IECC Committee Hearing Agenda
August 28, 2019 2pm-5pm
City and County of Denver, Room 4F6 (new location)

1. Roll Call and Introductions

2. Discussion and voting on Chapter C4 of the IECC
   a. (P52)350: Revisit air leakage proposal due to new discoveries
   b. (P83)381: C401.2 and (P82)380: C401.2 Tabled to come back as one proposal but may still be 2
   c. (P43a) IECC Section C406.1 and C406.2
   d. (p43b) IECC Section C406.1 and C406.2
   e. (P62): IECC Tables C405.3.2 (1) & (2)
   f. (P54): IECC Section C406
   g. (P61): IECC Section C406.12
   h. (P55): IECC Section C406
   i. (P58): IECC Section C405.1
   j. (P65): IECC Section C405.2.7
   k. (P96)401: IECC Section C405.3 (separate committee to revise proposal and bring back on 9/11)

3. Discussion and voting on Chapter C5 of the IECC
   a. (P56): IECC Section C502.2
   b. (P168): IECC Section C502.3
   c. (P57): IECC Section C503
   d. #161: IECC Section C505.1

4. Discuss IECC Residential Proposals
   a. (P129): IECC Section Residential EV Ready (Residential Portion only. Commercial approved on 8/15)
   b. (P24)317: IECC R406.2 and Table R406.4 (requested to be moved up due to scheduling conflicts)
   c. #404: IECC Section R103.2
   d. (p75)373: IECC Section R303.2
   e. (P74)372: IECC Section R401.2
   f. ((P76)372: IECC Section R401.3
   g. (P73)371: IECC Table R402.1.2
   h. (P86)393: IECC Table R402.1.2
   i. (P79)377: IECC Table R402.1.2
   j. (P89)396: IECC Section R402.1.5
   k. #52: IECC Section R402.2.3

Please note that any items that we do not get to in this hearing will be automatically transferred to the next scheduled hearing date and will be the first items on the agenda for that hearing.

Denver 2018 IECC Committee Hearings

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Proposal # P52
Air leakage can be a significant source of energy waste in buildings, contributing to higher heating and cooling costs for building owners and occupants, and increasing risk related to comfort and durability. Air tightness testing can result in more attention to envelope assembly air barrier sealing and significantly reduced building leakage. Currently Section C402.5 Air Leakage – thermal envelope, allows air tightness testing as an alternative to meeting material or assembly selection and installation method requirements to ensure proper tightness and a controlled indoor environment.

Public Testimony in Support:
Revisions address alterations. Exception added for 2nd level of failure.

Public Testimony in Opposition: None

Questions from the Committee to Proponent:
1. Is it possible to put language that would start to deliver message that in next cycle performance testing will be required?
   a. Code language really couldn’t. Some jurisdictions include informative notes, that could be put in to pass that message on to the code users.
2. In Exceptions what happens if you exceed 1.0 CFM?
   a. You would need to fix the building until you can get it to 1.0 CFM.
3. If there is a building over 1.0 CFM and they can’t fix it. what happens?
   a. In that case they could switch to the compliance path for modeling.
4. Mentioned that this isn’t applicable to residential, but it is, this won’t negate the other sections
   a. This only applies to commercial code. This wouldn’t apply to high rise Group R occupancies.
5. Why would we exempt the R2 occupancies from this provision?
   a. This allows you to sample for apartments (R2 occupancies) This proposal based on one going through national code Group R are the biggest push back because of number of units.

Original Motion: A/S with Intent to Modify (ASM)

Modification #1:
In Exemption #1 Remove “but does not exceed…”
Eliminate Exemption #2
Add informative notes to notify public of Denver’s intent to have to pass testing in next code cycle.

Discussion:
• Exception should be part of the above paragraph. It is reading as a requirement and needs to be worded as an exception.
• This is very important to get out this cycle to get people thinking about this progressing moving forward.

Modification #1 Vote: Passes 13-0

Modification #2: Make it a requirement that residential be required to test in order to prepare the community for the next code cycle. This cycle they would have to test but don’t have to pass. C402.5.1.2 Remove Group R from 1 & 2.

