

From: Johnson, Gregory
Sent: Thursday, April 16, 2026, 3:38 PM
To: Curb, Dustin (DES); Braaksma, Krista (DES)

Hi Krista,

I've got a late breaking redline update for tomorrow's MVPE committee.

First I want to thank Kjell for getting the initial edits integrated into the draft (email he sent earlier). That was a super big help as I've been super busy as of late! I've reviewed the draft in detail and caught a few items that really need to be included. Summary of redline updates are below:

- **Addition:** I added in the missing credit values for gas fired water heating in restaurants that PNNL just released today.
- **Correction:** Very few credit values and adjustment factors had incorrect values that I corrected to what PNNL provided. It was apparent that these were merely typos, copy 'n paste, and/or transposed numbers. (Includes correction to low flow residential shower heads)
- **Correction:** A few credit measure rows were missing from the table, so I added them in with the corresponding PNNL measure values.
- **Editorial/Clarifying:** PNNL's use of "0" was a bit ambiguous and so I corrected as follows:
 - I replaced "0" credit value with "N/A" for certain credit measures where the credit was truly N/A.
 - I deleted "0" credit value for those credits where the "0" was merely a placeholder because PNNL has yet to calculate the measure.
 - I left "0" credit value as-is for those credits where it was meant to indicate that a credit was truly worth "0" (or if there was any bit of doubt).
- **Relocate:** I had to reorder a few credit measures in Table C406.2(6) Service Water Usage Efficiency Credit Measures so that the measures associated with certain adjustment factors are grouped together for clarity.
- **Editorial:** C406.2 Added the missing words "*meet or*" before "*exceed*". These two words were included in the 279 proposal and must have accidentally gotten missed.
- **Formatting:** Added space on either side of the "/" that separates credit values for the East and West side for better readability and to allow wrapping when necessary
- **Formatting:** Fixed column alignment for the new rows that Kjell added to the table.
- **Editorial/Clarifying:** Deleted rows text where applicable to better signify those credit measures that do not exist vs. those which have yet to have values calculated
- **Editorial/Clarifying:** I added clarifying footnotes to the tables. Thank you, Mike Kennedy, for identifying the locations where we were missing important footnotes.

Gregory Johnson, P.E., RCDD

Principal Engineer, Electric Distribution Standards

1411 E MISSION AVE | MSC-24 | SPOKANE, WA 99202

PHONE 509-495-4928 | **CELL** 509-280-0795

www.myavista.com



AMENDATORY SECTION (Amending WSR 24-16-145, filed 8/7/24, effective 9/7/24)

WAC 51-11C-40620 Section C406.2—Additional energy efficiency credit measures. C406.2 Additional energy efficiency credit measures.

~~((Each)) Energy efficiency credit measures used to meet credit requirements for the project shall ~~((include efficiency that is greater than the energy efficiency required for the building type and configuration requirements in Sections C402 through C405. Measures installed in the project that meet the requirements in Sections C406.2.1 through C406.2.14 shall achieve the credits listed for the measure and occupancy group in Table C406.2(1) or Table C406.2(2) or where calculations required by Sections C406.2.1 through C406.2.14 create or modify the table credits, the credits achieved shall be based upon the section calculations. Projects that chose to comply with the fossil fuel pathway in Section C401.3 shall use Table C406.2(2) to achieve credits))~~ meet or exceed the energy efficiency required in Sections C402 through C405. The section references in Tables C406.2(1) through C406.2(9) detail the requirements that must be met to obtain all or part of the credit measure available for the~~

noted occupancy group and climate zone. Linear interpolation is allowed where multiple efficiency targets are provided.

~~((For mixed fuel space heating systems, the number of space heating energy efficiency credits available for measures with a prorating flag "Heat" are calculated using the following equation:~~

$$C_{SH} = CHP_{SH} \times B/C + CFF_{SH} \times (1 - B/C)$$

~~Where:~~

- ~~C_{SH} = Blended credits for mixed fuel systems.~~
- ~~CHP_{SH} = Credits available in Table C406.2(1).~~
- ~~CFF_{SH} = Credits available in Table C406.2(2).~~
- ~~B = Installed space heating capacity in kBTU/h of space heating appliances that comply with any of the exceptions to Section C403.1.4.~~
- ~~C = Total installed space heating capacity in kBTU/h of all space heating appliances.~~

~~For mixed fuel service water heating systems, the number of service water heating energy efficiency credits available for measures with a prorating flag "SWH" are calculated using the following equation:~~

$$C_{WH} = CHP_{WH} \times B/C + CFF_{WH} \times (1 - B/C)$$

~~Where:~~

- ~~C_{WH} = Blended credits for mixed fuel systems.~~
- ~~CHP_{WH} = Credits available in Table C406.2(1).~~
- ~~CFF_{WH} = Credits available in Table C406.2(2).~~
- ~~B = Installed service water heating capacity in kBTU/h of service water~~

heating appliances that comply with any of the exceptions to Section C404.2.1.

C = Total installed service water heating capacity in kBTU/h of all service water heating appliances.

~~Table C406.2(1)~~

~~Efficiency Measure Credits~~

~~Table C406.2(2)~~

~~Efficiency Measure Credits for use with~~

~~Fossil Fuel Compliance Path~~

Table C406.2(1)

Lighting Efficiency Credit Measures

ID	Credit Measure	Section Reference	Occupancy Group (Climate Zone 4C / 5B)								
			<u>R-1</u> <u>R-4</u> <u>I-1</u>	<u>I-2</u>	<u>R-2</u>	<u>B</u>	<u>A-2</u>	<u>M</u>	<u>E</u>	<u>S-1</u> <u>S-2</u>	<u>All</u> <u>Other</u>
L01	5% reduced lighting power	C406.2.3.1	<u>3/3</u>	<u>6/6</u>	<u>1/1</u>	<u>8/7</u>	<u>0/0</u>	<u>8/6</u>	<u>10/8</u>	<u>12/5</u>	<u>6/5</u>
L02	10% reduced lighting power		<u>6/6</u>	<u>11/11</u>	<u>2/2</u>	<u>17/13</u>	<u>1/1</u>	<u>16/11</u>	<u>21/16</u>	<u>22/9</u>	<u>11/10</u>
L03	15% reduced lighting power		£	£	£	£	£	£	£	£	£
L04	20% reduced lighting power		<u>13 / 12</u>	<u>22 / 22</u>	<u>3 / 4</u>	<u>33 / 26</u>	<u>2 / 1</u>	<u>32 / 22</u>	<u>41 / 32</u>	<u>47 / 17</u>	<u>22 / 20</u>
L05	25% reduced lighting power		£	£	£	£	£	£	£	£	£
L06	30% reduced lighting power		<u>19 / 18</u>	<u>33 / 33</u>	<u>5 / 6</u>	<u>50 / 39</u>	<u>3 / 2</u>	<u>47 / 33</u>	<u>61 / 46</u>	<u>70 / 26</u>	<u>33 / 30</u>

