



## International Energy Conservation Code Consensus Committee-Residential

### Draft Meeting Agenda (6/22 posting)

[Webex Meeting Link](#)

June 23, 2022

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

**Committee Chair:** JC Hudgison, CBO, Assoc. AIA

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

1. Call to order.
2. Meeting Conduct.
  - a. Identification of Representation/Conflict of Interest
  - b. ICC [Council Policy 7](#) Committees: Section 5.1.10 Representation of Interests
  - c. ICC [Code of Ethics](#): ICC advocates commitment to a standard of professional behavior that exemplifies the highest ideals and principles of ethical conduct which include integrity, honesty, and fairness. As part of this commitment it is expected that participants shall act with courtesy, competence and respect for others.
  - d. ICC [Antitrust Compliance Guideline](#)
3. Roll Call.
4. Approve Agenda
5. Approval of Minutes
6. Administrative issues-staff will review balloting procedures for Public Comment Draft #1.
7. Subcommittee Reports
8. Action Items
  - a. Code Change Proposals

REPI-113-21 (Grid Integration Inverters)	(Electrical disapprove 5-2-4)
REPI-154-21 (Zero Energy Appendix)	(Electrical approve 12-0)
REPI-157-21 (Net Zero Energy ASHRAE 90.2)	(Electrical as modified 6-4-2)
REPI-160-21 (Zero Energy Appendix)	(Electrical approve 9-4)
REPI-164-21 (Zero Energy Appendix)	(Electrical disapprove 7-4-1)

Copyright © 2021 International Code Council, Inc.

RECPI-10-21 (Water Heater Efficiency)	(HVACR as modified 6-3-2)
REPI-138-21 (Service water heating units)	(HVACR disapprove 6-5)
REPI-99-21 (Electric resistance zone heat unit)	(HVACR as modified 7-1-1)
REPI-56-21 (Insulation installation)	(Envelope as modified 11-2)

9. Other business.

10. Upcoming meetings. June 30 at 12 PM EST

11. Adjourn.

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

FOR ADDITIONAL INFORMATION, PLEASE CONTACT:

Kristopher Stenger, AIA, CBO  
Director of Energy Programs  
International Code Council  
[kstenger@iccsafe.org](mailto:kstenger@iccsafe.org)



## International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	REPI-113-21
CDP ID #	
Code	IECC RE
Code Section(s)	<b>IECC®: R404.4 (N1104.4) (New), TABLE R405.2, TABLE R406.2, R407.2, IEEE Chapter 06 (New), UL Chapter 06 (New)</b>
Location	
Proponent	Residential Electrical, Power, Lighting and Renewables Subcommittee
Proposal Status	
Subcommittee	RE EPLR
Subcommittee Notes	<p>Grid Interactive Inverters</p> <p>Proponents: Kimberly Newcomer, representing NBI (kim@newbuildings.org); Josh Keeling, representing Cadeo Group (jkeeling@cadeogroup.com); Matt Tidwell, representing Portland General Electric (<a href="mailto:matthew.tidwell@pgn.com">matthew.tidwell@pgn.com</a>)</p> <p>This proposal would add a requirement for grid interactive inverters to be compliant with IEEE 1547-2018a and UL 1741.</p> <p>The majority of the subcommittee felt that this was not necessary and would add cost and complexity to projects.</p>
Recommendation	Disapprove
Vote	5-2-4
Recommendation Date	6/13/22
Next Step	To Subcommittee _____ To Advisory Group _____ To Consensus Committee <u>  X  </u> _____
Consensus Committee	

Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

**REPI-113-21**

**IECC®: R404.4 (N1104.4) (New), TABLE R405.2, TABLE R406.2, R407.2, IEEE Chapter 06 (New), UL Chapter 06 (New)**

**Proponents:**

Kimberly Newcomer, representing NBI (kim@newbuildings.org); Josh Keeling, representing Cadeo Group

(jkeeling@cadeogroup.com); Matt Tidwell, representing Portland General Electric (matthew.tidwell@pgn.com)

**2021 International Energy Conservation Code**

**Add new text as follows:**

R404.4 (N1104.4) Solar and energy storage inverters.

Where buildings have installed direct current-to-alternating current inverters serving on-site renewable energy systems, or electrical energy storage systems, all inverters serving the systems shall be compliant with IEEE 1547-2018a and UL 1741.

