International Energy Conservation Code
E4C-HVACR Subcommittee

Meeting Minutes

March 23, 2023
11:00 AM EST to 2:00 PM EST
Webex Link

Committee Chair: John Bade, representing the California Investor Owned Utilities
Committee Vice Chair: Blake Shelide, Oregon Department of Energy

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

John Bade, the Chair, called the meeting to order.

2**. Meeting Conduct**. Staff

a. Identification of Representation/Conflict of Interest
b. ICC Council Policy 7 Committees: Section 5.1.10 Representation of Interests
c. ICC Code of Ethics: 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

	First Name	Last Name	Category	Company
☒	John	Bade	Utility	2050 Partners
☒	Drake	Erbe	Standards Promulgator	ASHRAE
☒	Henry	Ernst	Manufacturer	Daiken
☒	Mark	Heizer	Gov. Regulator	Oregon Bldg Codes Div
☒	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
☒	Shannon	Corcoran	Utility	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

Quorum met.

4. **Review of Notes** from the March 9, 2023 meeting . Per staff direction, subcommittees do not have minutes, but notes. These do not need a vote.

The meeting minutes were distributed.

5. **Approval of Agenda**

John Bade walked through the agenda. The efficiency table for boilers under 300,000 BTUs was updated to match with the ASHRAE 90.1 as there is no court case for those boilers.
Added a footnote at the water heater table at CECD1-XX-22.

Laura Petrillo-Groh (AHRI)

- Asked to mention the length and schedule for the IECC process.

Kris Stenger

- Any committee proposal recommended by the sub-committee needs to be completed by April 8th so that those are processed through and finished by April 19th.

John Bade mentioned that the next meeting is on April 6th.

Jim Yeoman motioned to approve the agenda, and Laura Petrillo-Groh seconded.
The motion passed 10-0-1, John Bade abstained.

6. **Old Business** - none

7. **Review and possibly vote on the following public comments**

Proposal Number	Code Section(s)	description	proponent	Subcommittee Member Lead	
CED1-156-22	C403.3.2	Update efficiency tables to match ASHRAE 90.1	Steven Rosenstock	John Bade	Workin
CECD1-XX-22	Table C404.2	Footnote for large storage water heaters	Bryan Ahee	John Bade	
CED1-15-22	New Appendix	All-Electric Buildings Option	Diana Burke	TBD	
CED1-14-22	Multiple	Electric-Ready Requirements for Building Employing Combustion Fuels	Diana Burke	TBD	

CED1-156-22

John Bade (CA IOUs)

- Walked through the changes on the tables. The changes were for boilers under 300,000 BTUs per hour of input.

Kevin Rose (NEEA) motioned to approve as modified, and Jim Yeoman seconded.

Drake Erbe (ASHRAE)

- When the court case wins, we want to make sure that we have the ability to modify the table correctly so that if we miss something, we can change.

Kris Stenger

- The strikethrough underline are open for comment. If there is something related to preemption, we have a procedure for handling that.

John Bade (CA IOUs)

- If the court case was settled before the third round, we would be adding new language compared to what is going be in the second draft.

- Talked about the changes.

Nick O'Neil (NEEA)
- Preferred to split between 10 million and below so that if the court case is in favor of DOE, it will be easy to update the value.

John Bade (CA IOUs)
- The full committee may not like two classes. There will be public comments.

Drake Erbe (ASHRAE)
- When we send out the monograph, we could make a note on that particular table.
- Preferred to highlight the reason statement saying that this is an awaiting decision.

Laura Petrillo-Groh (AHRI)
- This could go either way. The court could take 3-9 months. So it could be published prior to a total over schedule. It could go either way.

Kris Stenger
- As these changes are not related to preemption, the public comment draft will be in June. The committee will go through the comments next month and a half. The committee can make a committee proposal during that time.

John Bade (CA IOUs)
- Explained how the changes were made.

John Bade took a straw poll and the committee agreed with the changes.