ID	Credit Measure	Section Reference	Occupancy Group (Climate Zone 4C / 5B)								
			<u>R-1</u> <u>R-4</u> <u>I-1</u>	<u>I-2</u>	<u>R-2</u>	<u>B</u>	<u>A-2</u>	<u>M</u>	<u>E</u>	<u>S-1</u> <u>S-2</u>	<u>All</u> <u>Other</u>
L07	Group R lamp efficacy	C406.2.3.2	2 / 2	N/A	1 / 1	N/A	N/A	N/A	N/A	N/A	N/A
L08	Group R-2 lighting controls	C406.2.4.1	N/A	N/A	1 / 1	N/A	N/A	N/A	N/A	N/A	N/A
L09	Enhanced lighting controls	C406.2.4.2	2 / 2	4 / 4	1 / 1	6 / 5	0 / 0	6 / 5	8 / 6	9 / 4	4 / 4
Lighting adjustment factor (LTG _{adj}) for use with Table C406.2(4)		C406.2.2.2 & 3	0.0073 / 0.0047	0.0014 / 0.0011	0.0050 / 0.0049	0.0049 / 0.0033	0.0100 / 0.0090	0.0040 / 0.0031	0.0035 / 0.0036	0.0023 / 0.0019	0.0043 / 0.0031

Table C406.2 (2)

Envelope Efficiency Credit Measures

ID	Credit Measure	Section Reference	Occupancy Group (Climate Zone 4C / 5B)								
			<u>R-1</u> <u>R-4</u> <u>I-1</u>	<u>I-2</u>	<u>R-2</u>	<u>B</u>	<u>A-2</u>	<u>M</u>	<u>E</u>	<u>S-1</u> <u>S-2</u>	<u>All</u> <u>Other</u>
E01	Total UA Improved 5%	C406.2.12	2 / 4	2 / 4	6 / 11	2 / 20	3 / 3	20 / 26	3 / 10	24 / 26	9 / 16
E02	Total UA Improved 10%		3 / 7	4 / 7	12 / 22	4 / 38	6 / 7	39 / 52	6 / 19	48 / 52	17 / 32
E03	Total UA Improved 15%		±	±	±	±	±	±	±	±	±
E04	Total UA Improved 20%		6 / 14	8 / 14	21 / 42	4 / 71	11 / 13	76 / 102	9 / 34	89 / 104	31 / 61
E05	Total UA Improved 25%		±	±	±	±	±	±	±	±	±
E06	Total UA Improved 30%		8 / 21	10 / 20	28 / 62	1 / 97	16 / 20	107 / 151	9 / 45	134 / 157	43 / 89
E07	Total UA Improved 35%		±	±	±	±	±	±	±	±	±
E08	Total UA Improved 40%		10 / 26	13 / 26	30 / 81	-5 / 112	22 / 27	133 / 195	5 / 50	176 / 212	52 / 115

ID	Credit Measure	Section Reference	Occupancy Group (Climate Zone 4C / 5B)								
			<u>R-1</u> <u>R-4</u> <u>I-1</u>	<u>I-2</u>	<u>R-2</u>	<u>B</u>	<u>A-2</u>	<u>M</u>	<u>E</u>	<u>S-1</u> <u>S-2</u>	<u>All</u> <u>Other</u>
UA adjustment factor (UA _{adj}) for use with Table C406.2(4) items E01 through E08		<u>C406.2.2.2 & 3</u>	<u>0.0416</u> / <u>0.0149</u>	<u>0.0100</u> / <u>0.0070</u>	<u>0.0216</u> / <u>0.0079</u>	<u>0.0105</u> / <u>0.0105</u>	<u>0.0062</u> / <u>0.0037</u>	<u>0.0052</u> / <u>0.0030</u>	<u>0.0036 /</u> <u>0.0156</u>	<u>0.0027</u> / <u>0.0014</u>	<u>0.0142</u> / <u>0.0082</u>
E09 Air Leakage Not Exceed 90% Max		<u>C406.2.13</u>	<u>0 / 0</u>	<u>0 / 0</u>	<u>1 / 2</u>	<u>0 / 1</u>	<u>0 / 0</u>	<u>1 / 2</u>	<u>0 / 0</u>	<u>3 / 3</u>	<u>1 / 1</u>
E10 Air Leakage Not Exceed 80% Max			<u>0 / 1</u>	<u>0 / 1</u>	<u>2 / 3</u>	<u>0 / 2</u>	<u>0 / 0</u>	<u>2 / 3</u>	<u>0 / 1</u>	<u>6 / 6</u>	<u>2 / 3</u>
E11 Air Leakage Not Exceed 70% Max			±	±	±	±	±	±	±	±	±
E12 Air Leakage Not Exceed 60% Max			<u>1 / 2</u>	<u>1 / 1</u>	<u>4 / 7</u>	<u>0 / 5</u>	<u>0 / 0</u>	<u>4 / 5</u>	<u>0 / 2</u>	<u>13 / 12</u>	<u>4 / 6</u>
E13 Air Leakage Not Exceed 50% Max			±	±	±	±	±	±	±	±	±
E14 Air Leakage Not Exceed 40% Max			<u>1 / 2</u>	<u>1 / 2</u>	<u>5 / 10</u>	<u>1 / 7</u>	<u>0 / 1</u>	<u>6 / 8</u>	<u>1 / 3</u>	<u>17 / 18</u>	<u>6 / 9</u>
E15 Air Leakage Not Exceed 30% Max			±	±	±	±	±	±	±	±	±
E16 Air Leakage Not Exceed 20% Max			<u>1 / 3</u>	<u>1 / 2</u>	<u>7 / 14</u>	<u>1 / 9</u>	<u>1 / 1</u>	<u>8 / 11</u>	<u>1 / 4</u>	<u>23 / 24</u>	<u>8 / 12</u>
Air leakage adjustment factor (LEAK _{adj}) for use with Table C406.2(4) items E09 through E16			<u>C406.2.2.2 & 3</u>	<u>0.0477</u> / <u>0.0162</u>	<u>0.0075</u> / <u>0.0066</u>	<u>0.0235</u> / <u>0.0083</u>	<u>0.0022</u> / <u>0.0107</u>	<u>0.0062</u> / <u>0.0038</u>	<u>0.0060</u> / <u>0.0032</u>	<u>0.0039 /</u> <u>0.0168</u>	<u>0.0028</u> / <u>0.0015</u>

ID	Credit Measure	Section Reference	Occupancy Group (Climate Zone 4C / 5B)								
			<u>R-1</u> <u>R-4</u> <u>I-1</u>	<u>I-2</u>	<u>R-2</u>	<u>B</u>	<u>A-2</u>	<u>M</u>	<u>E</u>	<u>S-1</u> <u>S-2</u>	<u>All</u> <u>Other</u>
E17	Thermal imaging	C406.2.20	/	/	/	/	/	/	/	/	/

Table C406.2 (3)

Ventilation Systems and HVAC Controls Efficiency Credit Measures

ID	Credit Measure	Section Reference	Occupancy Group (Climate Zone 4C / 5B)								
			<u>R-1</u> <u>R-4</u> <u>I-1</u>	<u>I-2</u>	<u>R-2</u>	<u>B</u>	<u>A-2</u>	<u>M</u>	<u>E</u>	<u>S-1</u> <u>S-2</u>	<u>All</u> <u>Other</u>
C01	Group R-2 HVAC control	C406.2.1	N/A	N/A	19 / 27	N/A	N/A	N/A	N/A	N/A	N/A
C02	Improve fan efficiency 5%	C406.2.2.1	3 / 3	5 / 6	3 / 3	3 / 3	1 / 1	3 / 2	5 / 4	1 / 0	3 / 2
	Improve fan efficiency 10%		6 / 6	10 / 11	6 / 5	7 / 6	2 / 1	6 / 5	9 / 7	1 / 0	6 / 5
	Improve Fan Efficiency 20%		21 / 11	21 / 22	12 / 10	14 / 12	3 / 2	13 / 9	18 / 14	3 / 1	12 / 9
C03	High performance DOAS	C406.2.2.6	0 / 0	1 / 1	9 / 19	4 / 5	0 / 0	1 / 18	7 / 22	3 / 7	6 / 12
C04	Fault detection & diagnostics (FDD)	C406.2.2.7	/	/	/	/	/	/	/	/	/
C05	Peak heating and cooling loads	C406.2.22	/	/	/	/	/	/	/	/	/
CO 6	Add DOAS if not otherwise required ^a	TBD	-7 / 31	33 / 33	0/0 N/A	0/0 N/A	0 / 0	0/0 N/A	0/0 N/A	20 / 22	5 / 11
CO 7	Add Air Economizer if not otherwise required ^b	TBD	32 / 21	51 / 34	N/A	41 / 21	N/A	3 / 2	48 / 36	0 / 0	15 / 15

^a DOAS was included in the baseline models for apartments, offices, retail, and schools.