**Revise as follows:**

TABLE R405.2 (TABLE N1105.2) REQUIREMENTS FOR TOTAL BUILDING PERFORMANCE

**SECTIONa TITLE**

**General**

R401.2.5 Additional energy efficiency

R401.3 Certificate

**Building Thermal Envelope**

R402.1.1 Vapor retarder  
R402.2.3 Eave baffle  
R402.2.4.1 Access hatches and doors  
R402.2.10.1 Crawl space wall insulation installations  
R402.4.1.1 Installation  
R402.4.1.2 Testing  
R402.5 Maximum fenestration U-factor and SHGC

### **Mechanical**

R403.1 Controls  
R403.3, including R403.3.1, except Sections R403.3.2, R403.3.3  
and R403.6  
Ducts  
R403.4 Mechanical system piping insulation  
R403.5.1  
Heated water circulation and temperature maintenance  
systems  
R403.5.3 Drain water heat recovery units  
R403.6 Mechanical ventilation  
R403.7 Equipment sizing and efficiency rating  
R403.8 Systems serving multiple dwelling units  
R403.9 Snow melt and ice systems  
R403.10 Energy consumption of pools and spas  
R403.11 Portable spas  
R403.12 Residential pools and permanent residential spas

### **Electrical Power and Lighting Systems**

R404.1 Lighting equipment  
R404.2 Interior lighting controls  
R404.4 Solar and energy storage inverters

a. Reference to a code section includes all the relative subsections except as indicated in the table.

**2021 PUBLIC INPUT TO THE 2021 IECC, IRC CH. 11, AND ICCPC CH. 15 RE280**

**TABLE R406.2 (TABLE N1106.2) REQUIREMENTS FOR ENERGY RATING INDEX**

**SECTIONa TITLE**

General

R401.2.5 Additional efficiency packages

R401.3 Certificate

Building Thermal Envelope

R402.1.1 Vapor retarder

R402.2.3 Eave baffle

R402.2.4.1 Access hatches and doors

R402.2.10.1 Crawl space wall insulation installation

R402.4.1.1 Installation

R402.4.1.2 Testing

Mechanical

R403.1 Controls

R403.3 except Sections R403.3.2, R403.3.3 and

R403.3.6

Ducts

R403.4 Mechanical system piping insulation

R403.5.1

Heated water calculation and temperature maintenance  
systems

R403.5.3 Drain water heat recovery units

R403.6 Mechanical ventilation

R403.7 Equipment sizing and efficiency rating

R403.8 Systems serving multiple dwelling units

R403.9 Snow melt and ice systems

R403.10 Energy consumption of pools and spas

R403.11 Portable spas

R403.12 Residential pools and permanent residential spas

Electrical Power and Lighting Systems

R404.1 Lighting equipment

R404.2 Interior lighting controls

R404.4 Solar and energy storage inverters

R406.3 Building thermal envelope

a. Reference to a code section includes all of the relative subsections except as indicated in the table.

R407.2 (N1107.2) Tropical climate region.

Compliance with this section requires the following:

1. Not more than one-half of the occupied space is air conditioned.
2. The occupied space is not heated.
3. Solar, wind or other renewable energy source supplies not less than 80 percent of the energy for service water heating.
4. Glazing in conditioned spaces has a solar heat gain coefficient (SHGC) of less than or equal to 0.40, or has an overhang with a projection factor equal to or greater than 0.30.

**2021 PUBLIC INPUT TO THE 2021 IECC, IRC CH. 11, AND ICCPC CH. 15 RE281**

5. Permanently installed lighting is in accordance with Section R404.

6. The exterior roof surface complies with one of the options in Table C402.3 of the International Energy Conservation Code—Commercial Provisions or the roof or ceiling has insulation with an R-value of R-15 or greater. Where attics are present, attics above the insulation are vented and attics below the insulation are unvented.

7. Roof surfaces have a slope of not less than 1/4 unit vertical in 12 units horizontal (21-percent slope). The finished roof does not have water accumulation areas.

8. Operable fenestration provides a ventilation area of not less than 14 percent of the floor area in each room. Alternatively, equivalent ventilation is provided by a ventilation fan.

9. Bedrooms with exterior walls facing two different directions have operable fenestration on exterior walls facing two directions.

10. Interior doors to bedrooms are capable of being secured in the open position.

11. A ceiling fan or ceiling fan rough-in is provided for bedrooms and the largest space that is not used as a bedroom.

12. Where buildings have installed direct current-to-alternating current inverters serving on-site renewable energy systems, or electrical energy storage systems, the building is compliant with Section R404.4.

**Add new standard(s) as follows:**

IEEE Institute of Electrical and Electronic Engineers 3 Park Avenue, 17th Floor New York NY 10016  
1547-2018a

IEEE Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated  
Electric Power Systems Interfaces

UL UL LLC 333 Pfingsten Road Northbrook IL 60062-2096

1741

UL Standard for Inverters, Converters, Controllers and Interconnection System Equipment for Use With  
Distributed Energy Resources





## International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	REPI-154-21
CDP ID #	
Code	IECC RE
Code Section(s)	RC102.2 (AX102.2) Appendix
Location	
Proponent	Residential Electrical, Power, Lighting and Renewables Subcommittee
Proposal Status	
Subcommittee	RE EPLR
Subcommittee Notes	This adds the word “net” to the term “zero energy”. Zero Net Energy (ZNE) is the term most commonly used and is more accurate. All building use energy – there are no “zero energy” buildings.
Recommendation	Approve as submitted
Vote	12-0
Recommendation Date	6/13/22
Next Step	To Subcommittee _____ To Advisory Group _____ To Consensus Committee <input checked="" type="checkbox"/> _____
Consensus Committee	
Committee Response	

