1) Name: Keith Morgan, JD Lanz, David Kahn
Nancy White, Brad Emerick

Date: 7/22/2019

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.

Is separate graphic file provided? ☐ Yes ☐ No

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<thead>
<tr>
<th>Acronym Code Name</th>
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<tr>
<td>DBC-AP</td>
<td>IPC International Plumbing Code</td>
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<td>DBC-IBC</td>
<td>IRC International Residential Code</td>
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<td>IFGC International Fuel Gas Code</td>
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<td>DBC-xxx</td>
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AMENDMENT PROPOSAL

Please provide all of the following items in your amendment proposal.
Revise as follows:

DBC Chapter 1: Administration, Section 130.3 Exempted work:

130.3 Exempted Work. The following construction is exempt from the permit requirements of this Code (see Appendix S Section 1.4 for airport requirements). Exemption from this Code shall not be deemed to grant authorization for any work to be done in any manner that violates the provisions of this Code or any other laws or ordinances of the City. Wastewater Management, Zoning Administration and Fire Department permits may be required.

Revise as follows:
IBC Section 412.1 General.

412.1 General. Aircraft-related occupancies shall comply with Sections 412.1 through 412.7, DBC Appendix S and the _International Fire Code_ as amended.

Revise as follows:
DBC Appendix S Construction of Airport Buildings and Structures

Appendix S Construction of a Airport buildings and Structures and Systems is added:

APPENDIX S

CONSTRUCTION OF AIRPORT BUILDINGS AND STRUCTURES

AND SYSTEMS

All Chapters and Sections of 2013 National Fire Protection Association 415 Standard on Airport Terminal Buildings, Fueling Ramp Drainage, and Loading Walkways, shall be used in their entirety except as amended below:

CHAPTER 1 ADMINISTRATION

Add new text as follows: Section 1.4 is added:

1.4 Federal Agencies. The facilities, buildings, structures or portions thereof owned, occupied and managed by an agency of the federal government are not subject to the provisions of this Code.

Section 1.5 is added:


1.4 Permits Required. On Denver International Airport property, permanent or temporary new construction of, and alterations and repairs to, buildings, miscellaneous structures, sites and portions thereof, and changes in the occupancy or function of a space shall be subject to City and County of
Denver Development Services and Fire Department construction and operational permit requirements as directed by the Building and Fire Code Officials.

**Exception:** Facilities, buildings, and structures wholly owned, occupied and maintained by an agency or subdivision of Colorado State or the federal government are subject to the provisions of the International Fire Code and the Denver amendments thereto, per the direction of the fire code official, but are not otherwise subject to the DBC. Contractors performing work in or on these facilities, buildings, and structures need only be licensed in accordance with the International Fire Code and the Denver amendments thereto, per the direction of the fire code official.

Regional Transportation District (RTD) commuter-rail platforms and all light- and commuter-rail amenities including, but not limited to, canopies, driver relief stations, ramps, stairways, lifts, elevators, and retaining walls that support adjacent private or public rights-of-way shall be subject to City and County of Denver Development Services and Fire Department construction and operational permit requirements as directed by the Building and Fire Code Officials.

**Exception:** Where located on RTD right-of-way, RTD traction power substations, signal/communication relay stations and associated conduit and wiring for the operation of the light- and commuter-rail lines, rail tracks, retaining walls supporting only rail tracks, and light-rail passenger platforms.

Delete Chapter 3 in its entirety and substitute as follows:

**CHAPTER 3**

**DEFINITIONS**

**Section 3.3 General Definitions.**

Amend Section 3.3 by adding the following:

3.3.1 Aircraft Fueling Ramp. Any outdoor area at an airport, including aprons and hardstands, where aircraft are normally fueled or defueled.

3.3.2 Aircraft Loading Walkway (Passenger Loading Bridge or Passenger Boarding Bridge). An aboveground device through which passengers move between a point in an airport concourse building and an aircraft. Included in this category are walkways that are permanently fixed or essentially mobile in nature and can fold, telescope, or pivot from a fixed point.

3.3.3 Aircraft Loading Walkway on Grade Level. A fully enclosed walkway supported on grade through which passengers move between a point in an airport concourse building and an aircraft.

3.3.4 Airport Ramp. Any outdoor area, including aprons and hardstands, where aircraft can be positioned, stored, serviced, or maintained, irrespective of the nature of the surface of the area.
3.3.5 **Airport Concourse Building (Concourse).** A structure used primarily to support air passenger enplaning and deplaning operations. *Airport concourse buildings* are distinguished from *airport terminal buildings* in that all occupants have cleared security and accommodations are not provided for nonsecure private or public ground transportation vehicles. Airport concourse buildings have provisions on one or more sides for aircraft boarding and flight service operations such as fueling, deicing, stocking and waste disposal. They can be located adjacent to but separate from airport terminal buildings, accessible via above ground or through subway passages, and include passenger support functions such as flight itinerary modifications, waiting rooms, consumer services, retail, etc. Airport concourse buildings can also house baggage conveyance and transport equipment and functions, and office, moderate-hazard storage, and similar occupancies.

