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TO: Land Use, Transportation and Infrastructure Committee Members
FROM: Jill Jennings Golich, Deputy Director
DATE: November 21, 2016
RE: Denver Building and Fire Code Amendment Package 2

I. CPD Recommendation

The 2016 Denver Building and Fire Code was approved by City Council on March 7, 2016. It was amended in April 2016 in order to add language requiring mitigation measures for certain uses within the Airport Influence Overlay, as well as a few other minor changes. This Amendment Package 2 contains additional amendments, as well as cleanup items, and is consistent with the previously approved set of amendments. Therefore, staff recommends approval of this amendment package.

II. Summary and Purpose

Sponsor

Community Planning and Development

Purpose

The proposed building and fire code amendment package is intended to add a few new amendments, as well as clarify and fix clerical errors contained within the original set of amendments. A brief description of some of the more impactful new amendments is included below. A separate summary document is provided that provides a brief summary of every change that is not fixing a typographical error.

While it does appear there are many amendments, most of them are clarifying language to existing amendments to deal with questions raised in the last six months of code implementation.

- a. Gender-neutral restrooms
Prior to the March 7, 2016 adoption, but following completion of the public process for the amendment package, a request was received from the LGBTQ Commission to consider a building code amendment to require single-occupant toilet facilities to be signed as gender-neutral. Following many months of conversation, and with the support of Councilman Clark, Councilwoman Kniech, and the Mayor's Office, language was developed to add amendments to the International Building Code Chapter 29 and International Plumbing Code Chapter 4 to require all single-occupant toilet facilities to be signed as gender-neutral. Any family or assisted-use toilet facility must also have signage making it clear the facility is also open for use by all genders. This requirement applies to any new facilities, and has a retroactive requirement for any existing single-occupant toilet facility to have appropriate signage and door locking, if needed, in place by April 30, 2018.

Outreach was done to the Colorado Restaurant Association (CRA), Building Owner and Management Association (BOMA) and the Downtown Denver Partnership Retail Council with all favorable to this requirement. Many places that require only two restrooms are today non-code compliant as the International Codes only allow a restroom to not be signed for a specific gender if they are designed as family or assisted-use facilities. While some comply with the additional requirements for family or assisted-use facilities, many do not. This change will open up more restroom opportunities for all, is consistent with what many small restaurants and bars do today, and existing facilities have nearly a year and a half to comply with the new regulation.

- b. International Swimming Pool and Spa Code Section 305 appendix to the International Building Code (IBC) and International Residential Code (IRC)

The 2009 IBC and IRC contained language that was used by CPD reviewers in the review of swimming pools. In the 3rd printing of the IBC, the International Code Council realized they had made a mistake and the language that was included in the 2015 IBC was actually removed requiring jurisdictions to adopt the International Swimming Pool and Spa Code (ISPSC). Denver does not adopt the ISPSC, and the amendments for Denver were adopted prior to anyone realizing this change had taken place. Additionally, the IRC appendix on swimming pools was also removed. In order to close the gap, a specific section from the ISPSC is being adopted as an appendix to the IBC and IRC covering barrier requirements.

- c. International Fire Code Section 904.14 regarding cooking equipment, portable fire extinguishers and permits required for mobile food trucks

The Denver Fire Department, along with Denver Environmental Health, is conducting license inspections on all food trucks. A number of safety issues have been raised concerning the storage of liquefied petroleum gas (LPG), connections to the LPG cylinders, and the need for fire extinguishers. Denver Fire has been telling food trucks about these coming requirements and have given vendors a year and a half to comply with the regulations.

These requirements are meant to ensure the safety of the operator, as well as the general public.

- d. International Energy Conservation Code (IECC) Section regarding additional efficiency package

The 2015 IECC requires projects to choose one additional energy efficiency measure from a list of six options. This is intended to achieve additional energy efficiency, but in many small remodels or tenant spaces, it is very difficult to meet one of these six items. For instance, in an office tenant finish on a portion of a floor in a downtown high-rise, a tenant does not have their own HVAC or water heating equipment as that is provided by the building. This essentially removes four of the six options, leaving that tenant to do either enhanced lighting controls or a reduced lighting power density system. Given the small space, this can get difficult when say only a portion of lighting is being replaced or added. In order to help streamline these smaller commercial projects, an amendment was drafted to Section C406.1.1 that will exempt projects from complying with this requirement when the area of work is 10,000 square feet or less. These requirements are much easier to meet when dealing with a brand new building, but are difficult to achieve in existing spaces – especially those that are multi-tenant facilities.

