2025

DENVER BUILDING CODE

~~January~~~~March~~June 202~~5~~~~3~~, 1st Printing

~~**Limited Mandatory Provisions of the 2022 Denver Green Code**~~

~~**Apply to most Commercial and Multi-Family Projects**~~

~~**(See Administrative Provisions Section 101.4)**~~

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ACKNOWLEDGMENT: The City and County of Denver has adopted a suite of codes in order to make them effective for the design and construction conditions within the city. As part of an inclusive public process, multiple Code Revision Committees were established to review and propose amendments to the model codes for the maintenance of existing buildings and the construction of new buildings. These committees represent subject matter experts in various segments of the building and development industry. The different perspectives and interests presented by the committees during the code review process helped to provide an effective set of amended codes, which will maintain minimum standards for the health, safety, welfare, and sustainability of the people who live, work, and visit in Denver.

We wish to thank the members of City Council, Mayor's Office, Community Planning and Development, Office of Climate Action, Sustainability, and Resiliency, Department of Transportation and Infrastructure, Department of Parks & Recreation, City Attorney's Office, Fire Department, and HRCP Office of Disability Rights who all devoted their time, knowledge, and professionalism to develop this document.

ARTICLE 1

2025 DENVER BUILDING CODE

SECTION 1
ADMINISTRATION

SECTION 101
GENERAL

101.1 Title. The 2024 series of the *International Building Code (IBC)*, *International Energy Conservation Code (IECC)*, *International Fuel Gas Code (IFGC)*, *International Mechanical Code (IMC)*, *International Plumbing Code (IPC)*, *International Existing Building Code (IEBC)*, and *International Residential Code (IRC)*, all errata to the above codes, all amendments to the above codes found in this document, and the administration chapter of this document shall be known as, the Denver Building Code and referred to hereinafter as the Code. The Denver Commercial Building Code (DCBC), the Denver Energy Code (DEC), the Denver Fuel Gas Code (DFGC), the Denver Mechanical Code (DMC), the Denver Plumbing Code (DPC), the Denver Existing

Building Code (DEBC), and the Denver Residential Code (DRC), all as defined in Section 2, shall be known as the 2025 Denver Building Code, and referred to herein after as "the Code."

101.1.1 Denver Green Code. The Denver Green Code is adopted as a design and construction code with limited mandatory requirements as described in Section 101.4. To encourage the use of the Denver Green Code, the *building official* is authorized to develop incentives through written policy. The Denver Green Code may be viewed at locations as stated on the website of the Agency.

101.2 Scope. The provisions of this Codethis code shall apply to the construction, alteration, relocation, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures except as set forth in subsection 103.9 below.

101.3 Purpose. The purpose of this Codethis code is to provide minimum standards to provide a reasonable level of safety, health, and general welfare through structural strength, means of egress, stability, sanitation, light and ventilation, energy conservation, and for providing a reasonable level of life safety and property protection from the hazards of fire, explosion, or dangerous conditions, and to provide a reasonable level of safety to fire fighters and emergency responders during emergency operations by regulating and controlling the design, construction, quality of materials, use, occupancy, location and maintenance of all buildings and structures, and certain equipment specifically regulated herein within the City and County of Denver (hereinafter "City").

101.4 Denver Green Code Limited Mandatory Requirements. Effective May 1, 2023, the Denver Green Code shall apply to all projects in accordance with Denver Green Code Chapter 1 Section 101.4.

SECTION 102
ORGANIZATION OF BUILDING PERMITTING AND INSPECTIONS SERVICES

102.1 Creation of administering agency. The Building Permitting and Inspections Services Agency (hereinafter "Agency") is responsible for administering and enforcing the Code and is established under the Executive Director of Community Planning and Development (hereinafter "CPD").

102.2 Building official. The Executive Director of CPD shall appoint the *building official*. The *building official* is hereby authorized and directed to act on behalf of the Agency in the interpretation and enforcement of all provisions of this Codethis code.

102.3 Employees. In accordance with established procedures, the *building official* may authorize or appoint engineers, architects, technicians, inspectors, or other employees to perform duties and exercise powers as delegated by the *building official*.

102.4 Authorization and Identification. Each employee of the Agency shall be provided with an identification card bearing information as set out by the *building official*. This identification shall be carried by the person identified and shall be displayed when necessary to identify the person properly in the performance of his/her official duties.

SECTION 103
APPLICABILITY

103.1 Most Restrictive. Where in any specific case the requirements of different sections of this Codethis code vary, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable.

103.1.1 Other laws. The provisions of this Codethis code shall not be deemed to nullify any provision of local, state, or federal law.

103.1.2 Application of references. References to chapter or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section, or provision of this codethis code.

103.2 Referenced Codes and Standards. Other codes and standards specifically adopted in this Codethis code or used by reference elsewhere in this Codethis code shall be considered part of the requirements of this Codethis code, to the prescribed extent of each such reference and as further regulated in Sections 103.2.1 and 103.2.2.

> **Exception:** Where enforcement of a Code provision would violate the conditions of the listing of the equipment or appliance, the conditions of the listing and manufacturer's instructions shall apply.

> **103.2.1Conflicts.** Where conflicts occur between provisions of this Codethis code and referenced codes and standards, the provisions of this Codethis code shall apply.

> **103.2.2 Provisions in referenced codes and standards.** Where the extent of the reference to a referenced code or standard includes subject matter that is within the scope of this Codethis code, the provisions of this Codethis code shall take precedence over the provisions in the referenced code or standard.

103.3 Appendices. Provisions in the appendices shall not apply unless specifically adopted in this Codethis code.

103.4 Partial Invalidity. In the event any part or provision of this codethis code is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

103.5 Existing Buildings, Structures, or Utilities. The legal occupancy of any structure existing on the date of adoption of this Codethis code shall be permitted to continue without change, except as otherwise specifically provided in this Codethis code and the *Denver Fire Code*.

> **103.5.1 Buildings previously occupied.** The legal occupancy of any building existing on the date of the adoption of this Codethis code shall be permitted to continue without change if such use or occupancy was legal at the time of the adoption of this Codethis code, except as otherwise specifically provided in this Codethis code or as is deemed necessary by the *building official* for the general safety and welfare of the occupants and the public. Any change in, or establishment of, the use or occupancy of any existing building or structure shall comply with the provisions of this Codethis code.

> **103.5.2 Buildings or portions thereof not previously occupied.** A building or portion of a building that has not been approved for legal occupancy in accordance with the laws in existence at the time of its completion shall comply with the provisions of this Codethis code or with any unexpired permit for such occupancy.

103.6 Maintenance of All Buildings, Structures or Utilities. All buildings, structures, or utilities, both existing and new, and all parts thereof, shall be maintained in a safe and sanitary condition, and in accordance with this Codethis code or the Code under which it was permitted and constructed. All devices, utilities, or

safeguards which are required by this Codethis code, or which were required by the Code or Ordinances at the time of construction, shall be maintained in good working condition. The owner or legally responsible person shall maintain such buildings, structures, or utilities. To determine compliance with this subsection, the Agency may cause any building, structure, or equipment to be reinspected.

103.7 Moved Buildings or Structures. Buildings or structures moved into or within the City shall comply with the provisions of the *Denver Existing Building Code*.

103.8 Safeguards during construction. Chapter 33 "Safeguards During Construction" of the *Denver Commercial Building Code* shall apply to all work.

103.9 Buildings, Structures, and Utilities not Regulated by this Codethis code. The Code does not regulate the following:

1. Work located primarily in the public way unless specifically provided for by this Codethis code.
2. Public utility towers, poles, and mechanical or electrical equipment used for the production, generation, storage, or distribution of the utility product or service through the facilities owned and operated by the utility company to the point of customer service.
3. RTD Light and Commuter Rail construction on RTD right-of-way. Traction power substations, signal/communication relay cases and housing, associated conduit, and wiring for the operation of the light rail and commuter rail lines and the construction of the light rail station platforms.

Exceptions:

1. Construction of commuter or light rail platforms and any amenities including, but not limited to, canopies and driver relief stations, along with ramps, stairways, lifts, elevators, and escalators.
2. Any retaining walls that support adjacent private or public right-of-way, but not those associated with support of the train system tracks.

Refer to Section 130.3 for additional exempt work.

103.10 Transition Rules. This CodeThis code and implementation of all its provisions and policies shall become effective as follows:

Effective date. The effective date of Section 1 – Administration, of this Codethis code is January 12, 2023. The effective date of Section 2 of this Codethis code, Construction Codes, and the 2022 Denver Green Code shall be May 1, 2023 (the "Construction Code Effective Date"). As of the Construction Code Effective Date, 100% *construction documents* for projects submitted to the Agency shall be designed based on this Codethis code, except as allowed in 103.10.2 below. The effective date of the Energize Denver Ordinance provisions is March 1, 2023. Projects submitted to the Agency as 100% construction documents for review before the Construction Code Effective Date may continue to use the 20222019 Denver Building Code, subject to the timeframes in Section 131. Projects with 100% *construction documents* submitted to the Agency after May 1, 2023 and before the effective date of this, the Third Printing of the Denver Building Code, may apply the provisions of either the Second Printing or the Third Printing (separately and in their entirety) to the project.

The effective date of the 2022 Denver Green Code shall be as defined in the Chapter 1 of the 2022 Denver Green Code.

103.10.1 Use of the 2019 or 2022 Denver Building Code. Projects that will be submitted to the Agency after the effective date of the adopting ordinance, and before the Construction Code Effective Date may use either the 2019 or 2022 Denver Building Code. For purposes of this subsection 103.10.1, a project will be considered submitted to the Agency when a complete set of *construction documents* has been electronically provided by the applicant through the Agency's web-based permitting portal (also known as ePermits or Accela Citizen Access).

103.10.2 Continued use of the 2019 Denver Building Code Other than Major Projects. Except for Major Projects, as described in Section 103.10.3 below, this CodeThis code shall not require changes in the *construction documents*, construction, or designated occupancy of a structure for which a lawful, unexpired permit has been issued. Projects that do not meet the timeframes of Section 131 are required to be redesigned in accordance with the 2022 Denver Building Code.

103.10.3 Continuation of the 2019 Denver Building Code for Major Projects. With the written approval of the *building official*, major projects established to be in design during the drafting of the new Code, and that will be submitted to the Agency after the Construction Code Effective Date may be reviewed and permitted under the 2019 Denver Building Code. A major project does not include: a new single family, two family, or townhouse project designed in accordance with the IRC; a tenant improvement; nor any other project with a total valuation less than $10,000,000. A major project allowed to be reviewed and permitted under the 2019 Denver Building Code must meet the following requirements:

A. Submit foundation only, the first phase, or the entire set of building construction drawings to the Agency before 7/1/2023 and all phases (exclusive of deferred submittals) by 9/1/2023.
B. Obtain foundation only, the first phase, or full building construction permits by 12/31/2023; and
C. Begin foundation construction within 60 days of the first building construction permit issuance.

For consideration by the *building official* and Fire Code official the owner, or the owner's authorized agent, must submit a letter of request to the *building official and Fire Code official*, before the Construction Code Effective Date, stating:

1. Request to proceed under the 2019 Denver Building Code.
2. Address and project master or site development plan number of the construction project.
3. Description, number of stories, floor area, occupancy, total valuation, etc., of the project.

103.10.3.1 Extension of deadlines for Major Projects. The 12/31/2023 and 60-day deadlines in Section 103.10.3 (B) and (C), respectively listed above may be extended by the building official for an additional 60 days and 90 days, respectively. To request a deadline extension, the owner or owner's authorized agent of a Major Project must submit a request no later than 10 business days prior to the expiration of the applicable deadline stating why the Major Project was delayed by economic or site-specific complications beyond the owner's control.

SECTION 104
POWERS AND DUTIES

104.1 General Powers and Duties. The *building official* is vested with the duties of enforcing and administering this Codethis code, and the power necessary for such enforcement. The Agency shall administer and enforce all other statutes or ordinances, which are or may be assigned to the Agency for enforcement and administration.

104.2 Orders. The *building official* is authorized to issue necessary notices or orders to ensure compliance with this Codethis code.

104.3 Authority to Inspect. The *building official* shall have the authority to inspect, or cause to be inspected by the Agency, all buildings, structures, or utilities for compliance with this Codethis code.

104.4 Investigations and Surveys. Incidental to any of these duties and powers, but without limitation of the same, the *building official* may cause to be conducted investigations or surveys by the Agency to determine compliance or noncompliance with the provisions of this Codethis code; and further may investigate or cause to be investigated all accidents pertaining to buildings, structures, or utilities.

104.5 Right of Entry. Where it is necessary to make an inspection to enforce the provisions of this codethis code, or where the *building official* has reasonable cause to believe that there exists in a structure or on a premises a condition that is contrary to or in violation of this codethis code that makes the structure or premises unsafe, dangerous, or hazardous, the building official is authorized to enter the structure or premises at reasonable times to inspect or to perform the duties imposed by this codethis code, provided that if such structure or premises be occupied that credentials be presented to the occupant and entry requested. If such structure or premises is unoccupied, the building official shall first make a reasonable effort to locate the owner or other person having charge or control of the structure or premises and request entry. If entry is refused, the building official shall have recourse to the remedies provided by law to secure entry. Whenever it is necessary to make inspections, investigations, or surveys to enforce any of the provisions of this Codethis code and permission is not obtainable, the *building official* may request a court to issue a warrant to inspect or perform any duty imposed upon the Agency by this Codethis code. Permission is considered not obtainable when:

1. The Agency's representative has presented to the occupant of an occupied building or premises proper credentials and been refused entry, or;

2. The Agency's representative has made a reasonable effort to locate the owner or other persons having charge or control of an unoccupied premises and has been unable to locate such person or has been refused entry by such person.

104.6 Interpretations, Rules, and Regulations. The *building official* shall have the full power to render interpretations of this Codethis code and to adopt and enforce policies and rules and regulations supplemental to this Codethis code, as may be deemed necessary in the application of Code provisions. Such interpretations, policies, and rules and regulations shall be in conformity with the intent and purpose of this Codethis code. The Board of Appeals may review any appeal of a *building official* interpretation subject to Section 108.

104.7 Approved materials and equipment. Materials, equipment, and devices approved by the *building official* shall be constructed and installed in accordance with such approval.

104.7.1 Used Materials. Used materials may be used in the construction of any building, structure, or equipment only with the prior approval of the *building official*.

104.8 Liability. The *building official*, authorized employees and representatives charged with the enforcement of this Codethis code, acting in good faith and without malice in the discharge of their duties, shall not thereby render themselves personally liable for any damage that may accrue to persons or property as a result of any act or by reason of any act or omission in the discharge of their duties. Any suit brought against the *building official* or employees because of such act or omission performed by them in the enforcement of

any provision of the Code or the Charter, or other pertinent laws or ordinances implemented through the enforcement of this Codethis code or enforced by the Agency, shall be defended in accordance with 24-10-108 C.R.S.

This CodeThis code shall not be construed to relieve from or lessen the responsibility of any person owning, operating, or controlling any building or structure for any damages to persons or property caused by defects, nor shall the Agency or City be held as assuming any such liability by reason of the inspections authorized by this Codethis code or any certificates of compliance or occupancy issued under this Codethis code.

104.9 Modifications Under Special Circumstances. Where there are practical difficulties involved in carrying out the provisions of this codethis code, the *building official* shall have the authority to grant modifications for individual cases, upon application of the owner or the owner's authorized agent, provided that the *building official* shall first find that special individual reason makes the strict letter of this Codethis code impractical, the modification is in compliance with the intent and purpose of this Codethis code and that such modification does not lessen health, accessibility, life and fire safety, or structural requirements. The details of action granting modifications shall be recorded in the real property records of the City and County of Denver and entered in the permanent files of the Agency.

104.10 Alternative materials, design and methods of construction and equipment. The provisions of this Codethis code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this Codethis code, provided that any such alternative has been *approved*. An alternative material, design, or method of construction shall be *approved* where the *building official* finds that the proposed alternative meets all the following:

1. The alternative material, design, or method of construction is satisfactory and complies with the intent of the provisions of this Codethis code,

2. The material, method, or work offered is, for the purpose intended, not less than the equivalent of that prescribed in this Codethis code as it pertains to the following:

    2.1 Quality
    2.2 Strength
    2.3 Effectiveness
    2.4 Fire safety
    2.5 Durability
    2.6 Safety, other than fire safety

Where the alternative material, design, or method of construction is not approved, the *building official* shall respond in writing, stating the reasons why the alternative was not approved.

104.10.1 Application for Review. The *building official* shall consider the approval of an alternate material, design, or method of construction or equipment only upon submission of a formal application. The *building official* shall require the type of information to include on the application. The application shall include plans, specifications, details, test data, samples, and literature from *approved* sources, as deemed necessary by the *building official*.

104.10.2 Research reports. Supporting data, where necessary to assist in the approval of materials or assemblies not specifically provided for in this codethis code, shall consist of valid research reports from *approved* sources.

104.10.3 Testing Requirements. Whenever there is insufficient evidence of compliance with the provisions of this codethis code, or evidence that a material or method does not conform to the requirements of this codethis code, or to substantiate claims for alternative materials or methods, the

building official shall have the authority to require tests as evidence of compliance to be made without expense to the jurisdiction. Test methods shall be as specified in this codethis code or by other recognized test standards. In the absence of recognized and accepted test methods, the building official shall approve the testing procedures. Tests shall be performed by a party acceptable to the *building official*. Reports of such tests shall be retained by the *building official* for the period required for retention of public records.

104.11 Licenses and Certificates. The *building official* is vested with the authority to:

1. Establish requirements and procedures for the issuance of licenses and certificates as required in this Codethis code.
2. Qualify applicants for such licensure and certification.
3. Issue, revoke, renew, and suspend such licenses and certificates.

SECTION 105
UNSAFE STRUCTURES, PROJECT SITES, OR EQUIPMENT

105.1 Structures, Project Sites, or Equipment. Structures, project sites, or existing equipment that are or hereafter become unsafe, unsanitary, or deficient because of inadequate means of egress facilities, inadequate light, or ventilation, or that constitute a fire hazard, or are otherwise *dangerous* to human life or the public welfare shall be deemed an unsafe condition. Unsafe structures shall be taken down and removed or made safe, as the *building official* deems necessary and as provided for in this section. The *building official* may deem any structure project site or equipment unsafe when any one or more of the following conditions exist:

105.1.1 Structures or Project Sites:

1. Illegal or improper occupancy.
2. Any building, structure, or portion thereof that meets the definition of *Dangerous* as defined in the *Denver Existing Building Code*.
3. Damage or deterioration to any exposed exterior member to the extent that the member provides inadequate protection from the elements to the occupants of the building or structure.
4. Floors or areas with inadequate means of egress.
5. Parts attached in such a manner that they may fall and cause injury to the public or property.
6. Uncompleted buildings or structures when the permit has been canceled.
7. A canceled Certificate of Occupancy.
8. Open pits, open wells, and open excavations of all types when such are determined to be hazardous by the *building official*.
9. Trenches or ditches not properly shored or cribbed.
10. Vacant buildings which are not secure and to which entry may be made through opened or unlocked doors, windows, or other openings.
11. Uninhabitable buildings or structures, including but not limited to the following conditions:
    a. Building envelope damage or deterioration has caused the interior of the structure to be open to the elements.

b. Vandalism or deterioration has caused the plumbing system, electrical system, or heating system to be no longer functional.

12. Any dilapidated building of whatever kind which is unused by the owner, or uninhabited because of deterioration or decay, which condition constitutes a fire hazard or subjects adjoining property to danger of damage by deterioration of structural building elements, storm effect, soil erosion, or animal infestation, or which becomes a place used by trespassers and transients seeking a temporary hideout or shelter.

105.1.2 Equipment

105.1.2.1 Gas-Fired, Oil-Fired, Solid Fuel-Fired Devices. Gas-fired, oil-fired, or solid-fuel-fired appliances, devices, or apparatus, which have any of the following, defects:

1. Broken or cracked heat exchangers.

2. Defective or deteriorated vents, venting or flues which permit leakage of flue products.

3. Defective or improperly installed fuel supply piping.

4. Insufficient air supply for the combustion of fuel.

5. Inadequate ventilation of the heating equipment room.

6. Defective, improperly installed, or maladjusted controls and appurtenances.

7. Defective or improperly installed heating equipment.

8. Equipment locations which constitute a fire or explosion hazard.

9. A negative air pressure condition exists in a heating equipment room or area.

10. Excessive corrosion of combustion chambers where the original thickness of the metal is reduced 50% or more.

11. Warped or distorted combustion chambers or furnace boiler firing doors which permit leakage of combustion products.

12. A listed appliance or appurtenance that is altered or modified.

13. Excessive scaling, corrosion, cracks in seams, tube, or shell of boilers.

14. Defective valves, gauges, or cocks of boilers.

15. Grooving or pitting of boilers.

16. Boilers with improperly installed or maladjusted controls and appurtenances.

17. Any unlisted appliance or appurtenance installed without approval of the *building official*.

18. Appliances not provided with required safety controls.

105.1.2.2 Electrical Systems. Electrical systems, appliances, devices, or apparatus which have any of the following defects:

1. Bare wiring.

2. Poor electrical connections.

3. Overloaded circuits, feeders, or services.

4. Equipment not properly grounded.

5. Disconnecting means not provided at the appliance.

6. Over-fused circuits.

7. Misuse of cord wiring.

8. Wiring not properly supported.

9. Non-approved wiring exposed to extreme heat, moisture, combustible dusts, gases, or other harmful vapors or liquids.

105.1.2.3 Refrigeration Systems. Refrigeration systems which have any of the following defects:

1. Inadequate ventilation.

2. Inadequate venting of pressure relief valves.

3. Unauthorized fuel-fired equipment located in the same room designated for the refrigeration equipment.

4. Improperly installed cooling towers by reason of location, type, fan, water condition, controls, roof, or floor overload.

5. Faulty controls.

105.1.2.4 Plumbing Systems. Plumbing systems or devices which have any of the following defects:

1. Supply water not meeting the standards of potability as required by the Colorado State Department of Public Health.

2. Water systems subjected to the hazards of backflow or back-siphonage, which might create pollution to the potable water supply, i.e., hose bibbs shall have anti-siphon devices.

3. Inadequate piping not supplying sufficient water to the various appliances.

4. Clogged sewers or drains.

5. Inadequate or missing trap seals.

6. Inadequate venting.

7. Leaking water, sewage or sewer gas within a building or structure.

8. Trenches or ditches not properly shored or cribbed.

105.2 Notice and Abatement. If, after inspection by the Agency, the building, structure, or equipment is determined to be unsafe by the *building official*, it shall be abated by repair, replacement, removal, or demolition upon notice by the *building official*. If the building or structure has common property line walls, then the *building official* may direct the owner to notify adjacent building owners that their building may be unsafe and may require repair or reinforcement.

105.2.1 Buildings or Structures. In the case of an unsafe building or structure, the *building official* may order such building or structure, or any buildings or structures placed in jeopardy by the unsafe building or

structure, vacated immediately. When necessary to protect life, property, health, and public welfare, the *building official* may cause to have posted signs which shall prohibit entry into an unsafe building or structure. However, with written permission of the *building official*, it shall be lawful to enter the unsafe building or structure for the purpose of effecting any required repairs, rehabilitation, or demolition, or by members of the Fire Department. Signage shall be provided by and attached to the building or structure by the Agency and shall read, in addition to other information, "UNSAFE DO NOT ENTER". See Section 107 for Prohibitions and Violations.

105.2.2 Equipment. In the case of unsafe equipment, the *building official* shall affix a warning tag or sign on or immediately adjacent to the unit declared to be unsafe. The *building official* shall order the unsafe equipment disconnected, or its use discontinued until the unsafe condition is abated. In addition, the *building official* may order any building, structure, or equipment which is placed in jeopardy by the unsafe equipment to be vacated and/or disconnected, and these shall not be reoccupied or reconnected until the unsafe declaration is lifted by the *building official*. It shall be unlawful for anyone to mark any unsafe equipment, as herein defined, with any type markings, signage, or tags declaring them to be unsafe, except as authorized by the *building official*.

105.3 Demolition or Securing by the City. If the owner and/or occupant of an unsafe building, structure, or equipment fails to perform the repairs, rehabilitation, securing, or removal required by an order within the time specified therein or any extension of time to comply with said order, the *building official* may, as set forth in this Section, cause the demolition or securing of the unsafe building or structure at the owner's expense.

105.3.1 Procedure for Demolition or Securing by City. Upon the failure of the owner or legally responsible person of a building or structure to make any building or structure safe after the issuance of an order, the *building official*:

1. May obtain competitive bids for the securing or demolition of the building or structure.
2. May, upon receipt of bids, issue a notice of intent to raze or secure the building or structure which shall include the estimated cost of demolition or securing plus a fee not to exceed 25% of the cost of demolition or securing, with a minimum of $500 to cover administrative and other costs. Such notice shall be served personally or by registered or certified mail, return receipt requested, upon the owners or entities of all recorded interests in the property at least 10 calendar days prior to the demolition or securing.
3. If service cannot be obtained upon any party with record interests as provided in subsection 105.3.1.2, may post the notice upon the property for 10 calendar days and mail notices to the last known address of each party having a record interest.
4. Ten calendar days after completion of service under subsections 105.3.1.2 or 105.3.1.3 above, may proceed with demolition or securing.
5. Upon completion of the demolition or securing, the Agency shall pay the cost and expense of demolition, removal, securing and/or barricading, from any appropriation made available for that purpose, and shall mail a notice of the final cost of demolition or securing and of the intent to file a lien against the property to owners of a recorded interest in the property.

105.3.2 City's Lien. In the event the owner fails to pay the costs as set forth in the notice sent under this Section within 15 business days of such notice, the amount shall constitute a lien against the real property upon which the building or structure was or is situated. The Agency shall thereafter certify a statement thereof to the Manager of Finance, who shall assess and charge the same against the property involved and

collect the same due, together with interest at the rate established by the law for delinquent real property taxes. The lien created thereby shall be superior and prior to other liens, regardless of date, except liens for general and specific taxes. For purposes of this Codethis code, cost and expense shall include the abatement, demolition, removal, securing, barricading and administrative costs incurred therewith.

105.4 Emergency Demolition or Securing. In the event an emergency should occur wherein the continued use or existence of a building, structure, or equipment may constitute an immediate hazard to life, health, property, or public welfare as determined by the *building official* or *fire code official*, the *building official* may order and/or cause the building, structure, or equipment to be demolished, removed, disconnected, secured, or barricaded immediately and without notice by any means available to the Agency. When feasible, the *building official* shall attempt to give notice, by any means, to the owner of the building, structure, or equipment prior to taking any action. Cost and expense of demolition, removal, securing or barricading, if borne by the City, shall be recovered as provided for in Section 105.

105.5 Emergency Barricades. If any building, structure, or equipment is declared a hazard to life or safety of persons using a public way, the public way shall be provided with barricades to prevent public use. The barricades shall be erected on order from the *building official* or *fire code official*. Recovery of cost and expense, if borne by the City, shall be made as provided for in Section 105.

SECTION 106 RESERVED

SECTION 107VIOLATIONS, PENALTIES AND REMEDIES

107.1 Violations. It shall be unlawful for any person, firm, or corporation to erect, construct, enlarge, reconstruct, alter, repair, move, improve, remove, convert, demolish, equip, occupy, inspect, or maintain any building, structure, or equipment, or cause or permit the same to be done, in the City and County of Denver, contrary to or in violation of any of the provisions of this Codethis code, any other code, ordinance, or rule and regulation promulgated thereunder which is enforced and administered by the Agency.

107.2 Notice of Violation Order to Comply. If the *building official* determines that a violation exists under Section 107.1, the *building official* may issue a Notice of Violation (notice) or Order to Comply (order) upon the owner of the property upon which work was or is being performed or where the condition exists; or any person engaged in the work, causing the work to be performed or having a permit to perform the work. The notice or order must state the standards or requirements violated, must state what corrective action, if any, is necessary to comply with the standards or requirements, and must set a reasonable time for compliance.

107.2.1 Service of notice or order. Service of any notice of violation or order shall be by personal service or first-class mail addressed to the last known address of the owner of the property, or if no address is available after reasonable inquiry, the order may be posted in a conspicuous place on the property. The notice or order may also be posted if served by personal service or first-class mail. The notice or order shall be deemed served on the date of receipt by the person personally served or upon the date of mailing or posting.

107.3 Penalties. Whenever, in any Section of this Codethis code, or any Section of a rule or regulation promulgated thereunder, the performance of any act is required, prohibited, or declared to be unlawful, and no definite fine or penalty is provided for a violation thereof, any person convicted of a violation of any Section shall, for each offense, be fined, imprisoned, or both fined and imprisoned within the limits established by

Section 1-13 of the Denver Revised Municipal Code. A separate violation shall be deemed committed upon each calendar day during or on which a violation occurs or continues. The suspension or revocation of any license, certificate, permit, or other privileges conferred by the City shall not be regarded as a penalty for the purpose of this Codethis code.

107.4 Remedies. In the event any building, structure, or equipment is erected, constructed, enlarged, reconstructed, altered, repaired, moved, improved, removed, converted, demolished, equipped, occupied, inspected, or maintained in violation of this Codethis code, the City or any proper person may institute an appropriate action or proceedings to prevent the unlawful erection, construction, enlargement, reconstruction, alteration, repair, move, improvement, removal, conversion, demolition, equipping, occupying, inspecting, or maintenance, and to restrain, correct or abate such violation, or to prevent the occupancy of said building, structure, or land. The imposition of any penalty thereunder shall not preclude the City or any proper person from instituting any appropriate action or proceeding to require compliance with the provisions of this Codethis code, and with administrative orders and determination made thereunder.

107.4.1 Recording of Notice or Order with Clerk. When the *building official* determines that a violation of this Codethis code is consistent with Agency policies and warrants recording based on the nature of or circumstances concerning the violation, the *building official* may cause to be recorded any notice or order based on the violation in the real property records of the Clerk and Recorder. When the condition upon which the notice or order was based has been corrected, the *building official* shall record a release of the notice or order.

SECTION 108
BOARD OF APPEALS

108.1 Creation. There is hereby created a Board of Appeals (the "Board"), which shall consist of six members and three alternates appointed by the mayor. The Board shall be comprised of the following persons:

1. One professional engineer registered in the State of Colorado.
2. One architect licensed in the State of Colorado.
3. One person who is the holder of a City Building Contractor Class A, B or C license.
4. One preservationist with expertise in preservation of historic buildings and structures.
5. Two citizen members who are not associated with the building industry.

Two alternates shall be a professional engineer registered in Colorado and an architect licensed in Colorado, respectively. A third alternate shall be a citizen not associated with the building industry. Alternates may appear at all meetings and shall be allowed to vote even if not filling a temporary vacancy.

108.2 Secretary. There shall be a Secretary of the Board, furnished by the Agency. The Secretary shall be the custodian of the records, shall conduct official correspondence of the Board, and generally be responsible for clerical work of the Board. The Secretary shall be present at all meetings and shall present all relevant information regarding appeals to the Board, including the application and other information submitted by the Applicant prior to the hearing. The Secretary shall notify all interested parties regarding matters of the Board.

108.3 Fire Department Representative. The Chief of the Fire Prevention Division, or his authorized representative, shall be an ex officio member to the Board without voting power. Terms of office and remuneration shall not be applicable to this member.

108.4 Terms. As of the effective date of the council bill adopting the 2025 Denver Building Code, the members of the Board of Appeals as constituted under this Codethis code shall continue to serve for the unexpired portion of their terms. The mayor shall appoint Board members and alternates as necessary to fill expiring terms and such terms shall be for 3 calendar years. No member of the Board shall serve more than 3 consecutive full terms or a total of more than 9 consecutive calendar years. Any vacancy that occurs in the Board shall be filled by the mayor for the unexpired term of that Board member. Board members may be removed only for cause upon written charges.

108.5 Procedures – Meetings – Quorum.

108.5.1 Appeal. Any person or city agency aggrieved by a decision of the *building official* may, within 30 calendar days of the first or initial date of notice of such decision or order, appeal the decision or order by filing an application for appeal with the Board.

Exception. Appeals of notices issued under Section 105.5, where such notice is personally served or delivered by overnight mail, shall be made within 10 calendar days of the delivery of such notice or the refusal to accept such notice.

108.5.2 Method of Application and Fee. Prior to action by the Board, an application shall be filed with the Agency on a form providing the necessary information required by the Board. An appeal shall not be considered unless filed with the Agency at least 15 calendar days prior to the meeting. Upon filing the application, a fee set by the *building official* shall be paid to the City. All checks shall be made payable to the Manager of Finance and shall be paid in the office of the Agency. This fee is not refundable. A validly filed appeal shall be heard by the Board at the next available meeting time when a quorum is present.

108.5.3 Regular Meetings. Regular meetings shall be held annually or as often as may be required by the Agency. Four members of the Board shall constitute a quorum at regular meetings.

108.5.4 Special Meetings. Special meetings may be held at the call of the Chairman and at such times as the Board shall determine. The Board, the *building official*, or an appellant may request a special meeting. Any special meeting held at the request of an appellant shall be paid for by the appellant in an amount set forth by the *building official*. Four members of the Board shall constitute a quorum at special meetings.

108.5.5 Business Meetings. Business meetings of the Board may be called by the Chairman of the Board.

108.5.6 Imminent Hazard. In any matter in which an order or notice relating to an unsafe building or structure is appealed, the *building official* may certify to the Board that the building or structure could become an imminent hazard, in which case the Board shall schedule a meeting within three business days to hear said appeal.

108.5.7 Notice. Public notice shall be given of all meetings and all meetings shall be open to the public except executive sessions or business meetings. Due notice of all meetings shall be given by the Secretary to all parties in interest, including the Agency. The Agency shall be permitted to intervene, for and on behalf of the City, in all public meetings.

108.5.8 Oath/Subpoena. The Chairman may administer oaths, accept affirmations, and compel the attendance of witnesses. A failure or refusal to appear in response to a subpoena issued by the Board shall constitute a violation of this Codethis code.

108.5.9 Agency/Interested Party. At any public meeting a representative of the Agency, Fire Department and any other interested party may appear in person, by agent or by attorney, offer evidence and testimony, and cross-examine witnesses. All evidence and testimony shall be presented publicly. The Board may take judicial notice of facts to the same extent and in the same manner as courts of record and may consider relevant facts within the personal knowledge of any member of the Board that are stated into the record by such member.

108.5.10 Recording. All meetings before the Board shall be recorded either by electronic means or by a Certified Court Reporter.

108.6 Powers and Duties of the Board.

108.6.1 Rules and Procedures. The Board shall adopt Rules and Procedures governing all proceedings before it consistent with the provisions set forth herein. The rules and regulations shall include proper procedures for applying to the Board, contents of the application and time allotted for each case.

108.6.2 Powers. Subject to the limitations enumerated herein, the Board shall have and may exercise the following powers with respect to this Codethis code:

1. **Administrative Review.** To hear and decide appeals where it is alleged there is error in any order, or decision made by the *building official* in the enforcement of this Codethis code.

2. **Alternate Methods and Materials.** To hear and decide appeals from the *building official* denial of an application for alternate materials and methods of construction and equipment under Section 104 herein, only after the applicant has obtained an approval or certified test results from an *approved* testing agency. All relevant information and documentation shall be submitted to the Board prior to the hearing. The decision of the *building official* shall not be overturned unless the Board shall find that all the following conditions exist:

    1. That the applicant properly applied under the terms of Section 104.

    2. That the proposed design is satisfactory and that the alternate is, for the purpose intended, the equivalent of that prescribed in this Codethis code.

    3. That the proposed alternate will not weaken the general purposes of this Codethis code.

    4. That the proposed alternate will be in harmony with the spirit and intent of this Codethis code.

    5. That the proposed alternate will not adversely affect the public health and safety.

    6. That the proposed alternate will not adversely affect the structural integrity of the building.

    7. That the proposed alternate will not adversely affect the fire or life safety of the building.

3. **Stay of Enforcement.** The Board shall have the power to stay the enforcement of any order issued by the *building official* unless the *building official* certifies that, based on facts stated in the request, a stay of the order would cause imminent peril to life or property. A stay shall not constitute a variance, and shall be personal to the applicant, not transferable, and subject to the terms and conditions imposed by the Board.

4. **Unsafe Condition.** Whenever the owner, or legally responsible person, of a building, structure, equipment, or other condition determined to be unsafe by the *building official* does not agree with the terms of the issued order for abatement, the owner shall have the right to appeal to the Board within 30 calendar days from the date of said order. In the appeal, the owner shall state how the

owner proposes to make the building, structure, equipment, or other condition safe and, if required by the Board, the owner shall submit detailed engineering analysis or recommendations, accompanied by plans and specifications prepared by a Colorado licensed Architect or Colorado registered Professional Engineer, as prescribed in this Codethis code. The Board may require substantiating data concerning the removal or other remedial steps to be taken to render the building, structure, equipment, or other condition safe.

108.6.3. Decision of the Board. In the exercise of the powers described above, the Board may reverse or affirm a decision, reverse, affirm or modify an order, impose conditions or requirements, as deemed necessary; or hold cases in abeyance until proper information needed by the Board is supplied. Decisions shall be filed with the Agency as a matter of public record.

The concurring vote of a majority of those present and voting shall be necessary to decide any matter upon which the Board is required to pass under this section of this Codethis code. The Board shall issue a written decision, based on evidence presented at the public meeting, setting forth the necessary findings of fact and the final decision of the Board. A copy of this decision shall be mailed by the Secretary to all interested parties who received notice under this Section, including the *building official*. The Board may order that a copy of the decision be recorded in the office of the Denver Clerk and Recorder.

108.7 Limitations of Powers. The Board of Appeals shall have no authority to review administrative decisions to the requirements of Chapter 1 of this Codethis code except where specifically allowed herein.

Any determination or order of the *building official* shall be presumed to be correct until evidence is introduced that would support a contrary determination.

108.8 Compensation. Each member of the Board shall receive compensation, as set forth by the *building official*, for each meeting attended regardless of number or type of cases heard.

108.9 Appeals from decisions of the Board

108.10 Procedure. Any person subject to a decision of the Board may have that decision reviewed in the manner provided by the Colorado Rules of Civil Procedure. The Board shall not be required to return the original papers acted upon by it but may return copies thereof. The returned copies shall concisely set forth other pertinent facts and material to the decision appealed and shall be verified.

108.11 Effect of Appeal. The issuance of a writ on a petition hereunder shall not stay proceedings upon the decision appealed; but the court, on application after notice to the Board and on due cause shown, may grant a restraining order.

SECTIONS 109 THROUGH 119 ARE RESERVED.

SECTION 120
LICENSING, CERTIFICATION, REGISTRATION

Sections 120 through 125 provide for the licensing of contractors, the certification of supervisory personnel, and requirements for licensure, certification, registration, and renewal. Fire Department requirements for licensure are enumerated in Chapter 1 of the *Denver Fire Code*. There shall be various classes of certificates, licenses, and both plumbing and electrical registrations, with qualifications as set forth by the *building official*

per policy, and the holder thereof shall be authorized to perform work as set forth by this Codethis code and the *building official*.

SECTION 121
CONTRACTOR LICENSING OR REGISTRATION

121.1 Definitions.

1. *Contractor* means any person, firm, partnership, corporation, association, or other organization or any combination thereof who erects, constructs, enlarges, reconstructs, alters, repairs, moves, improves, removes, converts, demolishes, or equips any building, structure, or equipment as an occupation and as authorized by a license or registration. A contractor must have a certified supervisor or registrant as an employee or principal. All licenses or registrations shall be issued in the name of the contractor. If the contractor is an individual, then the individual may also qualify as the certified supervisor after examination.

2. *Certified Supervisor* means an individual who meets all the following:

   A. Passes the test required by the *building official* evidencing the certified supervisor's satisfactory knowledge of the applicable code or codes.

   B. Takes an active role in supervising and reviewing all work performed and materials used by the contractor in the process of construction.

   C. Acts as the agent for the contractor and is responsible for all actions in connection with the license and all permits obtained under the license.

   D. Is employed by only one contractor at any given time.

   E. Is the principal contact between the contractor and the Agency for code compliance, inspection requests, license renewal, and other obligations imposed by the Code.

3. *Registrant* means a master plumber or master electrician licensed in the State of Colorado and registered with the Agency.

121.2 Licenses or Registration Required. Licenses shall be required for any work requiring a permit. Electrical and plumbing contractors must register with the Agency.

Exceptions:

1. Public utility companies will not be required to obtain licenses when engaged in the installation, operation and maintenance of their equipment used for the production, generation, or distribution of the utility, product, or service through the facilities owned or operated by the utility company to the point of customer service.

2. Work performed by an owner and occupant of a single unit dwelling and when work is performed under a permit authorized by Section 131.4.

121.3 Application. Every applicant for a license or registration shall fill out a form provided by the Agency. The name of the certified supervisor or registrant shall appear on the license or registration application. The applicant shall be notified of the action taken on the license or registration application by the Agency. If the application is *approved*, the applicant shall procure the license or registration within 90 days of notification.

Failure of the applicant to procure the license or registration shall require the filing of a new application. If the application for license is denied by the *building official*, the applicant may appeal to the Board of Appeals in the manner provided for in this Codethis code.

121.4
RESERVED

121.5 Contractor licensing requirements for access control system work. A licensed *access control system contractor* is required to obtain the permit necessary to install *access control systems* and components, including but not limited to: delayed egress systems, telephone entry systems, electric door strikes, electromagnetic locking hardware, electrified locksets, electrically operated panic hardware, card readers, controllers, and other access control equipment. The *access control system contractor* may perform all work related to the installation of the *access control system*.

121.5.1 Access control system contractor license. The *access control system contractor* license is authorized and classified by the provisions of the *Code*. All applicable requirements of the Administration Section shall be satisfied in order to obtain the *access control system contractor* license. The access control contractor may perform all work directly related to the *access control system* except as limited by Section 121.5.2. The access control contractor may perform the following types of related work:

1. The installation of all *access control system* components including but not limited to: control panels, electromagnetic locking hardware, electrified locksets, *electric strikes*, electrically operated panic hardware, card readers and power supplies that are not hardwired to the building's electrical power distribution system.
2. The installation of all associated interconnecting wiring between *access control system* components necessary for operation of the system except electrical circuits that are powered with more than 48-Volt AC/DC.
3. The installation of raceways and conduits that only contain wiring for the interconnection of the various access control components.
4. The modification of doors and door frames required to install the various access control components if the modification does not void the *listing* and *labeling* of a fire rated door and/or door frame and the work necessary for the replacement of existing doors and/or door frames in existing openings.

An *electrical contractor* or an *electrical signal contractor* shall not perform the work that requires an *access control system contractor* unless allowed by other provisions of this Codethis code. The modification of doors and door frames may be performed by a properly licensed building contractor (Class A or B) or by one of the Class D building specialty contractors licensed to install or perform work on doors.

121.5.2 Requirements for work not performed by an access control systems contractor. The work related to the installation of the *access control system* listed below shall not be performed by the *access control system contractor*. Said work shall be performed by a contractor that is licensed by the classification provisions of the Code to perform the work as described in this Section:

1. The wiring and modifications necessary to connect the *access control systems* to the fire alarm system shall be performed by an *electrical signal contractor* or an electrical registration contractor.

2. The wiring and modifications necessary to connect the *access control system* to elevator control system shall be performed by a licensed elevator contractor.

3. Any work on electrical circuits that are powered by more than 48 Volt-AC/DC, including the hard-wiring of power supplies for the *access control system* to the building's power system, shall be performed by an electrical registration contractor.

4. The installation of conduits or raceways that are intended to contain wiring for any of the following types of circuits:

   A. Circuits that carry more than 48 Volt-AC/DC shall be performed by an electrical registration contractor.
   B. Circuits that are a part of the building's fire alarm system shall be performed by an *electrical signal contractor* or an electrical registration contractor.
   C. Circuits that are a part of an elevator control system shall be performed by an elevator contractor.

5. The construction of new walls and the installation of new doors and/or door frames in new openings shall be performed by a Class A or Class B building contractor or by one of the Class D building specialty contractors licensed to perform the work.

6. The work necessary to modify fire rated doors and door frames is required to be performed by the doors' manufacture or other *approved* door fabrication shop *approved* by the agency that provides the *listing* for the door and door frames.

SECTION 122
CERTIFIED SUPERVISOR CERTIFICATES

122.1 Certificate Application. Every applicant for a certified supervisor certificate shall be required to complete a form provided by the Agency.

122.2 Examinations. All applicants for a certificate shall pass a written examination with the exception of those who apply for a Construction D Supervisor Certificate. Such applicants shall be examined for experience and training by a standard procedure established by the *building official*. If an applicant who has successfully passed the examination given by the Agency fails to procure this certificate within 90 days of notification, the certificate shall be declared null and void and a new application shall be filed.

122.3 Reciprocal Certificate. certificates issued by other jurisdictions are not valid in the City, however the *building official* may accept the examination results of the issuing jurisdiction as equivalent when requested, as part of a completed application with supporting documents, and required application fees.

