



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

DENVER
THE MILE HIGH CITY

2021 CODE DEVELOPMENT CYCLE

1) **Name:** Kristen Salinas **Date:** 11.16.21
Email: Ksalinas@noresco.com **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

<u>Acronym</u>	<u>Code Name</u>	<u>Acronym</u>	<u>Code Name</u>
DBC-AP	Denver Building Code–Administrative Provisions	IPC	International Plumbing Code
IBC	International Building Code	IRC	International Residential Code
IECC	International Energy Conservation Code	IFGC	International Fuel Gas Code
IEBC	International Existing Building Code	IMC	International Mechanical Code
IFC	International Fire Code	DGC	Denver Green Code

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.

(NEW) Indoor Environmental Quality Assurance and Occupant Awareness

Proposal:

Instructions: Show the proposal using ~~strikeout~~, underline format.

Place an “X” next to the choice that best defines your proposal: ___ Revision ___X___ New Text ___ Delete/Substitute ___ Deletion

Update Table 101.4.1 Applicable to nonresidential occupancy projects including Commercial New Construction, Additions, Alterations when within scope, Tenant Improvement and Adaptive Reuse as well as to Multifamily Residential building projects.

1001.X. Indoor Environmental Quality Assurance and Awareness (Project Elective). The plan for operation shall include an indoor environmental quality occupant survey and information about air quality measurements shall be made available to occupants through in accordance with 1001.X.1 and 1001.X.2:

1001.X.1 Indoor environmental quality survey. An indoor environmental quality occupant survey shall be implemented complying with all of the following:

- a. The survey shall be implemented within a period of 6 to 18 months after issuance of the certificate of occupancy. The survey shall be repeated not less often than once every three years. The survey questions shall include satisfaction questions and diagnostic questions for IAQ, lighting, acoustics, and thermal comfort.
- b. The survey questions shall use a seven-point satisfaction scale and comply with ANSI/ASHRAE Standard 55, Section 7.3.1.1.
- c. A plan for reporting the survey results shall be produced that includes the following:
 1. The survey report shall state where the response rate was less than the response rates specified in ASHRAE Standard 55, Section 7.3.1.
 2. The survey report shall indicate the percentage of satisfaction for each question in accordance with ASHRAE Standard 55, Section 7.4.1(a).

3. The percentage satisfaction results shall be compared to a nationally recognized survey benchmarking database where the building occupancy category is represented in the databases of nationally recognized organizations.
4. If survey results fall beneath ASHRAE Standard 55, Section 7.4.1(a), planned remediation activities will be developed and implemented no more than 6 months after reporting results.

1001.X.2 Promote Indoor environmental quality awareness. Information about the air quality measured in Section 1001.X shall be made available to occupants as follows:

- a. Data are presented through one of the following:
 1. Display screens prominently positioned at a height of 3.6–5.6 ft with at least one display per 3500 ft² of regularly occupied space.
 2. Hosted on a website or phone application accessible to occupants. Signs are present indicating where the data may be accessed at a density of at least one sign per 3500 ft² of regularly occupied space.
- b. Data presented include one of the following:
 1. Results of indoor environmental quality survey. These shall include planned remediation activities as applicable.
 2. Concentrations of the parameters measured.
 3. Qualitative results of air quality (e.g., colored-coded levels).

Supporting Information:

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?
This proposal provides instruction to gather occupant feedback and raise occupant awareness of indoor environmental quality conditions. Surveying occupants will provide data to building maintenance staff and owners about occupant comfort, perception of air quality and assure occupants that their safety and well-being is considered important. Educating occupants about air quality conditions and environmental health concerns delivers critical health knowledge, skills, and agency to better advise their own health and well-being. This has been shown to lead a shift in occupant behaviors and how they interact with the spaces they are in.
- Reason: Why is your proposal necessary?
According to the WELL building standard, people are estimated to spend approximately 90% of their time in enclosed spaces such as homes, offices, schools or other building environments. Even prior to the Covid-19 epidemic, indoor pollutants were found to be the tenth most important cause of ill health for world populations. As outdoor air pollutants cause dangerously high AQI days at an increasing rate of frequency during wildfire season in the Rocky Mountain Front Range, the need for clean indoor air is essential.
From the WELL Building Standard Evidence Behind the Air Concept:
“Studies indicate that the use of a system that visualizes whether or not indoor environmental conditions are poor, or one that proactively warns occupants when conditions are poor, may be beneficial in motivating occupants to take actions to improve conditions or otherwise take action to protect themselves”
- Substantiation: Why is your proposal valid? (i.e. technical justification)
The language proposed is drawn from existing standards including IgCC and the WELL Building Standard. The requirements are achievable and documented to be effective at improving indoor environmental quality and shifting occupant behaviors.

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

IgCC 2021 Chapter 10 Section 1001.9.4.4

WELL Building Standard v2, Air A08 : <https://v2.wellcertified.com/wellv2/en/air>

WELL V2 Evidence Behind the Air Concept, page 17:
<https://f.hubspotusercontent40.net/hubfs/7039796/Evidence%20Box/evidence%20box-%20air%20final.pdf>

PNNL Faster Air Exchange in Buildings Not Always Beneficial for Coronavirus Levels: <https://www.pnnl.gov/news-media/faster-air-exchange-buildings-not-always-beneficial-coronavirus-levels>

Air Conditioning Heating Refrigeration News Maximizing Indoor Air Quality Without Sacrificing Energy Efficiency: <https://www.achrnews.com/articles/144546-maximizing-indoor-air-quality-without-sacrificing-energy-efficiency>

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.

Impact :

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

Cost of construction: Increase ___ Decrease ___ No Impact

Cost of design: Increase ___ Decrease ___ No Impact

Restrictiveness: Increase ___ Decrease ___ No Impact