



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:** John Woycheese **Date:** July 23, 2021
Email: John.Woycheese@denvergov.org **Representing (organization or self):** Organization

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.

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

Section 903.3.11 Pre-action sprinkler systems is added as follows:

903.3.11 Pre-action sprinkler systems. Pre-action systems shall be installed in accordance with NFPA 13, this section, and Section 907.6.7. Fire protection piping and initiating device, control and annunciation drawings shall be submitted together, and shall meet the requirements of Appendix O for both fire alarm and *automatic sprinkler system* submittals. The types of pre-action systems that are approved for use in accordance with NFPA 13 are: single interlock, non-interlock and double-interlock systems. Installation of double-interlock pre-action systems shall be subject to approval by the *fire code official*.

Section 904.10 Clean-agent systems is replaced as follows:

904.10 Clean-agent systems. Clean-agent *automatic fire-extinguishing systems* shall be designed and installed in accordance with NFPA 2001, this section, and Section 907.6.7. Clean agent systems are supplemental and not permitted to substitute for required *automatic sprinkler systems* unless specifically approved by the *fire code official*. Shop drawings, calculations, and materials cutsheets for system installations, including initiating device, control and annunciation, shall be submitted in accordance with Appendix O and NFPA 2001. Clean-agent *automatic fire-extinguishing systems* shall be ~~installed~~, maintained, periodically inspected and tested in accordance with NFPA 2001 and their listing. Records of inspections and testing shall be maintained.

Section 907.6.7 Pre-action and clean agent extinguishing systems and subsections are is added as follows:

907.6.7 Pre-action and clean agent extinguishing systems. Pre-action and clean agent extinguishing systems shall have a dedicated releasing panel and annunciator connected to the building fire alarm system where provided. ~~Pre-action~~

~~systems shall be installed in accordance with NFPA 13. Clean agent systems shall comply with Section 904.10. Control panels shall be listed for releasing service. Control panel and annunciator shall be located outside the protected area in a location approved by the fire code official. Areas protected by a single releasing panel shall be contiguous. Shop drawings for system installations shall be submitted in accordance with Appendix O, NFPA 13 and NFPA 2001. Cross-zoned detection systems shall transmit a building alarm on activation of the first initiating device. Fire protection piping and initiating device, control and annunciation drawings shall be submitted together. Clean agent systems are supplemental and not permitted to substitute for required automatic sprinkler systems unless specifically approved by the fire code official.~~

Section 907.6.7.1 Annunciation is added as follows:

907.6.7.1 Annunciation. Pre-action and clean agent systems shall be provided with a local directory annunciator zoned for manual, smoke detector, flow alarm and tamper supervisory indications in accordance with Section 907.6.4.1.1. Systems with under floor and/or above ceiling detection devices shall be provided with a point-lit graphic annunciator in accordance with Section 907.6.4.1.2. Systems shall annunciate alarm and supervisory conditions at the main building fire alarm panel.

Section 907.6.7.2 Application of pre-action systems is added as follows:

~~**907.6.7.2 Application of pre-action systems.** The types of pre-action systems that are *approved* for use in accordance with NFPA 13 are: single interlock, non-interlock and double interlock systems. Installation of double interlock pre-action systems shall be subject to approval by the *fire code official*.~~

907.6.7.2 Control panels for pre-action systems. Control panels shall be listed for releasing service. Control panel and annunciator shall be located outside the protected area in a location *approved* by the *fire code official*. Areas protected by a single releasing panel shall be contiguous.

907.6.7.3 Cross-zoned detection. Cross-zoned detection systems shall transmit a building alarm on activation of the first initiating device. Double-interlock pre-action systems shall not have cross-zoned detection.

907.6.7.4 Pre-action system submittals. Fire protection piping and initiating device, control and annunciation drawings, calculations, and material cutsheets shall be submitted in accordance with Appendix O for both *fire alarm system* and *automatic sprinkler system* submittals, per 903.3.11.

907.6.7.5 Clean-agent *automatic fire-extinguishing system* submittals. Fire protection piping and initiating device, control and annunciation drawings, calculations, and material cutsheets shall be submitted in accordance with Appendix O and NFPA 2001, per Section 904.10.

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?

This collects information from 907.6.7 and subsections related to pre-action and clean-agent systems that does not belong in the section on detection and alarm. It modifies the IFC sections to add references to DFC 907.6.7 and to provide the information transferred therefrom. Most language is maintained, if relocated; the requirement for compliance with NFPA 2001 is already addressed in the base code (IFC 904.10), and the requirement for alternative fire-suppression system submittals (like those for clean agents) to comply with Appendix O is included.

Added is the prohibition against cross-zoned detection with double-interlock pre-action systems. The delays associated with cross-zoning detection, combined with the delays from a double-interlock system, compound and are problematic, increasing time to discharge water and increasing complexity without a commensurate increase in safety or reliability.

The full paragraph in 907.6.7 has been subdivided for easier referencing, and cross-referencing has been provided between the sections for fire alarm (907.6.7), sprinklers related to pre-action systems (903.3.11), and clean-agent systems (904.10).

- Reason: Why is your proposal necessary?

Code references are arranged in a specific manner, such that the designer, reviewer, contractor, and inspector is aware of the particular elements that apply to a given system or situation. The current code language provides some requirements for alternative fire suppression systems in the code section for fire alarm systems, without cross-reference. Thus, a designer reviewing requirements for such systems may be unaware of the requirements identified under a completely different system type.

Adding a requirement for cross-zoning of the detectors (i.e., requiring two detectors to activate) in a double-interlock pre-action system further increases the time to discharge (allowing the fire to grow) without a commensurate increase in safety. This is a delay without a viable life-safety purpose.

- Substantiation: Why is your proposal valid? (i.e. technical justification)

This proposal reduces confusion or potential for overlooked requirements by arranging the code references in suitable sections.

Double-interlock pre-action systems were initially intended for freezers and similar spaces but have become popular for protection of high-value areas (like server rooms) that must have sprinklers under the building code. The double-interlock configuration already requires two separate components (typically a smoke detector and a sprinkler) to activate for water to enter the piping; by their nature, double-interlock systems cause delays in water discharge on a fire.

Although the code is slightly more restrictive (in that cross-zoned detection cannot be used), there should be improvement to life safety for any facility considering such a system, with a reduction in potential damage to property (because the fire will be smaller when the water discharges).

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

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:	<input type="checkbox"/> Increase	<input type="checkbox"/> Decrease	<input checked="" type="checkbox"/> No Impact
Cost of design:	<input type="checkbox"/> Increase	<input type="checkbox"/> Decrease	<input checked="" type="checkbox"/> No Impact
Restrictiveness:	<input checked="" type="checkbox"/> Increase	<input type="checkbox"/> Decrease	<input type="checkbox"/> No Impact

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.