122.4 Requirements. A license shall be valid only as long as the named supervisor remains in the employ of the licensed contractor in an active, full-time capacity. "Active, full-time capacity" means that the supervisor shall be available, virtually, by phone, at the local office of the contractor, at home, or at the job site within a reasonable period of time. If the certified supervisor should leave the employ of the licensed contractor, the licensed contractor shall notify the *building official* within 3 working days after the termination. Failure of the licensed contractor to notify the *building official* shall be cause for suspension or revocation of the license. The licensed contractor shall be required to obtain a certified supervisor within 30 working days after the date the supervisor leaves the employ of the licensed contractor. If a supervisor is not obtained within the 30 working-day period, the license shall be deemed suspended until a certified supervisor is obtained and the *building*

official is notified. Licensed contractors may employ multiple certified supervisors in order to meet the city's requirement that a supervisor of record perform on site supervision of all work performed. General supervision over all trades must be performed only by certified supervisors certificate holders who have agreed to work as supervisors of record on the specific license for all permitted work under the Code. The Certificate is personal to that certified supervisor and shall not be construed to be a license.

SECTION 123 RESERVED

SECTION 124
EXAMINATION STANDARDS AND REVIEW

124.1 Examination Standards. The *building official* shall establish minimum standards for the education and experience and develop standards for the examination of applicants for certificates. The standards shall be consistent with the purpose of this Codethis code, which is to provide for the public health, safety, and welfare to the extent that those persons examined are to be found qualified in terms of their skills, Code knowledge, practical experience, and knowledge of pertinent laws to perform the construction work for which they may be certified. The Agency shall examine applicants in the areas of this Codethis code applicable to the type of license, certificate, technical knowledge, and specific skills.

124.2 Standards Review. The standards shall be reviewed by the *building official* as required to maintain currency with changes in the Code and building construction practices.

SECTION 125
RENEWAL, REISSUANCE, CHANGES AND FEES

125.1 Renewal and Expiration. Licenses, registrations, and certificates shall be renewed every 3 years and expire on the date specified on the certificate. However, plumbing registrations shall be renewed every 2 years. No work shall commence or continue after the date of expiration.

125.2 Reissuance.

125.2.1 Licenses. The *building official* may reissue an expired license or registration without the filing of a new application, provided that the reissuance is accomplished within one year after the license has expired.

125.2.2 Certificates The *building official* may renew an expired certificate, provided that the renewal is accomplished within the limits set forth herein.

1. The certificate may be reissued without submission of a new application, provided that such reissuance is accomplished within one year of expiration of the original certificate.
2. If the certificate holder reapplies within 3 years of the date of expiration of the original certificate, a new certificate examination shall not be required.
3. If the certificate holder applies more than 3 years after expiration, a new certificate application and examination shall be required.

125.3 Changes.

125.3.1 Change of Name. The change of name by a licensed or registered contractor shall be reported to the Agency within 15 days after making the change, on a license or registration application provided by the Agency. An application fee as established by the *building official* shall be required.

125.3.2 Change of Address. A change of address of a licensed or registered contractor shall be reported to the Agency within 15 days after making the change.

125.3.3 New Licenses Required. A new license or registration shall be obtained within 30 days after the creation of a new legal entity, even if one or more of the members, officers or directors have a license or are registered, on a license application provided by the Agency.

125.3.4 Dissolution. The dissolution of a firm, partnership, corporation, association, or other organization, which has been licensed or registered, terminates the license or registration and no person may operate under that license or registration.

125.4 Fees. Licenses, Registrations, and Supervisor Certificates fees shall be set forth by the *building official* and paid every 3 years to the Agency.

Exception:

The certificate fees for employees of the City shall be waived when performing work for the City or when employed by the Agency.

125.4.1 Fee Refund. Licenses and Certificate fees shall not be refundable.

SECTION 126
LICENSED CONTRACTOR, REGISTRANT AND CERTIFICATE HOLDER RESPONSIBILITY

126.1 Licensed Contractor Responsibility. Licensed contractors shall be responsible for performing all work in conformity with the provisions of the Code, including, but not limited to, the following items:

1. To provide minimum safety measures and equipment to protect workmen and the public.
2. To employ a full-time qualified supervisor certified in accordance with the requirements of this Codethis code.
3. To obtain a permit when required prior to commencing work.
4. To hire licensed subcontractors for those trades that require a City and County of Denver license.
5. To faithfully construct, without departure from drawings and specifications filed and *approved* by the Agency and permit issued for same, unless changes are *approved* by the Agency.
6. To complete all work authorized by the permit issued under the authority of this Codethis code, unless acceptable cause is indicated to the *building official*.
7. To obtain inspection services where required by this Codethis code.
8. To pay any fee assessed under authority of this Codethis code.
9. To obey all orders or notices issued under the authority of this Codethis code.

10. To provide toilet facilities prior to and during construction or demolition.

11. To maintain with the Agency a current mailing address. Any Order, Notice, Summons and Complaint or other Agency communication, whether delivered by personal service or by mail sent to that address, shall constitute service.

126.2 Registrant Responsibility. Registered electrical and plumbing contractors shall comply with all provisions of Section 126.1 above and in addition shall respectively comply with all provisions of the Colorado State Electrical Board and Colorado State Plumbing Board.

126.3 Certificate Holder Responsibility. All Certificate holders shall be responsible for performing all work in conformity with the provisions of the Code, including, but not limited to, the following items:

1. To have in possession at all times a Certificate.

2. Observe the safety requirements of this Codethis code.

3. To present a Certificate when requested by the Agency within a reasonable amount of time.

4. To obtain a permit when required prior to commencing work.

5. To faithfully construct, without departure from drawings and specifications filed and *approved* by the Agency and permit issued for same, unless changes are *approved* by the Agency.

6. To report in writing to the *building official*, within 3 working days, any accident occurring on any construction which results damage to the building, structure or equipment, and any accident occurring during demolition.

7. To complete all work authorized by the permit issued under the authority of this Codethis code unless acceptable cause is indicated to the *building official*.

8. To obtain inspection services where required by this Codethis code.

9. To pay any fee assessed under the authority of this Codethis code.

10. To obey all orders or notices issued under the authority of this Codethis code.

11. To actively supervise and oversee all work performed by or for the licensee by whom he is employed.

12. To maintain with the Agency a current mailing address. Any Order, Notice, Summons and Complaint or other Agency communication, whether delivered by personal service or by certified, registered or first-class mail sent to that address, shall constitute service.

13. Out of state Certificate holders shall maintain a current local mailing address on file with the Agency and accept all mail so addressed for the duration of the job.

14. To notify the Agency within 3 days whenever he/she leaves the employ of licensee.

126.4 Demolition and Moving Liability Insurance. Any contractor demolishing or moving any building, structure, or equipment shall, by means of commercial insurance or self-insurance, procure and maintain insurance coverage to fulfill the insurance requirements set forth by policy. The required insurance coverages shall be kept in force at all times during demolition or moving operations. The insurance coverages set forth in the policy are the minimum requirements, and these requirements do not lessen or limit the liability of the contractor. The contractor shall maintain, as its own expense, any additional kinds or amounts of insurance that

it may deem necessary to cover its liabilities. The contractor will submit evidence of required insurance coverage in the form of an ACORD certificate. The City's Risk Management Office may require additional proof of insurance, including but not limited to, policies and endorsements. Additional insurance coverage may be required by the Office of Risk Management for contractors utilizing explosives in their demolition operations.

SECTION 127
DENIAL, SUSPENSION OR REVOCATION OF LICENSE OR CERTIFICATE

127.1 Authority. The *building official* may deny, suspend, or revoke a license or supervisor certificate resulting from any of the following acts or omissions:

1. Subsequent discovery of facts that if known at the time of issuance or renewal of a license or certificate would have been grounds to deny the issuance or renewal of a license or certificate.
2. Negligence, incompetence, lack of knowledge, or disregard of this codethis code and related laws and rules.
3. Failure to notify the *building official* in writing within a period of three (3) working days of any disassociation of the certified supervisor who enabled the licensee to qualify for the license.
4. Knowingly entering into a contract with a contractor for work to be performed for which a license is required with a person not duly licensed in the required classification.
5. Failure to comply with any of the licensee or certificate holder responsibilities as outlined in this Codethis code.
6. Allowing one's license or certificate to be used by another person.
7. Acting as agent, partner, associate or in any capacity with persons to evade the provisions of this Codethis code.
8. Creates, because of work performed, an unsafe condition as defined by this Codethis code.
9. Intentionally or fraudulently misrepresents the condition of any structure or equipment, or the requirements of this Codethis code.
10. Fraud, misrepresentation, or bribery in securing a sign-off of work or a temporary or permanent certificate of occupancy. Violates or disregards any of the provisions of this Codethis code or fails to obey orders of the *Building Official.*
11. Threatens or assaults any representative of the Agency.
12. Receives a conviction or judgement by a court having competent jurisdiction for negligence, a felony, or civil or criminal fraud, constructive or actual related to the license or certificate holder's duties or work as regulated by the jurisdiction under this Codethis code.

127.2 Procedure. When any of the acts or omissions enumerated herein is committed by a licensed contractor or certificate holder and the *building official* deems that the license or certificate shall be suspended or revoked, the action shall be as follows:

1. **Notification.** The Agency shall send written notice to the licensed contractor or certificate holder, by certified mail or by personal service, identifying the acts or omissions and indicating that the license or

certificate will be suspended or revoked. The written notice shall advise the licensed contractor or certificate holder that a "Request for Hearing" may be initiated as outlined herein.

2. **Request for Hearing**. Upon receipt of the notice, the licensed contractor or certificate holder may request a hearing with the Executive Director of CPD to show cause why the license or certificate should not be suspended or revoked. This request shall be submitted in writing to the *building official* within 7 days of receipt of the notice.

3. **Time of Hearing**. If a hearing is requested by the licensed contractor or certificate holder, the *building official* shall notify the holder of the time, date and place of the hearing. Suspension or revocation of the license or certificate shall be stayed pending the hearing.

4. **Attendance**. The licensed contractor or certificate holder, the *building official* and other interested parties may be in attendance at the hearing. In the event the licensed contractor or certificate holder fails to appear, the license or certificate shall be suspended or revoked by the *building official*. Upon completion of the hearing, the Executive Director of CPD shall take under advisement all evidence available as a result of the Agency's investigation and all evidence presented at the hearing and shall give written notice of the findings and ruling to the license or certificate holder by certified mail or personal service. The Executive Director of CPD may appoint a hearing officer to conduct the hearing. Final decision shall be rendered by the Executive Director of CPD.

5. **Suspension or Revocation**. Unless the license or certificate is being suspended or revoked under the emergency provisions of this Section, the suspension or revocation shall take effect:

   A. Seven (7) days after receipt by the license or certificate holder of the initial notification, unless a hearing is requested.

   B. Upon the return by the U.S. Postal Service of the initial notification as undeliverable or refused at the address maintained by the license or certificate holder with the Agency.

   C. If a hearing has been requested, which resulted in the affirming of the *building official*'s decision to suspend or revoke the license or certificate, upon receipt by the Agency of the Executive Director's decision.

6. **Right to Appeal.** Any final decision by the Executive Director of CPD may be reviewed in the manner provided by the Colorado Rules of Civil Procedure.

127.3 Emergency Suspension or Revocation. If the *building official* finds that cause exists for emergency suspension or revocation of a license or certificate, and that continued work under the license or certificate could be hazardous to life or property, the *building official* may enter an order for the immediate suspension or revocation of the license or certificate, pending further investigation. The license or certificate holder may request a hearing, as outlined in this Section, and such hearing shall be granted within five (5) business days. The suspension or revocation is not stayed while the hearing is pending.

127.4 Term of Suspension or Revocation. The *building official* may suspend or revoke a license or certificate for up to three (3) years. A license or certificate revoked by the *building official* shall not be eligible for reapplication for a period of up to five (5) years.

SECTIONS 128 THROUGH 129 ARE RESERVED.

SECTION 130

PERMITS AND INSPECTIONS

130.1 Permits Required. No person, firm, partnership, corporation, association, or other organization or any combination thereof shall erect, construct, enlarge, remodel, alter, repair, move, improve, remove, convert, demolish, or change the occupancy of any building, structure or equipment, or perform any other work regulated by this Codethis code, or cause the same to be performed, in the City, without first having obtained a permit from the Agency for the specific work to be performed. This permit shall be displayed or available on the job site at all times. The issuance of a permit or the approval of drawings and specifications shall not be construed to be a permit for, nor an approval of, any violation or deviation from the provisions of this Codethis code or other ordinances, laws, Rules, or Regulations. The Agency shall take any action it deems necessary to ensure that all work performed meets all requirements of this Codethis code. For work performed on an emergency basis outside of normal business hours (8:00 AM – 5:00 PM, Monday – Friday, except city holidays), and to maintain an existing service or equipment when the maintenance is necessary to protect health, life or safety, the application for a permit shall be made within 3 normal working days after commencement of the emergency work. All emergency work is required to meet this Codethis code and the Agency may require modifications to installed elements or systems accordingly.

130.2 Inspections Required. All work for which a permit is required shall be subject to inspection by the Agency and all such work shall remain accessible and exposed for inspection until *approved* by the Agency. In addition, certain types of construction shall have continuous inspection as specified in Section 141. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this Codethis code or of any other City ordinances. Inspections presuming to give authority to violate or cancel the provisions of this Codethis code or of other ordinances shall not be valid. It shall be the duty of the permit applicant to cause the work to remain accessible and exposed for inspection. Neither the Agency nor the City shall be liable for expense entailed in the removal or replacement of any material required to allow inspection. A survey of the lot may be required by the Agency to verify that the structure is located in accordance with the *approved* plans.

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

1. One-story, detached, non-conditioned accessory buildings or structures; used as tool and storage sheds, playhouses, and similar uses; no more than 200 square feet (18.58 m^2) of projected roof area, 8 ft (2438 mm) top plate height, or 14 ft (4267 mm) maximum height to any point. Heights shall be measured from lowest adjacent grade to the accessory structure. A maximum of two lights and two receptacles are permitted with a valid electrical permit.

2. Fences of any type not over 4 feet (1220 mm) high. Posthole-dug fences up to 8 feet (2440 mm) high, such as chain link, cedar pine, redwood, and wrought iron. However, any fence providing a barrier for a swimming pool or spa requires a permit.

Exception:

When the fence is for a structure that is a designated structure for preservation or is in a district designated for preservation pursuant to Chapter 30, Denver Revised Municipal Code, a building permit and approval from the local preservation authority shall be required.

3. Retaining walls, including fences or walls on top of retaining walls, not over 4 feet (1220 mm) in aggregate height measured from the bottom of the footing to the top of the wall or fence, unless supporting a surcharge or impounding Class I, II or III-A liquids. Permits shall be required through the Department of Transportation and Infrastructure for all retaining walls constructed in association with water detention or retention ponds.

Exception:

When the retaining wall is for a structure that is a designated structure for preservation or is in a district designated for preservation pursuant to Chapter 30, Denver Revised Municipal Code, a building permit and approval from the local preservation authority shall be required.

4. Oil derricks.

5. Nonfixed and movable fixtures, cases, racks, counters, and partitions not over 5 feet 9 inches (1750 mm) high.

6. Water tanks supported directly upon grade where the capacity does not exceed 5,000 gallons (18,930 L) and the ratio of height to diameter or width does not exceed 2 to 1.

7. Flatwork (hardscape) including sidewalks, ramps, and driveways less than 30 inches (760 mm) above grade, not over any basement or story below and not part of an accessible route.

8. Uncovered decks not exceeding 200 square feet (18.58 m^2) in area, that are not more than 30 inches (762 mm) above grade at any point, and are regulated by the *Denver Residential Code*.

9. Painting, papering, tiling, floor coverings, countertops, carpeting, cabinets, curtains, drapes, and similar decoration items except those items regulated by Chapter 8 of the *Denver Commercial Building Code*.

10. Gypsum board (drywall) that is not part of a fire resistive rated assembly and if repairing or replacing not more than 32 square feet.

11. Temporary motion picture, television and theater stage sets or scenery.

12. Window awnings supported by an exterior wall of one- and two-family dwellings, townhouse units, Group R-3 and Group U Occupancies when projecting not more than 54 inches (1370 mm) over privately owned property and do not require additional support.

13. Prefabricated swimming pools accessory to one- and two-family dwellings, townhouse units, and Group R-3 Occupancies that are less than 24 inches (610 mm) deep, are not greater than 5,000 gallons (18 925 L) and are installed entirely above ground.

14. Public utility: Construction, repair, or maintenance of public utility equipment and facilities used in the storage or distribution of their utility. This exemption includes buildings whose primary function is to house utility distribution or signal control equipment and not intended for human occupancy. Buildings or structures enclosing energy storage systems (batteries) are not exempt from a permit.

15. RTD Light and Commuter Rail construction on RTD right-of-way. Refer to Section 103.9.

16. State and federal governments, their agencies or subdivisions, or contractors constructing improvements for said State and federal governments, their agencies, or subdivisions, when constructing improvements to be used by, and maintained entirely and strictly for the operation of said governments.

17. Replacement of glass not in hazardous locations (see Section 2406.4 of the *Denver Commercial Building Code*).

18. Site development work including grading, water detention/retention ponds and soil erosion control. The Department of Transportation and Infrastructure will require permits for this type of work.

19. Denver Public Schools (D.P.S.): Construction, remodeling, or repair of any plumbing or electrical system, except for fire alarm and detection systems, in any portion of a building in which instruction is or will be given by any D.P.S. school as long as such work is permitted and inspected by the State Examining Board of Plumbers or the State Electrical Board.

20. Tents, 200 sq. ft. or less and freestanding canopies with a covering of fabric or pliable material 400 sq. ft. (37 m^2) or less, open on 3 or more sides.

21. Membrane structures, including tents and canopies of any size, erected for a period of less than 180 days. The Fire Department will require permits for this type of work.

22. Illuminated and non-illuminated signs of the following types do not require a construction permit. Illuminated signs require an electrical permit.

    a. Cloth signs mounted directly on a wall.

    b. Wall signs not exceeding 200 sq. ft. (19 m^2) in area.

    c. Ground signs not exceeding 150 sq. ft. (14 m^2) in area, or not exceeding 6 feet in height to the top of the sign.

    d. Projecting signs not exceeding 2.5 sq. ft. (0.23 m^2).

23. Replacement of awning fabrics.

24. Replacement of windows and doors with no structural alterations and no change in size of opening in one- and two-family dwellings and townhouse units.

    Exception: When structure is a designated structure for preservation or is in a district designated for preservation pursuant to Chapter 30, Denver Revised Municipal Code, a building permit and approval from the local preservation authority shall be required.

25. Swings, playsets, slides, treehouses, and other playground equipment intended for children's use whether premanufactured or custom-built.

26. Temporary structures or temporarily placed relocatable buildings for use by licensed contractors at the construction or demolition site. An electrical permit is required unless otherwise exempted by Section 130.3.2.

27. Construction trailers used exclusively by the contractor for the purpose of managing projects that are not open to the general public and that are completely within the property lines of the project. An electrical permit is required.

28. Excavations that are exempt from excavation, shoring, sloping, or benching permits as clarified through building code policy.

130.3.1 Mechanical. No mechanical permit shall be required for bath fan installation in existing one- and two-family dwellings and townhouse units, however, electrical and construction permits shall be required. No mechanical permit shall be required for all general repairs and replacements of like units unless the work involves disconnection and reconnection of any of the following:

1. Natural gas line (except replacement of gas valve with like unit).
2. Flue vent from fuel-fired appliance.
3. Refrigerant line.
4. Steam line or hot water line.
5. Safety controls on high pressure boilers.

130.3.2 Electrical. No electrical permit shall be required for work that is exempt from permit requirements in the current National Electrical Code, as adopted by the State of Colorado, or for work that is exempt from permit requirements under the provisions of Title 12, Article 23, Section 111, Colorado Revised Statutes, as amended.

130.3.3 Plumbing. No plumbing permit shall be required for:

1. General repairs in one- and two-family dwellings and townhouse units that do not alter existing systems, including replacement of like units such as bathroom/kitchen sinks, garbage disposals and water closets.
2. Replacement of sinks, garbage disposals and water closets with like units; faucet and trap replacement or repair in commercial buildings. Permit shall be required for all other plumbing work in commercial buildings.

SECTION 131
PERMIT APPLICATION AND ISSUANCE

131.1 Application. The owner or the owner's agent shall apply for a permit through methods described by the Agency. The applicant should exercise care in completing the necessary information, especially addresses, as permits are nontransferable, unless the address change is approved by the *building official*.

Exception: The Agency may correct minor errors in the address if the change can be made on all copies of the permit and initialed by the inspector.

131.2 Expiration of Application. If no permit is issued within 180 days following the most recent Agency review on the submittal, the application shall expire, and plans and other data submitted for review may thereafter be disposed of by the *Agency*. The *building official* may extend the time for action by the applicant for a period not exceeding 180 days upon approval of written request showing that circumstances beyond the applicant's control have prevented action from being taken. An additional extension of 60 days may be granted by the *building official* upon written request due to extenuating circumstances beyond the applicant's control and not previously relevant to the timeline of the project. Furthermore, the application shall expire if the plan review fee is not paid within 45 days of the Agency notifying the applicant that the fee is ready to pay. After expiration, the applicant shall submit a new application with the design plans complying with the Code in effect at the time of the new application and pay additional plan review fees.

131.3 Issuance of Permits. The Agency shall issue permits to perform *approved* work shown on submitted documents and as specified on the permit, when all phases of the project conform to the requirements of this Codethis code and those of the Department of Transportation and Infrastructure, Zoning Administration, Denver Department of Public Health and Environment, Denver Water, Denver International Airport, the Denver Fire Department, applicable Section 138 fees associated with the permit have been paid, and the permit is issued, as appropriate, to:

1. A contractor licensed or registered under Section 121.

2. A homeowner(s) or legally authorized agent applying for a permit under Subsection 131.4.

3. The owner or owner's agent of a Group R-1, R-2, R-3, or R-4 occupancy building installing battery-operated smoke detectors.

4. An owner or owner's agent to establish a new Certificate of Occupancy when no construction work is to be done.

131.3.1 Amended construction documents. Work shall be installed in accordance with the approved construction documents, and any changes made during construction that are not in compliance with the approved construction documents shall be resubmitted for approval as an amended set of construction documents and based on the Code in effect at the time of original construction drawing application submittal to the Agency.

131.4 Homeowner (owner-occupier) permits.

131.4.1 Definitions:

DESIGNATED WORKER. The individual who will be assisting the owner-occupier with the owner-occupier permitted work and may assist the owner-occupier with the owner-occupier exams required by item #1 of Section 131.4.2. This individual cannot accept payment from the owner-occupier for services rendered without written request and approval from the *building official*. The individual who will be assisting the owner-occupier must be identified on the owner-occupier permit.

OWNER-OCCUPIER. The natural person listed in the Assessor's records who owns and occupies a single-unit dwelling, or who owns and occupies such single-unit dwelling they wish to construct.

SINGLE-UNIT DWELLING. The primary (stand-alone) structure, housing a single dwelling unit which is the domicile for the owner-occupier. Duplexes, townhouse units, condominiums, apartments, and commercial buildings are not single-unit dwellings. Note: For the purposes of this section, accessory dwelling units are not considered single-unit dwellings.

131.4.2 Permits. Permits may be issued to the owner-occupier of a single-unit dwelling in the following circumstances:

1. The owner-occupier must be the individual seeking the permit and submitting to take the exam. An individual who has been granted Power of Attorney by the natural person who owns and occupies the single-unit dwelling may apply for a permit in the owner-occupier's name, by providing the original, City Clerk recorded Power of Attorney to the permitting staff. However, this individual who has been granted Power of Attorney may not assist with the exam or perform the work unless they are the designated worker.

2. The owner-occupier of an existing single-unit dwelling may be issued permits and conduct work on their own single-unit dwelling and accessory structures, but excluding accessory dwelling units and excavations and shoring more than 4 feet in depth, after passing discipline-specific exams.

3. The owner-occupier of an existing single-unit dwelling may be issued permits and conduct all work in the construction of new accessory structures (including detached garages but excluding accessory dwelling units) after passing all applicable discipline specific exams. Such permits shall only be issued to a person previously named on a permit as an owner-occupier once in any five (5) year period.

4. The owner-occupier, who intends to construct a new single-unit dwelling, may be issued permits and conduct work on their new dwelling after passing all applicable discipline-specific exams. Such permits shall only be issued to a person previously named on a permit as an owner-occupier once in any five (5) year period. Excavation and shoring more than 4 feet in depth shall be conducted by an appropriately licensed contractor.

5. The owner-occupier must perform the work for which he/she has obtained the permit. In performing the work authorized by the owner-occupier permit, the owner-occupier may utilize the assistance of the designated worker.

When the owner-occupier wants to act in the capacity of general contractor, he/she must request written approval from the *building official*. Such request must include the name(s) of the property owners, the property address, and a statement that they will hire licensed (in the City and County of Denver) contractors to perform any work that they are not doing themselves.

6. To take the owner-occupier exam for the work to be performed, the owner-occupier must provide a current Colorado Photo ID or Driver's License. The name on the ID must match the name listed on the Assessor's property record to verify property ownership. To assist with the test, the designated worker must supply a current Colorado Photo ID or Driver's License. A Colorado temporary Driver's License, other State-Issued Photo ID or Driver's License, Passport, or Federal Issued Permanent Resident Card ("Green Card") may also be accepted with the *building official*'s approval.

7. The owner-occupier must sign a Notice of Requirements for Owner- Occupier Permits.

8. In order to be issued permits, the owner-occupier must show a valid Colorado driver's license or photo I.D. that matches the property owner name listed in the Denver Assessor's records.

Exceptions:

1. The applicant for a homeowner's permit to perform electrical, heating, cooling or plumbing work shall pass an examination related to the work being performed and shall personally perform the work, unless *approved* by the *building official*. Upon verification of their State issued electrical or plumbing license, the applicant will not be required to take the homeowner's examination. A helper may assist the homeowner in taking the examination and performing the work with the approval of the *building official*. The helper may not repeatedly act in this capacity for other homeowner's permits.

2. A permit for minor work involving the volunteer services of persons working through a recognized volunteer organization, or of other qualified individuals, may be issued to the owner occupant of a single-family dwelling, or miscellaneous building upon request in writing and approval by the *building official*

131.5 Transfer of Permits. Permits shall not be transferred without first submitting a request to the Agency and obtaining a new permit with the revised information.

131.6 Cancellation of Permit by Contractor. The contractor may cancel the permit by notifying the *building official*. A new permit shall be obtained for the work to be completed. An administrative fee as set forth by the *building official* will be charged. Additional administration, plan review and inspection fees may be charged to recover the cost incurred by the Agency.

131.7 Voided Permit.

1. A construction permit shall become null and void when:
    a. Work is not commenced within 60 days from the date of permit issuance; or
    b. Work is suspended or abandoned for a period of 60 days after work is commenced; or
    c. No request for any kind of inspection has been made for a period of 60 days.
2. A demolition permit shall become null and void when:
    a. Work is not commenced within 30 days after the date of issuance.
    b. Work is suspended or abandoned for a period of 10 days after work is commenced.
3. Before work can be recommended, new plans shall be submitted, and a new permit obtained. Any fees shall be in accordance with the current fee schedule.

131.8 Suspension, Revocation, New Permits.

1. The *building official* may suspend or revoke any permit for any of the following reasons:
    a. When a permit has been issued in error.
    b. When the nature, scope or details of a project have been misrepresented to the Agency by the applicant, design professional, owner, or owner's agent.
    c. When there is a violation of any provisions of this Codethis code or any City ordinance which the Agency is empowered to enforce.
    d. When the continuance of any work becomes dangerous to life or property. When the work built or constructed in the field differs from that of the plans approved by the Agency
2. The *building official* may re-establish a suspended permit within one year of permit suspension, provided that all conditions leading to the suspension are abated, the same series of this Codethis code is in force, and upon payment of a fee as set forth by the *building official*. A suspended permit that is not so re-established shall require submission of a new permit application for consideration, under the series of Code enforced at that time.
3. A revoked permit shall not be re-established but shall require submission of a new permit application for consideration, under the series of Code enforced at that time.
4. Notice of the suspension or revocation of a permit for reasons stated in this Section shall be in writing and shall be served upon the holder of the permit and the owner. It shall be unlawful to proceed with any work once the notice is served.

131.9 Access control system permit. In order to perform work on an *access control system* an access control permit shall be obtained prior to the start of work on the system. All the provisions of Section 131.9 shall be satisfied prior to the issuance of an *access control system* permit.

The Access Control Permit allows the installation of *access control systems* and electric door locks in existing buildings, additions, and new buildings. The Access Control Permit allows all the following types of permits and their corresponding *access control system* related work to be combined into one application (all permit types may not be required for each *access control system* application):

1. Construction Permit – Work performed for the installation of doors or *approved* modifications to doors and door jambs.

2. Fire Alarm Permit – Work performed for the interconnection of the *access control system* with the fire alarm and *fire detection system*.

3. Electrical Permit – Work performed for the installation of the *access control system* or component that requires circuits that carry more than 48 Volt AC/DC, and work performed for an existing luminaire to provide emergency lighting required for the *access control system*. A new luminaire provided for emergency lighting requires a separate electrical permit.

131.9.1 Work requiring an access control permit. An *access control system* permit is required when a new *access control system* or electric locking systems are being installed or an existing system or electric lock is being modified in any new or existing building. An access control permit is also required when the *access control system* is installed outside of a building and any one of the following conditions occur:

1. The exterior *access control system* limits or affects the occupants of the building in their ability to reach the public right-of-way or a required safe dispersal area as required by Section 1028.5 of the *Denver Commercial Building Code*.

2. The exterior *access control system* limits or restricts the use of an accessible route into the building.

3. The exterior *access control system* is interfaced and connected with a building's fire alarm system.

4. The exterior *access control system* is interfaced and connected to a building's elevator system.

131.9.2 Scope of work covered by an Access Control Permit. The Access Control Permit must be completed by the following licensed contractors as required by Section 121.5.1 and Section 121.5.2:

1. Access Control System Contractor

2. Electrical Signal Contractor

3. Electrical Registration Contractor

4. Building Contractor: Class A or B

5. Building Specialty Contractor Class D (related to the installation of new door and door frames and the *approved* modification of fire rated and *labeled* door and door frames).

Although the name and license number of the elevator contractor is required to be provided on the Access Control Permit, the work related to the elevator system is not covered by the Access Control Permit. A separate elevator permit shall be obtained by a licensed elevator contractor in conjunction with the Access Control Permit when the *access control system* interfaces with the elevator system.

131.9.3 Issuance of an Access Control Permit. An Access Control Permit shall only be issued to a properly licensed *access control system contractor*.

Exception: The Access Control Permit may be issued to a properly registered electrical registration contractor unless the *access control system* requires any of the following types of work or cause any of the following conditions to occur:

1. Limits or restricts *mechanical free egress*.

2. Requires work to install or modify fire rated door and/or door frames.

3. Requires work to replace doors and/or door frames.

*Contractors may print a copy of the permit inspection re*cord card available on the CPD website. Alternatively, CPD will provide a permit inspection record card to the contractor upon issuance of the permit. The Access Control Permit contractor is responsible for obtaining the required signatures on this card for all work requiring inspection and approval by CPD.

131.9.4 Access Control Permit application requirements. All the submittal requirements of Section 131.9.4 shall be satisfied prior to acceptance of the Access Control Permit application by the Agency.

131.9.4.1 Application procedures. The applicant for the Access Control Permit shall be the contractor that will be performing the access control work or their authorized representative. The applicant is responsible for completing the permit application on the form provided by the Agency. A complete description of work is to be provided with the application. The names and license numbers of the other contractors that will be performing work under the Access Control Permit shall be provided on the permit application. If the *access control system* interfaces and connects with the building's elevator system, the name and license number of the elevator contractor shall be provided on the permit application for the Access Control Permit. The permit application along with all the other submittal items required by Section 131.9.5.2 shall be presented for acceptance in the manner and at the location established by the Agency.

131.9.4.2 Plan submittal requirements. Two sets of drawings, or one electronic set of drawings showing the entire scope of the work to be performed shall be submitted with the Access Control Permit application.

131.9.4.2.1 Responsible designer. The drawings shall be prepared under the direction and control of one of the following:

1. A licensed *access control system contractor*. The contractor shall indicate their review and acceptance of responsibility for the system's design by providing an original signature and the date of signature along with their contractor license number on each drawing sheet. Alternatively, electronic drawings shall have contractor's company name and license number on each sheet and the electronic drawing file shall have a single electronic signature and date on the first sheet.

2. A licensed *access control system* supervisor. The supervisor shall indicate their review and acceptance of responsibility for the system's design by providing an original signature and the date of signature along with their contractor license number on each drawing sheet Alternatively, electronic drawings shall have supervisor's name and certificate number on each sheet and the electronic drawing file shall have a single electronic signature and date on the first sheet.

3. A Colorado licensed design professional. The design professional shall indicate that they are the person responsible for the design of the system by placing their State of Colorado design professional seal on each drawing sheet. The seal shall be original, or computer generated. The signature and date of signature shall be original. drawings shall have design professional seal on each sheet and the electronic drawing file shall have a single electronic signature and date on the first sheet.

The name, mailing address and phone number of the person accepting responsibility for the drawings and system design shall be indicated on the plans submitted with the Access Control Permit application in accordance with the Access Control Permitting Guide.

131.9.4.2.2 Drawing content. The plans submitted shall provide all the following information:

1. The address of the building shall be included on the drawings along with a description of the location of the work.

2. The plans shall clearly indicate all doors that have *mechanical free egress*. If *mechanical free egress* is not being provided, as allowed by the provisions of this appendix, the plans shall clearly indicate the doors that do not provide *mechanical free egress*.

3. Floor plans, drawn to scale, showing the device locations and door swing direction in plan view(s). The location of all equipment involved shall be shown on the plan view(s). The location of exit signs and the path of egress shall be shown. The floor plans shall provide sufficient information so that the effect of the *access control system* on the means of egress from the floor can be fully evaluated.

4. A door and hardware schedule that specifies the type and size of each door and the hardware type and function being provided on each door.

5. A detailed narrative shall be provided that describes the system sequence of operations.

6. When the installation of the system requires the penetration of fire rated assemblies, details and/or specifications shall be provided that indicate how the fire rating of the assembly will be maintained at the penetration in accordance with Chapter 7 of the *Denver Commercial Building Code*.

7. A one-line diagram of the system design shall be provided. The diagram shall include the source of power, battery backup if provided, and interconnection with burglar alarm, fire alarm, or elevator control systems if provided. All devices in the design shall be shown on the one-line diagram. When the source of power is provided by a plug-in power supply such device shall be clearly noted on the diagram.

8. Point-to-point wiring details of all connections, including all interconnections to other building systems shall be shown. Other building systems include but are not limited to: the power distribution system, the fire alarm system, and the elevator control system.

9. Manufacturer's specification sheets for all devices that are part of the scope of work shall be provided. Specification information shall include the *approved* testing agency's file number for each device. One complete set of specification sheets should be attached to each set of plans.

131.9.4.3 Other submittal requirements. When fire rated door and or door frames are shop modified to accommodate the *access control system* installation, documentation shall be submitted with the permit application that indicates the modifications performed and the name of the shop that performed the modifications to the door or door frame. All modifications to fire rated door and door frame assemblies shall be performed by a shop that is *approved* by the *listing* and *labeling* agency as an *approved* fabricator.

131.9.4.4 Valuation of work. The applicant shall provide a statement for the valuation of the work to be performed under the *access control system* permit. The valuation of work shall be provided on the Access Control Permit application form provided by the Agency. The valuation of work shall include the contractor's profit, cost of materials, labor and overhead.

131.9.4.5 Plan review fee. Once the Access Control Permit application is reviewed and determined to be complete the applicant shall be required to pay the plan review fee required by the *Code*.

131.9.4.6 Plans review. Upon payment of the plans review fee the Access Control Permit application will be placed in the queue of the tracking system for the plans review process. The applicant will be given an application tracking number (log number). Once the plans review has been performed the applicant will be notified if the application is approved or denied. If the application is denied, the applicant will be provided with a written list of comments that describe the reasons for the denial of the application. Upon resolution of the plans review comments the application will be *approved*. The permit will be issued upon payment of the Access Control Permit fee and any additional plan review fee or other fee required by the *Code*.

SECTION 132
PERMIT APPLICATION

132.1 General. Submission of an application for permit, including drawings and specifications shall be required for review and approval by the *building official* prior to the issuance of a permit, except as set forth in Subsection 132.2.

132.2 Drawings Not Required. Drawings, specifications and engineering reports need not be submitted in the permit application for the construction, demolition or moving of minor buildings, additions, structures or utilities; or for minor alterations and repairs to existing buildings, structures or utilities when the *building official* is satisfied that the strength, safety, sanitation and fire resistance are adequately described on the permit application, or when he/she is satisfied that such construction, alterations, repair, demolition or moving will not substantially increase the hazard present in a Special Construction Zone.

132.3 New Construction, Additions, Alterations or Repairs. Application for a permit shall be accompanied by the following:

1. Drawings including the information required in this Section.
2. Copies of an engineering report containing studies and test results concerning the hazards present on the building, demolition or moving site when such site is within an area designated as a Special Construction Zone under Article VII, Chapter 10 of the Revised Municipal Code. Each report shall contain adequate information as a result of tests to allow identification of the hazards present, recommendations as to methods of minimizing the hazards during construction and methods for controlling the identified hazards likely to be present after construction. The Public Health Inspection Division and the Fire Department shall approve all reports required by this Subsection before any permit is issued. Construction shall comply with Appendix P.
3. When required by the *building official*, additional drawings shall be submitted for approval.

132.4 Acceptance. Drawings and specifications complying with the provisions of this Codethis code and accepted by the *building official* shall bear the Agency stamp of acceptance. When corrections are required, the *building official* may require that the drawings and specifications be revised and resubmitted for acceptance prior to the issuance of a permit.

132.5 Distribution. One set of accepted drawings and specifications, known as the Contractor's Set, shall be returned to the applicant, and shall be posted on the job site until the project is completed. One set of accepted drawings and specifications, known as the Record Set, shall remain in the office of the Agency.

132.6 Disposal. Upon completion of the work and the final inspections by the Agency, the Record Set may be disposed of after 6 years have elapsed from the date of issuance of the permit. If no permit is issued, plans and specifications may be disposed of after 180 days from the date of application.

132.7 Utility Companies. With the approval of the *building official*, the design of buildings, structures or utilities for the authorized Public Utilities may vary from these Building Code requirements.

132.8 Permit Applications for Construction and Changes of Occupancy Done Without Permits. Permit applications for any construction that was done without a permit shall be submitted and reviewed as an application for new construction and shall be required to comply with the current Code. The permit application must contain complete drawings, specifications, and surveys in accordance with Section 133.

All customary and special inspections in accordance with Section 140 and 141 shall be required upon issuance of the permit.

All permits obtained in accordance with this section shall be charged late fees and investigation fees per Section 138 and are subject to inspection approval and change of occupancy requirements in Section 142.

SECTION 133
DRAWINGS, SPECIFICATIONS AND SURVEYS

133.1 Limitations. Any person may submit drawings and specifications with an application for a building permit, subject to the following limitations:

1. **Architect or Engineer required.** Construction documents for all buildings, structures, additions, alterations, or repairs shall bear the seal and signature of the licensed design professional responsible for each design phase except as provided in the following subsection. Any work as defined as the practice of engineering by the State of Colorado must be signed by a licensed design professional practicing within their area of expertise.
2. **Architect not required**. An architect is not required to prepare drawings and specifications for the following buildings, structures, additions, alterations, or repairs. However, if a licensed design professional prepares drawings and specifications for any of the following, then construction documents must bear the seal and signature of the licensed design professional.

    A. One- and two-family dwellings, including accessory buildings commonly associated with such dwellings.

    B. Three- and four-unit family dwellings, including accessory buildings commonly associated with such dwellings, provided the building is not more than one story height and shall not have a *basement* or *cellar*.

    C. Additions, alterations, or repair to the buildings referred to in paragraphs (A) and (B) of this subsection that do not cause the completed buildings to exceed the applicable limitations set forth in the above subsection;

    D. Nonstructural, interior, architectural alterations of any nature to a building or tenant space if such alterations do not affect the life safety of the occupants of the building or tenant space. Alterations that do affect the life safety of the building or tenant space include but are not limited to: change of use or change of occupancy; modifications to any part of the means of egress; increase in the number of occupants; modifications to the fire alarm or fire suppression systems; modifications to any fire-resistance rated horizontal or vertical assemblies; and new or modifications to existing penetrations or joints.

Exception: If determined necessary after review of the drawings and specifications, to show compliance with the codes administered by the Agency, the *building official* may require that the drawings and specifications bear the seal and signature of an architect or engineer who will be responsible for the design phases of the building or structure.

3. **Seal and Signature.** Seal and signature (manual or electronic) of the registered Design Professional in Responsible Charge and date of signature shall be affixed to all documents as required and set forth by the *building official*. The sealing and signature of documents shall be allowed pursuant to applicable rules set forth by the State of Colorado Department of Regulatory Agencies Division of Professions and Occupations for architectural, engineering and land surveying documents and as may be amended from time to time.

4. **Registered Design Professional in Responsible Charge.** When it is required that documents be prepared by an architect or engineer, the *building official* may require the owner or the owner's authorized agent to engage and designate on the building permit application an architect or engineer who shall act as the Registered Design Professional in Responsible Charge. If the circumstances require, the owner or the owner's authorized agent may designate a substitute registered design professional in responsible charge who shall perform all of the duties required of the original registered design professional in responsible charge. The *building official* shall be notified in writing by the owner or the owner's authorized agent if the registered design professional in responsible charge is changed or is unable to continue to perform the duties. The registered design professional in responsible charge shall be responsible for reviewing and coordinating all submittal documents prepared by others, including deferred submittal items, for compatibility with the design of the building.

5. **Consultant Drawings**. Consultant drawings and specifications prepared by architectural or engineering sub-disciplines shall be so designated by their name, address and phone number and shall bear the seal and signature of the responsible architect or engineer for the sub-discipline.

6. **Statement**. When a design professional signs and seals a document, a statement shall also be included setting forth the aspects of the project for which the design professional is responsible (i.e., civil, structural, mechanical). If there is no statement, it is presumed that the design professional has assumed responsibility for the entire document.

133.2 Information Required. Drawings and specifications shall be complete and of sufficient clarity to indicate the entire work proposed and show in detail that the building, structure, or equipment conforms to the provisions of this Codethis code and relevant laws, ordinances, rules and regulations. Each set of drawings and specifications shall, at a minimum, contain the following information:

1. City designated address and location of the work performed.
2. Name of the person or firm responsible for the preparation of the drawings and specifications. The seal and signature of the architect and or engineer responsible for the preparation of the drawings and specifications when required by Section 133.1.
3. Engineering design calculations as required by the *building official* to determine compliance with the requirements of this Codethis code.
4. Documentation as required by the *building official* to determine compliance with the *Denver Energy Code*.
5. Reports from an independent testing agency, which substantiates requirements of this Codethis code regarding structural or fire-resistive requirements as required by the *building official* to determine compliance with the requirements of this Codethis code.

6. Manufacturer's installation instructions, as required by this codethis code, shall be available on the job site at the time of inspection.
7. Items as required by Sections 133.2.1 for buildings and structures regulated by the *Denver Commercial Building Code* or *Denver Existing Building Code*.
8. Items as required by Sections 133.2.2 for buildings and structures regulated by the *Denver Residential Code*.
9. Other information as required by the *building official* to determine compliance with the requirements of this Codethis code.

133.2.1 Buildings and structures regulated by the *Denver Commercial Building Code* or *Denver Existing Building Code*

1. Except for interior alterations and repairs, the construction documents submitted with the application for permit shall be accompanied by a site plan showing to scale the size and location of new construction and existing structures on the site, distances from lot lines, the established street grades, and the proposed finished grades and, as applicable, flood hazard areas, floodways, and design flood elevations; and it shall be drawn in accordance with an accurate boundary line survey. In the case of demolition, the site plan shall show construction to be demolished and the location and size of existing structures and construction that are to remain on the site or plot. The proposed construction shall not project beyond property lines except as provided for in the *Denver Commercial Building Code* Chapter 32.

2. Construction documents showing the construction of architectural, structural, mechanical, and electrical arrangements. Narrative descriptions of the scopes of work for each discipline shall be provided on the first sheet of the respective disciplines' drawings.

3. Specifications or notes that clearly describe the type, quality and finish of materials and the method of assembly, erection, and installation of equipment to be installed with proper reference to accepted standards.

4. Architectural drawings and specifications as follows:

   A. Plans showing the arrangement of each floor, elevations, sections, and details to show the construction of all architectural features, including the location and type of fire-rated construction.

   B. The gross area in square feet of buildings or portions of buildings in which new construction or remodeling work is intended; and of each different occupancy group.

   C. A complete Code Analysis, including the list of all applicable codes to include the code cycle year, the building occupancy groups, the type of construction, and a comparison of actual floor areas and number of stories to those allowed under the provisions of this Codethis code on the front sheet of drawings.

   D. The construction documents shall show in sufficient detail the location, construction, size, and character of all portions of the means of egress in compliance with the provisions of this Codethis code. In occupancies other than Groups R-2, R-3, and I-1, the construction documents shall designate the number of occupants to be accommodated on every floor, and in all rooms and spaces.

5. Structural drawings, specifications and analysis as follows:

   A. All information required by *Denver Commercial Building Code* Section 1603.

   B. Floor and roof plans indicating the roof areas used to impound water.

C. When required by the *building official* a soils investigation report signed and sealed by an engineer responsible for the preparation of the report.