III. Public Process

Below is a summary of the public process for this building and fire code amendment.

March 24, 2016	Initial discussion with LGBTQ Commission on gender-neutral restroom proposal
June 22, 2016	2 nd meeting with LGBTQ Commission to discuss request and code findings
July – October 2016	Drafting code language for gender-neutral restroom, as well as other items, and informal discussions with groups on the proposed gender-neutral amendment
September 8, 2016	Presentation to DDP Retail Council on gender-neutral restrooms
September 13, 2016	Presentation to DDP Hospitality Council on gender-neutral restrooms, and LGBTQ Commission
October 11, 2016	Posting of the proposed code amendments and distribution to public for review
October 27, 2016	Briefing with BOMA representatives on proposed amendments
November 1, 2016	CPD and DFD host an open house to take in comments and answer questions on the proposed amendments
November 2-21, 2016	Revisions made to the building and fire code amendments based on feedback received
November 22, 2016	Final amendment proposal posted on www.denvergov.org/buildingcode
November 29, 2016	LUTI Committee meeting
December 6, 2016	Tentative date for Mayor Council meeting
December 12, 2016	Tentatively scheduled for City Council 1 st reading
December 19, 2016	Tentatively scheduled City Council 2 nd reading of the building code amendment

Summary of Proposed Denver Building Code Amendment Changes in Amendment Package 2 November 22, 2016

The following summary covers those proposed changes that are not just a fix of a typographical error or numbering issue.

1. Denver Building Code – Administrative Provisions (Chapter 1)

- Section 102.3 Employees – addition of ‘architects’ to the list of employees since Community Planning and Development (CPD) now employs architects
- Section 107.4.1 – Adds a subsection to 107.4 that allows CPD to file a notice or order with the City Clerk’s office when a violation is not remedied to alert any future property owners.
- Section 126.1 Licensee Responsibility – Adds that a license holder is responsible for hiring licensed subcontractors for those trades that require a City of Denver license.
- Section 126.4 Demolition and Moving Liability Insurance – In working with the City’s Risk Management division, this section has been updated to be more consistent with the required insurance needed for these types of permits and allows CPD to set insurance amounts by policy.
- Section 130.3 Exempted Work – Clarifies the types of signs that do not need a construction permit and notes all illuminated signs require an electrical permit.
- Section 131.3 Issuance of Permits – Adds Denver International Airport as an agency that has its own requirements, and clarifies when a homeowner can file for a permit to do the work themselves (particularly around accessory dwelling units).
- Section 132.6 Replacement of Contractor Set – CPD no longer requires a release for the architect or engineer of record, so that requirement is proposed to be removed.
- Section 133.1 Item 2 Architect Not Required – This section has an added clarification making it clear that if a licensed design professional prepares drawings, then the documents must be signed and sealed by that licensed design professional.
- Section 133.2 Information Required – Adds a requirement that construction documents include a narrative description of the scope of work for each discipline on the first sheet of each discipline’s drawings. This will make it easier for plan reviewers and inspectors to be clear on the work that is to be done.
- Section 138.1 Plan Review, Permit and Inspection Fees – Add language to clarify what needs to be included in the valuation for a project to determine plan review and permit fees.
- Section 138.6 Waivers, Reductions and Refunds – Clarifies what the policy needs to contain on how waived or reduced fees will be handled.

2. International Building Code (IBC)

- Section 403.5.1 and 403.5.2 – Adds section 403.5.1 on remoteness of interior exit stairways to modify Exception 1 regarding occupancies other than Group H and I-2 occupancies with a means of egress capacity factor of 0.25 inches per occupant, and adds Exception 4 that the means of egress capacity factor for Group H occupancies will be 0.7 inches per occupant. Section 403.5.2 is amended by deleting the exception with the base code.
- Section 510.2 Horizontal building separation allowance – An amendment to this section is proposed to add a sentence to condition 1 to be clear that a vertical offset must not serve to create an additional story.

