Department of Inspection and Standards
Brett P. Smiley, Mayor
James C. Moore III, Director
Kevin Mahoney Deputy Director

2024 IECC – Residential Provisions

Applicant:
Contractor:
Permit Number:
Project Scope:
Address or Plat and Lot:

Information Required on Construction Documents

Energy Compliance Paths

(Choose one and provide this information on the construction documents)

Prescriptive compliance: A compliance method in which all building envelope and system components must meet or exceed the specific requirements listed in the IECC without substitution or trade-offs. This also includes the selection of additional energy credits. Starts on page three of this document. (Table R408.2)

Simulated building performance: A compliance method that uses approved energy modeling software to demonstrate that the proposed building's annual energy cost is less than or equal to that of a comparable reference building built to prescriptive standards.

Energy rating index: A performance-based compliance method in which a home must achieve an ERI score equal to or lower than the maximum allowed by the IECC for its climate zone. This score represents the home's overall energy efficiency compared to a baseline home.

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Prescriptive Compliance Option

Table: R402.1.3
Insulation Minimum R-values And Fenestration Requirements By Component

CLIMATE ZONE		5
	R-Value	U-Factor
Vertical fenestration U-factor	N/A	0.28
Skylight U-factor	N/A	0.5
Glazed vertical fenestration SHGC	NR	NR
Skylight SHGC	NR	NR
Ceiling R-value	49	0.026
Insulation entirely above roof deck	30ci	0.032
Wood-framed wall R-value[e]	30 or 20&5ci or 13&10ci or 0&20ci	0.045
Mass wall R-value [f]	13/17	0.082
Floor R-value [h]	30 or 19+7.5ci or 20ci	0.033
Basement wall R-Value [b, e]	15ci or 19 or 13&5ci	0.05
Unheated slab F-factor [c]	10ci, 3 ft	0.51
Heated slab F-factor [c]	R-10ci, 3 ft and R-5 full slab	0.66
Crawl space wall R-value [b, e]	15ci or 19 or 13&5ci	0.055

a. R-values are minimums. U-factors and SHGC are maximums. Where insulation is installed in a cavity that is less than the label or design thickness of the insulation, the installed R-value of the insulation shall be not less than the R-value specified in the table.

b. “5ci or 13” means R-5 continuous insulation (ci) on the interior or exterior surface of the wall or R-13 cavity insulation on the interior side of the wall. "10ci or 13" means R-10 continuous insulation (ci) on the interior or exterior surface of the wall or R-13 cavity insulation on the interior side of the wall. "15ci or 19 or 13&5ci" means R-15 continuous insulation (ci) on the interior or exterior surface of the wall; or R-19 cavity insulation on the interior side of the wall; or R-13 cavity insulation on the interior of the wall in addition to R-5 continuous insulation on the interior or exterior surface of the wall.
c. Slab insulation shall be installed in accordance with Section R402.2.10.1.
e. The first value is cavity insulation; the second value is continuous insulation. Therefore, as an example, “13&5” means R-13 cavity insulation plus R-5 continuous insulation.
f. Mass walls shall be in accordance with Section R402.2.6. The second R-value applies where more than half of the insulation is on the interior of the mass wall.
h. "30 or 19+7.5ci or 20ci" means R-30 cavity insulation alone or R-19 cavity insulation with R-7.5 continuous insulation or R-20 continuous insulation alone.

For SI: 1 foot = 304.8 mm.
NR = Not Required,
ci = Continuous Insulation.

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Required Additional Credits (§R408)

Residential buildings shall choose 10 credits from the options below, from not less than two different categories specified in Table R408.2.

5 additional credits, for a total of 15 credits, shall be chosen for dwelling units with more than 5,000 square feet (465 m2) of living space located above grade plane.

1. Small Dwelling = 10 Credits*
    a. Dwelling Unit under 5,000 square feet of living space located above grade plane.

2. Large Dwelling = 15 Credits*
    a. Dwelling Unit over 5,000 square feet of living space located above grade plane.

*See page 11 for an option for 3 more credit points required (R408.2.9).