6. Mechanical drawings, specifications and analysis as follows:

A. Plans drawn to scale showing the locations of all mechanical equipment, routing of all ductwork, HVAC piping, medical gas piping, and locations of grilles, registers, and diffusers. Btu rating of gas units, method of combustion and ventilation air supply, type and horsepower of refrigeration, and gas meter locations.

B. Heating, cooling, ventilating, plumbing and fire protection details and schedules fire damper, smoke damper and ceiling radiation damper locations.

C. Shafts used for pressurization as required by *Denver Commercial Building Code* Chapter 9.

D. For buildings more than two stories in height construction documents shall indicate where penetrations will be made for mechanical systems, and the materials and methods for maintaining required structural safety, fire-resistance rating and fire blocking.

E. Ventilation calculations per Chapter 4 DBCA IMC.

7. Plumbing drawings, specifications, and analysis as follows:

A. Plans drawn to scale showing the location of all plumbing equipment, routing of all plumbing piping including hot water, hot water recirculation, cold water, sanitary, grease waste, gas, storm, storm overflow, vent, and specialty piping systems.

B. Plumbing details and equipment schedules.

C. Waste and vent isometrics.

D. Gas pipe sizing method identified, Btu rating of gas equipment, method of combustion air supply per IFGC, and gas meter locations.

E. Plans and details showing the location of impounded water.

8. Electrical drawings, specifications and analysis as follows:

A. One-line diagram showing sizes of service and feeder conductors, sizes of service and feeder overcurrent devices, all major components of service and distribution system, ratings of equipment, and grounding details.

B. Load study and analysis to justify sizes of system components.

C. Short-circuit study and analysis to justify short-circuit withstand ratings of all system components.

D. Panelboard circuit schedules including loads per each circuit, total bus load per phase, AIC rating and NFPA 70NEC demand calculations.

E. Lighting and power plans shown on a floor plan.

F. Electric vehicle (EV) charging plan, where applicable, to include identification of the percentage of the building's area of work compared to the total area of the building, the number of actual provided and accessible parking spaces for the area of work, the building's occupancy types, number of *EV Ready*, *EV Capable*, and *EV Supply Equipment Installed* spaces. Locations of all associated devices, wiring, distribution, and routing of conduit shall be shown on the plan.

G. The Electrical Code of the City and County of Denver cycle year that the proposed electrical work was designed.

9. A field survey under Section 133.3 for all additions and new construction.

10. A complete elevator and dumbwaiter layout, if applicable.

11. Statement of *special inspections* per *Denver Commercial Building Code* Section 1704.3.

133.2.2 Buildings and structures regulated by the *Denver Residential Code*. Construction documents must show the complete scope of the proposed work conforming to the provisions of this Codethis code, including, but not limited to, architectural elements, structural elements, mechanical, electrical, and plumbing fixture arrangements, and all site work, including excavation, shoring, and landscape.

1. Site plan or plot plan. The construction documents submitted with the application for permit must include a site plan showing the size and location of new construction and existing structures on the site and distances from lot lines. In the case of demolition, the site plan shall show construction to be demolished and the location and size of existing structures and construction that are to remain on the site or plot. The building official is authorized to waive or modify the requirement for a site plan where the application for permit is for alteration or repair or where otherwise warranted based on minor scope and limited impact on the code compliance of the design.

2. Architectural drawings and notes as follows:

   A. Plans showing the arrangement of each floor, elevations, sections, and details to show the construction of all architectural features.

   B. A list of all applicable codes to include the code cycle year.

   C. The gross floor area in square feet of structures where the work is intended.

3. Structural drawings, notes, and analysis as follows:

   A. Plans and details that show the structural design meets the requirements of the *Denver Residential Code* and all structural elements have a clear load path to the foundation. Current codes, load assumptions and strength and grading of materials shall be called out on the plans.

   B. Manufacturer calculations or load tables for engineered beams that are not specifically included in the *Denver Residential Code* (i.e. I Joist, LVL, LSL, PSL, Glulam)

   C. Calculations for structural elements and systems that are not regulated by the *Denver Residential Code*.

D. A letter of inspection and integrity shall be included when structural modifications will affect an existing structure.

E. Information on prescriptive braced wall design including the locations of braced wall lines, the intended method(s) of wall bracing to be used, and the minimum length of bracing required and provided. Detail and indicate braced wall panel requirements including foundation attachment, blocking, framing, sheathing, nailing patterns, and corner conditions.

F. When required by the *building official* a soils investigation report based on R401.4.

4. Excavation, benching, sloping, and shoring drawings and notes as follows:

A. Plans and details to show the extent of the excavation.

B. Structural drawings, notes, and analysis for engineered shoring, benching, and underpinning.

C. Evidence of notification to adjoining property owners per DCBC Section 3307.

5. If applicable, mechanical, plumbing, and electrical construction documents, notes, and analysis as outlined in Section 133.2.1.

6. Field survey containing the information in Section 133.3. A Land Survey Plat is required for construction of a new dwelling. An Improvement Survey Plat is required for additions to existing buildings when the exterior wall of the proposed work is located less than three feet from the lot line, and for a change in occupancy from an accessory structure to a dwelling.

7. For buildings and structures located in whole or in part in flood hazard areas as established by DCBC Section 1612.3 or DRC Table R301.2, construction documents shall include:

A. Delineation of flood hazard areas, floodway boundaries and flood zones and the design flood elevation, as appropriate.

B. The elevation of the proposed lowest floor, including basement; in areas of shallow flooding (AO Zones), the height of the proposed lowest floor, including basement, above the highest adjacent grade.

133.3 Field Surveys. A Land Survey Plat or an Improvement Survey Plat shall be conducted by a land surveyor registered by the State of Colorado for the construction of a new building or structure, an addition to an existing building or structure or a change of occupancy for an existing building or structure which shall include, but not be limited to the following information:

1. Scale drawing of the boundaries of the land parcel with all dimensions to establish those boundaries.

2. All recorded and apparent rights-of-way and easements.

3. Improvement locations shall be shown in scale with a minimum of 2 dimensions to the nearest property line to locate all improvements.

133.4 Deferred Submittals. Deferred submittals are defined as those portions of the design which are not submitted at the time of permit application, and which are to be submitted to the Agency within a specified period. Deferral of any submittal items shall have prior approval of the *building official*. The registered design professional in responsible charge shall list the deferred submittals on the plans and shall submit the deferred submittal documents for review by the Agency. The design professional in responsible charge shall review the deferred submittal documents and forward them to the Agency with a notation indicating that the deferred submittal documents have been reviewed and that they have been found to be in general conformance with the design of the building. The deferred submittal items shall not be installed until their design and submittal documents have been *approved* by the Agency.

SECTION 134
PERMITS FOR TEMPORARY STRUCTURES AND USES, EQUIPMENT AND SYSTEMS

134.1 General. The *building official* is authorized to issue a permit for temporary structures, uses, *relocatable buildings*, equipment, or systems. The provisions of Section 3103 of the *Denver Commercial Building Code* are applicable to structures and buildings permitted under Section 134.

134.2 Time of Service. Except for permits for temporary structures or temporarily placed relocatable buildings associated with an R-X occupancy, such permits shall be limited as to time of service, but shall not be permitted for more than 180 days or a longer timeframe as allowed by the *building official* after review of a specific proposal. The *building official* is authorized to grant extensions for demonstrated cause. The *building official* may grant a permit for 2 years, and one 2 year extension only for any temporary structures or temporarily placed relocatable buildings associated with an R-X occupancy, subject to more strict timeframes in Section 429.13 of the *Denver Commercial Building Code*.

134.3 Conformance. Temporary structures, temporary use, or temporarily placed *relocatable buildings* shall comply with the requirements of Section 3103 of the *Denver Commercial Building Code*, and with the requirements and limitations of any other City ordinance or rule and regulation.

Exception: Where approved by the *building official* and the *fire code official*, buildings serving as emergency residential shelters shall not be required to conform to all requirements of Section 3103.1.1 2 of the *Denver Commercial Building Code* when the *building official* and *fire code official* determine there are practical difficulties involved in carrying out the provisions of this codethis code that make enforcement of the strict letter of this codethis code impractical. The details of any action granting modifications shall be sent to the building owner and entered into the permit files of the Agency.

134.4 Termination of approval. In accordance with Sections 131.6 and 142.6 of this Codethis code, the *building official* is authorized to terminate such permit for a temporary structure, use, or temporarily placed *relocatable buildings*, equipment and systems and to order the same to be discontinued.

SECTION 135

PHASED APPROVAL

135.1 General. The *building official* is authorized to issue a permit for the construction of foundations or any other part of a building or structure, except for structures regulated by the *Denver Residential Code*, and *Denver Commercial Building Code* Group U occupancy structures, to a contractor who holds a license qualifying him/her as the general contractor for the entire project, provided that:

1. The total valuation of the project exceeds $1,000,000 or as *approved* by the *building official*.
2. Prior to the submitting the first phase of the project, the *building official* approves a Phased Construction Proposal (the "Proposal") submitted by the applicant outlining the schedule for the phased construction and designating the registered design professional in responsible charge. The Proposal must provide a title for each phase and describe the building system(s) to be reviewed in each of the phased submittal packages. The proposal shall state the valuation for each phase and include an estimated submittal date for each of the phases.
3. Drawings of the proposed superstructure containing sufficient detail relating to the design of the foundation or substructure, including floor plans, elevations and other pertinent information shall be submitted to the Agency with a watermark "for information only". Drawings for each phase shall, on each sheet, include the title for the phase as defined in the Proposal and the term "Phased Construction".
4. A complete code analysis for the entire building including egress plans is provided to the Agency.
5. Structural calculations shall be submitted to validate the gravity and lateral load design of footings, caissons, and all other foundation permit elements.
6. The valuation of the portion of the work, including utilities, shall be restated with each phased application.
7. The approval of appropriate City agencies has been obtained prior to issuing each such phased permit. For purposes of the Section, the term "Project" shall mean one building only with a valuation in conformance with Section 138.

The holder of such permit for the foundation or other parts of a building or structure shall proceed at the holder's own risk with the building operation and without assurance that a permit for the entire structure will be granted.

135.2 Fee. The plan review fee and the permit fee charged at the time of issuance of the phased permit shall be as set forth by the *building official* in policy.

135.3 Deviations. Any deviation from the previously issued permit drawings shall be cause for the cancellation of the permit(s). However, if changes are substantiated by engineering calculations and revised drawings, the deviations may be *approved* by the *building official*.

135.4 Responsibility. The contractor shall assume full responsibility for the installation of all utilities in the substructure. Any changes to completed portions of the structure necessitated by subsequent modification in design or construction to meet the requirements of this Codethis code for the combined structure shall be the sole responsibility of the contractor.

SECTION 136 (Reserved)

SECTION 137 (Reserved)

SECTION 138
PERMIT FEES

138.1 Plan Review, Permit and Inspection Fees. The fee for each plan review and permit shall be based on the total value or valuation of all construction work for which the permit is issued, as well as all finish work, roofing, electrical, plumbing, heating, air conditioning, elevators, fire-extinguishing systems and any other permanent equipment. Total valuation shall also include the cost of all labor, materials, profit, and overhead. The determination of fees, value, or valuation under any of the provisions of this Codethis code shall be made by the *building official* in policy.

When submittal documents are required by Section 132, a plan review fee shall be paid at the time of initial document submission. Plan review fees provide for the first and second review only. When re-review of plans is required for plans or drawings that are rejected, submitted incomplete, not in accordance with Sections 133, to address indicated Code deficiencies, project modification, changed to require additional plan review, or when the project involves deferred submittal items as defined in Section 133.4 an additional fee shall be incurred as set forth by the *building official* in policy. The plan review fees specified in this Section are separate from and in addition to permit fees.

Permit fees provide for the customary inspections only. Re-inspections shall require a fee as set forth by the *building official*.

138.2 Late Fees. When work is started without a permit, the fees for permits on the work performed, shall be double those set forth by the *building official* for a standard permit, with a minimum of $100. The payment of this late fee shall not relieve any person from fully complying with the requirements of this Codethis code in the execution of the work or from other penalties for performing work without a permit.

> **Exception:** For work performed on an emergency basis, as determined by the *building official*, to maintain an existing service or equipment when the maintenance is necessary to protect health, life or safety, the late fees listed above shall not apply if application for a permit is made within 3 normal working days after commencement of the emergency work.

138.3 Investigation for Work Without a Permit. When any work has been commenced without first obtaining a permit, a special investigation shall be made before a permit may be issued for the work. An investigation fee equal to the amount of the late permit fee required by this Codethis code shall be assessed when work has begun without a permit. The payment of such investigation fee shall not exempt any person from compliance with all other provisions of this Codethis code nor from any penalty or fees prescribed by law.

138.4 Permit Fees for Denver Agencies. Enterprise Fund agencies of the City and County of Denver which are not subsidized by the General Fund shall pay permit fees for all construction and repair work for which building permits are required. General Fund agencies and Enterprise Fund agencies subsidized by the General Fund shall pay permit fees for new construction projects only.

138.5 Additional Fees. When the valuation of a previously permitted project is amended, a supplementary permit shall be obtained for any additional valuation, not included in the original permit. The fee shall be the difference between the fee paid and the fee that would have been required had the original permit included the entire valuation.

138.6 Waivers, Reductions and Refunds. No fee shall be waived or reduced, unless specifically authorized by a written policy adopted by the *building official*. No refund will be granted for any fee paid to the Agency, unless otherwise expressly allowed.

Exception: The *building official* may approve requests for refund of fees for duplicate or out-of-City permits that are made in writing within 60 days of the date of issuance. A processing fee as set forth by the *building official* shall be charged and deducted from the refund.

SECTION 139
[DOTI] SITE CONTACT INFORMATION

139.1 General. Any project subject to a site development plan review for new construction is required upon building permit issuance to post a site contact information sign on the property, except one- and two- family dwellings and their accessory structures.

139.1.1 Contact information and sign size requirements. The sign shall clearly display the following information:

1. Contractor or developer name.
2. Project name.
3. Project address.
4. Project contact information (phone number and email address).
5. Project completion date: estimated.

Information characters shall be white on a blue background, a minimum of 4 inches (102 mm) high with a minimum stroke width of ½ inch. The minimum size of the sign shall be 3 feet by 5 feet.

139.1.2 Sign location. The sign shall be displayed at the project site in a manner that makes it visibly accessible to the general public, however it shall not obstruct the public right-of-way. If the sign is mounted on a dedicated support system, no part of the support system may encroach upon the pedestrian sidewalk/pathway. The sign shall not encroach into the pedestrian sidewalk/pathway more than 4 inches unless it is mounted higher than 7 feet above the existing grade. Signs shall be maintained by the contractor or developer for cleanliness, visibility, positioning, and accuracy of information.

SECTION 140
INSPECTIONS

140.1 On Job Site. The contractor who is issued a general construction permit shall post the following, at the front of the job site, in a permanent visible location with numbers and letters made of durable materials and of a size to be visible and legible from the street fronting the property:

1. The address number and street, avenue, court, parkway or other, as assigned by DOTI Right-of-Way Services.
2. The name of the firm, address, business phone number and emergency phone number of the contractor issued the general construction permit.
3. The building permit number.

140.2 Access for Agency. The contractor or property owner shall provide unobstructed access to and means for the Agency to inspect the required work, including corner stakes or survey markers.

140.3 Inspection Record Card. Work requiring a permit shall not be commenced until the permit holder or his agent has posted or otherwise made available an inspection record card so as to allow the Agency to make the required entries regarding inspection of the work. This card shall be maintained by the permit holder until final approval has been granted by the *building official*.

140.4 Approval Required. Approval by the Agency shall be required at progressive stages of the construction of the building or structure and the installation of the mechanical, plumbing and electrical systems. The Agency shall make the requested inspections and shall either confirm that the completed portion of the construction is satisfactory or shall notify the permit holder or contractor that the construction fails to comply with this Codethis code. Any portion of construction that does not comply shall be corrected and such work shall not be covered or concealed until *approved* by the Agency. The Agency must complete a final inspection and approval of all completed construction before the building, structure or portion thereof shall be ready for occupancy and use.

140.5 Required Inspections. The following inspections shall be required and shall be made by the Agency after proper notification. Other inspections may be required, as specified by the *building official*.

1. **Foundation Inspection.**
   A. Footings. Inspections shall be conducted prior to pouring concrete. The footing excavation form work and any reinforcing steel must be in place. Any clay soil pipe encountered must be replaced with schedule 40 PVC, ABS/DWV or cast iron pipe by a licensed plumber, under a separate permit. All such work shall be *approved* by the Agency prior to the footing inspection.

   B. Walls. Concrete walls shall have the form work and reinforcing steel inspected prior to the concrete placement. *Approved* treated wood walls shall be inspected as required by AF&PA Technical Report 7-87.

   C. Waterproofing/Damp-proofing Inspection. To be conducted after the waterproofing/damp-proofing system or materials are completely in place and exposed for inspection.

   D. Exterior wall insulation and drain tile when required.

2. **Concrete slab or under-floor inspection**. To be made after all in-slab or under-floor building service equipment, conduit, piping accessories and other ancillary equipment items are in place, but before any concrete is placed or floor sheathing installed, including the subfloor.

3. **Frame Inspection**. To be conducted on the completed frame construction with all fire blocking and bracing in place. All framing must be exposed to view. Roof and wall sheathing or panel must be complete with windows in place. All rough installations or electrical, plumbing, and mechanical systems shall have prior approval by the Agency.

4. **Insulation Inspection.** To be conducted after the installation of the insulation is completed.

5. **Air Infiltration Barrier Inspection**. To be conducted after the air infiltration barrier system is in place and complete.

6. **Gypsum Board or Lath and Plaster Inspection**. To be conducted after all gypsum board or lath, interior and exterior, is in place but before gypsum board joints and fasteners are taped and finished or before plastering is applied.

Exception: The attachment and taping of gypsum board to partition walls that are not part of a fire-resistance rated assembly or a shear wall assembly for construction in occupancies A, B, E, F, M, U and S.

7. **Type IV-A, IV-B, and IV-C connection protection inspection.** In buildings of Type IV-A, IV-B, and IV-C Construction, where connection fire resistance ratings are provided by wood cover calculated to meet the requirements of Section 2304.10.1, inspection of the wood cover shall be made after the cover is installed, but before any other coverings or finishes are installed.

8. **Mid-roof Inspection.** To be conducted on all tile, metal, and clay roofs and all roofs on commercial buildings after all underlayment, battens, and flashings are installed and no more than 30 percent of the roofing is installed.

9. **Final Inspection**. To be conducted after construction is completed (all permits other than the general construction permit must have final approval) and the building or space is ready for occupancy.

140.6 RESERVED

140.7 Additional Inspections

140.7.1 Other Inspections. In addition to the inspections specified, the *building official* may make or require other inspections of any construction work to ascertain compliance with the provisions of this Codethis code and other laws, which are enforced by the Agency.

Other inspections, requested to be conducted outside of business hours shall be requested no later than 12 noon of the day the inspection is needed, and incur additional fees as set forth by the *building official*.

140.7.2 Reinspection. A reinspection is required when the inspected work is not complete, corrections called for have not been made, approved plans are not readily available for an inspector during an inspection, failing to provide access on the date of a requested inspection, or deviation from plans requiring the approval of the building official. To obtain a reinspection, the applicant shall file an application therefore in writing upon a form furnished for that purpose and pay the reinspection fee as set forth by the *building official*. Where reinspection fees have been assessed, no additional inspection of the work will be performed until the required fees have been paid.

140.7.3 Vertical and Horizontal Conveyance Inspection. Inspections of conveyances shall be made in accordance with the Conveyance Regulations of the State of Colorado as delegated to the Denver Fire Department.

140.8 Access control system permit inspection process. All *access control system* work shall be inspected and accepted by the Agency prior to starting the operation of the system. All of the requirements of the Administration Section shall be satisfied prior to the final acceptance of the *access control system* work by Agency inspections.

140.8.1 Required inspections. The *access control system contractor* shall be responsible for requesting and obtaining an Agency inspector's approval on all required inspections. A separate rough-in inspection and a separate final inspection shall be performed for all of the following work:

1. Access control system work.

2. Electrical work greater than 48 Volt AC/DC.

3. Fire alarm system work.

4. Elevator system work.

The final inspection for the *access control system* will not be performed until the final inspection has been *approved* for all other related work. The *access control system* shall be ready for inspection prior to requesting the final *access control system* inspection.

140.8.2 *Agency* inspector responsibility. The following *Agency* or *FPD*Fire Department inspectors shall be responsible for performing the rough-in and final inspections on the *access control system* work:

1. An Agency electrical inspector shall perform all inspections required for electrical work greater than 48 Volt AC/DC.

2. An Agency electrical inspector shall perform all inspections required for fire alarm system work.

3. An Agency or *FPD*Fire Department elevator inspector shall perform all inspections required for the elevator system work.

4. An Agency construction inspector shall perform the inspections on the work being performed under the Access Control Permit that is not inspected by another Agency inspection group.

140.8.2.1 Inspection related duties. It will be the responsibility of Agency or *FPD*Fire Department inspectors to perform the following inspection related duties:

1. Verify that *labeling* has been provided on all modified fire-rated doors and frames.

2. Performing testing of the *access control system*. If testing is required to be performed by an electrical or elevator inspector, the construction inspector shall coordinate with the other inspectors to assure that the overall systems function as designed.

3. Coordinate with the *FPD*Fire Department when Fire Department related issues occur during the installation of the *access control system*, the elevators, or the fire alarm system.

4. Assure that the permit record has been signed and *approved* by all the inspection groups that are required to inspect work on the *access control system* being installed.

5. Finalize the Access Control Permit at the completion of the final inspection process.

140.8.3 Access control system maintenance. All *access control systems* shall be maintained to remain in compliance with this appendix and the specific operational requirements of the system that was originally permitted. Failure to maintain the system in compliance with the requirements of this appendix and the originally *approved* system design requirements and conditions shall be cause to require the operation of the system to be suspended or removed. When the *access control system* interfaces with the buildings fire alarm and/or elevator control systems and these systems are not maintained in a fully operational condition, the operation of the *access control system* may be required to be suspended until these related systems are fully operational.

SECTION 141

SPECIAL INSPECTIONS

141.1 Special Inspections. For projects governed by the *Denver Commercial Building Code* or the *Denver Residential Code*, *Denver Commercial Building Code* Chapter 17 for special inspection requirements apply.

141.2 Structural Observation. For projects governed by the *Denver Commercial Building Code* or the *Denver Residential Code*, *Denver Commercial Building Code* Chapter 17 for structural observation requirements apply.

SECTION 142

FINAL INSPECTION APPROVAL, CERTIFICATE OF COMPLIANCE AND CERTIFICATE OF OCCUPANCY

142.1 Final Inspection Approval. A final inspection approval shall be issued by the *building official* upon the completion and approval of the work covered by the permit.

142.2 Certificate of Occupancy Required. New buildings except Group U occupancy detached *private garages* and *Denver Residential Code* non-habitable *accessory structures* shall not be used or occupied in whole or in part until a Certificate of Occupancy is issued by the *building official*. No building or portion thereof shall be used or occupied for any occupancy other than the one designated on the Certificate of Occupancy until a new Certificate of Occupancy is issued by the *building official*. Issuance of a Certificate of Occupancy shall not be construed as an approval of a violation of the provisions of this Codethis code or of any other ordinances of the City and County of Denver.

A permitted temporary change in the occupancy of an existing building or portion thereof shall not occur until a Certificate of Occupancy for the temporary change in occupancy is issued by the *building official*.

142.2.1 Denver Residential Code Regulated Buildings Certificate of Occupancy. A certificate of occupancy is required for new IRC structures or for a change of occupancy that results in a change in use within the scope of this codethis code to any of the following uses:

1. One-family dwelling.
2. Two-family dwelling.
3. Townhouse.
4. Congregate living facility.
5. Lodging house.
6. Care facility.
7. Live/work unit.
8. Family child-care home providing care for 6 or more children.

Certificate of Compliance Required. A certificate of compliance will be issued by the *building official*, when a Certificate of Occupancy is not required or appropriate, but where documentation is necessary to indicate that all final inspections by the Agency have been satisfactorily completed. The Certificate may be issued upon the request of the General Building Contractor when the inspection card issued by the Agency is returned indicating that all final inspections are complete.

142.3 Issuance of Certificate of Occupancy. When all the conditions of this Chapter have been fulfilled, the *building official* shall issue a Certificate of Occupancy indicating *building official* approval and the use and occupancy for which the certificate is issued. The Certificate of Occupancy shall be issued to the owner after approval by the *building official* and:

1. Concurrence by DOTI Construction Engineering Division, Wastewater Management and Zoning Administration.

2. When required by the provisions of this Codethis code, or specifically requested in writing at the time of application, concurrence by Public Health Inspection Division and the Fire Department.

3. When a building or structure is designated for preservation or is located in a district designated for preservation pursuant to Chapter 30, Denver Revised Municipal Code, and concurrence of the Landmark Preservation Commission.

142.4 When a building or structures contains income restricted units required per Chapter 27 of the Denver Revised Municipal Code, concurrence of the Department of Housing Stability.**Issuance of Certificate of Compliance.** Upon the request of the General Building Contractor a certificate of compliance will be issued by the *building official*, when items 1-4 below are met:

1. A Certificate of Occupancy is not required or appropriate.

2. A Certificate of Compliance is required in response to an order of the *building official*, or other Agency.

3. The inspection card issued by the Agency is returned indicating that all final inspections by the Agency have been made.

4. The processing fee, as set forth by the *building official*, is received by the Agency.

142.5 Temporary Certificate of Occupancy. Upon written request, the *building official* may issue a Temporary Certificate of Occupancy (TCO) to the owner provided that no substantial hazard will result from the occupancy. The written request must be made by the owner or the owner's agent, itemizing the uncompleted work, justify the issuance of the TCO and display concurrence from the following City Agencies:

1. Department of Transportation and Infrastructure (DOTI) Construction Engineering.

2. DOTI Wastewater Management Division.

3. Denver Department of Public Health and Environment.

4. Fire Department.

5. Zoning Administration

A TCO processing fee as set forth by the *building official* shall be assessed. The approval of a TCO shall not waive, reduce, or diminish any requirements of this Codethis code. The Temporary Certificate of Occupancy may be granted for a period up to 12 months and may be extended up to two times with the approval of the *building official*. After the expiration date of the TCO, the building or structure shall require a permanent Certificate of Occupancy in accordance with other provisions of this Chapter.

Additional inspections required for the TCO shall be charged as set forth by the *building official* and shall be paid before the permanent Certificate of Occupancy is issued.

142.6 Cancellation of Certificate of Occupancy. The *building official* may cancel a Certificate of Occupancy when:

1. The Certificate is issued in error or based on incorrect or false information.

2. The owner has failed to comply with the requirements of the *building official* after appropriate notice and reasonable time to correct.

3. The continued occupancy of the structure is dangerous to the public health, safety, or welfare.

142.7 Duplicate Certificates. Upon payment of a fee set forth by the *building official*, a duplicate Certificate of Occupancy or Certificate of Compliance may be secured by the owner, architect, engineer, contractor, permit holder or tenant.

142.8 Posting. For all buildings, except those constructed under the *Denver Residential Code*, the Certificate of Occupancy (CO) shall be posted on an interior wall in the building for which the CO was generated. The CO shall be posted in a conspicuous location subject to the approval of the *building official*. The CO shall be posted between 48" and 72" above the finished floor from which it will be normally viewed, as close to the main entrance as practicable. The CO shall be protected by a smooth and transparent surface permanently exposed for viewing. The posted CO shall be removed only under the following conditions:

1. When necessary to conduct maintenance including reconstruction of the wall in the same location or install a new finish on the wall. The CO shall be reposted in the same location when maintenance is complete.

2. When the wall is demolished. The CO shall be reposted on an interior wall subject to the location requirements above.

3. When replaced by an updated CO application for the same portion of the building. The updated CO shall be posted in the same location as the CO it replaces.

4. When relocation is necessary due to changes in the interior environment that prevent clear viewing such as furniture or decoration modifications. New posting locations shall be subject to approval by the *building official*.

Exception: The CO is permitted to be available in the on-site office of the building owner or management company provided access is available at all times during business hours.

142.89.1 Multiple Certificates of Occupancy. Multiple COs issued for portions of the same building shall be posted together per the location requirements specified above so all are readily viewable.

Exception: COs issued for separate tenants or spaces with separate exterior entrances are permitted to be posted in those spaces per the location requirements specified above.

142.89.2 Temporary Certificates of Occupancy. The location requirements of Sections 142.9 and 142.9.1 shall also apply to temporary Certificates of Occupancy (TCOs). Subject to the approval of the *building official*, a CO issued to replace a TCO is permitted to be posted in the same location as the TCO it replaces.

~~SECTION 2~~

~~CONSTRUCTION CODES~~

~~2025 DENVER COMMERCIAL BUILDING CODE~~

~~2025 DENVER EXISTING BUILDING CODE~~

~~2025 DENVER RESIDENTIAL CODE~~

~~2025 DENVER MECHANICAL CODE~~

~~2025 DENVER PLUMBING CODE~~

~~2025 DENVER FUEL GAS CODE~~

~~2025 DENVER ENERGY CODE~~

2025
DENVER COMMERCIAL BUILDING CODE

COMPRISED OF

2025 DENVER AMENDMENTS

TO THE 2024 EDITION OF THE

INTERNATIONAL BUILDING CODE (IBC) AND APPENDICES

AS PUBLISHED BY THE INTERNATIONAL CODE COUNCIL (ICC)

The content of the sections in ~~this code~~this code that begin with a bracketed letter or letters indicates the content comes from other City or State entities.

[F]	**Fire Code**
[DOTI]	**Department of Transportation and Infrastructure**
[EB]	**Existing Building**
[CDH]	**Colorado Division of Housing**
[Z]	**Zoning Code**
[DPHE]	**Department of Public Health and Environment**

The 2024 International Building Code and all errata to that code is hereby adopted and incorporated by reference except for the amendments to each chapter and appendix of the 2024 International Building Code specified below.

AMENDMENTS AND DELETIONS TO THE 2024 INTERNATIONAL BUILDING CODE

The 2024 International Building Code adopted in D.R.M.C. Sec. 10-16 is amended in the following particulars:

~~CHAPTER 1~~
CHAPTER 1: SCOPE AND ADMINISTRATION

SECTION 101 SCOPE AND GENERAL REQUIREMENTS

Section 101.1 Title is amended to read as follows:

101.1 Title. These regulations shall be known as the Denver Commercial Building Code, hereinafter referred to as "this code."

Section 101.4 Referenced codes is deleted and replaced with the following; all subsections unless further amended shall remain:

101.4

Referenced codes. The codes specified in Sections 101.4.1 through 101.4.7, except Section 101.4.4, shall be considered to be a part of the requirements of this code. All references in this code and any referenced codes to the *International Fuel Gas Code (IFGC)*, *International Mechanical Code (IMC)*, *International Plumbing Code (IPC)*, *International Fire Code (IFC)*, *International Energy Conservation Code (IECC)*, *International Existing Building Code (IEBC)*, and *International Residential Code (IRC)*, shall mean the Denver Fuel Gas Code (DFGC), the Denver Mechanical Code (DMC), the Denver Plumbing Code (DPC), the Denver Fire Code (DFGC), the Denver Energy Code (DEC), the Denver Existing Building Code (DEBC), and the Denver Residential Code (DRC), respectively.

All references in this code and any referenced codes to "NFPA 70" are changed to the "Electrical Code as adopted by the State of Colorado".

~~All references to the International Energy Conservation Code are to the 2021 International Energy Conservation Code including the 2025 Denver amendments.~~

All references to ASHRAE 90.1 are to ASHRAE 90.1-2019.

All references to the International Property Maintenance Code in this code and any referenced codes are deleted.

SECTION 102 APPLICABILITY

Section 102.4.1 Conflicts is amended by adding the following exception:

Exception: Where enforcement of a code provision would violate the conditions of the listing of the equipment or appliance, the conditions of the listing and manufacturer's instructions shall apply.

Section 102.6.2 Buildings previously occupied is amended as follows:

Section 102.6.2 Buildings previously occupied. The legal occupancy of any building existing on the date of the adoption of this code shall be permitted to continue without change if such use or occupancy was legal at the time of the adoption of this code, except as otherwise specifically provided in this code or as is deemed necessary by the building official for the general safety and welfare of the occupants and the public. Any change in, or establishment of, the use or occupancy of any existing building or structure shall comply with the provisions of this code.

Section 102.7 Maintenance of Buildings, Structures, or Utilities is added:

102.7~~3.6~~ Maintenance of All Buildings, Structures or Utilities. All buildings, structures, or utilities, both existing and new, and all parts thereof, shall be maintained in a safe and sanitary condition, and in accordance with ~~this Code~~this code or the c~~C~~ode under which it was permitted and constructed. All devices, utilities, or safeguards which are required by ~~this Code~~this code, or which were required by the c~~C~~ode or Ordinances at the time of construction, shall be maintained in good working condition. The owner or legally responsible person shall maintain such buildings, structures, or utilities. To determine compliance with this subsection, the Agency may cause any building, structure, or equipment to be reinspected.

SECTION 103 CODE COMPLIANCE AGENCY

SECTION 103 CODE COMPLIANCE AGENCY is deleted in its entirety and replaced with the following:

103.1 Creation of administering agency. The Building Permitting and Inspections Services Agency (hereinafter "Agency") is hereby created within the Department of Community Planning and Development and the official in charge thereof shall be known as the *building official*. The function of the ~~a~~Agency shall be the implementation, administration, and enforcement of the provisions of this code.

The ~~a~~Agency shall administer and enforce all other statutes or ordinances, which are or may be assigned to the Agency for enforcement and administration.

103.2 Employees. In accordance with established procedures, the *building official* may authorize engineers, architects, technicians, inspectors, or other employees to perform duties and exercise powers as delegated by the *building official*.

SECTION 104 DUTIES AND POWERS OF BUILDING OFFICIAL

Section 104.2 Determination of compliance is amended to read as follows:

104.2 Determination of compliance. The *building official* has the authority to determine compliance with this code, and to adopt rules and regulations for the administration and enforcement of this code. The *building official* also has authority to render interpretations of this code and to adopt policies and procedures in order to clarify the application of provisions. Such interpretations, policies, and procedures:

1. Shall be in compliance with the purpose of this code.

2. Shall not have the effect of waiving requirements specifically provided for in this code.

The Board of Appeals may review any appeal of a building official interpretation subject to Section 108.

Section 104.2.3 Alternative materials, design and methods of construction and equipment is amended by deleting its exception.

Section 104.2.4.1 Flood hazard areas is deleted.

Section 104.3.1 Determination of substantially improved or substantially damaged existing buildings and structures in flood hazard areas is deleted.

Section 104.6 is deleted in its entirety and replaced by the following:

Section 104.6 Notices and Orders. The building official is authorized to issue necessary notices or orders to ensure compliance with this code. Notices of violations shall be in accordance with Section 107.

Sections 104.7 through 104.7.5 Official records are deleted in their entirety and replaced by the following:

104.7 Official records. The building official shall keep official records in accordance with the City's record retention schedule.

Section 104.10 Investigations and Surveys and Section 104.11 Licenses and Certificates are added.

104.10 Investigations and Surveys. Incidental to any of these duties and powers, but without limitation of the same, the *building official* may cause to be conducted investigations or surveys by the Agency to determine compliance or noncompliance with the provisions of ~~this Code~~this code; and further may investigate or cause to be investigated all accidents pertaining to buildings, structures, or utilities.

104.11 Licenses and Certificates. The *building official* is vested with the authority to:

1. Establish requirements and procedures for the issuance of licenses and certificates as required in ~~this Code~~this code.

2. Qualify applicants for such licensure and certification.

3. Issue, revoke, renew, and suspend such licenses and certificates.

Sections 105 through 114 and 116 are deleted in their entirety and replaced by the following:

SECTION 105 UNSAFE STRUCTURES, PROJECT SITES, OR EQUIPMENT

105.1 Structures, Project Sites, or Equipment. Structures, project sites, or existing equipment that are or hereafter become unsafe, unsanitary, or deficient because of inadequate means of egress facilities, inadequate light, or ventilation, or that constitute a fire hazard, or are otherwise *dangerous* to human life or the public welfare shall be deemed an unsafe condition. Unsafe structures shall be taken down and removed or made safe, as the *building official* deems necessary and as provided for in this section. The *building official* may deem any structure project site or equipment unsafe when any one or more of the following conditions exist:

105.1.1 Structures or Project Sites:

1. Illegal or improper occupancy.
2. Any building, structure, or portion thereof that meets the definition of *Dangerous* as defined in the *Denver Existing Building Code*.
3. Damage or deterioration to any exposed exterior member to the extent that the member provides inadequate protection from the elements to the occupants of the building or structure.
4. Floors or areas with inadequate means of egress.
5. Parts attached in such a manner that they may fall and cause injury to the public or property.
6. Uncompleted buildings or structures when the permit has been canceled.
7. A canceled Certificate of Occupancy.
8. Open pits, open wells, and open excavations of all types when such are determined to be hazardous by the *building official*.
9. Trenches or ditches not properly shored or cribbed.
10. Vacant buildings which are not secure ~~and~~or to which entry may be made through opened or unlocked doors, windows, or other openings.
11. Uninhabitable buildings or structures, including but not limited to the following conditions:
    a. Building envelope damage or deterioration has caused the interior of the structure to be open to the elements.
    b. Vandalism or deterioration has caused the plumbing system, electrical system, or heating system to be no longer functional.
12. Any dilapidated building of whatever kind which is unused by the owner, or uninhabited because of deterioration or decay, which condition constitutes a fire hazard or subjects adjoining property to danger of damage by deterioration of structural building elements, storm effect, soil erosion, or animal infestation, or which becomes a place used by trespassers and transients seeking a temporary hideout or shelter.

105.1.2 Equipment

105.1.2.1 Gas-Fired, Oil-Fired, Solid Fuel-Fired Devices. Gas-fired, oil-fired, or solid-fuel-fired appliances, devices, or apparatus, which have any of the following, defects:

1. Broken or cracked heat exchangers.
2. Defective or deteriorated vents, venting or flues which permit leakage of flue products.
3. Defective or improperly installed fuel supply piping.
4. Insufficient air supply for the combustion of fuel.

5. Inadequate ventilation of the heating equipment room.

6. Defective, improperly installed, or maladjusted controls and appurtenances.

7. Defective or improperly installed heating equipment.

8. Equipment locations which constitute a fire or explosion hazard.

9. A negative air pressure condition exists in a heating equipment room or area.

10. Excessive corrosion of combustion chambers where the original thickness of the metal is reduced 50% or more.

11. Warped or distorted combustion chambers or furnace boiler firing doors which permit leakage of combustion products.

12. A listed appliance or appurtenance that is altered or modified.

13. Excessive scaling, corrosion, cracks in seams, tube, or shell of boilers.

14. Defective valves, gauges, or cocks of boilers.

15. Grooving or pitting of boilers.

16. Boilers with improperly installed or maladjusted controls and appurtenances.

17. Any unlisted appliance or appurtenance installed without approval of the *building official*.

18. Appliances not provided with required safety controls.

105.1.2.2 Electrical Systems. Electrical systems, appliances, devices, or apparatus which have any of the following defects:

1. Bare wiring.

2. Poor electrical connections.

3. Overloaded circuits, feeders, or services.

4. Equipment not properly grounded.

5. Disconnecting means not provided at the appliance.

6. Over-fused circuits.

7. Misuse of cord wiring.

8. Wiring not properly supported.

9. Non-approved wiring exposed to extreme heat, moisture, combustible dusts, gases, or other harmful vapors or liquids.

105.1.2.3 Refrigeration Systems. Refrigeration systems which have any of the following defects:

1. Inadequate ventilation.

2. Inadequate venting of pressure relief valves.

3. Unauthorized fuel-fired equipment located in the same room designated for the refrigeration equipment.

4. Improperly installed cooling towers by reason of location, type, fan, water condition, controls, roof, or floor overload.

5. Faulty controls.

105.1.2.4 Plumbing Systems. Plumbing systems or devices which have any of the following defects:

1. Supply water not meeting the standards of potability as required by the Colorado State Department of Public Health.

2. Water systems subjected to the hazards of backflow or back-siphonage, which might create pollution to the potable water supply, i.e., hose bibbs shall have anti-siphon devices.

3. Inadequate piping not supplying sufficient water to the various appliances.

4. Clogged sewers or drains.

5. Inadequate or missing trap seals.

6. Inadequate venting.

7. Leaking water, sewage or sewer gas within a building or structure.

8. Trenches or ditches not properly shored or cribbed.

105.2 Notice and Abatement. If, after inspection by the Agency, the building, structure, or equipment is determined to be unsafe by the *building official*, it shall be abated by repair, replacement, removal, or demolition upon notice by the *building official*. If the building or structure has common property line walls, then the *building official* may direct the owner to notify adjacent building owners that their building may be unsafe and may require repair or reinforcement.

105.2.1 Buildings or Structures. In the case of an unsafe building or structure, the *building official* may order such building or structure, or any buildings or structures placed in jeopardy by the unsafe building or structure, vacated immediately. When necessary to protect life, property, health, and public welfare, the *building official* may cause to have posted signs which shall prohibit entry into an unsafe building or structure. However, with written permission of the *building official*, it shall be lawful to enter the unsafe building or structure for the purpose of effecting any required repairs, rehabilitation, or demolition, or by members of the Fire Department. Signage shall be provided by and attached to the building or structure by the Agency and shall read, in addition to other information, "UNSAFE DO NOT ENTER". See Section 107 for Prohibitions and Violations.

105.2.2 Equipment. In the case of unsafe equipment, the *building official* shall affix a warning tag or sign on or immediately adjacent to the unit declared to be unsafe. The *building official* shall order the unsafe equipment disconnected, or its use discontinued until the unsafe condition is abated. In addition, the *building official* may order any building, structure, or equipment which is placed in jeopardy by the unsafe equipment to be vacated and/or disconnected, and these shall not be reoccupied or reconnected until the unsafe declaration is lifted by the *building official*. It shall be unlawful for anyone to mark any unsafe equipment, as herein defined, with any type markings, signage, or tags declaring them to be unsafe, except as authorized by the *building official*.

105.3 Demolition or Securing by the City. If the owner and/or occupant of an unsafe building, structure, or equipment fails to perform the repairs, rehabilitation, securing, or removal required by an order within the time specified therein or any extension of time to comply with said order, the *building official* may, as set forth in this Section, cause the demolition or securing of the unsafe building or structure at the owner's expense.

105.3.1 Procedure for Demolition or Securing by City. Upon the failure of the owner or legally responsible person of a building or structure to make any building or structure safe after the issuance of an order, the *building official* may demolish or secure the building or structure according to the following procedures:

1. ~~May o~~Obtain competitive bids for the securing or demolition of the building or structure.
2. ~~May, u~~Upon receipt of bids, issue a notice of intent to raze or secure the building or structure which shall include the estimated cost of demolition or securing plus a fee not to exceed 25% of the cost of demolition or securing, with a minimum of $500 to cover administrative and other costs. Such notice shall be served personally or by registered or certified mail, return receipt requested, upon the owners or entities of all recorded interests in the property at least 10 calendar days prior to the demolition or securing.
3. If service cannot be obtained upon any party with record interests as provided in subsection 105.3.1.2, ~~may~~ post the notice upon the property for 10 calendar days and mail notices to the last known address of each party having a record interest.
4. Ten calendar days after completion of service under subsections 105.3.1.2 or 105.3.1.3 above, ~~may~~ proceed with demolition or securing.
5. Upon completion of the demolition or securing, the Agency shall pay the cost and expense of demolition, removal, securing and/or barricading, from any appropriation made available for that purpose, and shall mail a notice of the final cost of demolition or securing and of the intent to file a lien against the property to owners of a recorded interest in the property.

105.3.2 City's Lien. In the event the owner fails to pay the costs as set forth in the notice sent under this Section within 15 business days of such notice, the amount shall constitute a lien against the real property upon which the building or structure was or is situated. The Agency shall thereafter certify a statement thereof to the Manager of Finance, who shall assess and charge the same against the property involved and collect the same due, together with interest at the rate established by the law for delinquent real property taxes. The lien created thereby shall be superior and prior to other liens, regardless of date, except liens for general and specific taxes. For purposes of ~~this Code~~this code, cost and expense shall include the abatement, demolition, removal, securing, barricading and administrative costs incurred therewith.

105.4 Emergency Demolition or Securing. In the event an emergency should occur wherein the continued use or existence of a building, structure, or equipment may constitute an immediate hazard to life, health, property, or public welfare as determined by the *building official* or *fire code official*, the *building official* may order and/or cause the building, structure, or equipment to be demolished, removed, disconnected, secured, or barricaded immediately and without notice by any means available to the Agency. When feasible, the *building official* shall attempt to give notice, by any means, to the owner of the building, structure, or equipment prior to taking any action. Cost and expense of demolition, removal, securing or barricading, if borne by the City, shall be recovered as provided for in Section 105.

105.5 Emergency Barricades. If any building, structure, or equipment is declared a hazard to life or safety of persons using a public way, the public way shall be provided with barricades to prevent public use. The

barricades shall be erected on order from the *building official* or *fire code official*. Recovery of cost and expense, if borne by the City, shall be made as provided for in Section 105.