- Section 718.6 Groups R and I in cold-formed metal-framed buildings – This adds a section and subsections to the amendments to deal with draftstopping related to residential occupancies, and draftstopping at dwelling unit and sleeping unit separations, and corridors.
- Chapter 9 – The amendments in this chapter are being clarified to make it more clear that the sections were being replaced with section of the International Fire Code as amended in accordance with the International Fire Code as Amended (IFCA).
- Section 1007.1.1 Two exits or exit access doorway – An amendment is proposed to this section to add Exception 3 that allows ‘scissor stairs’ in buildings constructed prior to March 26, 1994, to be considered two separate exits subject to certain conditions. This amendment allows for existing conditions in certain buildings to remain code compliant.
- Section 1010.1.9.1 Hardware – This amendment is to prohibit thumb turn locks which is frequently raised in plan review.
- Section 1010.1.9.5 Unlatching – This amendment adds an Exception 5 that provides clarity to what conditions accessible thumb turn locks are allowed – an item that comes up often during plan review.
- Section 1013.6, 1013.6.1 and 1013.6.2 – As the intent of the original amendments was to have Chapter 10 amendments mirror themselves between the IBC and IFC, the language from the IFC was added to the IBC regarding exit sign graphics and illumination.
- Section 1021.4 Location – This amendment removes redundant model code language and clarifies the scope and intent of the location of exterior egress balconies when located adjacent to another building on the same lot or within close proximity to another portion of the same building.
- Section 1025.1 Luminous Markings – Exception 2 clarified to add the language from the base code which included interior exit enclosures, interior exit ramps and exit passageways which was inadvertently not included in the original amendment.
- Section 1027.5 – This amendment removes redundant model code language and clarifies the scope and intent of the location of exterior egress stairways and ramps when located adjacent to another building on the same lot or within close proximity to another portion of the same building.
- Section 1503.2.2 – Adds a section title and a clarification.
- Section 1507.10.5 Stucco – Clarifies that it includes exterior walls finishes such as, but not limited to, stucco and fixes an error and how far above the roof the termination should occur above the finished roofing for a flat roofed building.
- Section 2902.2.1, 2902.2.2 and 2902.4 – Amends these sections to require a family or assisted-use or gender-neutral toilet facility when a building or tenant space requires a separate toilet facility for each sex. Adds requirement that signage be providing clearly indicating the single-occupant toilet facility is open to use by all genders, and requires that existing single-occupant toilet facilities have gender-neutral signage by 5/30/2018.
- Section 3001.5 Structural modifications – This amendment is added to allow review when a conveyance system modifies structural elements.
- Section 3008 Occupant evacuation elevators – This section is now proposed to be deleted as these requirements were for super high-rises (420 ft and above), and elevator manufacturers have not figured out how to comply with the requirements. This is related to the deletion of the IFC amendment to Section 919.10. One could still

request this is an administrative modification if desired. Removal of this section will require a stair.

- Section 3307.1.1 Notification – An exception is proposed to be added that incorporates the language of an existing policy on what is allowed for alternate proof of notification.
- Appendix T – Appendix T is added to incorporate Section 305 of the International Swimming Pool and Spa Code due to the removal of the language in the IBC related to swimming pools in the 3rd printing of the 2015 edition.

3. International Fire Code (IFC)

- Section 104.7.2 Technical assistance – This section has been reworded for clarity.
- Section 108.1.3 Appeal from decision of the Manager of Safety – This section has been updated to match the requirements of the Colorado Rules of Civil Procedure.
- Table 503.2.1 – Removes a portion of footnote 1 related to a 7 ft parking lane.
- Section 507.2.3 Water supply serving high-rise buildings – Adds language that backflow prevention devices and floor switches shall be provided in accordance with Section 912.6.
- Section 604.1.9.1 Outdoor locations – Adds an amendment related to requirements on where generators located outside of a building are allowed.
- Section 604.8 Emergency and standby power generator shop drawings – Adds language on the requirement for submittal of shop drawings for permit application as a deferred submittal.
- Section 606.8 Refrigerant detector – Adds language to clarify the signage requirement.
- Section 901.5 Installation acceptance testing – Adds an amendment to clarify what systems must have installation acceptance testing and the time frame for such.
- Section 903.2.9.2 Bulk storage of tires – Clarifies an existing amendment to reduce the area where an automatic fire sprinkler system is not required.
- Section 903.3.7 Fire department connections – Modified to match the 2011 DBC, it should not have been deleted.
- Section 904.14 – Added section regarding cooking equipment, portable fire extinguishers and permits required for mobile food trucks.
- Section 905.12 Combined systems – Adds an amendment to clarify working pressure and NFPA 13 pressure reducing valve requirements for combined sprinkler and standpipe systems.
- Section 907.2.13.6 Elevator status/control panel – Adds requirements for what the elevator status/control panel must do.
- Sections 907.5.2.3.2 and 907.5.2.3.3 – The amendment to Section 907.5.2.3.2 inadvertently included R-2 occupancies, and that is proposed for deletion. The amendment language to 907.5.2.3.3 was inadvertently not included which does apply to R-2 occupancies.
- Section 908.7 Carbon dioxide systems – Notes that carbon dioxide system requirements live with IFCA sections 5307, 5309, 5310 and 5311.
- Section 908.8 Emergency alarms – Adds clarifying language to paragraph 6.
- Section 909.13 Design criteria – Adds language to an existing amendment regarding local operating controls being disabled when in smoke control mode, and other design criteria for smoke control systems.
- Section 909.15.1.1 Stairway pressurization requirements – Adds a sentence allowing two-hour fire resistance rated duct wrap to substitute for two-hour fire resistance rated fire barrier and/or horizontal assembly.

