International Energy Conservation Code
Consensus Committee-Residential

Draft Meeting Agenda (4/3/23 posting)

Webex Meeting Link

April 6, 2023
2:00 PM EST to 5 PM EST (3 hours)

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-March 30, 2023

6. Administrative issues-staff

7. Action Items
Tabled items from 3/23

RED1-42-22(R405 multiplier public comment)	Modeling approve 7-5-3
RED1-47-22 PI & II(Revise R405.2)	Modeling disapprove 15-0
RED1-43-22(R405.2 editorial change)	Modeling as modified 13-1-1
RED1-56-22(Table R405.2 and R406.2 update)	Modeling approve 12-0-1
RED1-63-22(Standard ref design specifications)	Modeling disapprove12-0-2
RED1-64-22(Standard ref design specifications)	Modeling disapprove13-0-1
RED1-341-22(Water heating edit)	Modeling disapprove 7-5
RED1-336-22(Electric resistance DHW in R405)	Modeling disapprove 7-4-2
RED1-251-22(Adding cfm50/ft2 metric)	Modeling as modified 9-1-3

RED1-111-22(Interior lighting control req)	Electrical as modified 11-1-1
RED1-110-22(Ext. lighting power revision)	Electrical as modified 9-1-3
RED1-112-22(R404.3 update)	Electrical as modified 9-1-3
RED1-113-22(Solar outdoor light exception)	Electrical disapprove 9-1-4
RED1-107-22(Roof and gutter deicing controls)	Electrical as modified 13-0
RED1-170-22(Update Appendix RD)	Electrical disapprove 12-0
RED1-171-22 PI & II(Appendix RD update)	Electrical disapprove 12-0-1
RED1-172-22 PI & II(Appendix RD update)	Electrical disapprove 12-0
RED1-166-22(Whole home lighting control energy credit)	Electrical as modified 9-2-2
RED1-168-22 PI & II(Renewable energy edit)	Electrical disapprove 10-3
RED1-158-22(Dwelling unit electrical meter)	Electrical disapprove 7-3-3
RECD1-5-22(on-site fossil fuel burning in additions)	Existing bldgs. Disapprove 4-3-1
RED1-266-22(Additions compliance)	Existing bldgs. Disapprove 6-1
RED1-273-22(Wall alt vapor retarders)	Existing bldigs. As modified 7-0
RED1-2-22(Approved Source)	Admin disapprove 5-0
RED1-16-22(Approved third-party inspection agencies)	Admin as modified 4-0
REPCD1-17-22	
RED1-21-22 PI & II(Renewable energy resources)	Admin disapprove 6-1
RED1-23-22(Renewables and biomass)	Admin disapprove 6-0
RED1-299-22(R403.11.2 language update)	HVACR approve 10-0
RED1-300-22 PII(Remove covers exception)	HVACR disapprove 9-0-1
RED1-361-22(Appendix RE definitions)	HVACR disapprove 10-0
RED1-320-22(Multi-family H/ERV alignment with IECC-C)	HVACR disapprove 9-0-1
-	-
-	-
RED1-354-22(R408 water heaters)	HVACR disapprove 10-0
RED1-358-22(Update water heater efficiency options)	HVACR as modified 8-0-2
RED1-355-22(Service water heating efficiencies)	HVACR disapprove 8-0-1
RED1-356-22(Service water heating efficiencies)	HVACR disapprove 9-0
RED1-357-22(Update Table R408.2.3)	HVACR disapprove 9-0-1
RED1-309-22(Testing of ducts inside conditioned space)	HVACR as modified 9-0-1

8. Other business.

9. Upcoming meetings. April 13 at 2 PM EST

10. Adjourn.

FOR FURTHER IECC Residential INFORMATION BE SURE TO VISIT THE ICC WEBSITE: IECC Residential Website

Join by phone

1-844-740-1264 USA Toll Free

+1-415-655-0003 US Toll

FOR ADDITIONAL INFORMATION, PLEASE CONTACT:

Kristopher Stenger, AIA, CBO
Director of Energy Programs
International Code Council
kstenger@iccsafe.org

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	RED1-042-22 Drop from 85 to 80% and drop from 80 to 75% (see REDI-37, 45)
CDP ID #	
Code	IECC RE
Code Section(s)	R405.2
Location	
Proponent	Amy Boyce amy.boyce@imt.org
Proposal Status	SC rev
Subcommittee	RE Econ, Model, Metric
Subcommittee Notes	RED1-042-22 was submitted by Amy Boyce and presented by Cherlyn Kelley
Recommendation	Approve as Submitted Motion: Cherlyn Kelley Second: Jay Crandell Reason Statement: This proposal will help prevent a reduction in efficiency by applying a more conservative multiplier to projects complying via the performance path.
Vote	Approve 7-5-3 [Yes/No/Abstain]
Recommendation Date	03/14/2023
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 #	RED1-047-22 P I Removes multiple approved REPIs (100% instead of 85/80)
CDP ID #	
Code	IECC RE
Code Section(s)	R405.2
Location	
Proponent	Fredric Zwerg
Proposal Status	
Subcommittee	RE Econ, Model, Metric
Subcommittee Notes	RED1-047-22 was submitted by Fredric Zwerg. The proponent was not present at the meeting; so, Gayathri provided a description of this proposal
Recommendation	Disapprove as Submitted Motion: Gayathri Vijayakumar Second: Jay Crandell Reason Statement: Modeling SC voted to Disapprove based on reviewing the proposal and seeing similar topics being addressed by other RED1 proposals that the SC has already taken action on.
Vote	Approve 15-0-0 [Yes/No/Abstain]
Recommendation Date	03/14/2023
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 #	RED1-047-22 P II Removes multiple approved REPIs (100% instead of 85/80)
CDP ID #	
Code	IRC
Code Section(s)	N1105.2
Location	
Proponent	Fredric Zwerg
Proposal Status	
Subcommittee	RE Econ, Model, Metric
Subcommittee Notes	RED1-047-22 PII was submitted by Fredric Zwerg. The proponent was not present at the meeting; so, Gayathri provided a description of this proposal
Recommendation	Disapprove as Submitted Motion: Gayathri Vijayakumar Second: Jay Crandell Reason Statement: Modeling SC voted to Disapprove based on reviewing the proposal and seeing similar topics being addressed by other RED1 proposals that the SC has already taken action on.
Vote	Approve 15-0-0 [Yes/No/Abstain]
Recommendation Date	03/14/2023
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

1International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	RED1-043-22 R405.2 editorial changes (shall be and either)
CDP ID #	
Code	IECC RE
Code Section(s)	R405.2
Location	
Proponent	Alisa McMahon mcmahon.gbac@cox.net
Proposal Status	
Subcommittee	RE Econ, Model, Metric
Subcommittee Notes	RED1-043-22 was submitted, modified, and presented by Alisa McMohan
Recommendation	Approve as Further Modified on the Screen of the Modified Version Motion: Vladimir Kochkin Second: Shilpa Surana Reason Statement: This proposal resolves the ambiguity and the grammar problem.
Vote	Approve 13-1-1 [Yes/No/Abstain]
Recommendation Date	03/14/2023
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

RED1-43-22 Modification – As Approved (As Further Modified)

Proponents: Alisa McMahon, representing self (mcmahon.gbac@cox.net)

2024 International Energy Conservation Code [RE Project]

Revise as follows:

R405.2

3. ~~For buildings without a fuel burning appliance for space heating or water heating, the annual energy cost of the proposed design that is less than or equal to 85 percent of the annual energy cost of the standard reference design.~~ For buildings with ~~a~~ one or more fuel burning appliances for space heating~~, or~~ water heating, or both, the annual energy cost of the proposed design ~~that is~~ shall be less than or equal to 80 percent of the annual energy cost of the standard reference design. For all other buildings, the annual energy cost of the proposed design shall be less than or equal to 85 percent of the annual energy cost of the standard reference design. For dwelling units with greater than 5,000 square feet (465 m^2) of living space floor area located above grade plane, the annual energy cost of the proposed design shall be reduced by an additional 5 percent of annual energy cost of the standard reference design. Energy prices shall be taken from a source approved by the code official, such as the Department of Energy, Energy Information Administration's State Energy Data System Prices and Expenditures reports. Code officials shall be permitted to require time-of-use pricing in energy cost calculations.

Exceptions:

1. The energy use based on source energy expressed in Btu or Btu per square foot of *conditioned floor area* shall be permitted to be substituted for the energy cost. The source energy multipliers for all energy sources shall be obtained from ASHRAE Standard 105 (Tables K2, K4, or K8) or from another data source approved by the *code official*. SEP
2. The energy use based on site energy expressed in Btu or Btu per square foot of conditioned floor area shall be permitted to be substituted for the energy cost for an all-electric building with on-site renewable energy installed. SEP

revised portion without legislative edits:

3. For buildings with one or more fuel burning appliances for space heating, water heating, or both, the annual

energy cost of the proposed design shall be less than or equal to 80 percent of the annual energy cost of the standard reference design. For all other buildings, the annual energy cost of the proposed design shall be less than or equal to 85 percent of the annual energy cost of the standard reference design.

Reason:

This proposal is an editorial clarification to the first two sentences of R405.2(3). The proposed changes are needed for the following reasons:

First, the current Public Comment Draft #1 language creates a nonsensical situation where if one appliance is fuel burning and one is not, both sentences and both conditions apply: 85% and 80%. For example, a home with a heat pump air conditioner and a gas water heater is without a fuel burning appliance for space heating and with a fuel burning appliance for water heating. So both sentences and both conditions would apply: 85% and 80%. For the provision to make sense, it must be clear that, to qualify for 85%, no fuel burning appliances can be present for space heating and no fuel burning appliances can be present for water heating.

Second, the two sentences do not make grammatical sense. ("For buildings … , the annual energy cost of the proposed design that is less than or equal to XX percent of the annual energy cost of the standard reference design.") This proposal replaces "that is" with "shall be." With this change, the first two sentences make grammatical sense and mirror the later sentence which reads: "For dwelling units … , the annual energy cost of the proposed design shall be reduced by …".

I believe another proposal has or will address "buildings" versus "dwelling units" in this code section.

Cost Impact:

The code change proposal will neither increase nor decrease the cost of construction. It is an editorial clarification.