^b Economizers were included in the baseline models for hospitals, hotels, outpatient, restaurants, and warehouses.

Table C406.2 (4)

Space Heating Efficiency Credit Measures

ID	Credit Measure	Section Reference	Occupancy Group (Climate Zone 4C / 5B)								
			<u>R-1</u> <u>R-4</u> <u>I-1</u>	<u>I-2</u>	<u>R-2</u>	<u>B</u>	<u>A-2</u>	<u>M</u>	<u>E</u>	<u>S-1</u> <u>S-2</u>	<u>All</u> <u>Other</u>
H01	Improved HVAC TSPR ^a 5% ^a	C406.2.2.1	0/0N/A	0/0N/A	50 / 85	-17 / 0	0/0N/A	155 / 217	67 / 88	0/0N/A	32 / 53

ID	Credit Measure	Section Reference	Occupancy Group (Climate Zone 4C / 5B)								
			R-1 R-4 I-1	I-2	R-2	B	A-2	M	E	S-1 S-2	All Other
	<u>Improved HVAC TSPR^a 10%^a</u>		<u>0/0N/A</u>	<u>0/0N/A</u>	<u>55 / 92</u>	<u>-8 / 11</u>	<u>0/0N/A</u>	<u>164 / 229</u>	<u>75 / 99</u>	<u>0/0N/A</u>	<u>37 / 59</u>
	<u>Improved HVAC TSPR^a 20%^a</u>		<u>0/0N/A</u>	<u>0/0N/A</u>	<u>65 / 106</u>	<u>10 / 34</u>	<u>0/0N/A</u>	<u>182 / 253</u>	<u>90 / 119</u>	<u>0/0N/A</u>	<u>47 / 70</u>
	<u>Improved HVAC TSPR^a 30%^a</u>		<u>0/0N/A</u>	<u>0/0N/A</u>	<u>75 / 121</u>	<u>29 / 56</u>	<u>0/0N/A</u>	<u>200 / 276</u>	<u>106 / 139</u>	<u>0/0N/A</u>	<u>56 / 81</u>
H02	<u>No space heating^b</u>	C406.2.2.3	<u>32 / 71</u>	<u>113159 / 114176</u>	<u>2862 / 57144</u>	<u>1324 / 34151</u>	<u>88169 / 135277</u>	<u>101200 / 158334</u>	<u>3058 / 68126</u>	<u>150370 / 230701</u>	<u>54121 / 121318</u>
H03	<u>C403.1.4 Primary space heating exceptions</u>	C406.2.2.3	<u>Same as min. efficiency air source heat pump (SaH10)</u>								
H04	<u>Fossil fuel boiler or furnace Min Eff.</u>	C406.2.2.3	<u>0 / 0</u>	<u>0 / 0</u>	<u>0 / 0</u>	<u>0 / 0</u>	<u>0 / 0</u>	<u>0 / 0</u>	<u>0 / 0</u>	<u>0 / 0</u>	<u>0 / 0</u>
H05	<u>Fossil fuel boiler or furnace Imp. 5%</u>		<u>2 / 3</u>	<u>8 / 8</u>	<u>3 / 6</u>	<u>1 / 3</u>	<u>8 / 13</u>	<u>10 / 16</u>	<u>3 / 7</u>	<u>18 / 33</u>	<u>6 / 15</u>
H06	<u>Fossil fuel boiler or furnace Imp. 10%</u>		<u>3 / 6</u>	<u>14 / 16</u>	<u>6 / 12</u>	<u>2 / 6</u>	<u>15 / 25</u>	<u>18 / 30</u>	<u>5 / 12</u>	<u>34 / 64</u>	<u>11 / 28</u>
H07	<u>Fossil fuel boiler or furnace Imp. 15%</u>		<u>4 / 9</u>	<u>21 / 23</u>	<u>8 / 18</u>	<u>3 / 9</u>	<u>22 / 36</u>	<u>26 / 43</u>	<u>8 / 18</u>	<u>48 / 91</u>	<u>16 / 41</u>
H08	<u>Fossil fuel boiler or furnace Imp. 20%</u>		<u>5 / 12</u>	<u>26 / 29</u>	<u>10 / 23</u>	<u>4 / 12</u>	<u>28 / 46</u>	<u>33 / 55</u>	<u>10 / 23</u>	<u>62 / 117</u>	<u>20 / 52</u>
H09	<u>Fossil fuel boiler or furnace Imp. 25%</u>		<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
H10	<u>Air source heat pump Min Eff.</u>		C406.2.2.3	<u>19 / 31</u>	<u>123 / 126</u>	<u>40 / 73</u>	<u>14 / 35</u>	<u>122 / 170</u>	<u>145 / 209</u>	<u>36 / 76</u>	<u>208 / 297</u>
H11	<u>Air source heat pump Imp. 10%</u>	<u>1</u>		<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>

ID	Credit Measure	Section Reference	Occupancy Group (Climate Zone 4C / 5B)								
			<u>R-1</u> <u>R-4</u> <u>I-1</u>	<u>I-2</u>	<u>R-2</u>	<u>B</u>	<u>A-2</u>	<u>M</u>	<u>E</u>	<u>S-1</u> <u>S-2</u>	<u>All</u> <u>Other</u>
H12	Air source heat pump Imp. 20%	C406.2.2.3	<u>21 / 36</u>	<u>130 / 135</u>	<u>40 / 73</u>	<u>15 / 37</u>	<u>126 / 176</u>	<u>151 / 219</u>	<u>37 / 81</u>	<u>214 / 305</u>	<u>76 / 156</u>
H13	Air source heat pump Imp. 30%		±	±	±	±	±	±	±	±	±
H14	Air source heat pump Imp. 40%		<u>23 / 40</u>	<u>135 / 142</u>	<u>42 / 79</u>	<u>15 / 40</u>	<u>130 / 184</u>	<u>156 / 229</u>	<u>39 / 86</u>	<u>219 / 312</u>	<u>78 / 162</u>
H15	Air source heat pump Imp. 50%		±	±	±	±	±	±	±	±	±
H16	Air source heat pump Imp. 60%		<u>24 / 42</u>	<u>138 / 146</u>	<u>44 / 83</u>	<u>16 / 42</u>	<u>133 / 190</u>	<u>160 / 236</u>	<u>40 / 89</u>	<u>223 / 317</u>	<u>80 / 166</u>
H17	Air source heat pump Imp. 70%		±	±	±	±	±	±	±	±	±
H18	Air source heat pump Imp. 80%		±	±	±	±	±	±	±	±	±
H19	Air source heat pump Imp. 90%		±	±	±	±	±	±	±	±	±
H20	Ground source heat pump Min Eff.		<u>24 / 55</u>	<u>150 / 154</u>	<u>48 / 105</u>	<u>19 / 57</u>	<u>140 / 226</u>	<u>157 / 254</u>	<u>41 / 103</u>	<u>226 / 337</u>	<u>84 / 183</u>
H21	Ground source heat pump Imp. 10%		±	±	±	±	±	±	±	±	±
H22	Ground source heat pump Imp. 20%	<u>26 / 57</u>	<u>151 / 157</u>	<u>50 / 110</u>	<u>20 / 59</u>	<u>144 / 231</u>	<u>162 / 263</u>	<u>42 / 106</u>	<u>231 / 342</u>	<u>86 / 188</u>	
H23	Ground source heat pump Imp. 30%	±	±	±	±	±	±	±	±	±	
H24	Ground source heat pump Imp. 40%	<u>27 / 59</u>	<u>152 / 159</u>	<u>52 / 113</u>	<u>20 / 61</u>	<u>146 / 235</u>	<u>166 / 269</u>	<u>43 / 109</u>	<u>235 / 347</u>	<u>88 / 191</u>	
H25	Ground source heat pump Imp. 50%	±	±	±	±	±	±	±	±	±	

