International Energy Conservation Code Consensus Committee- Residential

Draft Meeting Agenda (9 / /23 posting-update

REC2D-9-23(Table R405.2 and Table R406.2 edits)
Proposal for cleanup of air leakage and duct leakage metrics

8. Other business.

9. Upcoming meetings. TBD

10. Adjourn.

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

FOR ADDITIONAL INFORMATION, PLEASE CONTACT:
Kristopher Stenger, AIA, CBO
Director of Energy Programs
International Code Council
kstenger@iccsafe.org

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RE2D-69-23 Mod 2

Notes This modification includes all changes approved for RE2D-59 and proposes to:

1. Change credits for Option (9) as shown highlighted in yellow.
2. Move the row for Option (9) to just below Option (5) to match up with climate zones
3. Move the language for “HVAC options applicable to all climate zones” for Option (9) to just below Option (5).
4. Modify previously approved RE2D-66, Mod 2 by striking the row for Option (9) and replacing it with the Option (9) credits per this proposal (RE2D-66 mods highlighted in green).
5. Keep the RE2D-66 changes for Option (10) as previously approved.
6. Strike the new footnote e per the previously approved RE2D-66.

IECC RE: TABLE R408.2

2024 International Energy Code [RE] [RE:EnnadE:5.9 (0.9c001Y (40)QyEn)P9-. 3D

R408.2.2(1)	**Ground source heat pump**	**4**	**8**	**12**	**19**	**14**	**25**	**32**	**35**	**46**
R408.2.2(2)	**High Performance Cooling (Option 1)**	**5**	**4**	**3**	**2**	**1**	**1**	**1**	**1**	**1**
R408.2.2(3)	**High Performance Cooling (Option 2)**	**6**	**4**	**3**	**2**	**1**	**1**	**1**	**1**	**1**
R408.2.2(4)	**High Performance Gas furnace (Option 1)**	**0**	**1**	**2**	**5**	**3**	**6**	**7**	**7**	**9**
R408.2.2(5)	**High Performance Gas furnace (Option 2)**	**0**	**1**	**2**	**4**	**3**	**5**	**6**	**7**	**8**
R408.2.2(9)	**High Performance Gas furnace and heat**	**15**	**13**	**11**	**~~7~~ NA ~~11~~**	**~~NA 9~~**	**~~NA 10~~**	**~~NA 10~~**	**~~NA 10~~**	**~~NA 10~~**

	pump (Option 1)									
R408.2.2(6)[b]	High									

a. Where the measure is selected, each dwelling unit, sleeping unit, and common areas where the measure is applicable must have the measure installed.

b. Where multiple heating or cooling systems are installed, credits shall be determined using a weighted average of the square footage served by each system.

c. Where the measure is selected, each dwelling unit and sleeping unit must comply with the measure.

d. Where the measure is selected, each dwelling unit shall be served by a water heater meeting the applicable requirements. Where multiple service water heating systems are installed, credits shall be determined using a weighted average of the square footage served by each system.

~~e. 11 credits are available for climate zone 4 where the following measure is used: Gas Furnace and Heat Pump (Option 3): greater than or equal to 95% AFUE fuel gas furnace and 7.8 HSPF2, 15.2 SEER2 and 10.0 EER2 air source heat pump.~~

SEER2: Seasonal Energy Efficiency Ratio, HSPF2: Heating Season Performance Factor, EER2: Energy Efficiency Ratio, COP: Coefficient of Performance

R408.2.2 More efficient HVAC equipment performance option. Heating and cooling equipment shall meet one of the following efficiencies as applicable for the climate zone . Where multiple heating or cooling systems are installed serving different zones, credits shall be earned based on the weighted average of square footage of the zone served by the system. Centrally Ducted Systems:

HVAC options applicable to all climate zones:

1. Ground source Heat Pump -Greater than or equal to 16.1 EER and 3.1 COP ground source heat pump.
2. Cooling (Option 1)-Greater than or equal to 15.2 SEER2 and 12.0 EER2 air conditioner.
3. Cooling (Option 2)-Greater than or equal to 16.0 SEER2 and 12.0 EER2 air conditioner.
4. Gas Furnace (Option 1)-Greater than or equal to 97 % AFUE fuel gas furnace.
5. Gas Furnace (Option 2)- Greater than or equal to 95% AFUE fuel gas furnace.
9. Gas Furnace and Heat Pump (Option 1) - Greater than or equal to 90% AFUE fuel gas furnace and 7.8 HSPF2, 15.2 SEER2 and 10.0 EER2 air source heat pump