Vote	Affirmative _____ Negative _____ Table _____ To Subcommittee _____
Date	

**REPI-154-21**

**IECC®: APPENDIX RC, SECTION RC102, RC102.2**

**Proponents:**

Steven Rosenstock, representing Edison Electric Institute (srosenstock@eei.org)

**2021 International Energy Conservation Code**

**Revise as follows:**

**APPENDIX RC (APPENDIX AX) ZERO NET ENERGY RESIDENTIAL BUILDING**

**PROVISIONS**

**SECTION RC102 (AX102) ZERO NET ENERGY RESIDENTIAL BUILDINGS**

**RC102.2 (AX102.2) Energy Rating Index zero net energy score.**

Compliance with this section requires that the rated design be shown to have a score less than or equal to the values in Table RC102.2 when compared to the Energy Rating Index (ERI) reference design determined in accordance with RESNET/ICC 301 for both of the following:

1. ERI value not including on-site power production (OPP) calculated in accordance with RESNET/ICC 301.
2. ERI value including on-site power production calculated in accordance with RESNET/ICC 301 with the OPP in Equation 4.1.2 of RESNET/ICC 301 adjusted in accordance with Equation RC-1.

(Equation RC-1)

where:

**CREF = Community Renewable Energy Facility power production—the yearly energy, in kilowatt hour equivalent (kWheq),**

**contracted from a community renewable energy facility that is qualified under applicable state and local utility statutes and**

**rules, and that allocates bill credits to the rated home.**

**REPC = Renewable Energy Purchase Contract power production—the yearly energy, in kilowatt hour equivalent (kWheq),**

**contracted from an energy facility that generates energy with photovoltaic, solar thermal, geothermal energy or wind systems,**

**and that is demonstrated by an energy purchase contract or lease with a duration of not less than 15 years.**

**Reason Statement:**

The term "zero energy" is more suited for a marketing brochure, rather than an IECC Appendix or an ICC code. All buildings use

energy, and the use of a term like "zero energy", while appealing, is not accurate and will mislead and misinform consumers and

businesses and policy makers.

The term that should be used is "zero net energy", which is the technically correct way to describe such buildings.

**Cost Impact:**

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

Using the more accurate term will have no impact on the cost of construction.

REPI-154-21



## International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	REPI-157-21
CDP ID #	
Code	IECC RE
Code Section(s)	IECC®: APPENDIX RC, SECTION RC102, RC102.2 (AX102.2) (New), RC102.2, TABLE RC102.2, ASHRAE Chapter 06 (New)
Location	
Proponent	Residential Electrical, Power, Lighting and Renewables Subcommittee
Proposal Status	
Subcommittee	RE EPLR
Subcommittee Notes	<p>Proponent: Emily Toto, representing ASHRAE</p> <p>Adds a reference to ASHRAE 90.2 to the appendix as an additional reference standard.</p> <p>Some subcommittee members did not feel that an additional reference standard was necessary and might cause conflicts. Original motion to approve as submitted failed 5-5-3. A new section 406.3 was added to the original proposal. A new motion to approved as modified passed 6-4-2.</p>
Recommendation	Approve as modified
Vote	6-4-2
Recommendation Date	6/13/22
Next Step	To Subcommittee _____ To Advisory Group _____ To Consensus Committee ___X_____
Consensus Committee	

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

**Proposed Modification to REPI-157-21**

**DELETE AND REPLACE REPI-157-21 WITH THE FOLLOWING:**

**APPENDIX RC (APPENDIX AX)**

**ZERO ENERGY RESIDENTIAL BUILDING PROVISIONS**

**SECTION RC102 (AX102)**

**ZERO ENERGY RESIDENTIAL BUILDINGS**

**RC102.1 General.** New residential buildings shall comply with Section RC102.2.

~~**RC102.2 (AX102.2) Energy Rating Index zero energy score.** Compliance with this section requires that the rated design be shown to have a score less than or equal to the values in Table RC102.2 when compared to the Energy Rating Index (ERI) reference design determined in accordance with RESNET/ICC 301 for both of the following:~~

- ~~1. ERI value not including on-site power production (OPP) calculated in accordance with RESNET/ICC 301.~~
- ~~2. ERI value including on-site power production calculated in accordance with RESNET/ICC 301 with the OPP in Equation 4.1.2 of RESNET/ICC 301 adjusted in accordance with Equation RC 1.~~

**RC102.2 (AX102.2) Energy Rating Index**-New residential buildings shall comply with one the following:

1. The Energy Rating Index (ERI) not including OPP calculated in accordance with RESNET/ICC 301 for the rated design shall be not more than the values listed in Table RC102.2 and the requirements of Sections R406.3, R406.6 and R406.7 and Table R406.2 shall be met, or
2. The requirements of ASHRAE/IES Standard 90.2, including the ERI requirements of ASHRAE/IES 90.2 Table 6-1 without the use of on-site power production (OPP), and the requirements of Sections R402.4.1.1, R402.4.1.2, R406.3, R404.4 (Electric Readiness), and R404.4 (Electric Vehicle Power Transfer Infrastructure) shall be met.