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	RED1-056-22 Address staff note in Table R405.2 and Table R406.2 on HW pipes
CDP ID #	
Code	IECC RE
Code Section(s)	R405.2 Table
Location	
Proponent	Gary Klein
Proposal Status	
Subcommittee	RE Econ, Model, Metric
Subcommittee Notes	RED1-056-22 was submitted and presented by Gary Klein
Recommendation	Approve Motion: Gayathri Vijayakumar Second: Shilpa Surana Reason Statement: The purpose of this proposal is to resolve the Staff Note shown in the Public Comment draft in Table R405.2 and Table R406.2, which points out a conflict between the rows for service hot water system requirements and hot water pipe insulation requirements.
Vote	Approve 12-0-1 [Yes/No/Abstain]
Recommendation Date	03/14/2023
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 #	RED1-063-22 Strike 'Product Class', but errata may resolve?
CDP ID #	
Code	IECC RE
Code Section(s)	R405.4.2(1) Table
Location	
Proponent	Ted Williams ngdllc@outlook.com
Proposal Status	
Subcommittee	RE Econ, Model, Metric
Subcommittee Notes	RED1-063-22 was submitted and presented by Ted Williams
Recommendation	Disapprove Motion: Ted Williams Second: Gayathri Vijayakumar Reason Statement: Errata corrected the table that was the subject of the proposed revision, which made the revision no longer necessary
Vote	Approve 12-0-2 [Yes/No/Abstain]
Recommendation Date	03/14/2023
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 #	RED1-064-22 Strike 'Product Class', but errata may resolve?
CDP ID #	
Code	IECC RE
Code Section(s)	R405.4.2(1) Table
Location	
Proponent	Eric Tate
Proposal Status	
Subcommittee	RE Econ, Model, Metric
Subcommittee Notes	RED1-064-22 was submitted and presented by Eric Tate
Recommendation	Disapprove Motion: Ted Williams Second: Gayathri Vijayakumar Reason Statement: Errata corrected the table that was the subject of the proposed revision, which made the revision no longer necessary
Vote	Approve 13-0-1 [Yes/No/Abstain]
Recommendation Date	03/14/2023
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 #	RED1-341-22 No credit for water heating
CDP ID #	
Code	IECC RE
Code Section(s)	R405.4.2(1) Table
Location	
Proponent	Amy Boyce amy.boyce@imt.org
Proposal Status	
Subcommittee	RE Econ, Model, Metric
Subcommittee Notes	RED1-341-22 was submitted and presented by Amy Boyce
Recommendation	Approve Motion: Amy Boyce Second: Jay Crandell Reason Statement: This proposal will help maintain the efficiency of the 2021 IECC by eliminating performance path trade-off credit for water heating efficiency. Water heating efficiency trade-offs have not been allowed in the IECC since the 2009 update, and nearly every state that has adopted the 2009 IECC or more recent edition has eliminated this trade-off. It should not be added to the 2024 IECC performance path.
Vote	Disapprove 5-7-1 [Yes/No/Abstain]
Recommendation Date	03/14/2023
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 #	RED1-336-22 SRD DHW is Elec resistance if HPWH
CDP ID #	
Code	IECC RE
Code Section(s)	R405.4
Location	
Proponent	Gayathri Vijayakumar gvijayakumar@swinter.com
Proposal Status	
Subcommittee	RE Econ, Model, Metric
Subcommittee Notes	RED1-336-22 was submitted and presented by Gayathri Vijayakumar
Recommendation	Approve Motion: Gayathri Vijayakumar Second: Jay Crandell Reason Statement: Without this proposal, the R405 modeling path does not award full credit for a proposed design with a HPWH over 55 gallons as the SRD would then also default to a HPWH. The proposal sets the SRD to electric resistance such that the full savings can be simulated.
Vote	Disapprove 4-7-2 [Yes/No/Abstain]
Recommendation Date	03/14/2023
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

NOT REVIEWED BY SUBCOMMITTEE

RED1-336-22 Modification to add text to Footnote g & add new footnote to Table R408.2.3

Proponents: Gayathri Vijayakumar, representing Steven Winter Associates, Inc. (gvijayakumar@swinter.com)

2024 International Energy Conservation Code [RE Project]

R405.4 Calculation procedure. Calculations of the proposed design shall be in accordance with Sections R405.4.1 and R405.4.2.

R405.4.1 General. Except as specified by this section, the *standard reference design* and *proposed design* shall be configured and analyzed using identical methods and techniques.

R405.4.2 Residence specifications. The *standard reference design* and *proposed design* shall be configured and analyzed as specified by Table R405.4.2(1). Table R405.4.2(1) shall include, by reference, all notes contained in Table R402.1.3.

Revise as follows:

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

Portions of table not shown remain unchanged.

<table>
<tr><th>BUILDING COMPONENT</th><th>STANDARD REFERENCE DESIGN</th><th colspan="3">PROPOSED DESIGN</th></tr>
<tr><td rowspan="10">Service water heating[d, g, k]</td><td rowspan="7">~~As proposed.~~
Use, in units of gal/day = 25.5 + (8.5 × N_{br})
where: N_{br} = number of bedrooms.</td><td colspan="3">~~As proposed~~
Use, in units of gal/day = 25.5 + (8.5 × N_{br}) × (1 – HWDS)
where:
N_{br} = number of bedrooms.
HWDS = factor for the compactness of the hot water distribution system.</td></tr>
<tr><td colspan="2">Compactness ratio[i] factor</td><td>HWDS</td></tr>
<tr><td>1 story</td><td>2 or more stories</td><td></td></tr>
<tr><td>> 60%</td><td>> 30%</td><td>0</td></tr>
<tr><td>> 30% to ≤ 60%</td><td>> 15% to ≤ 30%</td><td>0.05</td></tr>
<tr><td>> 15% to ≤ 30%</td><td>> 7.5% to ≤ 15%</td><td>0.10</td></tr>
<tr><td>< 15%</td><td>< 7.5%</td><td>0.15</td></tr>
<tr><td>Fuel Type: Same as proposed design</td><td colspan="3">As proposed</td></tr>
<tr><td>Rated Storage Volume: Same as proposed design</td><td colspan="3">As proposed</td></tr>
<tr><td>Draw Pattern: Same as proposed design</td><td colspan="3">As proposed</td></tr>
<tr><td>Efficiencies: Uniform Energy Factor complying with 10 CFR §430.32</td><td colspan="3">As proposed</td></tr>
<tr><td>Tank Temperature: 120° F (48.9° C)</td><td colspan="3">Same as standard reference design</td></tr>
</table>

Errata struck these

For SI: 1 square foot = 0.93 m^2, 1 British thermal unit = 1055 J, 1 pound per square foot = 4.88 kg/m^2, 1 gallon (US) = 3.785 L, °C = (°F-32)/1.8, 1 degree = 0.79 rad.

a. Where required by the code official, testing shall be conducted by an approved party. Hourly calculations as specified in the ASHRAE *Handbook of Fundamentals,* or the equivalent, shall be used to determine the energy loads resulting from infiltration.

b. The combined air exchange rate for infiltration and mechanical ventilation shall be determined in accordance with Equation 43 of 2001 ASHRAE *Handbook of Fundamentals,* page 26.24 and the "Whole-house Ventilation" provisions of 2001 ASHRAE *Handbook of Fundamentals,* page 26.19 for intermittent mechanical ventilation.

c. Thermal storage element shall mean a component that is not part of the floors, walls or ceilings that is part of a passive solar system, and that provides thermal storage such as enclosed water columns, rock beds, or phase-change containers. A thermal storage element shall be in the same room as fenestration that faces within 15 degrees (0.26 rad) of true south, or shall be connected to such a room with pipes or ducts that allow the element to be actively charged.

d. For a proposed design with multiple heating, cooling or water heating systems using different fuel types, the applicable standard reference design system capacities and fuel types shall be weighted in accordance with their respective loads as calculated by accepted engineering practice for each equipment and fuel type present.

e. For a proposed design without a proposed heating system, a heating system having the prevailing federal minimum efficiency shall be assumed for both the standard reference design and proposed design.

f. For a proposed design home without a proposed cooling system, an electric air conditioner having the prevailing federal minimum efficiency shall be assumed for both the standard reference design and the proposed design.

Errata brought this text back

g. For a proposed design without a proposed water heater, ~~t~~The following assumptions shall be made for both the proposed design and standard reference design. For a proposed design with a heat pump water heater, the following assumptions shall be made for the standard reference design, except the fuel type shall be electric.

Add to this footnote: "For a *proposed design* with an integrated heat pump water heater, it shall be verified to comply with one of the following: [*same text as shown in #1-#5 in footnote a on next page*]. Where this cannot be verified, a UEF of 1.5 shall be assumed."

Fuel Type: Same as the predominant heating fuel type

Rated Storage Volume: 40 Gallons

Draw Pattern: Medium

Efficiency: Uniform Energy Factor complying with 10 CFR §4~~3~~30.32

h. For residences with conditioned basements, R-2 and R-4 residences, and for townhouse units, the following formula shall be used to

TABLE R408.2.3
Service water-heating efficiencies

Measure Number	Water Heater	Size and Draw Pattern	Type	Efficiency
R408.2.3(1)	Gas-fired storage water heaters	≤ 55 gallons, Medium		UEF ≥0.81
		≤ 55 gallons, High		UEF ≥0.86
		>55 gallons, Medium or High		UEF ≥0.86
R408.2.3 (2)	Gas-fired instantaneous water heaters	Medium or High		UEF ≥0.95
R408.2.3 (3)[a]	Electric water heaters	Low, Medium, or High	Integrated HPWH	UEF ≥ 3.30
R408.2.3 (4)[a]	Electric water heaters	Low, Medium, or High	Integrated HPWH, 120 Volt/15 Amp Circuit	UEF ≥ 2.20
		Low, Medium, or High	Split-system HPWH	UEF ≥ 2.20
R408.2.3 (5)	Solar water heaters		Electric backup	SUEF ≥ 3.00
			Gas backup	SUEF ≥ 1.80

a. To earn credit for this measure, integrated heat pump water heaters shall comply with one of the following:
1.Installed in accordance with manufacturer's instructions.
2.Ducted in accordance with manufacturer's instructions.
3.Installed in a space with no less than 60 ft^2 of floor area.
4.Installed in an enclosed space with grilles or louvers with net free area of at least 300 in^2.
5.Installed in an enclosed space with a louvered door with net free area of at least 300 in^2.

