****

**International Energy Conservation Code**

**E4C-HVACR Subcommittee**

**Meeting Minutes**

May 12, 2022

11:00 AM EDT to 2:00 PM EDT

[Webex](https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Ficcsafe.webex.com%2Ficcsafe%2Fj.php%3FMTID%3Dmef07fe48e46d3f71376e59a2b3fb0a8f&data=04%7C01%7Cjohnbade%402050partners.com%7C8f5979ef42ce429a5eb308d9ece22ae1%7C22b1750a3e784e6ab5765f144276bd19%7C1%7C0%7C637801278573835294%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000&sdata=kwZEnXtXYmVaotPC8%2FiNM9TXRYnpIJdoR85laJVD3QM%3D&reserved=0) Link

**Committee Chair:** John Bade, representing the California Investor Owned Utilities

**Committee Vice Chair:** Blake Shelide, Oregon Department of Energy

Summary of proposal action votes at this meeting:

* CEPI-130 A/M, Service Water Heating Piping Insulation (Gary Klein), approved as modified 17-0-0
* CEPI-083 A/M Pump Efficiency (Nick O’Neil) approved as modified 15-0-1
* CEPI-145, Pump Efficiency (Steve Rosenstock) disapproved 14-0-2
* CEPI-127 A/M, Water Heating Efficiency (Mike Kennedy) approved as modified 13-2-2
* CEPI-126, Water Heating Efficiency (Steve Rosenstock) disapproved 13-2-0
* CEPI-119-21 A/M Fan Power Limits (John Bade), approved 11-3-1
* CEPI-129-21 Service WH for R-1 and R-2 (Evan Green ), disapproved 8-7-2

Tabled proposals:

* CEPI-131-21 Service water heating pump (Lisa Rosenow), motion to table passed 14-0-1
* CEPI-080-21 A/M Pipe insulation protection (Howard Ahern), motion to table passed 14-0-0

1. **Call to order**-Chair or vice-chair

* Called to order by John Bade

2**. Meeting Conduct**. Staff

a. Identification of Representation/Conflict of Interest

b. ICC [Council Policy 7](https://www.iccsafe.org/wp-content/uploads/CP07-04.pdf) Committees: Section 5.1.10 Representation of Interests

c. ICC [Code of Ethics](https://www.iccsafe.org/wp-content/uploads/CodeOfEthics.pdf): ICC advocates commitment to a standard of professional behavior that exemplifies the highest ideals and principles of ethical conduct which include integrity, honesty, and fairness. As part of this commitment, it is expected that participants shall act with courtesy, competence and respect for others.

3. **Roll Call** – Establish Quorum- John Bade

Quorum was established with 13 voting member present at the start of the meeting.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **First Name** | **Last Name** | **Category** | **Company** |
|  | Christopher | Arnold | Consumer | Grand forks Public Schools |
|  | John | Bade | Utility | 2050 Partners |
|  | Ellen | Eggerton | Gov. Regulator | City of Alexandria |
|  | Drake | Erbe | Standards Promulgator | ASHRAE |
|  | Henry | Ernst | Manufacturer | Daiken |
|  | Mark | Heizer | Gov. Regulator | Oregon Bldg Codes Div |
|  | Adrian | Jones | Gov. Regulator | City of Lawrence |
|  | Gary | Klein | User | Self |
|  | Jeff | Kleiss | Manufacturer | Lochinvar (AO Smith) |
|  | Benjamin | Levie | Consumer | UCSF |
|  | Dick | Lord | Manufacturer | Carrier |
|  | Frank | Morrison | Manufacturer | Baltimore Aircoil |
|  | Christopher | Perry | Gov. Regulator | US DOE |
|  | Daniel | Nall | Gov. Regulator | Dan Nall Consultant/ AIA |
|  | Laura | Petrillo-Groh | Manufacturer | AHRI |
|  | Kevin | Rose | Public Segment | NEEA |
|  | Thomas | Schultz | Utility | Spire and American Gas Assoc. |
|  | **Blake** | **Shelide** | Gov. Regulator | **Oregon Dept of Energy** |
|  | Amin | Tohmaz | Gov. Regulator | City of San Antonio |
|  | Doug | Tucker | Manufacturer | Mitsubishi |
|  | Jeremy | Williams | Gov. Regulator | US DOE |
|  | James | Yeoman | Gov. Regulator | City of Orem |

4. **Approval of Minutes** Approval of April 28, 2022 Minutes.

