**Revise as follows:**

**R401.2.1 Prescriptive Compliance Option.** The prescriptive compliance option requires compliance with Sections R401 through R404 and R408.

**R401.2.2 Total Building Performance Option.** The total building performance option requires compliance with Section R405 and one of the following:

1. Additional efficiency credits as required in Section R408.2 without including such measures in the proposed design under Section R405.
2. The proposed design of the building under Section R405.3 shall have an annual energy cost that is less than or equal to ~~90~~ X percent of the annual energy cost of the standard reference design.

**R401.2.3 Energy Rating Index Option.** The total building performance option requires compliance with Section R406 and one of the following:

1. Section R408 without including such measures in the proposed design under Section R405.
2. The Energy Rating Index value shall be at least ~~5~~ X percent less than the Energy Rating Index target specified in Table R406.5.

**R401.2.5 Additional energy efficiency.** ~~This section establishes additional requirements applicable to all~~

~~compliance approaches to achieve additional energy efficiency.~~

1. ~~For buildings complying with Section R401.2.1, one of the additional efficiency package options shall be installed according to or more additional energy efficiency measure(s) shall be installed in accordance with Section R408.2 that cumulatively equal or exceed 10 (ten) credits from Table R408.2.~~
2. ~~For buildings complying with Section R401.2.2, the building shall meet one of the following:~~
	1. ~~One or more of the additional efficiency package options measure(s) in Section R408.2 shall be installed that cumulatively equal meet or exceed ten credits, without including such measures in the proposed design under Section R405; or~~
	2. ~~The proposed design of the building under Section R405.3 shall have an annual energy cost that is less than or equal to 95 90 percent of the annual energy cost of the standard reference design.~~
3. ~~For buildings complying with the Energy Rating Index alternative Section R401.2.3, the Energy Rating Index value shall be at least 5 10 percent less than the Energy Rating Index target specified in Table R406.5.~~

The ~~option~~ additional efficiency measures selected for compliance with R408 shall be identified in the certificate required by Section R401.3 and the construction documents as required by Section R103.2.

**R408.1 Scope.** This section establishes additional efficiency credits ~~package options~~ to achieve additional energy efficiency in accordance with Section R401.2~~.5~~.

**TABLE R408.2**

**CREDITS FOR ADDITIONAL ENERGY EFFICIENCY**

|  |  |  |  |
| --- | --- | --- | --- |
| **Measure Number** | **Measure Description** |  | **Credit Value** |
| **CZ 0 & 1** | **CZ 2** | **CZ 3** | **CZ 4** | **CZ 4C** | **CZ 5** | **CZ 6** | **CZ 7** | **CZ 8** |
| R408.2.1 (1) | ≥ 2.5% reduction in total UA | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 4 | 4 |
| R408.2.1 (2) | ≥ 5% reduction in total UA  | 3 | 3 | 3 | 3 | 3 | 4 | 5 | 5 | 5 |
| R408.2.1 (3) | > 7.5% reduction in total UA  | 5 | 5 | 5 | 5 | 5 | 6 | 7 | 8 | 8 |
| R408.2.2 (1) | 20% reduction SHGC | 4 | 1 | NA | NA | NA | NA | NA | NA | NA |
| R408.2.2 (2) | 0.22 U-factor windows | NA | NA | 2 | 2 | 2 | 2 | 2 | 3 | 3 |
| R408.2.2 (3) | U factor and SHGC for windows per Table 408.2.1 | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD |
| R408.2.3 (1) | High performance cooling system option 1 | 9 | 7 | 3 | 2 | NA | NA | NA | NA | NA |
| R408.2.3 (2) | High performance cooling system option 2 | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD |
| R408.2.3 (~~2~~)3 | High performance gas furnace option 1 | NA | 2 | 6 | 9 | 10 | 10 | 11 | 12 | 14 |
| R408.2.3(4) | High performance gas furnace option 2 | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD |
| R408.2.3 (~~3~~)5 | High performance heat pump system option 1 | NA | NA | 3 | 4 | 4 | 5 | 4 | 3 | 3 |
| R408.2.3 (6) | High performance heat pump system option 2 | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD |
| R408.2.3 (~~4~~)7 | Ground source heat pump | NA | 2 | 4 | 6 | 6 | 8 | 7 | 6 | 5 |
| R408.2.4 (1) | Fossil fuel service water heating system | 7 | 5 | 4 | 3 | 2 | 2 | 2 | 1 | 1 |
| R408.2.4 (2) | High performance heat pump water heating system option 1 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| R408.2.4 (3) | High performance heat pump water heating system option 2 | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD |
| R408.2.4 (~~3~~)4 | Solar hot water heating system | 8 | 9 | 9 | 7 | 9 | 6 | 5 | 4 | 3 |
| R408.2.4 (5) | Compact hot water distribution |  |  |  |  |  |  |  |  |  |
| R408.2.4 (6) | Pipe insulation |  |  |  |  |  |  |  |  |  |
| R408.2.5 (1) | More efficient distribution system | 8 | 8 | 9 | 11 | 8 | 12 | 15 | 17 | 17 |
| R408.2.5 (2) | 100% of ducts in conditioned space | 8 | 8 | 9 | 11 | 8 | 12 | 15 | 17 | 17 |
| R408.2.5 (3) | Reduced total duct leakage | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD |
| R408.2.6 (1) | 2 ACH50 air leakage rate with ERV or HRV installed | 2 | 5 | NA | NA | NA | NA | NA | NA | NA |
| R408.2.6 (2) | 2 ACH50 air leakage rate with balanced ventilation | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD |
| R408.2.6 (3) | 1.5 ACH50 air leakage rate with ERV or HRV installed  | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD |
| R408.2.6 (~~24~~) | 1 ACH50 air leakage rate with ERV or HRV installed | 2 | 5 | 7 | 9 | 9 | 9 | 10 | 11 | 11 |
| R408.2.7 | Energy Efficient Appliances  | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD |
| R408.2.8 | Renewable Energy Measure | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD |

**R408.2 Additional efficiency credits ~~package options~~.** Additional efficiency ~~package options for compliance with Section R401.2.1 are set forth in Sections R408.2.1 through R408.2.5.~~ measures shall be selected from Table R408.2 that meet or exceed ten credits. Each measure selected shall meet the relevant subsections of Section R408 and receive credit as indicated in the Table for the specific Climate Zone. Interpolation of credits between measures shall not be permitted.

**R408.2.1 Enhanced envelope performance UA options.** The total *~~building thermal envelope~~* UA of the *building thermal envelope* as designed shall be one of the following and ~~the sum of~~~~U-factor times assembly area, shall be less than or equal~~~~to 95 percent of the total UA resulting from multiplying~~~~the U-factors in Table R402.1.2 by the same assembly~~~~area as in the proposed building.~~ in accordance with SectionR402.1.5: ~~The area-weighted average SHGC of all~~~~glazed fenestration shall be less than or equal to 95~~~~percent of the maximum glazed fenestration SHGC in~~~~Table R402.1.2.~~

1. Not less than 2.5% below the total UA of the *building thermal envelope*.
2. Not less than 5% below the total UA of the *building thermal envelope*.
3. Not less than 7.5% below the total UA of the *building thermal envelope*.

**R408.2.2 Improved fenestration options.** Vertical fenestration shall meet one of the following:

1. ~~20% reduction in glazed area-weighted average SHGC.~~
2. Have a U-factor equal to or less than 0.22 in CZ 5-8
3. Vertical fenestration shall have U factor and SHGC equal or less than that specified in Table R408.2.1

Table 408.2.1

|  |  |  |
| --- | --- | --- |
| Climate Zone  | Fenestration U factor  | Fenestration SHGC |
| 0 | 0.32 | 0.23 |
| 1 | 0.32 | 0.23 |
| 2 | 0.30 | 0.23 |
| 3 | 0.25 | 0.25 |
| 4 | 0.25 | 0.25 |
| 5 | 0.25 | 0.25 |
| 6 | 0.25 | 0.25 |
| 7 and 8 | 0.25 | 0.25 |

**R408.2.3~~2~~ More efficient HVAC equipment performance options**. Heating and cooling equipment shall meet one of the following efficiencies:

1. Greater than or equal to ~~95 AFUE natural gas furnace and 16~~ 18 SEER and 14 EER air conditioner.
2. Greater than or equal to 16 SEER/X SEER2 and 12 EER/X EER2 air conditioner.
3. Greater than or equal to 96 AFUE natural gas furnace
4. Greater than or equal to 92 AFUE natural gas furnace
5. Greater than or equal to 10 HSPF/X HSPF2/16 SEER/X SEER2 air source heat pump.
6. Greater than or equal to 9 HSPF/X HSPF2/16 SEER/X SEER2 air source heat pump
7. Greater than or equal to 3.5 COP ground source heat pump.

For multiple cooling systems, all systems shall meet or exceed the minimum efficiency requirements in this section and shall be sized to serve 100 percent of the cooling design load. For multiple heating systems, all systems shall meet or exceed the minimum efficiency requirements in this section and shall be sized to serve 100 percent of the heating design load.