HVAC options applicable to climate zones 0, 1, 2, and 3:

6. Gas Furnace (Option 3)-Greater than or equal to 90% AFUE fuel gas furnace.
7. Gas Furnace and Cooling (Option 1)- Greater than or equal to 90% AFUE fuel gas furnace and 15.2 SEER2 and 10.0 EER2 air conditioner.
8. Gas Furnace and Cooling (Option 2) - Greater than or equal to 95% AFUE fuel gas furnace and 16.0 SEER2 and 10.0 EER2 air conditioner.
~~9. Gas Furnace and Heat Pump (Option 1) - Greater than or equal to 90% AFUE fuel gas furnace and 7.8 HSPF2, 15.2 SEER2 and 10.0 EER2 air source heat pump.~~
10. Heat Pump (Option 1)–Greater than or equal to 7.8 HSPF2, 15.2 SEER2, and 11.7 EER2 air source heat pump.

Reason Statement: Hybrid systems using a heat pump with gas furnace back-up will become more popular, especially in cold climates, as programs, incentives, policies and codes continue to promote or require the installation of heat pumps. A more affordable option, not requiring a more expensive cold climate heat pump and 95% furnace, should also be available in cold climate zones and will still offer significant energy savings.

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International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	RE2D-62-23 Modify Table R408.2
CDP ID #	1917
Code	IECC RE
Code Section(s)	Table R408.2
Location	SC rev
Proponent	Vladimir Kochkin
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	Vladamir Kochkin opened and then turned over the floor to Armin Rudd to present. David Bixby made a motion to approve to open discussion with a second by Dean Potter. Initial support from some subcommittee members until Rob Salcido with PNNL said there is no time left for calculations to be completed. With this information David Bixby removed his motion to approve and the second agree. New motion to disapprove by Mark Lyles with a second from Jennifer Amann. Without PNNL calculations it is too late for this proposal to move forward.
Recommendation	Subcommittee voted to disapprove
Vote	5/1/1
Recommendation Date	9/5/2023
Next Step	To Subcommittee To Advisory Group_____ To Consensus Committee____x_____
Consensus Committee	
Committee Response	
Vote	Affirmative_____ Negative_____ Table_____ To Subcommittee_____
Date	

International Energy Conservation Code
Code Change Proposal Tracking Sheet

Proposal #	REC2D-7-23 Balanced ventilation
CDP ID #	1928
Code	IECC RE
Code Section(s)	Table R408.2
Location	SC rev
Proponent	Gayathri Vijayakumar
Proposal Status	SC rev
Subcommittee	RE HVACR & WH
Subcommittee Notes	Gayathri presented the new term and definition “balanced ventilation system” With a motion to approve and second. No discussion. Table 403.6.2
Recommendation	Motion to approve carried with a unanimous vote yes

REC2D-7-23

IECC RE: R403.6.2, TABLE R403.6.2

Proponents:

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

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

Revise as follows:

R403.6.2 Whole-dwelling mechanical ventilation system fan efficacy.

Fans used to provide whole-dwelling mechanical *vent h*

*ph c r hcrcB r Ar Ac A rbhr yd h Ar b Br BAr Ac rmdy A dArdA Adste*d. The airflow shall be reported *tr h r*
ne product listing or on the label. Fan efficacy shall be reported in the product listing or shall be derived from the input power and
ow values reported in the product listing or on the label. Fan efficacy for fully ducted HRV, ERV, balanced ~~*balanced*~~ *ventilation*
ems, and in-line fans shall be determined at a static pressure of not less than 0.2 inch w.c. (49.85 Pa). Fan efficacy for ducted range
ds, bathroom and utility room fans shall be determined at a static pressure of not less than 0.1 inch w.h þ ľ A oEmo2 DICE4)DE

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		a	
r-handling unit fan power determined in US Department of Energy Code of Federal or other approved test method .			

<u>*balanced ventilation systems*</u>, HRVs, and ERVs, determine the efficacy as the outdoor airflow divided by the total fan power.

Reason:

PCD2 introduces a new term and definition for “balanced ventilation mea tdl

REC2D-6-23

Vladimir Kochkin, representing NAHB (vkochkin@nahb.org)

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

R402.2.1 Ceilings with attics..

