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**International Energy Conservation Code**

**Electrical, Power, Lighting and Renewable Energy Subcommittee**

**Meeting Agenda**

January 23, 2023

2:00 PM EST to 5:00 PM EST (3 hours)

[Webex Link](https://iccsafe.webex.com/iccsafe/j.php?MTID=mbabbca387ac26bf392f8723b71c24b43)

**Committee Chair:** Mike Stone, NEMA

**Committee Vice Chair:** Mark Rodriguez, SunRun

1. Call to order.

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 - Stone

4. Approval of Minutes

5. Administrative issues.

6. Action Items.

* Remove R404.7 – Motion to Disapprove the 6 listed proposals, RED1-146-22 PI, RED1-146-22 PII, RED1-147-22, RED1-148-22, RED1-150-22, RED1-151-22, BR 2nd PC, (12-3-0)
* The subcommittee reviewed the merits of the listed proposals and feel that the efficiency gains from level 2 charging equipment were sufficient to place these requirements within the body of the code, per the guidance given to the subcommittee. The subcommittee was unwilling to delete these requirements without substitution. The SC is willing to discuss proposals to move this section to an optional appendix.
  + RED1-146-22 PI, Remove R404.7 "EV Power Transfer Infrastructure", Fredric Zwerg
  + RED1-146-22 PII, Remove N1104.7 "EV Power Transfer Infrastructure", Fredric Zwerg
  + RED1-147-22, Remove R404.7 "EV Power Transfer Infrastructure", Ted Williams
  + RED1-148-22, Remove R404.7 "EV Power Transfer Infrastructure", Shannon Corcoran
  + REPCD1-22-22, Remove R404.7 "EV Power Transfer Infrastructure", Michele DeFrance
  + RED1-150-22, Remove R404.7 "EV Power Transfer Infrastructure", Eric Tate
  + RED1-151-22, Remove R404.7 "EV Power Transfer Infrastructure", Andrea Papageorge
  + REPCD1-14-22, REPCD1-9-22, Remove R404.7 "EV Power Transfer Infrastructure" (move to Appendix), Paul Demers
  + REPCD1-15-22, Remove R404.7 "EV Power Transfer Infrastructure" (move to Appendix), Remove R404.6 "renewable energy infrastructure", Renee Lani
  + Discussion
    - Proponents: Does not account for other renewable sources like hydrogen. Subsidizes EV owners. Difficult for disadvantaged owners. Misanalysed cost benefit for measures that may not be implemented. The proposals has no economic justification to the owner. May not be applied to EV owners. Recommend this for an appendix. Base code must conserve energy. The cost for this will force a choice to one fuel source over another. ICC Policy 7 as an optional appendix.
    - Discussion: SH - Board approved scope, Intent, says the body of the code has to provide min efficiency for the building. MS – A number of stakeholders asked this question of ICC, there was clear guidance that the code could include GHG resources in the body of the code. SD – Idaho study says level 2 charging is 15-32% more efficient than level 1 chargers. This infrastructure saves energy. GHG falls clearly within scope. This was a part of the previous discussion. BR – There was a lack of consensus at the start, through the omnibus we moved towards consensus after lengthy discussions. SR – Emissions are reducing over the next 15-20 years. Saves transportation energy compared to gas vehicles. This does not preclude the use of other gas-fueled appliances. BH – Provides the homeowner the opportunity to improve efficiency, like programmable lighting controls and thermostats. Every rule within the code could be a stranded asset. The infrastructure at new construction returns the best on investment. EVs are Energy storage systems and can be bi-directional for demand response or for peak load shaving. PV assets can supply the EV. TW – The scope dealt with carbon emissions for buildings, not transportation. Far outside the intent of the scope. FZ – Utilities do not have enough power to supply EVs on the road. No one is concerned. Most of Nevada’s power is from natural gas. This will increase emissions. The homeowner or builder can spend the money to upgrade infrastructure. RS – Staff opinion is not a board opinion and is not in line with the intent of the board. The committee can’t put whatever they want wherever they want. Where does the intent say to place the requirement? These provisions should be optional, not mandatory. SS – EV’s are on the rise due to incentives. 80% of EV charging happens at home, especially in a world of remote workers. AM – Can we get a Board opinion? We have been working under the guidance of a staff opinion. What is the 15-32% charging? (SD – Level 2 uses 15-32% less energy to charge an EV.) EV bi-directional efficiency gain? (BH – yes, just like having an onsite renewable this is a means to use energy more effectively through alternate means.) (SH – not more efficient, but may be more effective use of energy) (SD – level 1 and DC fast charging have no bidirectional function. When we use the energy on the grid we can peak shave. V2G does not help with efficiency, but huge for carbon emissions by charging the EV under low carbon intensity and discharge during peak times. JC – The scope of the code includes electric power systems. The intent from the board was edited to be better, but still lacking, evidenced by the discussion about the intent and not on the language of the code. Staff says the code does not say where things go, but the guidance is still lacking. Any conflicts or issues can be addressed through public comment. Interpretations are personal. As we trend towards EV, we want equity and inclusion. We want better implementation. GJ – The builder is spending the money. We offer technical criteria, however, battery tech will change and we wont need the same amount of capacity. Distinction between Single family and R2, to protect the grid, you can’t have these charge at the same time. Who is going to maintain these devices at R2 facilities? We are interfering with the market. Businesses with drive up facilities will want people to come to their facility. You would have to completely redesign the parking facility. AE – Call the question! 2nd CA
* Motion to disapprove the following proposals BR, 2nd PC (13-2-0)
* In accordance with past action, the subcommittee was unwilling to delete these requirements without substitution. The SC is willing to discuss proposals to move these sections to optional appendices.
* RED1-115-22 PI, Remove R404.4, R404.5, R404.6, and R404.7, Jeremy Clarkson
* RED1-115-22 PII, Remove R404.4, R404.5, R404.6, and R404.7, Jeremy Clarkson
  + Proponents: RS – Committee members don’t read or want to hear anything further. This is on record for appeals. Represents region 6.
  + Discussion: JC – Be respectful. PD – we are frustrated because the standards process is flawed.