Reason: This Public Comment proposes that the Standard Reference Design should be modeled with a 40 gallon electric resistance storage water heater when the Proposed Design is a heat pump water heater. The current language would require the Standard Reference Design to be a heat pump water heater if that system type is in the Proposed Design. Given that electric storage is permitted by code, there should be more savings associated with this upgrade to a HPWH to encourage its adoption by builders. This approach is also the same as that used in the ERI Path and similar to the approach used to calculate points for HPWHs in R408.2.3.
Note: Some of the edits shown are errata, as they were approved through REPI-122:

1. removing "As Proposed" from the table in both columns
2. adding "without a proposed water heater" to note g.

Cost Impact: The code change proposal will neither increase nor decrease the cost of construction.
This public comment does not increase the cost of construction.

Bibliography: None.

Workgroup Recommendation

Proposal # 1169

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	RED1-251-22 Add cfm50/ft2 metric, fix air leakage (pair with Mike's REDI-337)
CDP ID #	
Code	IECC RE
Code Section(s)	R405.4.2(1) Table
Location	
Proponent	Gayathri Vijayakumar gvijayakumar@swinter.com
Proposal Status	
Subcommittee	RE Econ, Model, Metric
Subcommittee Notes	RED1-251-22 was submitted, modified as on the Screen and presented by Gayathri Vijayakumar
Recommendation	Approve as modified Motion: Gayathri Vijayakumar Second: Jay Crandell For detached one-family dwellings that are 1,500 ft2 (139.4 m2) or smaller and attached dwelling units, the air leakage rate at a pressure of 0.2 inch water gauge (50 Pa) shall be ~~0.25~~ 0.27 cfm/ft2 of the dwelling unit enclosure area. Reason Statement: The proposal moves ventilation text into the mechanical ventilation row and adds the Prescriptive CFM50/ft2 air leakage values in the Standard Reference Design for the types of dwelling units that are permitted to use that metric. The SC asked the Proponent to ensure these values remained consistent with proposals being heard by Envelope SC.
Vote	Approve as modified 9-1-3 [Yes/No/Abstain]
Recommendation Date	03/14/2023
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____
Consensus Committee	
Committee Response	

Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

RED1-251-22 Modification after Sub-Committee Vote

This mod removes overlapping edits proposed in RED1-337 and 249. It also no longer shows edits that were corrected via Errata. It is modified to align with language in the new Maximum Air Leakage Rate section.

IECC: SECTION R405, TABLE R405.4.2(1)

Proponents: Gayathri Vijayakumar, representing Steven Winter Associates, Inc. (gvijayakumar@swinter.com)

2024 International Energy Conservation Code [RE Project]

SECTION R405
SIMULATED BUILDING PERFORMANCE

Revise as follows:

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

Portions of table not shown remain unchanged.

BUILDING COMPONENT	STANDARD REFERENCE DESIGN	PROPOSED DESIGN
Air exchange rate	For *dwelling units* that are attached or have 1,500 ft^2 (139.4 m^2) or less of *conditioned floor area*, the air leakage rate at a pressure of 0.2 inch water gauge (50 Pa) shall be 0.27 cfm/ft^2 of the *dwelling unit enclosure area*. For all other buildings and *dwelling units* ~~detached one-family dwellings~~, t~~T~~he air leakage rate at a pressure of 0.2 inch water gauge ~~w.g.~~ (50 Pa) shall be Climate Zones 0 through 2: 4.0 air changes per hour. Climate Zones 3, 4, and 5: 3.0 air changes per hour. Climate Zones 6 through 8: 2.5 air changes per hour. ~~For detached one-family dwellings that are 1,500 ft^2 (139.4 m^2) or smaller and attached *dwelling units*, the air leakage rate at a pressure of 0.2 inch water gauge (50 Pa) shall be 0.27 cfm/ft^2 of the *dwelling unit enclosure area*.~~	The measured air exchange rate.[a]
	The mechanical ventilation rate shall be in addition to the air leakage rate and shall be the same as in the proposed design, but not greater than B x M where: B = 0.01 × CFA + 7.5 × (Nbr + 1), cfm. M = 1.0 where the measured air exchange rate is > = 3.0 air changes per hour at 50 Pascals, and otherwise, M = minimum (1.7, Q/B) Q = the proposed mechanical ventilation rate, cfm. CFA = conditioned floor area, ft^2. Nbr = number of bedrooms. ~~The mechanical ventilation system type shall be the same as in the proposed design. Heat recovery or energy recovery shall be modeled for mechanical ventilation where required by Section~~	The mechanical ventilation rate[b], Q, shall be in addition to the air leakage rate and shall be as proposed.

	~~R403.6.1. Heat recovery or energy recovery shall not be modeled for mechanical ventilation where not required by Section R403.6.1.~~	
Mechanical ventilation	The mechanical ventilation system type shall be the same as in the proposed design. Heat recovery or energy recovery shall be modeled for mechanical ventilation where required by Section R403.6.1. Heat recovery or energy recovery shall not be modeled for mechanical ventilation where not required by Section R403.6.1. Where mechanical ventilation is not specified in the proposed design: None Where mechanical ventilation is specified in the proposed design, the annual vent fan energy use, in units of kWh/yr, shall equal $(8.76 \times B \times M)/e_f$ where: B and M are determined in accordance with the Air Exchange Rate row of this table. e_f = the minimum fan efficacy, as specified in Table 403.6.2, corresponding to the system type at a flow rate of $B \times M$. *CFA* = conditioned floor area, ft^2. N_{br} = number of bedrooms.	As proposed

For SI: 1 square foot = 0.93 m^2, 1 British thermal unit = 1055 J, 1 pound per square foot = 4.88 kg/m^2, 1 gallon (US) = 3.785 L, °C = (°F-32)/1.8, 1 degree = 0.79 rad.

a. ~~Where required by the code official, testing shall be conducted by an approved party.~~ Hourly calculations as specified in the ASHRAE *Handbook of Fundamentals,* or the equivalent, shall be used to determine the energy loads resulting from infiltration.

Reason: Based on another public comment to add a 0.27 cfm50/ft2 metric for the air leakage threshold for attached units and smaller homes when using the Prescriptive Compliance option, this public comment adds those same metrics/thresholds to the Standard Reference Design (SRD).

Also, the text related the ERV and HRVs in the SRD is better placed in the row called "Mechanical Ventilation" rather than "Air exchange rate", so this PC proposes to move it.
Also, footnote a contains text redundant to R402.5.1.2, so is struck in this PC.
Bibliography: None
Cost Impact: The code change proposal will neither increase nor decrease the cost of construction.

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	RED1-111-22
CDP ID #	
Code	IRC
Code Section(s)	R404.2
Location	Body
Proponent	Glen Heinmiller
Proposal Status	
Subcommittee	RE Electrical power, lighting, renewables, and storage subcommittee
Subcommittee Notes	The committee felt that this proposal was mostly editorial but that the addition of language in 404.2.1 provided additional clarity.
Recommendation	Motion to Approve as submitted as modified, MJ, 2nd JC Modifications below. (11-1-1)
Vote	11-1-1
Recommendation Date	
Next Step	To Subcommittee_____ To Advisory Group_____ To Consensus Committee_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____

RED1-111-22

R404.2Interior lighting controls.

All permanently installed luminaires shall be controlled as required in Sections R404.2.1 and R404.2.2.

Exception: Lighting controls shall not be required for safety or security lighting fixtures:

R404.2.1Habitable spaces.

All permanently installed luminaires in habitable spaces shall be controlled with a *manual dimmer* or with an *automatic shut-off control* that automatically turns off lights within 20 minutes after all occupants have left the space and shall a *manual* control to allow occupants to turn the lights on or off.

R404.2.2Specific locations.

All permanently installed luminaires in garages, unfinished basements, laundry rooms, and utility rooms shall be controlled by an *automatic shut-off control* that automatically turns off lights within 20 minutes after all occupants have left the space and shall a *manual* control to allow occupants to turn the lights on or off.

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	RED1-110-22
CDP ID #	
Code	IRC
Code Section(s)	R404.1.2
Location	Body
Proponent	Glen Heinmiller
Proposal Status	
Subcommittee	RE Electrical power, lighting, renewables, and storage subcommittee
Subcommittee Notes	AE, 2nd PC, Not accepting the changes to R404.1.2, but are accepting the changes to the table R404.1
Recommendation	Motion to approve as modified, (9-1-3)
Vote	9-1-3
Recommendation Date	02232023
Next Step	To Subcommittee_____ To Advisory Group_____ To Consensus Committee_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

RED1-110-22

Revise as follows:

R404.1.2Exterior lighting power requirements.

The total exterior connected lighting power shall be not greater than the exterior lighting power allowance calculated in accordance with Section R404.1.3. The total exterior connected lighting power shall be the total maximum rated wattage of all lighting that is powered through the energy service for the building.

Exceptions: Lighting used for the following applications shall not be included.

1. Lighting *approved* for safety reasons .
2. Emergency lighting that is automatically off during normal operations
3. Exit signs.
4. Specialized signal, directional and marker lighting associated with transportation.
5. Lighting for athletic playing areas
6. Temporary lighting.
7. Lighting used to highlight features of art, public monuments and the national flag
8. Lighting for water features and swimming pools.
9. Lighting controlled from within *sleeping units* and *dwelling units*.
10. Lighting of the exterior means of egress as required by the *International Building Code.*

R404.1.3Exterior lighting power allowance.

The total area or length of each area type multiplied by the value for the area type in Table R404.1 shall be the lighting power (watts) allowed for each area type. For area types not listed, the area type that most closely represents the proposed use of the area shall be selected. The total exterior lighting power allowance (watts) shall be the sum of the base site allowance plus the watts from each area type.

R404.1.4Additional exterior lighting power.

Additional exterior lighting power allowance shall be available for the building facades at 0.075 W/ft2 (0.807 w/m2) of gross above-grade wall area. This additional power allowances shall be used only for the luminaires serving the facade and shall not be used to increase any other lighting power allowance.

Changes to the table were rejected by the committee.