Where Section R402.1.3 requires R-38 insulation in the ceiling or attic, installing R-30 over 100 percent of the ceiling or attic area requiring insulation shall satisfy the requirement for R-38 insulation wherever the full height of uncompressed R-30 insulation extends over the wall top plate at the eaves. Where Section R402.1.3 requires R-49 insulation in the ceiling or attic, installing R-38 over 100 percent of the ceiling or attic area requiring insulation shall satisfy the requirement for R-49 insulation wherever the full height of uncompressed R-38 insulation extends over the wall top plate at the eaves. ~~Where Section R402.1.3 requires R-60 insulation in the ceiling or attic, installing R-49 over 100 percent of the ceiling or attic area requiring insulation shall satisfy the requirement for R-60 insulation wherever the full height of uncompressed R-49 insulation extends over the wall top plate at the eaves.~~ This reduction shall not apply to the insulation and *fenestration* criteria in Section R402.1.2 and the component performance alternative in Section R402.1.5.

Correlates with the changes made to Table R402.1.3.

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

Correlation with changes made to Table R402.1.3

REC2D-8-23

Emma Gonzalez-Laders, representing New York State Dept of State (emma.gonzalez-laders@dos.ny.gov)

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

SLEEPING UNIT. A single unit that provides rooms or spaces for one or more persons, includes permanent provisions for sleeping and can include provisions for living, eating and either sanitation or kitchen facilities but not both. Such rooms and spaces that are part of a *dwelling unit*

water gauge (50 Pa). Where required by the *code official*, testing shall be conducted by an *approved* third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the *code official*. Testing shall be performed at any time after creation of all penetrations of the *building thermal envelope* have been sealed.

During testing:

1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weatherstripping or other *infiltration* control measures.
2. Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended *infiltration* control measures.
3. Interior doors, where installed at the time of the test, shall be open.
4. Exterior or intee

grade plane in height, *building thermal envelope* tightness and insulation installation shall be considered acceptable where the items in Table R402.5.1.1, applicable to the method of construction, are field verified. Where required by the *code official*, an *approved*

attached private garage space and heated~~,~~ detached private garage space shall be thermally isolated from all other habitable, conditioned spaces in accordance with Sections R402.2.13 and R402.4.5, as applicable.

2. Where tested in accordance with Section R402.5.1.2.1, testing of each *dwelling unit* or *sleeping unit* is not required.

R402.5.1.2.1 ~~Dwelling unit~~ Unit

For buildings with eight or more *dwelling units* or *sleeping units*, seven or 20 percent of the *dwelling units* or *sleeping units*, whichever is greater, shall be tested. Tested units shall include a top floor unit, a ground floor unit, a middle floor unit, and the *dwelling unit* or *sleeping unit* with the largest ~~*dwelling unit*~~ *testing enclosure area*. Where the air leakage rate of a tested unit is greater than the maximum permitted rate, corrective actions shall be taken and the unit re-tested until it passes. For each tested *dwelling unit* or *sleeping unit* with an air leakage rate greater than the maximum permitted rate, three additional units, including the corrected unit, shall be tested. Where buildings have fewer than eight *dwelling units* or *sleeping units*, each ~~*dwelling unit*~~ unit shall be tested.

R402.5.1.3 Maximum air leakage rate.

Where tested in accordance with Section R402.5.1.2, the air leakage rate for *buildings*, ~~or~~ *dwelling units*, or *sleeping units* shall be as follows:

1. Where complying with Section R401.2.1, the *building*, ~~or~~the *dwelling units* or *sleeping units* in the *building* shall have an air leakage rate not greater than 4.0 air changes per hour in Climate Zones 0, 1 and 2~~.~~; 3.0 air changes per hour in Climate Zones 3 through 5~~.~~; and 2.5 air changes per hour in Climate Zones 6 through 8.
2. Where complying with Section R401.2.2 or R401.2.3, the *building* or the dwelling units or *sleeping units* in the *building* shall have an air leakage rate not greater than 4.0 air changes per hour, or 0.22 cfm/ft^2 (1.1 L/s x m^2) of the *building thermal envelope* area or the *dwelling* ~~*unit*~~ *testing enclosure area*, as applicable.

1. Where *dwelling units* or *sleeping units* are attached or located in an R-2 occupancy, and are tested without simultaneously testing adjacent *dwelling units* or *sleeping units*, the air leakage rate is permitted to be not greater than 0.27 cfm/ft^2 (1.35 L/s x m^2) of the ~~*dwelling*~~ *testing unit enclosure area*. Where adjacent *dwelling units* are simultaneously tested in accordance with ASTM E779, the air leakage rate is permitted to be not greater than 0.27 cfm/ft^2 (1.35 L/s x m^2) of the ~~*dwelling unit*~~*testing enclosure area* that separates *conditioned space* from the exterior.
2. Where *buildings* have 1,500 square feet (139.4 m^2) or less of *conditioned floor area*, the air leakage rate is permitted to be not greater than 0.27 cfm/ft^2 (1.35 L/s x m^2).

