



International Energy Conservation Code Consensus Committee-Residential

Draft Meeting Agenda (8/16/23 posting)

[Webex Meeting Link](#)

August 17, 2023
2:00 - 5:00 PM Eastern

Committee Chair: JC Hudgison, CBO, Assoc. AIA
Committee Vice Chair: Bridget Herring

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. Approve Minutes-August 3, 2023 meeting
6. Administrative issues-staff
Public Comment period on RECD1-13-22 open until Wednesday, August 16 at 11:59 pm Pacific.
7. Action Items-

CEC2D-4-23 PII(Flip Means of Appeal/Stop work)	Consensus Committee
CE2D-37-23(EVSE charging capacity)	Electrical disapprove 10-3-0
RE2D-6-23(Alteration, repair definitions)	Existing Bldg approve 5-0
RE2D-7-23(Existing Building definition)	Existing Bldg disapprove 4-1
RE2D-8-23(Substantial improvement definition)	Existing Bldg approve 5-0
RE2D-42-23(SHW table edits)	HVACR approve 9-0-1
RE2D-15-23(Forced air space conditioning)	HVACR disapprove 4-3-2
RE2D-16-23(Duct systems located in cond. Space)	HVACR disapprove 5-1-2

RE2D-17-23(Maximum duct system leakage rate)	HVACR disapprove 8-0-0
RE2D-18-23(Distributed Electric resistance heating)	HVACR as modified 8-0-2
RE2D-43-23(Compact hot water distribution system)	HVACR approve 8-0-0
REC2D-3-23(ACCA Manual D reference)	HVACR approve 8-0
RE2D-22-23(approved equivalent)	Modeling disapprove 8-6-2
RE2D-23-23(Local or regional values in R405.2)	Modeling disapprove 13-2-1
RE2D-24-23(Update R405.2 values)	Modeling as modified 11-3-1
RE2D-25-23(Compliance documentation)	Modeling as modified 16-0-0
RE2D-26-23(Performance path U-factors)	Modeling as modified 16-0-0
RE2D-29-23(Modify ERI w/OPP scores)	Modeling disapprove 13-1-1
RE2D-30-23(Remove ERI w/OPP)	Modeling disapprove 13-1-0

8. Other business.

9. Upcoming meetings. Thursday, August 24 at 2 pm Eastern

10. 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
kstenger@iccsafe.org

Join by meeting number

Meeting number (access code): 2597 702 0320

Meeting password: uGvZqpTd984

Tap to join from a mobile device (attendees only)

1-844-740-1264,,25977020320## USA Toll Free

+1-415-655-0003,,25977020320## US Toll

CEC2D-4-23 Part II

IECC RE: SECTION R110, SECTION R110 (New)

Proponents:

JC Hudgison, chair of IECC RE consensus committee

2024 International Energy Code [RE] [RE Project] R3

Revise as follows:

SECTION ~~R110~~R109 — MEANS OF APPEALS

SECTION ~~R109~~R110 — STOP WORK ORDER

Reason:

Editorial change to align ordering of Chapter 1 sections with other I-Codes

Cost Impact:

The code change proposal will neither increase nor decrease the cost of construction.

Editorial change



International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	CE2D-37-23 PII EVSE charging capacity
CDP ID #	1902
Code	IECC RE
Code Section(s)	R404.7.4
Location	SC rev
Proponent	Quincy Davis quincyd@mac.com
Proposal Status	SC rev
Subcommittee	RE Elec, Light
Subcommittee Notes	
Recommendation	
Vote	Disapprove 10-3-0
Recommendation Date	
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 #	RE2D-06-23 Alteration, Repair definitions
CDP ID #	1674
Code	IECC RE
Code Section(s)	R202
Location	SC rev
Proponent	Jay Crandell jcrandell@aresconsulting.biz
Proposal Status	SC rev
Subcommittee	RE Existing Bldg
Subcommittee Notes	This corrects the published RE-PCD2 as this committee originally approved this change with RED1-264-22 AM. The Main committee approved RED1-264-22 AM during their 4/13/2023 meeting 29-0-1.
Recommendation	Motion to Approve As Submitted
Vote	5-0
Recommendation Date	8/2/2023
Next Step	To Subcommittee To Advisory Group _____ To Consensus Committee <u> X </u>
Consensus Committee	
Committee Response	
Vote	Affirmative _____ Negative _____ Table _____ To Subcommittee _____
Date	



International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	RE2D-07-23 Existing Building definition
CDP ID #	1819
Code	IECC RE
Code Section(s)	R202
Location	SC rev
Proponent	Greg Johnson gjohnsonconsulting@gmail.com
Proposal Status	SC rev
Subcommittee	RE Existing Bldg
Subcommittee Notes	There was agreement that the current existing building definition needed some work. The committee did not agree that the proposed definition provided any clarity and that the current definition was sufficient.
Recommendation	Motion to Disapprove
Vote	5-0
Recommendation Date	8/2/2023
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 #	RE2D-08-23 Substantial improvement definition
CDP ID #	1822
Code	IECC RE
Code Section(s)	R202
Location	SC rev
Proponent	Greg Johnson gjohnsonconsulting@gmail.com
Proposal Status	SC rev
Subcommittee	RE Existing Bldg
Subcommittee Notes	Proposal adds clarity to the Code because the current language linguistically states that the Code Official is ordering violations – which is not the case; so, the Proposal corrects language in the Code and clarifies the intent of the Code.
Recommendation	Motion to Approve As Submitted
Vote	5-0
Recommendation Date	8/2/2023
Next Step	To Subcommittee To Advisory Group _____ To Consensus Committee <u> X </u> _____
Consensus Committee	
Committee Response	
Vote	Affirmative _____ Negative _____ Table _____ To Subcommittee _____
Date	



International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	RE2D-42-23 SHW table edits
CDP ID #	1702
Code	IECC RE
Code Section(s)	R408.2.3 table
Location	SC rev
Proponent	Shilpa Surana shilpasurana@2050partners.com
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	Shilpa Surana and co proponent Gayathri Vijayakumar proposal was heard by the subcommittee on 7/24/2023. With little conversation motion to approve Dean Potter and a second David Bixby.
Recommendation	Vote to approved
Vote	9/0/1
Recommendation Date	7/24/2023
Next Step	To Subcommittee To Advisory Group _____ To Consensus Committee <input checked="" type="checkbox"/> _____
Consensus Committee	
Committee Response	
Vote	Affirmative _____ Negative _____ Table _____ To Subcommittee _____