SECTION 106 RESERVED

SECTION 107 VIOLATIONS, PENALTIES AND REMEDIES

107.1 Violations. It shall be unlawful for any person, firm, or corporation to erect, construct, enlarge, reconstruct, alter, repair, move, improve, remove, convert, demolish, equip, occupy, inspect, or maintain any building, structure, or equipment, or cause or permit the same to be done, in the City and County of Denver, contrary to or in violation of any of the provisions of ~~this Code~~this code, any other code, ordinance, or rule and regulation promulgated thereunder which is enforced and administered by the Agency.

107.2 Notice of Violation Order to Comply. If the *building official* determines that a violation exists under Section 107.1, the *building official* may issue a Notice of Violation (notice) or Order to Comply (order) upon the owner of the property upon which work was or is being performed or where the condition exists; or any person engaged in the work, causing the work to be performed or having a permit to perform the work. The notice or order must state the standards or requirements violated, must state what corrective action, if any, is necessary to comply with the standards or requirements, and must set a reasonable time for compliance.

> **107.2.1 Service of notice or order.** Service of any notice of violation or order shall be by personal service or first-class mail addressed to the last known address of the owner of the property, or if no address is available after reasonable inquiry, the order may be posted in a conspicuous place on the property. The notice or order may also be posted if served by personal service or first-class mail. The notice or order shall be deemed served on the date of receipt by the person personally served or upon the date of mailing or posting.

107.3 Penalties. Whenever, in any ~~S~~section of ~~this Code~~this code, or any s~~S~~ection of a rule or regulation promulgated thereunder, the performance of any act is required, prohibited, or declared to be unlawful, and no definite fine or penalty is provided for a violation thereof, any person convicted of a violation of any Section shall, for each offense, be fined, imprisoned, or both fined and imprisoned within the limits established by Section 1-13 of the Denver Revised Municipal Code. A separate violation shall be deemed committed upon each calendar day during or on which a violation occurs or continues. The suspension or revocation of any license, certificate, permit, or other privileges conferred by the City shall not be regarded as a penalty for the purpose of ~~this Code~~this code.

107.4 Remedies. In the event any building, structure, or equipment is erected, constructed, enlarged, reconstructed, altered, repaired, moved, improved, removed, converted, demolished, equipped, occupied, inspected, or maintained in violation of ~~this Code~~this code, the City or any proper person may institute an appropriate action or proceedings to prevent the unlawful erection, construction, enlargement, reconstruction, alteration, repair, move, improvement, removal, conversion, demolition, equipping, occupying, inspecting, or maintenance, and to restrain, correct or abate such violation, or to prevent the occupancy of said building, structure, or land. The imposition of any penalty thereunder shall not preclude the City or any proper person from instituting any appropriate action or proceeding to require compliance with the provisions of ~~this Code~~this code, and with administrative orders and determination made thereunder.

107.4.1 Recording of Notice or Order with Clerk. When the *building official* determines that a violation of ~~this Code~~this code is consistent with Agency policies and warrants recording based on the nature of or circumstances concerning the violation, the *building official* may cause to be recorded any notice or order based on the violation in the real property records of the Clerk and Recorder. When the condition upon which the notice or order was based has been corrected, the *building official* shall record a release of the notice or order.

SECTION 108 BOARD OF APPEALS

108.1 Creation. There is hereby created a Board of Appeals (the "Board"), which shall consist of six members and three alternates appointed by the mayor. The Board shall be comprised of the following persons:

1. One professional engineer registered in the State of Colorado.
2. One architect licensed in the State of Colorado.
3. One person who is the holder of a City Building Contractor Class A, B or C license.
4. One preservationist with expertise in preservation of historic buildings and structures.
5. Two citizen members who are not associated with the building industry.

Two alternates shall be a professional engineer registered in Colorado and an architect licensed in Colorado, respectively. A third alternate shall be a citizen not associated with the building industry. Alternates may appear at all meetings and shall be allowed to vote even if not filling a temporary vacancy.

108.2 Secretary. There shall be a Secretary of the Board, furnished by the Agency. The Secretary shall be the custodian of the records, shall conduct official correspondence of the Board, and generally be responsible for clerical work of the Board. The Secretary shall be present at all meetings and shall present all relevant information regarding appeals to the Board, including the application and other information submitted by the Applicant prior to the hearing. The Secretary shall notify all interested parties regarding matters of the Board.

108.3 Fire Department Representative. The Chief of the Fire Prevention Division, or his authorized representative, shall be an ex-officio member to the Board without voting power. Terms of office and remuneration shall not be applicable to this member.

108.4 Terms. As of the effective date of the council bill adopting the 2025 Denver Building Code, the members of the Board of Appeals as constituted under ~~this Code~~this code shall continue to serve for the unexpired portion of their terms. The mayor shall appoint Board members and alternates as necessary to fill expiring terms and such terms shall be for 3 calendar years. No member of the Board shall serve more than 3 consecutive full terms or a total of more than 9 consecutive calendar years. Any vacancy that occurs in the Board shall be filled by the mayor for the unexpired term of that Board member. Board members may be removed only for cause upon written charges.

108.5 Procedures – Meetings – Quorum.

108.5.1 Appeal. Any person or city agency aggrieved by a decision of the *building official* may, within 30 calendar days of the first or initial date of notice of such decision or order, appeal the decision or order by filing an application for appeal with the Board.

Exception. Appeals of notices issued under Section 105.5, where such notice is personally served or delivered by overnight mail, shall be made within 10 calendar days of the delivery of such notice or the refusal to accept such notice.

108.5.2 Method of Application and Fee. Prior to action by the Board, an application shall be filed with the Agency on a form providing the necessary information required by the Board. An appeal shall not be considered unless filed with the Agency at least 15 calendar days prior to the meeting. Upon filing the application, a fee set by the *building official* shall be paid to the City. All checks shall be made payable to the Manager of Finance and shall be paid in the office of the Agency. This fee is not refundable. A validly filed appeal shall be heard by the Board at the next available meeting time when a quorum is present.

108.5.3 Regular Meetings. Regular meetings shall be held annually or as often as may be required by the Agency. Four members of the Board shall constitute a quorum at regular meetings.

108.5.4 Special Meetings. Special meetings may be held at the call of the Chairman and at such times as the Board shall determine. The Board, the *building official*, or an appellant may request a special meeting. Any special meeting held at the request of an appellant shall be paid for by the appellant in an amount set forth by the *building official*. Four members of the Board shall constitute a quorum at special meetings.

108.5.5 Business Meetings. Business meetings of the Board may be called by the Chairman of the Board.

108.5.6 Imminent Hazard. In any matter in which an order or notice relating to an unsafe building or structure is appealed, the *building official* may certify to the Board that the building or structure could become an imminent hazard, in which case the Board shall schedule a meeting within three business days to hear said appeal.

108.5.7 Notice. Public notice shall be given of all meetings and all meetings shall be open to the public except executive sessions or business meetings. Due notice of all meetings shall be given by the Secretary to all parties in interest, including the Agency. The Agency shall be permitted to intervene, for and on behalf of the City, in all public meetings.

108.5.8 Oath/Subpoena. The Chairman may administer oaths, accept affirmations, and compel the attendance of witnesses. A failure or refusal to appear in response to a subpoena issued by the Board shall constitute a violation of ~~this Code~~this code.

108.5.9 Agency/Interested Party. At any public meeting a representative of the Agency, Fire Department and any other interested party may appear in person, by agent or by attorney, offer evidence and testimony, and cross-examine witnesses. All evidence and testimony shall be presented publicly. The Board may take judicial notice of facts to the same extent and in the same manner as courts of record and may consider relevant facts within the personal knowledge of any member of the Board that are stated into the record by such member.

108.5.10 Recording. All meetings before the Board shall be recorded either by electronic means or by a Certified Court Reporter.

108.6 Powers and Duties of the Board.

108.6.1 Rules and Procedures. The Board shall adopt Rules and Procedures governing all proceedings before it consistent with the provisions set forth herein. The rules and regulations shall include proper procedures for applying to the Board, contents of the application and time allotted for each case.

108.6.2 Powers. Subject to the limitations enumerated herein, the Board shall have and may exercise the following powers with respect to ~~this Code~~this code:

1. **Administrative Review.** To hear and decide appeals where it is alleged there is error in any order, or decision made by the *building official* in the enforcement of ~~this Code~~this code.

2. **Alternate Methods and Materials.** To hear and decide appeals from the *building official* denial of an application for alternate materials and methods of construction and equipment under Section 104 herein, only after the applicant has obtained an approval or certified test results from an *approved* testing agency. All relevant information and documentation shall be submitted to the Board prior to the hearing. The decision of the *building official* shall not be overturned unless the Board shall find that all the following conditions exist:

   1. That the applicant properly applied under the terms of Section 104.

   2. That the proposed design is satisfactory and that the alternate is, for the purpose intended, the equivalent of that prescribed in ~~this Code~~this code.

   3. That the proposed alternate will not weaken the general purposes of ~~this Code~~this code.

   4. That the proposed alternate will be in harmony with the spirit and intent of ~~this Code~~this code.

   5. That the proposed alternate will not adversely affect the public health and safety.

   6. That the proposed alternate will not adversely affect the structural integrity of the building.

   7. That the proposed alternate will not adversely affect the fire or life safety of the building.

3. **Stay of Enforcement.** The Board shall have the power to stay the enforcement of any order issued by the *building official* unless the *building official* certifies that, based on facts stated in the request, a stay of the order would cause imminent peril to life or property. A stay shall not constitute a variance, and shall be personal to the applicant, not transferable, and subject to the terms and conditions imposed by the Board.

4. **Unsafe Condition.** Whenever the owner, or legally responsible person, of a building, structure, equipment, or other condition determined to be unsafe by the *building official* does not agree with the terms of the issued order for abatement, the owner shall have the right to appeal to the Board within 30 calendar days from the date of said order. In the appeal, the owner shall state how the owner proposes to make the building, structure, equipment, or other condition safe and, if required by the Board, the owner shall submit detailed engineering analysis or recommendations, accompanied by plans and specifications prepared by a Colorado licensed Architect or Colorado registered Professional Engineer, as prescribed in ~~this Code~~this code. The Board may require substantiating data concerning the removal or other remedial steps to be taken to render the building, structure, equipment, or other condition safe.

108.6.3. Decision of the Board. In the exercise of the powers described above, the Board may reverse or affirm a decision, reverse, affirm or modify an order, impose conditions or requirements, as deemed necessary; or hold cases in abeyance until proper information needed by the Board is supplied. Decisions shall be filed with the Agency as a matter of public record.

The concurring vote of a majority of those present and voting shall be necessary to decide any matter upon which the Board is required to pass under this section of ~~this Code~~this code. The Board shall issue a written decision, based on evidence presented at the public meeting, setting forth the necessary findings of fact and the final decision of the Board. A copy of this decision shall be mailed by the Secretary to all interested parties who received notice under this Section, including the *building official*. The Board may order that a copy of the decision be recorded in the office of the Denver Clerk and Recorder.

108.7 Limitations of Powers. The Board of Appeals shall have no authority to review administrative decisions to the requirements of Chapter 1 of ~~this Code~~this code except where specifically allowed herein.

Any determination or order of the *building official* shall be presumed to be correct until evidence is introduced that would support a contrary determination.

108.8 Compensation. Each member of the Board shall receive compensation, as set forth by the *building official*, for each meeting attended regardless of number or type of cases heard.

108.9 Appeals from decisions of the Board.

108.9.1 ~~.1~~ Procedure. Any person subject to a decision of the Board may have that decision reviewed in the manner provided by the Colorado Rules of Civil Procedure. The Board shall not be required to return the original papers acted upon by it but may return copies thereof. The returned copies shall concisely set forth other pertinent facts and material to the decision appealed and shall be verified.

108.9.2 ~~.2~~ Effect of Appeal. The issuance of a writ on a petition hereunder shall not stay proceedings upon the decision appealed; but the court, on application after notice to the Board and on due cause shown, may grant a restraining order.

SECTIONS 109 ~~THROUGH~~through 114~~19~~ ~~ARE RESERVED~~are deleted.~~.~~

SECTION 115 STOP WORK ORDER

Section 115.4 Failure to comply is deleted in its entirety.

SECTION 116 is deleted.

SECTIONS 117 through 142 are added to read as follows:

SECTIONS 117 through 119 are reserved.

SECTION 120 CONTRACTOR LICENSING, CERTIFICATION, REGISTRATION

Sections 120 through 125 provide for the licensing of contractors, the certification of supervisory personnel, and requirements for licensure, certification, registration, and renewal. Fire Department requirements for licensure are enumerated in Chapter 1 of the *Denver Fire Code*. There shall be various classes of certificates, licenses, and both plumbing and electrical registrations, with qualifications as set forth by the *building official* per policy, and the holder thereof shall be authorized to perform work as set forth by this code and the *building official*.

SECTION 121 CONTRACTOR LICENSING OR REGISTRATION

121.1 Definitions.

1. *Contractor* means any person, firm, partnership, corporation, association, or other organization or any combination thereof who erects, constructs, enlarges, reconstructs, alters, repairs, moves, improves, removes, converts, demolishes, or equips any building, structure, or equipment as an occupation and as authorized by a license or registration. A contractor must have a certified supervisor or registrant as an

employee or principal. All licenses or registrations shall be issued in the name of the contractor. If the contractor is an individual, then the individual may also qualify as the certified supervisor after examination.

2. *Certified Supervisor* means an individual who meets all the following:

   A. Passes the test required by the *building official* evidencing the certified supervisor's satisfactory knowledge of the applicable code or codes.

   B. Takes an active role in supervising and reviewing all work performed and materials used by the contractor in the process of construction.

   C. Acts as the agent for the contractor and is responsible for all actions in connection with the license and all permits obtained under the license.

   D. Is employed by only one contractor at any given time.

   E. Is the principal contact between the contractor and the Agency for code compliance, inspection requests, license renewal, and other obligations imposed by the Code.

3. *Registrant* means a master plumber or master electrician licensed in the State of Colorado and registered with the Agency.

121.2 Licenses or Registration Required. Licenses shall be required for any work requiring a permit. Electrical and plumbing contractors must register with the Agency.

Exceptions:

1. Public utility companies will not be required to obtain licenses when engaged in the installation, operation and maintenance of their equipment used for the production, generation, or distribution of the utility, product, or service through the facilities owned or operated by the utility company to the point of customer service.

2. Work performed by an owner and occupant of a single unit dwelling and when work is performed under a permit authorized by Section 131.4.

121.3 Application. Every applicant for a license or registration shall fill out a form provided by the Agency. The name of the certified supervisor or registrant shall appear on the license or registration application. The applicant shall be notified of the action taken on the license or registration application by the Agency. If the application is *approved*, the applicant shall procure the license or registration within 90 days of notification. Failure of the applicant to procure the license or registration shall require the filing of a new application. If the application for license is denied by the *building official*, the applicant may appeal to the Board of Appeals in the manner provided for in this code.

121.4
RESERVED

121.5 Contractor licensing requirements for access control system work. A licensed *access control system contractor* is required to obtain the permit necessary to install *access control systems* and components, including but not limited to: delayed egress systems, telephone entry systems, electric door strikes, electromagnetic locking hardware, electrified locksets, electrically operated panic hardware, card readers, controllers, and other

access control equipment. The *access control system contractor* may perform all work related to the installation of the *access control system*.

121.5.1 Access control system contractor license. The *access control system contractor* license is authorized and classified by the provisions of the *Code*. All applicable requirements of the Administration Section shall be satisfied in order to obtain the *access control system contractor* license. The access control contractor may perform all work directly related to the *access control system* except as limited by Section 121.5.2. The access control contractor may perform the following types of related work:

1. The installation of all *access control system* components including but not limited to: control panels, electromagnetic locking hardware, electrified locksets, *electric strikes*, electrically operated panic hardware, card readers and power supplies that are not hardwired to the building's electrical power distribution system.
2. The installation of all associated interconnecting wiring between *access control system* components necessary for operation of the system except electrical circuits that are powered with more than 48-Volt-AC/DC.
3. The installation of raceways and conduits that only contain wiring for the interconnection of the various access control components.
4. The modification of doors and door frames required to install the various access control components if the modification does not void the *listing* and *labeling* of a fire rated door and/or door frame and the work necessary for the replacement of existing doors and/or door frames in existing openings.

An *electrical contractor* or an *electrical signal contractor* shall not perform the work that requires an *access control system contractor* unless allowed by other provisions of this code. The modification of doors and door frames may be performed by a properly licensed building contractor (Class A or B) or by one of the Class D building specialty contractors licensed to install or perform work on doors.

121.5.2 Requirements for work not performed by an access control systems contractor. The work related to the installation of the *access control system* listed below shall not be performed by the *access control system contractor*. Said work shall be performed by a contractor that is licensed by the classification provisions of the Code to perform the work as described in this Section:

1. The wiring and modifications necessary to connect the *access control systems* to the fire alarm system shall be performed by an *electrical signal contractor* or an electrical registration contractor.
2. The wiring and modifications necessary to connect the *access control system* to elevator control system shall be performed by a licensed elevator contractor.
3. Any work on electrical circuits that are powered by more than 48 Volt-AC/DC, including the hard-wiring of power supplies for the *access control system* to the building's power system, shall be performed by an electrical registration contractor.
4. The installation of conduits or raceways that are intended to contain wiring for any of the following types of circuits:
    A. Circuits that carry more than 48 Volt-AC/DC shall be performed by an electrical registration contractor.
    B. Circuits that are a part of the building's fire alarm system shall be performed by an *electrical signal contractor* or an electrical registration contractor.

C. Circuits that are a part of an elevator control system shall be performed by an elevator contractor.

5. The construction of new walls and the installation of new doors and/or door frames in new openings shall be performed by a Class A or Class B building contractor or by one of the Class D building specialty contractors licensed to perform the work.

6. The work necessary to modify fire rated doors and door frames is required to be performed by the doors' manufacture or other *approved* door fabrication shop *approved* by the agency that provides the *listing* for the door and door frames.

SECTION 122 CERTIFIED SUPERVISOR CERTIFICATES

122.1 Certificate Application. Every applicant for a certified supervisor certificate shall be required to complete a form provided by the Agency.

122.2 Examinations. All applicants for a certificate shall pass a written examination with the exception of those who apply for a Construction D Supervisor Certificate. Such applicants shall be examined for experience and training by a standard procedure established by the *building official*. If an applicant who has successfully passed the examination given by the Agency fails to procure this certificate within 90 days of notification, the certificate shall be declared null and void and a new application shall be filed.

122.3 Reciprocal Certificate. certificates issued by other jurisdictions are not valid in the City, however the *building official* may accept the examination results of the issuing jurisdiction as equivalent when requested, as part of a completed application with supporting documents, and required application fees.

122.4 Requirements. A license shall be valid only as long as the named supervisor remains in the employ of the licensed contractor in an active, full-time capacity. "Active, full-time capacity" means that the supervisor shall be available, virtually, by phone, at the local office of the contractor, at home, or at the job site within a reasonable period of time. If the certified supervisor should leave the employ of the licensed contractor, the licensed contractor shall notify the *building official* within 3 working days after the termination. Failure of the licensed contractor to notify the *building official* shall be cause for suspension or revocation of the license. The licensed contractor shall be required to obtain a certified supervisor within 30 working days after the date the supervisor leaves the employ of the licensed contractor. If a supervisor is not obtained within the 30-working-day period, the license shall be deemed suspended until a certified supervisor is obtained and the *building official* is notified. Licensed contractors may employ multiple certified supervisors in order to meet the city's requirement that a supervisor of record perform on site supervision of all work performed. General supervision over all trades must be performed only by certified supervisors certificate holders who have agreed to work as supervisors of record on the specific license for all permitted work under the Code. The Certificate is personal to that certified supervisor and shall not be construed to be a license.

SECTION 123 RESERVED

SECTION 124 EXAMINATION STANDARDS AND REVIEW

124.1 Examination Standards. The *building official* shall establish minimum standards for the education and experience and develop standards for the examination of applicants for certificates. The standards shall be consistent with the purpose of this code, which is to provide for the public health, safety, and welfare to the extent that those persons examined are to be found qualified in terms of their skills, Code knowledge, practical

experience, and knowledge of pertinent laws to perform the construction work for which they may be certified. The Agency shall examine applicants in the areas of this code applicable to the type of license, certificate, technical knowledge, and specific skills.

124.2 Standards Review. The standards shall be reviewed by the *building official* as required to maintain currency with changes in the Code and building construction practices.

SECTION 125 RENEWAL, REISSUANCE, CHANGES AND FEES

125.1 Renewal and Expiration. Licenses, registrations, and certificates shall be renewed every 3 years and expire on the date specified on the certificate. However, plumbing registrations shall be renewed every 2 years. No work shall commence or continue after the date of expiration.

125.2 Reissuance.

125.2.1 Licenses. The *building official* may reissue an expired license or registration without the filing of a new application, provided that the reissuance is accomplished within one year after the license has expired.

125.2.2 Certificates The *building official* may renew an expired certificate, provided that the renewal is accomplished within the limits set forth herein.

1. The certificate may be reissued without submission of a new application, provided that such reissuance is accomplished within one year of expiration of the original certificate.
2. If the certificate holder reapplies within 3 years of the date of expiration of the original certificate, a new certificate examination shall not be required.
3. If the certificate holder applies more than 3 years after expiration, a new certificate application and examination shall be required.

125.3 Changes.

125.3.1 Change of Name. The change of name by a licensed or registered contractor shall be reported to the Agency within 15 days after making the change, on a license or registration application provided by the Agency. An application fee as established by the *building official* shall be required.

125.3.2 Change of Address. A change of address of a licensed or registered contractor shall be reported to the Agency within 15 days after making the change.

125.3.3 New Licenses Required. A new license or registration shall be obtained within 30 days after the creation of a new legal entity, even if one or more of the members, officers or directors have a license or are registered, on a license application provided by the Agency.

125.3.4 Dissolution. The dissolution of a firm, partnership, corporation, association, or other organization, which has been licensed or registered, terminates the license or registration and no person may operate under that license or registration.

125.4 Fees. Licenses, Registrations, and Supervisor Certificates fees shall be set forth by the *building official* and paid every 3 years to the Agency.

Exception:

The certificate fees for employees of the City shall be waived when performing work for the City or when employed by the Agency.

125.4.1 Fee Refund. Licenses and Certificate fees shall not be refundable.

SECTION 126 LICENSED CONTRACTOR, REGISTRANT AND CERTIFICATE HOLDER RESPONSIBILITY

126.1 Licensed Contractor Responsibility. Licensed contractors shall be responsible for performing all work in conformity with the provisions of the Code, including, but not limited to, the following items:

1. To provide minimum safety measures and equipment to protect workmen and the public.
2. To employ a full-time qualified supervisor certified in accordance with the requirements of this code.
3. To obtain a permit when required prior to commencing work.
4. To hire licensed subcontractors for those trades that require a City and County of Denver license.
5. To faithfully construct, without departure from drawings and specifications filed and *approved* by the Agency and permit issued for same, unless changes are *approved* by the Agency.
6. To complete all work authorized by the permit issued under the authority of this code, unless acceptable cause is indicated to the *building official*.
7. To obtain inspection services where required by this code.
8. To pay any fee assessed under authority of this code.
9. To obey all orders or notices issued under the authority of this code.
10. To provide toilet facilities prior to and during construction or demolition.
11. To maintain with the Agency a current mailing address. Any Order, Notice, Summons and Complaint or other Agency communication, whether delivered by personal service or by mail sent to that address, shall constitute service.
12. ~~To comply with all other City and County of Denver ordinances, regulations, rules, and policies including but not limited to those included in DRMC Chapter 36, Waste No More, or as adopted DOTI Right Of Way.~~ To comply with all construction related requirements not included in this code that are required by other departments within the City and County of Denver, including, but not limited to, chapter 36 of the Denver Revised Municipal Code requirements related to Construction equipment and activities, Waste No More requirements, and all requirements from the Department of Transportation and Infrastructure related to the right-of-way.
13. To carry and maintain insurance coverage commensurate with the type of project and scope of work as defined by the *building official* in policy.

126.2 Registrant Responsibility. Registered electrical and plumbing contractors shall comply with all provisions of Section 126.1 above and in addition shall respectively comply with all provisions of the Colorado State Electrical Board and Colorado State Plumbing Board.

126.3 Certificate Holder Responsibility. All Certificate holders shall be responsible for performing all work in conformity with the provisions of the Code, including, but not limited to, the following items:

1. To have in possession at all times a Certificate.
2. Observe the safety requirements of this code.
3. To present a Certificate when requested by the Agency within a reasonable amount of time.
4. To obtain a permit when required prior to commencing work.
5. To faithfully construct, without departure from drawings and specifications filed and *approved* by the Agency and permit issued for same, unless changes are *approved* by the Agency.
6. To report in writing to the *building official*, within 3 working days, any accident occurring on any construction which results damage to the building, structure or equipment, and any accident occurring during demolition.
7. To complete all work authorized by the permit issued under the authority of this code unless acceptable cause is indicated to the *building official*.
8. To obtain inspection services where required by this code.
9. To pay any fee assessed under the authority of this code.
10. To obey all orders or notices issued under the authority of this code.
11. To actively supervise and oversee all work performed by or for the licensee by whom he is employed.
12. To maintain with the Agency a current mailing address. Any Order, Notice, Summons and Complaint or other Agency communication, whether delivered by personal service or by certified, registered or first-class mail sent to that address, shall constitute service.
13. Out of state Certificate holders shall maintain a current local mailing address on file with the Agency and accept all mail so addressed for the duration of the job.
14. To notify the Agency within 3 days whenever he/she leaves the employ of licensee.
15. To comply with all construction related requirements not included in this code that are required by other departments within the City and County of Denver, including, but not limited to, chapter 36 of the Denver Revised Municipal Code requirements related to Construction equipment and activities, Waste No More requirements, and all requirements from the Department of Transportation and Infrastructure related to the right-of-way.

126.4 Demolition and Moving Liability Insurance. Any contractor demolishing or moving any building, structure, or equipment shall, by means of commercial insurance or self-insurance, procure and maintain insurance coverage to fulfill the insurance requirements set forth by policy. The required insurance coverages shall be kept in force at all times during demolition or moving operations. The insurance coverages set forth in the policy are the minimum requirements, and these requirements do not lessen or limit the liability of the contractor. The contractor shall maintain, as its own expense, any additional kinds or amounts of insurance that it may deem necessary to cover its liabilities. The contractor will submit evidence of required insurance coverage in the form of an ACORD certificate. The City's Risk Management Office may require additional proof of insurance, including but not limited to, policies and endorsements. Additional insurance coverage may

be required by the Office of Risk Management for contractors utilizing explosives in their demolition operations.

SECTION 127 DENIAL, SUSPENSION OR REVOCATION OF LICENSE OR CERTIFICATE

127.1 Authority. The *building official* may deny, suspend, or revoke a license or supervisor certificate resulting from any of the following acts or omissions:

1. Subsequent discovery of facts that if known at the time of issuance or renewal of a license or certificate would have been grounds to deny the issuance or renewal of a license or certificate.
2. Negligence, incompetence, lack of knowledge, or disregard of this code and related laws and rules.
3. Failure to notify the *building official* in writing within a period of three (3) working days of any disassociation of the certified supervisor who enabled the licensee to qualify for the license.
4. Knowingly entering into a contract with a contractor for work to be performed for which a license is required with a person not duly licensed in the required classification.
5. Failure to comply with any of the licensee or certificate holder responsibilities as outlined in this code.
6. Allowing one's license or certificate to be used by another person.
7. Acting as agent, partner, associate or in any capacity with persons to evade the provisions of this code.
8. Creates, because of work performed, an unsafe condition as defined by this code.
9. Intentionally or fraudulently misrepresents the condition of any structure or equipment, or the requirements of this code.
10. Fraud, misrepresentation, or bribery in securing a sign-off of work or a temporary or permanent certificate of occupancy. Violates or disregards any of the provisions of this code or fails to obey orders of the *Building Official*.
11. Threatens or assaults any representative of the Agency.
12. Receives a conviction or judgement by a court having competent jurisdiction for negligence, a felony, or civil or criminal fraud, constructive or actual related to the license or certificate holder's duties or work as regulated by the jurisdiction under this code.
13. Violation of any provision of the ordinances of the city having any bearing upon or relation to the work or services performed under the license.

127.2 Procedure. When any of the acts or omissions enumerated herein is committed by a licensed contractor or certificate holder and the *building official* deems that the license or certificate shall be suspended or revoked, the action shall be as follows:

1. **Notification.** The Agency shall send written notice to the licensed contractor or certificate holder, by certified mail or by personal service, identifying the acts or omissions and indicating that the license or certificate will be suspended or revoked. The written notice shall advise the licensed contractor or certificate holder that a "Request for Hearing" may be initiated as outlined herein.
2. **Request for Hearing**. Upon receipt of the notice, the licensed contractor or certificate holder may request a hearing with the Executive Director of CPD to show cause why the license or certificate

should not be suspended or revoked. This request shall be submitted in writing to the *building official* within 7 days of receipt of the notice.

3. **Time of Hearing**. If a hearing is requested by the licensed contractor or certificate holder, the *building official* shall notify the holder of the time, date and place of the hearing. Suspension or revocation of the license or certificate shall be stayed pending the hearing.

4. **Attendance**. The licensed contractor or certificate holder, the *building official* and other interested parties may be in attendance at the hearing. In the event the licensed contractor or certificate holder fails to appear, the license or certificate shall be suspended or revoked by the *building official*. Upon completion of the hearing, the Executive Director of CPD shall take under advisement all evidence available as a result of the Agency's investigation and all evidence presented at the hearing and shall give written notice of the findings and ruling to the license or certificate holder by certified mail or personal service. The Executive Director of CPD may appoint a hearing officer to conduct the hearing. Final decision shall be rendered by the Executive Director of CPD.

5. **Suspension or Revocation**. Unless the license or certificate is being suspended or revoked under the emergency provisions of this Section, the suspension or revocation shall take effect:

   A. Seven (7) days after receipt by the license or certificate holder of the initial notification, unless a hearing is requested.

   B. Upon the return by the U.S. Postal Service of the initial notification as undeliverable or refused at the address maintained by the license or certificate holder with the Agency.

   C. If a hearing has been requested, which resulted in the affirming of the *building official*'s decision to suspend or revoke the license or certificate, upon receipt by the Agency of the Executive Director's decision.

6. **Right to Appeal.** Any final decision by the Executive Director of CPD may be reviewed in the manner provided by the Colorado Rules of Civil Procedure.

127.3 Emergency Suspension or Revocation. If the *building official* finds that cause exists for emergency suspension or revocation of a license or certificate, and that continued work under the license or certificate could be hazardous to life or property, the *building official* may enter an order for the immediate suspension or revocation of the license or certificate, pending further investigation. The license or certificate holder may request a hearing, as outlined in this Section, and such hearing shall be granted within five (5) business days. The suspension or revocation is not stayed while the hearing is pending.

127.4 Term of Suspension or Revocation. The *building official* may suspend or revoke a license or certificate for up to three (3) years. A license or certificate revoked by the *building official* shall not be eligible for reapplication for a period of up to five (5) years.

Sections 128 and 129 are reserved.

SECTION 130 PERMITS

130.1 Permits Required. No person, firm, partnership, corporation, association, or other organization or any combination thereof shall erect, construct, enlarge, remodel, alter, repair, move, improve, remove, convert, deconstruct, demolish, or change the occupancy of any building, structure or equipment, or perform any other work regulated by this code, or cause the same to be performed, in the City, without first having

obtained a permit from the Agency for the specific work to be performed. This permit shall be displayed or available on the job site at all times. The issuance of a permit or the approval of drawings and specifications shall not be construed to be a permit for, nor an approval of, any violation or deviation from the provisions of this code or other ordinances, laws, rules, or regulations. The Agency shall take any action it deems necessary to ensure that all work performed meets all requirements of this code. For work performed on an emergency basis outside of normal business hours (8:00 AM – 5:00 PM, Monday - Friday, except City holidays), and to maintain an existing service or equipment when the maintenance is necessary to protect health, life or safety, the application for a permit shall be made within 3 normal working days after commencement of the emergency work. All emergency work is required to meet this code and the Agency may require modifications to installed elements or systems accordingly.

130.2 Reserved

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

Repairs are exempt from the permit requirements of this code. Repairs for mechanical, electrical, and plumbing work are limited by provisions of Sections 130.3.1 through 130.3.3. Repairs shall not include the removal or cutting of any structural beam or load-bearing support, or the removal or change of any required means of egress, or rearrangement of parts of a structure affecting the egress requirements.

1. One-story, detached, non-conditioned accessory buildings or structures; used as tool and storage sheds, playhouses, and similar uses; no more than 200 square feet (18.58 m^2) of projected roof area, 8-ft (2438 mm) top plate height, or 14-ft (4267 mm) maximum height to any point. Heights shall be measured from lowest adjacent grade to the accessory structure. A maximum of two lights and two receptacles are permitted with a valid electrical permit.

2. Fences of any type not over 4 feet (1220 mm) high. Posthole-dug fences up to 8 feet (2440 mm) high, such as chain link, cedar pine, redwood, and wrought iron. ~~However, any fence providing a barrier for a swimming pool or spa requires a permit.~~

   Exception: Any fence providing a barrier for a swimming pool or spa requires a permit.

   ~~**Exception:**~~

   ~~When the fence is for a structure that is a designated structure for preservation or is in a district designated for preservation pursuant to Chapter 30, Denver Revised Municipal Code, a building permit and approval from the local preservation authority shall be required.~~

3. Retaining walls, including fences or walls on top of retaining walls, not over 4 feet (1220 mm) in ~~aggregate~~ total height measured from the bottom of the footing to the top of the wall or fence.

   ~~,~~**Exception:** ~~-~~Retaining walls ~~unless~~ supporting a surcharge or impounding Class I, II or III-A liquids. ~~Permits shall be required through the Department of Transportation and Infrastructure for all retaining walls constructed in association with water detention or retention ponds.~~

   ~~**Exception:**~~

~~When the retaining wall is for a structure that is a designated structure for preservation or is in a district designated for preservation pursuant to Chapter 30, Denver Revised Municipal Code, a building permit and approval from the local preservation authority shall be required.~~

4. Oil derricks.

5. Nonfixed and movable fixtures, cases, racks, counters, and partitions not over 5 feet 9 inches (1750 mm) high.

6. Water tanks supported directly upon grade where the capacity does not exceed 5,000 gallons (18,930 L) and the ratio of height to diameter or width does not exceed 2 to 1.

7. Flatwork (hardscape) including sidewalks, ramps, and driveways, with walking surfaces not more than ~~less than~~ 30 inches (760 mm) above grade, not over any basement or story below and not part of an accessible route.

8. Uncovered decks including associated guards, stairs, and ramps that do not exceed~~ing~~ 200 square feet (18.58 m^2) in area, with walking surfaces that are not more than 30 inches (762 mm) above grade at any point, and are regulated by the *Denver Residential Code*.

9. Painting, papering, tiling, floor coverings, countertops, carpeting, cabinets, curtains, drapes, and similar decoration items. ~~except those~~Such items shall ~~regulated by~~comply with Chapter 8 of the *Denver Commercial Building Code*.

10. Gypsum board (drywall) ~~that is not part of a fire resistive rated assembly and~~ if repairing or replacing not more than 32 square feet.

    Exception: Gypsum board (drywall) that is part of a fire resistive rated assembly and regulated by the *Denver Commercial Building Code*.

11. Temporary motion picture, television and theater stage sets or scenery.

12. Window awnings supported by an exterior wall of one- and two-family dwellings, townhouse units, Group R-3 and Group U Occupancies when projecting not more than 54 inches (1370 mm) over privately owned property and do not require additional support.

13. Prefabricated swimming pools accessory to one- and two-family dwellings, townhouse units, and Group R-3 Occupancies that are less than 24 inches (610 mm) deep, are not greater than 5,000 gallons (18 925 L) and are installed entirely above ground.

14. Public utility: Construction, repair, or maintenance of public utility equipment and facilities used in the storage or distribution of their utility. This exemption includes buildings whose primary function is to house utility distribution or signal control equipment and not intended for human occupancy. Buildings or structures enclosing energy storage systems (batteries) are not exempt from a permit.

15. RTD Light and Commuter Rail construction on RTD right-of-way. Refer to Section 103.9.

16. State and federal governments, their agencies or subdivisions, ~~or contractors constructing improvements for said State and federal governments, their agencies, or subdivisions,~~ when constructing improvements to be used by, and maintained entirely and strictly for the operation of said governments.

17. Replacement of glass not in hazardous locations (see Section 2406.4 of the *Denver Commercial Building Code* and Section R324.4 of the *Denver Residential Code*).

18. Site development work including grading, water detention/retention ponds and soil erosion control. The Department of Transportation and Infrastructure will require permits for this type of work.

19. Denver Public Schools (D.P.S.): Construction of any school authorized to be reviewed, permitted, and inspected by the Division of Fire Prevention and Control in the Department of Public Safety of the State of Colorado in accordance with Colorado Revised Statute Section 22-32-124~~., remodeling, or repair of any plumbing or electrical system, except for fire alarm and detection systems, in any portion of a building in which instruction is or will be given by any D.P.S. school as long as such work is permitted and inspected by the State Examining Board of Plumbers or the State Electrical Board.~~

20. Tents, 200 sq. ft. or less and freestanding canopies with a covering of fabric or pliable material 400 sq. ft. (37 m^2) or less, open on 3 or more sides.

21. Membrane structures, including tents and canopies of any size, erected for a period of less than 180 days. -The Division of Fire ~~Department~~Prevention will require permits for this type of work.

22. Illuminated and non-illuminated signs of the following types do not require a construction permit. Illuminated signs require an electrical permit.

    a. Cloth signs mounted directly on a wall.

    b. Wall signs not exceeding 200 sq. ft. (19 m^2) in area.

    c. Ground signs not exceeding 150 sq. ft. (14 m^2) in area, or not exceeding 6 feet in height to the top of the sign.

    d. Projecting signs not exceeding 2.5 sq. ft. (0.23 m^2).

23. Replacement of awning fabrics.

24. Replacement of windows and doors with no structural alterations and no change in size of opening in one- and two-family dwellings and townhouse units.

    Exceptions:

    1. When structure is a designated structure for preservation or is in a district designated for preservation pursuant to Chapter 30, Denver Revised Municipal Code, a building permit and approval from the local preservation authority shall be required.

    2. When the replacement window or door is in a hazardous location. (see Section R324.4 of the *Denver Residential Code*).

25. Swings, playsets, slides, treehouses, and other playground equipment intended for children's use whether premanufactured or custom-built.

26. Temporary structures or temporarily-placed relocatable buildings for use by licensed contractors at the construction or demolition site.
    Exception: An electrical permit is required unless otherwise exempted by Section 130.3.2.

27. Construction trailers used exclusively by the contractor for the purpose of managing projects that are not open to the general public and that are completely within the property lines of the project.

    Exception: An electrical permit is required unless otherwise exempted by Section 130.3.2.

28. Excavations that are exempt from excavation, shoring, sloping, or benching permits as clarified through building code policy.

29. Window well covers and ladders regulated by the *Denver Residential Code*.

130.3.1 Mechanical. No mechanical permit shall be required for bath fan installation in existing one- and two-family dwellings and townhouse units, however, electrical and construction permits shall be required. No mechanical permit shall be required for all general repairs and replacements of like units unless the work involves disconnection and reconnection of any of the following:

1. Natural gas line (except replacement of gas valve with like unit).
2. Flue vent from fuel-fired appliance.
3. Refrigerant line.
4. Steam line or hot water line.
5. Safety controls on high pressure boilers.

130.3.2 Electrical. No electrical permit shall be required for work that is exempt from permit requirements in ~~NFPA 70~~ the Electrical Code as adopted by the State of Colorado ~~the current National Electrical Code, as adopted by the State of Colorado~~, or for work that is exempt from permit requirements under the provisions of Title 12, Article 23, Section 111, Colorado Revised Statutes, as amended.

130.3.3 Plumbing. No plumbing permit shall be required for:

1. General repairs in one- and two-family dwellings and townhouse units that do not alter existing systems, including replacement of like units such as bathroom/kitchen sinks, garbage disposals and water closets.
2. Replacement of sinks, garbage disposals and water closets with like units; faucet and trap replacement or repair in commercial buildings. Permit shall be required for all other plumbing work in commercial buildings.

130.4 Buildings, Structures, and Utilities not Regulated by this code. The ~~C~~code does not regulate the following:

1. Work located primarily in the public way unless specifically provided for by this code.
2. Public utility towers, poles, and mechanical or electrical equipment used for the production, generation, storage, or distribution of the utility product or service through the facilities owned and operated by the utility company to the point of customer service.
3. RTD Light and Commuter Rail construction on RTD right-of-way. Traction power substations, signal/communication relay cases and housing, associated conduit, and wiring for the operation of the light rail and commuter rail lines and the construction of the light rail station platforms.

Exceptions:

1. Construction of commuter or light rail platforms and any amenities including, but not limited to, canopies and driver relief stations, along with ramps, stairways, lifts, elevators, and escalators.

2. Any retaining walls that support adjacent private or public right-of-way, but not those associated with support of the train system tracks.

SECTION 131 PERMIT ~~APPLICATION AND~~ ISSUANCE AND VALIDITY

131.1 Application. The owner or the owner's agent shall apply for a permit through methods described by the Agency. The applicant should exercise care in completing the necessary information, especially addresses, as permits are nontransferable, unless the address change is approved by the *building official*.

~~**Exception:** The Agency may correct minor errors in the address if the change can be made on all copies of the permit and initialed by the inspector.~~

131.2 Expiration of Application. An application for permit shall expire if any of the following occur:

1. The plan review fee required by Section 138.1, where applicable, is not paid within 45 days of the invoice assessment date.

2. Applicant's inactivity on any outstanding review on the application exceeds 90 days.

3. No permit is issued prior to the later of the following dates:

   3.1 The effective date of the city council enactment of an edition of an International Code Council code later than 2024.
   3.2 The date 550 days (18 months) after the date the invoice is assessed on the initial submittal of construction documents to the Agency.

No extensions of time will be granted. To initiate a new application after expiration, the applicant shall submit design plans complying with the code in effect at the time of the new application.

131.3 Issuance of Permits. The Agency shall issue permits to perform *approved* work shown on submitted documents and as specified on the permit, when all phases of the project conform to the requirements of this code and those of the Department of Transportation and Infrastructure, Zoning Administration, Denver Department of Public Health and Environment, Denver Water, Denver International Airport, the ~~Denver~~Division of Fire ~~Department~~Prevention, applicable Section 138 fees associated with the permit have been paid, and the permit is issued, as appropriate, to:

1. A contractor licensed or registered under Section 121.

2. A homeowner(s) or legally authorized agent applying for a permit under Subsection 131.4.

3. The owner or owner's agent of a Group R-1, R-2, R-3, or R-4 occupancy building installing battery-operated smoke detectors.

4. An owner or owner's agent to establish a new Certificate of Occupancy when no construction work is to be done.

131.3.1 Amended construction documents. Work shall be installed in accordance with the approved construction documents, and any changes made during construction that are not in compliance with the approved construction documents shall be resubmitted for approval as an amended set of construction documents and based on the Code in effect at the time of original construction drawing application submittal to the Agency.

131.4 Homeowner (owner-occupier) permits.

131.4.1 Definitions:

DESIGNATED WORKER. A person who may assist the owner-occupier or *legally authorized agent* with homeowner exams and completing the permitted work.

OWNER-OCCUPIER. A person listed in the Denver Property Taxation and Assessment System who currently owns and occupies the one-family dwelling, or who intends to own and occupy it upon completion of the permitted work.

LEGALLY AUTHORIZED AGENT – For the purposes of this code section, a legally authorized agent includes:

Holder of a Power of Attorney of ~~o~~Owner-~~o~~Occupier: ~~A person possessing a document that enables one person (the agent or attorney-in-fact) to act on behalf of another (the principal) in specified matters, such as obtaining and managing building permits. This authority can be tailored to be either specific or broad and may take effect immediately or upon the principal's incapacity~~.

~~**Duly Appointed Agents of a Trust**~~**The Trustee of a Trust:** ~~Individuals designated to manage the assets and affairs of a trust according to its terms, with the legal authority to make decisions on behalf of the trust and its beneficiaries~~.

~~**Executors of a Homeowner's Will**~~**The Personal Representative of a Decedent's Estate:** ~~Individuals named in a will to administer the estate of a deceased homeowner, responsible for carrying out the instructions outlined in the will, managing assets, settling debts, and distributing property to beneficiaries~~.

131.4.2 Permits. Homeowner permits are subject to the following conditions:

1. The work is for a one-family dwelling or its accessory structures. ~~with e~~Excavations and shoring are limited to excavations ~~less than~~ 4-feet or less in depth.
2. The owner-occupier or legally authorized agent must be the person to obtain permits, pass homeowner exams, and perform the permitted work. If approved by the building official, the owner-occupier or legally authorized agent may serve as a general contractor responsible for hiring licensed contractors in the City of County of Denver to perform the permitted work.
3. A designated worker may assist the owner-occupier or legally authorized agent with homeowner exams and performing the permitted work. A licensed Denver contractor may not serve as a designated worker.
4. A recognized volunteer organization may assist with the permitted work with approval from the building official.
5. The owner-occupier or legally authorized agent must own and occupy the one-family dwelling or agree to do so for at least 12 months after completion of the work.

