



International Energy Conservation Code Consensus Committee-Residential

Draft Meeting Agenda (5/19 posting)

[Webex Meeting Link](#)

May 26, 2022

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

Committee Chair: JC Hudgison, CBO, Assoc. AIA

Committee Vice Chair: Bridget Herring & Robin Yochum, LEED Green Associate

1. Call to order.
2. Meeting Conduct.
 - a. Identification of Representation/Conflict of Interest
 - b. ICC [Council Policy 7](#) Committees: Section 5.1.10 Representation of Interests
 - c. ICC [Code of Ethics](#): 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.
 - d. ICC [Antitrust Compliance Guideline](#)
3. Roll Call.
4. Approve Agenda
5. Approval of Minutes
6. Administrative issues-staff
7. Subcommittee Reports
8. Action Items
 - a. Code Change Proposals

REPI-56-21 (Insulation installation)	(Envelope disapprove 12-4-1)
REPI-145-21 (Alterations duct leakage testing)	(Existing Bldg a modified 6-0)
REPI-62-21 (Air Leakage and Ventilation)	(HVACR disapprove 7-0-1)
CEPI-82-21 Part II (Roof gutter de-icing)	(HVACR approve 9-0-0)
REPI-72-21 (Heat pump supplementary)	(HVACR disapprove 9-1-1)
REPI-73-21 (Heat pump switch over)	(HVACR as modified 7-1-1)
REPI-98-21 (HVAC Equipment sizing)	(HVACR disapprove 8-0-2)

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REPI-136-21 (Add. Eff. Package options HVAC)(HVACR as modified 8-0-1)
REPI-51-21 (Air Sealing Separation Wall) (Envelope as modified 14-4-1)

9. Other business.

10. Upcoming meetings. June 9 at 2 PM EST

11. Adjourn.

FOR FURTHER IECC Residential INFORMATION BE SURE TO VISIT THE ICC WEBSITE:
[IECC Residential Website](#)

FOR ADDITIONAL INFORMATION, PLEASE CONTACT:

Kristopher Stenger, AIA, CBO
Director of Energy Programs
International Code Council
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International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	REPI-056-21 insulation installation
CDP ID #	471
Code	IECC RE
Code Section(s)	R402.4.1.1, TABLE R402.4.1.1, R402.4.1.2 New Section n
Location	base
Proponent	Mark Lyles markl@newbuildings.org
Proposal Status	SC rev
Subcommittee	RE Envelope
Subcommittee Notes	Proponent: modified, closer to grade 1 level of performance, pull language form Title 24
Recommendation	Bobby Parks motion to disapprove, Greg Johnson seconded. Reason: Good info but mostly installation instructions rather than code language. Some of the language used such as "without voids" is problematic.
Vote	12-4-1
Recommendation Date	3/16/22
Next Step	To Subcommittee _____ To Advisory Group _____ To Consensus Committee_X _____
Consensus Committee	
Committee Response	
Vote	Affirmative _____ Negative _____ Table _____ To Subcommittee _____
Date	



International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	REPI-145-21 Alterations duct leakage testing
CDP ID #	287
Code	IECC RE
Code Section(s)	R502.3.2, R502.3.2.1, R503.1.2, R503.1 New Section y
Location	base
Proponent	Sean Denniston sean@newbuildings.org
Proposal Status	SC rev
Subcommittee	RE Existing Bldg
Subcommittee Notes	<p>While the committee did agree that duct leakage in existing homes is an issue the current proposal only requires the ducts to be tested and report given to the owner and the code official. There were no requirements as to what would happen if the duct leakage was more than the current code allowed or if at certain duct leakage any repairs would have been needed.</p> <p>With Modification – Heard on 5/10/2022 - REASON STATEMENT this helps clarify when duct testing is needed and not needed in existing homes and duct installation remains important no matter when it was installed.</p>
Recommendation	<p>Jim Z motion to disapprove Paul D second</p> <p>With Modification – heard on 5/10/2022 Robby approve as modified, including modification made during sub-committee meeting – Paul seconds</p>
Vote	<p>6-1 motion carries</p> <p>With Modification – heard on 5/10/2022 6-1 motion carries to approve as modified</p>
Recommendation Date	<p>1/25/2022</p> <p>With Modification – 5/10/2022</p>
Next Step	<p>To Subcommittee _____</p> <p>To Advisory Group _____</p> <p>To Consensus Committee <u> X </u></p>
Consensus Committee	

Committee Response	
Vote	Affirmative _____ Negative _____ Table _____ To Subcommittee _____
Date	

REPI 145-21

Modify the section as follows:

R502.3.2 Heating and cooling systems. HVAC ducts newly installed as part of an addition shall comply with Section R403.