R403.3.1 Duct system design.

Duct systems serving one or two *dwelling units* or *sleeping units* shall be designed and sized in accordance with ANSI/ACCA Manual D. *Duct systems* serving more than two *dwelling units* or *sleeping units* shall be sized in accordance with the ASHRAE Handbook of Fundamentals, ANSI/ACCA Manual D, or other equivalent computation procedure.

R403.3.9 ~~Dwelling unit~~ Unit sampling.

For *buildings* with eight or more *dwelling units* or *sleeping units* the *duct* systems in the greater of seven, or 20 percent of the *dwelling units* or *sleeping units* in the *building* shall be tested, including a top floor unit, a ground floor unit, a middle floor unit, and the unit with the largest *conditioned floor area*. Where buildings have fewer than eight dwelling units or *sleeping units*, the *duct* systems in each unit shall be tested. Where the leakage of a *duct* system is greater than the maximum permitted *duct system* leakage , corrective actions shall be made to the *duct system* and the *duct system* shall be system re-tested until it passes. For each tested *dwelling unit* or *sleeping unit* that has a greater total *duct system* leakage than the maximum permitted *duct system* leakage , an additional three *dwelling units* or *sleeping units*, including the corrected unit, shall be tested.

R403.6.4 ~~Dwelling unit~~ Unit sampling.

For *buildings* with eight or more *dwelling units* or *sleeping units* the mechanical *ventilation* systems in seven, or 20 percent of the *dwelling units* or *sleeping units*, whichever is greater shall be tested.~~,~~ Tested systems shall include ~~a~~ systems in a top floor unit, systems in a ground floor unit, systems in a middle floor unit, and the systems in the *dwelling unit* or *sleeping unit* with the largest *conditioned floor area*. Where *buildings* have fewer than eight *dwelling units* or *sleeping units*, the mechanical *ventilation* systems in each unit shall be tested. Where the *ventilation* flow rate of a mechanical *ventilation* system is less than the minimum permitted rate, corrective actions shall be taken and the system retested until it passes. For each tested *dwelling unit* or *sleeping unit* system with a *ventilation* flow rate lower than the minimum permitted three additional systems, including the corrected system, shall be tested.

R403.8 Systems serving multiple ~~dwelling~~ units.

Except for systems complying with Section R403.9, systems serving multiple *dwelling units* <u>or *sleeping units*</u> shall comply with Sections C403 and C404 of the *Internaw*

Opaque doors	Area: 40 ft .	As proposed
	Orientation: North.	As proposed
	U-factor: same as fenestration as specified in Table R402.1.2 .	As proposed
d		

Mechanical ventilation fan energy	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 × B × M)/ef where: B and M are determined in accordance with the Mechanical Ventilation 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 × M. *CFA* = conditioned floor area, ft^2. *N* = number of bedrooms.	As proposed
Internal gains	IGain, in units of Btu/day per dwelling unit, shall equal 17,900 + 23.8 ×*CFA* + 4,104 × *N* where: *CFA* = conditioned floor area, ft . *N* = number of bedrooms.	Same as *standard reference design*.
Internal mass	Internal mass for furniture and contents: 8 pounds per square foot of floor area.	Same as *standard reference design*, plus any additional mass specifically designed as a thermal storage element but not integral to the *building thermal envelope* or structure.
Structural mass	For masonry floor slabs: 80 percent of floor area covered by R-2 carpet and pad, and 20 percent of floor directly exposed to room air.	As proposed
	For masonry basement walls: as proposed, but with insulation as specified in Table R402.1.3, located on the interior side of the walls.	As proposed
	For other walls, ceilings, floors, and interior walls: wood frame construction.	As proposed
Heating systems	Fuel Type/Capacity: Same as proposed design	As proposed
	Product class: Same as proposed design	As proposed
	Efficiencies:	As proposed
	Heat pump: Complying with 10 CFR §430.32	As proposed
	Fuel gas and *liquid fuel* furnaces: Complying with 10 CFR §430.32	As proposed
	Fuel gas and *liquid fuel* boilers: Complying with 10 CFR §430.32	As proposed
Cooling		

D		

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

AF = $A_s \times FA \times F$

where:

AF = Total glazing area.