ID	Credit Measure	Section Reference	Occupancy Group (Climate Zone 4C / 5B)								
			R-1 R-4 I-1	I-2	R-2	B	A-2	M	E	S-1 S-2	All Other
H26	Ground source heat pump Imp. 60%		<u>27 / 61</u>	<u>153 / 161</u>	<u>53 / 116</u>	<u>21 / 62</u>	<u>148 / 238</u>	<u>169 / 274</u>	<u>44 / 111</u>	<u>238 / 350</u>	<u>89 / 194</u>
H27	Ground source heat pump Imp. 70%		±	±	±	±	±	±	±	±	±
H28	Ground source heat pump Imp. 80%		±	±	±	±	±	±	±	±	±
H29	Ground source heat pump Imp. 90%		±	±	±	±	±	±	±	±	±
H30	Gas heat pump Min Eff.	C406.2.2.3	<u>14 / 28</u>	<u>73 / 73</u>	<u>19 / 36</u>	<u>9 / 23</u>	<u>100 / 155</u>	<u>91 / 137</u>	<u>24 / 53</u>	<u>100 / 107</u>	<u>38 / 73</u>
H31	Gas heat pump Imp. 10%		±	±	±	±	±	±	±	±	±
H32	Gas heat pump Imp. 20%		∕	∕	∕	∕	∕	∕	∕	∕	∕
H33	Gas heat pump Imp. 30%		±	±	±	±	±	±	±	±	±
H34	Gas heat pump Imp. 40%		∕	∕	∕	∕	∕	∕	∕	∕	∕
H35	Gas heat pump Imp. 50%		±	±	±	±	±	±	±	±	±
H36	Gas heat pump Imp. 60%		∕	∕	∕	∕	∕	∕	∕	∕	∕
H37	Gas heat pump Imp. 70%		±	±	±	±	±	±	±	±	±
H38	Gas heat pump Imp. 80%		±	±	±	±	±	±	±	±	±
H39	Gas heat pump Imp. 90%		±	±	±	±	±	±	±	±	±
H40	Water source heat pump	C406.2.2.3	<u>12 / 17</u>	<u>148 / 134</u>	<u>1 / 1</u>	<u>12 / 21</u>	<u>29 / 46</u>	<u>37 / 59</u>	<u>28 / 52</u>	<u>83 / 177</u>	<u>28 / 84</u>

ID	Credit Measure	Section Reference	Occupancy Group (Climate Zone 4C / 5B)								
			<u>R-1</u> <u>R-4</u> <u>I-1</u>	<u>I-2</u>	<u>R-2</u>	<u>B</u>	<u>A-2</u>	<u>M</u>	<u>E</u>	<u>S-1</u> <u>S-2</u>	<u>All</u> <u>Other</u>
	heat Min Eff. (w/ gas boiler)										
<u>H41</u>	<u>Water source heat pump heat Imp. 10%</u>		±	±	±	±	±	±	±	±	±
<u>H42</u>	<u>Water source heat pump heat Imp. 20% (w/ gas boiler)</u>		<u>14 / 21</u>	<u>150 / 137</u>	<u>5 / 10</u>	<u>13 / 25</u>	<u>36 / 59</u>	<u>46 / 74</u>	<u>30 / 57</u>	<u>93 / 189</u>	<u>33 / 922</u>
<u>H43</u>	<u>Water source heat pump heat Imp. 30%</u>		±	±	±	±	±	±	±	±	±
<u>H44</u>	<u>Water source heat pump heat Imp. 40% (w/ gas boiler)</u>		<u>16 / 25</u>	<u>151 / 140</u>	<u>7 / 16</u>	<u>14 / 27</u>	<u>41 / 68</u>	<u>52 / 86</u>	<u>31 / 62</u>	<u>100 / 198</u>	<u>36 / 99</u>
<u>H45</u>	<u>Water source heat pump heat Imp. 50%</u>		±	±	±	±	±	±	±	±	±
<u>H46</u>	<u>Water source heat pump heat Imp. 60% (w/ gas boiler)</u>		<u>17 / 27±</u>	<u>151 / 142±</u>	<u>9 / 20±</u>	<u>14 / 29±</u>	<u>45 / 75±</u>	<u>57 / 94±</u>	<u>32 / 65±</u>	<u>105 / 205±</u>	<u>38 / 103±</u>
<u>H47</u>	<u>Water source heat pump heat Imp. 70%</u>		±	±	±	±	±	±	±	±	±
<u>H48</u>	<u>Water source heat pump heat Imp. 80%</u>		±	±	±	±	±	±	±	±	±
<u>H49</u>	<u>Water source heat pump heat Imp. 90%</u>		±	±	±	±	±	±	±	±	±

ID	Credit Measure	Section Reference	Occupancy Group (Climate Zone 4C / 5B)								
			<u>R-1</u> <u>R-4</u> <u>I-1</u>	<u>I-2</u>	<u>R-2</u>	<u>B</u>	<u>A-2</u>	<u>M</u>	<u>E</u>	<u>S-1</u> <u>S-2</u>	<u>All</u> <u>Other</u>
	<u>Water source heat pump min efficiency (w/AWHP)</u>		<u>21 / 43</u>	<u>150 / 150</u>	<u>40 / 81</u>	<u>18 / 48</u>	<u>120 / 185</u>	<u>137 / 213</u>	<u>39 / 90</u>	<u>201 / 300</u>	<u>74 / 160</u>
	<u>Water source heat pump Imp 20% (w/AWHP)</u>		<u>23 / 47</u>	<u>152 / 153</u>	<u>44 / 90</u>	<u>19 / 52</u>	<u>127 / 198</u>	<u>146 / 228</u>	<u>41 / 95</u>	<u>211 / 312</u>	<u>79 / 168</u>
	<u>Water source heat pump Imp 40% (w/AWHP)</u>		<u>25 / 51</u>	<u>153 / 156</u>	<u>46 / 96</u>	<u>20 / 54</u>	<u>132 / 207</u>	<u>152 / 240</u>	<u>42 / 100</u>	<u>218 / 321</u>	<u>81 / 175</u>
	<u>Water source heat pump Imp 60% (w/AWHP)</u>		<u>26 / 53</u>	<u>153 / 158</u>	<u>48 / 100</u>	<u>20 / 56</u>	<u>136 / 214</u>	<u>157 / 248</u>	<u>43 / 103</u>	<u>223 / 328</u>	<u>84 / 179</u>
	<u>Gas heat pump cooling Min Eff.</u>		<u>∟</u>	<u>∟</u>	<u>∟</u>	<u>∟</u>	<u>∟</u>	<u>∟</u>	<u>∟</u>	<u>∟</u>	<u>∟</u>
	<u>Gas heat pump cooling Imp. 20%</u>		<u>∟</u>	<u>∟</u>	<u>∟</u>	<u>∟</u>	<u>∟</u>	<u>∟</u>	<u>∟</u>	<u>∟</u>	<u>∟</u>
	<u>Gas heat pump cooling Imp. 40%</u>		<u>∟</u>	<u>∟</u>	<u>∟</u>	<u>∟</u>	<u>∟</u>	<u>∟</u>	<u>∟</u>	<u>∟</u>	<u>∟</u>
	<u>Gas heat pump cooling Imp 60%.</u>		<u>∟</u>	<u>∟</u>	<u>∟</u>	<u>∟</u>	<u>∟</u>	<u>∟</u>	<u>∟</u>	<u>∟</u>	<u>∟</u>