EV Charging Infrastructure R404.7

* RED1-145-22, EV working group edits, R404.7, Alex Smith
* Motion to approve RED1-145-22 , BR, 2nd MR (14-2-0)
* The subcommittee reviewed the merits of the listed proposals and feel that the efficiency gains from level 2 charging equipment and the avoided costs of future retrofit were sufficient to place these requirements within the body of the code, per the guidance given to the subcommittee.
  + Proponent: INTRO TO RED1-145 - house is ready for EV charging systems at minimal cost to pull wire and install an outlet.
  + Discussion: SD – urge approval, MT – proponent of RED1-141, these are similar but would like to make friendly amendments. Charging capacity change to “charge at a rate…” “2. Have a nameplate charging rate of not less than….” Aligns with federal rulemaking. VK: Ask for clarification on the change. Vote on the changes separately after a determination is made on RED1-145 SH – has to vote no based on the intent. R2 occupancies are not going to need 40% for a long time. Best practices is not minimum code. BH – no conflicts with NEC in 625 or IRC. kW and kVa is not a rate. Charging rate is generally controlled by the EV. GJ – editorial change to remove “comply with the following:” SD – urge people to take steps to improve the code. ST – for R2, EVs are here from a cost and reliability perspective, home charging is where it’s at, equity going from EV ready to EV capable. The code had hot water as an option where we heated water on the stove.

