system? Could Jay modify C402.2.6? Jay - Is fine with revision and can see Kim's point. "where used" in C402.2.6. Kim – friendly modification to this proposal.

Ben Edwards, Mathis Consulting – Willing to amend C402.2.6

Greg Johnson, National Multifamily Housing Council – Would like to strike C402.2.4.1 Insulation installation. Rule did not put anything trade-able in this Table. C402.2.4.1 is trade-able. Such as insulation based on dimensions. Inappropriate for the part of the code that can be modeled.

Mike Waite – Wants to see C402.2.6. Doesn't think new language is needed.

Jay on Greg's comment – Agree comment applies to past revision. These are things that you need to do. Important requirements to install correctly are now in Table C047.2

Kim Cheslak – Agree it is where installed.

Martha Vangeem – Agree with Greg's comment. Can be modelled differently. Air spaces is similar. Doesn't belong.

Vote 15 Accept 2 Reject 1 Revise

c. CEPI 212-21 (Modified)
Jay Crandell – The solar absorptance and emittance was not correct. Reflects guidance from DOE. Consistent with prescriptive path

Vote: Unanimous 19 accept

d. CEPI-211 Changes Table C407.4.1(1) Mechanical Ventilation Requirements – Anurag Goel
Presenter: Anurag Goel, enVerid Systems using PPT
Anurag Goel, IMC allow for less outside air. IMC has exception to prescriptive requirements for an engineered design. Definition is in the IMC commentary. Air cleaning, source controls, dilution allowed. Opens the door to engineered designs. MA State Building Code 780 allows for engineered designs. Proposed should be modeled in accordance with 403.3. Exception Proposed design can be modeled per 403.2 IMC.

Discussion:
Anna McCullough, Group 14 Eng. – Question where proposed – What if more ventilation is specified? Anurag – Baseline would be 403.3 prescriptive rates. Proposed would be an engineered design with increased ventilation rates. Result in increased ventilation rates. Doesn't imply reduced rate. Anna – remove first sentence and exceptions. Should be modeling as proposed. Anna – Confusing reads a requirement to model prescriptive requirement

Charles Eley, Architecture 2030 (VC) – Second column "where mechanical is not" should be "mechanical ventilation is not" Is it possible in 407 to design a building with no mechanical ventilation? Operable windows allowed? Anurag – Terminal units would not be modeled. Depend on DOAS not terminal units. Kim Cheslak, nbi - energy code does not require ventilation. Charles Eley – is 403.2 IMC consistent with ASHRAE 62.1.

Anurag - Modification – model as proposed

Anna – Clears it up

Michael Rosenberg, PNNL – Suggests modification. In favor but ventilation is not tradable because it is hard to define. There is a lot of subjectivity. Needs more definition about baseline for multizone systems. ASHRAE 62.1 there is a new procedure but not in IMC.

David Goldstien, NRDC – Michael's solution would take care of issue. Do you have to account for impact on energy for parasitic losses for denser filters? Anurag – yes but difficult to do. Point is that it should be modeled in one of the other end uses.

Jay Crandell – What are these systems not being used? Is there a need to incentivize these systems? Very wide open in IMC. Do what you think works is concerning. Does this system design allow for alternative use methods? Are controls included? Anurag – To drive adoption of alternates like ERV to capture contaminants. Encourage use of new technology because

meeting the Code is more and more difficult. IMC needs clarification. More people need education.

Ben Edwards, Mathis Consulting – Supports direction. Interested in having more time with this. Short of a yes right now.

Mike Waite – Similar comment. Don't know enough

Michael Rosenberg – Information on the screen is not what was in mind. Same exception under Standard Reference and Proposed Design. Kim Cheslak – Not sure that revisions are in line with intent.
Michael Rosenberg – There should be a small group.

Kim Cheslak, NBI makes a motion to table proposal for today.
Ben Edwards, Mathis Consulting - seconded motion to table for next meeting.

End of new business

March 21 is the next meeting

Ended 2:40 CST