Modification #3: C402.5.1.2.3 #4 Change to R occupancies, 25% of dwelling or sleeping units

Discussion:
• Committee concerns about 25% being the correct threshold or if it should be lower since we are requiring testing but not passing.
• Feeling is that the percentage is high for time and cost to contractor. With hotels and boutique units are we really learning more from 25% vs a lower 10%. Seems like a lot of money to be spending.
• Concern that leaving #3 to address the issue and remove #4 to make clearer and more flexible, add some language that testing would need to add common areas.
MCG will work with Shaunna to get this all-in correct wording.
For R Occupancies 25% shall include a portion of the dwelling units as well as the common areas.

Modification #2 & 3 Vote: Passes

Final Motion: As Modified
Final Vote: AM 13-0
Overview of 8 proposals to be heard all together:
ASHRAE 90.1 is not as tight as what we are currently writing in the Denver Amendments.
406 – 43B Now you select 1 of 6 options, Sue’s proposal requires 2 of the 6 be chosen. Tightens the power lighting density.
406 – Sean P62- Does the same with lighting power density, but requires for everyone, not an option.
P54- Points proposal, creates more options and more flexibility.
Denver building department likes Sue’s proposal because it leaves ASHRAE still available but brings in line with our amendments.
Modeling Proposals – P43A and P82 – Both will match prescriptive path. Modeling should be equal energy savings. Both eliminate ASHRAE Chapter 11. Heard from modelers that this is a big loophole, Keep IECC C407 as a modeling path. Both require EUI is reported for any way building is modeled.
City favors: P43B, P83, P43A, P54

Proposal # P82
The purpose of this proposal is to limit ASHRAE Standard 90.1 compliance to the Appendix G approach and to ensure that the ASHRAE compliance path meets Denver’s energy code goals.
Public Testimony in Support:
Based on interactions with the modeling community.
Reduces Item 1 to refer only to prescriptive path and adds new item that can be utilized for compliance, with C409.
Change the requirement to 66% to calibrate to Denver’s goals.
Document site energy use intensity, to assist city in setting future goals.
409 addresses Appendix G instead of amending ASHRAE 90.1 based on interpretation by the committee at previous hearing.
Remove mandatory requirement for switched receptacles.
Continues to introduce source energy and includes the documentation.
Public Testimony in Opposition: None
Questions from the Committee to Proponent:
1. Cost impact P82 P83?
   a. These offer more flexibility for source and give more options so cost would be comparable. We are requiring greater efficiency, once paths are calibrated it’s the same cost as prescriptive path.
   b. Will depend on where prescriptive provisions land. Complexity here is the Green Energy Code, how that layers on top of 2019 will inform the cost impact.

Original Motion: Disapprove (D)
Final Motion: Disapproval based on previous action P83.
Final Vote: D Passes 10-0-3
Additional staff or committee comments for the record: None

Proposal # P83
The purpose of this proposal is to limit ASHRAE Standard 90.1 compliance to the Appendix G approach and to ensure that the ASHRAE compliance path meets Denver’s energy code goals.
Public Testimony in Support:
Meant to work with P82.
 Strikes prescriptive path.
Cost of metering has typically been a deterrent from using prescriptive path. Metering costs come down if we have the correct paths available.
Public Testimony in Opposition: None
Questions from the Committee to Proponent:
1. Has architectural community weighed in on this with their input and opinions?
   a. Elimination of prescriptive path was brought up in the beginning of stakeholder process. It
wasn’t until proposal was presented at committee stage that we received push back.

Committee Discussion:
Original Motion: Disapprove (D)
Reason: Based on action in P43A
Final Motion: Disapproval
Final Vote: D Passes 10-0-3
Additional staff or committee comments for the record: None

Proposal # P43 A
The proposed amendment reconciles the differences in the energy performance compliance methods allowed under 2018 IECC. The proposed amendment requires that buildings complying per sections C401.2.1 (ASHRAE 90.1) or C401.2.2 achieve better performance to achieve a comparable level of energy performance with buildings complying with 2018 IECC, C401.2..3.