3.3.6 **Airport Terminal Building (Terminal).** A structure that can accommodate multimodal transportation but used primarily for air passenger support operations. *Airport terminal buildings* can accommodate all operations provided in *airport concourse buildings* but are distinguished from *concourses* in that they can also accommodate occupants that have not been security-screened and nonsecure functions such as private-vehicle and mass transit pick-up / drop-off / parking, passenger check-in, ticket issuance, and baggage check-in / pick-up. In addition, *terminals* may have provisions for controlled release of deplaned passengers from secure to nonsecure areas such as passenger shuttle train discharge platforms and Customs screening.

3.3.7 **Freight Terminal Building (Air Cargo Building).** A structure used for the processing and/or storage of incoming or outgoing freight and other necessary functions in connection with air freight operations. Aircraft shall not be housed, stored, loaded or unloaded, undergo service, repairs, or alterations within a *freight terminal building*. *Freight terminal buildings* shall comply with the Group S-1 occupancy requirements of International Building Code.

3.3.8 **Inline Concessions Tenant Spaces.** Tenant spaces Contiguous rooms or spaces located around the perimeter of common or circulation areas and often leased by the airport (owner) to individuals or groups (tenants) for mercantile, restaurant, concession, service, office, storage or similar occupancies or functions. These are distinguished from *kiosks* in that they are exposed to common or circulation areas on less than 4 sides. *Inline tenant spaces* are required to comply with all codes and standards applicable the overall *terminal or concourse* in which they’re located. In *concourse buildings, inline tenant spaces* are specifically intended for this use, *usually located along an the exterior wall of the building*. 

**Inline**

Concessions are not *kiosks* and are required to comply with all codes and standards applicable the overall building.

3.3.98 **Kiosk.** Freestanding floor-supported or suspended structure that is not readily relocated and displaces people in public circulation areas of *terminals and concourses*. Kiosks include booths, stands, counters, carts, vending machines, advertising signboards, information displays, sculptures, exhibition cases, and similar features.

3.3.109 **Passenger.** A ticketed occupant that has passed through security screening.

3.3.110 **Potential Fuel Spill Points.** The points on or around the aircraft or *airport ramp* where fuel can be released. These points include fueling hydrants, fuel servicing vehicles, fuel tank fill connections, fuel vent openings, and fuel dump valves.

3.3.7 **Freight Terminal Building (Air Cargo Buildings).** A structure used for the
processing and/or storage of incoming or outgoing freight and other necessary functions in connection with air freight operations. Aircraft shall not be housed, stored, loaded or unloaded, undergo service, repairs, or alterations within a freight terminal building. Freight terminal building shall comply with the Group S-1 occupancy requirements of 2015 International Building Code (IBC)

3.3.8 Aircraft Loading Walkway on Grade Level – A fully enclosed on grade walkway through which passengers move between a point in an airport terminal building and an aircraft.

Delete Chapter 4 in its entirety and substitute as follows:

CHAPTER 4
-AIRPORT TERMINAL AND CONCOURSE BUILDINGS

4.1 General
Section 4.1 General.

Section 4.1.1 is replaced with the following:

Section 4.1.1 Airport terminal and concourse buildings shall be of Type I or Type II construction as defined in Chapter 6 of the International Building Code.

Section 4.1.1.1 is added as follows:

Section 4.1.1.1 Occupancy. The Occupancy Groups of the airport terminals and concourses building or and portions thereof shall be classified in accordance with the provisions of IBC Chapters 3 and 4 and the International Building Code and shall comply with the mixed use and occupancy provisions of IBC Section 508 of the International Building Code. High-hazard Group H occupancies shall be not allowed permitted in passenger terminals and concourses buildings.

4.1.2* Interior finish materials shall be Class A or Class B in accordance with Chapter 8 of the International Building Code.

4.1.3 Aircraft fueling facilities and ramps shall be designed in accordance with NFPA 407 and Chapter 5 of this standard.

4.1.4 Below grade areas and blind spaces in terminals and concourses shall be protected against flammable fuel and vapor penetration or shall be mechanically ventilated to provide at least four complete air changes per hour. The mechanical ventilation system shall be installed in accordance with the International Mechanical Code and NFPA 91.

4.1.5 Glazing Material – Covered Openings Facing the Ramp.

4.1.5.1 Openings covered with glazing material that have the lowest part of the glazing material not less than 7 ft (2.1 m) above each finished floor level shall not be required to comply with 4.1.5.3.
4.1.5.2 Openings covered with glazing material listed for use in a fire barrier and installed in accordance with the listing shall not be required to comply with 4.1.5.3.

4.1.5.3 Where potential fuel spill points are located less than 100 ft (30.5 m) horizontally from glazing material–covered openings in terminals and concourses walls facing the airport ramp, they shall be provided with an automatically activated water spray system in accordance with 4.1.5.3.1 or an automatically activated, listed fire shutter system in accordance with 4.1.5.3.2. (see Annex A4.5.1.5 and Annex C.)

4.1.5.3.1 Where an automatically activated water spray system(s) is provided, it shall be installed in accordance with NFPA 15.

4.1.5.3.2 The system shall be designed to provide a density of at least 0.25 gpm/ft$^2$ [10.2 (L/min)/m$^2$] over the exterior surface area of the glazing material.