*Note to staff: The section # R404.4 was proposed in several different proposals. As multiple proposals are approved there will need to be a renumbering, so I have included R404.4 with the title of the proposed sections to aid in establishing the final section numbers.*

**RC102.2.1 (AX102.2.1) On-site Power Production** New residential buildings shall achieve an Energy Rating Index (ERI) value including onsite power production not more than the values in Table RC 102.2. The ERI shall be calculated in accordance with RESNET/ICC 301 with the OPP in Equation 4.1.2 of RESNET/ICC 301 adjusted in accordance with Equation RC-1

Adjusted OPP = OPP + CREF + REPC

**(Equation RC-1)**

where:

CREF = Community Renewable Energy Facility power production—the yearly energy, in kilowatt hour equivalent (kWh<sub>eq</sub>), contracted from a community renewable energy facility that is qualified under applicable state and local utility statutes and rules, and that allocates bill credits to the rated home.

REPC = Renewable Energy Purchase Contract power production—the yearly energy, in kilowatt hour equivalent (kWh<sub>eq</sub>), contracted from an energy facility that generates energy with photovoltaic, solar thermal, geothermal energy or wind systems, and that is demonstrated by an energy purchase contract or lease with a duration of not less than 15 years.

**TABLE RC102.2  
MAXIMUM ENERGY RATING INDEX<sup>a</sup>**

CLIMATE ZONE	ENERGY RATING INDEX NOT INCLUDING OPP	ENERGY RATING INDEX INCLUDING ADJUSTED OPP (as proposed)
1	43	0
2	45	0
3	47	0
4	47	0
5	47	0
6	46	0
7	46	0
8	46	0

a. ~~The building shall meet the requirements of Table R406.2, and the building thermal envelope shall be greater than or equal to the levels of efficiency and SHGC in Table R402.1.2 or R402.1.3.~~

**Add new standard(s) as follows:**

**ASHRAE**

ASHRAE/IES 90.2-2018: Energy-Efficient Design of Low-Rise Residential Buildings Including approved addenda (Addenda A (approved Jan 2021), B (June 2021) and D (February 2022))

---

**Modification Reason:**

REPI-157 as originally proposed replaced the ERI Table with ASHRAE 90.2. This modification allows ASHRAE 90.2 as a compliance option while maintaining the current Appendix RC as an option.

This modification also adds the mandatory requirements to the base ERI score. The mandatory requirements are from Table R406.2 and Sections 406.3, 406.6 and 406.7.

The following mandatory requirements were added to the 90.2 option:

- R402.4.1.1 (Air barrier and insulation installation)
- R402.4.1.2 (Air barrier testing)
- R404.4 (Electric readiness) ----- (see REPI-111)
- R404.4 (Electric Vehicle Power Transfer Infrastructure) --- (see RECPI-6)

Updates reference standard ASHRAE 90.2 with approved Addenda:

- Addenda A (January 2021) – Updates referenced standards including updates of ANSI/RESNET/ICC 301 to 2019 edition, ANSI/RESNET/ICC 380 to 2019 edition and the addition of ASTM E3158 *Standard Test Method for Measuring the Air Leakage Rate of Large or Multizone Building*
- Addenda B (June 2021) – Clarifies lighting provisions for common areas in multifamily structures
- Addenda D (February 2022) – Adds basic indoor environmental quality requirements for lighting systems. Adds reference to 2019 CA Title 24 Part 6 JA8, *Building Energy Efficiency Standards Joint Appendix 8*



## International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	REPI-160-21
CDP ID #	
Code	IECC RE
Code Section(s)	RC102.2 (AX102.2) Energy Rating Index zero energy score.
Location	
Proponent	Residential Electrical, Power, Lighting and Renewables Subcommittee
Proposal Status	
Subcommittee	RE EPLR
Subcommittee Notes	<p>Proponent: Steve Rosenstock representing Edison Electric Institute</p> <p>This proposal would add the more inclusive term “renewable energy resources” instead of spelling out various types of renewable energy. It would also change the terms of an energy purchase contract or lease from not less than 15 years to not less than 10. Some subcommittee members disagreed with changing from 15 to 10 years. The proponent contended that 10 years is more in line with how long the majority of people stay in a home.</p>
Recommendation	Approve as submitted
Vote	9-4
Recommendation Date	6/13/22
Next Step	To Subcommittee _____ To Advisory Group _____ To Consensus Committee <input checked="" type="checkbox"/> _____
Consensus Committee	



Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

**REPI-160-21**

**IECC®: RC102.2**

**Proponents:**

Steven Rosenstock, representing Edison Electric Institute (srosenstock@eei.org)

**2021 International Energy Conservation Code**

**Revise as follows:**

RC102.2 (AX102.2) Energy Rating Index zero energy score.

