DENVER AMENDMENT PROPOSAL FORM
FOR PROPOSALS TO THE 2019 DENVER BUILDING CODE
AMENDMENTS AND THE 2021 INTERNATIONAL CODES

2021 CODE DEVELOPMENT CYCLE

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   Date: 6/11/2021  
   Representing (organization or self): Denver

2) One proposal per this document is to be provided with clear and concise information.
   Is a separate graphic file provided ( “X” to answer): ___ Yes or  _x__ No

3) Highlight the code and acronym that applies to the proposal

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Code Name</th>
<th>Acronym</th>
<th>Code Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBC</td>
<td>International Building Code</td>
<td>IRC</td>
<td>International Residential Code</td>
</tr>
<tr>
<td>IEBC</td>
<td>International Existing Building Code</td>
<td>IMC</td>
<td>International Mechanical Code</td>
</tr>
<tr>
<td>IFC</td>
<td>International Fire Code</td>
<td>DGC</td>
<td>Denver Green Code</td>
</tr>
</tbody>
</table>

AMENDMENT PROPOSAL

Please provide all the following items in your amendment proposal.

**Code Sections/Tables/Figures Proposed for Revision:**

Instructions: If the proposal is for a new section, indicate (new), otherwise enter applicable code section.

R402.4.1.2 Testing
Air leakage testing

**Proposal:**

Instructions: Show the proposal using strikeout, underline format.
Place an “X” next to the choice that best defines your proposal: _x_ Revision __ New Text __ Delete/Substitute __ Deletion

*Blue text is language from 2018 IECC amendments*  
*Red text is new proposal*  
*Black text is existing in the 2021 IECC*

R402.4.1.2 Testing. The building or dwelling unit shall be tested for air leakage. The maximum air leakage rate for any building or dwelling unit under any compliance path shall not exceed 5.0 air changes per hour or 0.28 cubic feet per minute (CFM) per square foot [0.0079 m³/(s × m²)] of dwelling unit enclosure area. The building or dwelling unit shall be tested and verified as having an air leakage rate not exceeding three air changes per hour or 0.16 cfm per square foot (0.8 L/s/m²) of dwelling unit enclosure area in climate zone 5.

Testing shall be conducted in accordance with ANSI/RESNET/ICC 380, ASTM E779 or ASTM E1827 and reported at a pressure of 0.2 inch w.g. (50 Pascals). 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.

Exception:

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...
R402.4.1.1, 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 R402.2.12 and R402.3.5, as applicable.

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.

Exception:

2. When testing individual dwelling units, an air leakage rate not exceeding 0.30 cubic feet per minute per square foot [0.008 m³/(s × m²)] 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 an accepted alternative permitted in all climate zones for:
   1. Attached one- and two-family dwelling units and townhouses.
   2. Buildings or dwelling units that are 1000 square feet or smaller.
   3. Rx occupancies built in accordance with Section 429 of the International Building Code.

   1. Attached single and multiple-family building dwelling units.
   2. Buildings or dwelling units that are 1,500 square feet (139.4 m²) or smaller.

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.

R402.4.1.2 Leakage rate. When complying with Section R401.2.1, the building or dwelling unit shall have an air leakage rate not exceeding 5.0 air changes per hour in Climate Zones 0, 1 and 2, and 3.0 air changes per hour in Climate Zones 3 through 8, when tested in accordance with Section R402.4.1.2.

Supporting Information (Required):

All proposals must include a written explanation and justification as to how they address physical, environmental, and/or customary characteristics that are specific to the City and County of Denver. The following questions must be answered for a proposal to be considered.

- Purpose: What does your proposal achieve?
- Reason: Why is your proposal necessary?
- Substantiation: Why is your proposal valid? (i.e. technical justification)

This proposal is put forward to ensure that there is consistency of language between the City of Denver’s 2018 IECC amendment and newly added language in the 2021 IECC. It ensures that confusion that was implemented in the 2021 IECC has been removed. This confusion was related to setting a backstop air leakage rate for the performance compliance options without clearly stating that that was the rational. Many interpreted the backstop of 5.0 ACH a relaxing of the climate zone 3 ACH requirement that has been in the code since the 2012 IECC. The restructuring of this section brings this section back into alignment with the needs of the City of Denver.

Lastly the proposal sets the baseline for which the Denver Green Code can improve upon in order to meet the Cities 2030 goals. The City of Denver currently has exceptions for the air leakage requirement of 3 ACH for town homes and ADU’s. This proposal addresses those building types in exception #2 by using the CFM/sqft of shell metric which
was added in Denver’s amendments during the 2018 IECC. This metric is not volumetric which enables better quantification of air leakage; However, it also is not a one-to-one comparison with the ACH metric. The 0.30 CFM/sqft of shell area is a good starting point for town houses, duplexes and ADU’s and can be reduced in future code cycles and in the Denver Green Code. Exception #1 has been modified to ensure that heated garages are not considered to be inside the building thermal envelope. The first part of this exception was stricken due to its not being understandable.

**Bibliography and Access to Materials** (as needed when substantiating material is associated with the amendment proposal):

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**Other Regulations Proposed to be Affected**

*For proposals to delete content from the 2019 Denver Green Code in conjunction with adding it to other mandatory Denver codes and/or regulations, only.*

Please identify which other mandatory codes or regulations are suggested to be updated (if any) to accept relocated content.

**Referenced Standards:**

List any new referenced standards that are proposed to be referenced in the code.

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**Impact:**

How will this proposal impact cost and restrictiveness of code? (”X” answer for each item below)

<table>
<thead>
<tr>
<th>Cost of construction:</th>
<th>___ Increase</th>
<th>___ Decrease</th>
<th><em>x</em>_ No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of design:</td>
<td>___ Increase</td>
<td>___ Decrease</td>
<td><em>x</em>_ No Impact</td>
</tr>
<tr>
<td>Restrictiveness:</td>
<td>___ Increase</td>
<td>___ Decrease</td>
<td><em>x</em>_ No Impact</td>
</tr>
</tbody>
</table>

**Departmental Impact (City use only):**

This amendment proposal increases/decreases/is neutral to the cost of plans review.

This amendment increases/decreases/is neutral to the cost of inspections.