Section 4.1.6 is added as follows:

Section 4.1.6 Permits required. All work in airport terminal buildings, aircraft loading walkways and subsurface tunnels shall be subject to construction permit requirements as directed by the Building and Fire Code Officials. This applies to both permanent and temporary construction, equipment installation, sleeping pods, kiosks and floor mounted vending and advertising displays.

Section 4.2 Heating, Ventilating and Air-Conditioning

Section 4.2.1 is replaced as follows:

4.2.1 Heating, ventilating, and air conditioning systems shall be installed in accordance with the applicable portions of the 2015 International Mechanical Code (IMC), and 2015 International Fuel Gas Code (IFGC).

Section 4.2.6 is replaced as follows:

4.2.2* Air supply intake and exhaust openings for air-conditioning or ventilating equipment serving the terminal building, if located on the ramp side, shall be not less than 10 ft (3 m) above the grade level of the ramp and shall be at least 50 ft (15 m) from any point of flammable vapor release.

4.2.3* Openings to rooms that contain coal-, gas-, or oil-fired equipment or any other open-flame device and that face the ramp side of the terminal shall be above ramp grade and 50 ft (15 m) from any point of flammable vapor release.

4.2.4 Stacks or chimneys from a boiler, heater, or incinerator shall terminate 20 ft (6.1 m) minimum above ramp grade and above the roof of the building. Stacks or chimneys from boilers or heaters that use solid fuel or from any incinerator shall be fitted with double screening to control fly ash and sparks. Such stacks or chimneys shall be located so the outlet is 100 ft (30.5 m) minimum horizontally from any aircraft position or point of flammable vapor release.

Exceptions:

1. Natural gas direct vented appliances and direct vented air handler heaters shall be vented in accordance with Section 503.8 of the International Fuel Gas Code. The vents and combustion air intakes shall not terminate less than 8 feet (2.4 m) above grade.
2. Natural gas radiant heaters serving interior apron level shall be vented in accordance with Section 503.8 of the International Fuel Gas Code. The vents and combustion air intakes shall not terminate less than 8 feet (2.4 m) above grade.

4.2.5 Incinerators shall conform to the requirements of Chapter 4 of NFPA 82.

4.2.6 Commercial kitchen exhaust hood ventilation systems for restaurant and flight kitchens shall conform to the applicable portions of 2015 Chapter 6 of the International Fire Code (IFC) Chapter 6 and Chapter 5 of the International Mechanical Code (IMC) Chapter 5.

Section 4.2.6.1 is added as follows:

4.2.6.1 Commercial Kitchen Exhaust hood ventilation systems for restaurant and flight kitchens shall conform to the applicable portions of IFC Chapter 6 and IMC Chapter 5.

Section 4.3 Exits

4.3.1 Airport terminal and concourse building means of egress shall conform to the requirements of the International Building Code.

4.3.2* In addition to the exit signage requirements specified in the International Building Code, doors serving as exits that discharge onto an airport ramp and are provided solely for the purpose of meeting emergency egress requirements from public areas shall be placarded “Emergency Exit Only” in letters at least 2 in. (50 mm) high.

4.4 Electrical.

4.4.1 All electrical installations shall be in accordance with NFPA 70.

4.4.2 Ventilation for transformer or electrical service rooms or vaults located on the ramp side of an airport concourse building shall be located in accordance with 4.2.2.

Section 4.3.1 is amended as follows:

Delete the reference to NFPA 101, Life Safety Code and substitute the IBC.

Section 4.3.2 is amended as follows:

Delete the reference to NFPA 101, Life Safety Code and substitute the IBC.

Section 4.5 Fire Protection.

Section 4.5.1.7 is added: 4.5.1* Sprinkler Systems.

4.5.1.1 Terminals and concourses shall be provided with an automatic sprinkler system installed in accordance with Chapter 9 Section 903 of the International Fire Code as amended and per the following (see Annex A4.5.1.5):

1. Passenger circulation areas shall be classified as Ordinary Hazard Group 1 Occupancy.
2. Baggage, package, and mail-handling areas shall be classified as Ordinary Hazard Group 2 Occupancy.
3. Other areas of the airport terminal and concourse buildings shall be classified in accordance with Chapter 5 of NFPA 13 based on the occupancy and function of the area.
4. Utility tunnel and utility spaces or rooms over 1,950 ft² (181 m²) shall be classified as Ordinary Hazard Group 1 Occupancy with a minimum design density of 0.16 gpm/ft² (0.61 liters/min). Dry Systems shall be provided where required.
5. Baggage handling equipment tunnels over 1,950 ft\(^2\) (181 m\(^2\)) shall be classified as Ordinary Hazard Group 2. Occupancy with a minimum design density of 0.19 gpm/ft\(^2\) (0.72 liters/min). Dry Systems shall be provided where required.

6. **4.5.1.2 Covered Plane-Loading Positions.** *Airport terminal and concourse buildings* having canopy areas or roofed-over recesses at aircraft loading positions that, in effect, place the aircraft totally or substantially under such canopies or roofs shall have the canopies or roofs protected by automatic sprinkler systems in accordance with NFPA 409.

7. Sprinkler protection for new or modified electrical rooms shall comply with Section 903.3.10 of the International Fire Code as amended.

8. Unless exempted by Section 903.1.1.1 of the International Fire Code as amended, new and modified communication and data rooms shall be provided with automatic sprinkler protection.