* Moved as modified by Jim Yeoman, seconded by Blake Shelide.
* Minutes approved 16-0-0.

5. **Approval of Agenda**

* **Motion to approve agenda as modified by Gary Klein. Seconded by Jim Yeoman.**
* **Motion to approve as modified passes 15-0-0.**

6. **Old Business**

a. Items forwarded to other committees for review or completion.

7. **Action Items**. (We will hear as many of these as possible. Any proposal not heard in this meeting will be moved to the next meeting’s agenda)

1. CEPI-130 A/M, Service Water Heating Piping Insulation (Gary Klein)

Proponent Gary Klein presents the proposal as modified.

* Gary Klein
  + - Minor editorial changes and comments mostly to align with ASHARE 92.1 and to have better understanding
* John Bade (California Investor Owned Utilities)
* Proposed not to include “insulation” at the point where pipping passes through a framing member at Exception #8.
* Gary Klein
* Agreed with John Bade’s proposal to removing “insulation”.
* Steve Rosenstock (Edison Electric Institute)
* Commented on exception for water not heated by fossil fuels or electricity.
* This may be something to address during public comments on solar thermal water heaters vs solar PV conundrum
* Discussion on exception #3 whether this exception is needed. Hot water should probably be insulated, with energy savings and safety considerations.
* John Bade (California Investor Owned Utilities)
  + - Made minor changes, replacing more with greater.
* **Gary Klein moved to approve as modified. Jim Yeoman (City of Orem) seconded.**
* **Moved to approve as modified passed 17-0-0.**
* Stand on and reference reason statement in original proposal

1. CEPI-083 A/M and CEPI-145, Pump Efficiency will be heard together (Nick O’Neil and Steve Rosenstock, respectively)

Proponent Nick O’Neil and Steve Rosenstock present the proposal

* John Bade (California Investor Owned Utilities)
  + Formula in the code is fairly complex and is generally not used by designers.
  + It is accurate and aligned with federal regulations for equipment standards, but is not generally part of design considerations.
  + PEI value is one or less.
* Steve Rosenstock (Edison Electric Institute)
  + These proposals are two different versions of the same table.
  + PEI is approved pretty early in the process. Unlike typical efficiency table, PEI is calculated based on efficiency at BEP and reference value, then compare with theoretical input.
  + PEI needs to be on nameplate. Lower the value of PEI, more efficient the pump is.
  + CEPI-145 includes all of federal standard and 90.1.
  + CEPI-83 is more condensed, removes equation that isn’t really part of the code. It is in ASHARE 90.1.
  + Steve is fine with either proposal.
* Nick O’Neil (NEEA)
  + The intend of both proposal is the same.
  + Neil is fine either proposal.
* John Bade (California Investor Owned Utilities)
* US DOE has this out for public comment now, and will likely include adding more pumps to scope of what is in this proposal.
* IECC could be out of alignment after this is all done.
* Steve Rosenstock (Edison Electric Institute)
* Since new standards typically have a 5 year lead time, so new standards wouldn’t go into effect until 2027-2028.
* It’s safe to use now.
* John Bade (California Investor Owned Utilities)
  + Confident to use now
* Mark Heizer (Oregon Bldg Codes Div)
* Prefer to keep it simple.
* Would like to keep the IECC book a little simpler, fewer pages
* Support either one.
* Chris Perry (US DOE)
  + Both proposals are ok. No strong feelings between the two,
  + Talked with Appliance Standards program, and they indicated CEPI-83 as aligning a little closer with their proposal.
  + CEPI-83 is shorter.
* Steve Rosenstock (Edison Electric Institute)
* Definition was revised for clarity reason.
* John Bade (California Investor Owned Utilities)
* Proposed to take a straw poll.
* CEPI 83 (more compact) - 9
* CEPI-145 (longer) - 4
* Laura Petrillo-Groh (AHRI)
* CEPI-145 (longer) is harmonizing with ASHRAE 90.1.
* Nick O’Neil (NEEA)
  + Added three definitions.
  + Walked through the proposal.
  + What pumps covers, PEI at variable load and constant load were kept in the table for clarity reason
  + DOE Test procedure defines pump at constant and variable load, and they both need to be <1.
    - Removed the table which gives C value for different pump type at constant load and variable load.
  + Added reference section.
* Comments supporting the simpler proposal.
* John Bade (California Investor Owned Utilities)
* New section matches with Neil’s proposal.
* Made editorial changes.
* Complex table and PEI equation is not used by building officials or designers.
* **Mark Heizer moved to approve CEPI-83 as modified, seconded by Ellen Eggerton.**
* **Moved to approve as modified passes 15-0-1**
  + **Drake abstained.**
* Proponents reason statement, with more simplified version preferred by the committee.
* CEPI-145
  + Dan Nall moved to disapprove, Kevin Rose second
  + Reason: based on committee action on CEPI-83
  + Motion passed 14-0-2.