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	RED1-112-22
CDP ID #	
Code	IRC
Code Section(s)	R404.3
Location	Body
Proponent	Greg Johnson
Proposal Status	
Subcommittee	RE Electrical power, lighting, renewables, and storage subcommittee
Subcommittee Notes	The committee is not accepting the changes to R404.1.2, but are accepting the changes to the table R404.1
Recommendation	RED1-112-22 **R404.3Exterior lighting controls.** exterior lighting controls ~~controlled from within individual dwelling units~~ shall comply with Section R404.3.1. ~~Controls for all other exterior lighting shall comply with Sections C405.2.7 of the International Energy Conservation Code – Commercial Provisions instead of Section R404.3.1.~~ Motion to approve as modified, AE, 2nd PC (9-1-3)
Vote	9-1-3
Recommendation Date	02232023
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 #	RED1-113-22
CDP ID #	
Code	IRC
Code Section(s)	R404.3
Location	Body
Proponent	Steven Rosenstock
Proposal Status	
Subcommittee	RE Electrical power, lighting, renewables, and storage subcommittee
Subcommittee Notes	The committee felt that the current provisions of the code allow for fixtures not connected to the building electrical service to be excepted from these requirements.
Recommendation	Motion to disapprove, MJ, 2nd MC (9-1-4)
Vote	9-1-4
Recommendation Date	
Next Step	To Subcommittee_____ To Advisory Group_____ To Consensus Committee_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	RED1-107-22
CDP ID #	
Code	IRC
Code Section(s)	R403.10
Location	Body
Proponent	Nick Thompson
Proposal Status	SC rev
Subcommittee	RE Elec, Light
Subcommittee Notes	The committee felt that the changes to the charging language were not needed. However, the edit to item #2 provided better clarity without reducing options.
Recommendation	RED1-107-22 • **R403.10Roof and gutter deicing controls.** • Roof and gutter deicing systems, including but not limited to self-regulating cable, shall include automatic controls ~~that are~~ configured to shut off the system when the outdoor temperature is above 40°F (4.8°C) ~~maximum~~ and ~~that~~ shall include one of the following: 1. A moisture sensor configured to shut off the system in the absence of moisture, or 2. ~~A A programmable timer configured to shut off the system for 8 hours minimum at night.~~ A daylight sensor or other means configured to shut off the system between sunset sunrise. Motion to approve as ~~submitted~~ modified, MR, 2nd JM (13-0-0)
Vote	13-0-0
Recommendation Date	02232023
Next Step	To Subcommittee_____ To Advisory Group_____ To Consensus Committee_____

Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	RED1-170-22
CDP ID #	
Code	IRC
Code Section(s)	Rd101.1
Location	Appendix
Proponent	Steven Rosenstock
Proposal Status	
Subcommittee	RE Electrical power, lighting, renewables, and storage subcommittee
Subcommittee Notes	The committee felt that the proposal added several concepts that are not recommended or helpful to the PV industry.
Recommendation	Motion for Disapproval, JC, 2nd MR (12-0-0)
Vote	12-0-0
Recommendation Date	02232023
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 #	RED1-171-22 PI and PII
CDP ID #	
Code	IRC
Code Section(s)	RD102.1 AND AU102.1
Location	Appendix
Proponent	Frederic Zwerg
Proposal Status	
Subcommittee	RE Electrical power, lighting, renewables, and storage subcommittee
Subcommittee Notes	The committee felt that the struck-out phrase provides clarity and should not be removed.
Recommendation	Motion for disapproval Red1-171-22 part I and II, JC, 2nd MJ (12-0-1)
Vote	12-0-1
Recommendation Date	02232023
Next Step	To Subcommittee_____ To Advisory Group_____ To Consensus Committee_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	RED1-172-22 PI and PII
CDP ID #	
Code	
Code Section(s)	RD103.3 and AU103.3
Location	Appendix
Proponent	Frederic Zwerg
Proposal Status	
Subcommittee	RE Electrical power, lighting, renewables, and storage subcommittee
Subcommittee Notes	The section prior to this one calls for ESS installed, so these changes are not needed to provide clarity.
Recommendation	Motion to disapprove RED1-172-22 Parts I and II, AE, 2nd PC. (12-0-0)
Vote	12-0-0
Recommendation Date	02232023
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 #	RED1-166-22
CDP ID #	
Code	IRC
Code Section(s)	R408.2
Location	Body
Proponent	Michael Jouaneh
Proposal Status	
Subcommittee	RE Electrical power, lighting, renewables, and storage subcommittee
Subcommittee Notes	The committee approved the changes with edits to the table to ensure that some values were added.
Recommendation	Motion to approve as modified RED1-166-22 to change the table to edit “TBD” to (1) (9-2-2)
Vote	9-2-2
Recommendation Date	02232023
Next Step	To Subcommittee_____ To Advisory Group_____ To Consensus Committee_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____

TABLE R408.2 CREDITS FOR ADDITIONAL ENERGY EFFICIENCY

Portions of table not shown remain unchanged.

Measure Number	Measure Description	Credit Value								
		Climate Zone 0 & 1	Climate Zone 2	Climate Zone 3	Climate Zone 4	Climate Zone 4C	Climate Zone 5	Climate Zone 6	Climate Zone 7	Climate Zone 8
R408.2.10	Whole home lighting control	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

Add new text as follows:

R408.2.10Whole Home Lighting Control.

The dwelling unit shall have a switch by the main entrance that turns off all the permanently installed interior lighting or have a lighting control system that has the capability to turn off all permanently installed interior lighting from remote locations.

Exceptions:

1. Up to 5% of the total lighting power may remain uncontrolled.

2. Spaces where lighting is controlled by a count-down timer or *occupant sensor control*.

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	RED1-168-22 PI and PII
CDP ID #	
Code	
Code Section(s)	R408.2.7 and N1108.2.7
Location	Body
Proponent	Tom Ortiz
Proposal Status	
Subcommittee	RE Electrical power, lighting, renewables, and storage subcommittee
Subcommittee Notes	The committee felt that the change was not necessary and that other renewable options are available unfed the current language.
Recommendation	Motion to disapprove as submitted RED1-168-22 Parts I and II, AE, 2nd MR (10-3-0)
Vote	10-3-0
Recommendation Date	02232023
Next Step	To Subcommittee_____ To Advisory Group_____ To Consensus Committee_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	RED1-158-22
CDP ID #	
Code	IRC
Code Section(s)	R404.8
Location	Body
Proponent	Daniel Carroll
Proposal Status	
Subcommittee	RE Electrical power, lighting, renewables, and storage subcommittee
Subcommittee Notes	The committee felt that this proposal has a significant associated cost increase.
Recommendation	Motion to disapprove as submitted RED1-158-22, SH, 2nd AM (7-3-3)
Vote	7-3-3
Recommendation Date	02232023
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 #	RECD1-5-22
CDP ID #	
Code	IECC RE
Code Section(s)	R501.1.1 General
Location	base
Proponent	Gil Rossmiller, Seth Wiley representing IECC RE Existing Building subcommittee
Proposal Status	SC rev
Subcommittee	RE Existing Bldg
Subcommittee Notes	Motion to disapprove Reason: The term fossil fuel is misleading, and the net result will not improve energy efficiency. Wiley comments that very happy to take comments into account and bring proposal to next meeting. Zengell comments again about concerns as stated previously. Swoape comments that the term fossil fuel is misleading citing examples of fuel sources including renewable natural gas. Wiley comments that renewable natural gas is not a fossil fuel. Swoape agrees that renewable natural gas is not a fossil fuel.

Recommendation	Disapproval
Vote	4 votes in favor 3 against
Recommendation Date	3/28/2023
Next Step	To Subcommittee_____ To Advisory Group_____ To Consensus Committee_____X_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____Negative_____Table_____ To Subcommittee_____
Date	

RECD1-5-22

IECC: R501.1.1; IRCECC: N1109.1.1

Proponents: **Gil Rossmiller**, representing **IECC RE Existing Building subcommittee**

2024 International Energy Conservation Code [CE Project]

Revise as follows:

R501.1.1 General. Except as specified in this chapter, this code shall not be used to require the removal, *alteration* or abandonment of, nor prevent the continued use and maintenance of, an existing *building* or *building* system lawfully in existence at the time of adoption of this code. Unaltered portions of the existing *building* or *building* supply system shall not be required to comply with this code. *Additions*, *alterations*, *repairs*, and changes of occupancy or use shall not increase on-site fossil fuel burning; this requirement shall not apply to on-site emergency power generation.

2024 ENERGY Chapter11

Revise as follows:

N1109.1.1 General. Except as specified in this chapter, this code shall not be used to require the removal, *alteration* or abandonment of, nor prevent the continued use and maintenance of, an existing *building* or *building* system lawfully in existence at the time of adoption of this code. Unaltered portions of the existing *building*, or *building* supply system shall not be required to comply with this code. *Additions*, *alterations*, *repairs*, and changes of occupancy or use shall not increase on-site fossil fuel burning; this requirement shall not apply to on-site emergency power generation.

Reason: Fossil fuel burning is a leading and significant contributor to greenhouse gas emissions, which is a leading cause of climate change. Limiting and decreasing on-site fossil fuel burning is supportive of occupant safety and health. There are various, beneficial, and cost-effective means available in the marketplace to limit and decrease on-site fossil fuel burning.

Cost Impact: The code change proposal will neither increase nor decrease the cost of construction.
This code change proposal will neither increase nor decrease the cost of construction.

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	RED1-266-22
CDP ID #	1003
Code	IECC RE
Code Section(s)	R502.1 Additions
Location	base
Proponent	Robert Schwarz, representing BUILDTank, Inc. (robby@btankinc.com)
Proposal Status	SC rev
Subcommittee	RE Existing Bldg
	Motion for Disapproval Reason: Language is not standard code language and terminology has discrepancies. Additions would need to be basically zero energy to comply in the performance option & that would like to see proposal come back in the next round.

Recommendation	Disapproval
Vote	6 in favor of disapproval. 1 against.
Recommendation Date	3/28/2023
Next Step	To Subcommittee_____ To Advisory Group_____ To Consensus Committee X
Consensus Committee	
Committee Response	
Vote	Affirmative_____Negative_____Table_____ To Subcommittee_____
Date	

NOT HEARD BY THE SUBCOMMITTEE

RED1-266-22 R502 Additions Modification 2

Revise as follows
SECTION R502 ADDITIONS

R502.1 (N1110.1) General. *Additions* to an existing *building*, *building* system or portion thereof shall conform to the provisions of this code as those provisions relate to new construction. *Additions* shall not create an unsafe or hazardous condition or overload existing *building* systems.
An ~~RESNET, BPI, or other~~ approved energy audit shall be performed prior to the commencement of construction of any addition using this compliance option. ~~to baseline the efficiency of the existing building. and offer opportunities for cost-effective energy upgrades.~~

R502.2 (N1110.2) ~~Prescriptive~~ Compliance. *Additions* ~~shall comply with **Sections R502.2.1 through R502.2.4**.R502.3.5.~~ An addition shall be deemed to comply with this code where one of the following compliance options is sections R502.2.1 or R502.2.2 is used.