a Projects obtaining TSPR credits are excluded from also obtaining other ventilation and HVAC control [Table C406.2(3)], space heating [Table C406.2(4)], and space cooling [Table C406.2(5)] credit measures for those areas where TSPR credits are obtained.

b Projects utilizing a C406.1 exception for reduced energy credit requirements are not eligible for the H02 no space heating credit.

Table C406.2 (5)

Space Cooling Efficiency Credit Measures

ID	Credit Measure	Section Reference	Occupancy Group (Climate Zone 4C / 5B)								
			<u>R-1</u> <u>R-4</u> <u>I-1</u>	<u>I-2</u>	<u>R-2</u>	<u>B</u>	<u>A-2</u>	<u>M</u>	<u>E</u>	<u>S-1</u> <u>S-2</u>	<u>All</u> <u>Other</u>
H50	<u>No space cooling^a</u>	C406.2.2.2	<u>42 / 50∟</u>	<u>53 / 61∟</u>	<u>49 / 56∟</u> ^b	<u>115 / 119∟</u>	<u>13 / 17∟</u>	<u>57 / 70∟</u>	<u>91 / 110∟</u>	<u>15 / 13∟</u>	<u>57 / 63∟</u>
H51	<u>Air source Direct expansion Min Eff.</u>	C406.2.2.2	<u>0 / 0∟</u>	<u>4 / 2∟</u>	<u>0 / 0∟</u>	<u>6 / 4∟</u>	<u>0 / 0∟</u>	<u>0 / 0∟</u>	<u>0 / 0∟</u>	<u>0 / 0∟</u>	<u>1 / 0∟</u>
H52	<u>Air source Direct</u>		<u>9 / 10∟</u>	<u>15 / 15∟</u>	<u>10 / 12∟</u>	<u>28 / 28∟</u>	<u>3 / 4∟</u>	<u>13 / 16∟</u>	<u>21 / 25∟</u>	<u>0 / 0∟</u>	<u>12 / 13∟</u>

ID	Credit Measure	Section Reference	Occupancy Group (Climate Zone 4C / 5B)								S-1 S-2	All Other
			R-1 R-4 I-1	I-2	R-2	B	A-2	M	E			
	expansion Imp. 250%											
H53	Air source Direct expansion Imp. 540%		30 / 33 †	23 / 22 †	61 / 72 †	61 / 59 †	20 / 21 †	35 / 39 †	47 / 49 †	0 / 0 †	44 / 34 †	
H54	Air source Direct expansion Imp. 7560%		35 / 38 †	28 / 28 †	64 / 76 †	69 / 69 †	21 / 23 †	41 / 47 †	55 / 60 †	0 / 0 †	48 / 39 †	
H55	Direct expansion Imp. 80%		†	†	†	†	†	†	†	†	†	
H56	Direct expansion Imp. 100%		†	†	†	†	†	†	†	†	†	
H57	Direct expansion Imp. 120%		†	†	†	†	†	†	†	†	†	
H58	Direct expansion Imp. 140%		†	†	†	†	†	†	†	†	†	
H59	Direct expansion Imp. 160%		†	†	†	†	†	†	†	†	†	
H60	Direct expansion Imp. 180%		†	†	†	†	†	†	†	†	†	
H61	Air cooled chiller & water-Min Eff.		9 / 9 †	-5 / -5 †	-16 / -14 †	0 / 0 †	5 / 4 †	4 / 9 †	-2 / 6 †	0 / 0 †	-7 / 1 †	
H62	Air cooled chiller & water Imp. 20%		13 / 13 †	1 / 1 †	-10 / -7 †	9 / 10 †	6 / 6 †	10 / 17 †	9 / 19 †	0 / 0 †	-1 / 8 †	
H63	Air cooled chiller & water-Imp. 40%		14 / 14 †	6 / 7 †	-4 / 0 †	18 / 19 †	6 / 7 †	11 / 18 †	13 / 23 †	0 / 0 †	4 / 11 †	
H64	Air cooled chiller & water-Imp. 60%	C406.2.2.2	15 / 15 †	10 / 11 †	0 / 5 †	23 / 25 †	7 / 8 †	13 / 19 †	17 / 27 †	0 / 0 †	7 / 13 †	
H65	Chilled water Imp. 80% Water cooled chiller Min Eff.		12 / 17 †	39 / 37 †	-11 / -3 †	18 / 29 †	6 / 9 †	8 / 19 †	-10 / 4 †	0 / 0 †	-1 / 9 †	
H66	Chilled water Imp.		14 / 19 †	44 / 42 †	-5 / 4 †	25 / 36 †	6 / 10 †	11 / 22 †	-2 / 12 †	0 / 0 †	4 / 13 †	

ID	Credit Measure	Section Reference	Occupancy Group (Climate Zone 4C / 5B)								
			<u>R-1</u> <u>R-4</u> <u>I-1</u>	<u>I-2</u>	<u>R-2</u>	<u>B</u>	<u>A-2</u>	<u>M</u>	<u>E</u>	<u>S-1</u> <u>S-2</u>	<u>All</u> <u>Other</u>
	100% Water Cooled chiller Imp 20%										
H67	Water Cooled chiller Imp 40%Chilled water Imp. 120%		15 / 21 †	47 / 45 †	-1 / 9 †	30 / 41 †	7 / 11 †	14 / 26 †	5 / 19 †	0 / 0 †	8 / 16 †
H68	Water Cooled chiller Imp 60%Chilled water Imp. 140%		17 / 22 †	50 / 48 †	3 / 13 †	35 / 46 †	8 / 11 †	16 / 28 †	10 / 24 †	0 / 0 †	11 / 19 †
H69	Chilled water Imp. 160%		†	†	†	†	†	†	†	†	†
H70	Chilled water Imp. 180%		†	†	†	†	†	†	†	†	†
H71	Water source heat pump cool Min Eff.		-46 / -33 †	-15 / 4 †	4 / 1 †	-13 / -10 †	-1 / 1 †	-4 / 3 †	-17 / -10 †	-3 / -1 †	-5 / -5 †
H72	Water source heat pump cool Imp. 20%		-31 / -20 †	4 / 21 †	13 / 11 †	5 / 12 †	2 / 4 †	7 / 15 †	2 / 11 †	0 / 1 †	6 / 7 †
H73	Water source heat pump cool Imp. 40%		-21 / -10 †	18 / 34 †	20 / 18 †	18 / 27 †	4 / 6 †	15 / 24 †	15 / 26 †	2 / 3 †	14 / 16 †
H74	Water source heat pump cool Imp. 60%		-13 / -3 †	28 / 43 †	25 / 23 †	28 / 39 †	5 / 8 †	21 / 30 †	26 / 38 †	4 / 4 †	20 / 23 †
H75	Water source heat pump cool Imp. 80%		†	†	†	†	†	†	†	†	†
H76	WaterGround source heat pump cool Imp. 100%Min Eff.	C406.2.2.2	-39 / -28	-8 / 7	9 / 5	-8 / -6	-2 / -2	-4 / 1	-11 / -7	-4 / -3	-1 / -4
H77	WaterGround source heat pump cool Imp. 120%		-26 / -16	9 / 23	18 / 14	10 / 15	0 / 2	7 / 13	7 / 13	-1 / -1	10 / 8
H78	WaterGround source heat pump cool Imp. 140%		-16 / -7	21 / 35	24 / 21	22 / 30	2 / 4	15 / 22	20 / 27	1 / 1	17 / 16
H79	WaterGround source heat pump cool Imp. 160%		-9 / 0	31 / 44	28 / 26	32 / 41	3 / 5	20 / 29	29 / 38	2 / 2	22 / 23

