2) Proposals should be drafted in Word with the only formatting that is needed being **BOLDING**, **STRIKEOUT**, and **UNDERLINING**. Please do not provide additional formatting such as tabs, columns, etc.

Please use a separate form for each proposal submitted.

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Code Name</th>
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</thead>
<tbody>
<tr>
<td>DBC-xxx</td>
<td>Denver Building Code–xxx code base</td>
<td>IMC</td>
<td>International Mechanical Code</td>
</tr>
</tbody>
</table>

**AMENDMENT PROPOSAL**

*Please provide all of the following items in your amendment proposal.*

**Code Sections/Tables/ Figures Proposed for Revision:**

Add NEW section 5307.5.

**Proposal:**

*New text as follows:*

**(NEW) Section 5307.5 Carbon Dioxide (CO₂) Gas Enrichment Systems Using a Natural Gas Burner in Plant Growing (Husbandry) Applications is added as follows:***

**5307.5 General.** Natural gas burners that are utilized to generate CO₂ in plant growing applications shall comply with Sections 5307.5.1 through 5307.5.5. A mechanical exhaust system shall be provided as required by the *International Mechanical Code.*

**5307.5.1 Permits.** Permits shall be required in accordance with Section105 and in accordance with Denver Fire Department policy.

**5307.5.2 Equipment.** Natural gas burners shall be listed, labeled and installed in accordance with the manufacturer’s installation instructions. Piping systems, combustion and ventilation air and venting for natural gas appliances shall be designed and installed in accordance with approved standards, the International Fuel Gas Code and manufacturer’s recommendations.*
5307.5.3 Required protection. Where natural gas burners are located indoors for CO₂ enrichment, grow room/areas shall be provided with a gas detection system in accordance with Section 5307.5.3.1 and carbon monoxide detection in accordance with Section 5307.5.3.2.

5307.5.3.1 Gas detection system. A gas detection system shall comply with all the following:

1. Continuous gas detection shall be provided to monitor areas where CO₂ can accumulate. Detection equipment shall be provided to indicate CO₂ levels in each grow cultivation area/room.

2. Detectors shall be:
   a. Listed or approved devices.
   b. Permanently mounted.
   c. Installed at a height of no more than 48 inches above the floor or as approved by the fire code official.
   d. Directly connected to building electrical supply and/or fire alarm systems and protected from accidental disconnection or damage.
   e. Auto calibrating and self “zeroing” devices are not permitted unless they can be zeroed and spanned.
   f. Located within manufacturer’s specified detection range for each point of release.

3. Activation of the emergency alarm system shall initiate amber strobes/horns provided in each room/area where CO₂ can accumulate. Additional amber strobes and audible horns shall be placed at the entrances to below grade locations. The notification appliance shall be rated a minimum of 80cd for a visible and 75 dBA for audibility. Notification appliances shall be mounted per NFPA 72 requirements with the entire lens mounted between 80 inches and 96 inches above finished floor. Notification appliances shall be listed to operate in special environments, such as outdoors, indoors, high or low temperatures, and high humidity. Provide notification appliances at the following locations:
   - Inside grow cultivation room/areas.

4. Local alarm set points shall be set at:
   - 5,000 PPM – Latching Alarm
     - Visual and audible notification in approved locations at room or area in alarm.
     - Activation of the automatic natural gas control valves to each burner to a closed position stopping the generation of CO₂.
     - Evacuate the room in alarm and contact a qualified service company.
     - Reset of emergency alarm to be conducted by qualified personnel.
5. Signage will be required adjacent to each horn/strobe as follows:

Entrance to below grade location: “DO NOT ENTER WHEN LIGHT IS FLASHING – CARBON DIOXIDE LEAK DETECTED”.

Grow cultivation room/area dispensing: “FLASHING LIGHT MEANS CARBON DIOXIDE LEAK DETECTED – EVACUATE ROOM”.

The sign shall have a minimum 1-inch block lettering with a minimum ¼ -inch stroke. The sign shall be on a contrasting surface of black on yellow and shall be of durable construction.

Signage at entrance doors: Signage shall be provided at entrance doors to each grow cultivation room/area:

![DANGER](image)

NFPA 704 placards for simple asphyxiants shall also be provided at the exterior main entrance.