R502.2.1 Existing building plus addition Prescriptive compliance option ~~for additions of any size~~. ~~-~~Prescriptive compliance verification using sections R402.1.4 or R402.1.5 shall demonstrate that the **addition alone** complies with this code including section R402.4 air leakage testing of the addition plus the existing structure.

> Exception:
> Where the measured air leakage rate exceeds 5.0 air changes per hour or 0.28 cubic feet per minute (CFM) per square foot of dwelling unit enclosure area when tested in accordance with Section R402.4.1.2 a diagnostic evaluation using smoke tracer or infrared imaging shall be conducted while the building is pressurized or depressurized along with a visual inspection of the air barrier. Noted air leaks shall be sealed where such sealing can be made without destruction of existing or new building components. A report documenting corrective actions taken to seal leaks and pre and post blower door results, shall be submitted to the code official and shall be deemed to comply with the requirements of this section.

R502.2.1.1 Compliance Reports Prescriptive compliance option. The following compliance reports shall be submitted for permitting and to obtain the certificate of occupancy.

1. For permitting: Submit Documentation showing that an energy audit was performed on the existing structure.
2. For permitting: Submit a plan set documenting the proposed R-values to be installed per Section R402.1.4 or a Section R402.1.5 Total UA compliance report.
3. For Certificate of Occupancy: Submit a blower door compliance report.

Section R502.2.2 Existing building plus addition ~~compliance~~ Simulated Building Performance compliance option. Simulated building performance Section R405 compliance verification shall demonstrate that the existing building plus the addition uses no more energy than the existing *building* did prior to the addition. This method requires the project to create cost compliance verification at three stages as outlined in Section R502.2.2.1.

R502.2.2.1 Compliance Reports Simulated Building Performance compliance option. The following compliance reports shall be submitted for permitting and to obtain the certificate of occupancy.

1. For permitting: Submit Documentation showing that an energy audit was performed on the existing structure.
2. For permitting: Submit a baseline total building performance cost compliance report of the existing structure prior to construction.
3. For permitting: Submit a projected total building performance cost compliance report of the existing building plus the addition based on the proposed design for the building in its entirety demonstrating that the building plus the addition uses no more energy than the existing *building* did prior to the addition.
4. For Certificate of Occupancy: Submit a final confirmed total building performance cost compliance report prior to final inspection.
5. For Certificate of Occupancy: Submit a blower door compliance report.

R502.3 ~~2.1~~ Building envelope. New *building* envelope assemblies that are part of the *addition* shall comply with **Sections** R402.1.1, R402.2, R402.3.1 through R402.3.5, and R402.4. ~~**R402.1, R402.2, R402.4.1** through **R402.4.5**, and **R402.5.**~~

~~**Exception:** New envelope assemblies are exempt from the requirements of **Section R402.5.1.2**.~~

R502.4 ~~3.2~~ Heating and cooling systems. HVAC Systems ~~ducts~~ newly installed as part of an *addition* shall comply with Section R403.1, R403.3 through R403.3.7, R403.7.

Exceptions:

~~**1.**~~ Where ducts from an existing heating and cooling system are extended to an *addition* that does not exceed 400 square feet. ~~is less than 30% of the total conditioned floor area of the existing building.~~

~~**2. HVAC Design**: Manual J, S, and D are not required for additions that increase the existing floor area less than 30% of the total conditioned floor area of the existing building~~

R502.5 ~~3.3~~ Service hot water systems. New service hot water systems that are part of the *addition* shall comply with **Section R403.5**.

R502.6 ~~3.4~~ Lighting. New lighting systems that are part of the *addition* shall comply with **Section R404.1**.

R502.7 ~~R502.2.5~~ Additional Efficiency Packages *Additions* shall comply with Section R506. Whole house mechanical ventilation installed to ventilate the existing building plus the addition and in accordance with Section M1505 of the *International Residential Code* or Section 403.3.2 of the *International Mechanical Code*, as applicable, or with other *approved* means of ventilation, shall be permitted to ~~may~~ be used as an alternative compliance option to Section R506.

Alterations to the existing building that are not part of the *addition*, but permitted with the *addition*, shall be permitted to be used to achieve this requirement.

Exceptions:

1. *Additions* that increase the building's total conditioned floor area by less than 25 percent.
2. *Additions* that do not include the addition or replacement of equipment covered in Sections R403.5 or R403.7.
3. Additions that do not contain conditioned space.
4. Where the *addition* alone or the existing building and *addition* together comply with Section R405 or R406.

Reason Statement:

The additions section R502 struggles with how to determine compliance with the requirements of the IECC as they relate to existing home additions. The existing section R502.1 general spoke loosely to demonstrating compliance but it is not specific enough to guide enforcement well. We therefore stuck language from this section and created a true compliance section for additions in Section R502.2. The new language incorporates the reality that the house is an integrated system and that compliance with the IECC when associated with an existing building requires that the existing building also get evaluated.

This new section R502.2 leverages some existing compliance language but now offers two distinct compliance alternatives that can be used to demonstrate compliance with this section of code.

1. The prescriptive option R502.2.1 allows the use of the **R-value table or the Total UA alternative approach** and focuses on the addition alone **in much the same way as current code does** but includes the R402.4 air leakage section with an exception for meeting the 3 or 5 air changes depending on climate zone. If the code require leakage rate cannot be met this section requires effort be made to make the house as tight as possible. **Language was incorporated from the Section C402.5.3 exception in the commercial section of the IECC as a defined way to require air tightening of the building's thermal envelope.**
2. The building performance Section R502.2.2 use cost compliance modeling to demonstrate that the existing building plus the addition uses no more energy than the existing *building* did prior to the addition. **Modeling was performed to ensure that this approach works**. This is a current compliance option in the 2021 IECC but it was not

clear how one would demonstrate compliance. The proposed new section of code spells outlines exactly how to use this compliance option.

Regardless of the compliance path chosen the new addition must conform to the provisions of IECC as those provisions relate to new construction. In addition, we felt that it was important in an energy code to require an **informative energy audit** be performed on the existing home prior to construction of the addition in order to **offer an opportunity** to baseline the efficiency of the existing building prior to construction of the addition and as a means to incorporate cost effective addition efficiency and comfort measures during the construction of the addition if the homeowner deemed it appropriate. **The requirements is to perform the energy audit not to act on the findings of the energy audit.** In this way the homeowner may realize that it makes sense to add additional insulation to an existing attic at the same time the addition is being insulated for example.

Additions on existing building like alterations are perhaps one of the primary opportunities to reduce national energy consumption, yet Chapter 5 currently does little to address this need. There are many opportunities to cost-effectively improve energy efficiency of the existing building stock using reasonable criteria as outlined in the above proposal.

This proposal strikes a balance in a practical and cost-effective manner for addressing manageable energy efficiency upgrades at the same time an addition is being proposed on an existing building. It is clear that the intent of the existing IECC chapter 5 is to ensure that energy use of the existing building plus the addition uses no more energy than the building did prior to the addition. This proposal now offers a means by which compliance with this statement can be verified. It does so by providing flexibility and choice of what to address in the existing structure while offering a logical way to enforce the base code on the addition. This was not possible in the past because the base energy code never provided guidance on how to addresses the house in its entirety not sections of the house in isolation.

Lastly, Section R502.2.5 additional Energy Efficiency Packages has been introduced into the R502 addition section for existing buildings. Whole House controlled mechanical ventilation is important for all homes new and existing. This new section of code has been added to allowing the introduction of a whole house mechanical ventilation system to meet the requirements of Section R506 Additional Efficiency Packages.

Cost

Cost of construction will increase with this proposal primarily due to the cost of demonstrating compliance. However, there was no true means developed in the past existing home additions section to demonstrate compliance other than a vague visual inspection. This approach truly quantifies compliance while offering an opportunity to address issues with the existing structure to better our countries existing housing stock.

If the above is acceptable, then the following should be considered.
Revise as Follows:

SECTION R503 ALTERATIONS

R503.1 General. *Alterations* to any building or structure shall comply with the requirements of the code for new construction, without requiring the unaltered portions of the existing building or building system to comply with this code. *Alterations* shall be such that the existing building or structure is not less conforming to the provisions of this code than the existing *building* or structure was prior to the *alteration*.

Alterations shall not create an unsafe or hazardous condition or overload *existing* building systems. *Alterations* shall be such that the existing *building* or structure does not use more energy than the existing building or structure prior to the *alteration*. *Alterations* to existing *buildings* shall comply with Sections R503.1.1 through R503.1.4.

R503.1.1 Building envelope. Building envelope assemblies that are part of the *alteration* shall comply with Section R402.1.2 or R402.1.4, Sections R402.2.1 through R402.2.12, R402.3.1, R402.3.2, R402.4.3 and R402.4.5.

Exception: The following alterations shall not be required to comply with the requirements for new construction provided that the energy use of the building is not increased:

1. Storm windows installed over existing fenestration.
2. Existing ceiling, wall or floor cavities exposed during construction provided that these cavities are filled with insulation.
3. Construction where the existing roof, wall or floor cavity is not exposed.
4. Roof recover.
5. Roofs without insulation in the cavity and where the sheathing or insulation is exposed during reroofing shall be insulated either above

or below the sheathing.
6. Surface-applied window film installed on existing single pane fenestration assemblies to reduce solar heat gain provided that the code does not require the glazing or fenestration assembly to be replaced.

R503.1.1.1 Replacement fenestration. Where some or all of an existing fenestration unit is replaced with a new fenestration product, including sash and glazing, the replacement fenestration unit shall meet the applicable requirements for *U*-factor and SHGC as specified in Table R402.1.3. Where more than one replacement fenestration unit is to be installed, an area-weighted average of the *U*-factor, SHGC or both of all replacement fenestration units shall be an alternative that can be used to show compliance.

R503.1.2 Heating and cooling systems. HVAC ducts newly installed as part of an *alteration* shall comply with Section R403. 1, R403.3 through R403.3.7, R403.7.