- Section 909.15.3.2 Configuration – Adds a sentence on where exhaust dampers should be placed.
- Section 910.3.1 Listing and Labeling – Adds an amendment that requires smoke and heat vents to be listed and labeled to indicate compliance with UL 793 or FM 4430.
- Section 912.6 Backflow protection – Adds an amendment related to installation requirements for backflow protection and main flow switches.
- Section 913.6.1 – Adds a sentence requiring system components to be listed and rated for system working pressure.
- Section 917.4 Runner services – Adds an amendment requiring central stations licensed by Denver Fire to provide runner service to all properties monitored in accordance with NFPA 72 and Section 117.6.
- Section 919.1.1 Modification or alteration in conveyance structural elements - This amendment is added to allow review when a conveyance system modifies structural elements.
- Section 919.9 Fire service access elevators – Adds a sentence requiring the CCTV screen to be integrated into the elevator status panel with a minimum diagonal measurement of 9". This will only be required in new installations, and is needed to verify if there is anyone in the elevator.
- Section 919.9.1 Fire service access elevators – This amendment requires a pictorial symbol designating the fire service access elevators be installed on the jambs at the designated landing in accordance with DFD policy. Existing fire service elevators must install this symbol by 3/1/2017. This requirement is only applicable to fire service access elevators in buildings 120 feet or higher built under the 2011 Denver Building Code/2009 International Building Code.
- Section 919.10 – This amendment is proposed for deletion, and is partnered with the proposed deletion of IBC Section 3008.
- Section 919.14 (was 919.15) Elevator building communications for elevator rise of 60 feet or more – Adds a sentence requiring the two-way communication system from the elevator to the Fire Command Center to be incorporated on the elevator status panel.
- Section 1007.1.1 Two exits or exit access doorway – An amendment is proposed to this section to add Exception 3 that allows 'scissor stairs' in buildings constructed prior to March 26, 1994, to be considered two separate exits subject to certain conditions. This amendment allows for existing conditions in certain buildings to remain code compliant.
- Section 1010.1.9.5 Unlatching – This amendment adds an Exception 5 that provides clarity to what conditions accessible thumb turn locks are allowed – an item that comes up often during plan review.
- Section 1021.4 Location – This amendment removes redundant model code language and clarifies the scope and intent of the location of exterior egress balconies when located adjacent to another building on the same lot or within close proximity to another portion of the same building.
- Section 1025.1 – Exception 2 clarified to add the language from the base code which included interior exit enclosures, interior exit ramps and exit passageways.
- Section 2603.8 Fumigations – This amendment will not allow heated elemental sulfur processes for fumigation.
- Table 3206.2 General fire protection and life safety requirements – The existing table is modified to add a heading related to solid-piled storage, shelf storage and palletized

storage which was missing in the original amendment. The rest of the table is unchanged (it just had to be reformatted).

