Code Amendment Proposal Form
For public amendments proposed to the 2018 editions of the International Codes

Instructions: Upload this form and all accompanying documentation at www.denvergov.org/BuildingCode. If you are submitting your proposal on a separate sheet, make sure it includes all information requested below.

All proposals must be received by April 26, 2019.

CONTACT INFORMATION

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Signature: 

AMENDMENT PROPOSAL

Please use a separate form for each proposal.

1) Code(s) associated with this proposal. Please use acronym: IECC

If you submitted a separate coordination change to another code, please indicate which code:

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Code Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBC-xxxx</td>
<td>Denver Building Code–xxxx (code) amendments (e.g., DBC-IBC, DBC-IIBC)</td>
</tr>
<tr>
<td>BC</td>
<td>International Building Code</td>
</tr>
<tr>
<td>EBC</td>
<td>International Existing Building Code</td>
</tr>
<tr>
<td>ECC</td>
<td>International Energy Conservation Code</td>
</tr>
</tbody>
</table>

2) Please check here if a separate graphic file is provided: □

Graphics may also be embedded within your proposal below.

3) Use this template to submit your proposal or attach a separate file, but please include all items requested below in your proposal. The only formatting needed is BOLDING, STRIKEOUT AND UNDERLINING. Please do not provide additional formatting such as tabs, columns, etc., as this will be done by CPD.
**Code Sections/Tables/Figures Proposed for Revision:**

Modified Table 403.7.4(1)

Note: If the proposal is for a new section, indicate (new).

**Proposal:**

C403.7.4 Energy recovery ventilation systems (Mandatory).

Where the supply outside or exhaust airflow rate of a fan system exceeds the values specified in modified Tables C403.7.4(1) and C403.7.4(2), or the exhaust exceeds three times the values listed in modified Table C403.7.4(2), the system shall include an energy recovery system. The energy recovery system shall be configured to provide a change in the enthalpy of the outdoor air supply of not less than 50 percent of the difference between the outdoor air and return air enthalpies, at design conditions. Where an air economizer is required, the energy recovery system shall include bypass dampers or controls that permit operation of the economizer as required by Section C403.5.

Revise Table as follows:

![Image of the proposed table]

**Note:** Show the proposal using *strikeout, underline* format. At the start of each section, give one of the following instructions:

- Revise as follows:
- Add new text as follows:
- Delete and substitute as follows:
- Delete without substitution:

**Supporting Information:**

Purpose: Modify Code similar to requirements in the 2012 IECC for energy recovery if the unit supply fan was above 5,000 cfm and 80% outside air, raise the 2012 requirement to 7,500 cfm for 70% outside air to keep paybacks under 10 years.

Reasons: There appears to be an error in removing energy recovery in 5B. Table C403.7.4(2) requires energy recovery at 8,000 hours a year on any unit over 100 cfm in the 70% OA column, but if the system is 7,999 hours energy recovery is not required even for a unit with a million cfm? Logically for roughly a quarter of the hours, four times the cfm would make sense, but the requirement wouldn’t be removed altogether.

80% Column: Energy analysis was done for energy recovery units with 70% effectiveness (typical range is 60 – 80%) at 80% outside air at 5,000 cfm for a typical 12 hour a day, 5 day a week occupancy in Denver, assuming 55 deg cooling setpoint, 75 deg return air temp in the summer and 60 deg heating setpoint, with 68 deg return air temp in the winter, fan efficiency above 65% and heat wheel pressure drop not exceeding 0.6”. Carbon reduction was in the 50 – 77% range, and paybacks were under 10 years.

70% Column: Energy analysis was done for energy recovery units with 70% effectiveness (typical range is 60 – 80%) at 70% outside air at 7,500 cfm for a typical 12 hour a day, 5 day a week occupancy in Denver, assuming 55 deg cooling setpoint, 75 deg return air temp in the summer and 60 deg heating setpoint, with 68 deg return air temp in the winter, fan efficiency above 65% and heat wheel pressure drop not exceeding 0.6”. Carbon reduction was in the 50 – 70% range, and paybacks were under 10 years.

Note that if heating setpoints were higher, paybacks would have been better.

Substantiation: Available on request

Bibliography:
Note: This section MUST include these items:

- **Purpose:** State the purpose of the proposed amendment to physical, environmental and customary characteristics that are specific to the City and County of Denver (e.g., clarify the code; revise outdated material; substitute new or revised material for physical, environmental and customary characteristics; add new requirements to the code; delete current requirements, etc. to reflect physical, environmental and customary characteristics that are specific to the City and County of Denver)

- **Reasons:** Clearly justify the change to current code provisions, stating why the proposal is necessary to reflect physical, environmental and customary characteristics that are specific to the City and County of Denver. Proposals that add or delete requirements shall be supported by a logical explanation that clearly shows why the current code does not reflect physical, environmental and customary characteristics that are specific to the City and County of Denver and explains how such proposal will improve the code.

- **Substantiation:** Substantiate the proposed amendment based on technical information and substantiation. Substantiation provided which is reviewed and determined as not germane to the technical issues addressed in the proposed amendment shall be identified as such.

- **Bibliography:** Include a bibliography when substantiating material is associated with the amendment proposal. The proponent shall make the substantiating materials available for review.

**Referenced Standards:**

None

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

**Impact:**

Saving energy and drastically reducing carbon emissions (in the 50 – 77% range) with a payback below 10 years.

Note: Discuss the impact of this proposal in this section AND indicate the impact of this amendment proposal for each of the following:

- The effect of the proposal on the cost of construction: ☒ Increase ☐ Reduce ☒ No Effect
- The effect of the proposal on the cost of design: ☐ Increase ☒ Reduce ☒ No Effect
- Is the proposal more or less restrictive than the I-codes: ☒ More ☐ Less ☐ Same

**Departmental Impact:** (To be filled out by CPD staff)

Note: CITY STAFF ONLY. Discuss the impact of this proposal in this section AND indicate the impact of this amendment proposal for each of the following:

- The effect of the proposal on the cost of review: ☐ Increase ☐ Reduce ☐ No Effect
- The effect of the proposal on the cost of enforcement/inspection: ☒ Increase ☐ Reduce ☐ No Effect