IECC Committee Hearing Agenda
September 18, 2019 2pm-5pm
City and County of Denver, Room 4.1.5

1. Roll Call and Introductions

2. Discussion and voting on Chapter C4 of the IECC
   a. (P65): IECC Section C405.2.7 (Tabled from 9/5 hearing)

3. Discussion and voting on Chapter C5 of the IECC
   a. (P168): IECC Section C502.3 (Tabled from 9/5 hearing)

4. Discuss IECC Residential Proposals
   a. #405: R402.4.1.2 (Tabled from 9/11 meeting)
   b. (P80)378: R403.1.3 & R403.10.1
   c. #407: R403.3
   d. (P69)367: R403.3
   e. #408: R403.3.3
   f. (P70)368: R403.3.3
   g. (P81)379: R403.6.1
   h. (P77)375: R404.1
   i. (P72)370: R404.1.1
   j. (P78)376: R405.3
   k. (P90)397: R405.4.2
   l. (P71)369: R406.4
   m. #409: R407
   n. #411: R503
   o. #410: R503.2 & R505.2
   p. #44: Appendix RA
   q. (P68)366: Appendix RA

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 # P65 (Previously Discussed at 9/5/19 hearing)**

The purpose of this proposal is to improve the efficiency of parking garage lighting by introducing occupancy controls and add clarity to the code by explicitly laying out control requirements for parking garages.

**Public Testimony in Support: Previous**

**Public Testimony in Opposition: Previous**

**Questions from the Committee to Proponent: Previous**

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

**Modification:**

Concerns with number 4. Recommend we change back to 20 feet. Recommend that we add an exception when load or lighting power density below .08 watts per square foot, we then achieve the savings and the intent.

“Luminaires within 20 feet.”

“Exception: Where the total interior lighting power density watts per square foot do not exceed .08.”

**Vote on Modification:** Passes 10-0

**Final Motion:** As Modified

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

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

This proposal will need some reorganization. Committee is ok with MCG facilitating reorganization.

**Proposal #P168**

**Public Testimony in Support:**

This proposal is to add language for additions and alterations. Attempted to address each potential issue and how you can model for those certain situations in order to gain compliance. Added what mandatory requirements pertain to alterations in C407. Reviewed with Group 14. This gives rules to follow for alteration projects. Also allows you to put together alterations and additions when it makes sense to do so.

**Public Testimony in Opposition: None**

**Questions from the Committee to Proponent:**

1. Why are we relying on C407 if we don’t know the existing details?
   a. Sometimes you can’t tell, finding efficiency of a 20-year-old unit is just not possible.

**Committee Discussion:**

- Questions about if it’s a better option to keep 1st half of proposal and put the second part in to formal policy.
- Performance option for alterations is needed.

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

**Modification:**

503.1.1 Bullet point 2 “Unaltered spaces may be excluded if energy use of space is not impacted by the scope of the alterations.”

**Vote on Modification:** 10-0 Passes

**Final Motion:** As Modified

**Final Vote:** AM Passes 9-0-1

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

Need to look at numbering in this proposal.

**Proposal # 505**

Moves multi family to residential. R-2 moves over to commercial.

**Public Testimony in Support:**

Moving R-2 to commercial IECC. Easier to do above code programs. This was per the committee’s request.

Architectural Group agrees with this proposal.

**Public Testimony in Opposition: None**
• Transition period needed as this will cause a change in the market.
  o There will be a 4-month transition period granted, and further extension if the project is partially completed.
• Currently the city sees a lot of project turning in ComCheck reports for these projects, so the learning curve should not be significant.
• Mechanical code that addresses ventilation may need to be correlated to match this proposal.

**Original Motion:** As-Submitted (AS)
**Final Motion:** As Submitted
**Final Vote:** AS Passes 10-0
**Additional staff or committee comments for the record:** None

**Proposal # 405 (Previously Tabled)**
This proposal introduces the ability to use an alternative cubic foot per minute (CFM) per square foot (ft²) of dwelling unit enclosure area metric for measuring air leakage in a building.

**Public Testimony in Support:**
Committee requested a group look at this to make it Denver specific regarding climate zones. It is now specific for Climate Zone 5. It was also to be tighter correlation with 3 air changes per hour. We wanted to make sure it was as tight as possible. In Exception it was relayed that we were allowing too much leakage, so this was changed to .22 CFM per square foot, to correlate with 4 air changes per hour. We also dropped the 1,500 square feet to 750 square feet. Recommend that we raise this to at least 1,000 square feet. Discussion was addressing ADU’s but there are other units that struggle to meet these requirements. Recommend you allow duplexes and other attached housing to take advantage of this exception.