Exceptions:
Where ducts from an existing heating and cooling system are extended to an *addition* that does not exceed 600 square feet.

R503.1.3 Service hot water systems. New service hot water systems that are part of the *alteration* shall comply with Section R403.5.

R503.1.4 Lighting. New lighting systems that are part of the *alteration* shall comply with Section R404.1.

~~**Exception:** *Alterations* that replace less than 10 percent of the luminaires in a space, provided that such alterations do not increase the installed interior lighting power.~~

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	RED1-273-22
CDP ID #	1360
Code	IECC RE
Code Section(s)	R503.1.1.3 Above-grade wall alterations.
Location	base
Proponent	Vladimir Kochkin, representing NAHB (vkochkin@nahb.org)
Proposal Status	SC rev
Subcommittee	RE Existing Bldg
Subcommittee Notes	Motion Approved as modified by the committee. See modification on sheet 3 Reason: Proposal provides flexibility for construction affecting existing structures – especially with regard to wall assemblies, exterior finishes, and not disturbing existing construction outside scope of work as well as providing for coordination with existing construction.

Recommendation	Approved as modified by the committee
Vote	7 votes in favor. 0 against.
Recommendation Date	3/28/2023
Next Step	To Subcommittee_____ To Advisory Group_____ To Consensus Committee_____X
Consensus Committee	

Committee Response	
Vote	Affirmative_____Negative_____Table_____ To Subcommittee_____
Date	

MOD for RED1-273-22

As modified in Sub Committee meeting 3/21/2023

R503.1.1.3 Above-grade wall alterations. Above-grade wall alterations shall comply with the following ~~requirements~~ as applicable:

1. Where interior finishes are removed ~~exposing~~ and wall cavities are exposed, the ~~existing~~ exposed cavities ~~cavity~~ shall be filled with existing or new insulation complying with Section R303.1.4 and an interior vapor retarder shall be provided where required in accordance with Section R702.7 of the *International Residential Code*.

2. Where exterior wall coverings and fenestration are removed and replaced for the full extent of any exterior wall assembly, continuous insulation shall be provided where required in accordance with Section R402.1 or the wall insulation shall be in accordance with an *approved* design that minimizes deviation from Section R402.1.~~; **Exception:** where Class I vapor retarder is present in the existing wall assembly, the alteration shall be exempt from the~~ Where specified, the *continuous insulation* ~~requirement~~ also shall comply with Section R702.7 of the *International Residential Code.* Replacement exterior wall coverings shall comply with the water resistance requirements of Section R703.1.1 of the *International Residential Code* and manufacturers' instructions.

~~3. Where Items 1 and 2 apply, the entire wall assembly shall be insulated in accordance with Section R402.1; and,~~

3~~4~~. Where new interior finishes or exterior wall coverings are applied to the full extent of any exterior wall assembly of mass construction, insulation shall be provided where required in accordance with Section R402.1 or an approved design that minimizes deviation from Section R402.1.

~~Where any of the above requirements are implemented applicable and resulted in a change of the vapor retarder classification, the above-grade wall alteration shall comply~~

~~with the insulation and water vapor retarder requirements of Section R702.7 of the International Residential Code. Where the exterior wall coverings are removed and replaced, the above-grade wall alteration shall comply with the water and wind resistance requirements of Section R703.1.1 of the International Residential Code.~~

~~**Exception:** Where the existing backing material does not meet the requirements of R703.1.2 for new construction, the alteration shall not reduce the water resistance and wind resistance of the wall assembly.~~

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	RED1-002-22 Approved source
CDP ID #	1106
Code	IECC RE
Code Section(s)	Chapter 2
Location	base
Proponent	Fredric Zwerg fredric.zwerg@swgas.com
Proposal Status	SC rev
Subcommittee	RE Admin
Subcommittee Notes	Proposal does not address all of the places in the code where the term is used.
Recommendation	Disapproval
Vote	5-0-0
Recommendation Date	3.01.2023
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 #	RED1-016-22 Approved third-party inspection agencies
CDP ID #	1004
Code	IECC RE
Code Section(s)	R105.4
Location	base
Proponent	Robby Schwarz robby@btankinc.com
Proposal Status	SC rev
Subcommittee	RE Admin
Subcommittee Notes	Proposal was tabled for several meetings to work on language. Proponent brought back proposal with amendments. Provides better guidance to utilize 3rd party inspection agencies to comply with the code. There were concerns raised by some in attendance that will likely address during the PC2 period.
Recommendation	Table until 3-1-2023 meeting From 3-1-2023 meeting: Table until 3.15.2023 meeting 3-15-2023: Approve as modified.
Vote	4-0-0
Recommendation Date	3-15-2023
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

RED1-16-22 – Modification

Proponents: Robert Schwarz, representing BUILDTank, Inc. (robby@btankinc.com)

2024 International Energy Conservation Code [RE Project]

Existing definition in the IECC – no modification

APPROVED AGENCY. An established and recognized agency that is regularly engaged in conducting tests furnishing inspection services, or furnishing product certification, where such agency has been *approved* by the *code official.*

Add Definition as Follows

Approved Third Party Inspection agency: A business, organization, or individual that is competent, independent and is used when the *building official* requires the *owner* to employ a special inspector to develop *compliance documentation*, perform compliance testing, or inspect during construction, specific work as described in this code.

Add definition from IBC

OWNER. Any person, agent, operator, entity, firm or corporation having any legal or equitable interest in the property; or recorded in the official records of the state, county or municipality as holding an interest or title to the property; or otherwise having possession or control of the property, including the guardian of the estate of any such person, and the executor or administrator of the estate of such person if ordered to take possession of real property by a court.

SPECIAL INSPECTION. Inspection of construction requiring the expertise of an *approved special inspector, approved agency, or approved third party inspection agency* in order to ensure compliance with this code and the approved *construction and compliance documents*.

SPECIAL INSPECTOR. A qualified person employed or retained by an *approved* agency or approved third party inspection agency and *approved* by the *building official* as having the competence necessary to inspect a particular type of construction requiring *special inspection*.

SECTION R105 INSPECTIONS

R105.4 Approved third-party inspection agencies. The *code official* is authorized to accept reports of third-party inspection agencies ~~not affiliated with the *building* design or construction~~, provided that such agencies are *approved* as to qualifications and reliability relevant to the *building* components and systems that they are inspecting or testing, and authorization is given prior to issuance of the building permit.

R105.4.1 Authorization of approved third-party inspection agency. An approved third-party inspection agency shall provide all information as necessary, upon request, for the *code official* to determine that the agency meets the applicable requirements specified in Sections R105.4.1.1 through R105.4.1.3 and to authorize their work in the jurisdiction.

R105.4.1.1 Independence. An *approved third-party inspection agency* shall be an objective, competent, and independent business identity. The agency shall perform their duties per the express guidance of the *code official*. The agency shall disclose to the *code official* any conflicts of interest including where fees for service are derived. The agency shall explicitly understand that they are only able to work within the jurisdiction giving approval if approval is granted. If approval is revoked the *code official* may reestablish approval at their discretion.

R105.4.1.2 Equipment. An *approved third-party inspection agency* shall have adequate equipment to perform inspections and tests required by the *code official* and this code. All testing equipment shall be periodically calibrated as required by the manufacturer, testing standards used in this code, or certifications held by the approved agency.

R105.4.1.3 Personnel. An *approved third-party inspection agency* shall ensure employed personnel are properly trained, and upon request, be able to provide written documentation to the *code official* demonstrating the competence and relevant experience or training of *special inspectors* who generate *compliance documentation*, perform the *special inspections,* and tests during construction.

R105.4.1.4 Authorization. Upon approval of the *building official* the approved third-party inspection agency shall have the authority to pass or fail delegated inspections and tests required by this code.

R105.4.2 Approved third-party inspections reporting. *Approved third-party inspection agencies* shall keep records of *special inspections,* tests, and *compliance documentation* required by this code and created by the *approved third-party inspection agency* or *special inspector*. The *approved agency* shall submit reports of *special inspections* and tests to the *code official* and to the *owner* or owner's representative. Reports shall indicate that work inspected or tested was or was not completed in conformance to the *approved construction documents* or the requirements of this code. A final report documenting required *special inspections* and tests, and correction of any discrepancies noted in the inspections or tests, shall be submitted, along with other require *compliance documentation*, at a point in time agreed upon prior to the start of work by the *approved third-party inspection agency* and the *building official*.

Reason Statements:

In relation to the International Energy Conservation Code, third-party inspection agencies and building officials currently have a variety of ideas regarding what should constitute the work of the agency. For the ERI path, for example, many

Raters understand that they must develop an ERI score, but do not fully understand their relationship to inspection of other requirements in the IECC. Jurisdictions having authority, are often either abdicating inspections or believe that Rater's are looking at mandatory inspection items. In addition, the creation of a HERS Index score is different from the creation of an ERI score for code compliance. A HERS Index score is an asset rating which allows for the derating of the R-value of poorly installed insulation in the energy model, as the objective is to benchmark the energy performance of the home on the HERS Index scale as it was built. An IECC ERI evaluation of the installation of Insulation does not allow for the deration of poorly installed insulation. If insulation is not installed in accordance with the manufactures instruction and the guidance given in Table R402.4.1.1, then the installation should fail inspection and be reinstalled until it meets the mandatory requirement of the code. This disconnect in understanding is the genesis of this code change proposal.

Members of the committee and other interested parties suggested that a modification be made to this proposal that looked at the Special Inspection section of the IBC. Approved agencies and Special inspections are defined and handled differently in the IRC and IBC compared to the IECC, however, there was good information in Chapter 17 Section 1703 Approvals in the IBC that was incorporated in this Modification. Section 1703 of the IBC specifically address the relationship between an approved agency and the jurisdiction having authority.

The clarity gained in the relationship between the authority having jurisdiction and the approved third-party inspection agency is crucial as we progress into more complicated and meaningful energy codes. Nationally, jurisdictions are losing experienced professionals to retirement. Consequently, more third-party inspection agencies are stepping in to fill the gap. These third-party inspection agencies tend to be solely focused on energy and are capable, and eager to work in the energy code compliance niche. They are filling a need for jurisdictions that are either understaffed or lack a desire to fully enforce the energy components of the code. This proposal clearly defines a path forward to meet the need by defining scope and responsibilities to better ensure compliance and thus achieve expected energy savings.