The motion to approve the proposal as modified passed 9-0-3. Shannon Corcoran, Chris Perry and John Bade abstained.

Reason Statement: The proposal updates the table to match new DOE regulations, less those elements currently under legal challenge.

CECD1-XX-22

Committee proposal.

Bryan Ahee (Bradford White Corporation)
- The proposal is made so that a note reflecting CFR 431.110 is missing from the table.
- Water heaters and hot water supply boilers having more than 140 gallons of storage capacity need not meet the standby loss requirement if it meets the conditions, which are the tank surface area is thermos thermally insulated, is 12.5 or more.
- The standing pilot light is not used and for gas or oil fired storage water heaters. They have a fire damper or fan-assisted combustion.
- Proposed to apply to the electric storage water heaters, gas storage water heaters, hot water supply oil boilers, supply boilers gas and supply boilers oil, and storage water heaters.

John Bade made the changes to the table.

Jeff Kleiss motioned to approve, Laura Petrillo-Groh (AHRI) seconded.

Steve Rosenstock (Edison Electric Institute)
- Mentioned of the new definition for different type of pilot configurations.

Shannon Corcoran (American Gas Association)

- Pilot lights are now covered under the adopted IEC standard 60730-2-5 in USA and Canada. Proposed to go with the definition to reflect the change. The term is “continuous pilot” as italicized.
- There's arguments for both and either using the definitions from the adopted standard and that is referenced within the body of this code, or staying in compliance with the CFR. Preferred to go with the definitions that are in the reference standard.

Drake Erbe (ASHRAE)
- How these changes relate to ASHRAE table in ASHRAE 90.1 Section 7.4-1. Wanted to make sure that the IECC table will look similar to ASHRAE 90.1 table.

Douglas Maddox (PNNL)
- In 90.1, there is a section "Exceptions to 7.4.2" that matches the footnote under discussion.

Jeff Kleiss
- No issue with confusion with the definition of standing pilot versus continuous pilot. There is an issue with confusion about that term in the industry with the language in the DOE proposal or use a more technical definition. Ok with leaving the way it is proposed.

The committee generated proposal passed 10-0-2, Chris Perry and John Bade abstained.

Reason Statement: The proposal is to make the requirements for a water heater consistent with both Departments of Energy Regulations and ASHRAE 90.1.

CED1-015

John Bade (CA IOUs)
- Provided a background on the proposal.
- There is an appendix to the code. They are not on the baseline requirements. The purpose of the appendixes is to allow jurisdictions to have flexibility. If a jurisdiction wants to require that buildings all electric and not, not use any kind of combustion appliances, they could use this language instead of trying to creating their own.

Joe Cain (SEIA)
- Asked whether the proposals 15 and 14 mutually exclusive.

John Bade (CA IOUs)-
- If the jurisdiction is adopted, the electric-ready provisions wouldn't apply because it would only apply to buildings that have combustion appliances. If this is adopted, combustion appliances will not be allowed.
- This is an option for a jurisdiction to require all electric. The other one would be with the body of the code and say if you're installing combustion equipment, you have to do some things to prepare for future electrification.

Mike Waite (ACEEE)
- Proposal 15 is related to doing all electric building and making sure that there's consistent and efficient practices out there more than requiring that these that buildings be all electric.
- Large part is putting the restrictions on requirements on heat pump sizing.
- Wanted to make sure not putting a bunch od electric resistance in a low or moderate income housing. It’s cheap to build but not efficient.
- We do want to give exceptions for very low spacing capacity spaces and particular systems where there is not a heat pump option and it is reasonable to use electrical resistance option.

- The heat pump sizing is related to hot water loads of the building. So we are not running the peak heating through an electric resistance system and really just using that as supplemental heat. This is intended already in the IECC.