1. CEPI-126, Water Heating Efficiency (Steve Rosenstock) & CEPI-127 A/M, Water Heating Efficiency (Mike Kennedy)

Proponents Steve Rosenstock and Mike Kennedy worked to combine into one A/M proposal CEPI -127

* Steve Rosenstock (Edison Electric Institute)
* Replaced water heating efficiency table with updated values to align with the updated federal value.

* Mike Kennedy
* Hard to find the equipment in current IECC.
* To find all the standard value, mostly follow ASHRAE 90.1.
* Kevin Rose moved to approve CEPI-127 as modified. Ellen Eggerton second.
* Motion to approve as modified 13-2-2
  + Drake Erbe and Laura Petrillo-Groh voted no.
  + Mark Heizer and Chris Perry abstained.
* Ellen Eggerton moved to disapprove CEPI-126, because of the action on CEPI-127. Dan Nall seconded.
* Motion to disapprove passes 13-2-0
  + Drake Erbe and Laura Petrillo-Groh voted no.

1. CEPI-119-21 A/M Fan Power Limits(John Bade)

Proponent John Bade presented the proposal.

* John Bade (California Investor Owned Utilities)
* Goal is to shift from fan power budget based on brake HP to fan power budget based in kW input.
* Proposal is meant to clarify current code language help with different interpretations
* Based on the experience, a whole lot of things need interpretation, They applied incorrectly.
* One to get in the building and one out the building.
* The value in the table originated from the modification from FEI (AMCA 207).
* Realization that allowances for renovations was intended to be but not included in proposal. Proponent made additions during the meeting to incorporate it.
* Laura Petrillo-Groh (AHRI)
  + - Asked the status of this proposal in the ASHRAE process?
    - Wants to harmonize with 90.1.
  + John Bade (California Investor Owned Utilities)
    - The proposal will be discussed at ASHRAE 90.1, which happens right after this meeting.
    - Will be discussing an independent substantive change which will be in line with this proposal. Intention is to be exactly in alignment between 90.1 and IECC.
* Moved to approve as modified Jim Yeoman. Seconded by Ellen Eggerton.
* Motion to approve passes 11-3-1
  + - Skip Ernst abstained.

1. CEPI-120-21 A/M Central Fan Integrated efficacy (Mike Moore)

Held for the next meeting.

1. CEPI-129-21 Service WH for R-1 and R-2 (Evan Green )

Mark Frankel (Ecotope) presented the proposal.