International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	RE2D-15-23 Forced air space conditioning
CDP ID #	1720
Code	IECC RE
Code Section(s)	R403.3.4
Location	SC rev
Proponent	Mike Moore mmoore@statorllc.com
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	<p>Subcommittee meeting 7/24/2023 Mike Moore presenting.</p> <ol style="list-style-type: none"> 1. Mike Moore proponent for RE2D-15-23 presented his proposal regarding Forced Air Space Conditioning, providing clarification to some definitions and use of terms that were introduced in the prior rounds. Moore explained the proposal in detail. Sonny Richardson motioned to approve proposal; Gary Heikkinen seconded. Considerable group discussion. Sonny Richardson made motion to table the proposal, David Bixby seconded. The chair opened the floor to vote. 10-0-0 – Tabled until the next subcommittee meeting. <p>Subcommittee meeting 7/31/2023 Mike Moore presenting. Previously tabled on 7/24/2023. Presentation 7/31/2023 Revised “As Modified” proposal.</p> <ol style="list-style-type: none"> 1. Mike Moore proponent for RE2D-15-23 presented the proposal regarding Forced Air Space Conditioning that was tabled at the 7-24-2023 meeting. Moore explained the proposal in detail. The chair opened the floor for a motion. Gary Heikkinen motioned to approve; David Bixby seconded. The chair opened the floor for discussion. Steve Rosenstock asked if this motion is ‘as modified”, The chair stated as modified, Heikkinen and Bixby agreed. Considerable group discussion. The chair opened the floor to vote. 1-7-2. The motion to approve “as modified did not carry”. <p>Subcommittee meeting 8/7/2023 Mike Moore presenting- Proponent working with other industry professionals presented a new “as modified” proposal based on feedback. Mike asked if the subcommittee would hear the Proposal one more time. Chair Hensley asked the members of the subcommittee to vote at the beginning of the 8/7/2023 meeting whether they wished to consider the “as modified proposal RE2D-15-23. The motion to hear the proposal passed.</p> <p>Mike Moore presented the proposal “as modified version 9” I believe. Mike presented updates to the proposal. Motion received to disapprove did not</p>

	<p>carry because no second was offered. Motion to approve received and properly seconded. Conversation for and against the proposal. Some members agreed this proposal cleans up the language in the code and fills in where needed. Some believe the code language is not needed. One comment was to the proponent to work on the proposal and bring it back during the next code cycle. Vote to approve “as modified failed with a split decision. Tie breaker Chair voting.</p> <p>Note to Consensus- Mike Moore sent to the Chair of the subcommittee and Kristopher Stenger another “as modified” of this proposal after the subcommittee voted on 8/7/2023. The “as modified” new version has not been reviewed and voted upon by the subcommittee.</p>
Recommendation	Recommendation disapprove “as modified”
Vote	vote to approve as modified did not carry with a vote of 3-4-2
Recommendation Date	8/7/2023
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	

proposal heard by hvac subcommittee

RE2D-15-23, Option 5:

- A. No modifications to latest definitions
- B. Clarify exceptions for ventilation system ducts and equipment, noting that, by nature, such systems are meant to bridge the gap between conditioned space and the outdoors.

AIR-HANDLING UNIT. A blower or fan used for the purpose of distributing supply air to a room, space or area.

DUCT SYSTEM. A system that consists of *space conditioning equipment, ductwork*, and includes any apparatus installed in connection therewith.

DUCTWORK. The assemblies of connected *ducts, plenums, boots, fittings, dampers, supply registers, return grilles, and filter grilles* through which air is supplied to or returned from the space to be heated, cooled, or ventilated. Supply *ductwork* delivers air to the spaces from the *space conditioning equipment*. Return *ductwork* conveys air from the spaces back to the *space conditioning equipment*. ~~Ventilation ductwork conveys air to or from any space.~~

SPACE CONDITIONING. The treatment of air so as to control the temperature, humidity, filtration or distribution of the air to meet the requirements of a conditioned space.

SPACE CONDITIONING EQUIPMENT. The *heat exchangers, air-handling units, filter boxes, and any apparatus* installed in connection therewith used to provide *space conditioning*.

CONDITIONED SPACE. An area, room or space that is enclosed within the *building thermal envelope* and that is directly or indirectly heated or cooled. Spaces are indirectly heated or cooled where they communicate through openings with conditioned spaces, where they are separated from conditioned spaces by uninsulated walls, floors or ceilings, or where they contain uninsulated *ducts, piping* or other sources of heating or cooling.

Modify PCD2 as follows (same changes for IRC Chapter 11)

R403.3 Duct systems. *Duct systems* shall be installed in accordance with the following:

1. Duct systems other than ventilation ductwork shall comply with Sections R403.3.1 through R403.3.9.
2. Ventilation ductwork shall comply with the following, as applicable:
 1. Ventilation ductwork shall comply with Section R403.3.2 and shall be designed, air sealed, and installed in accordance with Chapter 16 of the International Residential Code and Chapter 6 of the International Mechanical Code, as applicable.
 2. Ventilation supply ductwork and ventilation return ductwork serving HRVs or ERVs shall comply with Section R403.3.3.
 3. Ventilation ductwork that is integrated with duct systems serving heating or cooling equipment shall comply with Sections R403.3.7 through R403.3.9 as a component of the heating or cooling system's duct system testing and duct system leakage.

~~Exception: Ventilation ductwork that is not integrated with duct systems serving heating or cooling systems~~

TABLE R405.4.2(1) SPECIFICATIONS FOR THE STANDARD REFERENCE AND PROPOSED DESIGNS

I. Only sections of *ductwork* that are installed in accordance with Items 1 or 2 of Section R403.3.4, are assumed to be located completely inside *conditioned space*. All other sections of *ductwork* are not assumed to be located completely inside *conditioned space*. Ventilation ductwork shall not be considered when determining the percent of ductwork in conditioned space.

R408.2.4 More efficient thermal distribution system option. The thermal distribution system shall comply with one of the following:

1. The ductless thermal distribution system or hydronic thermal distribution system is located completely on the conditioned side of the *building thermal envelope*.
2. The *space conditioning equipment* is located inside *conditioned space*. In addition, 100 percent of the *ductwork* is located completely inside *conditioned space* as defined by Section R403.3.4(1) and R403.3.4(2).

Commented [MM1]: Removed to avoid confusion associated with references to ventilation supply ductwork and ventilation return ductwork, as referenced in this proposal. Note that ventilation ductwork is still ductwork, as defined here.