**R408.2.4~~3~~ Reduced energy use in service water-heating options.** The hot water system shall meet one of the following efficiencies:

1. Greater than or equal to 82 EF fossil fuel service water-heating system.
2. Greater than or equal to ~~2.0~~ 2.9 UEF electric service water-heating system.
3. Greater than or equal to 3.2 UEF electric service water-heating system
4. Greater than or equal to 0.4 solar fraction solar water-heating system.
5. Compact hot water distribution
6. Increase pipe insulation R value to no less than R-4

**R408.2.5~~4~~ More efficient duct thermal distribution system option**. The thermal distribution system shall meet one of the following efficiencies:

1. ~~100 percent of ducts and air handlers located entirely within the~~ *~~building thermal envelope~~*~~.~~
2. 100 percent of ductless thermal distribution system or hydronic thermal distribution system located completely inside the *building thermal envelope*.
3. 100 percent of duct thermal distribution system located in *conditioned space* as defined by Section R403.3.2.
4. When ducts are located outside conditioned space, the total leakage of the ducts, measured in accordance with R403.3.5, shall be in accordance with one of the following:
	1. Where air handler is installed at the time of testing, 2.0 cubic feet per minute per 100 square feet of conditioned floor area.
	2. Where air handler is not installed at the time of testing, 1.75 cubic feet per minute per 100 square feet of conditioned floor area.

**R408.2.6~~5~~ Improved air sealing and efficient ventilation system option.** The measured air leakage rate shall be one of the following:

1. ~~l~~Less than or equal to ~~3~~2.0 ACH50, with either an Energy Recovery Ventilator (ERV) or Heat Recovery Ventilator (HRV) installed.
2. Less than or equal to 2.0 ACH50, with balanced ventilation as defined in Section 202 of the 2021 International Mechanical Code.
3. Less than or equal to 1.5 ACH50, with either an ERV or HRV installed.
4. Less than equal to 1.0 ACH50, with either an ERV or HRV installed.

Minimum HRV and ERV requirements, measured at the lowest tested net supply airflow, shall be greater than or equal to 75 percent Sensible Recovery Efficiency (SRE), less than or equal to 1.1 cubic feet per minute per watt (0.03 m3/min/watt) and shall not use recirculation as a defrost strategy. In addition, the ERV shall be greater than or equal to 50 percent Latent Recovery/ Moisture Transfer (LRMT).

R408.2.7 Energy efficient appliances. Appliances installed in a dwelling unit shall meet the product energy efficiency specifications listed in Table R408.4.6, or equivalent energy efficiency specifications. Not less than three appliance types from Table R408.4.6 shall be installed for compliance with this section.

Table R408.2.2

APPLIANCE SPECIFICATION REFERENCE DOCUMENT

|  |  |
| --- | --- |
| Refrigerator  | Energy Star Program Requirements, Product Specification for Consumer Refrigeration Products, Version 5.1 (08/05/2021)  |
| Dishwasher | Energy Star Program Requirements for Residential Dishwashers, Version 6.0 (01/29/2016) |
| Clothes Dryer | Energy Star Program Requirements, Product Specification for Clothes Dryers, Version 1.1 (05/05/2017) |
| Clothes Washer  | Energy Star Program Requirements, Product Specification for Clothes Washers, Version 8.1 (02/05/2018) |

R408.2.8 Renewable Energy.

The building shall include the use of energy from a *renewable energy resource* from one of the following:

1. On-site power production. *Renewable energy resources* shall be permanently installed that have the capacity to produce a minimum of 1.0 watt of *on-site renewable energy* per square foot of conditioned floor area. To qualify for this option, one of the following forms of documentation shall be provided to the code official:
* Substantiation that the RECs associated with the *on-site renewable energy* are owned by, or retired on behalf of, the homeowner.
* A contract that conveys to the homeowner the *REC*s associated with the *on-site renewable energy*, or conveys to the homeowner an equivalent quantity of *REC*s associated with other renewable energy
1. Off-site renewable energy systems. The renewable energy production allocated to the building shall not less than XX percent of the estimated whole-building energy use on an annual basis and shall be subject to a legally binding contract to procure qualifying off-site renewable energy from one of the following sources:
	1. Community renewable energy facility power production allocated to the building
	2. Physical renewable energy power purchase agreement power production allocated to the building.
	3. Financial renewable energy power purchase agreement power production allocated to the building

~~The renewable energy production allocated to the building shall be not less than 10 percent of the estimated whole-building energy use on an annual basis.~~