

Code Amendment Proposal Form

For public amendments proposed to the 2021 editions of the International Codes



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

All proposals must be received by **July 23, 2021**.

CONTACT INFORMATION

Name: Mike Fulton

Date: 7/14/22 updated

Phone: 720-934-8273

E-mail: mfulton@westernmechanicalsolutions.com

Organization or Representing Self:

By signing below, I hereby grant and assign to City and County of Denver all rights in copyright I may have in any authorship contributions I make to City and County of Denver in connection with this proposal. I understand that I will have no rights in any City and County of Denver publications that use such contributions in the form submitted by me or another similar form and certify that such contributions are not protected by the copyright of any other person or entity.

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: _____

<u>Acronym</u>	<u>Code Name</u>	<u>Acronym</u>	<u>Code Name</u>
DBC-AP	Denver Building Code—Administrative Provisions	IFC	International Fire Code
DBC-xxx	Denver Building Code—xxx (code) amendments (e.g., DBC-IBC, DBC-IEBC)	IFGC	International Fuel Gas Code
IBC	International Building Code	IRC	International Residential Code
IEBC	International Existing Building Code	IMC	International Mechanical Code
IECC	International Energy Conservation Code	IPC	International Plumbing Code
		DGC	Denver Green Code

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:

C403.8 – Fans and fan controls.

C403.8.6.2 – Intermittent Exhaust Control – for Bathrooms and Toilet Rooms (new)

N1103.6.4 (R403.6.4) (new)

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

Proposal:

Add new text as follows (new text is underlined):

C403.8 – Fans and fan controls.

Fans in HVAC systems shall comply with Sections C403.8.1 through C403.8.6.12

C403.8.6.2 – Intermittent Exhaust Control for Bathrooms and Toilet Rooms. Where an exhaust system serving a bathroom or toilet room is designed for intermittent operation, the exhaust system shall be provided with manual-on and one or more of the following controls:

1. Timer control that has a minimum set point of not greater than 30 minutes.
2. An occupant sensor control that automatically turns off exhaust fans within 30 minutes after all occupants have left the space.
3. A humidity control capable of manual or automatic adjustment from a minimum setpoint not greater than 50% to a maximum setpoint not greater than 80% relative humidity.
4. A contaminant control that responds to a particle or gaseous concentration.

Exception: Bathroom and toilet room exhaust systems serving as an integral component of an outdoor air ventilation system in Group R-2, R-3, and R-4 occupancies shall not be required to provide controls other than manual on capability.

An off setpoint shall not be used to comply with a minimum setpoint requirement.

N1103.6.4 (R403.6.4): Intermittent Exhaust Control for Bathrooms and Toilet Rooms. Where an exhaust system serving a bathroom or toilet room is designed for intermittent operation, the exhaust system shall be provided with manual-on and one or more of the following controls:

1. Timer control that has a minimum set point of not greater than 30 minutes.
2. An occupant sensor control that automatically turns off exhaust fans within 30 minutes after all occupants have left the space.
3. A humidity control capable of manual or automatic adjustment from a minimum setpoint not greater than 50% to a maximum setpoint not greater than 80% relative humidity.
4. A contaminant control that responds to a particle or gaseous concentration.

Exception: Bathroom and toilet room exhaust systems serving as an integral component of an outdoor air ventilation system in **Group R-2, R-3, and R-4** occupancies shall not be required to provide controls other than manual on capability.

An off setpoint shall not be used to comply with a minimum setpoint requirement.

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: New requirements to the code, this was adopted for the 2024 IECC as presented above. The residential has not been accepted yet, but is intended to under the public comment process.

Reason: To reduce energy consumption and unnecessary infiltration in buildings.

Substantiation: Bin analysis was run on a 50 cfm bath exhaust fan. It was assumed the fan would run 2 hours a day with a manual switch vs. 5 minutes with a timer. Only heating energy and fan energy was reviewed, savings was \$ 27 per year based on Xcel rates. Assuming \$ 100 installed cost, the payback is 4 years . Backup material is available upon request.

Added benefit is that occupants no longer need to remember to go back and shutoff the bathroom exhaust fan or be annoyed by the sound level.

Notes and Precedents:

- A. Examples of other occupancy control requirement: IECC C403.13.1, C405.2.1.1
- B. Examples of timer or “time-switch” control requirement: IECC C403.7.6.2, C403.13.1, C405.2.2
- C. Example of humidity control requirement: California Title 24, Part 11, [Section 4.506](#)
- D. IMC definition of bathrooms, which includes showers: **BATHROOM.** A room containing a bathtub, shower, spa or similar bathing fixture.

E. One IECC example of a contaminant control is a “demand control” ventilation system (C403.7). There are no requirements for the type of contaminant (e.g., CO2) that must be sensed or the minimum concentration of the contaminant below which the system would be required to shut off. By not constraining option #4 to a particular type of contaminant nor identifying a concentration threshold, this proposed language is aligned with the current IECC precedent for addressing these types of controls.

Estimated costs:

Humidity control: ~\$30-\$50

Timer control: ~\$15-\$70

Occupancy control: ~\$20-\$40

Contaminant control: ~\$300

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:

Saves energy by reducing unnecessary infiltration in heating and cooling modes.

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