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4.5.1.7 Utility tunnel and utility spaces or rooms over 1,950 ft\(^2\) (181 m\(^2\)) shall be classified as Ordinary Hazard Group 1—0.16 gpm/ft\(^2\) (0.61 liters/min). Dry Systems shall be provided where required.

**Section 4.5.1.8 is added:**

4.5.1.8 Baggage handling equipment tunnels over 1,950 ft\(^2\) (181 m\(^2\)) shall be classified as Ordinary Hazard Group 2—0.19 gpm/ft\(^2\) (0.72 liters/min). Dry Systems shall be provided where required.

**Section 4.5.1.9 is added:**

Sprinkler protection for new or modified electrical rooms shall comply with Section 903.3.10 of the International Fire Code as amended.

**Section 4.5.1.10 is added:**

**4.5.2 Fire Alarm and Communications Systems.** Fire alarm and smoke detection shall be provided as follows:

**4.5.2.1 Terminals and concourses** shall be provided with a fire alarm and communications systems installed in accordance with Chapter 9 of the International Fire Code as amended and per the following sections.

1. **4.5.2.1.1** Smoke detection shall be spaced not to exceed 2,500 ft\(^2\) (232 m\(^2\)) per detector with roof/ceilings over 25 ft (7.6 m) above an occupied floor.

**4.5.2.1.2** Manual pull station shall be provided at required exits and each zone shall be annunciated individually or by zone as approved. There shall be 200 linear ft (61 m)
maximum between pull stations within public areas of airport terminals and concourses. Location of manual pull stations throughout all other areas shall comply with NFPA 72.

3.4.5.2.1.3 Smoke detection shall be provided as follows:

1. In each electrical, transformer, telephone equipment or similar room, elevator machine rooms, and in all elevator lobbies.

2. In the outlet of fans used for pressurization of stairways, hoistways and refuge areas. Activation of these smoke detectors shall cause a supervisory signal, not an alarm signal at the building annunciator panel.

3. In elevator hoistways and at the top of pressurized stairwell enclosures and in elevator hoistways where required by this code. These devices shall initiate an alarm condition and illuminate the respective indicator at the building graphic annunciator panel. This alarm condition shall not initiate occupant notification or the smoke control system.

4. Smoke detectors shall be installed in supply air systems with a design capacity greater than 2,000 cfm (0.9 m³/s), in the supply air duct or plenum downstream of any fan. Activation of these smoke detectors shall cause a supervisory signal, not an alarm signal at the building annunciator panel.

5. In the main return air and exhaust air plenum of each air-handling system having a capacity greater than 2,000 cfm (0.9 m³/s) in accordance with Section 606.2.1 of the International Mechanical Code (IMC) Section 606.2.1. Where multiple air-handling systems share common supply or return air ducts or plenums with a combined capacity greater than 2,000 cfm (0.9 m³/s), smoke detectors shall be provided in accordance with IMC Section 606.2.2 of the International Mechanical Code. Detectors shall be listed for the air velocity in which they are installed. Activation of these smoke detectors shall cause a supervisory signal, not an alarm signal at the building annunciator panel.

Exception: Smoke detectors are not required for automatic shut-off of evaporative coolers or units that supply un-tempered 100% outside air.

6. In inline concessions Tenant Spaces and similar rooms adjoining Airport Terminal Building(s): tenant spaces and similar rooms adjoining terminals and concourses:

6.1 Smoke detectors shall be installed on the tenant side of inline tenant spaces/concessions tenant side at each opening into the air terminal or concourse building and at each exit from the tenant space. For openings larger than 30 lineal ft (9.1 m), an additional detector shall be provided for each 30 lineal ft (9.1 m) or fraction thereof.
2. 6.2 Electrical equipment rooms that are equipped with fire sprinklers shall be equipped with a smoke detector(s); in rooms without fire sprinkler protection the room shall be equipped with smoke and heat detector(s).

3. 6.3 Manual pull stations shall be required at all kitchen exits.

Section 4.5.2.1 is replaced with the following:

4.5.2.12 Fire alarm system central station monitoring shall be provided by an approved radio communicator transmitting directly to DFD dispatch in accordance with IFCA Section 917 of the International Fire Code as amended.

Section 4.5.2.2 is replaced with the following:

4.5.2.32 Fire alarm system signal annunciation shall be by a computer-based graphic display. All existing and new aAirport Terminal Band concourse building fire alarm devices shall be integrated into the system. Annunciation of all building fire alarm, trouble and supervisory signals shall be displayed at the computer graphic displays and all fire alarm control units. Local annunciators shall also be provided for pre-action and clean agent extinguishing systems in accordance with IFCA Section 907 of the International Fire Code as amended.

Section 4.5.2.3 is replaced with the following:

4.5.2.43 New aAirport Terminal Band concourse building(s) shall be provided with an emergency voice/alarm communication system fully integrated into the complex-wide Emergency Communication System (ECS), incorporating audible, visual and textual notification appliances. In areas accessible to the public, DEN-controlled including flight, gate, baggage and multi-use information display systems (FIDS’s, GIDS’s and BIDS’s, and MUFIDS respectively’s) and DEN-controlled visual paging monitors shall display ECS messages. Non-DEN-controlled video displays, DEN CATV and tenant audio systems in other public areas shall be shunted upon activation of the emergency communication system.

