**RED1-224-22 Part I**

**IECC: R402.5.1, R402.5.1.2, R402.5.1.3 (New), R402.5.1.3, R402.5.1.4**

*Proponents: Theresa Weston, representing ABAA (Air Barrier Association of America) (holtweston88@gmail.com)*

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

**Revise as follows:**

**R402.5.1 Building thermal envelope.** The building thermal envelope shall comply with Sections R402.5.1.1 through R402.5.1.~~3~~*~~5~~*4 The sealing methods between dissimilar materials shall allow for differential expansion and contraction.

**R402.5.1.2 Air Leakage Testing.** The building or each dwelling unit in the building shall be tested for air leakage. ~~The maximum air leakage rate for any building or dwelling unit under any compliance path shall not exceed 4.0 air changes per hour or 0.22 cfm/ft (1.1 L/s x m ) of building or dwelling unit enclosure area.~~ Testing shall be conducted in accordance with ANSI/RESNET/ICC 380, ASTM E779, ASTM E1827 or ASTM E3158 and reported at a pressure differential of 0.2 inch water gauge (50 Pa). Where required by the code official, testing shall be conducted by an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope have been sealed.

**Exceptions:**

~~1. When testing individual dwelling units, an air leakage rate not exceeding 0.27 cubic feet per minute per square foot [1.35 L/s x m )] of the dwelling unit enclosure area, tested in accordance with ANSI/RESNET/ICC 380, ASTM E779 or ASTM E1827 and reported at a pressure of 0.2 inch w.g. (50 Pa), shall be permitted in all climate zones for:~~

~~1.1 Attached single and multiple family building dwelling units.~~

~~1.2 Buildings or dwelling units that are 1,500 square feet (139.4 m~~~~2~~~~) or smaller.~~

~~2.~~ 1. For heated, attached private garages and heated, detached private garages accessory to one- and two-family dwellings and townhouses not more than three stories above grade plane in height, building envelope tightness and insulation installation shall be considered acceptable where the items in Table R402.5.1.1, applicable to the method of construction, are field verified. Where required by the code official, an approved third party independent from the installer shall inspect both air barrier and insulation installation criteria. Heated, attached private garage space and heated, detached private garage space shall be thermally isolated from all other habitable, conditioned spaces in accordance with Sections R402.2.13 and R402.4.5, as applicable.

~~3.~~ 2. Where tested in accordance with R402.5.1.~~4~~5, testing of each dwelling unit is not required.

During testing:

1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weatherstripping or other infiltration control measures.

2. Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures.

3. Interior doors, where installed at the time of the test, shall be open.

4. Exterior or interior terminations for continuous ventilation systems shall be sealed.

5. Heating and cooling systems, where installed at the time of the test, shall be turned off.

6. Supply and return registers, where installed at the time of the test, shall be fully open.

Mechanical ventilation shall be provided in accordance with Section M1505 of the International Residential Code or Section 403.3.2 of the *International Mechanical Code*, as applicable, or with other approved means of ventilation.

**Modify proposal as follows:**

**~~R402.5.1.3 Mandatory Air Leakage.~~** ~~The maximum air leakage rate for any building or dwelling unit under any compliance path shall not exceed 4.0 air changes per hour or 0.22 cfm/ft (1.1 L/s x m ) of building or dwelling unit enclosure area.~~

**~~Exception:~~** ~~When testing individual dwelling units, an air leakage rate not exceeding 0.27 cubic feet per minute per square foot [1.35 L/s x m2 )] of the dwelling unit enclosure area and reported at a pressure of 0.2 inch w.g. (50 Pa), shall be permitted in all climate zones for:~~

~~1. Attached single and multiple family building dwelling units.~~

~~2. Buildings or dwelling units that are 1,500 square feet (139.4 m~~~~2~~~~) or smaller.~~

**~~R402.5.1.34 Prescriptive air leakage rate.~~** ~~When complying with Section R401.2.1, the building or each dwelling unit in the building shall have an air leakage rate not exceeding 5.0 air changes per hour in Climate Zones 0, 1 and 2, 3.0 air changes per hour in Climate Zones 3 through 5, and 2.5 air changes per hour in Climate Zones 6 through 8, when tested in accordance with Section R402.5.1.2.~~