Public Testimony in Support:
Incorporates NBI changes to ASHRAE 90.1 in a different way and different place in the code, addresses the prescriptive path and leaves this as an option.
Requires more savings at the prescriptive path. ASHRAE change takes out section 11.
Requirement brought in for Standard Reference Design in the modeling path.
Added reporting of Site Energy Use.

Public Testimony in Opposition:
Structure of dealing with Appendix G is clearer in P82.
Requirements are similar except that P82 requires commissioning and air barrier testing.
Seems to be missing some key components in C407, it defines the requirements but not how to get there.

Rebuttal in Support:
Commissioning and air barrier requirements, they are included.
In terms of modeling we give them a standard to design to, we don’t tell them how to do it.

Questions from the Committee to Proponent:
1. Does this address controlled receptacles as part of ASHRAE?
   a. No, this doesn’t but would be willing to change that as a modification.
2. What is cost impact to a developer?
   a. Two ways. 1 cost from design aspect. These proposals offer more flexibility for source so cost should be comparable. 2 requiring greater efficiency, once paths calibrated to prescriptive path, it will be the same cost of prescriptive path or less. Can’t say definitively where that cost will land because we haven’t completed the prescriptive proposals.

Committee Discussion:
• Some concern that this would need to be run by city attorney to verify we would not be violating by removing ASHRAE.
  o As long as it’s an option it sounds like it would be acceptable.

Original Motion: A/S with Intent to Modify (ASM)
Modification: 401.2 Make options 2 out 3, instead of requiring 90%.
Vote on Modification: Passes 12-0-1
Modification: Make a prescriptive requirement-controlled receptacle.
Vote on Modification: 10-2 Passes

Discussion:
• If you’re a modeler working in different cities, you’re having to learn different methodologies, this proposal uses same methodology across the board.
• Similar in what they do, they just expand the paths where you can get electric powered building more competitive.
• Table should include just Denver climate.
• Concerns about controlled receptacles, should these be removed as a requirement in both modeling paths.
• Concerns about road block of metering requirements.
  o When looking at energy use on path to net zero, we will need that data.
Likely that metering provisions will be brought in 2021.

- Concerns about the amount of money we are adding to projects. If receptacles are a cost but not a large savings, may be a good idea to leave them out. Switch receptacles can almost double the cost of an install in regard to electrical.

**Final Motion: As Modified**

**Final Vote:** AM Passes 10-0-3

**Additional staff or committee comments for the record:**
Will need to look at requirement numbers once provisions are completed.
Condition of 85% may change based on where other prescriptive proposals land.

**Proposal # P43 B**

The proposed amendment reconciles the differences in the energy performance compliance methods allowed under 2018 IECC. The proposed amendment requires that buildings complying per sections C401.2.1 (ASHRAE 90.1) or C401.2.2 achieve better performance to achieve a comparable level of energy performance with buildings complying with 2018 IECC, C401.2.3.

**Public Testimony in Support:**
Changes to C406. Require compliance using 2 packages instead of 1.
Revisions to the lighting instead of 90% of baseline power allowance it would be reduced to 70%, or 30% savings. To give flexibility prescriptively and so that baseline lighting power allowances and other prescriptive minimums are held the same, so that when you do performance you go back to the prescriptive minimums.

**Public Testimony in Opposition:**
It increases stringency by requiring 2 option but also increases stringency of 2 of those options only 1.
Leaves lower LPD in the reference model for section C407 which is already lagging will lag even more. So that number will either have to be doubly calibrated or C407 will become lower.
LPD updates in other proposals aren’t a blanket 30% they are based on interaction with ASME which addresses where can these LPD’s go.

**Rebuttal in Support:**
Intention was to keep in line with other jurisdictions.
In general lighting savings are 30% or more, if we have buildings not there, we have a bad design.

**Rebuttal in Opposition:**
Regarding the lighting community with LPDs if you are looking at this level of reduction you are forcing LED’s.

**Questions from the Committee to Proponent:**

**Original Motion:** As-Submitted (AS); A/S with Intent to Modify (ASM); Disapprove (D)

**Committee Discussion:**

**Discussion:**

**Support:**

**Modification:**

**Opposition:**

**Final Motion:**

**Final Vote:**

**Additional staff or committee comments for the record:**

**Proposal # P62**

The purpose of this proposal is to update and clarify the lighting requirements for dwelling units.