Jeff Kleiss

- It needs more clarification as far as the electric resistance for backup and more allowance for partially meeting the heating requirements with heat pump.
- Referring to the Washing State, it is difficult of meeting the full load with the current heat pump products that are available on the market for very low temperature environment.
- We are not there to rely on heat pumps for all of our space heating needs.
- There are refrigerants that handle the lower temperature design conditions.
- The guidance for going all electric may be a promotion of heat pumps. Provision should be a heat pump requirement provision.
- Washington state allows the backup heating being resistant electric or gas.
- Would provide suggestions in writing.

Steve Rosenstock (Edison Electric Institute)

- Preferred to change to fossil fuels or other things. There are gasoline, biomass fired or coal-fired types of combustion equipment, hydrocarbons that could be installed.

Mike Waite (ACEEE)

- Rather than trying to come up with a term to exclude, preferred to refer to electricity and or on site renewable energy. Being more general make sense. Fossil fuel is used more than fuel gasses in this proposal.

Jeff Kleiss (via chat)

- Yes, hydrogen enriched fuels are being tested and evaluated currently.

Diana Burk (NBI)

- Ok with changing fuel gas to fossil fuel.

Steve Rosenstock (Edison Electric Institute)

- Volt Amp table based on outdoor temperature needs degree Fahrenheit.

Sean Denniston (New Bldg institute)

- The language allows electric resistance for backup. It just has to be controlled in accordance so that it’s supplemental heat instead of being allowed to be a primary system.
- If natural gas, combustion, is allowed as a backup, in general, then this really isn't all electric appendix. This is a primary electric appendix. That creates a fairly substantial set of modifications that should be made through public comment.
- We are pivoting to substantial alterations and substantial improvements on the requirements and not using substantial energy alteration. So it would be cleaner and it would address that concerns to just remove the substantial internal energy alterations section and the definition that goes with it. We can bring in it in the third round.

Diana Burk (NBI)

- Walked through the edits.

Laura Petrillo-Groh (AHRI)

- Asked question related to cost justification.
- The statement is based on a study that New Buildings Institute published that was based off 2 buildings, medium office and a single family home in a single climate zone.

Diana Burk (NBI)

- The cost study was based in CZ 5A in New York State and the cost of construction for an all electric commercial building and compared that with a building that's mixed fuel. Most of the cost savings came from reducing the natural gas infrastructure cost.
- Different localities and different natural gas companies treat those infrastructure costs differently. The infrastructure costs included in that cost study were only those on the building site and were off the building site.

Laura Petrillo-Groh (AHRI)

- The equipment choices that were made in the all electric decarbonization scenario on that report, 30 ton packaged source heat pump that were cited is not readily available in the market place. Air source heat pump stops at 20 tons. Central pump water heating system stops at 80.

Diana Burk (NBI)

- Was not involved in the cost justification. The purpose of the appendix is to require all electric construction for a variety of reasons and cost, maybe one of the reasons, but there may be other reasons that they want to require all electric construction.

Sean Denniston (NBI)

- The cost exercise was done before the supply chain issue. The availability of the product and prices of the equipment changed afterwards.
- Those options listed in the cost study are less wise way to do electrification of those types of buildings. There are better way to do.
- Making transitions to other technologies, there are more affordable approaches.
- During actual adoption in a specific jurisdiction, the specific market factors will be considered. Because in some jurisdictions, product availability may find higher costs and they have to make a different decision.

Laura Petrillo-Groh (AHRI)

- Other studies come to a very different conclusion regarding cost effectiveness.
- The actual energy saving is highly dependent on energy generation depending on the localities. The federal governments can make that mandate to high efficiency products to be used in their construction in the government documents.
- This proposal may not be the right time as the cost impact statement is problematic.
- Found the proposal premature.

John Bade (CA IOUs)

- Proponent may get rid of the cost impact in the appendix.