**R402.5.1.3 Maximum air leakage rate.** Where tested in accordance with Section R402.5.1.2, the air leakage rate for *buildings* or *dwelling units* shall be as follows:

1. Where complying with Section R401.2.1, the building or each *dwelling unit* in the building shall have an air leakage rate not greater than 4.0 air changes per hour in Climate Zones 0, 1 and 2, 3.0 air changes per hour in Climate Zones 3 through 5, and 2.5 air changes per hour in Climate Zones 6 through 8.
2. Where complying with Section R401.2.2 or R401.2.3, and where the whole building is tested, the air leakage rate shall not be greater than 4.0 air changes per hour or 0.22 cfm/ft2 (1.1 L/s x m2) of the *building thermal envelope* area.

**Exception:**

For buildings 1,500 square feet (139.4 m2) or less, the air leakage rate shall be 0.27 cfm/ft2 (1.35 L/s x m2) or less.

1. Where complying with Section R401.2.2 or R401.2.3, and where dwelling units are attached or located in an R-2 occupancy, the air leakage rate shall not exceed 0.27 cfm/ft2 (1.35 L/s x m2) of the *dwelling unit enclosure area*

**R402.5.1.~~45~~ Dwelling unit sampling.** For buildings with eight or more dwelling units, the greater of seven or 20 percent of the dwelling units in the building shall be tested. Tested units shall include a top floor unit, a ground floor unit, a middle floor unit, and the dwelling unit with the largest dwelling unit enclosure area. Where the air leakage rate of a tested unit is greater than the maximum permitted air leakage rate, corrective actions shall be made to the unit and the unit re-tested. For each tested unit that has a greater air leakage rate than the maximum permitted air leakage rate, an additional three units, including the corrected unit, shall be tested. Where buildings have fewer than eight dwelling units, each dwelling unit shall be tested.

**RED1-224-22 Part II**

**IRCECC: N1102.5.1, N1102.5.1.2, N1102.5.1.3 (New), N1102.5.1.3**

Proponents: Theresa Weston, representing ABAA (Air Barrier Association of America) (holtweston88@gmail.com)

**2024 ENERGY Chapter11**

**Revise as follows:**

**N1102.5.1 Building thermal envelope.** The building thermal envelope shall comply with Sections N1102.5.1.1 through N1102.5.1.~~3 4~~ 3. The sealing methods between dissimilar materials shall allow for differential expansion and contraction.

**N1102.5.1.2 Air Leakage Testing ~~and maximum air leakage rate~~.** The *building* or each *dwelling unit* in the building shall be tested for air leakage. ~~The maximum air leakage rate for any building or dwelling unit under any compliance path shall not exceed 4.0 air changes per hour or 0.22 cfm/ft (1.1 L/s x m ) of building or dwelling unit enclosure area.~~ Testing shall be conducted in accordance with ANSI/RESNET/ICC 380, ASTM E779, ASTM E1827 or ASTM E3158 and reported at a pressure differential of 0.2 inch water gauge (50 Pa). Where required by the code official, testing shall be conducted by an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. Testing shall be performed at any time after creation of all penetrations of the *building thermal envelope* have been sealed.

**Exceptions:**

~~1. When testing individual dwelling units, an air leakage rate not exceeding 0.27 cubic feet per minute per square foot [1.35 L/s x m ] of the dwelling unit enclosure area, tested in accordance with ANSI/RESNET/ICC 380, ASTM E779 or ASTM E1827 and reported at a pressure of 0.2 inch water gauge (50 Pa), shall be permitted in all climate zones for:~~

~~1.1 Attached single and multiple family building dwelling units.~~

~~1.2 Buildings or dwelling units that are 1,500 square feet (139.4 m ) or smaller.~~

~~2.~~ 1. For heated, attached private garages and heated, detached private garages accessory to one- and two-family dwellings and townhouses not more than three stories above grade plane in height, building envelope tightness and insulation installation shall be considered acceptable where the items in Table N1102.5.1.1, applicable to the method of construction, are field verified. Where required by the code official, an approved third party independent from the installer shall inspect both air barrier and insulation installation criteria. Heated, attached private garage space and heated, detached private garage space shall be thermally isolated from all other conditioned spaces in accordance with Sections N1102.2.13 and N1102.4.5, as applicable.