Compliance with this section requires that the rated design be shown to have a score less than or equal to the values in Table RC102.2 when compared to the Energy Rating Index (ERI) reference design determined in accordance with RESNET/ICC 301 for both of the following:

1. ERI value not including on-site power production (OPP) calculated in accordance with RESNET/ICC 301.
2. ERI value including on-site power production calculated in accordance with RESNET/ICC 301 with the OPP in Equation 4.1.2 of RESNET/ICC 301 adjusted in accordance with Equation RC-1.

(Equation RC-1)

where:

**CREF = Community Renewable Energy Facility power production—the yearly energy, in kilowatt hour equivalent (kWheq),**

**contracted from a community renewable energy facility that is qualified under applicable state and local utility statutes and rules, and that allocates bill credits to the rated home.**

REPC = Renewable Energy Purchase Contract power production—the yearly energy, in kilowatt hour equivalent (kWh<sub>eq</sub>), contracted from an energy facility that generates energy with renewable energy resources ~~photovoltaic, solar thermal, geothermal energy or wind systems~~, and that is demonstrated by an energy purchase contract or lease with a duration of not less than ~~15~~ 10 years.



## International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	REPI-164-21
CDP ID #	
Code	IECC RE
Code Section(s)	RC103 (AX 103) Alternative Scoring Programs and Standards.
Location	
Proponent	Residential Electrical, Power, Lighting and Renewables Subcommittee
Proposal Status	
Subcommittee	RE EPLR
Subcommittee Notes	<p>Proponent: Steve Rosenstock representing Edison Electric Institute</p> <p>This proposal would add flexibility to use other green building standards for reaching zero net energy.</p> <p>A majority of the subcommittee felt that this would open the door to using non-equivalent standards, and the decision to use an alternate standard should not be left up to the AHJ.</p>
Recommendation	Disapprove
Vote	7-4-1
Recommendation Date	6/13/22
Next Step	To Subcommittee _____ To Advisory Group _____ To Consensus Committee ___X_____
Consensus Committee	

Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

**REPI-164-21**

**IECC®: RC103 (AX 103) (New)**

**Proponents:**

Steven Rosenstock, representing Edison Electric Institute (srosenstock@eei.org)

**2021 International Energy Conservation Code**

**Add new text as follows:**

RC103 (AX 103) Alternative Scoring Programs and Standards.

Alternative programs or standards, such as but not limited to the US EPA Energy Star Homes, USGBC LEED for Homes, and the ICC-700 National Green Building Standard shall be allowed to be used to comply with this section when approved by code officials.



## International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	RECPI-10-21      Committee Proposal for water heater efficiency
CDP ID #	605
Code	IECC RE
Code Section(s)	R408.2.3    New Section n
Location	base
Proponent	IECC RE HVACR & WH subcommittee
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	Original Proposal REPI-138-21 Proponent and AHRI have been working on this Proposal for months to gain consensus on a modification. After months of discussion both the Proponent and AHRI came back to the subcommittee with similar but still different modifications. After long discussion the subcommittee voted to Disapprove the modified version presented by the Proponent and Approve the version presented by AHRI. This created a committee Proposal listed and submitted separately. Proposal RECPI-10-21.
Recommendation	The recommendation by the subcommittee after a long discussion voted to Disapprove the Proponents Proposal. <b>First motion</b> to approve Gary Klein with Chris Perry second. Motion did not carry failed with a vote of 5/6/0 <b>Second motion</b> to Disapprove Proponents Proposal as modified motion approved with a vote of 6/4/0 Third Motion: Motion to approve AHRI version as modified (new committee Proposal RECPI-10-21 Vote to approve as modified 6/3/2
Vote	Vote to approve 6/3/2
Recommendation Date	6/6/2022
Next Step	To Subcommittee _____ To Advisory Group _____ To Consensus Committee_x_____
Consensus Committee	

# RECPI-10-21

IECC@: R408.2.3, Table R408.2.3 (New)

Proponents: John Hensley, representing IECC RE HVACR & Water Heating Subcommittee (ieccrehvacr@iccsafe.org)

## 2021 International Energy Conservation Code

Revise as follows:

**R408.2.3 Reduced energy use in service water-heating option.** The hot water system shall meet one of the following efficiencies in Table R408.2.3.

