RE2D-59-23 MOD (shown in red and blue)

Note: The following modifications to RE2D-59 are shown in red if they are errata/editorial; some are technical due to changes in the simulation updates performed by PNNL. Those are shown in blue. Original edits from RE2D-59 are shown in black.

IECC RE: TABLE R408.2

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

Revise as follows:

TABLE R408.2 CREDITS FOR ADDITIONAL ENERGY EFFICIENCY

Measure Number	Measure Description	Credit Value								
		Climate Zone 0 & 1	Climate Zone 2	Climate Zone 3	Climate Zone 4 except Marine	Climate Zone 4 Marine	Climate Zone 5	Climate Zone 6	Climate Zone 7	Climate Zone 8
R408.2.1.1(1)	≥2.5% Reduction in total TC	0	0	0	1	1	1	1	1	1
R408.2.1.1(2)	≥5% reduction in total TC	0	1	1	2	1	2	2	2	2
R408.2.1.1(3)	>7.5% reduction in total TC	0	1	2	2	2	2	3	3	3
R408.2.1.1(4)	>10% reduction in total TC	1	1	2	3	3	4	4	5	5
R408.2.1.1(5)	>15% reduction in total TC	1	2	2	4	4	5	6	7	8
R408.2.1.1(6)	>20% reduction in total TC	2	4	4	5	6	7	8	9	11
R408.2.1.1(7)	>30% reduction in total TC	3	6	6	8	8	11	12	13	16
R408.2.1.2(~~2~~1)	U-factor and SHGC for vertical fenestration per Table R408.2.1	1	1	1	2	1	1	1	1	1
R408.2.1.3(~~1~~)	Roof reflectance (roof is part	1	~~1~~0	0	0	0	0	0	0	0

	of the *building thermal envelope* and directly above cooled, conditioned space)									
R408.2.1.3~~(2)~~	Roof reflectance (roof is above an unconditioned space that contains a duct system)	1	1	0	0	0	0	0	0	0
R408.2.1.4	Reduced air leakage	1	1	1	2	1	3	NA	NA	NA
~~R408~~.2.2(1)[b]	Ground source heat pump	4	8	12	19	14	25	32	35	46
R408.2.2(2)[b]	High Performance Cooling (Option 1)	5	4	3	2	1	1	1	1	1
R408.2.2(3)[b]	High Performance Cooling (Option 2)	6	4	3	2	1	1	1	1	1
~~R408~~.2.2(4)[b]	High Performance Gas furnace (Option 1)	~~NA~~ 0	~~NA~~ 1	~~NA~~ 2	~~NA~~ 5	~~NA~~ 3	6	7	7	~~NA~~ 9
~~R408~~.2.2(5)[b]	High Performance Gas furnace (Option 2)	0	1	2	4	3	~~NA~~ 5	~~NA~~ 6	~~NA~~ 7	8
R408.2.2(6)[b]	High Performance Gas furnace (Option 3)	0	1	1	~~3~~ NA	NA	NA	NA	NA	NA
R408.2.2(7)[b]	High Performance Gas furnace and cooling (Option 1)	5	5	4	~~5~~ NA	NA	NA	NA	NA	NA
R408.2.2(8)[b]	High Performance Gas furnace and cooling (Option 2)	6	5	5	~~6~~ NA	NA	NA	NA	NA	NA

R408.2.2(9)[b]	High Performance Gas furnace and heat pump (Option 1)	~~13~~ 15	~~12~~ 13	~~9~~ 11	~~7~~ NA	NA	NA	NA	NA	NA
R408.2.2(10)[b]	High Performance Heat pump with electric resistance backup (Option 1)	13	12	11	~~12~~ NA	NA	NA	NA	NA	NA
R408.2.2(11)[b]	High Performance Gas furnace and cooling (Option 3)	NA	NA	NA	~~NA~~ 5	4	6	7	7	9
R408.2.2(12)[b]	High Performance Gas furnace and cooling (Option 4)	NA	NA	NA	~~NA~~ 6	5	7	8	8	10
R408.2.2(13)[b]	High Performance Gas furnace and heat pump (Option 2)	NA	NA	NA	~~NA~~ 12	8	~~0~~ 11	~~1~~ 11	~~3~~ 12	~~7~~ 12
R408.2.2(14)[b]	High Performance Heat pump with electric resistance backup (Option 2)	NA	NA	NA	~~NA~~ 12	8	12	13	14	16
R408.2.3(1)(a)[d]	Gas-fired storage water heaters (option 1)	8	7	7	5	6	4	4	3	2
R408.2.3(1)(b)[d]	Gas ~~F~~fired ~~S~~storage ~~W~~water ~~H~~heaters (option 2)	9	8	8	6	7	5	4	4	3
R408.2.3(2)(a)[d]	Gas-fired instantaneous water heaters (option 1)	10	9	9	6	7	5	5	4	3
R408.2.3(2)(b)[d]	Gas-fired instantaneous	11	10	9	6	7	6	5	4	3

