**RED1-71-22 MODIFICATION (replaces monograph version, edits shown in red)**

**Note:** This modification REMOVES edits initially proposed to R408.1 and R408.2 as those are now addressed by the MOD to RED1-73. Edits to R408.2.1 remain and changes are shown in red to resolve overlap with RED1-82 and clarify that the measures must be installed in order to earn credit (not just proposed). Edits from RED1-254 & RED1-186 would need to be merged here (not shown). The core change is to introduce a credit measure for reduced air leakage, whether tested at the unit level or building level.

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**2024 International Energy Conservation Code [RE Project]**

**SECTION R408**

**ADDITIONAL EFFICIENCY REQUIREMENTS**

**TABLE R408.2**

**CREDITS FOR ADDITIONAL ENERGY EFFICIENCY**

**Portions of table not shown remain unchanged.**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **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 (1) | ≥ 2.5% reduction ~~in~~ of the required total UA |  |  |  |  |  |  |  |  |  |
| R408.2.1.1 (2) | ≥ 5% reduction  ~~in~~ of the required total UA |  |  |  |  |  |  |  |  |  |
| R408.2.1.1 (3) | > 7.5% reduction  ~~in~~ of the required total UA |  |  |  |  |  |  |  |  |  |
| R408.2.1.2 (1) | 0.22 U-factor windows |  |  |  |  |  |  |  |  |  |
| R408.2.1.2 (2) | U factor and SHGC for windows per Table R408.2.1 |  |  |  |  |  |  |  |  |  |
| R408.2.1.3 | Cool roof |  |  |  |  |  |  |  |  |  |
| R408.2.1.4 | Reduced air leakage | TBD | TBD | TBD | TBD | TBD | TBD | 0 | 0 | 0 |

**TABLE AND SECTION R408.2.1.1 TO ALIGN WITH PRIOR COMMITTEE ACTION ON RED1-79 CONSENSUS PROPOSAL**

**R408.2.1 Enhanced envelope options.** For enhanced envelope credits, t~~T~~he *building thermal envelope* shall ~~meet the requirements~~ comply with one or more of the following:

1. Section R408.2.1.1 or R408.2.1.2. Credit shall only be permitted from one measure.

2. Section R408.2.1.3.

3. Section R408.2.1.4.

**R408.2.1.1 Enhanced envelope performance UA.** The ~~proposed~~ total *building thermal envelope* UA shall be calculated in accordance with Section R402.1.5 and shall ~~meet~~ comply with one of the following:

1. Not less than 2.5 percent reduction of the required total UA of the *building thermal envelope*.

2. Not less than 5 percent reduction of the required total UA of the *building thermal envelope*.

3. Not less than 7.5 percent reduction of the required total UA of the *building thermal envelope*.

**R408.2.1.2 Improved fenestration.** Vertical fenestration shall meet one of the following:

1. U-factor equal to or less than 0.22.

2. U-factor and SHGC equal or less than that specified in Table R408.2.1.2.

**R408.2.1.3 Roof reflectance.** Roofs shall comply with one or more of the options in Table R408.2.1.3.

**Add new text as follows:**

**R408.2.1.4 Reduced air leakage.** For the reduced air leakage credit, the building ~~or each~~ *~~dwelling unit~~* ~~in the building~~ shall have a measured air leakage rate no less than 2.0 ACH50 and no greater than 2.5 ACH50 or the *dwelling units* in the building shall have an average measured air leakage rate no greater than 0.24 cfm50/ft2.

**Reason:** This public comment proposes credit for achieving airtightness below the prescriptive air leakage rates in CZ 0-5, as defined in Section R402.5.1.3. However, this credit is not being proposed for values less than 2.0 ACH50 given that another R408 section provides credit for that level airtightness when combined with balanced ventilation. The mod provides an option for multifamily buildings to access the credit when performing dwelling unit tests using the cfm50/ft2 metric rather than building air leakage tests that use the ACH50 metric.

**Example:** The PNNL MF prototype has a footprint of 120 ft x 65 ft, with a building height of 25.5 ft.

That results in a volume of 198,900 ft3 (if we include the breezeway as enclosed space). If the whole-building is tested for air leakage, achieving 2 ACH50 allows up to 6,630 cfm50 of air leakage through the exterior envelope. If we divide the same 6,630 cfm50 by the exterior envelope area (25,035 ft2), this is equivalent to 0.26 cfm50/ft2. However, different multifamily configurations will have different equivalencies so at least a 10% reduction over the code requirements seemed warranted to earn credit.

Other edits are editorial to provide better clarity of the original intent of this section.

**Cost Impact:** The code change proposal will neither increase nor decrease the cost of construction.

Where selected as a measure, some additional labor cost associated with the greater attention to air-sealing practices would be applicable. Where not deemed cost-effective, this measure simply would not be selected.