ID	Credit Measure	Section Reference	Occupancy Group (Climate Zone 4C / 5B)								
			<u>R-1</u> <u>R-4</u> <u>I-1</u>	<u>I-2</u>	<u>R-2</u>	<u>B</u>	<u>A-2</u>	<u>M</u>	<u>E</u>	<u>S-1</u> <u>S-2</u>	<u>All</u> <u>Other</u>
<u>H80</u>	<u>Water source heat pump cool Imp. 180%</u>		<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>

- a Projects utilizing a C406.1 exception for reduced energy credit requirements are not eligible for the H50 no space cooling credit.
- b Dwelling unit areas of an apartment shall not make use of the H50 no space cooling credit.

Table C406.2 (6)

Service Water Usage Efficiency Credit Measures

ID	Credit Measure	Section Reference	Occupancy Group (Climate Zone 4C / 5B)								
			<u>R-1</u> <u>R-4</u> <u>I-1</u>	<u>I-2</u>	<u>R-2</u>	<u>B</u>	<u>A-2</u>	<u>M</u>	<u>E</u>	<u>S-1</u> <u>S-2</u>	<u>All</u> <u>Other</u>
<u>W01</u>	<u>Shower drain heat recovery</u>	<u>C406.2.6.1</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>
<u>W01</u> <u>2</u>	<u>Service water heat recovery</u> <u>a</u>	<u>C406.2.6.2</u>	<u>36 / 34±</u>	<u>0 / 0±</u>	<u>110 / 100±</u>	<u>17 / 16±</u>	<u>0 / 0±</u>	<u>24 / 19±</u> <u>±^a</u>	<u>35 / 32±</u>	<u>0 / 0±</u>	<u>56 / 26±</u>
<u>Service water recovery adjustment factor (RCVRY_{adj}) for use with Tables C406.2(7) multiplied credits from items W01 and W02 in Equ. 4-18</u>		<u>C406.2.6.3</u>	<u>0.0033 / 0.00347</u>	<u>0.0159 / 0.016290</u>	<u>0.0024 / 0.0026</u>	<u>0.0135 / 0.0148</u>	<u>0.0052 / 0.0059</u>	<u>0.0152 / 0.0194</u>	<u>0.0075 / 0.0082</u>	<u>0.0187 / 0.0391</u>	<u>0.0087 / 0.0183</u>
<u>W02</u>	<u>Shower drain heat recovery</u>	<u>C406.2.6.1</u>	<u>12 / 11</u>	<u>N/A± / NA</u>	<u>37 / 33</u>	<u>N/A± / NA</u>	<u>N/A± / NA</u>	<u>N/A± / NA</u>	<u>8 / 7</u>	<u>0± / N/A</u>	<u>17 / 7</u>
<u>W03</u>	<u>Heat trace system</u>	<u>C406.2.7.1</u>	<u>2 / 2±</u>	<u>0 / 0±</u>	<u>3 / 3±</u>	<u>1 / 1±</u>	<u>0 / 0±</u>	<u>0 / 0± / NA</u>	<u>5 / 5±</u>	<u>7 / 3±</u>	<u>3 / 3±</u>
<u>W04</u>	<u>Point of use water heater (add footnote b)</u>	<u>C406.2.7.2</u>	<u>0 / 0±</u>	<u>0 / 0±</u>	<u>0 / 0±</u>	<u>32± / 28±</u>	<u>0 / 0±</u>	<u>58± / 47±</u>	<u>88± / 80±</u>	<u>46 / 23±</u>	<u>24± / 34±</u>

ID	Credit Measure	Section Reference	Occupancy Group (Climate Zone 4C / 5B)									All Other
			R-1 R-4 I-1	I-2	R-2	B	A-2	M	E	S-1 S-2		
W054	Service hot water distribution right sizing	C406.2.8	0 / 0 /N/A	N/A / NA	12 / 10	N/A / NA	N/A / NA	N/A / NA	0 / 0 /N/A	N/A / NA	N/A / 1	
W06	High performance service hot water temperature maintenance system (add footnote b)	C406.2.9	19 / 18	14 / 14	56 / 48	7 / 6	6 / 5	20 / 16	36 / 31	14 / 7	34 / 20	
W075	High efficiency service hot water circulation system	C406.2.10	1 / 1	0 / 0	2 / 2	0 / 0	0 / 0	0 / 0	3 / 3	4 / 2	2 / 2	
W06	Group R low flow showerheads, 1.50 gpm		10 / 9	N/A	17 / 16	N/A	N/A	N/A	N/A	N/A	6 / 2	
W07	Group R low flow showerheads, 1.25 gpm	C406.2.11	18 / 17	N/A	32 / 29	N/A	N/A	N/A	N/A	N/A	15 / 5	
Service water use adjustment factor (USE _{adj}) for use with Tables C406.2(7) multiplied credits from items W032 through W07 in Equ. 4-18			0.0036 / 0.0037	0.0187 / 0.0190	0.0025 / 0.0027	0.0139 / 0.0152	0.0052 / 0.0059	0.0174 / 0.0222	0.0089 / 0.0097	0.0207 / 0.0434	0.009 / 0.020	
Group R low-flow			8 / 7	NA / NA	14 / 13	NA / NA	NA / NA	NA / NA	NA / NA	NA / NA	6 / 2	

ID	Credit Measure	Section Reference	Occupancy Group (Climate Zone 4C / 5B)									All Other
			<u>R-1</u> <u>R-4</u> <u>I-1</u>	<u>I-2</u>	<u>R-2</u>	<u>B</u>	<u>A-2</u>	<u>M</u>	<u>E</u>	<u>S-1</u> <u>S-2</u>		
	<u>showerheads, 1.50-gpm</u>											
<u>W08</u>	<u>Group low flow showerheads, 1.25-gpm</u>	<u>C406.2.11</u>	<u>18 / 17</u>	<u>NA / NA</u>	<u>32 / 29</u>	<u>NA / NA</u>	<u>NA / NA</u>	<u>NA / NA</u>	<u>NA / NA</u>	<u>NA / NA</u>	<u>NA / NA</u>	<u>15 / 5</u>
<u>W06</u>	<u>High performance service hot water temperature maintenance system^b</u>	<u>C406.2.9</u>	<u>19 / 18</u>	<u>14 / 14</u>	<u>56 / 48</u>	<u>7 / 6</u>	<u>6 / 5</u>	<u>20 / 16</u>	<u>36 / 31</u>	<u>14 / 7</u>	<u>34 / 20</u>	
<u>W04</u>	<u>Point of use water heater^b</u>	<u>C406.2.7.2</u>	<u>0 / 0</u>	<u>0 / 0</u>	<u>0 / 0</u>	<u>32 / 28</u>	<u>0 / 0</u>	<u>58 / 47</u>	<u>88 / 80</u>	<u>46 / 23</u>	<u>24 / 34</u>	