Commented [MM2]: 1. Currently, ACCA Manual D does not address ventilation ductwork. So, we need to reference the IRC and IMC for duct sealing, not R403.3.1, which references Manual D.
2. R403.3.2 prohibits the use of building cavities for ductwork and is applicable to all ventilation ductwork.
3. R403.3.3 has insulation requirements that are only applicable to supply ductwork and return ductwork, so these are addressed separately in 403.3.2.2.
4. R403.3.4 is used to determine compliance with simulations and credits associated with having heating or cooling system ducts in conditioned space, so it is not applicable to ventilation ducts.
5. R403.3.5 addresses ductwork buried in insulation and only pertains to heating and cooling system ducts, so it is not applicable to ventilation system ducts.
6. R403.3.6 addresses duct sealing but this is already covered in R403.3.2.1 and does not need to be repeated here.
4. R403.3.7-R403.3.9 are only applicable to the ventilation ductwork that is integrated with duct systems serving heating or cooling equipment. Such ventilation ductwork does not require separate testing but is tested with the heating and cooling system's duct system. These sections are addressed in R403.3.2.4.

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Commented [MM3]: To determine compliance with the R405 performance path, building energy simulation software programs account for the location of space heating and cooling ductwork. Such software does not consider ventilation system ductwork location in its simulations. Therefore, footnote "I" should clarify that ventilation ductwork is not part of the models' consideration when determining the effect of duct location on performance.

Exception: Ventilation ductwork and dedicated ventilation equipment shall not be considered when determining compliance.

3. The *space conditioning equipment* is located inside *conditioned space*, and no less than 80 percent of *ductwork* is located completely inside *conditioned space* as defined by Section R403.3.4(1) and R403.3.4(2). In addition, no more than 20 percent of *ductwork* is contained within building assemblies separating unconditioned from *conditioned space* as defined by Section R403.3.4(3).

Exception: Ventilation ductwork and dedicated ventilation equipment shall not be considered when determining compliance.

4. Where *ductwork* is located outside *conditioned space*, the total leakage of the *duct system* measured in accordance with R403.3.7 is one of the following:

4.1 Where the *space conditioning equipment* is installed at the time of testing, total leakage is not greater than 2.0 cubic feet per minute (0.94 L/s) per 100 square feet (9.29 m²) of *conditioned floor area*.

4.2 Where the *space conditioning equipment* is not installed at the time of testing, total leakage is not greater than 1.75 cubic feet per minute (0.83 L/s) per 100 square feet (9.29 m²) of *conditioned floor area*.

Commented [MM4]: Because PNNL's simulations for these credits did not include ventilation system ductwork, we should exclude ventilation ductwork from this credit.

Commented [MM5]: Because PNNL's simulations for these credits did not include ventilation system ductwork, we should exclude ventilation ductwork from this credit.

Additional Information: Following are graphics that provide examples of integrated/not-integrated and dedicated/not-dedicated ventilation equipment.

Figure 1: ventilation supplied by an outdoor air duct connected to the ductwork of a heating or cooling system air-handling unit. This is NOT dedicated ventilation equipment:

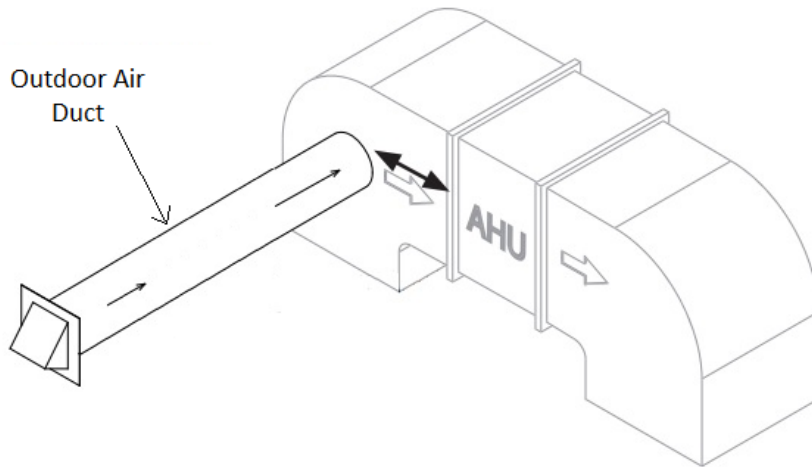


Figure 2: ventilation supplied by dedicated ventilation equipment that is integrated with the heating or cooling system ductwork:

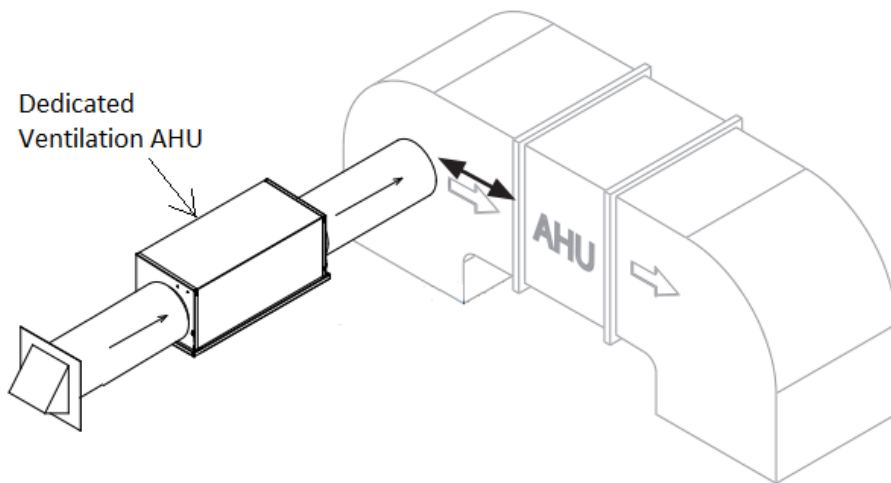
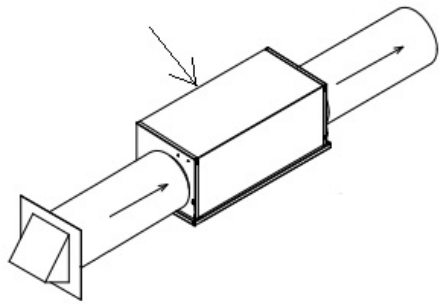


Figure 3: ventilation supplied by dedicated ventilation equipment that is not integrated with the heating or cooling system ductwork:

Dedicated Ventilation
Equipment



Conditioned
Space

By "ventilation equipment," I mean the heat exchangers, air-handling units, filter boxes, and any apparatus installed in connection therewith used to provide ventilation. This is very similar to the definition of *space conditioning equipment* and could be added to the definitions if necessary/helpful.

Modification received 8/16. Not heard by HVACR subcommittee

RE2D-15-23

Replace RE2D-15-23 with the following proposal. Blue text shows changes made to address concerns voiced during the August 7th subcommittee hearing on the prior version of this proposal.

AIR-HANDLING UNIT. A blower or fan used for the purpose of distributing supply air to a room, space or area.