Mike Waite (ACEEE)

- Agreed with the cost impact statement should be changed.
- May have a checklist of things for what is suggested of what a jurisdiction should go through before adopting it.
- Referring to chat message, hash it out here, or, deal during the public comment.
- One concern was that it will allow, like electric resistance for full heating load in kind of apartment size residential spaces and where that this expensive heating choice gets low.
- Since this is an energy efficiency code, as we start looking at efficiency of all electric systems, we are naturally going to get pushed towards heat pump.
- Agreed that fossil fuel back up in some jurisdictions and depending on different climate and the grid mix make sense.
- Agreed to include high efficiency dual fuel appendix.
- This proposal requires heat pump sizing to 99% design temperature rather than 99.6%, which makes big difference in heat pump sizing and allowing for peak heating on the coldest times to be met by the electric resistance, It may not be ideal. Other possible way to design including thermal storage was not addressed in the proposal.

Gary Klein

- Concerned on fossil fuel reference. It may be carbon they produce.

Mark Heizer (Oregon Bldg Codes Div)

- Preferred to review after discussing in 189.1.
- Having design in locations below 40 deg F will be challenging. Due to climate impacts,we are not just seeing record heat. We are regularly seeing temperatures 10 to 20 degrees below that 99% design temperature.
- Heat pumps are going to be shutting off at some temperatures that there's just this language really needs to consider cold climates and not limit people for their backup it.

Skip Ernst (Daikin)

- Manufacturer of air source heat pump
- Agreed with Mark Heizer and Laura's comment.
- If your heat load is greater than your cooling load, which is not common, but if it is and you oversize the heating load, the equipment is less reliable.
- If it's cold enough in a cold climate and backup gas is not allowed, the amp will be doubled.

Chris Perry (DOE)

- We get a lot of questions on how to go with all electric.
- Understand the concern and cost effectiveness, preferred not to see scattered requirements across the country and may open the door to much electric resistance.
- Federal agencies are looking at electrifying their facilities and they don't know how to do it. We don't have anything to point them to. This proposal would be really useful.

Quorum met after the 10-min break.

Sean Denniston (NBI)

- The concerns that have been raised about cold climate and cost effectiveness, those are the reasons that this is an appendix and not in the main body of the code.
- Every jurisdiction brings brought different topics but not to discuss of good language.
- Agreed with Chris Perry on inconsistent language.

Diana Burk (NBI)

- The residential draft 2024 IECC has an all electric appendix for residential buildings, and it would be perfectly appropriate for the Commercial Code to also have an all electric appendix.
- The IECC has adopted appendices like the Net Zero Appendix and solar readiness Appendix that aren't in 189.1.

Ben Levie (UCSF)

- We're building all electric buildings. This proposal will be helpful for us.
- Preferred to address heat recovery and chillers in this proposal which would be useful in building.
- For a big building, it would be better to connect to the district heating system or to water treatment pipes through recover heat. That's could be much better solution.
- Putting in loads of air source heat pumps can be less efficient and will definitely wear out faster.

Laura Petrillo-Groh (AHRI)

- The air source heat pumps were required as the heat pump option.

Mike Waite (ACEEE)

- It doesn't require air source heat pumps and heat recovery chillers are heat pumps.

Laura Petrillo-Groh (AHRI)

- Need more clarification on furnace replacement and heat pumps having combustion equipment.

Diana Burk (NBI)
- Tried to address how jurisdiction might address existing buildings in a way that would be very cost effective. The referred section replaces a unitary air conditioner with a heat pump.
- For configuring the controls to limit the amount of supplementary heat that the existing heating system might supply, the control requirements need to be established. For installing a new air furnace, it should be permitted as a supplementary heat source.

Laura Petrillo-Groh (AHRI)
- Is there any counter part of this in the new bldg. section?

Debra
- The new bldg. section will not back fossil fuel section.

Laura Petrillo-Groh (AHRI)
- Some of the requirements specify control. Worried about specifying different control strategies into the building code. Performances purposes are set by the DOE.
- Don't disagree with the intent of making sure that there are limits around for existing building. Don’t agree with the equipment design in the building standard.
- It makes sense to add these provisions in a green code, not a minimum code at this point in the process.