* Mark Frankel (Ecotope)
  + This proposal is meant to encourage HPWH in multifamily.
  + Modeled after city of Seattle code that is set to also go into effect in WA soon.
  + Strongly discouraging electric heating with efficiencies/COP < 1.
  + Gas HPWH are allowed via exception.
* Greg Johnson (Nat'l Multifamily Housing Council)
  + The word "groups" in the title to C404.2.1 is un-needed.
* Mark Heizer (Oregon Bldg Codes Div)
* Did Title 24 do similar?
* John Bade (California Investor Owned Utilities)
  + Confirmed that California did similar.
* Mark Frankel (Ecotope)
  + 3 approve manufacturers, pathway for more.
  + Applies to central systems.
  + “Encourages” because there are other paths, but easiest path is to adopt this. > 55 gallons
* Mark Heizer (Oregon Bldg Codes Div)
  + would like clarification that is for > 55 gallon storage.
* Dick Lord (Carrier)
  + The proposal applies only for new construction. What happens on replacement?
  + Per Proponent it is meant to apply only to central systems for R1/R2, but this is not the way the language is structured in the proposal. 404.2.1 (with 1,000,000 btu/hr threshold) is separate than 404.2.2.
* Laura Petrillo-Groh (AHRI)
  + Substantial concerns and problems if there are not a pathway for federal standard minimum efficiency products
* Mark Heizer (Oregon Bldg Codes Div)
  + problems unless the clarification of scope is made to make it for central systems only.
  + Can’t support.
* Thomas Schulz (SPIRE and American Gas Association)
  + This proposal is not consistent with previous proposal our SC voted on for boilers (requiring some condensing boilers as part of mix)
* Steve Rosenstock (Edison Electric Institute)
  + Understands intent, but this proposal would disallow a number of equipment types, but would likely have federal preemption issues.
  + Would disallow a number of legal products.
* Committee discussed and agreed that there are significant issues with proposal. It needs work.
* Moved to disapprove Laura Petrillo-Groh, seconded Thomas Schulz.
* Reason: this proposal has language issues and leads to federal preemption issues.
* Kevin Rose (NEEA)
  + This vote is a useful opportunity to parse issues with the proposal, encourages voting against motion to disapprove and taking this opportunity to amend it.
* Chris Perry (US DOE)
  + Would prefer tabling to later to allow for time to work on it before the next meeting.
* Motion to disapprove passes 8-7-2
  + Mark Heizer and Dan Nall abstained.
* Gary Klein will work with the proponent to revise the proposal to be submitted during public comments.

1. CEPI-131-21 Service water heating pump (Lisa Rosenow)

Proponent Lisa Rosenow presented the proposal.

* Lisa Rosenow (NEEA)
  + Core proposal is to require ECMs for pumps and to remove the allowance for using cold water pipe
  + Now realizes that ECM requirement can be taken out due to current US DOE rulemaking that would preempt requirement for this, and efficiency value is at ECM level anyways.
  + Would approve modifying to remove this requirement.
* Laura Petrillo-Groh (AHRI)
  + is the last sentence, is “during extended periods when hot water is not required” specific enough for design and enforcement purposes?
* Lisa Rosenow (NEEA)
  + didn’t provided specific methods, but if committee feels it should be more specific she would welcome the language modifications to do so.
* Greg Johnson (Nat’l Multifamily Housing Council)
  + Can remove “for single or multiple riser systems” since it is all-inclusive.
  + Other suggestions for reformatting for clarity to combine sections on controls. Shares Laura’s concern about “extended periods” phrase subjectiveness (15 minutes, 15 days,?).
* Gary Klein (Gary Klein and Associates)
  + Agreed with Greg’s suggestion on controls.
  + Questions about circulation systems on multiple risers and multiple zones – one pump or multiple between zones.
  + Modify to “a circulation pump serves multiple risers or piping zones”.
  + Offered to work with proponent to get the language right.
* Robert Glass
* Cost Increase Information and Project Energy Savings should be updated based on the proposed deletion of the ECM motor requirements sentence.
* Thomas Schulz (SPIRE and American Gas Association)
  + Shared his concerns about legionnaires protection and health concerns related to last sentence.
  + Shared his concerns about how this meshes with similar proposal to add something similar as an energy credit.
* John Bade (California Investor Owned Utilities)
  + Similar concerns with last sentence (“turn off the circulation pump…”) due to legionnaires growth concerns.
* Gary Klein (Gary Klein and Associates)
  + Moving water around isn’t as critical as maintaining temperature.
* Gary Klein proposed to table to May 26 form a subgroup to clean this up. Thomas Schulz second
* Motion to table is approved 14-0-1
  + Skip Ernst abstained.
* Drake Erbe (ASHRAE)
  + On these type of proposals that impact other standards, at ASHRAE he reviews these with ASHRAE leadership
* Gary Klein will coordinate working group.
  + Working group: Gary Klein, John Bade, Kevin Rose, Thomas Schulz, Lisa Rosenow.

1. CEPI-125-21 A/M Grid Integrated Water Heating (Kim Cheslak)

* Not covered.