1. ~~Greater than or equal to 0.2 EF fossil fuel service water heating system.~~
2. ~~Greater than or equal to 2.0 EF electric service water heating system.~~
3. ~~Greater than or equal to 0.4 solar fraction solar water heating system.~~

Add new text as follows:

**Table R408.2.3 Service water-heating efficiencies**

OPTION	WATER HEATER	SIZE	TYPE	EFFICIENCY
1.	Gas-fired storage water heaters Uniform Energy Factor (UEF)	≤55 gallons	Medium Draw Pattern	UEF≥0.64
			High Draw Pattern	UEF≥0.68
	First-hour rating FHR≥51 gallons per hour	>55 gallons	Medium Draw Pattern	UEF≥0.78
			High Draw Pattern	UEF≥0.80
2.	Gas-fired instantaneous water-heater	-	-	UEF>0.87
3.	Electric water heaters	-	Integrated HPWH	UEF≥3.30
	Uniform Energy Factor (UEF)	-	Integrated HPWH, 120 Volt/15 Amp Circuit	UEF≥2.20
	First-hour rating FHR≥45 gallons per hour	-	Split-system HPWH	UEF≥2.20
4.	Solar water heaters	-	Electric backup	SUEF≥3.00
	Solar uniform energy factor (SUEF)	-	Gas backup	SUEF>1.80

**Reason:** Original Proposal REPI-138-21 Proponent and AHRI have been working on this Proposal for months to gain consensus on a modification. After months of discussion both the Proponent and AHRI came back to the subcommittee with similar but still different modifications. After long discussion the subcommittee voted to Disapprove the modified version presented by the Proponent and Approve the version presented by AHRI. This created a committee Proposal listed and submitted separately. Proposal RECPI-10-21.

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



## International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	REPI-138-21    Service WH units
CDP ID #	499
Code	IECC RE
Code Section(s)	R408.2.3    New Section n
Location	base
Proponent	Patricia Chawla    patricia.chawla@austinenergy.com
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	Proponent and AHRI have been working on this Proposal for months to gain consensus on a modification. After months of discussion both the Proponent and AHRI came back to the subcommittee with similar but still different modifications. After long discussion the subcommittee voted to Disapprove the modified version presented by the Proponent and Approve the version presented by AHRI. This created a committee Proposal listed and submitted separately. Proposal RECPI-10-21.
Recommendation	The recommendation by the subcommittee after a long discussion voted to Disapprove the Proponents Proposal. <b>First motion</b> to approve Gary Klein with Chris Perry second. Motion did not carry failed with a vote of 5/6/0 <b>Second motion</b> to Disapprove Proponents Proposal as modified motion approved with a vote of 6/4/0 Third Motion: Motion to approve AHRI version as modified (new committee Proposal RECPI-10-21 Vote to approve as modified 6/3/2
Vote	REPI-138 Disapprove with a vote of 6/4/0
Recommendation Date	6/6/2022
Next Step	To Subcommittee _____ To Advisory Group _____ To Consensus Committee ____x_____
Consensus Committee	



## International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	REPI-099-21 Electric resistance zone heat unit
CDP ID #	330
Code	IECC RE
Code Section(s)	R403.7.1 New Section y
Location	base
Proponent	David Baylon david@davidbaylon.com
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	<p>Proponent David Baylon and Kevin Rose presented this proposal during the April 4<sup>th</sup> HVACR subcommittee meeting. Motion from a subcommittee member to disapprove this Proposal with a second. With most of the comments centering around the Proposal not being ready Vote to Disapprove in subcommittee 7/4/1 On April 28<sup>th</sup> the Proposal was heard by the IECC committee with the end result with REPI-099 remanded back to the subcommittee. HVACR subcommittee scheduled and heard a modified proposal on 6/14/2022 Motion from a subcommittee member to Disapprove with a second and the Chair opened the floor to discussion. Ultimately the motion to Disapprove was withdrawn. Some of the misgivings about the Proposal are listed below. Which living zone qualify? - The Proposal will not be clear to code officials. - The Proposal is just not ready- Comments for the proposal- Washington State has had this in the code for years. Code officials in Washington state are not confused by the language. After a lengthy discussion and additional modifications in the proposed language a motion was submitted to approve the Proposal "as modified" with a second discussion. With constructive conversation and open discussion among the attending subcommittee members and interested parties a motion was received to "Call the Question" Motion and second call the question passed 9/0/0</p> <p>Vote to approve the motion and second – 7/1/1 "as modified"</p>
Recommendation	<p>Subcommittee heard this Proposal on 4/4/2022 motion to disapprove, IECC heard the Proposal on 4/28/2022 with a motion from the subcommittee to Disapprove failing and the Proposal was remanded back to the subcommittee. HVACR subcommittee heard the Proposal with a new Modification on 6/14/2022 and the final vote of the subcommittee is to Approve "as modified"</p>
Vote	Vote to approved as modified 7/1/1
Recommendation Date	Recommendation date 6/14/2022



Next Step	To Subcommittee _____ To Advisory Group _____ To Consensus Committee __ yes _____
Consensus Committee	
Committee Response	
Vote	Affirmative _____ Negative _____ Table _____ To Subcommittee _____
Date	

**REPI-99-21 Modification - 6/14/22**

**Add new definitions as follows:**

**ZONAL HEATING.** A heating system in which each *zone* or room has a separate heater with a single controller in each zone.