**Public Testimony in Opposition:** None

**Questions from the Committee to Proponent:**
1. Regarding 1,000 square feet, how often are you seeing that you aren’t able to get the target ACH?
   a. Lots of units having issues. Slab on grade single family homes that are small. Don’t see as often in Denver, but we are getting extra volume through crawl spaces and basements.
2. Do we need to keep multi family dwelling units in here, based on the previous proposal we approved?
   a. We don’t have to. If we believe all of this will be passed in Council, then we can leave it. But if something didn’t make it through it might be best to leave something in rather than nothing.
3. With smaller units .16 CFM per square foot, trying to get that to be close to 3 ACH?
   a. Yes.

**Committee Discussion:**
• Some discussion about the 1,000 square foot requirement vs the 750 square foot requirement. The 750 would capture most of the ADU’s.
• Feel the language from the definitions should be incorporated regarding dwelling units.
• Concerns that RX needs to be exempted from the blower door testing.
• Modify the current exceptions.

**Original Motion:** A/S with Intent to Modify (ASM)
Modify current exceptions to match wording in the definitions.
**Final Motion:** As Modified
**Final Vote:** AM Passes 10-0
**Additional staff or committee comments for the record:** None

**Proposal # P80**
The purpose of this proposal is to prohibit standing gas pilot lights in most applications.

**Public Testimony in Support:**
Meant to eliminate pilot lights from standard applications. This would force applications listed to move
over to electronic ignition. This was proposed in 2021 and was approved.

**Public Testimony in Opposition:** None

**Questions from the Committee to Proponent:**

1. What’s the availability of the units now? Are they readily available? Is it a huge upcharge?
   a. These are readily available, and the market has already begun to change over to these units. No price impact in general.

**Committee Discussion:**

- There was a religious concern about making this change.
  - It was more of a concern as to where people would go to light a candle in case of an outage.
- It is becoming increasingly difficult to find appliances with these pilot lights.
- Confusion about what this proposal pertains to.
  - Water Heaters are addressed elsewhere in the code.

**Original Motion:** Disapprove (D)

**Reason:** Feel people need access to the flame in an outage.

**Disapproval Withdrawn.**

**New Motion:** As Submitted.

**Final Motion:** As Submitted

**Final Vote:** AS Passes 10-0

**Additional staff or committee comments for the record:** None

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**Proposal # 407**

Ductwork insulation is dependent on its location. This proposal addresses this issue.

**Public Testimony in Support:**

Proposal to leverage section of code brought in during 2015, ductwork inside conditioned space. Addresses buried duct work in a ventilated attic can be considered conditioned space. We don’t have clear measure in order to determine duct leakage. Pictures included show insulation installations in order to ensure ducts perform better and determine when duct testing is necessary.

**Public Testimony in Opposition:** None

**Questions from the Committee to Proponent:** None

**Original Motion:** As-Submitted (AS)

**Reason:** Necessary clarification to the code. Gives good option if they need to put ducts in floor or wall cavity how to install.

**Final Motion:** As Submitted

**Final Vote:** AS Passes 10-0

**Additional staff or committee comments for the record:** None

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**Proposal # P69**

The purpose of this proposal is to prohibit the practice of locating ductwork outside of the thermal envelope.

**Public Testimony in Support:** None

**Public Testimony in Opposition:** None

**Original Motion:** Disapprove (D)

**Reason:** Based on previous action.

**Final Motion:** Disapproval

**Final Vote:** D Passes 10-0

**Additional staff or committee comments for the record:** None

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**Proposal # 408**

New provisions regarding duct leakage.

**Public Testimony in Support:**

- Regarding duct testing requirement. Duct testing got split up in to mandatory and prescriptive in
previous code cycle. This proposal requires testing regardless of where the ducts are located. Adds standard for duct leakage testing. Mandatory section currently says you test the duct but there is no clear result they are working to comply with. This proposal sets a mandatory leakage rate in order to comply. In the exception it says ducts inside building envelope don’t need to be tested, that exception should be removed. This proposal exempts duct within ventilation systems. This proposal includes what was passed in 2021.

- Agree with elimination of exception for duct testing within the building envelope.