John Bade (CA IOUs)
- Many supplementary heat designs are not related to the actual primary heat pump. It is not preemptive. It's very common for electric supplemental resistance heat to be a completely different piece of equipment than the primary heat pump. In residential applications, the electric resistance heat is a separate kit. It may be supplied by the same manufacturer.

Drake Erby
- ASHRAE and the IECC have additional vehicles for setting policy and that would be the technical requirements in 189.1 that are involved into the International Green Construction Code.

Laura Petrillo-Groh motioned to disapprove the proposal, and Jeff Kleiss seconded.

Mark Heizer (Oregon Bldg Codes Div)
- This proposal should go through the IGCC process. Preferred a lot more people to be involved.

Chris Perry (DOE)
- Definitely wanted to go through 189.1. Not sure whether 189.1 has a zero energy appendix and IECC does in both residential and commercial.

Drake Erby
- 189.1 is the technical basis for the International Green Construction Code. They are not separate anymore. 189.1 is the place for this kind of movement into different realms.

Motion to disapprove passed 8-4-1, John Bade abstained.

CED1-014

Diana Burk (NBI)
- Introduced the proposal last sub-committee meeting.

- The intent is to make sure that buildings have the electrical infrastructure in place so that if they have combustion equipment they can easily switch to all electric equipment without any major retrofit costs.
- Some of the language are already approved through 189.1 Addendum AC.

Mark Keizer

- Asked question on Section C403.15. Need to include exception here. For hydronic heating coil, there needs to be an exception in the section for designing for 130 degree F water. It needs to be exception in here for to allow where it's seeing coils that are seeing untampered outdoor air.

John Bade (CA IOUs)

- Based on the experience, poor design is cause problem. Disagreed of including exception.

Laura Petrillo-Groh (AHRI)

- Mentioned of cost justification. Wanted an update on the study regarding the heating equipment

John Bade shared the table.

Laura Petrillo-Groh (AHRI)

- Found problematic to have multiple for business without the main body of the code without any cost justification.

Diana Burk (NBI)

- Shared the cost justification is at the link: https://energy.cdpaccess.com/live/proposal/809/html/
- Cost justification is based on the medium office and single family, and study from the California Energy Commission (CEC). CEC evaluated the effectiveness of electrification retrofits.

Laura Petrillo-Groh (AHRI)

- The CEC program is geared towards ensuring that paying for heat pumps for low income housing, low income families and the cost for all public for that. The real cost includes coding equipment installation, the whole pack, which is surprisingly high.
- Shared her concern on substantial cost.

Jim Early (Edison Electric Institute)

- The table needs Fahrenheit as well.

Kevin Duell (NW Natural)

- The residential version of the IECC has this kind of provision actually didn't pass committee vote, but it was resurrected in an omnibus proposal.
- Shared the concern that it provide to choice to owners. The intent is to punish owners financially that want gas in their buildings. It would certainly help an owner who decides to make the change later.
- The change would burden different stakeholders. Regulating non-regulated equipment (like oven) requires more trainings cost and other for code officials, designers, building owners. Utilities in general generate assets. There is no guarantee that these electric ready components will ever be used, they absolutely add cost to a building without any inherent energy savings. It reduces the resiliency of the building by relying on a single source. The generation or storage for electric has to be substantially larger physically and in cost than if they have a second fuel source.
- The proposal forecloses the use of other gaseous fuels besides methane such as natural gas, green hydrogen or other.

Joe Cain SEIA

- As a senior director of codes and standards for the Solar Energy Industries Association, shared his experience on codes. We need buildings that are structurally safe.
- Ultimately we are going is decarbonization, greenhouse gas reduction and that's coming down from the IECC Board of Directors. Disapproving these proposals is contrary to the direction from the directors. There are many cities moving toward in the direction of electrification.
- Shared his frustration on the disapproving future looking proposals.