**Add new section as follows:**

**R403.7.1 Electric resistance zone heated dwellings.**

All detached one- and two-family dwellings and townhouses in Climate Zones 4-8 using electric resistance *zonal heating* as the primary heat source shall install one additional heating unit in the largest living zone. The additional unit shall have an HSPF greater than 7.4 (6.3 HSPF2). Building permit drawings shall specify the heating equipment type and location of the heating system.

**Exceptions:**

1. Total installed heating capacity of 2 kW per dwelling or less.
2. Dwellings that have central ducted or ductless cooling or heating systems.

**Revise as follows [remainder of table unchanged]:**

**TABLE R405.2 REQUIREMENTS FOR TOTAL BUILDING PERFORMANCE**

<b>SECTION</b>	<b>TITLE</b>
R403.7, <u>except section R403.7.1</u>	Equipment sizing and efficiency rating

**Revise as follows [remainder of table unchanged]:**

**TABLE R406.2 REQUIREMENTS FOR ENERGY RATING INDEX**

<b>SECTION</b>	<b>TITLE</b>
R403.7, <u>except section R403.7.1</u>	Equipment sizing and efficiency rating



## International Energy Conservation Code Code Change Proposal Tracking Sheet

Proposal #	REPI-056-21    insulation installation
CDP ID #	471
Code	IECC RE
Code Section(s)	R402.4.1.1, TABLE R402.4.1.1, R402.4.1.2    New Section n
Location	base
Proponent	Mark Lyles    markl@newbuildings.org
Proposal Status	SC rev
Subcommittee	RE Envelope
Subcommittee Notes	Proponent: modified, closer to grade 1 level of performance, pull language from Title 24
Recommendation	<p>Bobby Parks motion to disapprove, Greg Johnson seconded. Reason: Good info but mostly installation instructions rather than code language. Some of the language used such as “without voids” is problematic.</p> <p>Referred back to SC by full committee. Modifications made by SEHPCAC and SC. Motion to approve. Reason: this proposal will help increase the proper installation of insulation and therefore the performance of residential buildings.</p>
Vote	12-4-1; 11-2
Recommendation Date	3/16/22; 6/15/22
Next Step	To Subcommittee _____ To Advisory Group _____ To Consensus Committee_X _____
Consensus Committee	

Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

**Replacement proposal for REPI-56**

**Dear subcommittee:** In consultation with the air leakage working group, this proposal has been modified to remove the edits initially proposed to two code sections (R402.4.1.1 Installation and R402.4.1.2 Testing) that proposed to reference “a certified third party professional approved by the code official”. That language will form the basis of a new proposal from a member of that working group. Further modifications were made as suggested by the Envelope Subcommittee at the 6/15<sup>th</sup> meeting.

This file replaces the version in the monograph such that it only proposes the revisions to Table R402.4.1.1 indicated below.

**Revise as follow:**

**TABLE R402.4.1.1**

**AIR BARRIER, AIR SEALING AND INSULATION INSTALLATION<sup>a</sup>**

COMPONENT	AIR BARRIER CRITERIA	INSULATION INSTALLATION CRITERIA
General requirements	<p>A continuous air barrier shall be installed in the building envelope.</p> <p>Breaks or joints in the air barrier shall be sealed.</p>	<p>Air-permeable insulation shall not be used as a sealing material.</p> <p><u>Batt or loose fill insulation shall be compressed not more than 2 percent of the total insulated surface area of that component and shall not be compressed more than 3/4 of an inch in any location.</u></p> <p><u>Polyurethane spray foam shall be installed so applied area that the average thickness is greater than or equal to the thickness needed to meet the required R-value. No more than 2 percent of the total insulated area shall contain gaps or be more than 1/4 inch below the specified thickness. The installed thickness shall not be less than 3/4 inch less than the specified thickness at any point.</u></p>
Ceiling/attic	<p>The air barrier in any dropped ceiling or soffit shall be aligned with the insulation and any gaps in the air barrier shall be sealed.</p> <p>Access openings, drop down stairs or knee wall doors to unconditioned attic spaces shall be sealed.</p>	<p>The insulation in any dropped ceiling or soffit shall be aligned with the air barrier <u>and shall extend to the inside face of the exterior wall below.</u></p> <p><u>Insulation shall be placed below platforms used for equipment installation and access, and installed to the full depth and required R-value for the ceiling insulation.</u></p> <p><u>Insulation consisting of batts that nominally fill the cavity between roof framing members shall be supported to maintain the batt uniformly within the cavity. Insulation not supported by a ceiling shall be otherwise supported. In unvented attics, where insulation is applied directly to the underside of the roof deck thermal envelope walls shall insulated in accordance with Table R402.1.3.</u></p>
Walls	<p>The junction of the foundation and sill plate shall be sealed.</p> <p>The junction of the top plate and the top of exterior walls shall be sealed.</p> <p>Knee walls shall be sealed.</p>	<p>Cavities within corners and headers of frame walls shall be insulated by completely filling the cavity with a material having a thermal resistance, R-value, of not less than R-3 per inch. Exterior thermal envelope insulation for framed walls shall be installed in substantial contact and continuous alignment with the air barrier.</p> <p><u>Edges of insulated sheathing not supported directly on structural sheathing or framing shall be tightly fitted to one another without gaps. Where the entirety of the cavity is used for compliance and faced batts are side stapled, compression at the edges shall not be more than the depth of the stapling tab. Where the entirety of the cavity is used for compliance, for loose fill insulation the containment fabric shall not be stapled more than 1/2 inch back from the face of the stud.</u></p>
Windows, skylights and doors	<p>The space between framing and skylights, and the jambs of windows and doors, shall be sealed.</p>	<p><u>All single-member window and door headers that are less than the full width of the adjacent wall framing shall be insulated to not less than R-3 for 2x4 framing, and not less than R-5 for deeper assemblies.</u></p>