1. CEPI-099-21 A/M Grid Integrated Thermostat Controls (Kim Cheslak)

* Not covered.

1. CEPI-080-21 A/M Pipe insulation protection (Howard Ahern)

Proponent Howard Ahem presented the proposal.

* Howard Ahern (Airex Manufacturing)
  + Original proponent of piping protection language in 2012 IECC, which has stayed the same since.
  + Biggest issue with original proposal was with “equipment maintenance” term.
  + Made modification to replace with “physical damage”.
  + Worked with the State of Washington. The description of 6 foot removal requirement.
* Mark Heizer (Oregon Bldg Codes Div)
  + Spoke against last sentence (6 feet requirement). Should be in mechanical code. Prohibition of tape to secure protection is an issue. This would require removable insulation for the first 6 feet for rooftop chillers and equipment. Pre-insulated refrigerant lines (with protective coating) would be an issue, the proposal would require stripping off factory insulation. Would suggest not having last line in there.
* John Bade (California Investor Owned Utilities)
  + Clarified that requirement is for protection to be removable, not insulation.
* Mark Heizer (Oregon Bldg Codes Div)
  + Think of this is overkill.
  + This should be part of mechanical committee, not IECC.
* Howard Ahern (Airex Manufacturing)
  + Open to modification that adhesive tape shall be prohibited for protection, not overall prohibition.
* Greg Johnson (Nat’l Multifamily Housing Council)
  + Shared some of Mark’s concerns about language.
  + Piping insulation exposed to weather shall be protected from damage caused by impact, abrasion, sunlight, moisture, and wind.
* Gary Klein moved to table to May 26th to clean this up. Jim Yeoman second.
* Motion to table passes 14-0-0.
* Gary Klein will reach out to working group to coordinate. Gary Klein and Mark Heizer to get together.
* John Bade (California Investor Owned Utilities)
  + Need to address issue if you don’t have 6’ of piping outside (for example, 2’ outside).

9. **Other business**.

1. Set a date for an extra meeting if we think it will be needed

* We will very likely need another meeting. June 2 proposed.
* Some discussion that this is at the same time as Envelope SC (although they may be done).
* Agreement to schedule next meeting for June 2nd.

Remaining proposals:

|  |  |  |  |
| --- | --- | --- | --- |
| CEPI Number | Title | Proponent | Proposed subcommittee date |
| CEPI-082-21 | Part I Roof Gutter de-icing | Nick Thompson | 5/26/2022 |
| CEPI-079-21 | Minimum Pipe Insulation thickness | Howard Ahern | 5/26/2022 |
| CEPI-078-21 | Air Handler insulation and sealing | Anthony Palucci | 5/26/2022 |
| CEPI-084-21 | Dehumidification Horticulture | Diana Burk | 5/26/2022 |
| CEPI-218-21 Part I | Alterations fuel gas pipe testing | Sean Denniston | 5/26/2022 |
| CEPI-219-21 | Alteration Duct Testing | Sean Denniston | 5/26/2022 |
| CEPI-227-21 | Alterations HVAC controls | Sean Denniston | 5/26/2022 |
| CEPI-228-21 | Alterations sizing HVAC equipment | Sean Denniston | 5/26/2022 |

1. Identify and schedule discussion dates for proposals that were sent to us from other subcommittees, if applicable.

11. **Upcoming meetings**.

a. Second and fourth Thursday of each month, 11:00am – 2:00pm Eastern Time

Next meeting is May 26, 2022.

12. **Adjourn**.

* Gary Klein Motion to adjourn.
* Seconded by Laura Petrillo-Groh.

FOR FURTHER INFORMATION BE SURE TO VISIT THE ICC WEBSITE:

[ICC Energy webpage](https://www.iccsafe.org/products-and-services/codes-standards/energy/)

[Code Change Monograph](https://www.iccsafe.org/wp-content/uploads/2021-Public-Input-Complete-Monograph.pdf)

FOR ADDITIONAL INFORMATION, PLEASE CONTACT EITHER

* John Bade, Subcommittee Chair at [johnbade@2050partners.com](mailto:johnbade@2050partners.com).
* Blake Shelide, Subcommittee Vice-Chair at [blake.shelide@energy.oregon.gov](mailto:blake.shelide@energy.oregon.gov)