

Commercial Prescriptive Path and Renewables Working Group

Meeting #5

July 12, 2022

9 a.m. – 10 a.m.

Introductions:

1. CASR: Katrina Managan, Courtney Anderson, Tom Gleason
2. Attendees: Elizabeth Gillmor (Energetics), Sean Denniston (NBI), John Arent (Noresco)
 - a. Katrina thanked everyone for their continued participation and reconvening for an additional working group meeting.

Review Updated Prescriptive Proposal: (Sean)

1. What we heard was to break C406 credits into two tiers. First tier: credit for electric heating with some limitation on how much electric resistance could be part of that. Second tier: credit for cold climate heat pump. PTHPs and Single Package Vertical Heat Pump with COP of not less than 1.5 at 5°F or any other cold climate heat pump with a COP of not less than 1.75 at 5°F.

Summary of Topics Discussed:

1. **Two Credit Tiers and Point Values**
2. **PTACs and VTACs**
3. **Alignment With Other Proposals and Working Groups**
4. **VAV Reheat**

Discussion/Detailed Notes:

1. Two Credit Tiers and Point Values
 - a. First tier: credit for electric heating with some limitation on how much electric resistance could be part of that. Second tier: credit for cold climate heat pump.
 - b. Elizabeth: Make split between credits roughly equivalent between tier 1 and tier 2. 12 should be entry level all-electric. I'll defer to you guys on how the point total works out.
 - i. Sean: 5 for all-electric and 6 for cold climate.
 - c. Katrina: If you're in the 10 point column (all-electric), do you get credit for C406.12 and C406.14?
 - i. Sean: You don't

- ii. Katrina: Let's not imply requirements. Let's state them because I want because we want to make sure people know they get credit for other things, like the high performance and the high COP.
- d. Elizabeth: can we do an exercise to look at an all-electric, affordable housing project to see if that's a viable path? Points for lighting power reduction – how many points are achievable for 100% lighting power reduction? What's the top range?
 - i. John: I would say probably 50% might be kind of an optimal performance, but depends on the space allocation
 - ii. Sean: looks like it'd be about 20 points, but keep in mind that the lighting power reduction applies differently to residential than it does
- e. Katrina: in the C406.2 table should the point tables be the same across all properties – should the all-electric be scaled in some way and if so what is the proper methodology to scale it?
 - i. Sean: if we drop below 10, we drop below the efficiency of IECC 2021. Structure of IECC already starting to push away from PTACs. Projects that hold on to packaged terminal heat pumps and air conditioners will find they just have to do more elsewhere in the building because of the inherent inefficiencies of the system type.
 - ii. Elizabeth: I think that makes sense
 - iii. Conclusion: Keep at 10 points

2. PTACs and VTACs

- a. Elizabeth: I still have issue with this language with PTACs and VTACs
 - i. Sean: this is from the NEEP cold climate heat pump specification. These packaged terminal heat pumps exist, they are just rare but we are seeing they're expanding
- b. Sean: prescriptive projects will have energy recovery, so the result of that would heavily incentivize PTAC projects because they would be getting a bonus 5 credits for not doing anything because they're already required to do energy recovery ventilation, they were already going to put the PTAC in. They're already heavily incentivized to use PTACs by market and design conditions.
 - i. Elizabeth: I think you're right Sean. No PTAC or VTAC is going to be able to follow this, what if we say all heat pumps shall comply with the following COP of not less than 1.75?
- c. Katrina: Elizabeth does it bother you that it's in there in code when the product isn't available. If it's just an option like this for CCHP credits. It's not a requirement for all electric. It's not a

requirement for anything except to get more points.

- i. Elizabeth: No, I think you got you guys make a good point. I can live with it.
- d. Conclusion: Allow PTACs to achieve credit for all electric path and tier one of electric space heating

3. VAV Reheat

- a. Elizabeth: I think this is great. I feel like we're on the right track. I would suggest adding another exception to add electric resistance elements integrated into VAV reheat boxes, or similar language. This would encourage is taking a system that has a gas rooftop unit with electric reheat and changing it to a heat pump rooftop unit with electric or heat
 - i. Sean: the working group talked about including this in the modeling path. I would have to look and see which other proposal it is. That working group did come to a consensus of five watts per square foot for VAV reheat to be allowed in that type of system, but only when it's modeled. Currently it's only an option for the modeling pathway as it's still being considered all electric and so that was that was my question to you is whether you felt that it was important to have that path through on in prescriptive as well.
 - ii. Elizabeth: this is a very common system, so if we don't qualify this as all-electric, we would lose a lot of buildings.
- b. Katrina: Elizabeth can you speak to cost impacts of electric reheat
 - i. Elizabeth: the difference is between that gas with roof top unit and the heat pump rooftop unit. When we talked about that being our low hanging fruit, that's a really cost-effective upgrade. The studies that that we've seen you know all those small office type of scenarios that are just looking at small rooftop units. I mean that's your cost delta right there. It's not really that much different
 - ii. John: I agree with Elizabeth. The energy cost really obviously depends on the utility rates for gas and electric, so it depends what Denver's electricity rates are, but it shouldn't be a big difference
- c. Conclusion: added language to address VAV reheats

4. Alignment With Other Proposals and Working Groups

- a. Courtney: Sean let's make sure we clean up the Group B and Group M like we did for the other credits in the committee meeting. And then I think we can just quickly revisit the ranges per Elizabeth's comment earlier. Is there a way we can make it more consistent – what is that top

range just so people have an idea?

- i. Sean: we just don't know what the top end is, because as equipment becomes more efficient there's effectively more credits available, so creating a range is problematic.
- b. Elizabeth: don't make people do math instead of giving them an easy visual. Reducing lighting power greater than 15% is going to be the most commonly used or best available option. Instead of putting in a formula, you could put in table. Don't make people go do math
 - i. Sean: if you put in a table, Denver will be diverging from what practitioners will be seeing elsewhere. These aren't Denver-specific, these are from the IECC.
 - ii. Elizabeth: if Denver wasn't amending this section, would they have to go do math?
 - iii. Sean: if Denver adopts 2021, they would still need to do math
- c. Sean: if we want to align with electrification proposal, we need to add exception for supplementary electric resistance heating – aligns with what working group decided what was reasonable for mandatory electrification for VAV
 - i. Elizabeth: right, that makes sense

5. Other Misc. Edits

- a. Sean update #'s in definition to 12 and 14
- b. Elizabeth: minor edit under electric space heating "...for all other buildings" should that be changed to "all other areas of the building" otherwise this feels pretty strong now

Next Steps

- 2. Sean to update proposal and CASR to send a tracked-changes and clean version of this proposal to review by Tuesday of next week (7/19) to those interested in this working group, and confirm everyone in this working group is supportive of these changes

Meeting adjourned