

IECC/DGC Energy Committee Supplemental Meeting #5 Minutes May 10, 2022

1. **Attendees:**

Name of CCD Committee Member	Organization	In Attendance?
Carol Pafford	City and County of Denver (CCD)	
Christy Collins	City and County of Denver (CCD)	X
Chuck Bartel	CCD	X
Allen Yanong	CCD	
Courtney Anderson	CCD	X
Eric Browning	CCD	X
Antonio Navarra	CCD	X
Tom Gleason	CCD	X
Robert Pruett	CCD	X
Mike Fulton	Western Mechanical Solutions	
Robby Schwarz	BUILDTank Inc.	
Bill Rectanus	Thrive Home Builders	X
John Burns	StanTec	
Jeff Slaugh	Energy Logic	
Nathan Kahre	Energy Logic	X
Kevin Eronymous	SAR Architects	X
Linda Morrison	Mead Hunt	
John Arent	Noresco	X
Elizabeth Gillmor	Energetics	X
Aaron Esselink	Xcel Energy	
Mark Rodriguez	Sun Run	
Mark Jelinske	RMH Group	
Alex Martin	SAR Architects	
Nathan Skrdla	Brookfield Properties Development	X

2. Meeting purpose: Given the number of proposals received, the purpose of the supplemental meetings is to discuss amendment proposals that we will not have time to get to during formal committee hearings. The amendment proponent and those who wish to ask questions, speak in favor or against, or propose a modification will be able to do so, and a vote will still be held on each proposal.

3. Discussion and voting on IECC/DGC Energy
 - a. [#95](#) DGC 701.4.2 HVAC Minimum Efficiencies: John Arent
 - b. [#77.2](#) DGC Waste Heat Recapture: John Arent
 - c. [#74.2](#) Congregate Roof Penetrations: John Arent
 - d. [#62](#) C402.5 Air Barrier Testing: John Arent
 - e. [#26](#) DGC 701.4.8 Unregulated energy uses: John Arent
 - f. [#26b](#) 701.5 - Solar Contribution to EUI targets: John Arent

4. [#95](#) DGC 701.4.2 HVAC Minimum Efficiencies

Discussion:

- Proponent: Noresco
- Proposal overview: proposal for Denver Green Code to increase efficiency in prescriptive requirements. Increased heating efficiencies for heat pumps for some selected equipment. John looked at the current AAHRI database and selected equipment efficiencies that were in the 80th percentile. In other words, 20% of the equipment on the market should be a higher efficiency. These are high efficiency equipment, but they're equipment efficiencies that are available today.
- CPD: asked about product availability for equipment of this level of efficiency – will this equipment be available in the near future if this is passed?
 - Proponent: efficiency levels can be met with today's equipment
- Stakeholder Feedback: Would like to give more options to design teams and possibly just require more points in R406 or more stringent energy compliance in the performance path. Concerns about not being able to do a dedicated outside air system with this standard
- CPD: by taking it out of the system and have it be a separate provision that still doesn't make it mandatory. See advantages with this being standalone rather than grouping with the points – advantage if of encouraging the selection of this equipment and making equipment more available in our market.
- CASR: check to see if group was overall supportive of proposal with edits, incorporating stakeholder feedback – no opposition from the group

Action Items:

- Noresco address stakeholder comments and then move proposal forward

5. [#77.2](#) DGC Waste Heat Recapture

Discussion:

- Proponent: Noresco
- Proposal overview: Denver Green Code – require a form of drain water heat recovery on all commercial buildings and R2 occupancies on shower facilities where there's 4 or more showers on a shared drain line. Also requirement for installing heat recovery on laundry systems that include 5 or more washing machines.
- Noresco: this is a revised proposal – John tried to address all previous comments. This proposal clarifies requirement for shower drains and laundry.
- Stakeholder Feedback: Energy savings per dollar spent, this seems low on the table, but is a good option for pushing to net zero. Can help drop EUI and point

towards a better building. Helpful as an option

- CPD: agreed. Value engineering chart and cost per EUI has brought waste heat recapture higher in the value chain and has resulted in it being installed on some project types (multifamily residential mainly). Would love to see it encouraged to be investigated because we have seen teams use in a cost effective way when they were saying cost per EUI and figuring out how to get to the EUI needed to achieve their goal. We know that it's been selected for some high performing projects.
- Noresco: including this as an elective can help us get feedback and data to see how this technology is being used and is performing
- CPD: advised that the language could be flipped to say when this could be used rather than say when this should be required. Recommends including an exception in there for a one-story building and not having to use wastewater recovery in a in a slab. Change all references from UPC to IPC and remove references to dryers because we're only doing waste heat recovery for washers.
- CASR and CPD staff made edits to the proposal to make sure requirements for R2 facilities are clear. Required for all commercial or R2 occupancies that has four or more shower facilities on a shared drain line.
- CASR: checked for consensus with moving proposal forward after Noresco works with CPD staff to make the discussed edits. The group agreed