Exception: Where ducts from an existing heating and cooling system are extended **to** into an addition, Sections R403.3.5 and R403.3.6 shall not be required.

Modify the section as follows:

R503.1.2 Heating and cooling systems. ~~New heating, cooling and duct systems~~ HVAC ducts **newly** installed as part of an alteration shall comply with Section R403. Alterations to heating, cooling and duct systems shall comply with this section.

Exception: Where ducts from an existing heating and cooling system are extended to an addition.

R503.1.2.1 Duct Leakage. Where an alteration includes any of the following, ducts shall be tested in accordance with Section R403.3.5 and shall have a total leakage less than or equal to 12.0 cubic feet per minute (339.9 L/min) per 100 square feet (9.29 m2) of conditioned floor area:

1. Where 25% or more of the registers that are part of the duct system are relocated.
2. Where 25% or more of the total length of all ducts in the system are relocated.
3. Where the total length of all ducts in the system is increased by 25% or more.

Exception: Duct systems located entirely inside a conditioned space in accordance with R403.3.2.

Reason

This revision addresses issues brought up by the sub-committee.

Additions: The duct testing requirement is completely removed from C502 for additions. Instead, the language closes a loophole that allows ducts extended into the addition to avoid requirements for duct construction. It limits the exception to the requirements for duct testing and leakage.

Alterations: The sub-committee cited the lack of a leakage rate requirement as a major part of the reason for disapproval since the original, proposal would incur cost without ensuring energy savings. This revision introduces a leakage rate requirement of 12 CFM/sf, a very high level of allowable leakage that is three times the requirement for new construction. Additionally, the revision changes the code trigger threshold. Rather than being triggered by the installation of new heating and cooling equipment, it is triggered by extensive alterations to the duct system. This both places the requirement within scope for the IECC since only clearly altered duct systems will be subject and the requirement only needs to be met when that alteration is significant. An exception is included for ducts entirely within the conditioned space. The result is that only major alterations to terrible duct systems would trigger any kind of leakage requirement. Merely bad ductwork and terrible ductwork within conditioned space would be exempt.



International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	REPI-062-21 Air Leakage and Ventilation
CDP ID #	331
Code	IECC RE
Code Section(s)	R402.4.1.2, R402.4.1.3, R403.6, R403.6.1, R502.3.1 New Section
Location	base
Proponent	Seth Wiley seth@siteisreal.com
Proposal Status	SC rev
Subcommittee	HVACR
Subcommittee Notes	Items sticky for the subcommittee. Infiltration rate, Merv13 filter required, mechanical ventilation
Recommendation	The Proponents presented the Proposal and almost immediately the subcommittee made a motion and a second to Disapprove/ reject this Proposal. The subcommittee felt the requirements for infiltration, air quality and mechanical ventilation were too broad. No cost analysis was provided by the Proponent.
Vote	7 to Disapproved / zero no / 1 abstention
Recommendation Date	5/16/2022
Next Step	To Subcommittee _____ To Advisory Group _____ To Consensus Committee <input checked="" type="checkbox"/> _____
Consensus Committee	
Committee Response	
Vote	Affirmative _____ Negative _____ Table _____ To Subcommittee _____
Date	



International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	CEPI-082-21 Part II Roof Gutter de-icing
CDP ID #	402
Code	IECC RE
Code Section(s)	R403.9, R403.10 (New) New Section y
Location	base
Proponent	Nick Thompson nick.thompson@cityofaspen.com
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	With support from the DOE Chris Perry the subcommittee agreed to approve CEPI-082
Recommendation	Proponent presented the Proposal and the subcommittee agreed to approve with little discussion but a lot of support including the DOE Chris Perry. The proposal reduces costs for occupants. The Proposal is straight forward. Proposal is original with no modifications
Vote	Vote 9 to approve/ zero no votes / zero abstentions
Recommendation Date	5/16/2022
Next Step	To Subcommittee _____ To Advisory Group _____ To Consensus Committee _____
Consensus Committee	
Committee Response	
Vote	Affirmative _____ Negative _____ Table _____ To Subcommittee _____
Date	