6. Permits will be issued to the owner-occupier or legally authorized agent only for a one-family dwelling and its accessory structures located at one address. The owner-occupier or legally authorized agent must wait 5 years from the last date of permit issuance of a homeowner permit at one address before obtaining a homeowner permit at a separate address.

131.5 Transfer of Permits. Permits shall not be transferred without first submitting a request to the Agency and obtaining a new permit with the revised information.

131.6 Cancellation of Permit by Contractor. The contractor may cancel the permit by notifying the *building official*. A new permit shall be obtained for the work to be completed. An administrative fee as set forth by the *building official* will be charged. Additional administration, plan review and inspection fees may be charged to recover the cost incurred by the Agency.

131.7 Voided Permit.

1. A construction permit may be voided by the Agency when:
   a. Work is not commenced within 60 days from the date of permit issuance; or
   b. Work is suspended or abandoned for a period of 60 days after work is commenced; or
   c. No request for any kind of inspection has been made for a period of 60 days.
2. A demolition permit may be voided by the Agency when:
   a. Work is not commenced within 30 days after the date of issuance.
   b. Work is suspended or abandoned for a period of 10 days after work is commenced.
3. Before work can be recommenced, new plans may be required to be submitted, and a new permit obtained. Any fees shall be in accordance with the current fee schedule.

131.8 Suspension, Revocation, New Permits.

1. The *building official* may suspend or revoke any permit for any of the following reasons:
   a. When a permit has been issued in error.
   b. When the nature, scope or details of a project have been misrepresented to the Agency by the applicant, design professional, owner, or owner's agent.
   c. When there is a violation of any provisions of this code or any City ordinance which the Agency is empowered to enforce.
   d. When the continuance of any work becomes dangerous to life or property. When the work built or constructed in the field differs from that of the plans approved by the Agency
2. The *building official* may re-establish a suspended permit within one year of permit suspension, provided that all conditions leading to the suspension are abated, the same year and printing of this code is in force, and upon payment of a fee as set forth by the *building official*. A suspended permit that is not so re-established shall require submission of a new permit application for consideration, under the current code enforced at that time.

3. Notice of the suspension or revocation of a permit for reasons stated in this Section shall be in writing and shall be served upon the holder of the permit and the owner. It shall be unlawful to proceed with any work once the notice is served.

131.9 Access control system permit. In order to perform work on an *access control system* an access control permit shall be obtained prior to the start of work on the system. All the provisions of Section 131.9 shall be satisfied prior to the issuance of an *access control system* permit.

The Access Control Permit allows the installation of *access control systems* and electric door locks in existing buildings, additions, and new buildings. The Access Control Permit allows all the following types of permits and their corresponding *access control system* related work to be combined into one application (all permit types may not be required for each *access control system* application):

1. Construction Permit – Work performed for the installation of doors or *approved* modifications to doors and door jambs.

2. Fire Alarm Permit – Work performed for the interconnection of the *access control system* with the fire alarm and *fire detection system*.

3. Electrical Permit – Work performed for the installation of the *access control system* or component that requires circuits that carry more than 48 Volt-AC/DC, and work performed for an existing luminaire to provide emergency lighting required for the *access control system*. A new luminaire provided for emergency lighting requires a separate electrical permit.

131.9.1 Work requiring an access control permit. An *access control system* permit is required when a new *access control system* or electric locking systems are being installed or an existing system or electric lock is being modified in any new or existing building. An access control permit is also required when the *access control system* is installed outside of a building and any one of the following conditions occur:

1. The exterior *access control system* limits or affects the occupants of the building in their ability to reach the public right-of way or a required safe dispersal area as required by Section 1028.5 of the *Denver Commercial Building Code*.

2. The exterior *access control system* limits or restricts the use of an accessible route into the building.

3. The exterior *access control system* is interfaced and connected with a building's fire alarm system.

4. The exterior *access control system* is interfaced and connected to a building's elevator system.

131.9.2 Scope of work covered by an Access Control Permit. The Access Control Permit must be completed by the following licensed contractors as required by Section 121.5.1 and Section 121.5.2:

1. Access Control System Contractor

2. Electrical Signal Contractor

3. Electrical Registration Contractor

4. Building Contractor: Class A or B

5. Building Specialty Contractor Class D (related to the installation of new door and door frames and the *approved* modification of fire rated and *labeled* door and door frames).

Although the name and license number of the elevator contractor is required to be provided on the Access Control Permit, the work related to the elevator system is not covered by the Access Control Permit. A separate elevator permit shall be obtained by a licensed elevator contractor in conjunction with the Access Control Permit when the *access control system* interfaces with the elevator system.

131.9.3 Issuance of an Access Control Permit. An Access Control Permit shall only be issued to a properly licensed *access control system contractor*.

Exception: The Access Control Permit may be issued to a properly registered electrical registration contractor unless the *access control system* requires any of the following types of work or cause any of the following conditions to occur:

1. Limits or restricts *mechanical free egress*.
2. Requires work to install or modify fire rated door and/or door frames.
3. Requires work to replace doors and/or door frames.

*Contractors may print a copy of the permit inspection re*cord card available on the CPD website. Alternatively, CPD will provide a permit inspection record card to the contractor upon issuance of the permit. The Access Control Permit contractor is responsible for obtaining the required signatures on this card for all work requiring inspection and approval by CPD.

131.9.4 Access Control Permit application requirements. All the submittal requirements of Section 131.9.4 shall be satisfied prior to acceptance of the Access Control Permit application by the Agency.

131.9.4.1 Application procedures. The applicant for the Access Control Permit shall be the contractor that will be performing the access control work or their authorized representative. The applicant is responsible for completing the permit application on the form provided by the Agency. A complete description of work is to be provided with the application. The names and license numbers of the other contractors that will be performing work under the Access Control Permit shall be provided on the permit application. If the *access control system* interfaces and connects with the building's elevator system, the name and license number of the elevator contractor shall be provided on the permit application for the Access Control Permit. The permit application along with all the other submittal items required by Section 131.9.5.2 shall be presented for acceptance in the manner and at the location established by the Agency.

131.9.4.2 Plan submittal requirements. ~~Two sets of drawings, or one electronic~~A set of drawings showing the entire scope of the work to be performed shall be submitted with the Access Control Permit application.

131.9.4.2.1 Responsible designer. The drawings shall be prepared under the direction and control of one of the following:

1. A licensed *access control system contractor*. The contractor shall indicate their review and acceptance of responsibility for the system's design by providing an original signature and the date of signature along with their contractor license number on each drawing sheet. Alternatively, electronic drawings shall have contractor's company name and license number on each sheet and the electronic drawing file shall have a single electronic signature and date on the first sheet.
2. A licensed *access control system* supervisor. The supervisor shall indicate their review and acceptance of responsibility for the system's design by providing an original signature and the date of signature along with their contractor license number on each drawing sheet Alternatively, electronic drawings shall have supervisor's name and certificate number on each sheet and the electronic drawing file shall have a single electronic signature and date on the first sheet.
3. A Colorado licensed design professional. The design professional shall indicate that they are the person responsible for the design of the system by placing their State of Colorado design

professional seal on each drawing sheet. The seal shall be original, or computer generated. The signature and date of signature shall be original. drawings shall have design professional seal on each sheet and the electronic drawing file shall have a single electronic signature and date on the first sheet.

The name, mailing address and phone number of the person accepting responsibility for the drawings and system design shall be indicated on the plans submitted with the Access Control Permit application in accordance with the Access Control Permitting Guide.

131.9.4.2.2 Drawing content. The plans submitted shall provide all the following information:

1. The address of the building shall be included on the drawings along with a description of the location of the work.

2. The plans shall clearly indicate all doors that have *mechanical free egress*. If *mechanical free egress* is not being provided, as allowed by the provisions of this code, the plans shall clearly indicate the doors that do not provide *mechanical free egress*.

3. Floor plans, drawn to scale, showing the device locations and door swing direction in plan view(s). The location of all equipment involved shall be shown on the plan view(s). The location of exit signs and the path of egress shall be shown. The floor plans shall provide sufficient information so that the effect of the *access control system* on the means of egress from the floor can be fully evaluated.

4. A door and hardware schedule that specifies the type and size of each door and the hardware type and function being provided on each door.

5. A detailed narrative shall be provided that describes the system sequence of operations.

6. When the installation of the system requires the penetration of fire rated assemblies, details and/or specifications shall be provided that indicate how the fire rating of the assembly will be maintained at the penetration in accordance with Chapter 7 of the *Denver Commercial Building Code*.

7. A one-line diagram of the system design shall be provided. The diagram shall include the source of power, battery backup if provided, and interconnection with burglar alarm, fire alarm, or elevator control systems if provided. All devices in the design shall be shown on the one-line diagram. When the source of power is provided by a plug-in power supply such device shall be clearly noted on the diagram.

8. Point-to-point wiring details of all connections, including all interconnections to other building systems shall be shown. Other building systems include but are not limited to: the power distribution system, the fire alarm system, and the elevator control system.

9. Manufacturer's specification sheets for all devices that are part of the scope of work shall be provided. Specification information shall include the *approved* testing agency's file number for each device. One complete set of specification sheets should be attached to each set of plans.

131.9.4.3 Other submittal requirements. When fire rated door and or door frames are shop modified to accommodate the *access control system* installation, documentation shall be submitted with the permit application that indicates the modifications performed and the name of the shop that performed the modifications to the door or door frame. All modifications to fire rated door and door frame assemblies shall be performed by a shop that is *approved* by the *listing* and *labeling* agency as an *approved* fabricator.

131.9.4.4 Valuation of work. The applicant shall provide a statement for the valuation of the work to be performed under the *access control system* permit. The valuation of work shall be provided on the Access Control Permit application form provided by the Agency. The valuation of work shall include the contractor's profit, cost of materials, labor and overhead.

131.9.4.5 Plan review fee. Once the Access Control Permit application is reviewed and determined to be complete the applicant shall be required to pay the plan review fee required by the *Code*.

131.9.4.6 Plans review. Upon payment of the plans review fee the Access Control Permit application will be placed in the queue of the tracking system for the plans review process. The applicant will be given an application tracking number (log number). Once the plans review has been performed the applicant will be notified if the application is approved or denied. If the application is denied, the applicant will be provided with a written list of comments that describe the reasons for the denial of the application. Upon resolution of the plans review comments the application will be *approved*. The permit will be issued upon payment of the Access Control Permit fee and any additional plan review fee or other fee required by the *Code*.

SECTION 132 PERMIT APPLICATION

132.1 General. Submission of an application for permit, including drawings and specifications is required to be provided for review and approval by the *building official* prior to the issuance of a permit, except as set forth in Subsection 132.2.

132.2 Drawings Not Required. Drawings, specifications and engineering reports need not be submitted in the permit application for the construction, demolition or moving of minor buildings, additions, structures or utilities; or for minor alterations and repairs to existing buildings, structures or utilities when the *building official* is satisfied that the strength, safety, sanitation and fire resistance are adequately described on the permit application, or when he/she is satisfied that such construction, alterations, repair, demolition or moving will not substantially increase the hazard present in a Special Construction Zone.

132.3 New Construction, Additions, Alterations or Repairs. Application for a permit shall be accompanied by the following:

1. Drawings including the information required in this Section.
2. Copies of an engineering report containing studies and test results concerning the hazards present on the building, demolition or moving site when such site is within an area designated as a Special Construction Zone under Article VII, Chapter 10 of the Revised Municipal Code. Each report shall contain adequate information as a result of tests to allow identification of the hazards present, recommendations as to methods of minimizing the hazards during construction and methods for controlling the identified hazards likely to be present after construction. The Public Health Inspection Division and the Fire Department shall approve all reports required by this Subsection before any permit is issued. Construction shall comply with Appendix P.
3. When required by the *building official*, additional drawings shall be submitted for approval.

132.4 Acceptance. Drawings and specifications complying with the provisions of this code and accepted by the *building official* shall bear the Agency stamp of acceptance. When corrections are required, the *building official* may require that the drawings and specifications be revised and resubmitted for acceptance prior to the issuance of a permit.

132.5 Distribution. One set of accepted drawings and specifications, known as the Contractor's Set, shall be returned to the applicant, and shall be posted on the job site until the project is completed. One set of accepted drawings and specifications, known as the Record Set, shall remain in the office of the Agency.

132.6 Disposal. Upon completion of the work and the final inspections by the Agency, the Record Set may be disposed of after 6 years have elapsed from the date of issuance of the permit. If no permit is issued, plans and specifications may be disposed of once the permit application expires.

132.7 Utility Companies. With the approval of the *building official*, the design of buildings, structures or utilities for the authorized Public Utilities may vary from these Building Code requirements.

132.8 Permit Applications for Construction and Changes of Occupancy Done Without Permits. Permit applications for any construction that was done without a permit shall be submitted and reviewed as an application for new construction and shall be required to comply with the current Code. The permit application must contain complete drawings, specifications, and surveys in accordance with Section 133.

All customary and special inspections in accordance with Section 140 and 141 shall be required upon issuance of the permit.

All permits obtained in accordance with this section shall be charged late fees and investigation fees per Section 138 and are subject to inspection approval and change of occupancy requirements in Section 142.

SECTION 133 DRAWINGS, SPECIFICATIONS AND SURVEYS

133.1 Limitations. Any person may submit drawings and specifications with an application for a building permit, subject to the following limitations:

1. **Architect or Engineer required.** Construction documents for all buildings, structures, additions, alterations, or repairs shall bear the seal and signature of the licensed design professional responsible for each design phase except as provided in the following subsection. Any work as defined as the practice of engineering by the State of Colorado must be signed by a licensed design professional practicing within their area of expertise.
2. **Architect not required**. An architect is not required to prepare drawings and specifications for the following buildings, structures, additions, alterations, or repairs. However, if a licensed design professional prepares drawings and specifications for any of the following, then construction documents must bear the seal and signature of the licensed design professional.

    A. One- and two-family dwellings, including accessory buildings commonly associated with such dwellings.

    B. Three- and four-unit family dwellings, including accessory buildings commonly associated with such dwellings, provided the building is not more than one story height and shall not have a *basement* or *cellar*.

    C. Additions, alterations, or repair to the buildings referred to in paragraphs (A) and (B) of this subsection that do not cause the completed buildings to exceed the applicable limitations set forth in the above subsection;

    D. Nonstructural, interior, architectural alterations of any nature to a building or tenant space if such alterations do not affect the life safety of the occupants of the building or tenant space. Alterations that do affect the life safety of the building or tenant space include but are not limited to: change of use or change of occupancy; modifications to any part of the means of egress; increase in the

number of occupants; modifications to the fire alarm or fire suppression systems; modifications to any fire-resistance rated horizontal or vertical assemblies; and new or modifications to existing penetrations or joints.

Exception: If determined necessary after review of the drawings and specifications, to show compliance with the codes administered by the Agency, the *building official* may require that the drawings and specifications bear the seal and signature of an architect or engineer who will be responsible for the design phases of the building or structure.

3. **Seal and Signature.** Seal and signature (manual or electronic) of the registered Design Professional in Responsible Charge and date of signature shall be affixed to all documents as required and set forth by the *building official*. The sealing and signature of documents shall be allowed pursuant to applicable rules set forth by the State of Colorado Department of Regulatory Agencies Division of Professions and Occupations for architectural, engineering and land surveying documents and as may be amended from time to time.

4. **Registered Design Professional in Responsible Charge.** When it is required that documents be prepared by an architect or engineer, the *building official* may require the owner or the owner's authorized agent to engage and designate on the building permit application an architect or engineer who shall act as the Registered Design Professional in Responsible Charge. If the circumstances require, the owner or the owner's authorized agent may designate a substitute registered design professional in responsible charge who shall perform all of the duties required of the original registered design professional in responsible charge. The *building official* shall be notified in writing by the owner or the owner's authorized agent if the registered design professional in responsible charge is changed or is unable to continue to perform the duties. The registered design professional in responsible charge shall be responsible for reviewing and coordinating all submittal documents prepared by others, including deferred submittal items, for compatibility with the design of the building.

5. **Consultant Drawings**. Consultant drawings and specifications prepared by architectural or engineering sub-disciplines shall be so designated by their name, address and phone number and shall bear the seal and signature of the responsible architect or engineer for the sub-discipline.

6. **Statement**. When a design professional signs and seals a document, a statement shall also be included setting forth the aspects of the project for which the design professional is responsible (i.e., civil, structural, mechanical). If there is no statement, it is presumed that the design professional has assumed responsibility for the entire document.

133.2 Information Required. Drawings and specifications shall be complete and of sufficient clarity to indicate the entire work proposed and show in detail that the building, structure, or equipment conforms to the provisions of this code and relevant laws, ordinances, rules and regulations. Each set of drawings and specifications shall, at a minimum, contain the following information:

1. City designated address and location of the work performed.
2. Name of the person or firm responsible for the preparation of the drawings and specifications. The seal and signature of the architect and or engineer responsible for the preparation of the drawings and specifications when required by Section 133.1.
3. Engineering design calculations as required by the *building official* to determine compliance with the requirements of this code.
4. Documentation as required by the *building official* to determine compliance with the *Denver Energy Code*.

5. Reports from an independent testing agency, which substantiates requirements of this code regarding structural or fire-resistive requirements as required by the *building official* to determine compliance with the requirements of this code.
6. Manufacturer's installation instructions, as required by this code, shall be available on the job site at the time of inspection.
7. Items as required by Sections 133.2.1 for buildings and structures regulated by the *Denver Commercial Building Code* or *Denver Existing Building Code*.
8. Items as required by Sections 133.2.2 for buildings and structures regulated by the *Denver Residential Code*.
9. Other information as required by the *building official* to determine compliance with the requirements of this code.

133.2.1 Buildings and structures regulated by the *Denver Commercial Building Code* or *Denver Existing Building Code*

1. Except for interior alterations and repairs, the construction documents submitted with the application for permit shall be accompanied by a site plan showing to scale the size and location of new construction and existing structures on the site, distances from lot lines, the established street grades, and the proposed finished grades and, as applicable, flood hazard areas, floodways, and design flood elevations; and it shall be drawn in accordance with an accurate boundary line survey. In the case of demolition, the site plan shall show construction to be demolished and the location and size of existing structures and construction that are to remain on the site or plot. The proposed construction shall not project beyond property lines except as provided for in the *Denver Commercial Building Code* Chapter 32.

2. Construction documents showing the construction of architectural, structural, mechanical, and electrical arrangements. Narrative descriptions of the scopes of work for each discipline shall be provided on the first sheet of the respective disciplines' drawings.

3. Specifications or notes that clearly describe the type, quality and finish of materials and the method of assembly, erection, and installation of equipment to be installed with proper reference to accepted standards.

4. Architectural drawings and specifications as follows:

   A. Plans showing the arrangement of each floor, elevations, sections, and details to show the construction of all architectural features, including the location and type of fire-rated construction.

   B. The gross area in square feet of buildings or portions of buildings in which new construction or remodeling work is intended; and of each different occupancy group.

   C. A complete Code Analysis, including the list of all applicable codes to include the code cycle year, the building occupancy groups, the type of construction, and a comparison of actual floor areas and number of stories to those allowed under the provisions of this code on the front sheet of drawings.

   D. The construction documents shall show in sufficient detail the location, construction, size, and character of all portions of the means of egress in compliance with the provisions of this code. In occupancies other than Groups R-2, R-3, and I-1, the construction documents shall designate the number of occupants to be accommodated on every floor, and in all rooms and spaces.

5. Structural drawings, specifications and analysis as follows:

   A. All information required by *Denver Commercial Building Code* Section 1603.

B. Floor and roof plans indicating the roof areas used to impound water.

C. When required by the *building official* a geotechnical investigation report signed and sealed by an engineer responsible for the preparation of the report.

6. Mechanical drawings, specifications and analysis as follows:

A. Plans drawn to scale showing the locations of all mechanical equipment, routing of all ductwork, HVAC piping, medical gas piping, and locations of grilles, registers, and diffusers. Btu rating of gas units, method of combustion and ventilation air supply, type and horsepower of refrigeration, and gas meter locations.

B. Heating, cooling, ventilating, plumbing and fire protection details and schedules fire damper, smoke damper and ceiling radiation damper locations.

C. Shafts used for pressurization as required by *Denver Commercial Building Code* Chapter 9.

D. For buildings more than two stories in height construction documents shall indicate where penetrations will be made for mechanical systems, and the materials and methods for maintaining required structural safety, fire-resistance rating and fire blocking.

E. Ventilation calculations per Chapter 4 DMC.

7. Plumbing drawings, specifications, and analysis as follows:

A. Plans drawn to scale showing the location of all plumbing equipment, routing of all plumbing piping including hot water, hot water recirculation, cold water, sanitary, grease waste, gas, storm, storm overflow, vent, and specialty piping systems.

B. Plumbing details and equipment schedules.

C. Waste and vent isometrics.

D. Gas pipe sizing method identified, Btu rating of gas equipment, method of combustion air supply per DFGC, and gas meter locations.

E. Plans and details showing the location of impounded water.

8. Electrical drawings, specifications and analysis as follows:

A. One-line diagram showing sizes of service and feeder conductors, sizes of service and feeder overcurrent devices, all major components of service and distribution system, ratings of equipment, and grounding details.

B. Load study and analysis to justify sizes of system components.

C. Short-circuit study and analysis to justify short-circuit withstand ratings of all system components.

D. Panelboard circuit schedules including loads per each circuit, total bus load per phase, AIC rating and ~~NEC~~NFPA 70 demand calculations.

E. Lighting and power plans shown on a floor plan.

F. Electric vehicle (EV) charging plan, where applicable, to include identification of the percentage of the building's area of work compared to the total area of the building, the number of actual provided and accessible parking spaces for the area of work, the building's occupancy types, number of *EV Ready*, *EV Capable*, and *EV Supply Equipment Installed* spaces. Locations of all associated devices, wiring, distribution, and routing of conduit shall be shown on the plan.

G. The ~~NFPA 70~~Electrical Code as adopted by the State of Colorado~~Electrical Code of the City and County of Denver cycle~~ in effect the year that the proposed electrical work was designed.

9. A field survey under Section 133.3 for all additions and new construction.

10. A complete elevator and dumbwaiter layout, if applicable.

11. Statement of *special inspections* per *Denver Commercial Building Code* Section 1704.3.

12. Factory-built structures and HUD homes:

A. Approved set of drawings by the Colorado Division of Housing (DOH) or third-party agency for factory-built structures.
B. Manufacturer's written installation instructions for HUD homes if utilizing in lieu of the State's approved alternate standards.

133.2.2 Buildings and structures regulated by the *Denver Residential Code*. Construction documents must show the complete scope of the proposed work conforming to the provisions of this code, including, but not limited to, architectural elements, structural elements, mechanical, electrical, and plumbing fixture arrangements, and all site work, including excavation, shoring, and landscape.

1. Site plan or plot plan. The construction documents submitted with the application for permit must include a site plan showing the size and location of new construction and existing structures on the site and distances from lot lines. In the case of demolition, the site plan shall show construction to be demolished and the location and size of existing structures and construction that are to remain on the site or plot. The building official is authorized to waive or modify the requirement for a site plan where the application for permit is for alteration or repair or where otherwise warranted based on minor scope and limited impact on the code compliance of the design.

2. Architectural drawings and notes as follows:

A. Plans showing the arrangement of each floor, elevations, sections, and details to show the construction of all architectural features.

B. A list of all applicable codes to include the code cycle year.

C. The gross floor area in square feet of structures where the work is intended.

3. Structural drawings, notes, and analysis as follows:

A. Plans and details that show the structural design meets the requirements of the *Denver Residential Code* and all structural elements have a clear load path to the foundation. Current codes, design load bearing values and soil classification, load assumptions and strength and grading of materials shall be called out on the plans.

B. Manufacturer calculations or load tables for engineered beams that are not specifically included in the *Denver Residential Code* (i.e. I-Joist, LVL, LSL, PSL, Glulam)

C. Calculations for structural elements and systems that are not regulated by the *Denver Residential Code*.

D. A letter of inspection and integrity shall be included when structural modifications will affect an existing structure.

E. Information on prescriptive braced wall design including the locations of braced wall lines, the intended method(s) of wall bracing to be used, and the minimum length of bracing required and provided. Detail and indicate braced wall panel requirements including foundation attachment, blocking, framing, sheathing, nailing patterns, and corner conditions.

4. Geotechnical investigation report when required by Section R401.4; for engineered shoring, benching, or excavation slopes steeper than 1.5 feet horizontal to 1 foot vertical; or when required by the building official.

5. Excavation, benching, sloping, and shoring drawings and notes as follows:

   a. Plans and details to show the extent of the excavation.

   b. Structural drawings, notes, and analysis for engineered shoring, benching, and underpinning.

   c. Evidence of notification to adjoining property owners per DCBC Section 3307.

6. If applicable, mechanical, plumbing, and electrical construction documents, notes, and analysis as outlined in Section 133.2.1.

7. Field survey containing the information in Section 133.3. A ~~Land Survey Plat or Improvement Survey Plat~~Boundary Survey is required for construction of a new dwelling. An Improvement Survey Plat is required for additions to existing dwellings when the exterior wall of the proposed work is located less than three feet from the lot line.~~, and for a change in occupancy from an accessory structure to a dwelling.~~

8. Factory-built structures and HUD homes:
   C. Approved set of drawings by the Colorado Division of Housing (DOH) or third-party agency for factory-built structures.
   D. Manufacturer's written installation instructions for HUD homes if utilizing in lieu of the State's approved alternate standards.

9. For buildings and structures located in whole or in part in flood hazard areas as established by DCBC Section 1612.3 or DRC Table R301.2, construction documents shall include:

   a. Delineation of flood hazard areas, floodway boundaries and flood zones and the design flood elevation, as appropriate.

   b. The elevation of the proposed lowest floor, including basement; in areas of shallow flooding (AO Zones), the height of the proposed lowest floor, including basement, above the highest adjacent grade.

133.3 Field Surveys. A Boundary Survey, Land Survey Plat, or an Improvement Survey Plat shall be conducted by a land surveyor registered by the State of Colorado for the construction of a new building or structure, or an addition to an existing building or structure ~~or a change of occupancy for an existing building or structure~~ which shall include, but not be limited to the following information:

1. Scale drawing of the boundaries of the land parcel with all dimensions to establish those boundaries.
2. All recorded and apparent rights-of-way and easements.
3. Improvement locations shall be shown in scale with a minimum of 2 dimensions to the nearest property line to locate all improvements.

133.4 Deferred Submittals. Deferred submittals are defined as those portions of the design which are not submitted at the time of permit application, and which are to be submitted to the Agency within a specified period. Deferral of any submittal items shall have prior approval of the *building official*. The registered design professional in responsible charge shall list the deferred submittals on the plans and shall submit the deferred submittal documents for review by the Agency. The design professional in responsible charge shall review the deferred submittal documents and forward them to the Agency with a notation indicating that the deferred submittal documents have been reviewed and that they have been found to be in general conformance with the design of the building. The deferred submittal items shall not be installed until their design and submittal documents have been *approved* by the Agency.

SECTION 134 PERMITS FOR TEMPORARY STRUCTURES AND USES, EQUIPMENT AND SYSTEMS

134.1 General. The *building official* is authorized to issue a permit for temporary structures, uses, *relocatable buildings*, equipment, or systems. The provisions of Section 3103 of the *Denver Commercial Building Code* are applicable to structures and buildings permitted under Section 134.

134.2 Time of Service. Except for permits for temporary structures or temporarily-placed relocatable buildings associated with an R-X occupancy, such permits shall be limited as to time of service, but shall not be permitted for more than 180 days or a longer timeframe as allowed by the *building official* after review of a specific proposal. The *building official* is authorized to grant extensions for demonstrated cause. Structures designed to comply with Section 3103.6 shall not be in service for a period of more than 1 year. The *building official* may grant a permit for 2 years, and one 2 year extension only for any temporary structures or temporarily-placed relocatable buildings associated with an R-X occupancy, subject to more strict timeframes in Section 429.143~~. of the *Denver Commercial Building Code.*~~

134.3 Conformance. Temporary structures and temporarily-placed *relocatable buildings* shall comply with the requirements of Section 3103 of the *Denver Commercial Building Code*, and with the requirements and limitations of any other City ordinance or rule and regulation.

Exception: Where approved by the *building official* and the *fire code official*, buildings serving as emergency residential shelters shall not be required to conform to all requirements of Section 3103.1.2 of the *Denver Commercial Building Code* when the *building official* and *fire code official* determine there are practical difficulties involved in carrying out the provisions of this code that make enforcement of the strict letter of this code impractical. The details of any action granting modifications shall be sent to the building owner and entered into the permit files of the Agency.

134.4 Termination of approval. In accordance with Sections 131.6 and 142.6 of this code, the *building official* is authorized to terminate such permit for a temporary structure, use, or temporarily-placed *relocatable buildings*, equipment and systems and to order the same to be discontinued.

SECTION 135 PHASED APPROVAL

135.1 General. The *building official* is authorized to issue a permit for the construction of foundations or any other part of a building or structure, except for structures regulated by the *Denver Residential Code*, and *Denver Commercial Building Code* Group U occupancy structures, to a contractor who holds a license qualifying him/her as the general contractor for the entire project, provided that:

1. The total valuation of the project exceeds $1,000,000 or as *approved* by the *building official*.
2. Prior to the submitting the first phase of the project, the *building official* approves a Phased Construction Proposal (the "Proposal") submitted by the applicant outlining the schedule for the phased construction and designating the registered design professional in responsible charge. The Proposal must provide a title for each phase and describe the building system(s) to be reviewed in each of the phased submittal packages. The proposal shall state the valuation for each phase and include an estimated submittal date for each of the phases.
3. Drawings of the proposed superstructure containing sufficient detail relating to the design of the foundation or substructure, including floor plans, elevations and other pertinent information shall be submitted to the Agency with a watermark "for information only". Drawings for each phase shall, on each sheet, include the title for the phase as defined in the Proposal and the term "Phased Construction".
4. A complete code analysis for the entire building including egress plans is provided to the Agency.
5. Structural calculations shall be submitted to validate the gravity and lateral load design of footings, caissons, and all other foundation permit elements.
6. The valuation of the portion of the work, including utilities, shall be restated with each phased application.
7. The approval of appropriate City agencies has been obtained prior to issuing each such phased permit. For purposes of the Section, the term "Project" shall mean one building only with a valuation in conformance with Section 138.

The holder of such permit for the foundation or other parts of a building or structure shall proceed at the holder's own risk with the building operation and without assurance that a permit for the entire structure will be granted.

135.2 Fee. The plan review fee and the permit fee charged at the time of issuance of the phased permit shall be as set forth by the *building official* in policy.

135.3 Deviations. Any deviation from the previously issued permit drawings shall be cause for the cancellation of the permit(s). However, if changes are substantiated by engineering calculations and revised drawings, the deviations may be *approved* by the *building official*.

135.4 Responsibility. The contractor shall assume full responsibility for the installation of all utilities in the substructure. Any changes to completed portions of the structure necessitated by subsequent modification in design or construction to meet the requirements of this code for the combined structure shall be the sole responsibility of the contractor.

SECTIONS 136 and 137 are reserved

SECTION 138 PERMIT FEES

138.1 Plan Review, Permit and Inspection Fees. The fee for each plan review and permit shall be based on the total value or valuation of all construction work for which the permit is issued, as well as all finish work, roofing, electrical, plumbing, heating, air conditioning, elevators, fire-extinguishing systems and any other permanent equipment. Total valuation shall also include the cost of all labor, materials, profit, and overhead. The determination of fees, value, or valuation under any of the provisions of this code shall be made by the *building official* in policy.

When submittal documents are required by Section 132, a plan review fee shall be paid at the time of initial document submission. Plan review fees provide for the first and second review only. When re-review of plans is required for plans or drawings that are rejected, submitted incomplete, not in accordance with Sections 133, to address indicated Code deficiencies, project modification, changed to require additional plan review, or when the project involves deferred submittal items as defined in Section 133.4 an additional fee shall be incurred as set forth by the *building official* in policy. The plan review fees specified in this Section are separate from and in addition to permit fees.

Permit fees provide for the customary inspections only. Re-inspections shall require a fee as set forth by the *building official*.

138.2 Late Fees. When work is started without a permit, the fees for permits on the work performed, shall be double those set forth by the *building official* for a standard permit, with a minimum of $100. The payment of this late fee shall not relieve any person from fully complying with the requirements of this code in the execution of the work or from other penalties for performing work without a permit.

Exception: –For work performed on an emergency basis, as determined by the *building official*, to maintain an existing service or equipment when the maintenance is necessary to protect health, life or safety, the late fees listed above shall not apply if application for a permit is made within 3 normal working days after commencement of the emergency work.

138.3 Investigation for Work Without a Permit. When any work has been commenced without first obtaining a permit, a special investigation shall be made before a permit may be issued for the work. An

investigation fee equal to the amount of the late permit fee required by this code shall be assessed when work has begun without a permit. The payment of such investigation fee shall not exempt any person from compliance with all other provisions of this code nor from any penalty or fees prescribed by law.

138.4 Permit Fees for Denver Agencies. Enterprise Fund agencies of the City and County of Denver which are not subsidized by the General Fund shall pay permit fees for all construction and repair work for which building permits are required. General Fund agencies and Enterprise Fund agencies subsidized by the General Fund shall pay permit fees for new construction projects only.

138.5 Additional Fees. When the valuation of a previously permitted project is amended, a supplementary permit shall be obtained for any additional valuation, not included in the original permit. The fee shall be the difference between the fee paid and the fee that would have been required had the original permit included the entire valuation.

138.6 Waivers, Reductions and Refunds. ~~No fee shall be waived or reduced, unless specifically authorized by a written policy adopted by the *building official*. No refund will be granted for any fee paid to the Agency, unless otherwise expressly allowed.~~ No fee due to or paid to the Agency shall be waived, reduced, or refunded unless excepted below or as authorized in written policy adopted by the *building official*.

Exceptions: The *building official* may approve requests for refund of fees for the following~~duplicate or out-of-City permits that are made in writing within 60 days of the date of issuance~~. An administrative processing fee as set forth by the *building official* ~~shall~~may be charged and deducted from the refund.

1. Duplicate or out-of-City permits that are made in writing within 60 days of the date of issuance
2. ~~A portion of plan review fees paid for the review of a residential construction permit application or a commercial construction permit application if the application is not approved within 30 days of the project being ruled upon by the Executive Permitting Committee of the~~In accordance with a refund policy adopted by the Denver Permitting Office ~~and documented delays were primarily due to the city~~.

SECTION 139 [DOTI] SITE CONTACT INFORMATION

139.1 General. Any project for a new building or addition is required upon building permit issuance to post a site contact information sign on the property.

139.1.1 Contact information and sign size requirements. The sign shall clearly display the following information:

1. Contractor or developer name.
2. Project name.
3. Project address.
4. Project site contact information (phone number and email address).
5. Project completion date: estimated.

Information characters shall be white on a blue background, a minimum of 4 inches (102 mm) high with a minimum stroke width of ½ inch. The minimum size of the sign shall be 3 feet by 5 feet.

139.1.2 Sign location. The sign shall be displayed at the project site in a manner that makes it visibly accessible to the general public, however it shall not obstruct the public right-of-way. If the sign is mounted

on a dedicated support system, no part of the support system may encroach upon the pedestrian sidewalk/pathway. The sign shall not encroach into the pedestrian sidewalk/pathway more than 4 inches unless it is mounted higher than 7 feet above the existing grade. Signs shall be maintained by the contractor or developer for cleanliness, visibility, positioning, and accuracy of information.

SECTION 140 INSPECTIONS

140.1 General. All work for which a permit is required shall be subject to inspection by the Agency and all such work shall remain accessible and exposed for inspection until *approved* by the Agency. In addition, certain types of construction shall have continuous inspection as specified in Section 141. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this code or of any other City ordinances. Inspections presuming to give authority to violate or cancel the provisions of this code or of other ordinances shall not be valid. It shall be the duty of the permit applicant to cause the work to remain accessible and exposed for inspection. Neither the Agency nor the City shall be liable for expense entailed in the removal or replacement of any material required to allow inspection. A survey of the lot may be required by the Agency to verify that the structure is located in accordance with the *approved* plans.

140.2 On Job Site. The contractor who is issued a general construction permit shall post the following, at the front of the job site, in a permanent visible location with numbers and letters made of durable materials and of a size to be visible and legible from the street fronting the property:

1. The address number and street, avenue, court, parkway or other, as assigned by DOTI Right-of-Way Services.
2. The name of the firm, address, business phone number and emergency phone number of the contractor issued the general construction permit.
3. The building permit number.

140.3 Access for Agency. The contractor or property owner shall provide unobstructed access to and means for the Agency to inspect the required work, including corner stakes or survey markers.

140.4 Inspection Record Card. Work requiring a permit shall not be commenced until the permit holder or his agent has posted or otherwise made available an inspection record card so as to allow the Agency to make the required entries regarding inspection of the work. This card shall be maintained by the permit holder until final approval has been granted by the *building official*.

140.5 Approval Required. Approval by the Agency shall be required at progressive stages of the construction of the building or structure and the installation of the mechanical, plumbing and electrical systems. The Agency shall make the requested inspections and shall either confirm that the completed portion of the construction is satisfactory or shall notify the permit holder or contractor that the construction fails to comply with ~~this Code~~this code. Any portion of construction that does not comply shall be corrected and such work shall not be covered or concealed until *approved* by the Agency. The Agency must complete a final inspection and approval of all completed construction before the building, structure or portion thereof shall be ready for occupancy and use.

140.6 Required Inspections. The following inspections shall be required and shall be made by the Agency after proper notification. Other inspections may be required, as specified by the *building official*.

1. **Foundation Inspection.**
   A. Footings. Inspections shall be conducted prior to pouring concrete. The footing excavation form work and any reinforcing steel must be in place. Any clay soil pipe encountered must be replaced

with schedule 40 PVC, ABS/DWV or ~~cast iron~~cast-iron pipe by a licensed plumber, under a separate permit. All such work shall be *approved* by the Agency prior to the footing inspection.

B. Walls. Concrete walls shall have the form work and reinforcing steel inspected prior to the concrete placement. *Approved* treated wood walls shall be inspected as required by AF&PA Technical Report 7-87.

C. Waterproofing/Damp-proofing Inspection. To be conducted after the waterproofing/damp-proofing system or materials are completely in place and exposed for inspection.

D. Exterior wall insulation and drain tile when required.

2. **Concrete slab or under-floor inspection**. To be made after all in-slab or under-floor building service equipment, conduit, piping accessories and other ancillary equipment items are in place, but before any concrete is placed or floor sheathing installed, including the subfloor.

3. **Frame Inspection**. To be conducted on the completed frame construction with all fire blocking and bracing in place. All framing must be exposed to view. Roof and wall sheathing or panel must be complete with windows in place. All rough installations or electrical, plumbing, and mechanical systems shall have prior approval by the Agency.

4. **Insulation Inspection.** To be conducted after the installation of the insulation is completed.

5. **Air Infiltration Barrier Inspection**. To be conducted after the air infiltration barrier system is in place and complete.

6. **Gypsum Board or Lath and Plaster Inspection**. To be conducted after all gypsum board or lath, interior and exterior, is in place but before gypsum board joints and fasteners are taped and finished or before plastering is applied.

   Exception: The attachment and taping of gypsum board to partition walls that are not part of a fire-resistance rated assembly or a shear wall assembly for construction in occupancies A, B, E, F, M, U and S.

7. **Type IV-A, IV-B, and IV-C connection protection inspection.** In buildings of Type IV-A, IV-B, and IV-C Construction, where connection fire resistance ratings are provided by wood cover calculated to meet the requirements of Section 2304.10.1, inspection of the wood cover shall be made after the cover is installed, but before any other coverings or finishes are installed.

8. **Pre-roofing Inspection.** To be conducted on built-up and single-ply roof systems as required by *Denver Commercial Building Code* Section 1512.6.

9~~8.~~ **Mid-roof Inspection.** To be conducted on all tile, metal, and clay roofs and all roofs on commercial buildings after all underlayment, battens, and flashings are installed and no more than 30 percent of the roofing is installed.

10. Weather-exposed balcony and walking surface waterproofing. Where balconies or other elevated walking surfaces have *weather-exposed surfaces*, and the structural framing is protected by an impervious moisture barrier, all elements of the impervious moisture barrier system shall not be concealed until inspected and *approved*.

Exception: Where *special inspections* are provided in accordance with Section 1705.1.1, Item 3.

11. Fire- and smoke-resistant penetrations. Protection of *joints* and penetrations in fire-resistance-rated assemblies, *smoke barriers* and s*moke partitions* shall not be concealed from view until inspected and *approved*.

12. Special Inspections. For *special inspections*, see chapter 17.

13. Final Inspection. To be conducted after construction is completed (all permits other than the general construction permit must have final approval) and the building or space is ready for occupancy.

140.7 Inspection agencies. The *building official* is authorized to accept reports of *approved* inspection agencies, provided that such agencies satisfy the requirements as to qualifications and reliability.

140.8 Additional Inspections

140.8.1 Other Inspections. In addition to the inspections specified, the *building official* may make or require other inspections of any construction work to ascertain compliance with the provisions of this code and other laws, which are enforced by the Agency.

Other inspections, requested to be conducted outside of business hours shall be requested no later than 12 noon of the day the inspection is needed, and incur additional fees as set forth by the *building official*.

140.8.2 Reinspection. A reinspection is required when the inspected work is not complete, corrections called for have not been made, approved plans are not readily available for an inspector during an inspection, failing to provide access on the date of a requested inspection, or deviation from plans requiring the approval of the building official. To obtain a reinspection, the applicant shall file an application therefore in writing upon a form furnished for that purpose and pay the reinspection fee as set forth by the *building official*. Where reinspection fees have been assessed, no additional inspection of the work will be performed until the required fees have been paid.

140.89.3 Vertical and Horizontal Conveyance Inspection. Inspections of conveyances shall be made in accordance with the Conveyance Regulations of the State of Colorado as delegated to the Denver Fire Department.

140.9 Access control system permit inspection process. All *access control system* work shall be inspected and accepted by the Agency prior to starting the operation of the system. All of the applicable requirements of this code shall be satisfied prior to the final acceptance of the *access control system* work by Agency inspections.

140.9.1 Required inspections. The *access control system contractor* shall be responsible for requesting and obtaining an Agency inspector's approval on all required inspections. A separate rough-in inspection and a separate final inspection shall be performed for all of the following work:

1. Access control system work.

2. Electrical work greater than 48 Volt-AC/DC.

3. Fire alarm system work.

4. Elevator system work.

The final inspection for the *access control system* will not be performed until the final inspection has been *approved* for all other related work. The *access control system* shall be ready for inspection prior to requesting the final *access control system* inspection.

140.9.2 Access control system maintenance. All *access control systems* shall be maintained to remain in compliance with this code and the specific operational requirements of the system that was originally permitted. Failure to maintain the system in compliance with the requirements of this code and the originally *approved* system design requirements and conditions shall be cause to require the operation of the system to be suspended or removed. When the *access control system* interfaces with the buildings fire alarm and/or elevator control systems and these systems are not maintained in a fully operational condition, the operation of the *access control system* may be required to be suspended until these related systems are fully operational.

SECTION 141 SPECIAL INSPECTIONS

141.1 Special Inspections. For projects governed by the *Denver Commercial Building Code* or the *Denver Residential Code*, *Denver Commercial Building Code* Chapter 17 for special inspection requirements apply.

141.2 Structural Observation. For projects governed by the *Denver Commercial Building Code* or the *Denver Residential Code*, *Denver Commercial Building Code* Chapter 17 for structural observation requirements apply.

SECTION 142 FINAL INSPECTION APPROVAL, CERTIFICATE OF COMPLIANCE AND CERTIFICATE OF OCCUPANCY

142.1 Final Inspection Approval. A final inspection approval shall be issued by the *building official* upon the completion and approval of the work covered by the permit.

142.2 Certificate of Occupancy Required. New buildings except Group U occupancy detached *private garages* and *Denver Residential Code* non-habitable *accessory structures* shall not be used or occupied in whole or in part until a Certificate of Occupancy is issued by the *building official*. No building or portion thereof shall be used or occupied for any occupancy other than the one designated on the Certificate of Occupancy until a new Certificate of Occupancy is issued by the *building official*. Issuance of a Certificate of Occupancy shall not be construed as an approval of a violation of the provisions of this code or of any other ordinances of the City and County of Denver.

A permitted temporary change in the occupancy of an existing building or portion thereof shall not occur until a Certificate of Occupancy for the temporary change in occupancy is issued by the *building official*.

142.2.1 Denver Residential Code Regulated Buildings Certificate of Occupancy. A certificate of occupancy is required for new IRC structures or for a change of occupancy that results in a change in use within the scope of this code to any of the following uses:

1. One-family dwelling.
2. Two-family dwelling.
3. Townhouse.
4. Congregate living facility.
5. Lodging house.
6. Care facility.
7. Live/work unit.
8. Family child-care home providing care for 6 or more children.