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Instructions: Select the preferred options to meet the total required credits

Summary of Table R408.2				
Options	MEASURE DESCRIPTION	CREDIT VALUE	CREDITS GAINED	Comments
R408.2.1.1(1)	≥ 2.5% Reduction in total TC	1		
R408.2.1.1(2)	≥ 5% reduction in total TC	2		
R408.2.1.1(3)	> 7.5% reduction in total TC	2		
R408.2.1.1(4)	> 10% reduction in total TC	4		
R408.2.1.1(5)	> 15% reduction in total TC	5		
R408.2.1.1(6)	> 20% reduction in total TC	7		
R408.2.1.1(7)	> 30% reduction in total TC	11		
R408.2.1.2(1)	Improved Fenestration	1		
R408.2.1.4	Reduced Air Leakage	3		
Cooling				
R408.2.2(2)[b]	High Performance Cooling (Option 1): Greater than or equal to 15.2 SEER2 and 12.0 EER2 air conditioner.	1		
R408.2.2(3)[b]	High Performance Cooling (Option 2): Greater than or equal to 16.0 SEER2 and 12.0 EER2 air conditioner.	1		
Heating				

R408.2.2(4)[b]	High Performance Gas furnace (Option 1): Greater than or equal to 97 percent AFUE fuel gas furnace.	6		
R408.2.2(5)[b]	High Performance Gas furnace (Option 2): Greater than or equal to 95 percent AFUE fuel gas furnace.	5		
R408.2.2(11)[b]	High Performance Gas furnace and cooling (Option 3): Greater than or equal to 95 percent AFUE fuel gas furnace and 15.2 SEER2 and 12.0 EER2 air conditioner.	6		
R408.2.2(12)[b]	High Performance Gas furnace and cooling (Option 4): Greater than or equal to 97 percent AFUE fuel gas furnace and 16.0 SEER2 and 12.0 EER2 air conditioner.	7		
R408.2.2(13)[b]	High Performance Gas furnace and cooling (Option 2): Greater than or equal to 95 percent AFUE fuel gas furnace and 8.1 HSPF2 and 15.2 SEER2 air source heat pump capable of meeting a capacity ratio ≥ 70 percent of heating capacity at 5°F (15°C) versus rated heating capacity at 47°F (8.3°C)	11		

R408.2.2(14)[b]	High Performance Heat pump with electric resistance backup (Option 2): Greater than or equal to 8.1 HSPF2 and 15.2 SEER2 air source heat pump capable of meeting a capacity ratio ≥ 70 percent of heating capacity at 5°F (15°C) versus rated heating capacity at 47°F (8.3°C).	12		
Water Heater				
R408.2.3(1)(a)[d]	Gas-fired storage water heaters (Option 1): All storage volumes, all draw patterns UEF ≥ 0.81	4		
R408.2.3(1)(b)[d]	Gas-fired storage water heaters (Option 2)≤ 55 gallons, high: UEF ≥ 0.86 OR > 55 gallons, medium or high: UEF ≥ 0.86; OR Rated input capacity > 75,000 Btu/h: UEF ≥ 0.86 or Et ≥ 9 4%	5		
R408.2.3(2)(a)[d]	Gas-fired instantaneous water heaters (Option 1): All storage volumes, medium or high: UEF ≥ 0.92	5		

R408.2.3(2)(b)[d]	Gas-fired instantaneous water heaters (Option 2): All storage volumes, medium or high: UEF ≥ 0.95	6		
R408.2.3(3)[d]	Electric water heaters (Option 1): All storage volumes, low, medium, or high; Integrated HPWH; UEF ≥ 3.30	4		
R408.2.3(4)[d]	Electric water heaters (Option 2): All storage volumes, low, medium, or high; Integrated HPWH, 120 volt/15 amp circuit; UEF ≥ 2.20	4		
R408.2.3(5)(a)[d]	Electric water heaters (Option 3): All storage volumes, low, medium, or high; Split-system HPWH; UEF ≥ 2.20	5		
R408.2.3(5)(b)[d]	Electric water heaters (Option 4): All storage volumes, low, medium, or high Split-system HPWH; UEF ≥ 3.75	5		
R408.2.3(6)[d]	Electric water heaters (Option 5): Rated input capacity > 12 kW; COP ≥ 3.00	4		

R408.2.3(7)(a)[d]	Solar hot water heating system (Option 1): All storage volumes, all draw patterns Electric backup SUEF ≥ 3.00	5		
R408.2.3(7)(b)[d]	Solar hot water heating system (Option 2): All storage volumes, all draw patterns; Gas backup; SUEF ≥ 1.80	6		
R408.2.3(8)[c]	Compact hot water distribution	2		