International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	REPI-072-21 heat pump supplementary
CDP ID #	28
Code	IECC RE
Code Section(s)	R403.1.2 New Section n
Location	base
Proponent	Steven Rosenstock srosenstock@eei.org
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	Proponents assisted REPI-073 to align with REPI-72 and in turn stated REPI-073 approval satisfies the code proposals in REPI-072. Proponents recommended Disapproval of REPI-072
Recommendation	The Proponent assisted in the modification to REPI-073 and in doing so requested the subcommittee Disapprove of REPI-072. The two Proposals aligning with REPI-072 is not needed.
Vote	Vote to Disapprove 9/ 1 no vote/ 1 abstention
Recommendation Date	5/16/2022
Next Step	To Subcommittee _____ To Advisory Group _____ To Consensus Committee <input checked="" type="checkbox"/> _____
Consensus Committee	
Committee Response	
Vote	Affirmative _____ Negative _____ Table _____ To Subcommittee _____
Date	



International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	REPI-073-21 Heat pump switch over
CDP ID #	530
Code	IECC RE
Code Section(s)	R403.1.2 New Section n
Location	base
Proponent	Ryohei Hinokuma ryohei.hinokuma@daikin.com
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	This Proposal was presented by the Proponent early in 2022 to the subcommittee. At the time the subcommittee had questions the Proponent did not have answers to. The Proponents agreed we did not vote and that he would rework the Proposal and represent at a later date.
Recommendation	The Proponents presented the Proposal early in 2022 to the subcommittee but at the time there were too many unanswered questions. The Proponent took his time vetting the Proposal with the HVAC industry and came back to submit a modified version aligning with REPI-072 to the subcommittee. Multiple members of the subcommittee and interested parties spoke during discussion providing support for the Modified Proposal
Vote	Vote to approve "as modified" Proposal 7 / zero no votes/ 1 abstention
Recommendation Date	5/16/2022
Next Step	To Subcommittee _____ To Advisory Group _____ To Consensus Committee <input checked="" type="checkbox"/> _____
Consensus Committee	
Committee Response	
Vote	Affirmative _____ Negative _____ Table _____ To Subcommittee _____
Date	

IECC®: R403.1.2

Proponents: Ryohei Hinokuma, representing Daikin U.S. Corporation (ryohei.hinokuma@daikin.us.com)

2021 International Energy Conservation Code

Revise as follows:

R403.1.2 Heat pump supplementary heat (Mandatory).

Heat pumps with supplementary electric resistance heaters shall have controls that **are configured to** except during defrost, prevent supplemental heat operation when the capacity of the heat pump compressor can meet the heating load. limit supplemental heat operation to only those times when one of the following applies:

1. The vapor compression cycle cannot provide the necessary heating energy to satisfy the thermostat setting.
2. The heat pump is operating in defrost mode.
3. The vapor compression cycle malfunctions.
4. The thermostat malfunctions.



International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	REPI-098-21 HVAC Equipment sizing
CDP ID #	432
Code	IECC RE
Code Section(s)	R403.7, R403.7.2 (New) New Section y
Location	base
Proponent	Robby Schwarz robby@btankinc.com
Proposal Status	
Subcommittee	RE HVACR & WH
Subcommittee Notes	Subcommittee motions almost immediately to disapprove/ reject this proposal
Recommendation	Proponent presented the Proposal as an indoor air quality proposal listing the requirement for MERV 13 filters as preventing Covid transmission. Some of the subcommittee comments; The Proposal is more about indoor air quality (IAQ) which according to some of the members should not be in code. One comment stated the Proposal is being presented to the wrong code body. Multiple comments regarding the Covid statements by the Proponent.
Vote	Vote of 8 Disapprove with two abstentions
Recommendation Date	5/16/2022
Next Step	To Subcommittee _____ To Advisory Group _____ To Consensus Committee <input checked="" type="checkbox"/> _____
Consensus Committee	
Committee Response	
Vote	Affirmative _____ Negative _____ Table _____ To Subcommittee _____
Date	