DUCT SYSTEM. A system that consists of *space conditioning equipment*, *ductwork*, and includes any apparatus installed in connection therewith.

DUCTWORK. The assemblies of connected *ducts*, *plenums*, boots, fittings, *dampers*, supply registers, return grilles, and filter grilles through which air is supplied to or returned from the space to be heated, cooled, or ventilated. Supply *ductwork* delivers air to the spaces from the *space conditioning equipment*. Return *ductwork* conveys air from the spaces back to the *space conditioning equipment*. ~~Ventilation ductwork conveys air to or from any space.~~

SPACE CONDITIONING. The treatment of air so as to control the temperature, humidity, filtration or distribution of the air to meet the requirements of a conditioned space.

SPACE CONDITIONING EQUIPMENT. The *heat exchangers*, *air-handling units*, filter boxes, and any apparatus installed in connection therewith used to provide *space conditioning*.

CONDITIONED SPACE. An area, room or space that is enclosed within the *building thermal envelope* and that is directly or indirectly heated or cooled. Spaces are indirectly heated or cooled where they communicate through openings with conditioned spaces, where they are separated from conditioned spaces by uninsulated walls, floors or ceilings, or where they contain uninsulated *ducts*, piping or other sources of heating or cooling.

Modify PCD2 as follows (same changes for IRC Chapter 11)

R403.3 Duct systems. *Duct systems* shall be installed in accordance with the following:

1. *Duct systems other than ventilation ductwork shall comply with* Sections R403.3.1 through R403.3.9.
2. *Ventilation ductwork shall comply with the following, as applicable:*
 1. *Design, air sealing, and installation. Ventilation ductwork shall comply with Section R403.3.2 and shall be designed, air sealed, and installed in accordance with Chapter 16 of the International Residential Code and Chapter 6 of the International Mechanical Code, as applicable.*
 2. *Insulation. Ventilation ductwork shall be insulated where required by the ventilation equipment manufacturers' instructions. Where located outside conditioned space, ventilation supply ductwork and ventilation return ductwork serving HRVs or ERVs shall also comply with R403.3.3.*
 3. *Testing, leakage, and sampling. Ventilation ductwork that is integrated with duct systems serving heating or cooling equipment shall comply with Sections R403.3.7 through R403.3.9 as a component of the heating or cooling system's duct system testing and duct system leakage.*

~~**Exception:** *Ventilation ductwork that is not integrated with duct systems serving heating or cooling systems*~~

TABLE R405.4.2(1) SPECIFICATIONS FOR THE STANDARD REFERENCE AND PROPOSED DESIGNS

I. Only sections of *ductwork* that are installed in accordance with Items 1 or 2 of Section R403.3.4, are assumed to be located completely inside *conditioned space*. All other sections of *ductwork* are not assumed to be located completely inside *conditioned space*. *Ventilation ductwork shall not be considered when determining the percent of ductwork in conditioned space.*

R408.2.4 More efficient thermal distribution system option. The thermal distribution system shall comply with one of the following:

1. The ductless thermal distribution system or hydronic thermal distribution system is located completely on the conditioned side of the *building thermal envelope*.

2. The *space conditioning equipment* is located inside *conditioned space*. In addition, 100 percent of the *ductwork* is located completely inside *conditioned space* as defined by Section R403.3.4(1) and R403.3.4(2).

Exception: *Ventilation ductwork and dedicated ventilation equipment shall not be considered when determining compliance.*

3. The *space conditioning equipment* is located inside *conditioned space*, and no less than 80 percent of *ductwork* is located completely inside *conditioned space* as defined by Section R403.3.4(1) and R403.3.4(2). In addition, no more than 20 percent of *ductwork* is contained within building assemblies separating unconditioned from *conditioned space* as defined by Section R403.3.4(3).

Exception: *Ventilation ductwork and dedicated ventilation equipment shall not be considered when determining compliance.*

4. Where *ductwork* is located outside *conditioned space*, the total leakage of the *duct system* measured in accordance with R403.3.7 is one of the following:

4.1 Where the *space conditioning equipment* is installed at the time of testing, total leakage is not greater than 2.0 cubic feet per minute (0.94 L/s) per 100 square feet (9.29 m²) of *conditioned floor area*.

4.2 Where the *space conditioning equipment* is not installed at the time of testing, total leakage is not greater than 1.75 cubic feet per minute (0.83 L/s) per 100 square feet (9.29 m²) of *conditioned floor area*.

Rationale Overview: PCD2 exempts HERV ductwork from the IECC’s duct design, air sealing, insulation, and installation requirements where such ductwork is not integrated with heating or cooling systems. There is no logical basis to this exemption and roll-back from the 2021 code. This proposal corrects this rollback by requiring R-8 for HERV supply ductwork and HERV return ductwork where located outside of conditioned space, regardless of whether the ductwork is integrated with heating or cooling system ductwork. The proposal also clarifies how building energy simulation software programs model ducts outside of conditioned space (i.e., they only model heating and cooling system ducts and not ventilation system ducts).

Rationale Detail:

Following are fatal flaws with PCD2’s requirements (or lack thereof) for *ventilation ductwork*:

1. **PCD2 has NO design, air sealing, insulation, or installation requirements for *ventilation ductwork* that is not integrated with heating and cooling equipment. This is a rollback from 2021 requirements.**
2. According to PCD2 Section R403.3.2, integrated *ventilation duct systems* must be designed in accordance with Manual D. However, ACCA has confirmed that such systems are excluded from the scope of Manual D. So, there is no acceptable method of compliance for *ventilation duct systems* that are integrated with heating or cooling systems. This could be viewed as a de facto prohibition of such systems by the AHJ, which was not the intent of the duct working group.
3. According to PCD2 Section R403.3.6.1, *ventilation fans* (i.e., “*air-handling units*”) would need to be tested for leakage in accordance with ASHRAE 193. I’m not aware of any dedicated *ventilation fans* that are tested or certified in accordance with this standard, meaning that there are essentially no dedicated *ventilation fans* that can be integrated with heating and cooling systems today.
4. PCD2 Section 405 requires all *ductwork* to be considered when determining what is located “completely inside *conditioned space*,” without clarifying that it is only meant to refer to heating or cooling system *ductwork*, not *ventilation ductwork*. Note that the definition of ductwork includes “ducts... through which air is supplied to or returned from the space to be ventilated.”). Residential building energy simulation programs do not model heat transfer associated with locating ventilation ductwork outside of conditioned space.
5. PCD2 Section 408 requires all *ductwork*, including *ventilation ductwork*, to be located in *conditioned space* to receive the credits that PNNL’s simulations associated with locating only heating or cooling *ductwork* inside *conditioned space*.