Rim joists	Rim joists shall include an exterior air barrier. <sup>b</sup> The junctions of the rim board to the sill plate and the rim board and the subfloor shall be air sealed.	Rim joists shall be insulated so that the insulation maintains permanent contact with the exterior rim board. <sup>b</sup>
Floors, including cantilevered floors and floors above garages	The air barrier shall be installed at any exposed edge of insulation.	Floor framing cavity insulation shall be installed to maintain permanent contact with the underside of subfloor decking. Alternatively, floor framing cavity insulation shall be in contact with the top side of sheathing, or continuous insulation installed on the underside of floor framing and extending from the bottom to the top of all perimeter floor framing members.
Basement crawl space and slab foundations	Exposed earth in unvented crawl spaces shall be covered with a Class I vapor retarder/air barrier in accordance with Section R402.2.10. Penetrations through concrete foundation walls and slabs shall be air sealed. Class 1 vapor retarders shall not be used as an air barrier on below-grade walls and shall be installed in accordance with Section R702.7 of the <i>International Residential Code</i> .	Crawl space insulation, where provided instead of floor insulation, shall be installed in accordance with Section R402.2.10. Conditioned basement foundation wall insulation shall be installed in accordance with Section R402.2.8.1. Slab-on-grade floor insulation shall be installed in accordance with Section R402.2.409.
Shafts, penetrations	Duct and flue shafts and other similar penetrations to exterior or unconditioned space shall be sealed to allow for expansion, contraction and mechanical vibration. Utility penetrations of the air barrier shall be caulked, gasketed or otherwise sealed and shall allow for expansion, contraction of materials and mechanical vibration.	Insulation shall be fitted tightly around utilities passing through shafts and penetrations in the building thermal envelope to maintain required <i>R</i> -value. <b>Compression of insulation at penetrations shall be not more than 30% of its nominal thickness.</b>
Narrow cavities	Narrow cavities of 1 inch or less that are not able to be insulated shall be air sealed.	Batts to be installed in narrow cavities shall be cut to fit or narrow cavities shall be filled with insulation that on installation readily conforms to the available cavity space.
Garage separation	Air sealing shall be provided between the garage and conditioned spaces.	Insulated portions of the garage separation assembly shall be installed in accordance with Sections R303 and R402.2.7.
Recessed lighting	Recessed light fixtures installed in the building thermal envelope shall be air sealed in accordance with Section R402.4.5.	Recessed light fixtures installed in the building thermal envelope shall be airtight and IC rated, and shall be buried or surrounded with insulation.
Plumbing, wiring or other obstructions	All holes created by wiring, plumbing or other obstructions in the air barrier assembly shall be air sealed.	Insulation shall be installed to fill the available space and surround wiring, plumbing, or other obstructions, unless the required <i>R</i> -value can be met by installing insulation and air barrier systems completely to the exterior side of the obstructions. <u>Compression of insulation at penetrations shall be not more than 30% of its nominal thickness. Batt and blanket insulation that is shall be split or delaminated to fit around electrical wires and plumbing runs.</u>
Shower/tub on exterior wall	The air barrier installed at exterior walls adjacent to showers and tubs shall separate the wall from the shower or tub.	Exterior walls adjacent to showers and tubs shall be insulated.

Electrical/phone box on exterior walls	The air barrier shall be installed behind electrical and communication boxes. Alternatively, air-sealed boxes shall be installed.	—
HVAC register boots	HVAC supply and return register boots that penetrate building thermal envelope shall be sealed to the subfloor, wall covering or ceiling penetrated by the boot.	—
Concealed sprinklers	Where required to be sealed, concealed fire sprinklers shall only be sealed in a manner that is recommended by the manufacturer. Caulking or other adhesive sealants shall not be used to fill voids between fire sprinkler	—

a. Inspection of log walls shall be in accordance with the provisions of ICC 400.

b. Air barrier and insulation full enclosure is not required in unconditioned/ventilated attic spaces and at rim joists.