Diana Burk (NBI)

- Specifically requested that the HVAC committee look at this proposal because a lot of the electrification readiness requirements are associated with HVAC and water heating equipment. Shared disappointment that many are not offering any advice and comments.
- Referring to the response of the NW Natural, we're expecting to get to Net Zero carbon transportation by 2050.
- It's going to be inevitable for buildings built after this code is adopted that they will eventually have to stop using combustion equipment and transition to electric equipment.
- Amendment moving the energy storage readiness requirements into an appendix is still going to be mandatory. So there will be some sort of energy storage readiness available. 50% of commercial buildings are already all electric.
- Urged the committee to review and feedback on this proposal.

Chris Perry (DOE)

- Agreed with Joe Cain's proposal.
- There are requirements for central systems to have electrical capacity reserve but not requiring conduit to be like wired to a specific location. The primary portion of the water heating system is often in a different location as the temperature maintenance or like the secondary system. if you're going to run conduit to somewhere, there's no guarantee that that's the optimal location for the central heat pump water heater system.
- The proposal would need edits.

Greg Johnson provided feedback on language and proposed edits.

Gray Klein motioned to table till April 6, Mark Heizer seconded.

The motion passed to table passed 6-4-2- Skip Ernst and John Bade abstained.

8. **Updates on other public comments**. Reports from subcommittee response leads on progress working with commenters.

9. **Other business**.

- Members to bring up any new business

10. **Upcoming meetings**.

a. April 6, 2023, from 11:00 a.m. to 2:00 p.m. Eastern Time.

11. **Adjourn**.

Laura Petrillo-Groh motioned to adjourn, Mark Heizer seconded.

FOR FURTHER INFORMATION BE SURE TO VISIT THE ICC WEBSITE:
ICC Energy webpage

Code Change Monograph

FOR ADDITIONAL INFORMATION, PLEASE CONTACT EITHER

- John Bade, Subcommittee Chair at johnbade@2050partners.com.
- Blake Shelide, Subcommittee Vice-Chair at blake.shelide@energy.oregon.gov

Chat

from Jim Yeoman to Everyone
09:58
Jim Yeoman Deputy Building Official Orem City Utah
from Jim Yeoman to Everyone
09:58
Jim Yeoman Deputy Building Official Orem City Utah
from jim Earley to Everyone
09:59
Jim Earley, Edison Electric Institute, Guest
from jim Earley to Everyone
09:59
Jim Earley, Edison Electric Institute, Guest
from Steve Rosenstock to Everyone
10:00
Steve Rosenstock, Edison Electric Institute, guest
from Steve Rosenstock to Everyone
10:00
Steve Rosenstock, Edison Electric Institute, guest
from Jim Yeoman to Everyone
10:00
Its snowing ...never buy a new Harley it will snow for two months for sure
from Jim Yeoman to Everyone
10:00
Its snowing ...never buy a new Harley it will snow for two months for sure
from Sean Denniston to Everyone
10:00
Sean Denniston – new buildings institute
from Sean Denniston to Everyone
10:00
Sean Denniston – new buildings institute
from Jim Yeoman to Everyone
10:03
it's 9:03 maybe a bit late
from Jim Yeoman to Everyone
10:03
it's 9:03 maybe a bit late
from Joe Cain - SEIA to Everyone
10:05
Joe Cain, SEIA, guest
from Joe Cain - SEIA to Everyone
10:05
Joe Cain, SEIA, guest
from Kevin Rose to Everyone
10:05
Kevin Rose, NEEA
from Kevin Rose to Everyone
10:05
Kevin Rose, NEEA
from Mike Waite to Everyone
10:06
Mike Waite, ACEEE
from Mike Waite to Everyone
10:06
Mike Waite, ACEEE