Hydronic				
R408.2.4(1)[c]	Ductless or hydronic thermal distribution	10		
Ducts in Conditioned space				
R408.2.4(2)[c]	100% of duct systems in conditioned space	9		
R408.2.4(3)[c]	≥ 80% of ductwork inside conditioned space	7		
R408.2.4(4)[c]	Reduced total duct system leakage	1		
ERV or HRV				
R408.2.5(1)[c]	ERV or HRV installed	3		
R408.2.5(2)[c]	≤ 2.0 ACH50 with ERV or HRV installed	8		
R408.2.5(4)[c]	≤ 1.5 ACH50 with ERV or HRV installed	10		

R408.2.5(5)[c]	≤ 1.0 ACH50 with ERV or HRV installed	12		
Appliances				
R408.2.6[a]	Energy efficient appliances	1		
Onsite Renewable Energy				
R408.2.7	On-site renewable energy measures	9		
Thermostat				
R408.2.8[c]	Demand responsive thermostat	1		

Total Credits			

a. Where the measure is selected, each dwelling unit, sleeping unit and common area 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. Eleven 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.

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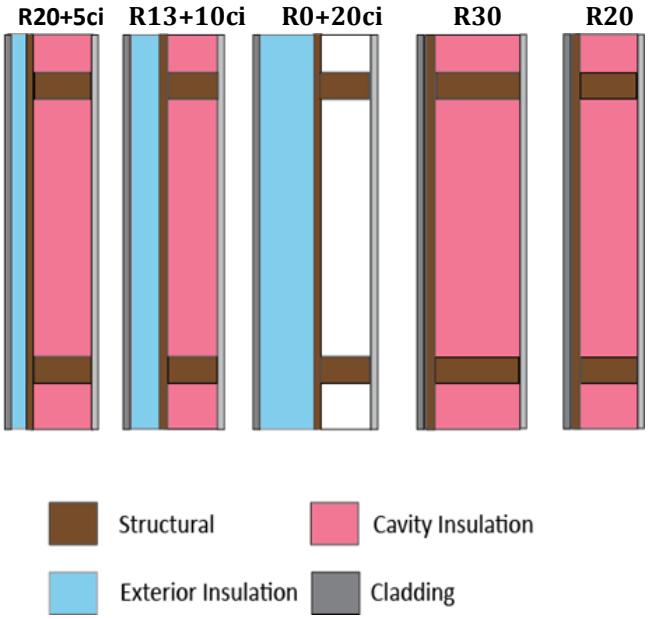
R408.2.9 Opaque Walls

The opaque wall credit is unique that it does not assign energy credits but permits reduced levels of wood-framed wall insulation in climate zones 4 and 5 in exchange for one or more of the following:

- Heat pumps installed meeting efficiency levels in R408.2.2
- Heat pump water heaters meeting efficiency levels in R408.2.3
- In addition to credits required by Section R408.2, 3 additional energy credits are achieved.
- Renewable energy meeting requirements of R408.2.7

Wall Insulation



If R20, one of the following required:
a) 3 additional credits from R408.2
OR
b) Heat pump compliant with R408.2.2
OR
c) Heat pump water heater compliant with R408.2.3
d) Renewable energy resources are installed to meet the requirements of Section R408.2.7

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Additional Energy **Readiness** Requirements

RK101.1.1 Cooking appliances.
A dedicated branch circuit outlet with a rating not less than 240 volts and not less than 40 amperes shall be installed and terminate within 3 feet (914 mm) of conventional cooking tops, conventional ovens or cooking appliances combining both.

RK101.1.2 Household clothes dryers.
A dedicated branch circuit with a rating not less than 240 volts and not less than 30 amperes shall be installed and terminate within 3 feet (914 mm) of each household clothes dryer.

RK101.1.3 Water heaters.
A dedicated branch circuit with a rating either not less than 240 volts and not less than 30 amperes, or not less than 120 volts and not less than 20 amperes, shall be installed and terminate within 3 feet (914 mm) of each water heater.

RK101.1.4 Electrification-ready circuits.
The unused conductors required by Sections RK101.1.1 through RK101.1.3 shall be labeled with the word “spare.” Space shall be reserved in the electrical panel in which the branch circuit originates for the installation of an overcurrent device. Capacity for the circuits required by Sections RK101.1.1 through RK101.1.3 shall be included in the load calculations of the original installation.