Exception: Non-DEN-controlled large format displays and video displays exceeding 60” (25.4mm) measured diagonally shall display ECS messages when required unless allowed by the fire code official to be shunted upon activation of the emergency communication system. DENIA CATV and tenant audio systems shall be shunted upon activation of the emergency communication system.

Section 4.5.2.3.1 is added:

4.5.2.34.1 The emergency voice alarm evacuation message alert tone shall be a slow whoop or as approved by the fire code official. The evacuation message shall be manually initiated from the FCC.

Exception: With prior approval from the Fire Code official, firefighter radio
communication systems are permitted to be integrated into the existing DEN Public Safety Communications Network.

**4.5.2.7** Two-way hardwired Fire Department telephone communication system shall also be provided by fixed handsets in accordance with IFCA Section 907.2.13.2.1 of the International Fire Code as amended. Handsets for the Main Terminal building shall be located at: the FCC’s on Main Terminal level 6, all fire pump rooms, and the Life Safety Maintenance Room on Main Terminal level 3. Any handset shall permit communication with all other handsets in the building simultaneously. New terminals and concourses shall have two-way wired communication between the FCC and fire pump room(s) as approved. A firefighter radio communication system shall be provided in accordance with IFCA Section 510 or shall be integrated into the existing DIA Public Safety Communications Network. Two-way wired communication shall also be provided by fixed handsets. Handsets for the Terminal building shall be located at: the FCC’s on Terminal level 6, Terminal fire pump rooms, and the Life Safety Maintenance room on level 3. Any handset shall permit communication with all other handsets in the building simultaneously. New Airport Terminal Buildings shall have 2-way wired communication between the FCC and fire pump room(s) as approved.

Section 4.6 smoke control for airport terminal buildings is added:

**4.5.3 Fire Hydrants.** Fire hydrants shall be provided on both the ramp and the street sides of terminals and concourses. Such hydrants shall be located so that no portion of the terminal and concourse building is more than 500 ft (152.4 m) from a hydrant.

**4.5.4 Standpipe and Hose Systems.** Standpipe and hose systems shall be provided for all airport terminal and concourse buildings in excess of two stories [35 ft (10.7 m)] in height or 100 ft (30.5 m) in shortest horizontal dimension. Standpipe and hose systems shall be installed in accordance with NFPA 14.

**4.5.4.1** Class I standpipe systems shall be provided in buildings protected throughout by an approved automatic sprinkler system. Each 2 1/2 in. (63.5 mm) hose connection shall be equipped with a 2 1/2 in. × 1 1/2 in. (63.5 mm × 38 mm) reducer and cap.

**4.5.4.2** Class III standpipe systems shall be provided in nonsprinklered buildings. The exceptions in NFPA 14, for Class III systems shall be applicable to this requirement.

**4.5.5 Water Supply.** Water supply from public or private sources shall be adequate to supply maximum calculated sprinkler demand plus a minimum of 500 gpm (1893 L/min) for hose streams. The supply shall be available at the rate specified for a period of at least 1 hour.

**4.5.5.1** Main sizes shall be hydraulically calculated based on the total domestic and fire protection requirements. Mains shall be not less than 8 in. (203 mm) in diameter except that laterals shall be permitted to be 6 in. (152 mm) in diameter if not over 200 ft (61 m) long.

**4.5.5.2** Hydrants shall be readily accessible to fire-fighting vehicles traveling on surfaces adequate for supporting such vehicles.

**4.5.5.2.1** Hydrants shall be listed.

**4.5.5.2.2** Hydrants shall be located or protected to prevent mechanical or vehicular...
damage, including taxiing aircraft.

4.5.5.2.3 Hydrants recessed into the ground shall have identifiers in the pavement to assist in their prompt location at night and by personnel who might not be familiar with the location of the hydrants.

4.5.5.3* Water supply systems shall be regularly tested to ensure operation.

4.5.6 Portable Fire Extinguishers. Portable fire extinguishers shall be provided throughout all airport terminal and concourse buildings in accordance with NFPA 10.

4.6 Smoke Control For Airport Terminal and Concourse Buildings. Smoke control systems shall comply with Sections 4.6.1 through 4.6.7.

4.6.1 Requirements. A smoke control system shall be provided to serve airport terminal buildings terminals and concourses. Smoke exhaust locations shall be configured in order to prevent accumulation of smoke in any area of the terminals and concourses. The smoke control system shall be activated in accordance with Section 4.6.6. Where a space or corridor exceeds 20 ft (6.10m) in length and is connected to an atrium or airport terminal area that has separate smoke control zones, provide supply air to the space or corridor at the farthest location from the point of connection to the atrium or airport terminal area. Tenant spaces less than 5,000 ft² (465m²) and open to the terminal or concourse shall be incorporated into the terminal and concourse smoke control exhaust operating sequence and shall be separated by an 18-inch draft curtain/draft stop with closely spaced sprinklers in accordance with NFPA 13 Section 9.3.5 of NFPA 13 and smoke detectors in accordance with IBCA Section 4.5.2 in the tenant space. Smoke control systems shall comply with Sections 4.6.1 through 4.6.7.