- a Service water heat recovery and heat pump water heating are available in Group M only for grocery stores larger than 10,000 ft² are excluded from service water heat recovery credits. Large mixed retail with full grocery and butcher sections shall achieve half the credits. This credit is not available where refrigeration recovery to heat service hot water is used to meet the requirements of Section C403.9.2.3. Footnote b: these measures do not contribute to capacity weighting in equation 4-19.
- b These measures were modeled as “service hot water efficiency” measures and thus do not get included in RCVR or USE terms of Equation 4-18. Instead, these “service hot water efficiency” measures shall be pro-rated as service water heating equipment using equation 4-18 (included in TBLwater term); however, they do not get included in system capacity (EQPMwater or TOTwater).

Table C406.2 (7)

Service Water Heating Efficiency Credit Measures

ID	Credit Measure	Section Reference	Occupancy Group (Climate Zone 4C / 5B)									All Other
			<u>R-1</u> <u>R-4</u> <u>I-1</u>	<u>I-2</u>	<u>R-2</u>	<u>B</u>	<u>A-2</u>	<u>M</u>	<u>E</u>	<u>S-1</u> <u>S-2</u>		
<u>W09</u>	<u>No service water heating^a</u>	<u>C406.2.6.3</u>	<u>360 / 373</u>	<u>79 / 78</u>	<u>462 / 436</u>	<u>74 / 115</u>	<u>240 / 206</u>	<u>106 / 87</u>	<u>175 / 162</u>	<u>88 / 44</u>	<u>269 / 161</u>	
<u>W10</u>	<u>C404.2.1 Primary service water heating exceptions</u>	<u>C406.2.6.3</u>	<u>Same as min. efficiency heat pump water heating (17aW11)</u>									

ID	Credit Measure	Section Reference	Occupancy Group (Climate Zone 4C / 5B)								
			<u>R-1</u> <u>R-4</u> <u>I-1</u>	<u>I-2</u>	<u>R-2</u>	<u>B</u>	<u>A-2</u>	<u>M</u>	<u>E</u>	<u>S-1</u> <u>S-2</u>	<u>All</u> <u>Other</u>
W11	Heat pump water heating Min Eff.	C406.2.6.3	<u>186 / 179</u>	<u>36 / 35</u>	<u>267 / 243</u>	<u>48 / 44</u>	<u>129 / 113</u>	<u>38 / 30</u>	<u>75 / 69</u>	<u>32 / 15</u>	<u>148 / 75</u>
W12	Heat pump water heating Imp. 10%		±	±	±	±	±	±	±	±	±
W13	Heat pump water heating Imp. 20%		<u>159199</u> / <u>81192</u>	<u>15938</u> / <u>8137</u>	<u>159288</u> / <u>81263</u>	<u>15951</u> / <u>8146</u>	<u>159139</u> / <u>81122</u>	<u>15940</u> / <u>8131</u>	<u>15980</u> / <u>8174</u>	<u>15933</u> / <u>8116</u>	<u>159</u> / <u>81</u>
W14	Heat pump water heating Imp. 30%		±	±	±	±	±	±	±	±	±
W15	Heat pump water heating Imp. 40%		<u>208 / 202</u>	<u>40 / 39</u>	<u>303 / 277</u>	<u>53 / 48</u>	<u>147 / 129</u>	<u>40 / 32</u>	<u>83 / 77</u>	<u>33 / 16</u>	<u>167 / 84</u>
W16	Heat pump water heating Imp. 50%		±	±	±	±	±	±	±	±	±
W17	Heat pump water heating Imp. 60%		<u>215 / 209</u>	<u>41 / 40</u>	<u>314 / 288</u>	<u>54 / 50</u>	<u>152 / 134</u>	<u>41 / 32</u>	<u>86 / 80</u>	<u>34 / 16</u>	<u>173 / 87</u>
W18	Heat pump water heating Imp. 70%		±	±	±	±	±	±	±	±	±
W19	Heat pump water heating Imp. 80%		±	±	±	±	±	±	±	±	±
W20	Heat pump water heating Imp. 90%		±	±	±	±	±	±	±	±	±
W21	Gas water heater Min Eff.		C406.2.6.4	<u>0 / 0</u>	<u>0 / 0</u>	<u>0 / 0</u>	<u>0 / 0</u>	<u>0 / 0</u>	<u>0 / 0</u>	<u>0 / 0</u>	<u>0 / 0</u>
W22	Gas water heater > 105 kBtu/h (Et rated) Imp. 510%	<u>32 / 31</u>		<u>7 / 7</u>	<u>42 / 39</u>	<u>7 / 6</u>	<u>18 / 16</u>	<u>10 / 8</u>	<u>14 / 13</u>	<u>8 / 4</u>	<u>24 / 14</u>
W23	Gas water heater >	<u>58 / 57</u>		<u>13 / 13</u>	<u>77 / 71</u>	<u>12 / 12</u>	<u>34 / 30</u>	<u>18 / 15</u>	<u>27 / 24</u>	<u>15 / 7</u>	<u>45 / 25</u>

ID	Credit Measure	Section Reference	Occupancy Group (Climate Zone 4C / 5B)								
			<u>R-1</u> <u>R-4</u> <u>I-1</u>	<u>I-2</u>	<u>R-2</u>	<u>B</u>	<u>A-2</u>	<u>M</u>	<u>E</u>	<u>S-1</u> <u>S-2</u>	<u>All</u> <u>Other</u>
	<u>105 kBtu/h</u> <u>(Et rated)</u> <u>Imp.</u> <u>±20%</u>										
<u>W24</u>	<u>Gas water heater ≤ 105 kBtu/h (UEF rated) Imp. ±520%</u>		<u>/</u>	<u>/</u>	<u>14 / 22</u>	<u>22 / 25</u>	<u>9 / 7</u>	<u>8 / 7</u>	<u>/</u>	<u>10 / 5</u>	<u>12 / 7</u>
<u>W25</u>	<u>Gas water heater ≤ 105 kBtu/h (UEF rated) Imp. ±2040%</u>		<u>/</u>	<u>/</u>	<u>74 / 71</u>	<u>37 / 41</u>	<u>25 / 21</u>	<u>16 / 14</u>	<u>/</u>	<u>17 / 8</u>	<u>42 / 15</u>
<u>W26</u>	<u>Gas water heater ≤ 105 kBtu/h (UEF rated) Imp. ±560%</u>		<u>/</u>	<u>/</u>	<u>116 / 107</u>	<u>46 / 52</u>	<u>38 / 33</u>	<u>23 / 19</u>	<u>/</u>	<u>23 / 11</u>	<u>63 / 22</u>
<u>W27</u>	<u>Gas heat pump Min Eff.</u>		<u>66 / 64</u>	<u>15 / 15</u>	<u>180 / 167</u>	<u>27 / 25</u>	<u>79 / 69</u>	<u>27 / 22</u>	<u>41 / 39</u>	<u>31 / 16</u>	<u>97 / 46</u>
<u>W28</u>	<u>Gas heat pump Imp. ±10%</u>		<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>
<u>W29</u>	<u>Gas heat pump Imp. 20%</u>		<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>
<u>W30</u>	<u>Gas heat pump Imp. 30%</u>		<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>
<u>W31</u>	<u>Gas heat pump Imp. 40%</u>	<u>C406.2.2.3</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>
<u>W32</u>	<u>Gas heat pump Imp. 50%</u>		<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>
<u>W33</u>	<u>Gas heat pump Imp. 60%</u>		<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>
<u>W34</u>	<u>Gas heat pump Imp. 70%</u>		<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>
<u>W35</u>	<u>Gas heat pump Imp. 80%</u>		<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>	<u>±</u>