A_s = *Standard reference design* total glazing area.

FA = (Above-grade thermal boundary gross wall area)/(above-grade boundary wall area + 0.5 × below-grade boundary wall area).

F = (above-grade thermal boundary wall area)/(above-grade thermal boundary wall area + common wall area) or 0.56, whichever is greater.

and

where:

- Thermal boundary wall is any wall that separates conditioned space from unconditioned space or ambient conditions.
- Above-grade thermal boundary wall is any thermal boundary wall component not in contact with soil.
- Below-grade boundary wall is any thermal boundary wall in soil contact.
- Common wall area is the area of walls shared with an adjoining dwelling unit.

i. The factor for the compactness of the hot water distribution system is the ratio of the area of the rectangle that bounds the source of hot water and the fixtures that it serves (the “hot water rectangle”) divided by the floor area of the dwelling.

1. Sources of hot water include water heaters, or in multiple-family buildings with central water heating systems, circulation loops or electric heat traced pipes.
2. The hot water rectangle shall include the source of hot water and the points of termination of all hot water fixture supply piping.
3. The hot water rectangle shall be shown on the floor plans and the area shall be computed to the nearest square foot.
4. Where there is more than one water heater and each water heater serves different plumbing fixtures and appliances, it is permissible to establish a separate hot water rectangle for each hot water distribution system and add the area of these rectangles together to determine the compactness ratio.
5. The basement or attic shall be counted as a story when it contains the water heater.
6. Compliance shall be demonstrated by providing a drawing on the plans that shows the hot water distribution system rectangle(s), comparing the area of the rectangle(s) to the area of the dwelling and identifying the appropriate compactness ratio and *HWDS* factor.

j. For a *proposed design* with electric resistance heating, a split system heat pump complying with 10 CFR §430.32 (2021) shall be assumed modeled in the *standard reference design*.

k. For heating systems, cooling systems, or water heating systems not included in Table R405.4.2(1), the *standard reference design* shall be the same as *proposed design*.

l. Only sections of *ductwork* that are installed in accordance with Items 1 or 2 of Section R403.3.4, are assumed to be located completely inside *conditioned space*. All other sections of *ductwork* are not assumed to be located completely inside *conditioned space*.

m. Sections of *ductwork* installed in accordance with Section R403.3.5.1, are assumed to have an effective duct insulation R-value of R-25.

A problem was created when the term “sleeping unit” was introduced in the Residential provisions of the Energy Code. By mentioning “sleeping units” in some code sections but not others, an ambiguity was created regarding whether certain provisions that only mention “dwelling units” should also apply to “sleeping units.”

This is intended to be an editorial proposal offered as a clarification consistent with the intent of existing code provisions. It adds a definition for the term “sleeping unit” but it neither adds new sections nor deletes existing sections. For simplicity and to avoid unnecessarily repetitive language, we’ve modified the term “~~dwelling~~ unit enclosure area” to read “testing unit enclosure area” in Chapter 2 and wherever it’s mentioned. We also corrected some punctuation mistakes.

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

This proposal is editorial.

REC2D-9-23

IECC RE: R402.2.9, R402.2.9.1, TABLE R405.2, TABLE R406.2

Proponents:

Gayathri Vijayakumar, representing Steven Winter Associates (gayathri@swinter.com)

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

Revise as follows:

R402.2.9 Basement walls.

Basement walls shall be insulaee Ŏ Ş inulaee Ŏ h402.1.3 and applicable provisions of Sections R402.2 and R402.2.8.

2. There are no uninsulated *ductwork*, domestic hot water piping, or hydronic heating surfaces exposed to the b

3.There are no HVAC supply or return diffusers serving the basement.

4.

applicable provisions of Section R402.2, and weatherstripped in accordance with Section R402.5.