Exceptions:
1. Ramp service and nonpublic ramp level tenant areas of airport terminal concourse buildings.
2. Unenclosed bag handling tenant areas of airport terminal and concourse terminal buildings.
23. Permanently fixed aircraft loading walkways when separated by one-hour rated assemblies.

4.6.2 Design criteria. The smoke control equipment for the terminal and concourse airport terminal building shall be independent of that serving tenant spaces of 5,000 ft² (465 m²) or more. The terminal or concourse airport terminal building smoke removal system shall provide at least four air changes per hour or 20,000 cfm (9.4 m³/s) from each smoke zone minimum.

4.6.3 Tenant Spaces and similar rooms adjoining the Passenger airport terminal and building concourse buildings. All continuous tenant spaces adjoining the airport terminal and concourse buildings which exceed 5,000 ft² (465 m²) shall be a separate smoke control zone per Section 4.6.1. Separate smoke zones must be separated by a smoke partition or an 18-inch draft curtain/draft stop with closely spaced sprinklers installed in accordance with NFPA 13 Section 9.3.5 of NFPA 13 and smoke detectors in accordance with IBCA Section 4.5.2 in the tenant space.
4.6.3 **Airport Terminal and Concourse Building Elevators and Stairs.** Pressurized exit stairs, elevator hoistways and exit passageways are required unless otherwise approved by the Building Department and Fire Department. Refer to IFCA Section 909 for requirements and design criteria.

**Exception:**
1. Elevators and enclosed stairways from the transitway station.
2. Pressurized stairs, elevators and exit passageways shall not be required in existing airport terminal buildings and addition to existing airport terminal building where this system does not presently exist.

4.6.5 **Airport Terminal and Concourse Buildings Baggage Handling Equipment and Automated Ground Transportation System (AGTS) Tunnel.** The baggage handling equipment and AGTS tunnel smoke control exhaust system shall be sized to provide a minimum of 4 air changes per hour.

4.6.6 **System Initiation.** Airport Terminal and Concourse Buildings smoke control exhaust shall be automatically initiated when any automatic device (e.g. suppression water flow or automatic detection), activates within a smoke zone. Manual activation of smoke control equipment shall be provided on all fire command center is required from any FCC fire alarm system workstations.

**Exceptions:**
1. Activation of any two (2) consecutive automatic devices in the same smoke zone (e.g. suppression water flow or automatic detection), shall be required to initiate the smoke control sequence for the following: Main Terminal Levels 5 and 6 and normally occupied public areas of Concourse Levels 2 and 3. Operation of a manual pull station shall function only as a second verification device to initiate the smoke control sequence for the smoke zone containing the initial automatic device in alarm. A suppression water flow can function as a single automatic activation device or as the second device verification to the initial automatic detection device.
2. Manual activation from the FCC workstations shall be the only means permitted to initiate the smoke control exhaust sequence for the Main Terminal atrium Great Hall, Baggage Terminal handling equipment and AGTS Tunnel.

In airport terminal and concourse buildings stair and elevator hoistway enclosure vertical pressurization shall be initiated by activation of any single alarm-initiating device with the exception of a main sprinkler system water flow.

4.6.7 **Adjacent Zones.** Where multiple smoke control exhaust zones for the airport terminal and concourse buildings are provided either by the zone area requirements of this Section or by system design, only the smoke control exhaust system for the zone in alarm shall be automatically activated. Smoke control exhaust systems for adjacent airport terminal and concourse building zones shall not automatically activate but may be manually activated.

**Section 4.7 Delayed Egress for Airport Terminal Buildings is added:**

**SECTION 4.7 Delayed Egress For Airport Terminal and Concourse Buildings**
4.7.1—Requirements. Where *Airport Terminal and Concourse Buildings* are provided with delayed egress systems, these systems shall be designed and installed in accordance with this Section and the airport’s Design Standards, DBCA Chapter 1 Administration of the International Building Code as amended, IBC Section 1010.1.9.8 of the International Building Code, and policies as approved by the Building and Fire code officials.

4.7.2—Delayed egress. Other than in Groups H occupancies, delayed egress locking systems shall be permitted on doors providing to restrict access from an airport terminal and concourse buildings to the restricted areas of the airport.

4.7.2.1 Delayed egress sequence of operation. The fire alarm system shall interface with all delayed egress systems and unlock these doors based on an approved sequence of operation. All doors shall be capable of being unlocked manually at the FCC fire alarm system workstation.

4.7.2.2 Delayed egress lock power. All delayed egress locks shall release upon loss of power.

4.7.2.3 Delayed egress lock release. The delayed egress locks shall initiate the irreversible unlocking process after the releasing device has been activated for 3 seconds. Once the unlocking process is initiated, the delayed egress lock shall release in 15 seconds.

4.7.2.4 Delayed egress lock relocking. Relocking of the doors shall be permitted to be performed through a centralized system after the fire alarm system has been reset.

4.7.2.5 Delayed egress lock signage. All doors provided with delayed egress locks shall have approved signage providing door opening instructions.

4.7.2.6 Delayed egress lock emergency lighting. All new doors provided with delayed egress locks shall be provided with emergency lighting.