This proposal corrects each of these flaws and clearly communicates how *ventilation ductwork* is to be designed, air sealed, installed, insulated, tested, and sampled.

Additional Information: Following are graphics that provide examples of integrated/not-integrated and dedicated/not-dedicated *ventilation equipment*.

Figure 1: *Ventilation* provided by an outdoor air intake *ductwork* connected to the *ductwork* of a heating or cooling system *air-handling unit*. This is NOT dedicated *ventilation equipment* because it relies on the heating and cooling system’s *air-handling unit* to introduce outdoor air. Note: This proposal would require the outdoor air intake *ductwork* to be insulated where required by the *ventilation equipment manufacturer’s instructions*.

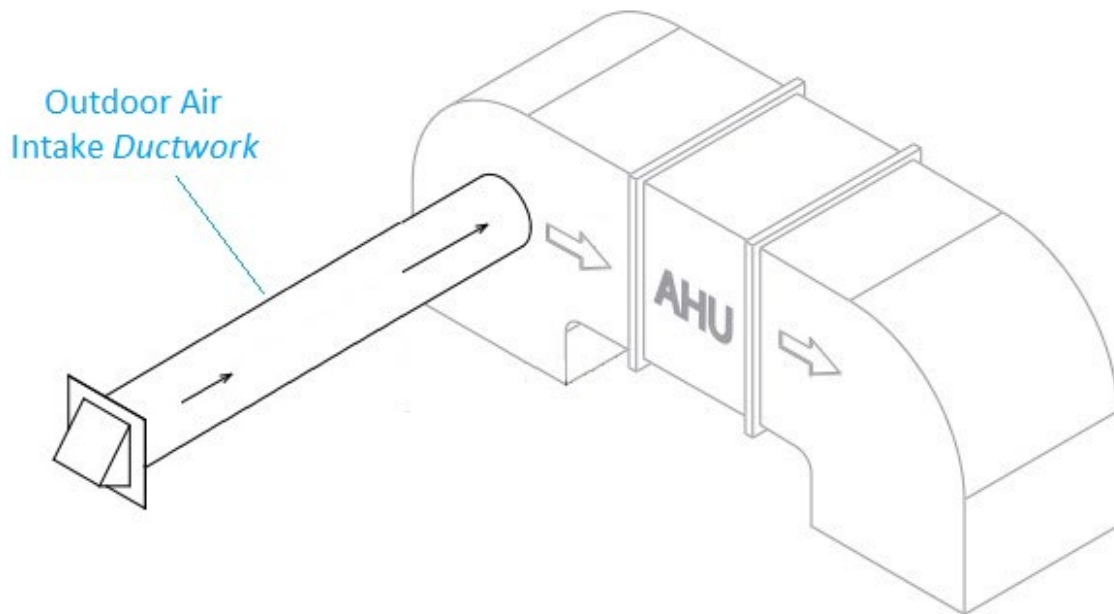


Figure 2a: Ventilation provided by dedicated supply ventilation equipment (i.e., an *air-handling unit*) that is integrated with the heating or cooling system *ductwork*. Note: This proposal would require the supply ventilation equipment's intake *ductwork* and supply *ductwork* to be insulated where required by the supply ventilation equipment manufacturer's instructions.

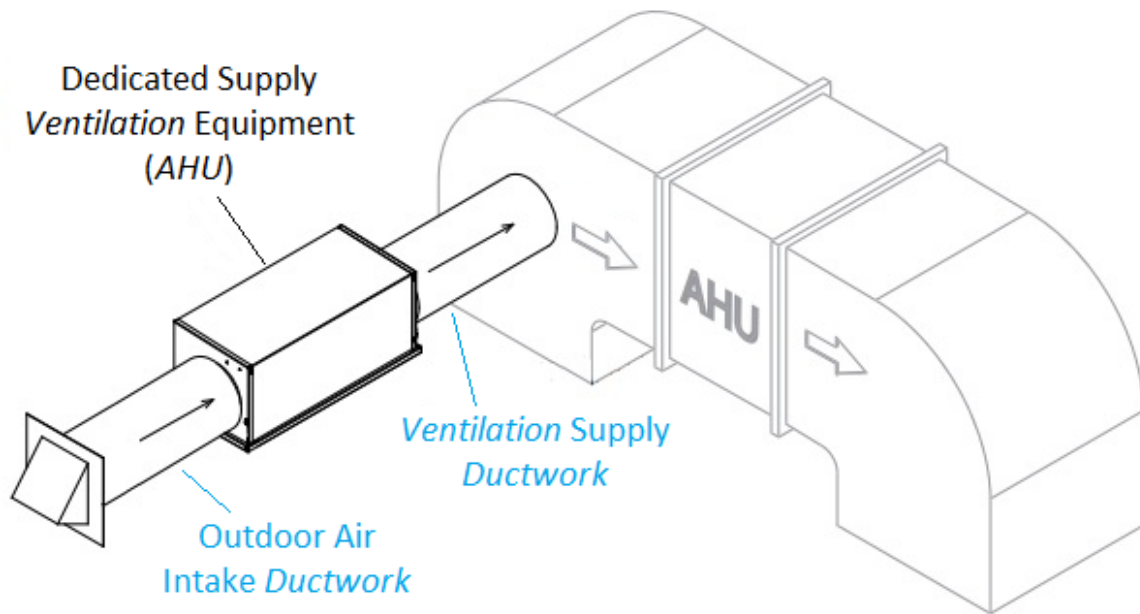


Figure 2b: Ventilation provided by a dedicated HERV's *air-handling unit* that is integrated with the heating or cooling system *ductwork*. This proposal would require HERV return *ductwork* and HERV supply *ductwork* (shown by pink highlights) to be insulated to R-8 where located in unconditioned space. Other *ventilation ductwork* (i.e., outdoor air intake and exhaust) in unconditioned space and *ventilation ductwork* in *conditioned space* must also be insulated where required by the HERV manufacturer's

instructions.