**Public Testimony in Support:**
Update lighting power density tables in base code, base requirements in prescriptive path up to what we are seeing out of the 189 process. Brings in to alignment energy efficiency experts and the lighting industry.

**Public Testimony in Opposition:**
These aren’t in ASHRAE, it pushes a lot of compliance paths in to ASHRAE because lighting power allowances aren’t as low as these.
Rebuttal in Support:
With what has happened in previous action requiring 70% improvement in ASHRAE prescriptive path it is more stringent than this. If other C406 gets passed 30% above, that is more stringent as well.

Rebuttal in Opposition:
Numbers in previous C406 proposal would need to be looked at it assumes we are at the power allowances that are in the code now. We can’t get 30% lower than these allowances.

Questions from the Committee to Proponent:
1. How does this affect the modeling paths being in the prescriptive method?
   a. Would change base line.
2. Green building ordinance would go on top of this? Increase plus another 12% on top of this.
   a. Yes, but we still haven’t defined what that number is. Seems simpler to not change all these metrics instead put a percentage and let the design community find where that is, in performance path or in C406. It can be adjusted easily every year.
   b. These set the LPD’s at a level that can be achieved without LED’s. This was about calibrating the code to current performance.
3. Are these tables the ones that were approved in 2021 IECC?
   a. Unsure.
4. In modeling path, how much savings would we see leaving these numbers alone and used new numbers as your proposed building?
   a. Typically say that 30% of your energy use is lighting, if reduced by 30% in your energy model, (30% of your 30%) you could see 10% savings coming from your lighting.
   b. These numbers don’t push for 30%, so you wouldn’t be seeing 30% lighting improvement in the base line. This proposal looks like about 2% whole building being moved in to modeling baseline improvement. If C406 moved to 2 options, then C406 has to be based on least efficient options.
5. Is there any value to having a 2% increase across board in lighting efficiency in the prescriptive path even if we go with increased energy performance options in C406?
   a. 2% is about 20% lighting savings, if there is another package that added lighting that would be an additional increase in savings.
   b. It would make it in to modeling path in a clear way, lighting practice would be increasing across the board in Denver. Moving lighting practices forward should be an option.

Original Motion: Disapprove (D)
Reason: To have to know different base lines in different jurisdictions is asking a lot. Can get same impact from a different proposal.
Final Motion: Disapproval
Final Vote: D Passes 11-0-2
Additional staff or committee comments for the record: None

Proposal # P54
The purpose of this proposal is to allow the IECC to achieve performance levels consistent with Denver’s goals in a flexible way through converting Section C406 into a points-based system and by raising the amount of additional efficiency that is required to meet the code.

Public Testimony in Support:
Based on proposal going through 2021 hearings, likely it will go through final code hearing. Addresses greater efficiency and greater consistency as well as flexibility.
In the table it provides points for 5% and 10% improvement for HVAC, points provided separately for heating and cooling.

Public Testimony in Opposition:
Looks very different from all the other jurisdictions.
Flexibility is valuable.
Goal of code is for flexibility in performance path.
**Rebuttal in Support:**
The big thing about flexibility, is that it can create further savings.

**Questions from the Committee to Proponent:**

1. Is this the revised public comment version, or the original one that got approved?
   a. This is the revised copy.
2. You must achieve 10 points, but some individual categories are worth more than 10 points?
   a. There are still options that will get you more than 10, but for those with lower points, you would have to use multiple options to get to 10 points. Calibrated so that 10 points is same amount of savings as 2018. Number can be increased to reach Denver’s goals.
   b. Original proposal required 30 points, when revised left points for things that could earn higher points, higher energy savings.
3. If we consider not approving points system or changing number of options, would you say lighting is a whole in the code that needs to be fixed?
   a. No, it’s still 10% it still delivers lower level of savings. If you leave LPD tables, they have advanced, it just means Denver won’t get as close to energy goals as they would like to.

**Motion to Table and work on combining the proposals in regards to C406 and lighting.**

**Additional staff or committee comments for the record:**
Suggestion to combine all 3 proposals.
Like the points option because it’s scalable to progress with future code cycles.