4.7.2.7 Delayed egress lock listing. Components for the delayed egress lock shall be listed as a complete assembly.

Section 4.8 Emergency Power is added:

**SECTION 4.8 Emergency Power**

4.8.1—Emergency Power. Airport Terminal Buildings shall be provided with an emergency power source. Emergency power shall be provided by dual utility services or other approved means complying with NFPA 70, (NEC) Article 700 and the International Fire Code as amended. Conditions of utility service availability and system power transfer shall be monitored by the fire alarm system.

4.8.2 The following equipment shall be provided with emergency power:

1. Mechanical equipment for smoke control.
2. Emergency egress and exit lighting.
3. Emergency elevator power and all associated elevator equipment.
4. Fire alarm and detection systems.
5. Fire pump/jockey pump.
6. Emergency communication systems (ECS).
7. Emergency Responder Radio Enhancement Coverage System (RES)
8. Two-way Hardwired Fire Department Telephone Communication System
Chapter 5 Aircraft Fueling Ramp Drainage

5.1 Aircraft Fueling Ramp Slope and Drain Design.
5.1.1* Aircraft fueling ramps shall slope away from terminal buildings, aircraft hangars, aircraft loading walkways, or other structures, with a minimum grade of 1 percent (1:100) for the first 50 ft (15 m). Beyond this distance, the ramp slope to drainage inlets shall be permitted to be reduced to a minimum of 0.5 percent (1:200).

5.1.2* Aircraft fueling ramp drainage as specified herein shall be accomplished by the provisions of 5.1.1 in conjunction with the following:
(1) The use of drain inlets with connected piping
(2) The use of open-grate trenches

5.1.3 Drainage inlets, where provided, shall be located a minimum of 50 ft (15 m) from structures outlined in 5.1.1.

5.1.4 The drainage system of any aircraft fueling ramp shall be so designed that the fuel or its vapor cannot enter into the drainage system of buildings, areas utilized for automobile parking, public or private streets, or the public side of airport terminal and concourse or building or aircraft hangar structures. In no case shall the design allow fuel to collect on the aircraft fueling ramp or adjacent ground surfaces where it could constitute a fire hazard.

5.1.5 The final separator or interceptor for the entire airport drainage system shall be designed to allow disposal of combustible or flammable liquids into a safely located, approved containment facility.

5.1.6 Grates and drain covers shall be removable to facilitate cleaning and flushing.

5.1.7* If open-grate drainage trenches are used as a collection means, such open trenches, including branches, shall not be over 125 ft (38 m) in length with a minimum interval of 6 ft (1.8 m) between open-trench sections to act as fire stops. Each 125 ft (38 m) section shall be individually drained through underground piping. Open trenches shall not be used where they are in the line of pedestrian or passenger traffic.

5.1.8 Underground piping and components used in drainage systems shall be noncombustible and inert to fuel.

5.2 Drain and Separator Maintenance
5.2.1* Periodic maintenance checks shall be conducted of all ramp drainage systems and interceptors to ensure that they are clear of obstructions and function properly.

5.2.2 Large-volume flushing with water shall be conducted through appropriate drainage elements to purge residual fuel from these drainage elements after any large fuel spill on the aircraft fueling ramp enters the drainage system.
Delete Sections 6.1 through 6.2.10 in their entirety and substitute as follows:

**Chapter 6 Aircraft Loading Walkways**

**6.1 Basic Design.**

6.1.1* Each aircraft loading walkway installation shall be designed to provide a safe means of egress from the aircraft for a period of 5 minutes under fire exposure conditions equivalent to a free-burning jet fuel spill fire.

6.1.2 Protection of the aircraft loading walkway shall be accomplished by one of the following methods:

(1) Construction design meeting the requirements of Sections 6.1 through 6.4

(2) Fixed fire protection meeting the requirements of Sections 6.1, 6.2, and 6.5

6.1.3 Aircraft Loading Walkways on Grade Level. Permanently fixed aircraft loading walkways on grade level shall be of Type I or II-A construction as defined in IBC Chapter 6 of the International Building Code. All exterior doors shall have opening protection with a fire protection rating of not less than ¾ hour. Doors shall be self-closing and shall swing outward. Entrance doors between walkways and the airport terminal and concourse building shall swing into the airport terminal and concourse building and be equipped with automatic closure and panic hardware.

6.1.4 Other Aircraft Loading Walkways. Both fixed and moveable aircraft loading walkways shall be constructed in accordance with NFPA 415 Section 6.2 of NFPA 415 and in compliance with FAA Circular AC 150/5220-12C. Structural loading shall comply with IBC Chapter 16 of the International Building Code as amended. All walkways shall be provided with a permanently affixed placard certifying compliance with NFPA 415. Requirements of this amendment Section 6.2.1 through 6.2.3 shall not apply.

**6.2 Requirements for All Aircraft Loading Walkways.**

6.2.1* Interior finish other than textiles of walls, ceilings, and walkways shall be Class A as defined in Section 803.1.1 of the International Building Code.

6.2.2 Interior textile finish of walls and ceilings in walkways shall be in accordance with Sections 803.5 and 803.6 of the International Building Code.