Cost Impact:

This proposal does not increase cost but better allocates dollars currently being spent to ensure that the job being undertaken by approved third party inspection agencies truly meets the needs of the authority having jurisdiction.

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	RED1-021-22 PI Renewable energy resources
CDP ID #	1247
Code	IECC RE
Code Section(s)	R202
Location	base
Proponent	Tom Ortiz tortiz@npga.org
Proposal Status	SC rev
Subcommittee	RE Admin
Subcommittee Notes	3/01/23 SC feels that RED1-21-22 P1, RED1-21-22 P2, RED1-22-22, RED1-23-22, and REPCD1-17-22 should be moved to a later meeting to be able to give the proponent and interested parties ample time to discuss the proposed changes 3/01/23 - SC Some liked where the proposal was going, but doesn't think it's ready yet. Code official needs more to enforce. Made motion to disapprove also based on consistent actions of commercial committee.
Recommendation	3/01/23 Table until 3.29.2023 meeting (unan 5-0-0) 3/29/23 Disapprove
Vote	6-1-0
Recommendation Date	3.29.2023
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 #	RED1-023-22 Renewables and biomass
CDP ID #	1071
Code	IECC RE
Code Section(s)	R202
Location	base
Proponent	Diana Burk diana@newbuildings.org
Proposal Status	SC rev
Subcommittee	RE Admin
Subcommittee Notes	03/01/23 SC feels that RED1-21-22 P1, RED1-21-22 P2, RED1-22-22, RED1-23-22, and REPCD1-17-22 should be moved to a later meeting to be able to give the proponent and interested parties ample time to discuss the proposed changes 03/29/23 Similar to commercial concerns that this proposal isn't ready yet and additional work needs to be done to properly track at the code official level.
Recommendation	03/01/23 Table until 3.29.2023 meeting 03/29/23 Disapproval
Vote	6-0-0
Recommendation Date	3.29.2023
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 #	RED1-299-22 R403.11.2 language update
CDP ID #	1020
Code	IECC RE
Code Section(s)	R403.11.2
Location	base
Proponent	Steven Rosenstock srosenstock@eei.org
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	With a motion to approve and a proper second discussion opened. Multiple speakers in support of the proposal's approval. Brings consistency to this section
Recommendation	Subcommittee in support of the proposal vote to approve
Vote	approve 10/0/0
Recommendation Date	3/27/23
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 #	RED1-300-22 PI Remove covers exception
CDP ID #	1249
Code	IECC RE
Code Section(s)	R403.11.3
Location	base
Proponent	Tom Ortiz tortiz@npga.org
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	Proposal presented by the proponent the discussion opened after a motion was accepted with a second to disapprove the proposal. Speaking against the proposal Pool and Spa industry. Another interested party in support of disapproval stated that removing heat pump options adds cost, even when the heat pump is gas or electric. Another proponent speaking in disapproval "stricking onsite-means off site renewal okay.
Recommendation	**R403.11.3Covers.** Outdoor heated pools and outdoor permanent spas shall be provided with a vapor-retardant cover or other *approved* vapor-retardant means. **Exception:** Where more than 75 percent of the energy for heating, computed over an operation season of not fewer than 3 calendar months, is from a ~~heat pump or on-site~~ renewable energy system, covers or other vapor-retardant means shall not be required.
Vote	Vote to disapprove "as modified" 9/0/1
Recommendation Date	3/27/2023
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 #	RED1-361-22 Appendix RE definitions
CDP ID #	1114
Code	IECC RE
Code Section(s)	RE102.1
Location	appendix
Proponent	Steven Rosenstock srosenstock@eei.org
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	Proponent presented the proposal. Motion to approve with a second opened discussion. One interested party the proposal does not support hydrogen as a fuel. Vote to approve failed 2/8/0 vote count. Motion received to disapprove the proposal. Motion carried with a vote of 10/0/0
Recommendation	HVACR and water heating subcommittee recommendation is to disapprove
Vote	10/0/0
Recommendation Date	3/27/2023
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 #	RED1-320-22 Multifamily H/ERV alignment with IECC-C
CDP ID #	1433
Code	IECC RE
Code Section(s)	R403.6.1
Location	base
Proponent	Mike Moore mmoore@statorllc.com
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	Proposal on agenda for 1/30/2023 - Proponent asked to have it moved to the subcommittee meeting on 2/13/2023. Subcommittee agreed tabled again new date to be heard 3/27/2023. Proponent presented the proposal on 3/27/2023 "as modified" Motion to approved "as modified" with a second vote failed to approve with a vote count of 0/8/2. Motion to disapprove with a second opened a second round of discussion. After much discussion Sonny Richardson called the question. Vote to call the question approved 10/0/0. Vote to disapproved carried 9/0/1
Recommendation	HVACR and Water Heating recommendation is a vote of disapproval
Vote	Vote to disapprove "as modified" 9/0/1
Recommendation Date	3/27/2023
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 #	RED1-316-22 Demand response water heaters
CDP ID #	1059
Code	IECC RE
Code Section(s)	R403.5.5
Location	base
Proponent	Greg Johnson gjohnsonconsulting@gmail.com
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	Proposal presented "as modified Motion to approve " as modified" with a second discussion opened up. Main objection is moving the language to R408. Motion to approve "as modified" failed 2/7/1. New motion to disapprove "as modified" with a second. Motion carried to disapprove vote 6/4/0
Recommendation	Subcommittee having voted to disapprove " as modified". My recommendation based on the subcommitee vote is to disapprove.
Vote	6/4/0
Recommendation Date	3/27/2023
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 #	RED1-315-22 AHRI Standard 1430-2022
CDP ID #	1227
Code	IECC RE
Code Section(s)	R403.5.5
Location	base
Proponent	Mary Koban mkoban@ahrinet.org
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	Proponent presenting Kyle Bergeron AHRI "as modified Motion to approve as modified with a second discussion opened. A few questions requesting explanations on certain aspect and the comments were mostly in support of approval as modified. Vote to "approve as modified"7/0/1
Recommendation	Subcommittee having voted to approve "as modified" our recommendation is to approve as modified
Vote	7/0/1
Recommendation Date	3/27/2023
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee____x_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

RED1-315-22

Proponents: Mary Koban, representing AHRI (mkoban@ahrinet.org)

2024 International Energy Conservation Code [RE Project]

Revise as follows:

R403.5.5 Demand responsive water heating. Electric storage water heaters with a rated water storage volume of 40 gallons (150L) to 120 gallons (450L) and a nameplate input rating equal to or less than 12kW shall be provided with demand responsive controls in accordance with Table R403.5.5 or ~~another equivalent approved standard.~~ AHRI Standard 1430-2022 (I-P).

Exceptions:

1. Water heaters that are capable of delivering water at a temperature of 180°F (82°C) or greater.
2. Water heaters that comply with Section IV, Part HLW or Section X of the ASME Boiler and Pressure Vessel Code.
3. Water heaters that use 3-phase electric power.

Add new standard(s) as follows:

AHRI

AHRI Standard 1430-2022 (I-P) Demand Flexible Electric Storage Water Heaters
2111 Wilson Blvd, Suite 500
Arlington, VA 22201

Reason: AHRI notes that AHRI Standard 1430 is a harmonized specification for demand flexible electric resistance storage and electric heat pump water heaters (HPWH)s capable of load management that policymakers can use, state government, electric utilities, authorized third parties, manufacturers, designers, installers, contractors, and users. By providing standardized requirements for Demand Flexible Electric Storage Water Heaters (DFWH), utilities and load management program managers can be assured that DFWHs can communicate using standard hardware and software.
AHRI Standard 1430 published December 2022. Therefore, the standard is ready to be included in the code to guide DFWHs.

Cost Impact: The code change proposal will neither increase nor decrease the cost of construction.
Referencing AHRI Standard 1430 will neither increase nor decrease the cost of construction. If anything, since manufacturers will already employ AHRI 1430, the expected cost to manufacture products will decrease.

Bibliography: AHRI notes that AHRI Standard 1430 is available as a free download at the following link: https://www.ahrinet.org/sites/default/files/2022-12/AHRI%20Standard%201430-2022%20%28I-P%29.pdf.
The standard has also been uploaded for convenience.

Workgroup Recommendation

Revise as Follows

R403.5.5 Demand responsive water heating. Electric storage water heaters with a rated water storage volume of 40 gallons (150L) to 120 gallons (450L) and a nameplate input rating equal to or less than 12kW shall be provided with demand responsive controls in accordance with Table R403.5.5 ~~or another equivalent approved standard AHRI Standard 1430-2022 (I-P).~~

Exceptions:

1. Water heaters that are capable of delivering water at a temperature of 180°F (82°C) or greater.
2. Water heaters that comply with Section IV, Part HLW or Section X of the ASME Boiler and Pressure Vessel Code.
3. Water heaters that use 3-phase electric power.

TABLE R403.5.5
DEMAND RESPONSIVE CONTROLS FOR WATER HEATING

Equipment Type	Controls	
	Manufactured Before 7/1/2025	Manufactured On or After 7/1/ 2025
Electric storage water heaters	AHRI Standard 1430-2022 (I-P) or ANSI/CTA-2045-B Level 1 and also capable of initiating water heating to meet the temperature set point in response to a demand response signal.	AHRI Standard 1430-2022 (I-P) ~~ANSI/CTA-2045-B Level 2, except "Price Stream Communication" functionality as defined in the standard.~~

Add new standard(s) as follows:

AHRI	AHRI Standard 1430-2022 (I-P) Demand Flexible Electric Storage Water Heaters 2111 Wilson Blvd, Suite 500 Arlington, VA 22201

Reason: In addition to the reason statement in the proposal, the workgroup agreed that including the AHRI standard in the Table was a better way to include it in the code.

Cost impact: no change from the original proposal.

Bibliography: no change from the original proposal.