Certificate of Compliance Required. A certificate of compliance will be issued by the *building official*, when a Certificate of Occupancy is not required or appropriate, but where documentation is necessary to indicate that all final inspections by the Agency have been satisfactorily completed. The Certificate may be issued upon the request of the General Building Contractor when the inspection card issued by the Agency is returned indicating that all final inspections are complete.

142.3 Issuance of Certificate of Occupancy. After the *building official* inspects the building or *structure* and it is found that the building or structure complies with the provisions of this code or other laws that are enforced by the department and after:

1. Concurrence by DOTI Construction Engineering Division, Wastewater Management, ~~Office of~~ the City Forester, and Zoning Administration.

2. When required by the provisions of this code, or specifically requested in writing at the time of application, concurrence by Public Health Inspection Division and the Division of Fire Prevention~~Department~~.

3. When a building or structure is designated for preservation or is located in a district designated for preservation pursuant to Chapter 30, Denver Revised Municipal Code, and concurrence of the Landmark Preservation Commission.

4. When a building or structures contains income restricted units required ~~per~~pursuant to Chapter 27 of the Denver Revised Municipal Code, concurrence of the Department of Housing Stability.

The *building official* shall issue a certificate of occupancy that contains the following:

1. The address of the *structure*.
2. The *permit* number.
3. The name of the *building official*.
4. The edition of the code under which the *permit* was issued.
5. The use and occupancy, in accordance with the provisions of Chapter 3.
6. The type of construction as defined in Chapter 6.
7. Any special stipulations and conditions of the building *permit*.

142.4 Issuance of Certificate of Compliance. Upon the request of the General Building Contractor a certificate of compliance will be issued by the *building official*, when items 1-4 below are met:

1. A Certificate of Occupancy is not required or appropriate.

2. A Certificate of Compliance is required in response to an order of the *building official*, or other Agency.

3. The inspection card issued by the Agency is returned indicating that all final inspections by the Agency have been made.

4. The processing fee, as set forth by the *building official*, is received by the Agency.

142.5 Temporary Certificate of Occupancy. Upon written request, the *building official* may issue a Temporary Certificate of Occupancy (TCO) to the owner provided that no substantial hazard will result from the occupancy. The written request must be made by the owner or the owner's agent, itemizing the uncompleted work, justify the issuance of the TCO and display concurrence from the following City Agencies:

1. Department of Transportation and Infrastructure (DOTI) Construction Engineering.

2. DOTI Wastewater Management Division.

3. Denver Department of Public Health and Environment.

4. Fire Department.

5. Office of the City Forester.

6. Zoning Administration

A TCO processing fee as set forth by the *building official* shall be assessed. The approval of a TCO shall not waive, reduce, or diminish any requirements of this code. The Temporary Certificate of Occupancy may be granted for a period up to 12 months and may be extended up to two times with the approval of the *building official*. After the expiration date of the TCO, the building or structure shall require a permanent Certificate of Occupancy in accordance with other provisions of this Chapter.

Additional inspections required for the TCO shall be charged as set forth by the *building official* and shall be paid before the permanent Certificate of Occupancy is issued.

142.6 Cancellation of Certificate of Occupancy. The *building official* may cancel a Certificate of Occupancy when:

1. The Certificate is issued in error or based on incorrect or false information.

2. The owner has failed to comply with the requirements of the *building official* after appropriate notice and reasonable time to correct.

3. The continued occupancy of the structure is dangerous to the public health, safety, or welfare.

142.7 Duplicate Certificates. Upon payment of a fee set forth by the *building official*, a duplicate Certificate of Occupancy or Certificate of Compliance may be secured by the owner, architect, engineer, contractor, permit holder or tenant.

142.8 Posting. For all buildings, except those constructed under the *Denver Residential Code*, the Certificate of Occupancy (CO) shall be posted on an interior wall in the building for which the CO was generated. The CO shall be posted in a conspicuous location subject to the approval of the *building official*. The CO shall be posted between 48" and 72" above the finished floor from which it will be normally viewed, as close to the main entrance as practicable. The CO shall be protected by a smooth and transparent surface permanently exposed for viewing. The posted CO shall be removed only under the following conditions:

1. When necessary to conduct maintenance including reconstruction of the wall in the same location or install a new finish on the wall. The CO shall be reposted in the same location when maintenance is complete.

2. When the wall is demolished. The CO shall be reposted on an interior wall subject to the location requirements above.

3. When replaced by an updated CO application for the same portion of the building. The updated CO shall be posted in the same location as the CO it replaces.

4. When relocation is necessary due to changes in the interior environment that prevent clear viewing such as furniture or decoration modifications. New posting locations shall be subject to approval by the *building official*.

Exception: The CO is permitted to be available in the on-site office of the building owner or management company provided access is available at all times during business hours.

142.9.1 Multiple Certificates of Occupancy. Multiple COs issued for portions of the same building shall be posted together per the location requirements specified above so all are readily viewable.

Exception: COs issued for separate tenants or spaces with separate exterior entrances are permitted to be posted in those spaces per the location requirements specified above.

142.9.2 Temporary Certificates of Occupancy. The location requirements of Sections 142.9 and 142.9.1 shall also apply to temporary Certificates of Occupancy (TCOs). Subject to the approval of the *building official*, a CO issued to replace a TCO is permitted to be posted in the same location as the TCO it replaces.

~~**SECTION 101**~~

~~**SCOPE AND GENERAL REQUIREMENTS**~~

~~**Section 101.1 Title is replaced in its entirety as follows:**~~

~~101.1 Title. These regulations shall be known as the Denver Commercial Building Code (DCBC), hereinafter referred to as "this code~~this code~~."~~

~~**Section 101.4 Referenced codes is amended by adding the following sentence to the end of the section:**~~

~~Any references to the International Energy Conservation Code, International Fire Code, International Fuel Gas Code, International Mechanical Code, International Plumbing Code, International Residential Code, International Existing Building Code, and NFPA 70 means the Denver Energy Code, Denver Fire Code, Denver Fuel Gas Code, Denver Mechanical Code, Denver Plumbing Code, Denver Residential Code, Denver Existing Building Code, and the Electrical Code of the City and County of Denver, respectively.~~

~~**Section 101.4.4 Property maintenance is deleted in its entirety.**~~

~~**Section 102.6 Existing Structures is modified by deleting the reference to the *International Property Maintenance Code*.**~~

~~**102.6.2 Buildings previously occupied is modified by deleting the reference to the *International Property Maintenance Code*.**~~

~~**Sections 103 through 116 are deleted in their entirety. Article 1, Section 1 of the *2025 Denver Building Code* shall govern.**~~

~~CHAPTER 2~~
CHAPTER 2: DEFINITIONS

~~SECTION 201~~
~~GENERAL~~

~~(Where understanding of a term's definition is especially key to or necessary for the understanding of a particular code provision, the term is shown in italics wherever it appears in the code.)~~

SECTION 202 DEFINITIONS

Section 202 Definitions is amended by adding, modifying, or replacing the following definitions:

ACCESS CONTROL SYSTEM. A group of devices including control unit(s), electric hardware, wiring and raceways electrically interconnected to control and regulate ingress and egress.

ACCESS CONTROL SYSTEM CONTRACTOR. A contractor licensed to install, add to, alter, or repair control units, electric hardware, wiring, and raceways electrically interconnected to control and regulate ingress and egress with voltages less than or equal to 48 Volts.

~~**ACCESS CONTROL SYSTEM UNIT.** The component(s) of an access control system that provide system logic and control (e.g., reader electronic panels, stand-alone keypads, telephone entry controllers, burglar alarm system units with access control capability, intercom controllers and door entry buzzers or buttons).~~

~~**ABANDON**. The desertion of a building, structure, or utility.~~

~~**ADEQUATE.** Determined to be acceptable to the Agency.~~

~~**ALCOHOL BEVERAGE** (also "Alcoholic Beverage"). A liquid *ethanol* mixture intended for human consumption including wine, beer, and beverage *spirits*.~~

~~**AMBULATORY**. A physical or mental condition under which a person is capable of judgment and appropriate action for self-preservation under emergency conditions.~~

~~**APPROVED.** *Approved* as to materials and types of construction, as determined by the *building official* following investigation and tests conducted by him, or by reason of accepted principles or tests by recognized authorities, technical or scientific organizations.~~

~~**ARCHITECT**. An architect licensed by the State of Colorado.~~

AREA OF RESCUE ASSISTANCE. An elevator lobby area separated from adjacent spaces where persons in need of assistance can remain temporarily to await rescue.

~~**ASSISTED CARE FACILITIES**. See definition for *Personal Care Facilities*.~~

~~**CONSTRUCTION**. The act of using labor and materials used for erection, demolition or removal of a building, structure, utility, appliance, or device.~~

~~**DEMOLITION**. The destruction and removal of a building, structure, or utility.~~

~~**DETERIORATION**. The effect upon buildings, structures, utilities, equipment and materials through corrosion, decay, wear and tear due to use or abuse, obsolescence, effects of the elements, fire damage,~~

~~disaster, flood, earthquake, lack of maintenance, vandalism or any other cause, including fatigue due to overstressing and disintegration of component parts and the separation of materials and structural parts.~~

DROP-OUT CEILING. A suspended ceiling system with panels that are heat sensitive and fall from their setting when exposed to heat.

~~**ELECTRIC HARDWARE.** Any door hardware or accessory product that is used in a circuit as a conductor, load, power supply or switch.~~

~~**ELECTRIC STRIKE.** Lock strike that is modified to release the latch bolt with the application or removal of electric power.~~

~~**ELECTRIC LOCK.** Any locking or latching door hardware that relies on electrical energy for its operation.~~

ELECTRIC LOCKS – MASTER SWITCH. A two-position, toggle electrical switch labeled "ELECTRIC LOCKS" with its positions labeled "LOCKED" and "UNLOCKED" configured to immediately and simultaneously unlock all connected door locks.

ELECTRICAL CONTRACTOR. Colorado State licensed electrical contractor.

ELECTRICAL SIGNAL CONTRACTOR. A contractor licensed to install, add to, alter or repair electrical wiring and equipment for fire alarm, fire detection, emergency voice communication systems, electrical signaling and control wiring with voltages less than 48 Volts.

~~**ENGINEER**. An Engineer licensed / registered by the State of Colorado as a Professional Engineer.~~

~~**ETHANOL**. A volatile, flammable, colorless, neurotoxic liquid fit for human consumption with structural formula CH 3CH 2OH (abbreviated as C_2H_5OH or C_2H_6O).~~

~~**EVACUATION CAPABILITY**. The ability of the occupants, residents, and staff as a group either to evacuate a building or to relocate from the point of occupancy to a point of safety. Following are the levels of evacuation capability:~~

1. ~~*Prompt*. Evacuation capability equivalent to the capability of the general population to evacuate a facility. Evacuation drill time shall be 3 minutes or less.~~
2. ~~*Slow*. Evacuation capability of a group to move to a point of safety in a timely manner, with some occupants requiring assistance from the staff. Evacuation drill time shall be over 3 minutes, but not exceed 13 minutes.~~
3. ~~*Impractical*. A group that, even with staff assistance, cannot reliably move to a point of safety in a timely manner. Evacuation drill time is more than 13 minutes.~~

~~**FAIL-SAFE LOCK.** A lock that unlocks automatically upon loss of power.~~

~~**FAIL-SECURE LOCK.** A lock that remains locked during loss of power.~~

~~**FPB.** Fire Prevention and Investigation Division, of the Denver Fire Department.~~

~~**FIRE DEPARTMENT**. The Fire Department of the City and County of Denver.~~

HOME OCCUPATION. Limited commercial use of a portion of a residential unit as permitted by the Denver Zoning Code.

LIVE/WORK UNIT. A *dwelling unit* or *sleeping unit* in which a significant portion of the space includes a nonresidential use that is operated by the resident and does not have approval from the Zoning Administrator as a *home occupation*.

LOWEST LEVEL OF FIRE DEPARTMENT VEHICLE ACCESS. The lowest level of Fire Department vehicle access shall be measured from the lowest elevation of any required Fire Department access road located no more than 30 feet (9144 mm). from any exterior wall of the building.

Exceptions:

1. Where the access road is permitted to be farther than 30 feet (9144 mm). to any exterior wall of the building, the lowest level of Fire Department vehicle access shall be measured from the lowest elevation of any required Fire Department access road located no more than 50 feet (15 240 mm) from any exterior wall of the building.

2. If any topography, waterway, non-negotiable grades, or other similar conditions exist that preclude required Fire Department vehicular access, the *fire code official* is authorized to require additional fire protection systems as required by Chapter 9.

~~**MAINTENANCE**. The normal upkeep of property or equipment to keep it in an existing state, such as minor repairs to keep equipment operational.~~

MECHANICAL FREE EGRESS. Door hardware that mechanically unlocks and unlatches the door, from the egress side with a single motion without the use of a key, card or any special knowledge or effort.

~~**NEC.** National Electrical Code (NFPA 70).~~

~~**NONAMBULATORY**. See definition for "*Incapable of Self-Preservation*".~~

NURSING HOME. A facility that is operating in connection with a hospital or where nursing care and medical services are prescribed by or performed under the general direction or persons licensed to practice medicine or surgery by the State of Colorado or for the accommodation of convalescents or other persons who are not actually ill and not in need of hospital care and related services. The term "nursing home" is restricted to facilities designed to provide skilled nursing care and related medical services for a period of not less than 24 hours per day and where any person is incapable of self-preservation.

~~**PERSONAL CARE SERVICE**. Protective care of residents who do not require chronic or convalescent medical or nursing care. Personal care involves responsibility for the safety of the resident while inside the building. Personal care may include daily awareness by the management of the resident's functioning and whereabouts, making and reminding a resident of appointments, the ability and readiness for intervention in the event of a resident experiencing a crisis, supervision in the areas of nutrition and medication, and actual provision of transient *medical care*.~~

~~**PERSONAL CARE FACILITY**. A facility that provides for personal care services. A personal care facility does not provide *medical care*.~~

RECOGNIZED VOLUNTEER ORGANIZATION. A nonprofit organization recognized by the Internal Revenue Service as a charitable or religious organization.

~~**SCHOOL: PUBLIC, PRIVATE OR CHARTER**. An institution which provides instruction or education at elementary, secondary and high school learning levels.~~

~~**SHEAR-TYPE MAGNETIC LOCK**. A magnetic lock that relies on a shear pin, post, concave/convex machining, or other similar projections to enhance the latching strength of the lock.~~

~~**SMOKE CONTROL SYSTEM**. An engineered mechanical and electrical system designed to provide a tenable environment for the evacuation or relocation of occupants and control the development and movement of smoke.~~

~~**SPIRIT.** An *ethanol* mixture produced by the distillation of wine, wash, or a previously distilled *spirit*.~~

STRUCTURE. An assembly of materials forming a construction for a specific use including, among others, buildings, stadiums, tents, reviewing stands, platforms, staging, observation towers, radio and television towers, water tanks, swimming and wading pools, retaining walls, open sheds, coal bins, shelters, fences, and display signs. This definition shall not include utilities.

TENANT. A person or persons occupying a building or portion thereof. The tenant shall have a lease to occupy the specified space from the owner.

UNIVERSAL VEHICLE CHARGING STATIONS. Parking spaces provided for *electric vehicle charging stations* that can be utilized for all users and complies with Chapter 11.

USABLE SPACE. Space that may be used. This definition does not apply when usable or potential usable space is sealed off so that access to the area is not provided.

UTILITIES. For the purpose of this codethis code, utilities shall be defined, without limitation to include the following: Refrigeration systems and their appurtenances; electrical systems and all appurtenances, such as motors, etc.; heating and ventilation systems and appurtenances; elevators, dumbwaiters, escalators and similar conveyances; fire protection systems and apparatus; air conditioning or air treatment systems, including ductwork; exhaust or ventilating systems, including ductwork; plumbing and sanitary systems and all appurtenances; signal and annunciator systems; gas, oil and solid fuel-fired appliances, piping, controls, burners and their appurtenances; evaporative cooling, antennae, wells and equipment; water heaters; gas lights; swimming pool piping; gasoline pumps; and L.P.G. liquid fuel and gasoline tanks and piping.

VALUE OR VALUATION. The building replacement value for permit purposes including labor, profit, overhead, materials, base building equipment and appliances. The determination of *value or valuation* shall be made or directed to be made by the Agency.

WORK. All construction or repair excluding decoration or *maintenance* of existing utilities or appliances.

CHAPTER 3
CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION

SECTION 302 OCCUPANCY CLASSIFICATION AND USE DESIGNATION

Section 302.1 Occupancy classification is amended by replacing item 8 as follows:

8. Residential (see Section 310): Groups R-1, R-2, R-3, R-4, and R-X.

SECTION 306 FACTORY GROUP F

Section 306.2 Moderate-hazard factory industrial, Group F-1, is amended by adding the following items to the list of factory industrial uses:

~~Beverages up to and including 16-percent alcohol in combustible containers~~

Greenhouses, buildings, or portions thereof used to cultivate, grow, enrich, or otherwise process agricultural plants or products where unique operations, systems or hazards regulated by the *Denver Fire Code* exist that create significant fire and life safety hazards.

~~**Section 306.3 Low-hazard factory industrial, Group F-2 is amended by replacing the first item in the list of factory industrial uses with the following:**~~

~~Beverages up to and including 16-percent alcohol in noncombustible containers~~

SECTION 307 HIGH-HAZARD GROUP H

Table 307.1.1 Hazardous Materials Exemptions is amended by replacing the second and third *alcoholic beverages* exemptions and adding an energy storage exemption as follows:

TABLE 307.1.1 HAZARDOUS MATERIALS EXEMPTIONS[a]

MATERIAL CLASSIFICATION	OCCUPANCY OR APPLICATION	EXEMPTION
Flammable and combustible liquids and gases	*Alcoholic beverages*	The quantity of *alcoholic beverages* with concentrations by volume (ABV) up to and including 20~~16~~-percent in distilling or brewing of beverages is not limited
Flammable and combustible liquids and gases	*Alcoholic beverages*	The storage quantity of *alcoholic beverages* with concentrations by volume (ABV) up to and including 20~~16~~-percent in barrels and casks is not limited
Any	Energy storage	The quantity of hazardous materials in ~~battery-charging areas for~~ powered industrial trucks is not limited

SECTION 308 INSTITUTIONAL GROUP I

Section 308.5.5 Twelve or fewer children receiving care in a detached one- or two-family dwelling or townhouse is added as follows:

308.5.5. Twelve or fewer children receiving care in a detached one- or two-family dwelling or townhouse. Child care provided in a *dwelling unit* complying with the *Denver Residential Code* Section R202 definition of a *Family Child Care Home* shall be classified as a Group I-4 occupancy or shall comply with the provisions of the *Denver Residential Code*.

SECTION 310 RESIDENTIAL GROUP R

Section 310.4.1 Care facilities within a dwelling is replaced in its entirety as follows.

310.4.1 Care facilities. Care facilities for five or fewer persons receiving *custodial* or *medical care* are permitted to comply with the *Denver Residential Code.*

Section 310.4.2 Lodging houses is replaced in its entirety as follows:

310.4.2 Lodging houses. *Lodging houses* with five or fewer *guestrooms* and 10 or fewer total occupants shall be permitted to comply with the *Denver Residential Code*.

Section 310.4.3 Congregate living facilities is added as follows:

310.4.3 Congregate living facilities. *Congregate living facilities* (*transient or nontransient*) with 10 or fewer occupants shall be permitted to comply with the *Denver Residential Code*.

Section 310.6 Residential Group R-X is added as follows:

310.6 Residential Group R-X. A residential Group R-X occupancy is a group of two or more detached buildings, each building consisting of a single sleeping unit, where the occupants are primarily non-transient in nature. A Group R-X sleeping unit shall not contain cooking facilities. Except as otherwise required by Section 429, residential Group R-X occupancies shall be permitted to be constructed in accordance with the *Denver Residential Code*. Group R-X buildings shall not be more than one story above grade plane in height. Basements are prohibited in Group R-X buildings.

A detached community building with cooking facilities and a dining area is required to be provided with a Group R-X occupancy project. Storage for each resident shall be provided within the sleeping unit, the shared community building, or in a separate storage building.

~~**SECTION 311**~~
~~**STORAGE GROUP S**~~

~~**Section 311.2 Moderate-hazard storage, Group S-1 is amended by adding the following to the list of storage items:**~~

~~Beverages up to and including 16 percent alcohol in combustible containers~~

~~**Section 311.3 Low-hazard storage, Group S-2 is amended by replacing the second item in the list of storage items with the following:**~~

~~Beverages up to and including 16 percent alcohol in noncombustible containers~~

~~**SECTION 312**~~
~~**UTILITY AND MISCELLANEOUS GROUP U**~~

~~**Section 312.4 Fences and retaining walls is added as follows:**~~

~~**312.4 Fences and retaining walls.**~~

~~**312.4.1 General.** Section 312.4 shall apply to all fences or walls in excess of 4 feet (1219 mm) in height, all retaining walls in excess of 3 feet (914 mm) in height. For exempted work refer to Section 130.3 of Section 1 of the *Denver Building Code*.~~

~~**312.4.2 Design.** All fences, walls and retaining walls shall be designed in accordance with Section 1807 and 1609 of this code~~this code~~.~~

~~CHAPTER 4~~
CHAPTER 4: SPECIAL DETAILED REQUIREMENTS BASED ON OCCUPANCY AND USE

SECTION 403 HIGH-RISE BUILDINGS

[F] Section 403.3.2 Water supply to required fire pumps is replaced in its entirety as follows:

Section 403.3.2 Water supply serving high-rise buildings. Water supply serving *high-rise buildings* shall be provided in accordance with Section 507.2.3 of the *Denver Fire Code*.

~~**[F] Section 403.4.1 Smoke detection is replaced in its entirety as follows:**~~

~~**[F] 403.4.1 Smoke detection.** Smoke detection shall be provided in accordance with Section 907.2.13.1 of the *Denver Fire Code*.~~

~~**[F] Section 403.4.2 Fire alarm systems is replaced in its entirety as follows:**~~

~~**[F] 403.4.2 Fire alarm systems.** A *fire alarm system* shall be provided in accordance with Section 907.2.13 of the *Denver Fire Code*.~~

~~**[F] Section 403.4.3 Standpipe system is replaced in its entirety as follows:**~~

~~**[F] 403.4.3 Standpipe system.** A standpipe system shall be provided in accordance with Section 905 of the *Denver Fire Code*.~~

~~**[F] Section 403.4.4 Emergency voice/alarm communication systems is replaced in its entirety as follows:**~~

~~**[F] 403.4.4 Emergency voice/alarm communication system.** An emergency voice/alarm communication system shall be provided in accordance with the Section 907 of the *Denver Fire Code*.~~

[F] Section 403.4.5 Emergency communication coverage is replaced in its entirety as follows:

[F] 403.4.5 Emergency communication coverage. Emergency responder radio coverage shall be provided in accordance with the Section 510.1 of the *Denver Fire Code*.

[F] Section 403.4.6 Fire command is replaced in its entirety as follows:

[F] 403.4.6 Fire command center. A *fire command center* shall be provided in accordance with Section 508 of the *Denver Fire Code*.

[F] Section 403.4.7 Smoke removal is amended by deleting Exception 2 to option 1 and adding a sentence to the end of option 2 as follows:

Mechanical smoke removal systems shall also comply with Section 909.23 of the *Denver Fire Code*.

~~**Section 403.4.7 Smoke removal is replaced in its entirety as follows:**~~

~~**Section 403.4.7 Smoke control.** Smoke control shall be provided in accordance with Section 909 of the *Denver Fire Code*.~~

~~**[F] Section 403.4.8 Standby and emergency power and subsections are replaced in their entirety as follows:**~~

~~**[F] 403.4.8 Emergency power.** An emergency power system complying with Section 2702 shall be~~

provided for the emergency power loads specified in Section 403.4.8.3.

[F] 403.4.8.1 Equipment room. If the emergency power system includes a generator set inside a building, the system shall be located in a separate room enclosed with 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both. System supervision with manual start and transfer features shall be provided at the *fire command center*.

Exception: In Group I-2, Condition 2, manual start and transfer features for the critical branch of the emergency power are not required to be provided at the *fire command center*.

[F] 403.4.8.2 Fuel line piping protection. Fuel lines supplying a generator set inside a building shall be separated from areas of the building other than the room the generator is located in by an *approved* method or assembly that has a *fire-resistance rating* of not less than 2 hours. Where the building is protected throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, the required fire-resistance rating shall be reduced to 1 hour.

[F] 403.4.8.3 Emergency power loads. The following are classified as emergency power loads:

1. Power and lighting for the *fire command center* required by Section 403.4.6.
2. *Ventilation* and automatic fire detection equipment for *smokeproof enclosures*.
3. Elevators.
4. Where elevators are provided in a *high-rise building* for *accessible means of egress*, fire service access or occupant self-evacuation, the standby power system shall also comply with Sections 1009.4, 3007 or 3008, as applicable.
5. Exit signs and *means of egress* illumination required by Chapter 10.
6. Elevator car lighting.
7. *Emergency voice/alarm communication systems*.
8. Automatic fire detection systems.
9. *Fire alarm* systems.
10. Electrically powered fire pumps.
11. Smoke control equipment

[F] Section 403.5.3 Stairway door operation is replaced as follows:

[F] 403.5.3 Stairway door operation. Stairway doors other than the exit discharge doors shall be permitted to be locked from the *stairway* side when signage is provided in accordance with Section 1023.9.2 of this codethis code. *Stairway* doors that are locked from the *stairway* side shall unlock simultaneously without unlatching upon a fire alarm or loss of power or an *electric locks – master switch* signal from the *fire command center*. The lockset shall be wired to all three of these monitor/power/control points.

403.5.3 Stairway door operation. *Stairway* doors other than the exit discharge doors shall be permitted to be locked from the *stairway* side. *Stairway* doors that are locked from the *stairway* side shall be capable of being unlocked without unlatching where the following conditions occur:

1. Individually or simultaneously upon an *electric locks – master switch* signal from the *fire command*

center.

2. Simultaneously upon activation of a *fire alarm signal* in an area served by the *stairway*.

~~1.~~3. Upon failure of the power supply to the lock or locking system.

[F] Section 403.5.6 Accessible means of egress elevator and area of rescue assistance and subsections are added as follows:

[F] 403.5.6 Accessible means of egress elevator and area of rescue assistance. An accessible means of egress elevator complying with Section 1009.4 shall be provided in *high-rise buildings* and shall be accessed directly from an *area of rescue assistance*. Each *area of rescue assistance* shall comply with Section 1009.6 and shall be separated from the remainder of the story by a *smoke barrier* complying with Section 709.

Exceptions:

1. *Areas of rescue assistance* are not required at the elevator in Group S-2 open parking garages; or in Group I-2 or I-3 occupancies.
2. In Group R1, R2, and I1 occupancies, an elevator complying with Section 1009.4 with a fire-resistive *corridor* providing direct access to the elevator from all dwelling units or sleeping units shall be permitted to serve as a required accessible means of egress.
3. *Areas of rescue assistance* at elevators in enclosed parking garages shall be permitted to be enclosed in accordance with Section 509.4.2.

403.5.6.1 Travel Distance. The maximum travel distance from any accessible space to an accessible means of egress elevator complying with this section shall not exceed the exit access travel distance permitted for the occupancy in accordance with Section 1017.1.

403.5.6.2 Occupant evacuation elevators. Where occupant evacuation elevators are provided in accordance with Section 403.6.2, *areas of rescue assistance* shall be located at these elevators.

403.5.6.3 Area of rescue assistance pressurization. The *area of rescue assistance* at the accessible means of egress elevator shall be pressurized by the transfer of air from the pressurized hoist way through the leakage at the elevator doors.

Section 403.6 Elevators is replaced as follows (subsections remain):

403.6 Elevators. Elevator installation and operation in *high-rise buildings* shall comply with Chapter 30 and Sections 403.6.1 and 403.6.2. Elevator hoistways that serve floors more than 75 feet (22 860 mm) above the *lowest level of fire department vehicle access* or serve a required *area of rescue assistance* shall be pressurized in accordance with Section 909.21 of the *Denver Fire Code*.

~~**SECTION 405**~~

~~**UNDERGROUND BUILDINGS**~~

~~**Section 405.8 standby and emergency power and subsections are replaced as follows:**~~

~~**405.8 Emergency power.** An emergency power system complying with Section 2702 shall be provided for the emergency power loads specified in Section 403.4.8.3.~~

SECTION 406 MOTOR-VEHICLE-RELATED OCCUPANCIES

[DOTI] 406.4.4 Motor vehicle exiting from parking facilities is added as follows:

[DOTI] 406.4.4 Motor vehicle exiting from parking facilities. Where ramps are provided for motor vehicles to exit from a parking facility or from a private drive onto the public right of way, the ramps shall be sloped at 0.5 percent minimum to 2 percent maximum for a distance at least 20 feet (6096 mm) inside of the building or property line. Vertical curves shall be used at all grade breaks.

Exception. The *building official* may approve an alternative slope upon the recommendation of the "Transportation, Engineering and Planning Division" of the Department of Transportation and Infrastructure.

SECTION 412 AIRCRAFT RELATED OCCUPANCIES

Section 412.1 General is replaced as follows:

412.1 General. Aircraft-related occupancies shall comply with Sections 412.1 through 412.7, Appendix S, and the *Denver Fire Code*.

SECTION 414 HAZARDOUS MATERIALS

~~**Section 414.1.1 Other provisions is replaced as follows, subsections to remain:**~~

~~**[F] 414.1.1 Other provisions.** *Buildings* and *structures* with an occupancy in Group H shall comply with this section and the applicable provisions of Section 415 and the *Denver Fire Code*. A performance-based design alternative may be proposed in accordance with Section 5001.3 of the *Denver Fire Code*.~~

Section 414.2.6 Hazardous material in live/work units and subsections are added, as follows:

414.2.6 Hazardous material in live/work units. Hazardous materials located at a *live/work unit* shall comply with 414.2.6.1 through 414.2.6.3.

414.2.6.1. Flammable and combustible liquids. The aggregate quantities of flammable and combustible liquids permitted within a single *live/work unit* shall not exceed 10 gallons (38 L). All flammable and combustible liquids shall be stored in liquid storage cabinets in accordance with Section 5704.3.2 of the *Denver Fire Code* and the amount in use shall not exceed 1 gallon (3.8 L).

414.2.6.2. Flammable gas. The aggregate amount of flammable gas, including LPG, within each *live/work unit* shall not exceed 1-one-pound cylinder in use with 1-one-pound cylinder in storage.

414.2.6.3. Outside storage. Flammable and combustible liquids and flammable gases shall not be stored outside and adjacent to a *live/work unit*.

~~**SECTION 415**~~

~~**GROUPS H-1, H-2, H-3, H-4 AND H-5**~~

~~**Section 415.5 Emergency alarms is replaced as follows, subsections to remain:**~~

~~**[F] 415.5 Emergency alarms.** Emergency alarms for the detection and notification of an emergency condition in Group H occupancies shall be provided as set forth herein and in accordance with Sections 908 and 5004 of the *Denver Fire Code*.~~

SECTION 420 GROUPS I-1, R-1, R-2, R-3 AND R-4

Section 420.12, Group R-2 refuse collection areas is added as follows:

420.12 Group R-2 refuse collection areas. Buildings containing group R-2 occupancies having more than five *dwelling units* shall be provided a minimum refuse collection area of 1.5 square feet (0.14 m^2) in area per *dwelling unit*, but not less than 100 square feet (9.3 m^2) ~~with occupant access in accordance with this section~~. Refuse collection areas shall include a floor area for recycling containers not less than the floor area provided for waste containers, and a floor area for compost containers not less than one-half the floor area provided for waste containers.

Exception: Where curbside pickup is available for each *dwelling unit*.

~~**420.12.1 Interior refuse collection areas.** Where refuse collection areas are provided inside a building, they shall comply with all the following:~~

~~1. Access to a public way or to on site vehicular access, large enough to remove the largest container in the collection area, shall be provided.~~

~~2. Floors, walls, and ceilings of the refuse collection area shall be finished in a smooth, cleanable surface.~~

~~3. Exhaust ventilation shall be provided at the rate of 1cfm/ft^2. Exhaust air shall not be recirculated or transferred to any other space.~~

~~4. Doors between interior spaces of the building and the refuse collection area shall be weather-stripped.~~

~~5. Areas provided with waste or recycling chutes shall comply with Section 713.13.~~

~~6. A floor drain shall be provided.~~

~~7. The area shall be used for no other function other than refuse collection.~~

~~**420.12.2 Exterior refuse collection areas.** Where refuse collection areas are provided outside of a building, siting, and screening of the area shall comply with the Denver Zoning Code.~~

~~**420.12.3 Vehicular access.** Where refuse collection pickup requires vehicular access on the building site, such access shall comply with all the following:~~

~~1. Not less than 14 feet (4267mm) of vertical clearance to any obstructions.~~

~~2. Not less than 10 feet (3048 mm) in width.~~

~~**420.12.4 Minimum size.** Refuse collection areas shall be a minimum of 1.5 square feet (0.14 m^2) in area per *dwelling unit*, but not less than 100 square feet (9.3 m^2).~~

~~**Exception:** Where demonstrated that refuse pickup frequencies or other building features reduce the necessity for the minimum room [collection area] size and is *approved* by the *building official*.~~

~~**420.12.5 Waste, recycling, and compost container floor area.** Refuse collection areas shall accommodate refuse separation and containment for waste, recycling, and compost in accordance with all the following:~~

~~1. Recycling containers shall be provided a floor area not less than the floor area provided for waste containers.~~

~~2. Compost containers shall be provided a floor area not less than one-half the floor area provided for waste containers.~~

~~3. Recycling and compost containers shall be provided occupant access within the collection area equivalent to that of the waste containers.~~

~~4. Signage or identified containers shall be provided to clearly identify the material intended for each container or portion of the collection area.~~

~~5. Containers shall comply with Section 304.3 of the *Denver Fire Code*.~~

Section 429 Residential Group R-X is added as follows:

SECTION 429 RESIDENTIAL GROUP R-X

429.1 General. Group R-X *sleeping unit(s)* shall comply with Section 429.

429.2 Individual sleeping unit floor area. The habitable floor area of an individual *sleeping unit* shall be not less than 70 square feet (6.5 m^2). The minimum interior dimension of the habitable area of an individual *sleeping unit* shall not be less than 7 feet (2134 mm). A Group R-X *sleeping unit* shall be 400 square feet (37.2 m^2) or less in floor area, excluding lofts. Habitable floor areas shall have a ceiling height of not less than 7 feet 6 inches (2286 mm) above the finished floor.

429.3 Maximum occupant load. The maximum occupant load within a *sleeping unit* shall be limited to one person per 50 square feet (4.6 m^2) of habitable floor area.

429.4 Building separation distances. The minimum separation between individual *sleeping units* is 10 feet (3048 mm). The separation distance between *sleeping units* and the community building or any storage building shall comply with the provisions of Section 705.3. A *sleeping unit* and the community building shall not be considered portions of a single building. A *sleeping unit* and a storage building shall not be considered portions of a single building. To apply the provisions of Section 705.3 the *sleeping units* shall be considered a Group R-3 occupancy.

> **Exception:** Reduced building separation distances shall be considered when exterior walls complying with the requirements of Section 705 are incorporated into the construction of the *sleeping units*. For the purpose of applying the provisions of Section 705.3, the imaginary line between two *sleeping units* shall be centered between the buildings. In no case shall the separation between buildings be reduced to less than 5 feet (1524 mm). The minimum separation distance between roof overhangs is 4 feet (1219 mm).

429.5 Fire apparatus access roads. *Approved* fire apparatus access roads complying with the requirements of Section 503 of the *Denver Fire Code* shall extend to within 150 feet (45 720 mm) of all portions of any sleeping unit and all portions of the exterior walls of the *sleeping units*, as measured by a Denver Fire Prevention Division *approved* route around the exterior of the *sleeping units.*

To apply the provisions of Table 503.2.1 of the *Denver Fire Code*, Group R-X occupancies shall be considered single-family detached buildings without alleys or driveways that extend to the road.

The installation of a security gate across a *fire apparatus access road* must be *approved* by the *fire code official*.

429.6 Individual *sleeping unit* address. Individual *sleeping units* shall be provided with *approved* address identification in accordance with Section 505. A permanent weatherproof sitemap identifying the address numbers of the *sleeping units* shall be provided at the entrance into a campus of *sleeping units.*

429.7 *Sleeping unit* exterior stairway illumination. The exterior stairway of a *sleeping unit* shall be provided with a light source located at the top of the *stairway*.

429.8 Fire hydrants. All portions of any *sleeping unit* must be located no more than 600 feet (182 880 mm) from a fire hydrant. Hydrants must provide a fire-flow as defined in Table 429.8 at a minimum residual pressure of 20 psi.

TABLE 429.8
REQUIRED NUMBER OF HYDRANTS AND FIRE-FLOW

Aggregate floor area of buildings (square feet)	Minimum number of hydrants required	Hydrant fire-flow (gpm)	Flow duration (hours)
0 – 3,600	1	1,500	1
3,601 – 4,800	1	1,750	1
4,801 – 6,200	2	2,000	2
6,201 – 7,700	2	2,250	2

429.9 Fire protection. Smoke alarms shall be provided in in accordance with Section 907.2.11. To apply the provisions of Section 907.2.11 the Group R-X *sleeping units* shall be considered a Group R-1 occupancy.

429.10 Accessibility. Where there are four or more *sleeping units* on a site at least one sleeping unit shall be a Type B unit. Accessibility shall be designed in accordance with Chapter 11. In Group R-X occupancies with 20 or more *sleeping units* on one site, at least 5 percent but not less than one of the *sleeping units* shall be a Type B unit.

429.11 Plumbing facilities. The *sleeping units* shall be provided with minimum plumbing facilities as specified by Chapter 29, for a residential *dormitory* classification, except that a single bathtub or shower is permitted to serve up to 10 *sleeping units* and drinking fountains are not required. Where a group of *sleeping units* includes a Type B unit, toilet and bathing facilities shall comply with Section 1110.2. The path of travel to these facilities shall not exceed 200 feet (60 960 mm) from any *sleeping uni*t or from the community building.

Only potable water shall be supplied to plumbing fixtures that provide water for drinking, bathing or cooking purposes. A potable water supply system shall be designed, installed and maintained in such a manner to prevent contamination from non-potable liquids, solids or gases being introduced into the potable water supply through cross connections or any other piping connections to the system.

The community building shall provide a water dispenser that is manually controlled by the user for dispensing potable drinking water into a receptacle such as a cup, glass or bottle. Such fixture shall be connected to the potable water distribution system of the premises. This definition includes a free-standing apparatus for the same purpose that is not connected to the potable water distribution system and that is supplied with potable water from a container, bottle, or reservoir.

The community building shall be provided with a kitchen area and every kitchen area shall be provided with a sink.

429.12 Group R-X cooking facilities. Domestic cooking appliances, within a community building accessory to Group R-X *sleeping units*, for use by the residents shall be in compliance with all of the following:

1. The types of domestic cooking appliances shall be limited to ovens, cooktops, ranges, warmers, coffee makers and microwaves.
2. Domestic cooking appliances shall be limited to *approved* locations.
3. Cooktops and ranges shall be protected in accordance with Section 904.14.1.1.
4. Cooktops and ranges shall be provided with a domestic cooking hood installed and constructed in accordance with Section 505 of the *Denver Mechanical Code*.

429.13 Lofts. Lofts used as sleeping or living space within a Group R-X *sleeping unit* shall conform to the requirements of Appendix Section AQ104 of the *Denver Residential Code*.

429.14 Temporarily placed relocatable *sleeping units* and associated buildings. Temporarily placed relocatable *sleeping units* and associated buildings shall comply with the provisions of Section 3103 of ~~this code~~this code.

Exceptions:

1. Where *approved* by the *building official*, temporary structures and *relocatable buildings* may be placed on a site for a period of up to four years without a permanent foundation.

2. Where *approved* by the *building official*, Denver Water, and Department of Transportation and Infrastructure, temporary structures and *relocatable buildings* may be placed on a site for a period of up to 180 days without being connected to a public water supply and without the sanitary drainage from plumbing fixtures being connected to a public sewer. There may be one 180-day extension granted by the *building official* when required. A formal request must be submitted thirty days prior to the required vacancy. Where a water tank is used to supply potable water to plumbing fixtures, the interior surface of the tank shall be lined or coated to conform to NSF International standard NSF-61. The interior surface of a potable water tank shall not be lined, painted, or repaired with any material that changes the taste, odor, color or potability of the water supply when the tank is placed in, or returned to, service.

429.15 Outside storage. Outside storage of combustible materials and hazardous materials, including aerosols and propane, between adjacent sleeping units is prohibited.

429.16 Existing *sleeping units*. The legal occupancy of any existing *sleeping unit* on the date of adoption of ~~this code~~this code shall be permitted to continue without change, except as is specifically covered in ~~this code~~this code, or the *Denver Fire Code*, or as is deemed necessary by the *building official* for the general safety and welfare of the occupants and the public.

Section 430 Aircraft Noise Reduction for multi-unit dwellings and schools is added as follows:

SECTION 430 AIRCRAFT NOISE REDUCTION FOR MULTI-UNIT DWELLINGS AND SCHOOLS

430.1. Scope

1. This section shall apply to any new or remodeled Group R-1 or R-2 occupancy, *Denver Residential Code townhouse* or Group B and Group E educational occupancies (which shall mean those uses permitted under the Denver Zoning Code under the Education Use Category or uses permitted under the Former Chapter 59 under school, elementary or secondary; school, vocational, professional or other; school, vocational professional or other, small; or university or college uses) within the area shown in Exhibit A as the DIA Influence Area.
2. The intent of this language is to mitigate interior noise levels associated with current and future noise due to the proximity to Denver International Airport.
3. These design/construction methods apply only to the exterior façade elements of a building, not to any interior walls.
4. Design requirements and methods:
    a. **Design method I.** Is a prescriptive method which defines minimum construction requirements in terms of exterior wall and roof construction, exterior wall and attic insulation, and STC and OITC ratings of windows and doors, and the configuration of vents for gas appliances and other venting appliances. No design calculations are required in this method. See Section 430.3. This design method is allowable for multi-unit dwellings.
    b. **Design method II.** Building design by analysis using the OITL Rating Method. See Section 430.4. This design method is allowable for multi-unit dwellings or school/educational uses.
    c. **HVAC requirements.** Regardless of which design method is used, the HVAC requirements of Section 430.6 must be met.
5. Compliance of a structure to ~~this code~~this code, the Denver Residential Code, and the Denver Energy Code does not ensure compliance with requirements set forth in this article. Conversely compliance with the requirements in this article does not ensure compliance with the exterior wall and attic insulation and window R-values required in ~~this code~~this code, the Denver Residential Code, and the Denver Energy Code.
6. The OITL rating method as outlined in ASTM E 1332 uses a reference sound spectrum that accounts for the spectral content of noise from aircraft. Therefore, method II inherently accounts for the low frequency spectral content of jet aircraft noise.

430.2 Definitions. The following words, terms, and phrases, when used in this section, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

1. **Acoustical professional** is a professional engineer, an Institute of Noise Control Engineering (INCE) Member or Board Certified INCE member.
2. **A-weighted decibels, dB(A)** means ten times the logarithm (to the base 10) of a power or intensity ratio with A-weighting which correlates with the human response to the loudness of sounds.
3. **Composite transmission loss** means the combined TL rating of all the exterior façade elements for a room or group of rooms, weighted based on the area and STC rating of each individual element.
4. **Facade elements** means construction elements of the residence that comprise the building envelope from the outside surface of the element to the interior surface of the element. Typical façade elements are doors, windows, wall assemblies, roof assemblies, vents, fireplaces, etc.
5. **Noise level reduction (NLR)** means a reduction in A-weighted sound levels.
6. **Sound transmission class (STC)** is the most common rating used in North America to for determining airborne sound transmission loss between 125 and 4,000 Hz. It was created to provide a single number rating for interior building partitions that are subjected to noises from speech,

television, radio, office equipment and other mid to high frequency noise sources. The STC rating is calculated in accordance with ASTM E413 (originally published in 1970). The rating is calculated by comparing the measured sound transmission loss to a reference contour curve. The STC rating must only be assigned to specimens tested in a laboratory. If specific materials are not laboratory tested, an acoustic professional can submit a report to be reviewed and *approved* by the *building official*.

7. **Outside inside transmission class (OITC)** is calculated in accordance with ASTM E1332 (originally published in 1990). It was created to provide a single number rating for facades (exterior walls) and façade elements (windows and doors) that are subject to transportation noises (aircraft, trains, automobiles, and other low to mid frequency noise sources). The OITC is calculated over the frequency range of 80 to 4,000 Hz. An apparent OITC rating can be assigned to specimens tested in the field and in the laboratory.
8. **Outside to inside transmission loss (OITL),** of a building facade, means in a specified frequency band ten times the common logarithm of the ratio of the airborne sound power incident on the exterior of the facade to the sound power transmitted by the facade and radiated to the interior. The quantity so obtained is expressed in decibels (dB).
9. **Remodeling or Remodeled** means any construction activity in a structure that includes but is not limited to:
    a. Any addition to the principle structure, or;
    b. Any alterations to an exterior façade, including window and door replacement projects. Only the areas being renovated or replaced require compliance with this section.
10. **Sound insulation** means the capacity of a structure to prevent sound from reaching a receiving location.
11. **Sound level,** of airborne sound means a sound pressure level obtained using a signal to which a standard frequency weighting has been applied such as A-weighting.
12. **Transmission loss (TL)** of an exterior façade element means, for a specific frequency band, the difference between the average sound pressure levels from the source side of the façade element to the receiving side of the façade element (expressed in decibels) plus ten times the logarithm to the base 10 of the ratio of the area of the façade element to the total acoustical (sabine) absorption in the receiving room.