International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	REPI-136-21 Additional Efficiency Package Options HVAC
CDP ID #	538
Code	IECC RE
Code Section(s)	R408.2, R408.2.2 New Section n
Location	base
Proponent	Ryohei Hinokuma ryohei.hinokuma@daikinus.com
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	This Proposal moved forward because the Proponents did a great job of vetting the Proposal, making modifications after he received feedback from the HVAC industry.
Recommendation	Proponents presented the “As Modified” new document presented at the subcommittee meeting. The Proponent vetted the Proposal with AHRI and other HVAC industry professionals before finalizing the Modification presented to the HVACR subcommittee. With the support of industry professionals, the Proposals was well explained, cost benefit included and the subcommittee voted to approve.
Vote	8 to approve this as Modified Proposal / zero no votes/ 1 abstention
Recommendation Date	5/16/2022
Next Step	To Subcommittee _____ To Advisory Group _____ To Consensus Committee_x _____
Consensus Committee	
Committee Response	
Vote	Affirmative _____ Negative _____ Table _____ To Subcommittee _____
Date	

R408.2.2 More efficient HVAC equipment performance option.

Heating and cooling equipment shall meet one of the following efficiencies:

Centrally Ducted Systems

1. Greater than or equal to 95 AFUE natural gas furnace and 16.15.2 SEER2 in Climate Zones 5, 6, and 7 and 16.09 SEER2 in the other Climate Zones for air conditioner.
2. Greater than or equal to 95 AFUE natural gas furnace and 8.5 HSPF2/16.09 SEER2 air source heat pump.
3. Greater than or equal to 10 HSPF/16 SEER 8.5 HSPF2/16.09 SEER2 air source heat pump.
4. Greater than or equal to 3.5 COP ground source heat pump.

Ductless Systems

1. Single Zone: 8.5 HSPF2/16.9 SEER2 variable speed air source heat pump
2. Multi Zone: 8.5 HSPF2/16.9 SEER2 variable speed air source heat pump (Non-Ducted Indoor Units)
3. Multi Zone: 8.5 HSPF2/15.2 SEER2 variable speed air source heat pump (Ducted or Mixed Indoor Units)

For multiple cooling systems, all systems shall meet or exceed the minimum efficiency requirements in this section and shall be sized to serve 100 percent of the cooling design load. For multiple heating systems, all systems shall meet or exceed the minimum efficiency requirements in this section and shall be sized to serve 100 percent of the heating design load.

Reason: The 2021 IECC has implemented a new section, R408 Additional Efficiency Package Options, which defines requirements to achieve additional energy efficiency to be selected from one of the following five options: 1. Enhanced envelope performance option., 2. More efficient HVAC equipment performance option., 3. Reduced energy use in servicing water-heating option., 4. More efficient duct thermal distribution system option., and 5. Improved air sealing and efficient ventilation system option. Daikin requests that the 2024 version of IECC retains the section to continue effectively driving builders and users to optimize the energy performance of their homes. As mentioned in our Introduction (see attached letter), variable speed heat pumps provide superior energy performance over single and two-stage equipment due to their higher efficiency attained during partial load operation. Daikin proposes to increase the SEER requirement for air conditioner by one from the 2021 IECC of the same section referring to the increase to be implemented by the 2023 DOE minimum efficiency standard. Also referring to the DOE standards, Daikin proposes to set the SEER requirement for air conditioner by regions. In the standards, the North region has the SEER requirement one lower than South and Southwest as well as the ones for heat pumps. Though the DOE regional splits do not precisely align with the IECC climate zones, Daikin selected the zones 5, 6, and 7 to be equivalent of the North region. Also, ductless systems with variable speed compressors provides homeowners opportunities to further save energy consumption by turning off individual indoor units in unoccupied zones. For the 2024 IECC, Daikin proposes changes to R408.2 and R408.2.2 to accurately capture the energy performance superiority of variable speed air source heat pumps in both centrally ducted and ductless systems. The metrics of HSPF and SEER are being updated to the new metrics of HSPF2 and SEER2 that will be in effect when the 2024 IECC is adopted by jurisdictions (see 10 CFR 430.32).