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	RED1-354-22 R408 water heaters
CDP ID #	999
Code	IECC RE
Code Section(s)	R408.2.3
Location	base
Proponent	Alex Smith asmith@nahb.org
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	Motion to disapprove with a second opened the discussion. Discussion was light as proponents stated that recently approved RED1-313-22 took care of this one.
Recommendation	**Recommendation is to disapprove this proposal.** **Reason statement is recently approved RED1-313-22 takes care of this proposal**
Vote	vote to disapprove original proposal 10/0/0
Recommendation Date	3/27/2023
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 #	RED1-358-22 Update water heater efficiency options
CDP ID #	1228
Code	IECC RE
Code Section(s)	R408.2.3 table
Location	base
Proponent	Mary Koban mkoban@ahrinet.org
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	Motion to approve "as modified" opened up the discussion. Most comments positive. All storage volumes and all draw patterns added. Ted Williams spoke of availability of product. All positive to approval
Recommendation	Recommendation vote to approve "as modified"
Vote	8/0/2
Recommendation Date	3/27/2023
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee___x_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

RED1-358-22

IECC: TABLE R408.2.3

Proponents:
Mary Koban, representing AHRI (mkoban@ahrinet.org); Mark Lyles, representing California IOUs (markl@newbuildings.org)

2024 International Energy Conservation Code [RE Project]

Delete and substitute as follows:

~~TABLE R408.2.3 Service water-heating efficiencies~~

Measure Number	Water Heater	Size and Draw Pattern	Type	Efficiency
R408.2.3(1)	Gas-fired storage water heaters	≤ 55 gallons, Medium		UEF ≥0.81
		≤ 55 gallons, High		UEF ≥0.86
		>55 gallons, Medium or High		UEF ≥0.86
R408.2.3 (2)	Gas-fired instantaneous water heaters	Medium or High		UEF ≥0.95
R408.2.3 (3)	Electric water heaters	Low, Medium, or High	Integrated HPWH	UEF ≥ 3.30
R408.2.3 (4)	Electric water heaters	Low, Medium, or High	Integrated HPWH, 120 Volt/15 Amp Circuit	UEF ≥ 2.20
		Low, Medium, or High	Split-system HPWH	UEF ≥ 2.20
R408.2.3 (5)	Solar water heaters		Electric backup	SUEF ≥ 3.00
			Gas backup	SUEF ≥ 1.80

TABLE R408.2.3 Service water-heating efficiencies

Measure Number	Water Heater	Size and Draw Pattern	Type	Efficiency
R408.2.3(1)(a)	Gas-fired storage water heaters (option 1)	All storage volumes, all draw patterns		UEF≥0.81
R408.2.3(1)(b)	Gas-fired storage water heaters (option 2)	≤ 55 gallons; Medium		UEF≥0.81
		<55 gallons; High		UEF≥0.86
		>55 gallons; Medium or High		UEF≥0.86
R408.2.3(2)(a)	Gas-fired instantaneous water heaters (option 1)	All storage volumes, Medium or High		UEF≥0.92
R408.2.3(2)(b)	Gas-fired instantaneous water heater (option 2)	All storage volumes, Medium or High		UEF≥0.95
R408.2.3(3)(a)	Electric water heaters (option 1)	All storage volumes, Low, Medium or High	Integrated HPWH	UEF≥3.30
R408.2.3(3)(b)	Electric water heaters (option 2)	All storage volumes, Low, Medium or High	Integrated HPWH	UEF≥3.75

R408.2.3(4)	Electric water heaters (option 3)		Integrated HPWH, 120 Volt/15 Amp Circuit	UEF≥2.20
R408.2.3(5)(a)	Electric water heaters (option 4)		Split-system HPWH	UEF≥2.20
R408.2.3(5)(b)	Electric water heaters (option 5)		Split-system HPWH	UEF≥3.75
R408.2.3(6)(a)	Solar water heaters (option 1)	All storage volumes, all draw patterns	Electric backup	SUEF≥3.00
R408.2.3(6)(b)	Solar water heaters (option 2)	All storage volumes, all draw patterns	Gas backup	SUEF≥1.80

Reason:
Dear IECC Residential Sub-Committee and Committee members, please note that the cdpacess system did not allow me to edit the existing table. Therefore, I attached the code modification in track changes to this proposal. Please note we only changed a few items and not the entire table as it appears in the code proposal.
This table comes from aligning process for former code proposals (RECPI-10, REPI-18, REPI-33).
AHRI further notes that we made these changes due to new potential tax incentives. On August 16, 2022, President Joe Biden signed the Inflation Reduction Act (IRA) into law. The Act contains dozens of provisions related to climate change and prescription drug prices. It includes measures that provide federal income tax credits for high-efficiency HVAC and water heater products. This proposal aligns Additional Energy Credits with the IRA, provides even more energy credits for higher-efficiency equipment, and will encourage homeowners and builders to install efficient water heater products. Therefore, AHRI members suggest aligning with Energy Star product specifications and CEE tiers when defining efficiency levels for HVAC options in R408.2. AHRI notes that the following sections of R408.2.3 align with Energy Star and CEE tiers
R408.2.3(1)(a)- this is the proposed CEE level for all draw patterns, baseline condensing type WH.
R408.2.3(1)(b)- this is aligned with Energy Star v5.0
R408.2.3(2)(a)- this is a baseline condensing level well above the minimum in the market and will probably align with utility incentives.
R408.2.3(2)(b)- this is aligned with Energy Star v5.0, but it is also important to note that this level is well above current products on the market.
R408.2.3(3)(a)-aligns with Energy Star v5.0
R408.2.3(3)(b)-aligns with CEE levels
R408.2.3(4)-aligns with both CEE levels and Energy Star v5.0
R408.2.3.(5)(a)-aligns with Energy Star v5.0
R408.2.3(5)(b)-aligns with CEE levels
R408.2.3.6(a)-aligns with Energy Star v5.0
R408.2.3.(6)-aligns with Energy Star v5.0 and may qualify for federal tax incentives

Bibliography:
AHRI notes that the Tax Provisions in the Inflation Reduction Act of 2022 can be found at this link https://crsreports.congress.gov/product/pdf/R/R47202
AHRI provides the following link to Energy Star version 5.0 https://www.energystar.gov/sites/default/files/asset/document/ENERGY%20STAR%20Residential%20Water%20Heaters%20Version%205.0%20Specification%20and%20Partner%20Commitments.pdfAHRI provides the following link to the CEE Residential Water Heating Specification https://library.cee1.org/content/cee-residential-water-heating-specification/

Cost Impact:
The code change proposal will neither increase nor decrease the cost of construction.
This code change is not expected to increase or decrease the cost of construction. This code will enable more architects, builders and consumers to use energy efficient products due to potential Tax Incentives provided by the Inflation Reduction Act.

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	RED1-355-22 Service water heating efficiencies
CDP ID #	1417
Code	IECC RE
Code Section(s)	R408.2.3 table
Location	base
Proponent	Ted Williams ngdllc@outlook.com
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	Proponent presented the proposal. Motion to disapprove with a valid second. The discussion was quick and the vote was to disapprove. 8/0/1
Recommendation	Recommendation reason statement is to disapproved because RED1-358-22 takes care of this proposal
Vote	8/0/1 to disapprove
Recommendation Date	3/27/2023
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 #	RED1-356-22 Service water heating efficiencies
CDP ID #	1467
Code	IECC RE
Code Section(s)	R408.2.3 table
Location	base
Proponent	Eric Tate eric.tate@atmosenergy.com
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	Working group chair presented the proposal and made a motion to disapprove second received. Little discussion. Vote to disapprove carried with a vote of 9/0/1
Recommendation	Reason statement – RED1-358-22 takes care of this one Subcommittee recommendation is to disapprove
Vote	Disapprove 9/0/1
Recommendation Date	3/27/2023
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 #	RED1-357-22 Update Table R408.2.3
CDP ID #	1075
Code	IECC RE
Code Section(s)	R408.2.3 table
Location	base
Proponent	Steven Rosenstock srosenstock@eei.org
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	Motion to disapprove with a second. Discussion was light. Motion carried disapprove with a vote of 9/0/1
Recommendation	Reason statement RED1-358-22 takes care of RED1-357,355,356 Subcommittee recommendation is to disapprove
Vote	9/0/1
Recommendation Date	3/27/2023
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 #	RED1-309-22 testing of ducts inside conditioned space
CDP ID #	1042
Code	IECC RE
Code Section(s)	R403.3.6 table
Location	base
Proponent	Alex Smith asmith@nahb.org
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	Presented by Vladimir Kochkin “as modified”. Motion to approved “as modified” with a friendly amendment motion carried with a vote of 9/0/1
Recommendation	Recommendation is to approve “as modified”
Vote	9/0/1
Recommendation Date	
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee_____x _____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____

Date	

RED1-309-22

Proponents: Alex Smith, representing NAHB (asmith@nahb.org)

2024 International Energy Conservation Code [RE Project]

Revise as follows:

TABLE R403.3.6 MAXIMUM TOTAL DUCT SYSTEM LEAKAGE

ROUGH IN	POST CONSTRUCTION	
Duct systems serving more than 1,000 ft^2 of conditioned floor area	**cfm/100 ft^2 (LPM/9.29 m^2)**	**cfm/100 ft^2 (LPM/9.29 m^2)**
Air handler is not installed	3 (85)	NA
Air handler is installed	4 (113.3)	4 (113.3)
Duct systems located in conditioned space, with air handler not installed	6 (170)	6 (170)
Duct systems located in conditioned space, with air handler installed	8 (226.6)	8 (226.6)
Duct systems serving less than or equal to 1,000 ft^2 of conditioned floor area	**cfm (LPM)**	**cfm (LPM)**
Air handler is not installed	30 (849.5)	NA
Air handler is installed	40 (1132.7)	40 (1132.7)
Duct systems located in conditioned space, with air handler not installed	60 (1699.1)	60 (1699.1)
Duct systems located in conditioned space, with air handler installed	80 (2265.4)	80 (2265.4)

Reason: It's common practice in many markets around the country to test ducts in conditioned space before the air handler is installed. Air handlers in these situations are often installed after the drywall. Therefore, the code needs to provide a compliance metric for this construction scenario.

Cost Impact: The code change proposal will neither increase nor decrease the cost of construction.
The change would have no effect on the cost of construction

Workgroup Recommendation

This proposal adds a leakage allowance for another case that often occurs during construction. The leakage rate is reasonable given what it is being scaled to. At the start of construction, the air handler is shown as being located in conditioned space. The concern is what happens if the air handler actually ends up outside conditioned space. The Ducts Working Group agreed that there needs to be a footnote to the table that addresses the consequences of the air handler not ending up in conditioned space.

Recommendation:

1. Approve as Amended with an amendment that addresses the consequences of the air handler not ending up in conditioned space. Vladimir will provide this text for consideration by the RES HVACR-WH Subcommittee.