6.2.3 Interior floor finish in walkways shall be Class I as defined in Section 804 of the International Building Code.

6.2.4* During a ramp fire emergency, walkway interiors shall have a positive air pressure delivered from a source that shall remain uncontaminated.

6.2.5* Any source of negative air pressure in the aircraft loading walkway shall be automatically shut down in the event of a fire emergency.

6.2.6 Any door in the egress path through the loading walkway to the terminal building shall swing in the direction of egress from the aircraft toward the terminal building and shall be equipped with panic hardware on the aircraft side.

6.2.7* Where loading walkways are provided, the walkway, including the bumpers, curtains, and
canopies, shall be seated according to the manufacturer’s instruction and training when the walkway is in service.

6.2.8 Cab and Rotunda Slat Curtains.

6.2.8.1 Cab slat curtains and rotunda slat curtains shall meet the requirements of 6.4.8 by one of the following methods:

(1) Intrinsic structural features
(2) Fire-resistive coatings
(3) Automatically activated water cooling systems in accordance with 6.5.2.
(4) Automatically activated fire curtains.
(5) Local application of a foam system in accordance with 6.5.3 under the cab and rotunda that is automatically activated and covers an area extending 15 ft (4.6 m) beyond the perimeter of the cab and rotunda. This shall supersede the 10 ft (3 m) criteria of 6.5.3.

6.2.8.2 When the rotunda is located more than 50 ft (15 m) from the fuel fill or fuel vent point of aircraft and the rotunda slot curtain is of noncombustible construction, 6.2.8.1 shall not apply.

6.2.9 Emergency Lights. Emergency lights shall be installed in all aircraft loading walkways in accordance with the International Building Code.

6.2.10* The minimum obstruction-free width of walking surface shall be 36 in. (914 mm). Changes in elevation between telescoping sections of the loading walkway’s walking surface shall not exceed 1 in 20 slope when the loading walkway is level. Existing loading walkways shall be permitted to be continued in service.

Section 6.2.112 Sprinkler System. Permanently fixed aircraft loading walkways greater than 20 ft (6.10 m) in length or at grade level shall be provided with an automatic sprinkler system in accordance with Section 4.5.1.1(1) of this appendix NFPA 415, 4.5.1.3.

6.2.12 Fire Alarm and Communications System. Permanently fixed aircraft loading walkways greater than 20 ft (6.10 m) in length or at grade level shall be provided with automatic fire alarm visible notification and Emergency Communication System (ECS) audible notification. Each permanently fixed aircraft loading walkway shall be its own fire and notification zone.

Add new text as follows:

CHAPTER 7 SUBSURFACE TUNNELS

7.1 General. All subsurface tunnels shall comply with the provisions of this section.

7.2 Sprinkler System Design Occupancy Classifications. Baggage Handling Equipment Tunnels (Ordinary Hazard Group 2) and Utility Tunnels (Ordinary Hazard Group 1) shall be sprinklered throughout. Train Service Automated Ground Transportation System (AGTS) Tunnels (Ordinary Hazard Group 2) shall be sprinklered at the transit stations as approved by the Building Department and Fire Department.
7.3 Smoke Removal System. A smoke removal system shall be provided per Section 4.6.5 of this appendix.

7.4 Life Safety System. All life safety systems shall be provided with emergency power. Utility and baggage tunnels shall be provided with visible (strobos) and textual visible notification appliances for emergency alarm and ECS integration where applicable. Device locations shall be as approved by the fire code official.

7.5 Exits. A walkway with a minimum 74-inch width (1.9 m) [2 exit path widths of 22 inches (56 cm) each, plus 12 inches (30 cm) wall clearance, and an 18-inch (46 cm) platform edge clearance] shall be provided within all people-mover transit tunnels. Exit doors into adjacent protected tunnels shall be provided at a maximum spacing of 200 ft (61 m) and shall be monitored by the airport operations center.

**Exception:** The walkway width and exit door spacing may be modified based upon an exit study submitted by the Design Professional and approved by the Building Department and Fire Department.

7.6 Separation. A minimum 2-hour fire-resistance-rated IBC Section 707 fire barrier shall be provided between tunnels.

7.7 Transit Station Separation. The transitway shall be separated from the transit station by minimum two-hour fire-resistance-rated noncombustible walls with 1½-hour fire-resistance-rated doors. Windows within these walls shall be approved 1½-hour fire-resistance-rated windows.

**Exception:** Fire-resistance-rated window openings of ¾-hour may be used when the window assembly is protected with approved directional sprinkler heads 6’-0” o.c. (1.83 m) both sides of glass.

7.8 Transit Systems Construction Guide. Fixed Guideway Transit Systems NFPA 130 shall be used as a construction guide unless specifically covered by this Code.

7.9 Transitway Tunnel. The transitway tunnel shall be used exclusively for the movement of passengers between stations.

<<<2016 NFPA 415 ANNEXES A, B, C, D AND INDEX REMAIN UNCHANGED>>>

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

**Proposal:**

Click or tap here to enter text.

**Note:** Show the proposal using strikeout, underlining format. At the beginning of each section, one of the following instruction lines are also needed:

- Revise as follows
- Add new text as follows
- Delete and substitute as follows
- Delete without substitution
### Supporting Information:

Click or tap here to enter text.

**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:

Click or tap here to enter text.

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

### 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 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