EV Charging Infrastructure R404.7

* Motion to disapprove RED1-141-22, MR, 2nd BR (9-0-3)
* Based on prior subcommittee action, RED1-145-22 was approved in favor. The committee felt that the approved language provided sufficient clarity however, public comment may be considered to review the text change.
* RED1-141-22, EV charging edits, R404.7, Michael Tillou
  + Proponent: Align with federal rulemaking. Propose changes to RED1-145 “Charging capacity change to “charge at a rate…” “2. Have a nameplate charging rate of not less than….”
  + Discussion: VK – “A branch circuit shall have a rated capacity sized for *EV* charging at a rate not less than 6.2kVA (30A at 208/240V) per space. “ BH – what output rating makes the provisions of the code. The NEC only requires that you have sufficient capacity for the expected load. Need to add a “per hour” metric. The EVSE does not control the rate. The car establishes the rate. What mode is the EV in at that time? 20A receptacles for Level 1 charges won’t have the capacity. Minimum output rating that the EVSE is supposed to provide. SD – understand that this change aligns with fed language, but not in alignment with how the systems are designed. Regulating a rate is difficult. We would need to account for power factor and other sizing parameters, too complicated. SH – more clear on what is required. This is better. Electrical distribution is not defined. SR – Public charging rulemaking? <https://www.federalregister.gov/documents/2022/06/22/2022-12704/national-electric-vehicle-infrastructure-formula-program> JC – There are different methods to determine Circuit capacity. How does the inspector verify in the field? VK – clarify “rate” or “rating?” (MT – unable to verify today) JF – thinking of the inspector and electrician, "Provide a 208/240V circuit capable of continuous duty of not less than 30A." SH – capacity of 30A is greater than a circuit rated for 30A. SD – RED1-145 doesn’t talk about capacity, it talks about sizing for the load. AS – in terms of the rate, one concern we had was how it was measured.
* Motion to amend and approve RED1-142-22 as an appendix SH, 2nd (2-12-0)
* Motion to disapprove RED1-142-22 MR, 2nd BR (10-2-0)
* The proponent recommended a change to the proposal to move it to an optional an appendix. The committee feels that the efficiency gain and avoided costs for future upgrade should remain in the body of the code.
* RED1-142-22, EV charging infrastructure, R404.7, Shane Hoeper
  + Proponent: Would like to amend to an appendix. Written in response to previous proposals. Recognized that accessibility is an issue. Far less words. Minimum charging rate in R404. Reduced parking space req by 50% based on what was available from an internet search. Reduces the cost of R2 occupancies.
  + Discussion: AS – charger splitting into 3 may require extra charging equipment. Not envisioned as a single device. AM – Appreciates the simplicity. The working group addressed multi family. Old remnant from Commercial proposals. Variety of different parking options for an R2, like street parking. EVSE within 3ft of installed space, would like to see the changes from the working group. SH - only applies to onsite parking. The spaces are an equity issue, evenly distributed among the site. SD – accessibility is regulated elsewhere. Those requirements apply. The % is applicable. Avoid conflicts within this section. Simplicity may create some confusion as not all of the options are considered. SH – If chargers are there, they must meet the standard. But it doesn’t reuire chargers. JC - Appreciate the effort, R404.7 that total parking spaces provided. This should not be approved as is, requires some editorial work to correct. BH – minimum prescriptive language, we would want to provide a robust review to see the appendix language.
* Motion to disapproval RED1-143-22, BR, 2nd AM (9-0-2)
* The subcommittee reviewed the merits of this proposal and were concerned that (1) the EV-Ready provisions for low-rise multifamily should remain with the rest of the residential provisions instead of referencing the commercial code, and (2) the subcommittee did not want to remove the options of “EV-capable” and “EVSE” from the existing list of three available compliance options.
* RED1-143-22, EV charging requirements multi-family, R404.7, Sean Denniston
  + Proponent: This is how the code deals with central systems. Highlight that there is a difference between surface and structured parking, but there’s no reason why a 3 story should have different rules than a 4 story. The commercial process is still ongoing. Make these simple requirements for residential and leave the more complex convo for commercial. The ratios of parking spaces are higher in commercial, but no reason why they are.
  + Discussion: BR – keep resi and commercial separate. Significant changes to R3, EV capable and EV installed. Trend was for increased ratio, 3, 5, 10, 40% over 9 years. GJ - R101.5 shall meet the provisions of resi, mixed building shall meet either depending on the scoped provisions. VK – supports disapproval. JC – not everyone adopts the commercial section.
* Motion to disapprove RED1-144-44, SH, 2nd PC (11-2-0)
* The subcommittee reviewed the merits of this proposal and were concerned that (1) the EV-Ready provisions for low-rise multifamily should remain with the rest of the residential provisions instead of referencing the commercial code, and (2) the subcommittee did not want to remove the options of “EV-capable” and “EVSE” from the existing list of three available compliance options.
* RED1-144-22, EV infrastructure to appendix, R404.7, Greg Johnson
  + Proponent: Move R2 reqs to an appendix. Proposes 100% EV capable provided it’s in an appendix. This considers stranded technology/assets. Not required to be provided before there is a need. The local gov can assess if EV is necessary.
  + Discussion: JC – Pondering this, multi-family is some market rate, some affordable housing. Lets affordable R2 drop out of participation. This effects affordable housing and the equity conversation. RT – Appendices often don’t get considered at all. If this is important, it gets ignored n an appendix. GJ – some appendices get adopted, some don’t. Would be considered and adopted if deemed worthy for the area. All units get future proofed. SD - Some AHJs don’t have the authority to adopt appendices based on state rules. Standard level 2 chargers are the focus. Seeing movement towards an industry standard. No evidence of a dramatic shift in tech. keep it in the main body of the code. GJ – immediate need doesn’t seem apparent. The most affordable transportation options are not EVs. It’s going to take a while for EV to effect equity. RT – States can amend the code and take out what’s in the base code.
* End of meeting time, roll over the following to the next SC meeting
* RED1-152-22, EV quantity comment, R404-7.1, Noelani Derrickson
* RED1-153-22, EV ready quantity, R404.7.1, Emily Kelly
* RED1-154-22, Relocate EV charging exceptions, R404.7.1, Greg Johnson
* RED1-155-22, EV charging distance requirement, R404.7.2, Amy Martino
* RED1-156-22, EV infrastructure exceptions, R404.7.4, Adam Berry
* RED1-157-22, Update EV infrastructure utility cost for inflation, R404.7.4, Steve Rosenstock
* RED1-159-22, EV infrastructure references, R405.2 Table, Greg Johnson
* RED1-187-22 PII, Automobile parking space, IRC R202, Christopher McWhite

Electric Readiness, R404.5

* RED1-127-22, Replace fossil fuel with fuel gas/oil, R404.5, Renee Lani
* RED1-128-22, Cooking products modification, R404.5.1, Shane Hoeper
* RED1-129-22, Electric ready space heat and cool, R404.5.1, Adam Berry
* RED1-130-22, Electrification, R404.5.1, Ben Rabe
* RED1-131-22, Clothes dryer, R404.5.2, Shane Hoeper
* RED1-132-22, Electric readiness comment, R404.5.4, Douglas Presley
* REPCD1-10-22, City of Minneapolis comments, R404.5, Stacy Miller
* REPCD1-11-22, Electric readiness public comment, R404.5, David Forte

7. Upcoming meetings –

* IECC Residential Consensus Committee meeting, January 26, 2023. 2:00 PM Eastern till potentially 5:00 PM Eastern.
* IECC Residential EPLR Subcommittee meeting, February 6, 2023. 2:00 PM Eastern till 5:00 PM Eastern. Anticipated agenda topics are carryover items from 1/23 meeting, Section 404.6 renewable energy infrastructure comments.

8. Adjourn.

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:

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