430.3 Design method I. This method requires the registered design professional to follow the construction requirements for all exterior façade elements as listed in the tables below (Table 430.3).

TABLE 430.3
CONSTRUCTION REQUIREMENTS FOR
MULTI-UNIT DWELLINGS

FAÇADE ELEMENT	MINIMUM REQUIREMENT

Exterior walls	Minimum STC rating of 32 and OITC rating of 25
Structural	~~2" by~~ 6" nominal depth wood or metal studs (minimum)
Insulation	R-19 Batt insulation or full cavity fill blown cellulose
Interior applications	1 layer of 1/2" or 5/8" gypsum
Exterior applications	5/8” OSB or plywood sheathing and exterior finish material to meet applicable codes
Basements	Basements are excluded, as long as basement windows and sliding glass doors have minimum STC ratings of 32 and OITC 25.
Exterior floors and cantilevered floors	Normal construction, except for full joist fill insulation
FAÇADE ELEMENT	**MINIMUM REQUIREMENT**
Roofs and exterior ceilings	Minimum attic insulation shall be R-38. Joist type vaulted roof/ceiling structures are allowed, coffered ceilings are acceptable. Truss type vaulted ceilings are allowed and shall have a minimum truss depth of 14".
Skylights	Minimum STC rating of 32 and OITC rating of 25
Doors	Minimum STC rating of 32 and OITC rating of 25
Exterior swing doors	Solid core or composite door assembly with jamb seals and sweeps. Door assembly shall have a minimum STC rating of 32 and OITC rating of 25. The STC criteria mentioned for each entry can include a storm door assembly.
Sliding glass doors	Minimum STC rating of 32 and OITC rating of 25
Windows	Minimum STC rating of 32 and OITC rating of 25

430.3.1 General construction notes. All exterior walls, roofs and exposed floors shall be of airtight construction. All non-lap joints shall be grouted or caulked airtight with a non-hardening, non-shrinking sealant installed in accordance with manufacturer's specifications. Any penetrations of exterior walls or roofs by pipes, ducts or conduits shall be sealed airtight as required for joints. Door and window openings in exterior walls shall be flashed all around with an *approved* vapor barrier and sealed to prevent air infiltration. All voids at doors and windows caused by shims shall be filled solid with insulation and sealant. Sill sealant shall be used to prevent air infiltration at all base plates of exterior walls. Attic and crawl space vents shall not exceed minimums specified by ordinance. Crawl space vents shall be baffled as shown in figure 430.6.3.2. See Section 430.6 for building mechanical systems.

430.4 Design method II. Generally, this requirement is for schools/educational uses, but may also be utilized for multi-unit dwelling construction. Design method II requires an acoustical professional to follow the design specifications and construction techniques described in this Section. An acceptable OITL rating derived as prescribed in this section will be required prior to approval of building plans. The acoustical professional is responsible for providing OITL ratings for all façade elements, that were determined in accordance with either ASIM E 90 (current revision at time of plans submittal N) or ASIM E 966 (current revision at time of plans submittal).

1. Noise level reduction requirements. All structures shall be designed and constructed so that the exterior shell of the structure (windows closed) provides an OITL rating of 25 decibels or higher.
2. Design calculations. The OITL rating shall be calculated for each room having an exterior façade element (basements are explicitly excluded from rooms requiring calculation), using the composite TL calculation procedure outlined below. The room having the lowest numerical OITL rating will determine if the building meets the minimum requirements. The construction required for this room shall then be applied to the entire building structure; that is the window and door TL ratings shall be applied to all windows in the building, the wall construction shall be applied to all exterior walls in the building, and the roof/ceiling construction shall be applied to all ceiling areas with exterior areas.
3. In some instances, rooms may not have distinct separation lines; i.e., a kitchen adjacent to a family room. For these cases, when the opening between the rooms is at least 50 percent of the area of the separation between the rooms (opening plus wall area) then the rooms may be combined into one room.

4. The calculations to determine the OITL rating must be performed by an acoustical professional.

5. Composite transmission loss values used in the OITL rating calculation are determined as follows. The transmission coefficient (T) of a façade element is the ratio of the sound power transmitted through the façade element per unit area to the sound power incident on the façade element per unit area. Transmission loss (TL) is the expression of the transmission coefficient on a decibel scale. The two quantities are related by

   $TL = 10 \text{ Log10 } (1 / \tau)$

   $T = 10\text{-}TL/10$

   A transmission coefficient of zero, T = 0, means that none of the incident sound energy passed through the partition; i.e. the transmission loss is infinity great. A transmission coefficient of one, T = 1, means that all of the incident sound energy passed through the partition; i.e. the transmission loss is zero. A TL of zero applied to an open window or door.

   The sound energy passing through each component (façade element) of a multi-element partition depends on the area and transmission loss of each element. The equation governing this process is

   $A\text{total } T\text{total} = A1T1 + A2T2 + A3T3 + A4T4 + \cdots$

   Where:

   A1 and T1 represent the area and transmission coefficient of the first element (for example a wall),

   A2 and T2 represent the area and transmission coefficient of the second element (for example a window),

   A3 and T3 represent the area and transmission coefficient of the third element (for example a door),

   A4 and T4 represent the area and transmission coefficient of the fourth element (for example a ceiling/roof assembly) and so on.

The quantities ATOTAL and TTOTAL are for the composite multi-element partition. The transmission coefficient for the composite multi-element partition is then represented as Ttotal = A1T1 + A2T2 + A3T3 + ⋯/ Atotal

The TL for the combined multi-element partition calculated TLtotal = 10 Log10 (1 / Ttotal)

In order to calculate the OITL rating the TLtotal must be determined for each 1/3-octaveband from 80 to 4000 HZ as described in ASTM E 1332.

6. Construction. All exterior walls, roofs and exposed floors shall be of airtight construction. All non-lap joints shall be grouted or caulked airtight with a non-hardening, non-shrinking sealant installed in accordance with manufacturer's specifications. Any penetrations of exterior walls or roofs by pipes, ducts or conduits shall be sealed airtight as required for non-lap joints. Door and window openings in exterior walls shall be flashed all around with an *approved* vapor barrier and sealed to prevent air infiltration. All voids at doors and windows caused by shims shall be filled solid with insulation and sealant. Sill sealant shall be used to prevent air infiltration at all base plates of exterior walls. Attic and crawl space vents shall meet specifications given in sections 143.6.2 and 143.6.3.2.

430.5 Plans and specifications. In addition to plans, specifications, and calculations required elsewhere in ~~this code~~this code, an application for a building permit subject to this section shall be accompanied by the following:

Design Method	Required information to be shown on permit drawings
I	Plans shall clearly indicate construction as specified in Section 430.3.
II	OITL calculations in accordance with Section 430.4 shall be submitted with the building plans and shall be certified by an acoustical professional.

430.5.1 Details. Plans and specifications shall show in sufficient detail any pertinent data and features of the building and the sound insulation techniques to clearly indicate compliance with the requirements of this section. For prefabricated assemblies, such as windows, pre-hung doors, and fireplaces, submittals and labeling on the assemblies shall clearly indicate the STC and OITC ratings for Method I and OITL ratings for Method II of the assembly, and that the testing was performed in accordance with ASTM E 90 (current revision at time of plans submittal) or ASTM E 966 (current revision at time of plans submittal).

430.6 Building mechanical systems.

430.6.1 HVAC systems. All structures subject to this section shall have an HVAC system with the following features:

1. Gas-fired appliances, including water heaters, shall be enclosed in a room separated from habitable space. Combustion air shall be supplied to the room directly from the outside as prescribed in ~~this code~~this code, the Denver Mechanical Code, the Denver Energy Code, and the Denver Fuel Gas Code.

   Exception: Sealed combustion direct vent appliances.
2. Equipment for cooling and ventilation air shall be included as part of the system. Ventilation air shall either be supply or exhaust systems per the requirements of ~~this code~~this code, and the Denver Mechanical Code.
3. Systems utilizing supply air for outside air ventilation shall have controls that permit "fan only" operation without activation of the heating or cooling system.
4. Exhaust to the outside. Provisions shall be made to mechanically exhaust kitchen, bathroom and janitor/service areas, so that opening of windows will not be necessary, including the outside air ventilation systems using the exhaust option. Each duct shall be provided with at least two bends such that there is no direct line of sight from inside the structure to the outside and shall contain a solid baffle plate across the exterior termination which will still allow adequate area for proper ventilation.

430.6.2 Fireplaces, crawl spaces, attic vents, gas-fired appliances and other openings.

1. Traditional wood burning fireplaces and solid fuel stoves shall not be installed in residential buildings subject to this section. Gas fireplaces shall be direct vent sealed combustion appliances.
2. Gas logs shall be direct vent sealed combustion appliances.
3. Crawl space vent acoustical baffles are required, unless otherwise *approved* by the *building official*.
4. Attic vent acoustical baffles are required, unless otherwise *approved* by the *building official*.
5. Kitchen ventilation for gas-fired kitchen ranges and kitchen hood ventilation fans shall comply with installation requirements specified in ~~this Code~~this code, and the Denver Fuel Gas Code, and the combustion and exhaust venting shall comply with the configuration shown in Section 430.6.3. Any venting not for combustion air intake or exhaust is required to have a downward-sloping exterior hood or an exterior cover with a lightweight damper. Kitchen exhaust to the building exterior shall be through the stove/range/cook top hood, ventilation fan, downdraft ventilation or other *approved* whole kitchen ventilation systems. Electric kitchen ranges will also be allowed and shall comply with installation requirements specified in ~~this code~~this code, and the Denver Mechanical Code.
6. Mail chutes, milk chutes, pet doors, whole house fans, and through-wall/window air conditioning units are not allowed.

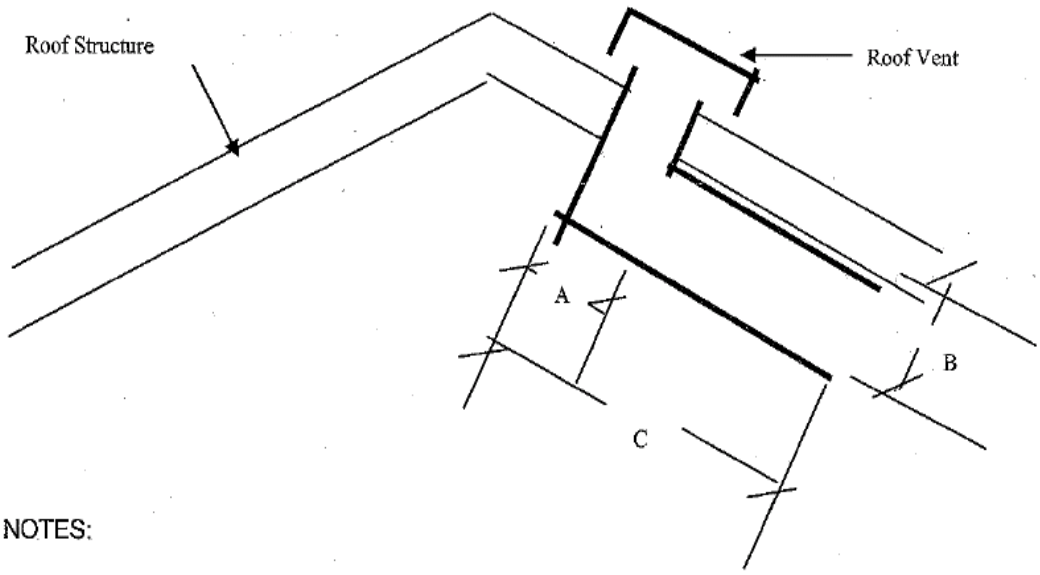
430.6.3 Acoustical vent baffles design.

1. Kitchen hood vent detail. The exhaust vents required for kitchen hoods shall conform with ~~this code~~this code, the Denver Mechanical Code, and the Denver Fuel Gas Code. The intake and exhaust vent ductwork shall have offsets built in, so that there is no line of site between the outside (minus the rain guard) and inlet or discharge to the kitchen hood. The offset shall be a minimum of two

times the duct diameter. An acoustical professional may provide an alternative to this requirement in either design method, subject to the review and approval by the *building official*.

2. Roof vent acoustical baffle. Acoustical baffles for roof vents (on surface of roof only) shall conform with ~~this code~~this code, and the Denver Mechanical Code, and the schematic vent diagram shown below; side view shown in Section 430.6.3.1. An acoustical professional may provide an alternative to this requirement in either design method, subject to the review and approval by the *building official*.
3. Crawl space vent acoustical baffle. Acoustical baffles for crawl space vents shall conform with ~~this Code~~this code, and the Denver Mechanical Code, and the schematic vent diagram shown below; side view shown in Section 430.6.3.2. An acoustic professional may provide an alternative to this requirement in either design method, subject to review and approval by the *building official*.

430.6.3.1 Roof vent acoustical baffle diagram



NOTES:

1. Dimension ‘A’ shall not be less than radius or major dimension of the vent opening.
2. Dimension ‘B’ shall not be less than dimension ‘A’.
3. Dimension ‘C’ shall be at least 2 ½ times dimension ‘B’.
4. Line all inner surface areas of vent with one-inch thick three-pound density fiberglass board or duct liner.

430.6.3.2 Crawl space vent acoustical baffle diagram

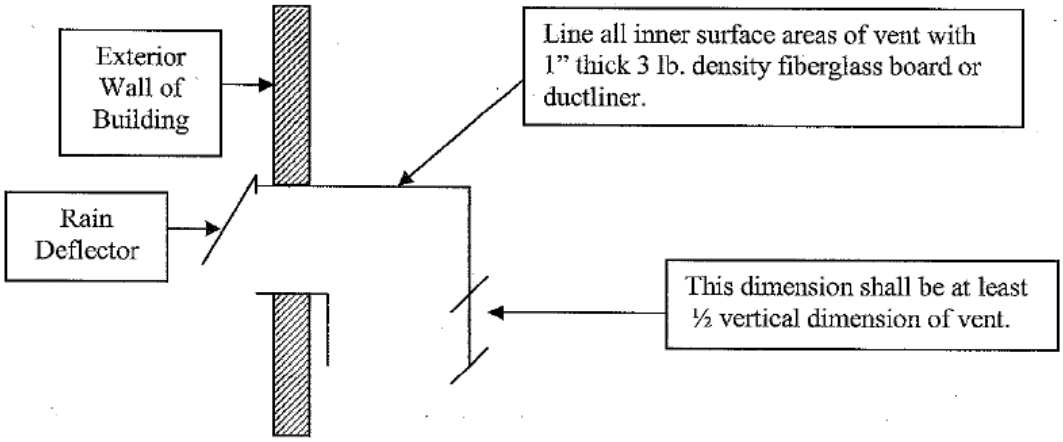
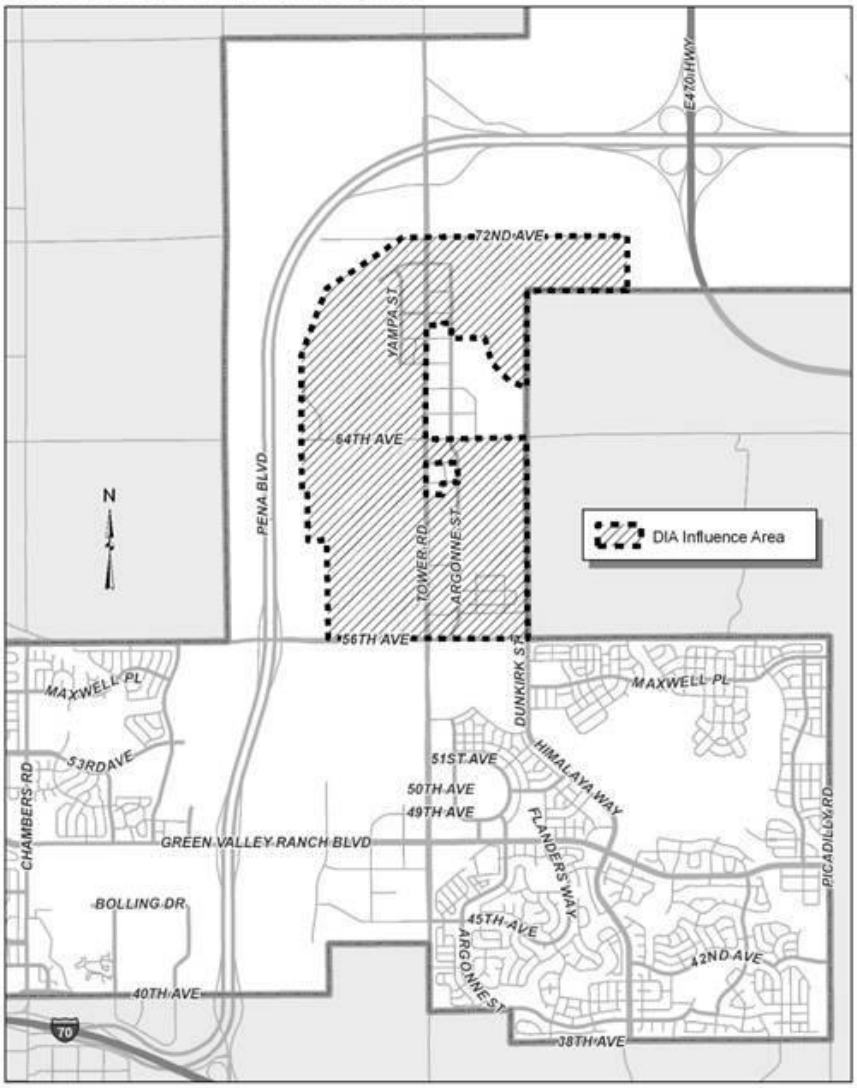


Exhibit A

Denver International Airport Influence Area



~~CHAPTER 5~~
CHAPTER 5: GENERAL BUILDING HEIGHTS AND AREAS

SECTION 503 GENERAL BUILDING HEIGHT AND AREA LIMITATIONS

Section 503.1.4.1 is amended by adding Exception 3 as follows:

3. Height of fences or guards as regulated by other provisions of ~~this code~~this code.

SECTION 506 BUILDING AREA

Section 506.2.1 Single-occupancy buildings is amended by replacing A_t for Equation 5-1 as follows:

A_t = Tabular allowable area factor (NS, S1, S13R, S13D or SM value, as applicable) in accordance with Table 506.2.

SECTION 508.5 LIVE/WORK UNITS

~~**Section 508.5.1 Limitations is amended by adding item 4 as follows:**~~

~~4. The nonresidential area shall be limited to maximum occupant load of 49 persons, as determined by dividing the floor area under consideration by the occupant-per-unit-area factor assigned to the function of space set forth in Table 1004.5.~~

Section 508.5.2 Occupancies is amended by replacing the section, renumbering Exception 1, and adding Exception 2 as follows:

508.5.2 Occupancies. *Live/work units* shall be classified as a Group R-2 occupancy. Separation requirements found in Sections 420 and 508 shall not apply within the *live/work unit* where the *live/work unit* is in compliance with Section 508.5. Nonresidential uses that would otherwise be classified as either a Group E, F, H, I, or S occupancy shall not be permitted in a *live/work unit*.

Exceptions

2. Group F occupancy custom manufacturing establishments primarily engaged in the on-site production of goods by hand manufacturing shall be permitted in the *live/work unit.* Production shall involve only the use of hand tools or mechanical equipment not exceeding two horsepower per piece of equipment not to exceed a total of six horsepower; or a single kiln not exceeding eight kilowatts or the equivalent in a gas-fired fixture. Spray finishing operations shall be limited to those allowed by Section 2404.11~~9~~ of the *Denver Fire Code*.

~~**Section 508.5.12 Fire-resistance-rated construction is added as follows:**~~

~~**508.5.12 Fire-resistance-rated construction.** The *fire-resistance rating* required by Sections 708 and 711.2.4 between units shall be a minimum of 1-hour construction.~~

~~CHAPTER 7~~

CHAPTER 7: FIRE AND SMOKE PROTECTION FEATURES

~~SECTION 703~~

~~FIRE-RESISTANCE RATINGS AND FIRE TESTS~~

~~Section 703.2.3 Approved alternate method is replaced as follows:~~

~~**703.2.3 Approved alternate method.** The *fire resistance* of *building elements*, components or assemblies not complying with Section 703.2.1 or 703.2.2 shall be permitted to be established by an alternative protection method in accordance with Section 104.10 of Article 1, Section 1 of the *Denver Building Code*.~~

SECTION 705 EXTERIOR WALLS

Section 705.2 Projections is amended by adding the following sentence to the end of the section:

Balconies inset 4 feet or more shall not be considered projections. Balconies inset up to 4 feet (1219 mm) may be considered projections.

Section 705.9.1 Allowable area of openings is replaced as follows (exceptions remain):

705.9.1 Allowable area of openings. The maximum area of unprotected and protected openings permitted in an *exterior wall* in any *story* of a building shall not exceed the percentages specified in Table ~~705.8~~705.9 based on *fire separation distance* of each individual *story*, as measured from the building face within the height of each individual *story* that is closest to the line used to determine *fire separation distance*. The provisions of this section are applicable to the exterior openings with or without windows, duct openings and air transfer openings.

~~SECTION 712~~

~~VERTICAL OPENINGS~~

~~Section 712.1 General is amended by adding the following sentence to the end of the section:~~

~~In a building with a smoke control system, unenclosed vertical openings shall comply with Section 909.3.1 of the *Denver Fire Code*.~~

~~SECTION 717~~

~~DUCTS AND AIR TRANSFER OPENINGS~~

~~717.5.3 Shaft enclosures is amended by adding the following sentence and deleting Exception 1.3 and Exception 4.~~

~~Ducts penetrating shaft enclosures that are a part of the smoke control system shall conform to Section 909 of the *Denver Fire Code*.~~

Section 717.6.2.1.2 Static systems is amended by deleting Exceptions 2 and 3 and replacing Exception 1 as follows:

Exceptions:

1. When the fans associated with heating, ventilation, air-conditioning, and exhaust systems are interlocked to shut down during a fire, static ceiling radiation dampers may be used within the associated systems.

SECTION 720 THERMAL- AND SOUND-INSULATING MATERIALS

Section 720.1.1 Insulation above fire sprinklers is added as follows:

720.1.1 Insulation above fire sprinklers. Flexible non-supporting insulation installed above sprinklers on the underside of floor or roof sheathing shall be secured in place with 20-gauge metal netting with a mesh size not greater than 2 inches by 2 inches (50.8 mm by 50.8 mm).

~~CHAPTER 8~~
CHAPTER 8: INTERIOR FINISHES

SECTION 808 ACOUSTICAL CEILING SYSTEMS

Section 808.1.1.3 Drop-out ceiling panels is added as follows:

808.1.1.3 Drop-out ceiling panels. *Drop-out ceiling* panels are prohibited.

Exception: In areas not provided with an *automatic sprinkler system*, listed *drop-out ceiling* panels are permitted when installed in accordance with their listing.

~~CHAPTER 9~~
CHAPTER 9: FIRE PROTECTION SYSTEMS

Chapter 9 of the Denver Commercial Building Code is amended by incorporating Chapter 9 of the *Denver Fire Code*, except as follows:

SECTION 901 GENERAL

Section 901 General is retained in its entirety.

~~CHAPTER 10~~
CHAPTER 10: MEANS OF EGRESS

SECTION 1003 GENERAL MEANS OF EGRESS

Section 1003.7 Elevators, escalators and moving walks is ~~replaced in its entirety~~ amended by renumbering Exception 1 and adding Exception 2 as follows:

~~**1003.7 Elevators, escalators and moving walks.** Elevators, escalators and moving walks shall not be used as a component of a required *means of egress* from any other part of the building.~~

Exceptions:

~~1. Elevators used as an accessible *means of egress* in accordance with Section 1009.4.~~

2. Escalators serving fixed guideway transit system platforms in accordance with NFPA 130.

SECTION 1004 OCCUPANT LOAD

~~**Section 1004.5 Areas without fixed seating is replaced in its entirety as follows:**~~

~~**1004.5 Areas without fixed seating.** The number of occupants shall be computed at the rate of one occupant per unit of area as described in Table 1004.5. For areas without *fixed seating*, the occupant load shall be not less than that number determined by dividing the floor area under consideration by the *occupant load* factor assigned to the function of the space as set forth in Table 1004.5. Where an intended function is not listed in Table 1004.5, the *building official* and *fire code official* shall establish a function based on a listed function that most nearly resembles the intended function.~~

~~**Exception:** Where *approved* by the *building official* and *fire code official*, the actual number of occupants for whom each occupied space, floor or building is designed, although less than those determined by calculation shall be permitted to be used in the determination of the design occupant load.~~

Table 1004.5 Maximum Floor Area Allowances Per Occupant is amended by replacing "business areas" and adding footnote c; adding footnote "b" to "Decks", and adding additional requirements for Group F-1 occupancy for plant husbandry operations with artificially introduced CO_2 as follows:

TABLE 1004.5
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR[a]
Business areas Concentrated business use areas	150 gross / 100 net[c] See Section 1004.8
Skating rinks, swimming pools Rink and pool Decks	 50 gross 15[b] gross
Flowering or vegetative room (F-1 occupancy for marijuana plant husbandry)	300 net (agricultural use)
Work areas (F-1 occupancy for plant husbandry with artificially introduced CO_2)	100 gross

~~b.~~a. For swimming pools that only serve Group R-2 and R-3 Occupancies, the occupant load factor for the pool deck shall be 30 gross square feet.

c. Use gross area or net area occupant load factor that results in the greatest *occupant load.*

Section 1004.9 Posting of occupant load is replaced in its entirety as follows:

1004.9 Posting of occupant load. Every room or space that is an assembly occupancy, ~~and~~or that is within a bar, tavern, or similar area that is an assembly function with an occupant load of 40 or more, shall have the *occupant load* of the room or space posted in a conspicuous space, near the main *exit* or *exit access doorway* from the room or space, for the intended configurations. Posted signs shall be of an *approved* legible permanent design and shall be maintained by the *owner* or the *owner's* authorized agent.

~~**SECTION 1005**~~

~~**MEANS OF EGRESS SIZING**~~

~~**Section 1005.3.1 Stairways is amended by replacing Exception 1 in its entirety and adding Exception 4:**~~

~~**Exceptions:**~~

~~1. For other than Group H and I-2 occupancies, the capacity, in inches, of means of egress stairways shall be calculated by multiplying the occupant load served by such stairways by a means of egress capacity factor of 0.25 inch (6.4 mm) per occupant in buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2 of the *Denver Fire Code* and an emergency voice/alarm communication system in accordance with Section 907.5.2.2 of the *Denver Fire Code*.~~

~~4. The capacity, in inches, of the *means of egress stairways* serving Group H occupancies shall be calculated by multiplying the *occupant load* served by such *stairways* by a *means of egress* capacity factor of 0.7 inches (17.8 mm) per occupant.~~

~~**Section 1005.3.2 Other egress components is amended by replacing Exception 1 in its entirety and adding Exception 4:**~~

~~**Exceptions:**~~

~~1. For other than Group H and I-2 occupancies, the capacity, in inches, of means of egress components other than stairways shall be calculated by multiplying the occupant load served by such component by a means of egress capacity factor of 0.175 inch (4.5 mm) per occupant in buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2 of the *Denver Fire Code* and an emergency voice/alarm communication system in accordance with Section 907.5.2.2 of the *Denver Fire Code*.~~

~~4. The capacity, in inches, of the *means of egress* components other than *stairways* serving Group H occupancies shall be calculated by multiplying the *occupant load* served by such components by a *means of egress* capacity factor of 0.4 inches (10.2 mm) per occupant.~~

~~**SECTION 1008**~~

~~**MEANS OF EGRESS ILLUMINATION**~~

~~**Section 1008.3 Illumination required by an emergency electrical system is amended by adding item 3.6 as follows:**~~

3.6 Elevator landings serving *accessible means of egress* elevators.

Section 1008.3.1 Duration is amended by adding the following Exception:

Exception. The *means of egress* illumination at elevator landings serving an *accessible means of egress* elevator shall be provided with emergency powered illumination for a duration of not less than 120 minutes.

SECTION 1009 ACCESSIBLE MEANS OF EGRESS

[F] Section 1009.4.1 Standby power is amended by replacing the 2nd sentence with the following:

Emergency or standby power shall be provided in accordance with Section 604 of the *Denver Fire Code*

Section 1009.5 Platform Lifts is amended by changing the reference from "Chapter 27" to "Section 920.8 of *Denver Fire Code*".

Section 1009.8.1 System requirements is replaced in its entirety amended by adding two paragraphs as follows:

1009.8.1 System requirements. A two-way communication system shall provide two-way voice communication and visual annunciation between call boxes at locations required by Section 1009.8 and a master control station. Call boxes provided in addition to those in required locations shall comply with this Section.

The master control station shall be installed in the *fire command center* where provided. In a building where a *fire command center* is not provided, or where multiple master control stations are proposed, locations shall be as *approved* by the *fire code official*. In buildings with multiple master control stations, required features and functionality shall be provided simultaneously at all of them. In this configuration, the *fire code official* shall designate the overriding master control station that supersedes all additional master control stations and assumes any telephone connection established with a monitoring location or 911.

A call from a call box shall be directed to the master control station. When the master control station is not constantly attended, the call shall be redirected automatically within 30 seconds to an *approved* monitoring location. The call shall be redirected to 911 if the building does not have an *approved* monitoring location or if no one at the monitoring location is capable of answering the call and taking appropriate action. The call shall not be transmitted to an automated answering system. Two-way voice communication shall be established between the call box and a person at the monitoring location capable of taking appropriate action, or 911. Two-way voice communication shall be discontinued only when monitoring location personnel or emergency personnel terminate the call.

The two-way communication system shall be connected to a source of standby power capable of providing the required functionality for a minimum of four hours when the normal power supply fails. The two-way communication system shall be monitored for integrity and annunciated in accordance with NFPA 72, 10.18.2.

The following features shall be provided at the call boxes:

1. The controls shall be accessible and usable by people with disabilities. Clearance, location, protrusion, labeling, signage, and operability of the equipment and user interface shall comply with ANSI A117.1.

2. A push button to activate two-way communication shall be provided.

An ANSI A117.1-compliant protective cover shall be provided over the face of the call box, including the button. The cover shall be openable with one hand and shall not require tight

grasping, pinching, or twisting of the wrist. Upon releasing the cover from its closed position, it shall hold itself in the open position to provide clear access to activate the button with the same hand. The maximum force required to activate operable parts shall not exceed 5 lbs. (22.2 N). In the open position, the cover shall not encroach on reach ranges required by ANSI A117.1. When the cover is in the open position, the button shall be clearly visible.

~~-~~**"EMERGENCY EVACUATION ASSISTANCE"** shall be permanently identified on the protective cover in blue lettering with white contrast or white lettering with blue contrast. The lettering shall be clearly visible, 5/8" (16 mm) minimum height, and ANSI A117.1 compliant.

~~3. When the button is pushed, the two-way communication system shall initiate a call for assistance at the master control station. A visual indication shall be provided on or adjacent to the button, and an audible signal shall be provided to acknowledge successful initiation~~

~~4. After the acknowledgement signals are sent, two-way communication shall be established without any intentional delay or required intervention by the person initiating the call. Audible and visual indications shall be provided on the call box to acknowledge two-way voice communication has been established. Visual indication shall be deactivated only when the two-way voice communication is terminated.~~

~~The following features shall be provided at the master station(s):~~

~~1. Identification of the master control station as the emergency evacuation system master control station;~~

~~2. Text operating instruction on the use of the systems;~~

~~3. The ability to receive and answer calls from all call boxes in the building served by the master control station;~~

~~4. The ability to identify the specific location (story and room) of every call box actively engaged in a call with the master control station;~~

~~5. The ability to initiate a call to a call box; and~~

~~6. The ability to simultaneously put multiple calls on hold without terminating any.~~

Section 1009.8.2 Directions is replaced in its entirety as follows:

1009.8.2 Directions. Directions for the use of the two-way communication system, instructions for summoning assistance via the two-way communication system and written identification of the location shall be posted adjacent to each call box. Clearly visible ANSI A117.1 compliant signage shall be posted as follows:

1. Text operating instructions on the use of the system shall be posted on or adjacent to the call box;
2. Tactile operating instructions shall be incorporated on or adjacent to the buttons and shall be readily accessible to touch once the cover is in the open position;
3. The written location of the call box shall be posted adjacent to the call box;
4. The statement "**PUSH FOR EMERGENCY EVACUATION ASSISTANCE"** shall be permanently identified on the call box adjacent to the push buttons;
5. The statement **"PERSONS ABLE TO USE THE EXIT STAIRWAY DO SO AS SOON AS**

POSSIBLE, UNLESS THEY ARE ASSISTING OTHERS" shall be posted on or adjacent to the call box;

6. The statement **"AFTER ACTIVATING THE COMMUNICATION SYSTEM, WAIT HERE FOR ASSISTANCE"** shall be posted on or adjacent to the call box;
7. Directions to all other means of egress shall be posted near the call box;
8. Information on planned availability of assistance in the use of stairs or supervised operation of elevators and how to summon such assistance shall be posted on or adjacent to call box within the stair enclosure.
9. Other information required by the *building official* or *fire code official* or the design professional of record.
10. Directions for use shall be as shown in Figure 1009.8.2.

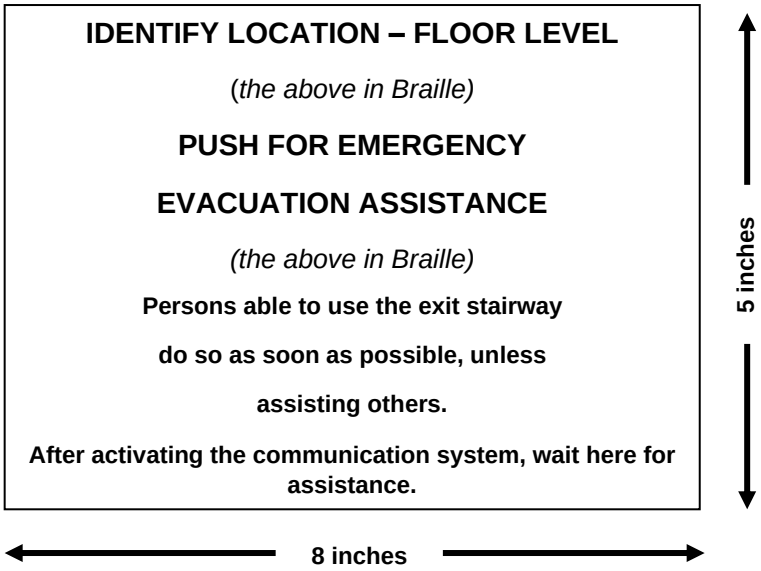


Figure 1009.8.2

Section 1009.8.3 Problematic systems is added as follows:

1009.8.3 Problematic systems. Existing two-way communication systems shall be modified to comply with Section 1009.8.1 when two or more nuisance calls are placed within a twenty-four-hour period, three or more within a thirty-day period, or ten or more within a twelve-month period. In addition,~~al~~ a fine is permitted to be imposed in all cases where the number of nuisance calls exceeds ten within a twelve-month period.

The property owner shall be responsible for maintaining the two-way communication systems required by ~~this code~~this code to provide, at a minimum, the level of reliability and performance as required when originally permitted. Malfunctioning two-way communication systems shall be immediately repaired or replaced. Legal action is permitted to be imposed for two-way communication systems found to be malfunctioning. Permits shall be obtained in accordance with Section 105 of the *Denver Fire Code* for all work on two-way communication systems required by ~~this code~~this code.

SECTION 1010 DOORS, GATES AND TURNSTILES

~~**Section 1010.2.1 Unlatching is amended by adding Exception 4.**~~

~~**Exceptions:**~~

~~4. Notwithstanding the last sentence of Section 1010.2.2, accessible thumb turn locks are allowed on manually operated sliding doors serving offices with an occupant load of 10 or less. For the purposes of this exception, accessible shall mean a lever with a minimum dimension from the pivot of at least 2 5/8 inches (60 mm) that can be operated with a closed fist by applying no more than 5 pounds (22.2 N) of force to the end of the lever.~~

~~**Section 1010.2.2 Hardware is modified by adding the following after the end of the last sentence:**~~

~~**1010.2.2 Hardware.**~~

~~Thumb turn locks are prohibited.~~

~~**Section 1010.2.5 Bolt locks is replaced as follows (exceptions remain):**~~

~~**1010.2.5 Bolt locks.** Manually or electrically operated flush bolts or surface bolts are prohibited.~~

Section 1010.2.6 Stairway doors is amended by replacing Exception 3 as follows:

Exceptions:

3. *Stairway exit* doors shall not be locked from the side opposite the egress side, unless they are openable from the egress side and capable of being unlocked simultaneously without unlatching by the following methods: ~~are permitted to be locked from the side opposite the egress side, provided that they are openable from the egress side and capable of being unlocked simultaneously without unlatching upon an *electric locks – master switch* signal from the *fire command center*, if present, or from a single location at the fire alarm control panel inside the main entrance to the building. When located in a non-secure area, a two-position, key operated switch may be used when a matching key is located in the building's Key Lock Box.~~

   3.1 Shall be capable of being unlocked individually or simultaneously upon an *electric locks – master switch* signal from the *fire command center*, where present, or from a single location at the fire alarm control panel inside the main entrance to the *building*. When located in a non-secure area, a two position, key operated switch may be used when a matching key is located in the building's Key Lock Box.

   3.2 Shall unlock simultaneously upon activation of a *fire alarm signal* when a fire alarm system is present in the area served by the stairway.

   3.3 Shall unlock upon failure of the power supply to the electric lock or the locking system.

~~**Section 1010.2.10 Door hardware release of electrically locked egress doors is amended by adding item 7:**~~

~~7. *Shear-type magnetic locks* shall not be permitted.~~

~~**Section 1010.2.11 Sensor release of electrically locked egress doors is amended by adding item 9:**~~

~~9. *Shear-type magnetic locks* shall not be permitted.~~

Section 1010.2.14 Elevator lobby exit access doors is amended by replacing Items 3 and 5 as follows:

3. Activation of the *building fire alarm system* shall automatically unlock the electric locks providing exit access from the elevator lobbies, and the electric locks shall remain unlocked until the *fire alarm system* is reset.

5. The electric locks shall have the capability of being unlocked by an electric *locks – master switch* signal from the *fire command center*, where present, or from a single location at the fire alarm control panel inside the main entrance to the building. When located in a non-secure area, a two position, key operated switch may be used when a matching key is located in the building's Key Lock Box.

~~**Section 1010.2.16 Secured elevator lobby is added as follows:**~~

~~**1010.2.16 Secured elevator lobby.** When all provisions of Section 1010.2.16 have been satisfied, elevator lobbies may be secured to prevent access from the elevator lobby into a tenant space.~~

~~**1010.2.16.1 Use of secured elevator lobbies.** Secured elevator lobbies are intended to provide a transitional area where building occupants can await the arrival of an elevator car or depart from an elevator car. It is not intended to be an area where building occupants can work. A secured elevator lobby cannot contain other spaces that are considered normally occupied such as restrooms, reception areas or waiting areas.~~

~~**1010.16.2 Exit path blockage.** Securing of the lobby cannot result in the blockage of exit paths from normally occupied areas. A secured lobby cannot interrupt the exit path circulation.~~

~~**1010.2.16.3 Dead-end corridors.** Securing of the lobby cannot result in dead-end exit corridors with lengths that exceed the provisions of Section 1020.4.~~

~~**1010.2.16.4 Restroom facility access.** Securing of the lobby cannot result in elimination of access to required restroom facilities from normally occupied areas. Each individual tenant shall have access at all times to required toilet facilities.~~

~~**1010.2.16.5 Electric load center access.** Securing of the lobby cannot eliminate the access required by the *NEC* to electrical overload protection or disconnect equipment. Each tenant shall have the access required by the *NEC*.~~

~~**1010.2.16.6 Delayed Egress.** Delayed egress is permitted under this section in accordance with 1010.2.12.~~

~~**1010.2.16.7 Exit stairway access.** Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code~~this code~~.~~

~~**Exception:** Access to an exit stairway is not required provided all the following conditions are met:~~

~~1. **Fire System Requirements.** The building shall be alarmed and/or protected in accordance with one of the items below:~~

~~1.1. Equipped with a *fire alarm system* and shall be fully detected.~~

~~1.2. Fully sprinklered and have manual fire alarm boxes (pull stations) installed throughout the building.~~

~~1.3. Equipped with the life safety features prescribed under Section 403.~~

~~**2. Electric Locks.** All doors connecting the secured lobby with normally occupied areas or with corridors leading to the exit stairway may only be secured with a *fail-safe* electric lock. The lock shall unlock when the fire alarm is activated, upon loss of power or fire flow.~~

~~**3. Emergency Communications.** One of the following emergency communication devices~~

shall be provided in the elevator lobby:

3.1. A manual fire alarm box shall be installed in a clearly visible location within the elevator lobby and mounted at a height to comply with the reach range provisions of ICC A117.1 Section 308. The location shall be subject to approval by the *FPB*. A manual fire alarm box installed under these requirements shall transmit to a Class I Central Station.

3.2. An emergency telephone or other *approved* two-way communication device shall be installed in the elevator lobby and mounted in compliance with the reach ranges provisions of ICC A117.1 Section 308. The location shall be *approved* by the *FPB*. The system/device shall transmit to a commercial monitoring service or continuously staffed monitoring service within the building as *approved* by the *building official* and the *FPB*. Upon activation, the communications device shall automatically transmit a location identification message to the monitoring service. A sign in compliance with ICC A117.1 shall be provided at the communication device that states that this is an emergency phone and lists the building address and the floor number of the elevator lobby.

4. **Lighting Requirements**. The elevator lobby shall be illuminated in accordance with Section 1008.

5. **Compatibility with Accessibility Requirements.** All doors into the elevator lobby area from normally occupied areas shall have accessible hardware compatible with the requirements of ICC A117.1 Sections 308 and 404.2.6 on each side of the door.

6. **Elevator Lobby Refuge Areas or Elevator Lobby Area of Rescue Assistance.** When an elevator lobby is used as an area of refuge or area of rescue assistance, all of the following conditions shall be met:

6.1. Electric Lock Requirements. *Electric locks* shall be designed so that when they are released, the door will remain latched. The lock shall also be connected to the *Electric Locks – Master Switch*.

6.2. Door and Door Hardware Requirements. All doors opening into the elevator lobby shall be opening fire-protection assemblies as required by Table 716.1(2) for *smoke barriers*. All hardware necessary to maintain the fire rating of the door shall be *listed* and *approved* fire door hardware. All hardware installed on the rated door and frame assembly shall be compatible with the manner in which the door was manufactured and shall not reduce the fire rating of the assembly. Field or other modification of rated doors and frames is prohibited unless *approved* in writing by the agency which *labeled* the fire-rated assembly.

6.3. Securing Doors Leading into the Elevator Lobby. Doors leading into the lobby from normally occupied areas shall be readily openable from the normally occupied side without the use of a key or special knowledge or effort.

6.4. Refuge Area or Area of Rescue Assistance Subdivision. A refuge area or area of rescue assistance, which includes the elevator lobby and the corridors that connect the lobby to the exit stairways, shall remain as one open area without restriction of movement within the refuge area or area of rescue assistance.

SECTION 1011 STAIRWAYS

Section 1011.12 Stairway to roof is amended by deleting the Exception.

Section 1011.12.2 Roof access is amended by deleting the Exception.

Section 1011.12.3 Roof hatches is added as follows:

1011.12.3 Roof hatches. All *interior exit stairways and ramps* extending to the uppermost story in buildings four or more stories above grade plane shall be provided with a roof hatch openable to the exterior. The hatch shall be a minimum of 16 square feet (1.5 m^2) in area with a minimum dimension of 2 feet (610 mm).

Exceptions:

1. Pressurized *stairway* enclosures.
2. Enclosures of *interior exit stairways and ramps* that extend to the roof in accordance with Sections 1011.12 and 1011.12.2 and are provided with a penthouse complying with Section 1511.2.
3. Buildings with all roof slopes exceeding 4 units vertical in 12 units horizontal (33-percent slope).