from Steve Rosenstock to Everyone
10:07
It is 156
from Steve Rosenstock to Everyone
10:07
It is 156
from skip to Everyone
10:10
sorry i was late
from skip to Everyone
10:10
sorry i was late
from Shannon Corcoran to Everyone
10:16
apologies for joining late (previous meeting ran late)
from Shannon Corcoran to Everyone
10:16
apologies for joining late (previous meeting ran late)
from Kevin Rose to Everyone
10:35
CED1-157 AM reason statement: updates table to match new DOE regulation, less those elements currently under legal challenge
from Kevin Rose to Everyone
10:35
CED1-157 AM reason statement: updates table to match new DOE regulation, less those elements currently under legal challenge
from Kevin Rose to Everyone
10:35
any proposed changes?
from Kevin Rose to Everyone
10:35
any proposed changes?
from Laura Petrillo-Groh to Everyone
10:36
Ok by me, Kevin. Thanks
from Laura Petrillo-Groh to Everyone
10:36
Ok by me, Kevin. Thanks
from Douglas Maddox to Everyone
10:44
In 90.1, there is a section "Exceptions to 7.4.2" that matches the footnote under discussion.
from Douglas Maddox to Everyone
10:44
In 90.1, there is a section "Exceptions to 7.4.2" that matches the footnote under discussion.
from Mark Heizer to Everyone
10:50
John, I am moving to phone and will be listening. I have specific comment/recommendation for CED1-14, Section C403.15
from Mark Heizer to Everyone
10:50
John, I am moving to phone and will be listening. I have specific comment/recommendation for CED1-14, Section C403.15
from Mark Heizer to Everyone
10:57
Back at main desk, but keeping phone connection active if I need to step away from the phone.
from Mark Heizer to Everyone
10:57
Back at main desk, but keeping phone connection active if I need to step away from the phone.
from Jeff Kleiss to Everyone
11:01
Yes, hydrogen enriched fuels are being tested and evaluated currently.
from Jeff Kleiss to Everyone
11:01
Yes, hydrogen enriched fuels are being tested and evaluated currently.
from Joe Cain - SEIA to Everyone
11:04
A keyword search for "fossil" throught PC draft shows many occurences.

from Joe Cain - SEIA to Everyone
11:04
A keyword search for "fossil" throught PC draft shows many occurences.
from Gary Klein to Everyone
11:06
Are bio-diesel, enthanol, or biogas "fossil" fuels? Technically they arent't, but the are carbon producers.
from Gary Klein to Everyone
11:06
Are bio-diesel, enthanol, or biogas "fossil" fuels? Technically they arent't, but the are carbon producers.
from Jeff Kleiss to Everyone
11:06
Hydrogen fuel would not be considered fossil fuel.
from Jeff Kleiss to Everyone
11:06
Hydrogen fuel would not be considered fossil fuel.
from Bruce Swiecicki to Everyone
11:07
From the Department of Energy:
from Bruce Swiecicki to Everyone
11:07
From the Department of Energy:
from Bruce Swiecicki to Everyone
11:07
Fossil energy sources, including oil, coal and natural gas, are non-renewable resources that formed when prehistoric plants and animals died and were gradually buried by layers of rock.
from Bruce Swiecicki to Everyone
11:07
Fossil energy sources, including oil, coal and natural gas, are non-renewable resources that formed when prehistoric plants and animals died and were gradually buried by layers of rock.
from Gary Klein to Everyone
11:08
Will there be a 3rd round of comments?
from Gary Klein to Everyone
11:08
Will there be a 3rd round of comments?
from Bruce Swiecicki to Everyone
11:08
Key term: "non-renewable"
from Bruce Swiecicki to Everyone
11:08
Key term: "non-renewable"
from Jeff Kleiss to Everyone
11:09
Strong opposition to that particular change. It rulses out renewable combusiton appliances.
from Jeff Kleiss to Everyone
11:09
Strong opposition to that particular change. It rulses out renewable combusiton appliances.
from Mark Heizer to Everyone
11:09
Did anyone else lose sound?
from Mark Heizer to Everyone
11:09
Did anyone else lose sound?
from Bruce Swiecicki to Everyone
11:09
So, for example, the C3H8 molecule (propane) would not be a "fossil fuel" if it is produced using a renewable source.
from Bruce Swiecicki to Everyone
11:09
So, for example, the C3H8 molecule (propane) would not be a "fossil fuel" if it is produced using a renewable source.
from Steve Rosenstock to Everyone
11:09
Sound is back
from Steve Rosenstock to Everyone