**Public Testimony in Opposition:** None

**Questions from the Committee to Proponent:**

1. How do we handle existing systems?
   a. This only addresses new systems. Those existing systems would be in alterations, additions.
2. How would you test a system with new and existing?
   a. You would handle the same. Ducts would be tested the same.
3. If you are doing an addition, you would have to pass this test, you’re likely to not pass?
   a. If adding on that would be an alteration and would fall under those provisions.
4. What’s the ball park cost for a typical home?
   a. $175 average depending on the home and if you are having other testing such as duct testing done with the blower door testing. Blower door cost of $350, If you are testing for full code compliance the cost would go down.

**Original Motion:** As-Submitted (AS)

**Reason:** Good and needed revisions to existing code.

**Committee Discussion:**
- Feel this will help and not add a significant cost.
- Energy Star has required this testing whether ducts are in or outside of the conditioned space for a while now.
- Committee sees value in adding this.

**Final Motion:** As Submitted

**Final Vote:** AS Passes 10-0

**Additional staff or committee comments for the record:** None

**Proposal # P70 (Withdrawn)**

The purpose of this proposal is to eliminate the exemption for ducts in conditioned space from duct leakage testing.

Withdrawn based on previous proposal being Approved.

**Proposal # P81**

The purpose of this proposal is to improve the efficiency of fans used for whole-house ventilation.

**Public Testimony in Support:** Updates an existing table for efficiency with ventilation fans. This was brought in during 2011 and has not been updated. This aligns values with Energy Star version 4. Important to note bathroom and utility fans are closer to 6 CFM per watt. Updates our efficiency and aligns with Energy Star ratings.

**Public Testimony in Opposition:** None

**Questions from the Committee to Proponent:**

1. In the table the 2nd to last item bathroom, utility rooms the efficacy went up, is that due to nothing being available in the 1.4 range.
   a. No, this only applies to fans part of the ventilation system. These are used for both smell and ventilation. There are less efficient fans, this bumps up the efficiency. The higher the number the better.
2. How does this compare to the commercial proposal for small HFV fans?
   a. The proposal is the same, not sure if the committee changed it. So, these numbers should be the same.

**Original Motion:** As-Submitted (AS)
Reason: Based on Proponents testimony

Final Motion: As Submitted
Final Vote: AS Passes 9-0
Additional staff or committee comments for the record: None

Proposal # P77
The purpose of this proposal is to improve the efficiency of interior lighting in homes.

Public Testimony in Support:
Update efficiency requirement for lighting fixtures. It restructures the definition in residential code. Instead of having wattage categories, sets 65 lumen per watt, changes from lamps to light sources. These lights are still widely available. Went through 2021 IECC.

Public Testimony in Opposition: None

Questions from the Committee to Proponent: None

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

Modification:
R 404.1 Change fixtures to luminaries.

Final Motion: As Modified
Final Vote: AM Passes 8-0
Additional staff or committee comments for the record: None

Proposal # P72
The purpose of this proposal is to improve the efficiency of exterior lighting in R-Occupancies.

Public Testimony in Support:
This closes a loophole in residential code. In Group R occupancies with parking lot or ground they don’t have requirements for exterior lighting. This adds exterior lighting requirements.

Public Testimony in Opposition: None

Questions from the Committee to Proponent:
1. Should IRC townhomes be added to this group?
   a. They weren’t added because to fall under residential code it would be a low-rise townhome, they don’t have the types of grounds we are talking about.

Original Motion: As-Submitted (AS)

Committee Discussion:
• Only applies to R3 and R4.
• This is just exterior lighting

Final Motion: As Submitted
Final Vote: AS Passes 8-0
Additional staff or committee comments for the record: None

Proposal # P78
Denver’s energy code goals will require that the next version of Denver’s energy code be 27% more efficient than IECC-2018. This proposal modifies the modeled performance compliance path to meet that goal.

Public Testimony in Support:
This allows for residential code to be calibrated in the modeling path to where you end up in your prescriptive path. If performance path is calibrated this proposal lets that happen.

Public Testimony in Opposition: None

Questions from the Committee to Proponent:
1. If you vote for this, does it mean 73% is set in stone or will it get calibrated?
   a. Committee can vote on idea for it and then work on calibrated number.
2. This pathway and others, how do you implement this, software and update for Denver?
   a. This won’t require update to software, the software already puts out that number.
3. Struggling to understand why, if this won’t work it was brought forward as a proposal?
a. R405 is limited modeling methodology, limited for tradeoffs. Reality that R405 is in the code, if you pass an options approach that won’t be reflected in R405 as written now. If you disapprove you open the opportunity for R405 to become a loophole.

