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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I, David P. Renn, 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: David P. Renn

AMENDMENT PROPOSAL

Please use a separate form for each proposal.

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

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-IEBC)</td>
</tr>
<tr>
<td>IBC</td>
<td>International Building Code</td>
</tr>
<tr>
<td>IEBC</td>
<td>International Existing Building Code</td>
</tr>
<tr>
<td>IECC</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:

IBC Table 1004.5

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

Revise “Business areas” section of Table 1004.5 and add footnote “b” as indicated below. Portions of table and notes not shown remain unchanged.

<table>
<thead>
<tr>
<th>FUNCTION OF SPACE</th>
<th>OCCUPANT LOAD FACTOR²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business areas</td>
<td>150 gross / 100 netᵇ</td>
</tr>
<tr>
<td>Concentrated business use areas</td>
<td>See Section 1004.8</td>
</tr>
</tbody>
</table>

b. Use gross area or net area occupant load factor that results in the greatest occupant load.

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: The 2018 IBC revises the occupant load factor for business area to be 150 (gross) instead of 100 (gross), resulting in an occupant load that is reduced by a third compared to the 2015 IBC. The purpose of this proposal is to add a net area occupant load factor to better reflect actual occupant load from spaces or individual tenant suites. Typical office layouts in Denver have become increasingly dense in the recent years and it is believed that an occupant load factor of 150 (gross) is not adequate for design of the means of egress from these spaces. It is also believed that the change to 150 (gross) accounts for egress from stories, but not egress from rooms, areas or spaces, and this proposal corrects this.

Reasons and Substantiation: The change in occupant load factor for business loads was proposal E9-15 of the 2015 Group A ICC Committee Action Hearings. This proposal is based on several studies that determined that an occupant load factor of 100 (gross) is too conservative and the proposal changed this to 150 (gross), which was still considered conservative based on the studies, but reasonable for code occupant loads. A review of these studies reveals that the studies developed occupant load factors based on gross area of entire floor plates, which is essentially the area within the exterior walls without reduction for corridors, stairways, elevators, etc. I do not take issue with the validity of these studies or the change to 150 (gross) for egress from stories, since this is what the studies are based on. However, what the studies did not address is egress from rooms, areas or spaces, and this proposal is intended to address this issue.

For egress from rooms, areas or spaces, the gross area is typically the entire room area or space and includes little or no area that is typically unoccupied. In contrast, for egress from stories the gross area includes typically unoccupied areas such as the common core area of an office building – the occupant load factor of 150 (gross) is appropriate for this use as it represents an average occupant load factor for the entire floor plate. However, during typical occupancy, most of the occupants of a floor plate are concentrated within the typically occupied areas, resulting in a higher occupant density in office suites than in the core area. By requiring an occupant load factor of 100 net to be considered, this will result in reasonable actual occupant loads within rooms, areas and spaces since the gross and net areas are nearly the same. For egress from stories, the 150 (gross) or 100 (net) occupant load factor may control design depending on the relative areas of typically occupied office areas and typically unoccupied core areas.
Furthermore, Denver is seeing office layouts that are becoming increasingly dense and the current occupant load factor of 100 (gross) is often not adequate and the increased occupant load provisions in IBC Section 1004.5.1 must be used. Without this proposed amendment, 150 (gross) would be required for the suites and use of the increased occupant load provisions would be commonplace, which is more difficult for the designers and plan reviewers since the increased occupant load must be determined and agreed upon.

Bibliography:
2015 Group A Proposed Changes to the I-Codes Memphis Committee Action Hearings as published by the International Code Council.

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:

This proposal is more restrictive than the I-codes and may increase the cost of construction slightly due to increased occupant loads. Cost of design may be increased slightly since occupant loads for egress must be determined based on two occupant load factors instead of one.

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