11:09
Sound is back
from Diana Burk, NBI to Everyone
11:15
https://newbuildings.org/resource/cost-study-of-the-building-decarbonization-code/
from Diana Burk, NBI to Everyone
11:15
https://newbuildings.org/resource/cost-study-of-the-building-decarbonization-code/
from Mark Heizer to Everyone
11:15
20 tons is the Oregon limit
from Mark Heizer to Everyone
11:15
20 tons is the Oregon limit
from Mark Heizer to Everyone
11:23
Cities looking toward adopting should have information to understand the impacts
from Mark Heizer to Everyone
11:23
Cities looking toward adopting should have information to understand the impacts
from Mark Heizer to Everyone
11:25
Renewables needs to address community resources (might not be specifically on the site
from Mark Heizer to Everyone
11:25
Renewables needs to address community resources (might not be specifically on the site
from Jim Yeoman to Everyone
11:31
Agreed Skip
from Jim Yeoman to Everyone
11:31
Agreed Skip
from Jim Yeoman to Everyone
11:32
I have many friends in cold area that lose Electric for weeks at a time
from Jim Yeoman to Everyone
11:32
I have many friends in cold area that lose Electric for weeks at a time
from Mark Heizer to Everyone
11:34
All multifamily occupancies cz 5 and colder will be heating dominated
from Mark Heizer to Everyone
11:34
All multifamily occupancies cz 5 and colder will be heating dominated
from Jim Yeoman to Everyone
11:34
Agreed I'm in 5
from Jim Yeoman to Everyone
11:34
Agreed I'm in 5
from Mark Heizer to Everyone
11:35
The concept is good. But concern that this is not ready.
from Mark Heizer to Everyone
11:35
The concept is good. But concern that this is not ready.
from Jim Yeoman to Everyone
11:35
Agreed Mark
from Jim Yeoman to Everyone
11:35
Agreed Mark
from Sean Denniston - New Buildings Institute to Everyone
11:36
Jurisditions who are interrested in going all-electric will do it no matter what IECC does.
from Sean Denniston - New Buildings Institute to Everyone
11:36

Jurisditions who are interrested in going all-electric will do it no matter what IECC does.
from Mark Heizer to Everyone
11:37
Plug-&-Play is ready to go from NBI and others for reference
from Mark Heizer to Everyone
11:37
Plug-&-Play is ready to go from NBI and others for reference

from Jim Yeoman to Everyone
12:21
Not Sure Greg it was not in the heading at the top
from Jim Yeoman to Everyone
12:22
CED1-14 as Modified it looks like
from Drake Erbe-ASHRAE to Everyone
12:22
CED1-14-22
from Laura Petrillo-Groh to Everyone
12:24
Tech clean CA: https://techcleanca.com/public-data/maps-and-graphs/
from Doug Tucker to Everyone
12:28
I have to drop off at 1:30.
from Gary Klein to Everyone
12:43
Ready access versus access
from Kristopher Stenger to Everyone
12:45
readily available was the term used
from Diana Burk, NBI to Everyone
12:45
READY ACCESS (TO). That which enables a device, appliance or equipment to be directly reached without requiring the removal or movement of any panel or similar obstruction.
from Diana Burk, NBI to Everyone
12:45
That's in the 2021 IECC
from Diana Burk, NBI to Everyone
12:45
ACCESS (TO). That which enables a device, appliance or equipment to be reached by ready access or by a means that first requires the removal or movement of a panel or similar obstruction.
from Mark Heizer to Everyone
12:51
NFPA 70 has one reference in the IECC: 501.2.
from Mark Heizer to Everyone
12:52
General NEC reference should be OK.