6.The *building thermal envelope* separating the basement from adjacent conditioned spaces complies with Sect

02.2.9.1 Basement wall insulation installation.

e *basement walls* are insulated, the insulation shall be installed from the top of the *basement wall* down to 10 feet
grade or to the basement floor, whichever is less, or in accordance with the *proposed design* or the *rated design*,

E R405.2 REQUIREMENTS FOR SIMULATED BUILDING PERFORMANCE

	SECTION[a]	TITLE
		General
1.3		Certificate
		Building Thermal Envelope
2.1.1		Vapor retarder
2.1.6		Rooms containing fuel burning appliances
2.2.3		Attic knee wall
2.2.4		Eave baffle

R402.2.5.1	Access hatches and door insulation installation and retention
R402.2.9.1	Basement wall insulation installation
R402.2.10	Slab-on-grade floors
R402.2.11	Crawl space ~~wall insulation~~walls
R402.5.1.1	Installation
R402.5.1.2	Air leakage testing
R402.5.1.3	Maximum air leakage rate
R402.5.2	Fireplaces
R402.5.3	Fenestration air leakage
R402.5.4	Recessed lighting
R402.5.5	Air-sealed electrical and communication outlet boxes
R402.6	Maximum fenestration *U*-factor and SHGC
Mechanical	
R403.1	Controls
R403.2	Hot water boiler temperature reset
R403.3	Duct systems
R403.4	Mechanical system piping insulation
R403.5	Service hot water systems
R403.6	Mechanical ventilation
R403.7, except Section R403.7.1	Equipment sizing and efficiency rating
R403.8	Systems serving multiple dwelling units
R403.9.2	Snow melt and ice system controls
R403.10	Energy consumption of pools and spas
R403.11	Portable spas
R403.12	Residential pools and permanent residential spas
R403.13	Gas fireplaces
Electrical Power and Lighting Systems	
R404.1	Lighting equipment
R404.2	Interior lighting controls
R404.5	Electric readiness

R404.6	Renewable energy infrastructure
R404.7	Electric Vehicle power transfer infrastructure

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

TABLE R406.2 REQUIREMENTS FOR ENERGY RATING INDEX

SECTION[a]	TITLE
General	
R401.3	Certificate
Building Thermal Envelope	
R402.1.1	Vapor retarder
R402.1.6	Rooms containing fuel burning appliances
R402.2.3	Attic knee wall
R402.2.4	Eave baffle
R402.2.5.1	Access hatches and door insulation installation and retention
R402.2.9.1	Basement wall insulation installation
R402.2.10	Slab-on-grade floors
R402.2.11	Crawl space ~~wall insulation~~walls
R402.5.1.1	Installation
R402.5.1.2	Air leakage testing
R402.5.1.3	Maximum air leakage rate
R402.5.2	Fireplaces
R402.5.3	Fenestration air leakage
R402.5.4	Recessed lighting
R402.5.5	Air-sealed electrical and communication outlet boxes
R406.3	*Building thermal envelope*
Mechanical	
R403.1	Controls
R403.2	Hot water boiler temperature reset
R403.3	Duct systems
R403.4	Mechanical system piping insulation

R403.5	Service hot water systems
R403.6	Mechanical ventilation
R403.7, except Section R403.7.1	Equipment sizing and efficiency rating
R403.8	Systems serving multiple dwelling units
R403.9.2	Snow melt and ice system controls
R403.10	Energy consumption of pools and spas
R403.11	Portable spas
R403.12	Residential pools and permanent residential spas
R403.13	Gas fireplaces
Electrical Power and Lighting Systems	
R404.1	Lighting equipment
R404.2	Interior lighting controls
R404.5	Electric readiness
R404.6	Renewable energy infrastructure
R404.7	Electric Vehicle power transfer infrastructure

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

Reason:

R402.2.9.1 was modified in the last round of voting (RED1-217). The reason statement said: “The proposal clarifies the relationship between the prescriptive path and both performance paths. The performance paths are intended to provide design flexibility in achieving target energy performance. Only installation provisions should be listed in this table because the amount of insulation should be tradable. The insulation height on basement walls should be tradable as well.”However, this sub-section is no longer listed in Table R405.2 or

R408.2.1.4 Reduced air leakage. For the reduced air leakage credit, the building shall have a measured air leakage rate no less than 2.0 ACH50 and no greater than 2.5ACH50 or the dwelling units in the building shall have an average measured air leakage rate no greater than 0.24 cfm50/ft^2 [1.2 L/(s × m^2

shall be tested in accordance with the test procedure referenced by Table R403.6.2and listed. The airflow shall be reported in the product listing or on the label. Fan efficacy shall be reported in the product listing or shall be derived from the input power and airflow values reported in the product listing or on the label. Fan efficacy for fully ducted HRV, ERV, balanced, and in-line fans shall be determined at a static pressure of not less than 0.2 inch w.c. (50~~49.85~~ Pa). Fan efficacy for ducted range hoods, bathroom and utility room fans shall be determined at a static pressure of not less than 0.1 inch w.c. (25 Pa).

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