~~3.~~ 2. Where tested in accordance with N1102.5.1.2, testing of each dwelling unit is not required.

During testing:

1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weatherstripping or other infiltration control measures.

2. Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures.

3. Interior doors, where installed at the time of the test, shall be open.

4. Exterior or interior terminations for continuous ventilation systems shall be sealed.

5. Heating and cooling systems, where installed at the time of the test, shall be turned off.

6. Supply and return registers, where installed at the time of the test, shall be fully open.

Mechanical ventilation shall be provided in accordance with Section M1505 of this code or Section 403.3.2 of the International Mechanical Code, as applicable, or with other approved means of ventilation.

**Modify Proposal as follows:**

**~~N1102.5.1.3 Mandatory Air Leakage.~~** ~~The maximum air leakage rate for any building or dwelling unit under any compliance path shall not exceed 4.0 air changes per hour or 0.22 cfm/ft (1.1 L/s x m ) of building or dwelling unit enclosure area.~~

**~~Exception:~~** ~~When testing individual dwelling units, an air leakage rate not exceeding 0.27 cubic feet per minute per square foot [1.35 L/s x m ] of the dwelling unit enclosure area,reported at a pressure of 0.2 inch water gauge (50 Pa), shall be permitted in all climate zones for:~~

~~1. Attached single and multiple family building dwelling units.~~

~~2. Buildings or dwelling units that are 1,500 square feet (139.4 m ) or smaller.~~

**~~N1102.5.1.3 4 Prescriptive air leakage rate.~~** ~~Where complying with Section N1101.13.1, the building or each dwelling unit in the building shall have an air leakage rate not exceeding 5.0 air changes per hour in Climate Zones 0, 1 and 2, 3.0 air changes per hour in Climate Zones 3 through 5, and 2.5 air changes per hour in Climate Zones 6 through 8, when tested in accordance with Section N1102.5.1.2.~~

**N1102.5.1.3 Maximum air leakage rate.** Where tested in accordance with Section N1102.5.1.2, the air leakage rate for *buildings* or *dwelling units* shall be as follows:

1. Where complying with Section N1101.13.1, the *building* or each *dwelling unit* in the building shall have an air leakage rate not greater than 4.0 air changes per hour in Climate Zones 0, 1 and 2, 3.0 air changes per hour in Climate Zones 3 through 5, and 2.5 air changes per hour in Climate Zones 6 through 8.
2. Where complying with Section N1101.13.2 or N1101.13.3, and where the whole *building* is tested, the air leakage rate shall not be greater than 4.0 air changes per hour or 0.22 cfm/ft2 (1.1 L/s x m2) of the *building thermal envelope* area.

**Exception:**

For buildings 1,500 square feet (139.4 m2) or less, the air leakage rate shall be 0.27 cfm/ft2 (1.35 L/s x m2) or less.

1. Where complying with Section N1101.13.2 or N1101.13.3, and where *dwelling units* are attached, the air leakage rate shall not exceed 0.27 cfm/ft2 (1.35 L/s x m2) of the *dwelling unit enclosure area*

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**Reason for modification (parts 1 & 2):** There were several proposals that sought to simplify, and create a more logical organization of the air leakage testing section of the code. Proponents met in as a task group and are presenting a combined modified proposal. This modified proposal does the following:

* Separates the maximum air leakage rate from the test method section by moving the existing language into a new revised “maximum air leakage” section.
* Creates a new revised “maximum air leakage” section which includes in a logical organization the maximum air leakage levels for each separate compliance pathways.

This modified proposal seeks a more logical organization of the code. It only updates the organization of the code and does not change technical requirements or remove any exceptions.

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

This modified proposal does not change requirements but only reorganizes the code for readability and clarity.