Dedicated and Integrated Ventilation Equipment: HERV

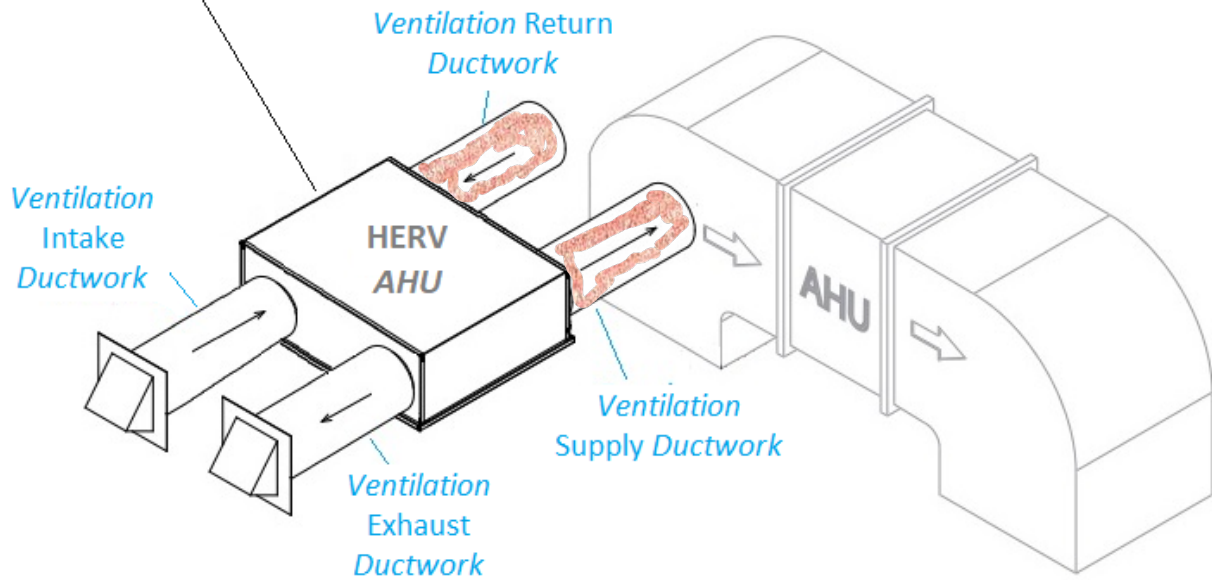


Figure 3a: Ventilation provided by dedicated supply ventilation equipment that is not integrated with the heating or cooling system ductwork. Note: This proposal would require the supply ventilation equipment's intake ductwork and supply ductwork to be insulated where required by the supply ventilation equipment manufacturer's instructions.

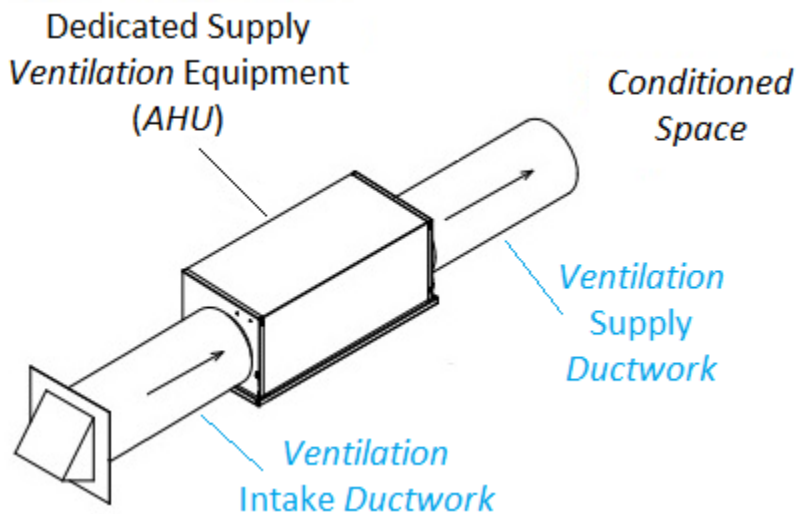
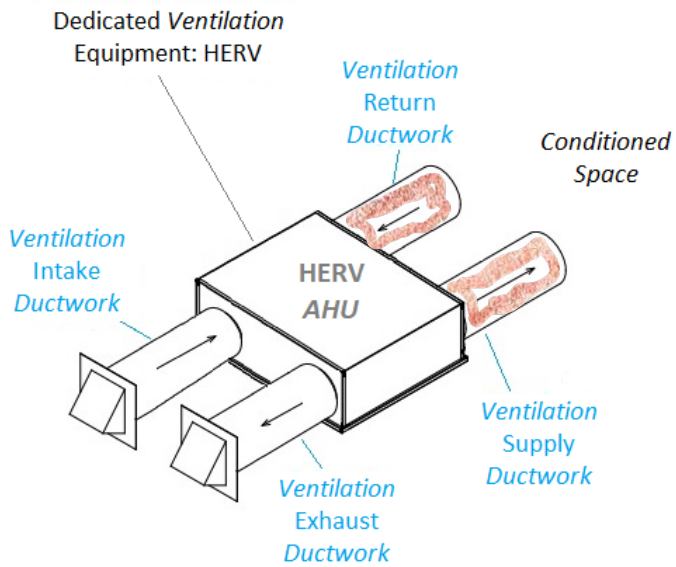


Figure 3b: Ventilation provided by HERV that is not integrated with the heating or cooling system ductwork. Note: This proposal would require HERV return ductwork and HERV supply ductwork (shown by pink highlights) to be insulated to R-8 where located in unconditioned space. Other ventilation ductwork (i.e., outdoor air intake and exhaust) in unconditioned space and ventilation ductwork in conditioned space must also be insulated where required by the HERV manufacturer's instructions.



By "ventilation equipment," I mean the heat exchangers, *air-handling units*, filter boxes, and any apparatus installed in connection therewith used to provide ventilation. This is very similar to the definition of *space conditioning equipment* and could be added to the definitions if necessary/helpful.



International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	RE2D-16-23 Duct systems located in conditioned space
CDP ID #	1886
Code	IECC RE
Code Section(s)	R403.3.4
Location	SC rev
Proponent	Robby Schwarz robby@btankinc.com
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	<p>Subcommittee meeting 7/31/2023 Proponent presenting Robby Schwarz</p> <p>1. Robbie Schwarz proponent for RE2D-16-23 presented the proposal regarding Duct System located in conditioned space. Schwarz explained his proposal in detail. The chair opened the floor for a motion. Sonny Richardson motioned to disapprove. Dean Potter seconded. The chair opened the floor for discussion. Considerable group discussion. Gary Klein suggested several amendments to the proposal. Schwarz agreed to all the amendments. The chair suggested to table the proposal so the amendments can be addressed by the proponent and Klein. Gary Klein motioned to table the proposal. David Bixby seconded. The chair opened the floor to vote. 10-0-0.</p> <p>Motion to table carried moved to 8/7/2023 subcommittee meeting – Presenting proponent Robby Schwarz- proposal “As Modified”</p> <p>Motion to approve “as modified with a proper second. Subcommittee had issue with an exception which ended in a lot of back and forth in discussion. Vote to approve as modified failed with a vote of 1/5/2 Motion failed</p>
Recommendation	Disapproved based on the motion to approve “as modified” failed- Subcommittee motion based on voting disapprove
Vote	vote to approve 1/5/2 failed
Recommendation Date	8/7/2023
Next Step	<p>To Subcommittee _____</p> <p>To Advisory Group _____</p> <p>To Consensus Committee <input checked="" type="checkbox"/> _____</p>

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

RE2D-16-23 Modification

IECC RE: R403.3.4(3)^[SEP]

Revise as follows:

R403.3.4 Duct systems located in conditioned space.