International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	REPI-051-21 Air Sealing Separation Wall
CDP ID #	409
Code	IECC RE
Code Section(s)	R402.4.1.1 table New Section n
Location	base
Proponent	Robby Schwarz robby@btankinc.com
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	<p>Subcommittee agreed in principle and noted that the proposal clarifies that walls separating dwelling units need to be air sealed and insulated. It was well received by SC with some having concerns about the use of wording “area separation wall” instead of “common wall” and with contradictions within the insulation provisions.</p> <p>Initially Disapproved on 2/2nd. Proponent offered a modification and the Main Committee referred it back to the SC.</p> <p>SC members who had expressed initial editorial concerns agreed that the modification addresses them. It is a necessary clarification. Uses terms common with other parts of the code. Some were concerned that the term “common wall” is not defined, others countered that common parlance suffices in this case. Some were concerned with the field understanding of the word “listed.”</p> <p>Heard again with further modifications on 5/18 in Envelope SC.</p> <p>This proposal brought back by proponent after editing to adjust language to match better with the code. Motion to approve as further modified. Reason: Clarifies air sealing in insulation requirements for chartered wall assemblies</p>
Recommendation	<p>Approve as Modified</p> <p>Ultimately SC overwhelmingly voted to Disapprove.</p> <p>Motion to approve as further modified. Reason: Clarifies the air sealing and insulating in insulation requirements for shared wall assemblies.</p>
Vote	14 yes / 4 no / 1 abstention
Recommendation Date	5/18/2022
Next Step	<p>To Subcommittee _____</p> <p>To Advisory Group _____</p> <p>To Consensus Committee_x_____</p>

Consensus Committee	
Committee Response	
Vote	Affirmative _____ Negative _____ Table _____ To Subcommittee _____
Date	

Table R402.4.1.1 Common walls - MODIFICATION

COMPONENT	AIR BARRIER, <u>AIR SEALING</u> CRITERIA	INSULATION INSTALLATION CRITERIA
<u>Common walls or double walls</u>	<p><u>Air sealing materials recognized in a listed fire-resistance rated common wall or double wall design and installed in accordance with the listing, or air sealing materials recognized in an approved design, shall be used.</u></p> <p><u>Common walls or double walls shall be considered an exterior wall for the purposes of air barrier and air sealing application of this Table (R402.4.1.1).</u></p>	<p><u>Insulation materials recognized in the listed common wall or double-wall design and installed in accordance with the listing, or insulation materials recognized in the approved design, shall be used.</u></p>

- Common walls used to be addressed by this table. Due to the work from the Spray Polyethylene Foam Alliance and UL there are now listed air sealing products that can be used in the assembly to air seal them. It is therefore time to add these common wall assembly back to the table and address their extreme air leakage.
- Common walls separating *townhouse & duplex units* have extreme air leakage. The BXUV guides has been updated to allow air sealing and this should be reflected in the IECC and specifically in Table R402.4.1.1. Below is an example of the new language that has been added to the following Shaft Liner assemblies: U336, U347, U366, U373, U375

8. Caulk/Sealant — (Optional, Not Shown, Intended for use as an air barrier - Not intended to be used as fireblocking) — ASTM C834, Type OP, Grade 0° C or -18° C Latex Sealant at the Shaftliner and C-Track (Item 1) and H-Stud (Item 2) framing locations.

8A. Caulking and Sealants* — (Optional - Intended for use as an air barrier - Not intended to be used as fireblocking) - A bead of sealant applied around the partition perimeter in the 3/4 in. air space between wood framing (Item 4) and shaftliner panels (Item 3) to create an air barrier.

DUPONT DE NEMOURS, INC. — Great Stuff Gaps & Cracks, Great Stuff Pro Gaps & Cracks, Great Stuff Pro Window & Door

- Common walls separating townhouse & duplex units need to be treated like any other exterior wall that has a drop ceiling, tub, or other air barrier issue associated with this table within it. The 1" to 3/4" gap between the framed portion of the assembly and the gypsum area separation portion of many common wall assemblies, allows significant air flow between conditioned and unconditioned spaces which the requirements of Table R402.4.1.1 are designed to mitigate. If these issues are not addressed with common wall construction, it is even more difficult to achieve the air leakage requirements of the IECC.

Insulation Criteria:

Insulation in area separations walls have traditionally been ignored as they are assumed to be an adiabatic wall with no heat loss or gain. In reality, a significant amount of air moves behind the interior drywall in these assemblies and therefore insulation installation makes a significant difference in their energy performance. The listed assemblies call out insulation installation which this section points to.

Cost

Construction is expected to be impacted by this proposal because air sealing has not been allowed in most jurisdiction because of interpretations (right or wrong) of how Common walls must be built. It is unclear how these assemblies used in town house and duplex construction, are complying with the air leakage requirements of the code. In the Colorado market most jurisdictions are allowing some level of air sealing and we are seeing compliance with air leakage requirements. So, in Colorado, and other similar markets, cost of construction will remain the same, and in other markets construction cost will go up, but air leakage compliance will also increase