ID	Credit Measure	Section Reference	Occupancy Group (Climate Zone 4C / 5B)								
			<u>R-1</u> <u>R-4</u> <u>I-1</u>	<u>I-2</u>	<u>R-2</u>	<u>B</u>	<u>A-2</u>	<u>M</u>	<u>E</u>	<u>S-1</u> <u>S-2</u>	<u>All</u> <u>Other</u>
W36	Gas heat pump Imp. 90%		/	/	/	/	/	/	/	/	/

a Projects utilizing a C406.1 exception for reduced energy credit requirements are not eligible for the W09 no service water heating credit.

Table C406.2 (8)

Renewable Energy Credit Measures

ID	Credit Measure	Section Reference	Occupancy Group (Climate Zone 4C / 5B)								
			<u>R-1</u> <u>R-4</u> <u>I-1</u>	<u>I-2</u>	<u>R-2</u>	<u>B</u>	<u>A-2</u>	<u>M</u>	<u>E</u>	<u>S-1</u> <u>S-2</u>	<u>All</u> <u>Other</u>
R01	Renewable energy	C406.2.5	5/ 6	5/5	10/10	16/ 17	1/ 1	16/ 14	15/ 16	58/ 32	20/ 18

Table C406.2 (9)

Other Efficiency Credit Measures

ID	Credit Measure	Section Reference	Occupancy Group (Climate Zone 4C / 5B)								
			<u>R-1</u> <u>R-4</u> <u>I-1</u>	<u>I-2</u>	<u>R-2</u>	<u>B</u>	<u>A-2</u>	<u>M</u>	<u>E</u>	<u>S-1</u> <u>S-2</u>	<u>All</u> <u>Other</u>
Q01	Group Enhanced residential kitchen equipment	C406.2.15	/	N/A	5/4	N/A	N/A	N/A	N/A	N/A	1/0 N/A N/A
Q02	Group R-2 Induction cooktop	C406.2.21	N/A	N/A	1/1	N/A	N/A	N/A	N/A	N/A	N/A
Q03	Group R-2 Enhanced residential laundry equipment	C406.2.16	N/A	N/A	3/2	N/A	N/A	N/A	N/A	N/A	N/A 1/0 N/A
Q04	Heat pump clothes dryers	C406.2.17	30/28	N/A	21/17	N/A	N/A	N/A	N/A	N/A	N/A 10/4 N/A
Q05	Efficient elevator equipment	C406.2.18	12/ 11	7/6	13/11	27/ 25	0/ 0	0/0	2/ 2	0/ 0	11/5
Q06	Thermal energy networks	C406.2.19	/	/	/	/	/	/	/	/	/
	Enhanced Commercial	C406.2.14	0/0	0/0	0/0	0/0	21/ 17	0/0	0/0	0/0	0/0

<u>ID</u>	<u>Credit Measure</u>	<u>Section Reference</u>	<u>Occupancy Group (Climate Zone 4C / 5B)</u>								
			<u>R-1</u> <u>R-4</u> <u>I-1</u>	<u>I-2</u>	<u>R-2</u>	<u>B</u>	<u>A-2</u>	<u>M</u>	<u>E</u>	<u>S-1</u> <u>S-2</u>	<u>All Other</u>
	<u>Kitchen Equipment</u>										

C406.2.2.2 Cooling equipment efficiency. Primary cooling equipment shall exceed the minimum cooling efficiency requirements listed in the tables in Section C403.3.2 by ((at least 5 percent. Where equipment exceeds the minimum annual cooling efficiency and heat rejection efficiency requirements by more than 5 percent, energy efficiency credits for cooling shall be determined)) the percentage noted in Table C406.2(5). Available credits noted in Table C406.2(5) shall be reduced by other selected efficiency credit measures and comprised of the summation of the prorated credits assigned to each system type within a mixed cooling system using Equation ((4-15)) 4-13, rounded to the nearest whole number. Where individual equipment efficiencies of the same system type vary, weigh them based on capacity.

(Equation ((4-15)) 4-13)

$$C_{cool.i} = TBL_{cool} \times \left(\frac{EQPM_{cool}}{TOT_{cool}} \right)$$

$$\sum_{i=1}^n C_{cool} = C_{cool.1} + C_{cool.2} + \dots + C_{cool.n}$$

Where:

C_{cool}	\equiv	<u>Credits for space cooling equipment.</u>
$C_{cool.i}$	\equiv	<u>Credits for space cooling equipment of noted systems type.</u>
TBL_{cool}	\equiv	<u>Credits noted in Table C406.2(5).</u>
$EQPM_{cool}$	\equiv	<u>Installed primary space cooling capacity of this system type in kBtu/h.</u>
TOT_{cool}	\equiv	<u>Total installed primary space cooling capacity in kBtu/h.</u>

C406.2.6.3 Service water heating equipment efficiency. Primary service water heating equipment shall exceed the minimum heating efficiency requirements listed in the Table C404.2 by the percent noted in Table C406.2(7), Available credits noted in Table C406.2(7) shall be reduced by other selected efficiency credit measures and be comprised of the summation of the prorated credits assigned to each system type within a mixed service water heating system using Equation 4-18, rounded to the nearest whole number. Where individual equipment efficiencies of the same system type vary, weigh them based on capacity.

(Equation 4-18)

$$C_{water.i} = TBL_{water} \times (1 - (RCVRY_{cr} \times RCVRY_{adj}) - (USE_{cr} \times USE_{adj})) \times \left(\frac{EQPM_{water}}{TOT_{water}} \right)$$
$$\sum_{i=1}^n C_{water} = C_{water.1} + C_{water.2} + \dots + C_{water.n}$$

Where:

<u>C_{water}</u>	≡	<u>Credits for service water heating equipment.</u>
<u>C_{water.i}</u>	≡	<u>Credits for service water heating equipment of noted systems type.</u>
<u>TBL_{water}</u>	≡	<u>Credits noted in Table C406.2(7).</u>
<u>RCVRY_{cr}</u>	≡	<u>Service hot water heat recovery credits obtained via Table C406.2(6) Item W01.</u>
<u>RCVRY_{adj}</u>	≡	<u>Adjustment factor for service hot water heat recovery credits obtained via Table C406.2(6) items W02 through W07.</u>
<u>USE_{cr}</u>	≡	<u>Reduced service hot water heat use credits obtained via Table C406.2(6).</u>
<u>USE_{adj}</u>	≡	<u>Adjustment factor for reduced service hot water heat use credits obtained via Table C406.2(6).</u>
<u>EQPM_{water}</u>		<u>Installed primary service water heating capacity of this system type in kBtu/h. Excluding primary service water heating covered under a Section C404.2.1 exception except when evaluating exceptions.</u>
<u>TOT_{water}</u>		<u>Total installed primary space heating capacity in kBtu/h including any of the exceptions in Section C404.2.1.</u>