Action Items:

- Noresco address CPD comments and then move proposal forward

6. [#74.2](#) *Congregate Roof Penetrations*

Discussion:

- Proponent: Noresco
- Proposal overview: Denver Green Code solar ready zone being identified on construction documents. Sets up a prerequisite or foundation for having PV on the roof so the solar axis is designating a solar zone or solar ready zone on the building plans that meet the specifications of Appendix CB. The zone is located on the roof - can also be on the overhang of a building, on the building premise, or on a covered parking. Exception for non-residential and high-rise buildings with six or more stories above grade.
- Stakeholder Feedback: Section CB103 Are we just taking that whole appendix and using it or have we made any changes? And where is green code pushing things beyond base code?
 - Noresco: can go through to mark that up more clearly
- CASR: checked for consensus with moving proposal forward after John makes the discussed edits. The group agreed that Noresco should make edits and return to this supplemental hearing group

Action Items:

- Noresco clean-up proposal based on feedback provided and return to supplemental hearing meeting
- Noresco look up exception for permanently installed on-site renewable energy existing capacity and respond to the group
- Noresco go through proposal and clearly mark edits/changes to ICC language

and other edits/updates

7. [#62](#) C402.5 Air Barrier Testing

Discussion:

- Proponent: Noresco
- Proposal overview: Air leakage testing requirement for commercial buildings and high-rise residential buildings and not rely on just equipment.
- Noresco: Proposal tries to reduce or eliminate the exceptions for buildings that don't complete the testing
- Stakeholder Feedback: Having somebody look at a plan set and walking the building at rough and review things dramatically increases the likelihood of being successful in reducing air leakage. Doing these types of inspections allows the building to be so much more successful. Also there's a big cost differential between testing and inspections.
- CASR staff and Stakeholders made edits to the proposal for clarity and simplification of the proposal language
- Stakeholder Feedback: other municipalities that have required testing for a while has helped prepare local builders

Action items:

- Noresco to make edits discussed in meeting and bring proposal back to supplemental hearing meeting

8. [#26](#) DGC 701.4.8 Unregulated energy uses

Discussion:

- Proponent: Noresco
- Proposal overview: Denver Green Code intent is to improve efficiency of appliances to require Energy Star "most efficient" tier for clothes washers, dishwashers, refrigerators, and freezers.
- Stakeholder Feedback: What to do if there are no Energy Star ADA appliances? We wouldn't want that to necessarily exclude things that can meet it, like refrigerators and dishwashers.
- CPD: a lot of these items like vending machines, clothes washers, etc. are not inspected, so there's not really any enforcement on these items. These are unregulated loads – they're typically not reviewed or inspected.
- CASR: does everyone support this proposal moving forward once Noresco makes edits based on feedback provided? Group agreed

Action items:

- Noresco make edits discussed in meeting and move proposal forward

9. [#26b](#) 701.5 - Solar Contribution to EUI targets

Discussion:

- Proponent: Noresco
- Proposal overview: Denver Green Code. The Denver Green Code requires the .77 multiplier essentially means that it requires a 23% whole building reduction energy production from the base code. It's very difficult to meet, so the idea is

to allow energy production from onsite renewable energy to offset a maximum of 15% of annual total energy load for mixed fuel and multiple fuel buildings, or to offset a maximum of 20% of the load for all electric buildings which are certainly not required. Intent is to provide flexibility in meeting the energy target.

- CASR: we have the energy model working group coming up and one starting tomorrow. If something passes in the base code, we want to be able to modify this proposal to layer on top of the base code.
- Stakeholder Feedback: Do not believe it is feasible to hit these numbers without PV. If we need to get 23% of your regulated loads, that's going to be more than 15% of your building's energy cost. In a really high efficiency building, it's going to be 30% of your energy costs. You're talking about a very large percentage of loads where you can't claim any savings. The only other way to get savings from them is to have on site renewables. I think 15% is honestly on the low side.
- CASR: we're out of time, let's pick this proposal back up next meeting

Action items:

- Continue discussing this proposal at a later supplemental hearing meeting after we receive feedback from energy modeling working groups.