**Original Motion: Disapprove (D)**

**Reason:** This is not possible in R405. All systems and equipment are modeled identically. Virtually impossible to get 27% energy reduction.

**Discussion:**
- Still the option to utilize ERI pathway in the residential.
- Production builders use this frequently.
- Committee feels this is not a loop hole but just limits the options.

**Final Motion:** Disapproval

**Final Vote:** D Passes 8-0

**Additional staff or committee comments for the record:** None

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**Proposal # P90**

Changing requirements of compliance reporting many items on the REScheck inspection checklist have not been met on previous building projects.

**Public Testimony in Support:** None

**Public Testimony in Opposition:** None

**Original Motion:** Disapprove (D)

**Reason:** Based on committee discussion

**Committee Discussion:**
- We don’t want to include a Denver City employee to complete this compliance report.
- Denver already has a policy to address who can do these reports.

**Final Motion:** Disapproval

**Final Vote:** D Passes 8-0

**Additional staff or committee comments for the record:** None

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**Proposal # 506**

**Public Testimony in Support:**

The intention is to bring a simple alternative to flex points proposal. This is more of an options approach similar to C406 on Commercial side. This would get the market ready to reach Denver’s goals.

**Public Testimony in Opposition:**

**Questions from the Committee to Proponent:**

1. Would it make sense to add a lighting package you provide?
   a. You would have to increase the efficiency of the lighting.
   b. 100% high efficacy and 100% of the rooms

**Motion:** To Table

**Proposal # P71 (Tabled to be heard with #506)**

Denver’s energy code goals will require that the next version of Denver’s energy code be 27% more efficient than IECC-2018. This proposal modifies the ERI compliance path to meet that goal.

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**Proposal # 409**

To offer a flexible path forward to Zero Energy using the HERS ERI as a means provide a predictable path forward toward this goal.

**Public Testimony in Support:**

This proposal is an Appendix designed to utilize an energy index rating score to give a staged path way to a zero-energy home. Table is most important path. Takes energy rating index with and without renewables says you can’t get to zero with mechanical and envelope only. Everything else to get to zero is PV or renewables. This phases in an envelope down to 40, through 5 phases. Talks about compliance tools and documents.
Public Testimony in Opposition:

Questions from the Committee to Proponent:
- Concerns that if we adopt this, how do we put it in the code as an optional path.
  - If goal is to go to zero, this pathway would be a first step to creating zero energy homes.
- Feel this could be helpful in the path to net zero for planning process. More of a steps process versus putting this in the code. Looks like more of an implementation plan.

Original Motion: Disapprove (D)


Final Motion: Disapproval

Final Vote: D Passes 8-0

Additional staff or committee comments for the record: None

Proposal # 411

The proposed language continues to demonstrate the importance of energy codes relationship to health safety and durability as well as efficiency as described in the code’s intent Section R101.3.

Public Testimony in Support:

This proposal is looking at alterations. Adding a pre and post blower door test to alterations. When you alter a building, you are potentially tightening up that structure. Worry is you could be creating a combustion or ventilation issue. This tells you if you need a combustion test. Asking for pre and post for a benchmark then you determine if you would need the combustion or ventilation testing.

Public Testimony in Opposition: None

Questions from the Committee to Proponent:
1. What happens if they perform combustion testing and building needs upgrades?
   a. The proposal is not trying to mandate any additional things happen, just that they are aware of the situation they are moving in to or living in. We would hope with that knowledge they would make corrections.
2. Does this truly belong in the IECC, doesn’t seem energy related?
   a. R503 states that alterations can not create combustion concern.

Committee Discussion:
- Concerns that if we require this testing, but no provisions for them to make changes inspector would have to sign off on something that is truly unsafe.
- Concerns that this would largely increase the number of blower door tests that we are requiring.
- Concerns that this would be an increased cost for any alteration. (window replacement, basement finish)
  - If they replace one window it would trigger this requirement.
- Concerns that we may want to put in a percentage of home altered to trigger this requirement.
- Concerns that this may be difficult to enforce.

Original Motion: Disapprove (D)

Final Motion: Disapproval

Final Vote: D Passes 8-0

Additional staff or committee comments for the record: None