6. All CO₂ burner systems shall shut down in the event of a loss of electrical power to the CO₂ detectors.

7. A minimum of one portable CO₂ meter shall be in use during business hours.

5307.5.3.2 Carbon monoxide (CO) gas detection.

1. CO gas detection shall be provided to monitor products of combustion continuously.

2. Detectors shall be:
   a. Listed or approved devices.
   b. Permanently mounted.
   c. Installed per manufacturer’s recommendations and directions.
   d. Directly connected to building electrical supply and fire alarm systems and protected from accidental disconnection or damage.

3. CO detection shall be at set at 35 PPM and upon activation shall initiate the following:
● Close the automatic valve to each burner.
● Activate the mechanical exhaust system.

4. All CO₂ burner systems shall shut down in the event of a loss of electrical power to the CO.

5. A minimum of one portable CO meter shall be in use during business hours.

5307.5.4 Inspection and testing. All detectors, alarms and CO₂ burners must be visually inspected, calibrated, and tested to determine that the materials, design, fabrication and installation practices comply with the requirements of this code.

5307.5.4.1 Records. A written record of all required inspections, testing, calibration, and maintenance shall be maintained in a log book on the premises containing the three most current years of records and be available for review by fire inspection personnel.

5307.5.4.2 Required inspections and testing. All detectors, alarms and CO₂ burner equipment shall be tested and inspected in accordance with Sections 5307.5.4.2.1 through 5307.5.4.2.6.

5307.5.4.2.1 Acceptance testing. Appliances and equipment shall not be placed in operation until after the detectors, notification appliances automatic gas control valves and mechanical exhaust system have been tested by a qualified service company. Acceptance testing is required to be witnessed by Fire Code Officials.

5307.5.4.2.2 Daily inspections. All detectors and alarms shall be visually inspected daily. These inspections are permitted to be conducted by trained employees.

5307.5.4.2.3 Monthly inspections. All CO₂ burners and appurtenances shall be visually inspected monthly. These inspections are permitted to be conducted by trained employees.

5307.5.4.2.4 Semi-annual inspections. Systems shall be visually inspected, and gas detectors calibrated in accordance with manufacturer specification semi-annually by a qualified service company.

5307.5.4.2.5 Annual testing. All detectors, alarms, gas control valves and mechanical exhaust systems shall be tested annually by a qualified service company.

5307.5.4.2.6 Alterations and repair. In the event alterations, repairs or additions are made, the affected equipment shall be retested in accordance with Section 5307.5.4.2.1

5307.5.4.3 Reserved

5307.5.4.4. Calibration. Detectors shall be checked for accuracy, calibrated to a reference gas concentration, and span reset.

5307.5.5 Training. All employees shall receive annual training in hazard identification, physical properties, inspections, and emergency procedures. Training records shall be maintained on site and be available to inspectors upon request.

Note: Show the proposal using strikethrough, underline format. At the beginning of each section, one of the following instruction lines are also needed:
Supporting Information:

Carry over Denver Fire 2015 IFCA amendments as adopted by policy in October 2017. This provides specific language.

*Note:* The following items are required to be included:

**Purpose:** The proponent shall clearly 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.)

**Reasons:** The proponent shall justify changing the 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 which clearly shows why the current does not reflect physical, environmental and customary characteristics that are specific to the City and County of Denver and explains how such proposals will improve the Code.

**Substantiation:** The proponent shall 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** (as needed): The proponent shall submit a bibliography when substantiating material is associated with the amendment proposal. The proponent shall make the substantiating materials available for review.

**Referenced Standards:**

None

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

**Impact:**

It has no effect. Same amendments from 2015 IFCA.

*Note:* The proponent shall discuss the impact of the proposed amendment and indicate one of the following for each point below regarding the amendment proposal:

- The effect of the amendment proposal on the cost of construction; □ Increase □ Reduce □ No Effect
- The effect of the amendment proposal on the cost of design; □ Increase □ Reduce □ No Effect
- Is the amendment proposal more- or less-restrictive than the I-Codes; ☒ More □ Less □ Same

**Departmental Impact:**

Click or tap here to enter text.

*Note:* The proponent shall discuss the impact of the proposed amendment and indicate one of the following for each point below regarding the amendment proposal:

- The effect of the amendment proposal on the cost of review; □ Increase □ Reduce □ No Effect
- The effect of the amendment proposal on the cost of enforcement/inspection; □ Increase □ Reduce □ No Effect