	water heaters (option 2)									
R408.2.3(3)~~(a)~~[d]	Electric water heaters (option 1)	~~12~~ 10	~~11~~ 9	~~11~~ 9	~~8~~ 7	~~8~~ 6	~~5~~ 4	~~4~~ 3	~~4~~ 3	~~3~~ 2
~~R408.2.3(3)(b)[d]~~	~~Electric water heaters (option 2)~~	~~12~~	~~11~~	~~11~~	~~8~~	~~8~~	~~5~~	~~4~~	~~4~~	~~3~~
R408.2.3(4)[d]	Electric water heaters (option ~~3~~2)	~~11~~ 8	~~11~~ 8	~~11~~ 8	~~8~~ 6	~~8~~ 5	~~5~~ 4	~~4~~ 3	~~4~~ 3	~~3~~ 2
R408.2.3(5)(a)[d]	Electric water heaters (option ~~4~~3)	~~8~~ 7	~~10~~ 8	~~11~~ 8	~~8~~ 6	~~11~~ 7	~~7~~ 5	~~5~~ 4	~~5~~ 3	~~4~~ 3
R408.2.3(5)(b)[d]	Electric water heaters (option ~~5~~4)	~~9~~ 8	~~11~~ 9	~~12~~ 10	~~8~~ 7	~~11~~ 8	~~7~~ 5	~~65~~ 5	~~5~~ 4	~~4~~ 3
R408.2.3(~~5~~6)[d]	Electric water heaters (option ~~6~~5)	~~12~~ 10	~~11~~ 9	~~11~~ 9	~~8~~ 7	~~8~~ 6	~~5~~ 4	~~4~~ 3	~~4~~ 3	~~3~~ 2
R408.2.3(~~6~~7)(a)[d]	Solar hot water heating system (option 1)	13	13	13	9	8	5	4	4	3
R408.2.3(~~6~~7)(b)[d]	Solar hot water heating system (option 2)	10	9	9	6	7	6	5	4	3
~~R408.2.3.1[e]~~ R408.2.3(8)[c]	Compact hot water distribution	2	2	2	2	2	2	2	2	2
R408.2.4(1)[c]	More efficient distribution system	3	4	5	7	8	10	10	10	14
R408.2.4(2)[c]	100% of *duct systems* in conditioned space	2	3	4	6	7	9	9	9	13
R408.2.4(3)[c]	≥80% of ductwork inside *conditioned space*	2	3	3	5	6	7	7	7	9
R408.2.4(4)[c]	Reduced total duct leakage	1	1	1	1	1	1	2	2	2
R408.2.5(1)[c]	ERV or HRV installed	0	0	0	0	1	3	2	2	2

R408.2.5(2)[c]	≤2.0 ACH50 with ERV or HRV installed	0	0	0	4	4	8	5	5	5
R408.2.5(3)[c]	≤2.0 ACH50 with a *balanced ventilation system*	0	0	0	0	0	0	4	4	4
R408.2.5(4)[c]	≤1.5 ACH50 with ERV or HRV installed	0	0	0	6	5	10	9	9	9
R408.2.5(5)[c]	≤1.0 ACH50 with ERV or HRV installed	0	0	1	7	6	12	12	12	12
R408.2.6[a]	Energy efficient appliances	1	1	1	1	1	1	0	0	0
R408.2.7	On-site renewable energy measures	17	16	17	11	~~9~~11	~~8~~9	~~7~~8	~~4~~7	4
~~R408.2.8~~	~~Off-site renewable energy measures~~	~~71~~	~~65~~	~~62~~	~~55~~	~~46~~	~~41~~	~~43~~	~~41~~	~~39~~38
~~R408.2.8b~~	~~Off-site renewable energy measure~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~
R408.2.~~9~~8[c]	Demand responsive thermostat	1	1	1	1	1	1	1	1	1
R408.2.~~11~~10	Whole home lighting control	~~0~~1	~~0~~1	~~0~~1	0	0	0	0	0	0
R408.2.~~12~~11	Higher efficacy lighting	0	0	0	0	0	0	0	0	0

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.

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

Revise as follows:

Table 408.2.3
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
		Rated input capacity > 75,000 Btu/h		UEF ≥ 0.86 or Et ≥ 94%
R408.2.3(2)(a)	Gas-fired instantaneous water heater (option 1)	All storage volumes, Medium or High		UEF ≥ 0.92~~5~~
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~~2)	All storage volumes, Low, Medium, or High	Integrated HPWH, 120 Volt/15 Amp Circuit	UEF ≥ 2.20
R408.2.3(5)(a)	Electric water heaters (option ~~4~~3)	All storage volumes, Low, Medium, or High	Split-system HPWH	UEF ≥ 2.20
R408.2.3(5)(b)	Electric water heaters (option ~~5~~4)	All storage volumes, Low, Medium, or High	Split-system HPWH	UEF ≥ 3.75
R408.2.3(~~5~~6)	Electric water heaters (option ~~6~~5)	Rated input capacity > 12 kW		COP ≥ 3.00
R408.2.3(~~6~~7)(a)	Solar water heaters (option 1)	All storage volumes, all draw patterns	Electric backup	SUEF ≥ 3.00
R408.2.3(~~6~~7)(b)	Solar water heaters (option 2)	All storage volumes, all draw patterns	Gas backup	SUEF ≥ 1.80

UEF = Uniform Energy Factor, Et = Thermal Efficiency, COP = Coefficient of Performance