- Section 3803.3.3 Process description – Language added related to requirement to identify all relevant process and storage operations, calculate quantities of regulated hazards, and requiring the maximum capacity of all Class 1 liquid bulk storage vessels, processing vessels and stills to be used in the quantity calculation.
- Section 3903.1.2 Egress – Added language to this amendment related to hardware requirements
- Section 3903.1.3 Extraction Rooms – Added exception 2 regarding CO₂ extraction rooms and extraction rooms containing processes not utilizing hazardous materials.
- Section 3903.4 Exhaust required – Added a sentence to this amendment requiring capture and containment air velocity to be provided.
- Section 3903.4.1.1 Exhausted enclosure – Reworded the last sentence to be more in line with 3903.4.
- Section 3903.5 Gas detection – Added booths or hoods to the requirement since extractions are taking place in those systems, and modified LPG gas detection from 10% to no greater than 20%.
- Section 5005.2.1.1 Ventilation – Reworded the sentence on the reference for exhaust capture requirements.
- Chapter 53 Compressed gases – Language modified through this chapter for clarity, and added language related to support for gas piping and identification requirements.
- Section 6112 – Added requirements for food trucks with a limit on the number of liquefied petroleum gas cylinders that can be carried and overfill protection devices, as well as mounting requirements.
- Chapter 80 – Added NFPA 14-2016 Edition, Standard for the Installation of Standpipe and Hose Systems as a referenced standard.
- Appendix C – Removed ‘delete without substitution’ which was incorrectly placed in the document, remaining amendments to this appendix are unchanged.
- Appendix N, Section N103.8 – Modified item 15 to more clearly outline the requirements needed for the structural analysis and added requirement that manufactured and pre-engineered storage systems must also be installed with systems listings.
- Appendix N, Section N103.13 – Added language to provide clarity around the requirement for shop drawings and permit for emergency and standby power generators. Denver Fire has required this for a number of years, but there has been a lack of clarity on what needs to be submitted for this deferred submittal.

4. International Residential Code (IRC)

- Chapter 2, Section R202 – Added a definition of sleeping room to deal with issues raised on when egress windows are required in basement renovations.
- Section R305.1.1 Basements – Recommending deletion of the current amendment to add sentences to the exception, and instead replacing the exception to add ‘stair headroom’. This change makes Denver more in line with the model code, and clarifies that stairs must also meet this headroom requirement which is often found to be too low for safe egress.
- Section R326 (now R327) – The new section added on electric vehicle charging was incorrectly numbered as there is a Section R326 in the IRC already, and therefore this new section needs to be numbered as R327.

- Section R903.2.6 Stucco – Adding an amendment to mirror the IBC requirement for stucco to provide clear direction on roof termination.
- Section R903.4.2 Equipment on roof – Clarification to existing amendment
- Appendix M – This appendix was incorrectly deleted in the original amendments, and it is used by Denver Fire to review home day cares. It was adopted in the 2011 code, and needs to be adopted in the 2016 code.
- Appendix V - Appendix V is added to incorporate Section 305 of the International Swimming Pool and Spa Code due to the removal of the previous pool and spa appendix from the IRC.

5. International Plumbing Code (IPC)

- Section 403 Minimum plumbing facilities - Amends and adds sections to require a family or assisted-use or gender-neutral toilet facility when a building or tenant space requires a separate toilet facility for each sex. Adds requirement that signage be providing clearly indicating the single-occupant toilet facility is open to use by all genders, and requires that existing single-occupant toilet facilities have gender-neutral signage by 5/30/2018. Consistent with proposed amendments to IBC Chapter 29.

6. International Energy Conservation Code (IECC)

- Section C405 – Removal of this amendment due to the amendment that deletes Exception 7 of Section C403.1, and the Exception in Section C503.6 that allows only alterations that replace less than 10% of the lights in a space from complying with Section C405 (so long as the installed interior lighting power load doesn't increase).
- Section C406.1.1 Additional Energy Efficiency Package for Tenant Spaces – This amendment is proposed to exempt work in tenant spaces where the area of work is 10,000 square feet or less from complying with the additional energy efficiency requirement. Often tenant spaces in large buildings do not have their own mechanical units, and thus projects would be limited to only being able to comply with the lighting efficiency option. Given the requirements for lighting within the IECC, it will get difficult to make these systems that much more efficient.
- Section C408.2 Mechanical systems and service water heating systems commissioning – This amendment adds an exception that systems in existing buildings where the area of work is less than 10,000 sq ft will not require commissioning.
- Section C408.3 Lighting systems functional testing – Clarifying an existing amendment such that lighting systems functional testing will not be required when the new installed lighting load is less than 20 kW and the area of work is less than 10,000 square feet. This clarification is needed as it was unclear if both the existing and new lighting load had to be less than 20 kW or if it applied only to new lighting.

7. International Existing Building Code (IEBC)

- Section 403.8 and 707.3.2 Roof diaphragms resisting wind loads in high-wind regions – Deleting these two sections as they have raised confusion with the small portion of Denver that's in a high-wind zone. However, the intended application of these two sections is for hurricane prone coastal areas, not the front range of Colorado. There are no known roof failures related to wind loading in our jurisdiction that application of this section would apply to. Furthermore, the language in the section is subjective and would be nearly impossible to enforce without significant destructive investigation for existing buildings.