3. *Ductwork* contained within wall or floor assemblies separating unconditioned from *conditioned space* shall comply with the following:

3.1 A *continuous air barrier* shall be part of the building assembly between the *ductwork* and the unconditioned space.

3.2 *Ductwork* shall be installed in accordance with Section R403.3.3.

Exception: Where the building assembly cavities containing *ductwork* have been air sealed in accordance with Section R402.5.1 and insulated in accordance with ~~Item 3.3~~ **Section R403.3.4(3.3)**, *duct* insulation is not required.

3.3 Not less than R-10 insulation, or not less than 50 percent of the required **component** insulation R-value specified in Table R402.1.3, whichever is greater, shall be located between the *ductwork* and the unconditioned space.

This reduced R-value shall be limited to the width of the *ductwork* facing the unconditioned space. The remainder of the building assembly cavity containing *ductwork* shall be insulated to the R-value specified in Table R402.1.3.

3.4 Segments of *ductwork* contained within such building assemblies shall not be considered completely inside *conditioned space* for compliance with Sections R405 or R406.¹

Reason Statement:

Per ICC staff, "R403.3.4(3.3)" is the preferred method to reference "Item 3.3."

The modification in R403.3.4(3.3) clarifies the intent to preserve the building thermal envelope's required R-value and limit the reduced R-value to the width of the ductwork facing the unconditioned space. The modification makes clear that the reduced R-value does not extend to the entire width of wall and floor cavities, or, where ductwork is installed through multiple open-web trusses, to the entire floor assembly.

Cost Impact:

The code change proposal will neither increase nor decrease the cost of construction. It provides clarification and flexibility.

¹ This is the language approved by the Consensus Committee. There is an error in PCD#2.



International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	RE2D-18-23 Distributed Electric Resistance Heating
CDP ID #	1578
Code	IECC RE
Code Section(s)	R403.7.1
Location	SC rev
Proponent	Mike Moore mmoore@statorllc.com
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	<p>1. Subcommittee meeting 7/24/2023 Mike Moore presenting - Mike Moore proponent for RE2D-18-23 presented his proposal regarding Distributed Electric Resistance Heating. Moore explained the proposal in detail. Group discussion. Gary Heikkinen made motion to approve, Rick Madrid seconded. Sonny Richardson made motion to table the proposal, Kevin Rose seconded. The chair opened the floor to vote. 10-0-0. The subcommittee agreed the proposal needed more work in tabling the proposal until the next meeting of the subcommittee.</p> <p>Subcommittee meeting 7/31/2023 Mike Moore presenting RE2D-18-23 “as modified” after being tabled on 7/24/2023.</p> <p>1. Mike Moore proponent for RE2D-18-23 presented the proposal regarding Distributed Electric Resistant Heating, that was tabled at the 7-24-2023 meeting. Moore explained his proposal in detail. The chair opened the floor for a motion. Gary Klein motioned to disapprove. David Bixby seconded. Group discussion. The chair opened the floor to vote. 0-7-3. Gary Klein motioned to approve. David Bixby seconded. The chair opened the floor for discussion. Steve Rosenstock asked if the motion is “as modified”. The chair agreed that the proposal went through a substantial change. Klein and Bixby agreed as modified. Group discussion. Greg proposed a minor change from one- and two-family dwelling to one- or two-family dwellings. The proponent agreed to a friendly amendment. Klein and Bixby agreed. The chair opened the floor to vote. 8-0-2</p>

Recommendation	subcommittee voted to approve "as modified"
Vote	8/0/2
Recommendation Date	7/31/2023
Next Step	To Subcommittee To Advisory Group _____ To Consensus Committee_x _____
Consensus Committee	
Committee Response	
Vote	Affirmative _____ Negative _____ Table _____ To Subcommittee _____
Date	

RE2D-18-23, Electric-resistance space heating

Replace comment with the following modification to PCD2 (same modification to IRC Chapter 11):

R403.7.1 Electric-resistance space heating. ~~Where a detached~~ Detached one- ~~and or~~ two-family dwellings ~~and or~~ townhouses in Climate Zones 4 through 8 ~~using is proposed to use~~ electric-resistance space heating ~~shall limit the total for more than 50 percent of its total installed heating capacity, the~~ installed heating capacity of all electric-resistance space heating serving the *dwelling unit* ~~to shall be not~~ more than 2.0 kW, ~~or shall install a heat pump in the largest space that is not used as a bedroom.~~

Exception: Where a heat pump serves the entire *dwelling unit* or the largest space other than a bedroom, the installed heating capacity of electric-resistance space heating shall not be limited.



International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	RE2D-43-23 Compact hot water distribution system option edit
CDP ID #	1734
Code	IECC RE
Code Section(s)	R408.2.3.1
Location	SC rev
Proponent	Alisa McMahon mcmahon.gbac@cox.net
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	subcommittee meeting 8/7/2023 proponent Alsa McMahon- proponent presented and a motion to approved with a proper second was received. Very little discussion subcommittee voted to approved with a vote of 8/0/0
Recommendation	Recommendation is to approve
Vote	8/0/0
Recommendation Date	8/7/2023
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 #	REC2D-3-23 Manual D reference standard
CDP ID #	1908
Code	IECC RE
Code Section(s)	Chapter 6
Location	SC rev
Proponent	Committee Proposal
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	Subcommittee heard this proposal during the 8/7/2023 subcommittee meeting. John Hensley Chair presenting. Received a motion to approve with a proper second. The subcommittee vote to approve carried with a vote of 8/0/0
Recommendation	Vote to approved
Vote	8/0/0
Recommendation Date	8/7/2023
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	

REC2D-3-23

IECC RE: ACCA (New)

Proponents:

John Hensley, representing IECC RE HVACR & Water heating subcommittee

2024 International Energy Code [RE] [RE Project] R3

Revise as follows:

ACCA 1330 Braddock Place, Suite 350, Alexandria, VA 22314.

ANSI/ACCA 1 Manual D—2023: Residential Duct Systems

Reason:

Provide chapter 6 reference for ANSI/ACCA Manual D that was brought in under RED1-285-22 for R403.3.1 Duct system design.

Cost Impact:

The code change proposal will neither increase nor decrease the cost of construction.

Editorial



International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	RE2D-22-23 Approved equivalent
CDP ID #	1639
Code	IECC RE
Code Section(s)	R405.1
Location	
Proponent	Vladimir Kochkin vkochkin@nahb.org
Proposal Status	SC rev
Subcommittee	RE Econ, Model, Metric
Subcommittee Notes	Motion for Disapproval: Gayathri Vijayakumar; 2 nd Rob Salcido
Recommendation	The Econ SC discussed the public comment, and a modification which was substantive and not supported by the SC, who then acted on the public comment which sought to provide flexibility when demonstrating code compliance in common spaces. There was concern that allowing an “equivalent” method, to be approved by the code official, would lead to consistency and enforcement issues given the amount of complexity and specifications that would be needed to fully simulate those common spaces. <u>SC Action is Disapproval</u>
Vote	DISAPPROVE: 8 YES; 6 NO; 2 ABSTAIN
Recommendation Date	August 8, 2023
Next Step	To Subcommittee To Advisory Group _____ To Consensus Committee <u> X </u>
Consensus Committee	
Committee Response	
Vote	Affirmative _____ Negative _____ Table _____ To Subcommittee _____
Date	



International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	RE2D-23-23 Local or regional values in R405.2
CDP ID #	1609
Code	IECC RE
Code Section(s)	R405.2
Location	
Proponent	Steven Rosenstock srosenstock@eei.org
Proposal Status	SC rev
Subcommittee	RE Econ, Model, Metric
Subcommittee Notes	Motion for Disapproval: Gayathri Vijayakumar; 2 nd Jay Crandell
Recommendation	The topic of source energy multipliers has been discussed in prior rounds. In the last round, the main committee supported keeping this text simple, with just 2 source energy multipliers, rather than pointing to a specific ASHRAE standard, which contained multiple values to choose from. Adding the option to select multipliers from a new unidentified "source" approved by the code official creates complexity and inconsistency where it is not needed. <u>SC Action is Disapproval</u>
Vote	DISAPPROVE: 13 YES; 2 NO; 1 ABSTAIN
Recommendation Date	August 8, 2023
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 #	RE2D-24-23 Update R405.2 values
CDP ID #	1599
Code	IECC RE
Code Section(s)	R405.2
Location	
Proponent	Steven Rosenstock srosenstock@eei.org
Proposal Status	SC rev
Subcommittee	RE Econ, Model, Metric
Subcommittee Notes	Motion for Approve as Modified: Jay Crandell; 2 nd Ben Edwards
Recommendation	<p>The initial motion for Disapproval failed. After discussion and modification, a motion was made to Approve as Modified clarifying appropriate default factors for fuel types other than electricity:</p> <p>The source energy multiplier for fuels other than electricity natural gas shall be 1.09 and shall be 1.15 for propane and shall be 1.19 for fuel oil and shall be 1.30 for imported liquified natural gas. <i>The source energy multipliers shall be 1.09 for natural gas, 1.15 for propane, 1.19 for fuel oil, and 1.30 for imported liquified natural gas.</i></p> <p><u>SC Action is Approve as Modified</u></p>
Vote	APPROVE AS MODIFIED: 11 YES; 3 NO; 1 ABSTAIN
Recommendation Date	August 8, 2023
Next Step	To Subcommittee To Advisory Group _____ To Consensus Committee <u> X </u>
Consensus Committee	
Committee Response	
Vote	Affirmative _____ Negative _____ Table _____ To Subcommittee _____
Date	



International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	RE2D-25-23 Compliance documentation
CDP ID #	1729
Code	IECC RE
Code Section(s)	R405.3
Location	
Proponent	Alisa McMahon mcmahon.gbac@cox.net
Proposal Status	SC rev
Subcommittee	RE Econ, Model, Metric
Subcommittee Notes	Motion to Approve as Modified: Gayathri Vijayakumar; 2 nd Jay Crandell
Recommendation	<p>The Econ SC supported the proponent’s editorial updates:</p> <p>The following compliance reports, which document that the performance of the <i>proposed design</i> and the performance of the as-built dwelling unit comply <i>complies</i> with the requirements of Section R405, shall be submitted to the <i>code official</i>.</p> <ol style="list-style-type: none"> 1. A compliance report, in accordance with Section R405.5.4.1, shall be submitted with the application for the <i>building</i> permit. 2. Upon completion of the building, a confirmed A compliance report, in accordance with Section R405.5.4.2, based on the confirmed condition of the building shall be submitted to the code official before a certificate of occupancy is issued. <p><u>SC Action is Approve as Modified</u></p>
Vote	APPROVE AS MODIFIED: 16 YES; 0 NO; 0 ABSTAIN
Recommendation Date	August 8, 2023
Next Step	To Subcommittee _____ To Advisory Group _____ To Consensus Committee <u> X </u>
Consensus Committee	
Committee Response	
Vote	Affirmative _____ Negative _____ Table _____ To Subcommittee _____
Date	



International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	RE2D-26-23 Performance path U-factors
CDP ID #	1641
Code	IECC RE
Code Section(s)	R405.4.2
Location	
Proponent	Vladimir Kochkin vkochkin@nahb.org
Proposal Status	SC rev
Subcommittee	RE Econ, Model, Metric
Subcommittee Notes	Motion to Approve as Modified: Jay Crandell; 2 nd Vladimir Kochkin
Recommendation	<p>The Econ SC agreed with simple editorial modifications:</p> <p>... shall be taken from <u>Appendix RF</u>, or ANSI/ASHRAE/IES Standard 90.1 Appendix A, or determined...</p> <p><u>SC Action is Approve as Modified</u></p>
Vote	APPROVE AS MODIFIED: 16 YES; 0 NO; 0 ABSTAIN
Recommendation Date	August 8, 2023
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 #	RE2D-30-23 Remove ERI w OPP
CDP ID #	1824
Code	IECC RE
Code Section(s)	R406.5 table
Location	
Proponent	Eric Tate eric.tate@atmosenergy.com
Proposal Status	SC rev
Subcommittee	RE Econ, Model, Metric
Subcommittee Notes	Motion is for Disapproval: Gayathri Vijayakumar; 2 nd Thomas Marston
Recommendation	The sub-committee did not support the removal of the column for max ERI values with OPP installed. This was a new change introduced in 2024 IECC which sought to provide a reasonable path for homes with OPP to demonstrate code compliance. <u>SC Action is Disapproval</u>
Vote	DISAPPROVE: 13 YES; 1 NO; 0 ABSTAIN
Recommendation Date	August 8, 2023
Next Step	To Subcommittee To Advisory Group _____ To Consensus Committee <u> X </u>
Consensus Committee	
Committee Response	
Vote	Affirmative _____ Negative _____ Table _____ To Subcommittee _____
Date	