~~**SECTION 1013**~~
~~**EXIT SIGNS**~~

~~**Section 1013.3 Illumination is replaced in its entirety as follows:**~~

~~**1013.3 Illumination.** Exit signs shall be electrically- powered and internally illuminated.~~

~~**Exceptions:**~~

~~1. Tactile signs required by Section 1013.4 need not be provided with illumination.~~

~~2. Edge-illuminated signs are permitted where listed and labeled in accordance with UL 924.~~

~~**Section 1013.5 Internally illuminated exit signs is replaced in its entirety as follows:**~~

~~**1013.5 Internally illuminated exit signs.** Electrically-powered exit signs shall be listed and labeled in accordance with UL 924 and shall be installed in accordance with the manufacturer's instructions and Section 1203 of the *Denver Fire Code*. Exit signs shall be illuminated at all times.~~

~~**Section 1013.5.1 Photoluminescent exit signs is replaced in its entirety as follows:**~~

~~**1013.5.1 Graphics.** Exit signs shall have green lettering on a contrasting field or white lettering on a green field.~~

~~**Section 1013.6 Externally illuminated exit signs and all subsections are deleted in their entirety.**~~

~~**SECTION 1018**~~
~~**AISLES**~~

~~**Section 1018.5 Aisles in other than assembly spaces and groups B and M is amended by renumbering Exception to Exception 1 and adding Exception 2 as follows:**~~

~~**Exceptions:**~~

~~2. Aisles in high-piled combustible storage areas shall comply with the applicable provisions of Chapter 32 of the *Denver Fire Code*.~~

SECTION 1019 EXIT ACCESS STAIRWAYS AND RAMPS

Section 1019.3 Occupancies other than Groups I-2 and I-3 is amended by replacing item 4 as follows:

4. *Exit access stairways* and *ramps* in buildings equipped throughout with an *automatic fire sprinkler system* in accordance with Section 903.3.1.1 of the *Denver Fire Code*, where the area of the vertical openings between stories does not exceed twice the horizontal projected area of the *stairway* or *ramp* and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. This provision is limited to openings that do not connect more than four stories.

SECTION 1020 CORRIDORS

Section 1020.2 Construction is amended by adding exceptions 6 and 7 as follows:

Exceptions:

6. Fire-resistive construction within single-tenant office spaces is not required for corridor walls and ceilings.

7. Fire-resistive construction is not required for corridor walls and ceilings when serving a conference or assembly room having an occupant load of less than 100 located within a single-tenant office space.

~~**SECTION 1021**~~
~~**EGRESS BALCONIES**~~

~~**Section 1021.4 Location is deleted in its entirety and replaced by the following:**~~

~~**1021.4 Location.** Exterior egress balconies shall have a minimum distance of 10 feet (3048 mm) measured at right angles from the exterior edge of the egress balcony to the following:~~

~~1. Adjacent *lot lines*. Where the egress balcony is located adjacent to a public street, alley, or public way, the distance of 10 feet (3048 mm) shall be measured to the opposite edge of such public street, alley, or public way.~~

~~2. Other buildings or other portions of the same building on the same lot, unless opening limitations and protection are provided as defined below:~~

~~2.1. Openings in exterior walls of adjacent buildings or other portions of the same building on the same lot located less than 3 feet (914 mm) from the exterior egress balcony are not permitted.~~

~~2.2. Openings in exterior walls of adjacent buildings or other portions of the same building on the same lot shall be protected by not less than 45-minute opening protection assemblies when located between 3 feet (914 mm) and 10 feet (3048 mm) from the exterior egress~~

~~balcony. Sprinkler protection shall not be substituted for 45-minute opening protection assemblies.~~

~~2.3. Area of exterior openings in the adjacent buildings or portions of the same building on the same lot shall not exceed the opening area limits specified in Table 705.8 for that portion of the exterior wall adjacent to and at right angle to the exterior egress balcony.~~

~~2.4. Exterior walls of the adjacent building shall have a minimum one-hour *fire-resistance rating* and not less than the *fire-resistance rating* required in Table 602.~~

SECTION 1023 INTERIOR EXIT STAIRWAYS AND RAMPS

Section 1023.9.2 Door operation identification is added as follows:

1023.9.2 Door operation identification. At locked *stairway* doors in accordance with Section 403.5.3, identification required by Section 1023.9 shall also identify the door operation as follows:

1. All doors that are locked for more than 5 consecutive floors shall have a sign that reads: **THIS DOOR IS LOCKED. EMERGENCY COMMUNICATION DEVICES~~PHONES~~ ARE LOCATED ON FLOORS ____ AND _____.**
2. All doors that are locked for 5 consecutive floors or less shall have a sign that reads: **THIS DOOR IS LOCKED. FOR THE NEXT UNLOCKED DOOR GO DOWN TO FLOOR __OR UP TO FLOOR__.**

Section 1023.9.3 Stairway communication system~~Emergency phone~~ identification is added as follows:

1023.9.3. Stairway communication system~~Emergency phone~~ identification. Emergency telephones or two-way communication systems, where required, in exit stairways shall have a sign stating:~~,~~ "Emergency Communications~~Phone~~," the building address and the floor and stair location of the telephone or two-way communications sytem. Signage shall be in accordance with Section 1023.9.1 and ICC A117.1 Sections 703 and 704.

Section 1023.12 Smokeproof enclosures is replaced as follows (subsection 1023.12.1 remains):

1023.12 Smokeproof enclosures. Where required by Section 403.5.4, 405.7.2 or 412.2.2.1, *interior exit stairways* and *ramps* shall be *smokeproof enclosures* in accordance with Section 909.20 of the *Denver Fire Code*.

~~**Section 1023.12.2 Enclosure access is deleted in its entirety.**~~

SECTION 1025 LUMINOUS EGRESS PATH MARKINGS

Section 1025.1 General is replaced in its entirety as follows:

1025.1 General. *Approved* luminous egress path markings delineating the exit path shall be provided in *high-rise buildings* of Group A, B, E, I, M, or R-1 occupancies in accordance with Sections 1025.1 through 1025.5.

Exceptions:

1. Luminous egress path markings shall not be required on the *level of exit discharge* in lobbies

that serve as part of the exit path in accordance with Section 1028.2, Exception 1.

2. Luminous egress path markings shall not be required where illumination level under emergency power is provided in accordance with Section 1008.3.2 and the power supply to the means of egress illumination within interior exit enclosures, interior exit ramps, and exit passageways is powered by all the following:

    2.1. Premises' electrical supply,

    2.2. Generator electrical supply, and

    2.3. Emergency storage battery units at each fixture to provide power for duration of not less than 90 minutes.

~~SECTION 1027~~

~~EXTERIOR EXIT STAIRWAYS AND RAMPS~~

~~Section 1027.5 Location is replaced in its entirety as follows:~~

~~1027.5 Location.~~ ~~*Exterior exit stairways* and *ramps* shall have a minimum distance of 10 feet (3048 mm) measured at right angles from the exterior edge of the *stairway* or *ramps*, including landings, to:~~

~~1. Adjacent *lot lines*. Where *exterior exit stairways* and *exterior exit ramps* are located adjacent to a public street, alley or public way, the distance of 10 feet (3048 mm) shall be measured to the opposite edge of such public street, alley, or public way.~~

~~2. Other buildings or other portions of the same building on the same lot, unless opening limitations and protection are provided as defined below:~~

~~2.1. Openings in exterior walls of adjacent buildings or other portions of the same building on the same lot located less than 3 feet (914 mm) from the *exterior exit stairways* or *ramps* are not permitted.~~

~~2.2. Openings in exterior walls of adjacent buildings or other portions of the same building on the same lot shall be protected by not less than 45-minute opening protection assemblies when located between 3 feet (914 mm) and 10 feet (3048 mm) from the *exterior exit stairway* or *ramp*. Sprinkler protection shall not be considered a substitute to 45-minute opening protection. Exterior walls of the adjacent building shall not be substituted for 45-minute opening protection assemblies.~~

~~2.3. Area of exterior openings in the adjacent buildings or portions of the same building on the same lot shall not exceed the opening area limits specified in Table 705.8 for that portion of the exterior wall adjacent to and at right angles to the *exterior exit stairway* or *ramp*.~~

~~2.4. Exterior walls of the adjacent building shall have a minimum one-hour *fire-resistance rating* and not less than the *fire-resistance rating* required in Table 602~~

~~**Exception:** *Exterior exit stairways* and *ramps* serving individual *dwelling units* of Group R-3 shall have a minimum *fire separation distance* of 5 feet (1525 mm)~~

[F] SECTION 1030
ASSEMBLY

[F] Section 1030.15 Seat stability is replaced in its entirety as follows:

1030.15 Seat stability. In a building, room, or space used for assembly purposes, the seats shall be securely fastened to the floor.

Exceptions:

1. Seats are not required to be fastened to the floor in places of assembly or portions thereof:
    1.1. with 100 or fewer seats, and
    1.2. with an actual net area per occupant greater than or equal to 7 square feet (0.65 m^2), and
    1.3. without ramped or tiered floors for seating.
2. Seats are not required to be fastened to the floor in places of assembly or portions thereof:
    2.1. with 100 or fewer seats, and
    2.2. with an actual net area per occupant greater than or equal to 7 square feet (0.65 m^2), and
    2.3. with ramped or tiered floors for seating, and
    2.4. where plans showing seating, tiers and aisles were submitted to, reviewed, and permitted by the *fire code official*.
3. Seats are not required to be fastened to the floor in places of assembly or portions thereof:
    3.1. with more than 100 and fewer than 200 seats, and
    3.2. with an actual net area per occupant greater than or equal to 7 square feet (0.65 m^2), and
    3.3. without ramped or tiered floors for seating, and
    3.4. with seats fastened together in groups of five or more.
4. Seats are not required to be fastened to the floor in places of assembly or portions thereof:
    4.1. with seating at tables, and
    4.2. with an actual net area per occupant greater than or equal to 15 square feet (1.39 m^2), and
    4.3. without ramped or tiered floors for seating.
5. Groups of seats are not required to be fastened to the floor in places of assembly or portions thereof:
    5.1. with 14 or fewer seats per group, and
    5.2. with an actual net area per occupant greater than or equal to 7 square feet (0.65 m^2), and
    5.3. without ramped or tiered floors for seating, and
    5.4. groups are separated from other seating by railings, guards, partial height walls or similar barriers.
6. Seats intended for musicians or other performers and separated by railings, guards, partial height walls or similar barriers shall not be required to be fastened to the floor.
7. Special events permitted in accordance with Section 105.6 of the *Denver Fire Code*. Loose seats, folding chairs or similar seating facilities that are not fixed to the floor shall be securely fastened together in groups of five or more.
8. All accessible and companion seating as required by ICC/ANSI A117.1.

~~CHAPTER 11~~
CHAPTER 11: ACCESSIBILITY

SECTION 1101 GENERAL

Section 1101.1 Scope is amended by adding the following sentences to the end of the paragraph:

Where there are seven or more residential dwelling units in a project, the provisions of Colorado Revised Statutes (C.R.S.) Title 9, Article 5, Standards for Accessible Housing, shall be enforced by ~~this code~~this code. C.R.S. Title 9, Article 5, as amended, is reproduced in Appendix R for reference.

Section 1101.2 Notice and warning is added as follows:

~~**1101.2 Notice and warning.** Although this code~~this code ~~enforces the provisions of Title 9, Article 5, C.R.S., as amended, as set out in Section 1101.1, this code~~this code ~~has not been certified or otherwise conformed by the U.S. Government or State of Colorado to the requirements or the Americans with Disabilities Act ("ADA") the Rehabilitation Act, the HUD Fair Housing Act or any other State of Colorado accessibility laws, including but not limited to the Colorado Anti- Discrimination Act ("CADA").~~

~~Therefore, compliance with this code~~This code does not assure compliance with Titles II or III of the ADA, the Rehabilitation Act, the HUD Fair Housing Act or any other Federal or State laws, except as provided in Section 1101.1, or any regulations or guidelines enacted or promulgated with respect to such laws. The City and County of Denver is not responsible for enforcement of the ADA, Rehabilitation Act, HUD Fair Housing Act or such other Federal or State laws, except as provided in Section 1101.1 above.

~~Building plans submitted under this code~~this code ~~will be reviewed and inspected for compliance with this code~~this code ~~and will not be reviewed or inspected for compliance with the requirements of the ADA, Rehabilitation Act, HUD Fair Housing Act or other Federal or State laws, except as provided in Section 1101.1. Therefore, it is the sole responsibility of the developer or building owner to have their plans or facilities independently evaluated by knowledgeable professionals in order to comply with the applicable requirements of the above-listed laws.~~

~~Any accessibility related modification to a building shall require a building permit.~~

SECTION 1107 MOTOR-VEHICLE-RELATED FACILITIES

Section 1107.2 Electrical vehicle charging stations is replaced as follows (exceptions remain)~~amended by expanding the scope and deleting the exceptions~~.

1107.2 Electrical vehicle charging stations. Electrical vehicle charging stations shall comply with Sections 1107.2.1 through 1107.2.3.

Section 1107.2.1 Number of accessible vehicle spaces is deleted in its entirety and replaced with the following:

1107.2.1 Number of accessible vehicle spaces. Not less than 5 percent of vehicle spaces on the site served by an *EVSE Installed Space*, but not fewer than one, shall be *accessible*.

Section 1107.2.3 Number and features of universal vehicle spaces is added as follows:

1107.2.3 Number and features of universal vehicle spaces.
In addition to the requirements of Section 1107.2.1, all required *EVSE Installed Spaces* that are not *accessible* shall be designed as universal vehicle charging stations. Vehicle space size shall be 132 inches (3350 mm) minimum in width with an adjoining access aisle that is 60 inches (1525 mm) minimum in width. Additionally, the features of universal vehicle spaces and equipment shall comply with ICC A117.1 Sections 502.3 through 502.5, and Section 502.11, except that EVSE is permitted to be located at the end of the access aisle opposite the drive aisle. Except as required by 1112.4 (8), signage or markings identified by the International Symbol of Accessibility reserving the vehicle charging space(s) for those with a disability shall not be provided.

Exception: For parking facilities of more than 100 total parking spaces, or 200 total parking spaces for Group I occupancies, the number of required universal vehicle charging stations may be reduced to 10 plus 5% of all required *EVSE Installed Spaces*. The total number of universal vehicle charging stations need not exceed 40.

SECTION 1112 SIGNAGE

Section 1112.4 Other ~~s~~Signs is amended by adding item 8 as follows. Items 1-7 remain unchanged.

1112.4 Other ~~s~~Signs.

Signage indicating special accessibility provisions shall be provided as shown.

8. All *accessible* electrical vehicle spaces shall be marked with "Use Last" signage equivalent to that in recommendations published by the U.S. Access Board.

Exception: Where only one *accessible* electrical vehicle space is provided and no *universal vehicle charging stations* are provided, "Use Last" signage shall not be provided.

CHAPTER 14: EXTERIOR WALLS

SECTION 1402 PERFORMANCE REQUIREMENTS

Section 1402.2.1 Exterior wall finishes is added as follows:

1402.2.1 Exterior wall finishes. Where manufacturer's installation instructions do not provide clearances to roof coverings, the following clearances between exterior wall finishes and roof covering shall apply:

1. Minimum of 8 inches (203 mm) above roof coverings installed on roof slopes less than 2 units vertical in 12 units horizontal (17-percent slope).

2. Minimum of 2 inches (51 mm) above roof coverings installed on roof slopes 2 units vertical in 12 units horizontal (17-percent slope) or greater.

~~CHAPTER 15~~

CHAPTER 15: ROOF ASSEMBLIES AND ROOFTOP STRUCTURES

SECTION 1503 WEATHER PROTECTION

Section 1503.6~~2.2~~ Mechanical equipment on roof is added as follows:

1503.6~~2.2~~ Mechanical equipment on roof. Mechanical equipment placed or reset on roofing shall be supported on minimum 8-inch (203-mm) curbs, platforms, or legs bearing on the decking and made watertight. The 8-inch (203-mm) raised height shall be measured from the top of the installed roofing assembly to the top of the curbs, platforms, or legs.

Exception: Individual equipment units with a weight of 400 pounds (181 kg) or less may be supported on 8-inch legs (203-mm) bearing on the roof membrane if isolation bearing pads, or *approved* equivalent isolation methods, are provided between the bearing points and the roof and the roof warranty is not affected by the installation of the units on the roof membrane. All methods must ~~be~~ meet manufacturer's requirements and recommendations for the application being proposed.

~~**Section 1503.6 Exterior wall finishes is added as follows:**~~

~~**1503.6 Exterior wall finishes.** Exterior wall finishes on walls extending above the roof shall terminate a minimum of 8 inches (203 mm) above the finished roofing of a flat roof and 2 inches (50.8 mm) above shingle, shake and tile roofs.~~

SECTION 1505 FIRE CLASSIFICATION

Section 1505.10 Landscaped and vegetative roofs is replaced in its entirety as follows:

1505.10 Landscaped and vegetative roofs. *Landscaped* and *vegetative roofs* shall comply with Sections 1505.1 and 1507.15. *Vegetative roofs* shall be installed in accordance with ANSI/SPRI VF-1 and the administrative and design requirements for *vegetative roofs* in the Department of Community Planning and Development and Office of Climate Action, Sustainability, and Resiliency Rules and Regulations Governing Green Building Requirements.

SECTION 1507 REQUIREMENTS FOR ROOF COVERINGS

~~**Section 1507.6.2 Deck slope is replaced in its entirety as follows:**~~

~~**1507.6.2 Deck slope.** Mineral-surfaced rolled roofing (90 lbs.) shall not be applied on roof slopes below two units vertical in twelve units horizontal (17-percent slope).~~

~~**Exception:** Detached garages, patios and carports open on three sides may have a slope of one unit vertical in twelve units horizontal.~~

~~**Section 1507.10.3 Flashing for interior roof drains is added as follows:**~~

~~**1507.10.3 Flashing for interior roof drains.** Flashing for interior roof drains shall be one of the following:~~

~~A minimum of 2 x 2 feet (610 mm x 610 mm), 4-pound lead sheet or lead-copper coated sheet, set on~~

~~completed felts in flashing cement.~~

~~The metal shall be turned a minimum of ½ inch (12.7 mm) into a drain sump and plied with 2 plies of type 4 felt or modified bitumen membrane of sufficient dimension to extend a minimum of 6 inches (152 mm) past metal sheet.~~

~~A 2-component drain system. The membrane flashing shall be polyvinylchloride sheet measuring 22 inches (559 mm) in length and factory attached to the underside of the strainer flange. The membrane flashing shall be applied on top of the completed felt and shall extend a minimum of 6 inches (152 mm) from the outside diameter of the drain throat, shall be set into hot asphalt or *approved* sealants and plied in with 2 plies of type 4 felt.~~

~~Drain details for single-ply systems shall be per manufacturers' specifications.~~

~~**Section 1507.10.4 Flashing—new built-up roof covering is added as follows:**~~

~~**1507.10.4 Flashing—new built-up roof covering.** Flashing shall be installed on all vertical walls and curbs in accordance with the manufacturers' specifications or as follows:~~

~~1. All flashing surfaces shall be primed.~~

~~2. All flashing shall extend at least 8 inches (203 mm), but not more than 12 inches (305 mm), up all vertical surfaces and at least 4 inches (102 mm) out from the base of the cant or at intervals specified by manufacturer.~~

~~3. The top edges of the flashing shall be fastened at 3-inch (76-mm) intervals and sealed with plastic cement.~~

~~4. All vertical walls and projections shall be counter-flashed with a 2-piece metal system installed watertight.~~

~~5. Nailing strips shall be provided on vertical walls, drips in edge and curbs which will not accept conventional nailing.~~

Section 1507.18 Hot-applied, reinforced rubberized asphalt roofing is added as follows:

1507.18 Hot-applied, reinforced rubberized asphalt roofing. The installation of hot-applied reinforced rubberized asphalt roofing shall comply with the provisions of this section.

1507.18.1 Slope. Hot-applied, reinforced rubberized asphalt roof membranes shall have a design slope of not less than one-fourth unit vertical in 12 units horizontal (2-percent slope) for drainage.

Exception: Areas of roofs used for *occupiable roofs*, *vegetative roofs*, roof gardens or other similar purposes, shall not be required to have a design slope provided a permanent electrical conductance breach detection method for testing the membrane is installed in addition to a drainage mat.

1507.18.2 Material standards. Hot-applied, reinforced rubberized asphalt roofing shall be one-part, hot-applied, rubberized asphalt and comply with CAN/CGSB-37.50-M89.

1507.18.3 Protected membrane ballasted low-slope roofs. If installed with a slope of less than one-fourth unit vertical in 12 units horizontal (2-percent slope), hot-applied, reinforced rubberized asphalt roofing shall be installed as a protected membrane roof.

1507.18.4 Foam Plastics. Foam plastic insulation shall comply with Section 2603. Foam plastic insulation used with pavers and pedestals shall be in an *approved roof assembly*.

~~**SECTION 1512**~~

~~**REROOFING**~~

~~**Section 1512.6 Reroofing of built-up roofs is added as follows:**~~

~~**1512.6 Reroofing of built-up roofs.** Pre-roofing inspection shall be made by this Agency for all commercial built-up and single ply systems to verify that the existing roof meets the following conditions:~~

~~1. The existing roof deck is structurally sound.~~
~~2. The roof drains and roof drainage are sufficient to prevent the ponding of water.~~
~~3. The existing roofing is secured to the existing roof deck.~~
~~4. The existing insulation is not wet (a 3rd party moisture scan may be required).~~
~~5.~~1. ~~The fire classification of the roof shall be maintained at the completion of the reroof.~~

~~CHAPTER 16~~
CHAPTER 16: STRUCTURAL DESIGN

SECTION 1602 NOTATIONS

Section 1602.1 Notations is amended by replacing the notation *V* as follows:

V = Basic wind speeds, miles per hour (mph) determined from Section 1609.3.

SECTION 1607 LIVE LOADS

Section 1607.8.2 Fire truck and emergency vehicles is replaced in its entirety as follows:

1607.8.2 Fire truck and emergency vehicles. Where a structure or portions of a structure are accessed and loaded by fire department access vehicles and other similar emergency vehicles, the structure shall be designed for whichever of the following loads produces the greater *load effects*. The Fire Prevention Division shall determine the area around any building or structure for which fire access and, therefore, the provisions of this section are required. All structural decks with loading per this section shall have permanent all-weather load posting signs indicating gross maximum vehicle load, maximum tandem axles load and maximum single axle load. Signs shall be posted in a conspicuous location at each deck entrance and shall be maintained by the owner at all times.

1. The live loading specified in Table 1607.1 Item 30, Sidewalks, vehicular driveways, and yards, subject to trucking.
2. The live loading specified in Section 1607.8.1.
3. The three live load cases for each of the two fire department vehicle types indicated below. The fire vehicle nominal live loads and geometries are shown in Figures 1607.8.2 (1) and 1607.8.2 (2).

Platform Truck – Figure 1607.8.2 (1)

Basic Load Case:

The front axle load shall be 22,800 pounds (11,400 pounds per tire) with a tire contact area of 12 in. x 13 in. The load on each rear axle shall be 27,000 pounds (13,500 pounds per tire) with a tire contact area of

14 in. x 16 in. Impact and longitudinal forces imparted by the vehicle loads shall be in accordance with the latest edition of AASHTO LRFD Bridge Design Specifications.

Static Load Case A:

A load of 52,000 pounds on one outrigger. The contact area of each outrigger is 26 in. x 31 in. The load is to be located to produce the maximum stress in the member(s) being analyzed when applied according to the geometry of Figure 1607.8.2 (1).

Static Load Case B:

A load of 30,000 pounds on each of two adjacent outriggers (total load is 60,000 pounds). The contact area of each outrigger is 26 in. x 31 in. The load is to be located to produce the maximum stress in the member(s) being analyzed when applied according to the geometry of Figure 1607.8.2 (1).

Ladder Truck – Figure 1607.8.2 (2)

Basic Load Case:

The front axle load shall be 22,800 pounds (11,400 pounds per tire) with a tire contact area of 12 in. x 13 in. The load on the rear axle shall be 31,000 pounds (15,500 pounds per tire) with a tire contact area of 14 in. x 16 in. Impact and longitudinal forces imparted by the vehicle loads shall be in accordance with the latest edition of AASHTO LRFD Bridge Design Specifications.

Static Load Case A:

A load of 29,000 pounds on one outrigger. The contact area of each outrigger is 24 in. x 24 in. The load is to be located to produce the maximum stress in the member(s) being analyzed when applied according to the geometry of Figure 1607.8.2 (2).

Static Load Case B:

A load of 20,000 pounds on each of two adjacent outriggers (total load is 40,000 pounds). The contact area of each outrigger is 24 in. x 24 in. The load is to be located to produce the maximum stress in the member(s) being analyzed when applied according to the geometry of Figure 1607.8.2 (2)

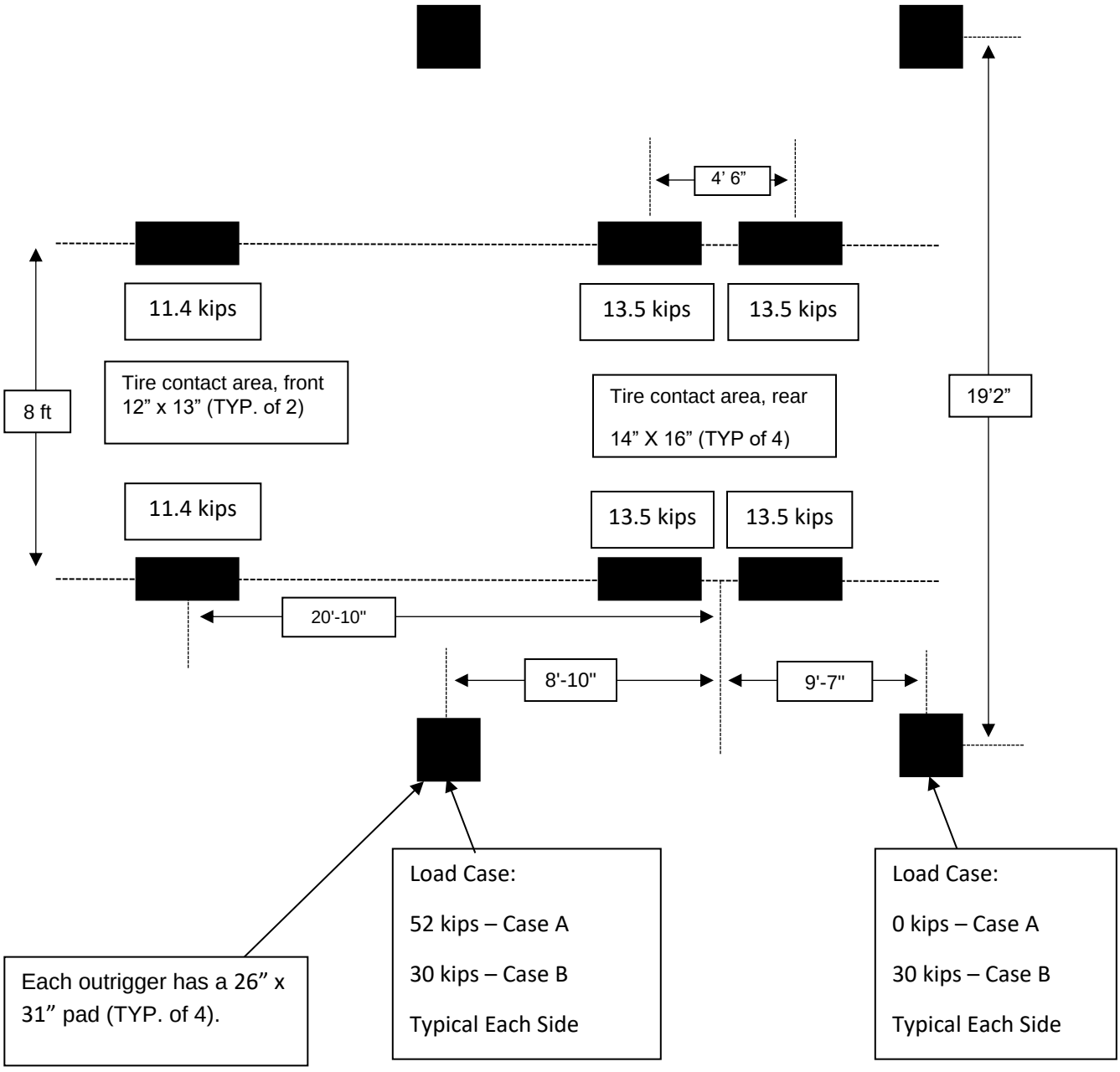


FIGURE 1607.8.2 (1) – PLATFORM TRUCK

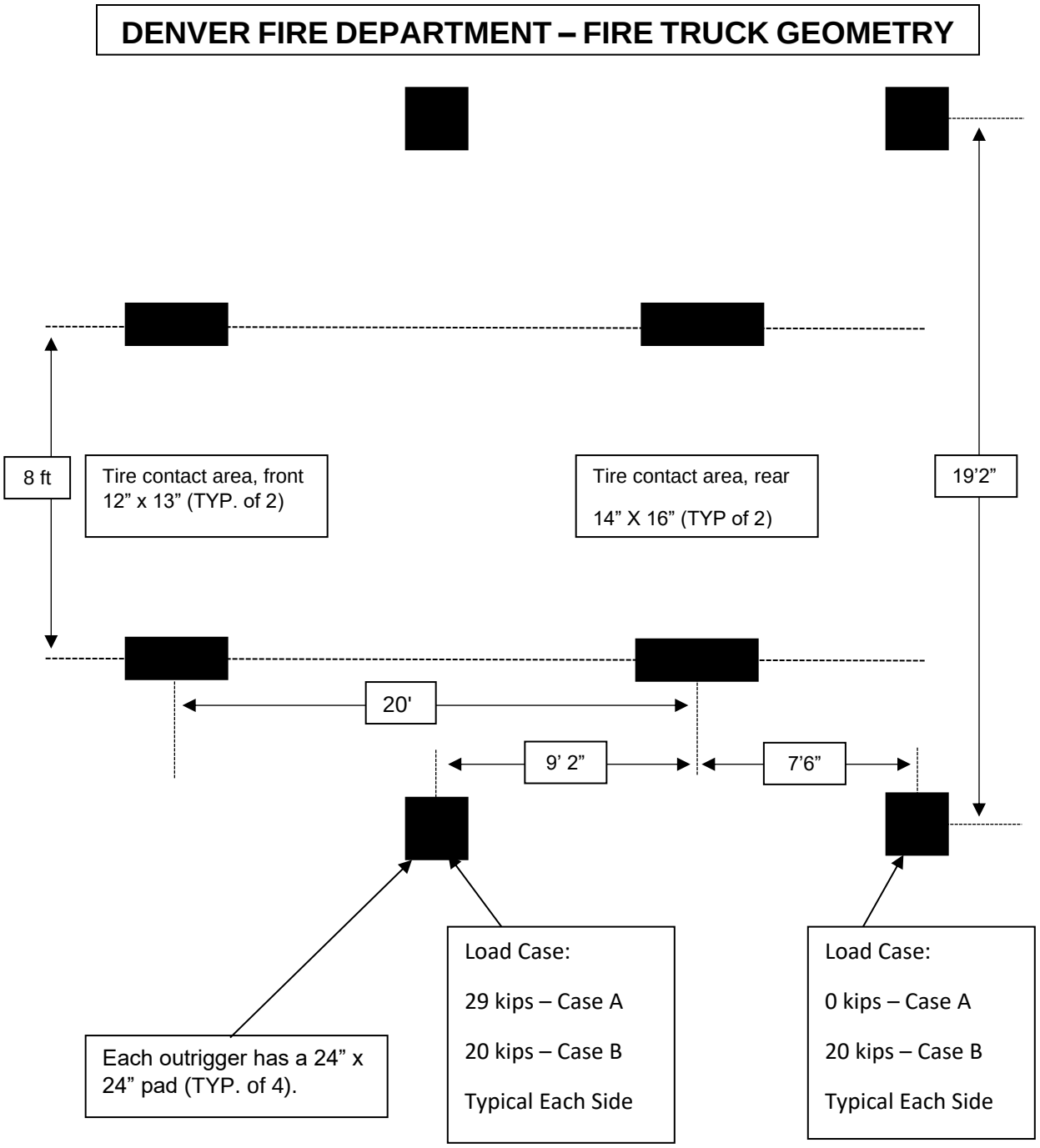


FIGURE 1607.8.2 (2) – LADDER TRUCK

Section 1607.14.3.6 Solar-Ready Zones is added as follows:

See Section C405.14~~Appendix CB~~ of the *Denver Energy Code* for load requirements at solar-ready zones.

SECTION 1608 SNOW LOADS

Section 1608.4 Snow load on uncovered parking decks is added as follows:

1608.4 Snow load on uncovered parking decks. Uncovered decks used for parking of passenger vehicles shall be designed for a non-reducible uniformly applied ~~design~~ snow load of ~~55~~90 psf. This load includes the combined effects of snow and live loads and need not be combined with other snow loads or other live loads applied to the parking deck.

SECTION 1609 WIND LOADS

Section 1609.1.1 Determination of wind loads is replaced as follows (Exceptions and subordinate sections to remain):

1609.1.1 Determination of wind loads. Wind loads on every *building* or *structure* shall be determined in accordance with Chapters 26 to 30 of ASCE 7. The type of opening protection required, and the exposure category for the *site* is permitted to be determined in accordance with Section 1609 or ASCE 7. The *basic wind speed, V,* shall be determined in accordance with Section 1609.3. Wind shall be assumed to come from any horizontal direction and wind pressures shall be assumed to act normal to the surface considered.

(Exceptions 1 through 7 remain)

The wind speeds in Section 1609.3 are *basic wind speeds, V,* and shall be converted in accordance with Section 1609.3.1 to *allowable stress design* wind speeds, V_{asd}, when the provisions of the standards referenced in Exceptions 4 and 5 are used.

Section 1609.3 Basic design wind speed is replaced as follows:

1609.3 Basic wind speed. ~~T~~ For areas inside the City and County of Denver, the *basic wind speed, V* for the determination of the wind *loads* shall be in accordance with Table 1609.3. For sites located between the referenced street centerlines, the wind speed shall be interpolated between contours (street centerlines) as described in the report titled *Colorado Front Range Gust Map – ASCE 7-10 Compatible*, dated November 18, 2013. For areas outside of the City and County of Denver, the *basic wind speed, V,* shall be determined as described in the report titled *Colorado Front Range Gust Map – ASCE 7-10 Compatible*, dated November 18, 2013.

Table 1609.3 Basic wind speed, *V* is added as follows:

TABLE 1609.3
BASIC WIND SPEED, *V*

Risk Category IBC Table 1604.5	All of Denver east of Centerline Federal Blvd, mph	Centerline Sheridan Blvd to Centerline Federal Blvd, mph	Centerline Kipling St to Centerline Sheridan Blvd, mph
I	105	120	130
II	115	125	140
III	120	135	150

IV	125	140	155

Section 1609.3.1 Wind speed conversion is replaced as follows:

1609.3.1 Wind speed conversion. Where required, the basic wind speeds of Section 1609.3 shall be converted to *allowable stress design* wind speeds, V_{asd}, using Equation 16-17.

$$V_{asd} = V\sqrt{0.6} \qquad \textbf{(Equation 16-17)}$$

where:

V_{asd} = *Allowable stress design wind speed* applicable to methods specified in Exceptions 4 and 5 of Section 1609.1.1.

V = *Basic wind speed* determined from Section 1609.3.

Section 1609.5 Tornado Loads is amended as follows:

1609.5 Tornado loads. The design and construction of *Risk Category* III and IV *buildings* and other *structures* shall be in accordance with Chapter 32 of ASCE 7, except as modified by ~~this code~~this code. All references in ASCE 7 to *basic wind speed*, *V*, shall be revised to be the *basic wind speed* determined in accordance with Section 1609.3.

SECTION 1612 FLOOD LOADS

Section 1612.3 Establishment of flood hazard areas is replaced as follows (subsections to remain):

1612.3 Establishment of flood hazard areas. To establish *flood hazard areas*, the City and County of Denver adopts "regulatory floodplains" which are defined in the Denver Floodplain Ordinance in Section 56-201 of the Denver Revised Municipal Code as "The land subject to inundation by the base flood as delineated by the Special Flood Hazard Area (SFHA), any other floodplain maps that have been adopted by the manager of Department of Transportation and Infrastructure, and areas that have been removed from the SFHA by a FEMA issued Letter of Map Revision Based on Fill (LOMR-F)." Contact the current Floodplain Manager for the City and County of Denver for the latest revisions to the regulatory floodplains. The adopted regulatory floodplains and supporting data are hereby adopted by reference as *flood hazard areas* and declared to be part of this section.

SECTION 1613 EARTHQUAKE LOADS

Section 1613.1 Scope is amended by adding Exception 7 as follows:

7. Requirements of ASCE 7 Section 13.5.10, Egress stairs and ramps, are not required for structures assigned to *Seismic Design Category* B.

Section 1613.2 Determination of seismic design category is amended by adding and ~~d~~ Exception as follows:

Exception: Where Section 1613.2 results in assignment to *seismic design category* A, the *structure* shall be assigned to *seismic design category* B instead.~~All *buildings* and *structures* in the City and County of Denver shall satisfy the requirements of *Seismic Design Category* B, as a minimum.~~

~~**Section 1613.2.1 Site class definitions is added as follows:**~~

~~**1613.2.1 Site class definitions.** Based on the site soil properties, the site shall be classified as *Site Class* A, B, C, D, E, or F in accordance with Chapter 20 of ASCE 7. Any assignment of *Site Class* NOT based on average shear wave velocity, measured for the top 100 feet (30 480 mm) of the soil profile, shall comply~~

~~with the following limitations:~~

~~1. No site shall be assigned as Site Class A, B, or C when bedrock has an overburden depth greater than 15 feet, as measured from the top of bedrock to the finished grade.~~

~~2. No site shall be assigned as Site Class A or B when bedrock has an overburden depth less than or equal to 15 feet, as measured from the top of bedrock to the finished grade.~~

~~3. Where the soil properties are not known in sufficient detail to determine the *site class, Site Class* D, subjected to the requirement of Section 1613.2.3, shall be used unless the *building official* or geotechnical data determines that Site Class E or F soils are present at the site.~~

~~**Section 1613.2.2 Seismic design category, minimum is added as follows:**~~

~~**1613.2.2 Seismic design category, minimum.** All buildings and structures in the City and County of Denver shall satisfy the requirements of *Seismic Design Category* B, as a minimum.~~

~~CHAPTER 17~~
CHAPTER 17: SPECIAL INSPECTIONS AND TESTS

SECTION 1704 SPECIAL INSPECTIONS AND TESTS, CONTRACTOR RESPONSIBILITY AND STRUCTURAL OBSERVATION

Section 1704.2 Special inspections and tests is amended by removing reference to Section 105 and replacing with reference to Sections 130 and 131, and by removing reference to Section 110 and replacing with reference to Section 141 of Section 1 of the *Denver Building Code*

Section 1704.2.3 Statement of special inspections is amended by removing reference to Section 107.1 and replacing with reference to Section 133.2.1, item 11 of Section 1 of the *Denver Building Code*.

Section 1704.6 Structural observations is amended by removing reference to Section 110 and replacing with reference to Section 140 of Section 1 of the *Denver Building Code*.

~~CHAPTER 18~~
CHAPTER 18: SOILS AND FOUNDATIONS

SECTION 1809 SHALLOW FOUNDATIONS

Section 1809.5 Frost protection is amended by adding the following sentence:

The frost line for the City and County of Denver is 36 inches (915 mm) below the finished grade.

~~**SECTION 1810**~~
~~**DEEP FOUNDATIONS**~~

~~**Section 1810.3.5.2.2 Uncased is replaced in its entirety as follows:**~~

~~**1810.3.5.2.2 Uncased.** Cast-in-place or grouted-in-place *deep foundation* elements without a permanent casing shall have a specified diameter of not less than 12 inches (305 mm). The element length shall not exceed 30 times the specified diameter.~~

~~**Exception:** The specified diameter of the element is permitted to be less than 12 inches (305 mm) and/or the length of the element is permitted to exceed 30 times the specified diameter, provided that the design and installation of the deep foundations are under the direct supervision of a *registered design professional* knowledgeable in the field of soil mechanics and deep foundations. The *registered design professional* shall submit a report to the *building official* stating that the elements were installed in compliance with the *approved construction documents*.~~

CHAPTER 23: WOOD

SECTION 2304 GENERAL CONSTRUCTION REQUIREMENTS

Section 2304.12.2.5 Ventilation beneath balcony or elevated walking surface is deleted in its entirety.

~~CHAPTER 24~~
CHAPTER 24: GLASS AND GLAZING

SECTION 2405 SLOPED GLAZING AND SKYLIGHTS

Section 2405.6 Skylight fall protection is added.

2405.6 Skylight fall protection. In Group F, M, and S occupancies, fall protection shall be provided meeting minimum requirements of Section 2405.6.1 and provisions of Section 11098.1 Items 1, 2 and 3 of the *Denver Fire Code*.

2405.6.1 Fall protection construction. Fall protection must be capable of withstanding a load of 400 pounds applied perpendicularly at any one square foot areas on the screen or skylight. Covers shall be secured in place to prevent accidental removal or displacement. Fall protection shall not have openings

more than six inches in diameter or of flatwork with openings not more than two inches wide with length unrestricted. Manufacturer or supplier shall submit documentation that the screen(s) or skylight(s) supplied comply with the requirements of this section.

Exception: Skylights constructed on 8-inch minimum or taller curbs, or guards complying with OSHA 29 CFR1926.502. Self-Luminous or Reflective signs shall be provided on guards, Section 11098.1 of the *Denver Fire Code*.

~~CHAPTER 26~~
CHAPTER 26: PLASTIC

SECTION 2609 LIGHT-TRANSMITTING PLASTIC ROOF PANELS

Section 2609.5 Fall protection is added as follows.

2609.5 Fall protection. Fall protection shall be provided according to Section 2405.6.

SECTION 2610 LIGHT-TRANSMITTING PLASTIC SKYLIGHT GLAZING

Section 2610.9 Fall protection is added as follows.

2610.9 Fall protection. Fall protection shall be provided according to Section 2405.6.

~~CHAPTER 27~~
CHAPTER 27: ELECTRICAL

SECTION 2701 GENERAL

~~**Section 2701.1 Scope is amended to remove the reference to the *International Property Maintenance Code*.**~~

Section 2701.1.1 Electrical code references is added as follows:

2701.1.1 Electrical code references. All references in ~~this code~~this code to the "NFPA 70" are changed to the "Electrical Code as adopted by the State of Colorado".

~~**Section 2701.2 Service masts is added as follows:**~~

~~**2701.2 Service masts.** Where a mast is required to maintain the overhead conductor height required by the *National Electrical Code*, the mast shall be a minimum of 2 inch rigid metal conduit or 2 inch intermediate metal conduit. All masts over 48 inches (1219 mm) in height shall be appropriately guyed to counter stresses from the service drop.~~

~~**SECTION 2702**~~

~~**EMERGENCY AND STANDBY POWER SYSTEMS**~~

~~**[F] Section 2702.2.2 Elevators and platform lifts is replaced in its entirety as follows:**~~

~~**[F] 2702.2.2 Elevators and platform lifts.** Emergency or standby power shall be provided for elevators and platform lifts as required in Sections 1009.4.1, 1009.5, 3003.1, 3007.8 and 3008.8.~~

~~**[F] Section 2702.2.11 High-rise buildings is replaced in its entirety as follows:**~~

~~**[F] 2702.2.11 High-rise buildings.** Emergency power shall be provided in *high-rise buildings* as required in Section 403.4.8.~~

~~CHAPTER 28~~
~~MECHANICAL SYSTEMS~~

~~**[M] SECTION 2801**~~

~~**GENERAL**~~

~~**Section 2801.1 Scope is amended to remove the reference to the *International Property Maintenance Code*.**~~

~~CHAPTER 29~~
CHAPTER 29: PLUMBING SYSTEMS

~~**[P] SECTION 2901**~~

~~**GENERAL**~~

~~**Section 2901.1 Scope is amended to remove the reference to the *International Property Maintenance Code*.**~~

[P] SECTION 2902 MINIMUM PLUMBING FACILITIES

~~**[P] Section 2902.1.1 Fixture calculations is amended by replacing Exception 2 as follows:**~~

~~**Exceptions**~~

~~2. Calculations of fixtures provided in toilet and bathing rooms identified as all-gender shall be permitted to sum fractional numbers for each sex and then round up to the next whole number. Fixtures shall contribute equally to the number of male and female fixtures required. For occupancies where the required number of female fixtures is more than the required number of male fixtures, the additional fixtures are permitted to be provided in all-gender facilities.~~

[P] Section 2902.1.2 Fixtures in single-user toilet facilities and bathing rooms is replaced in its entirety as follows:

[P] 2902.1.2 Toilet and bathing room fixture designation. Toilet and bathing fixtures shall be located in single-user or multi-user toilet and bathing rooms and shall be identified for use by sex or gender in accordance with Section 2902.1.2.1 and Section 2902.1.2.2.

[P] 2902.1.2.1 Single-user toilet and bathing rooms. A single-user toilet and bathing room shall contain not more than one water closet, one bathtub and one shower. Plumbing fixtures provided in single-user toilet and bathing rooms shall contribute toward the total number of required plumbing fixtures as calculated per Section 2902.1.1 Exception 2. Single-user toilet and bathing rooms, including family or assisted-use toilet and bathing rooms shall be identified for use by all genders. Toilet fixtures shall not be in separate compartments.

Exception: In addition to a single water closet, one child-height water closet and one urinal shall be permitted to be located in a single-user toilet or bathing room. Not more than one water closet provided for each single-user toilet or bathing room shall contribute toward the total number of required plumbing fixtures.

[P] 2902.1.2.2 Multi-user toilet and bathing rooms. Multi-user toilet and bathing rooms with not less than two water closet compartments, or one water closet compartment and one urinal, or two bathing fixtures shall be provided as separate male and female facilities. Plumbing fixtures provided in multi-user toilet and bathing rooms shall contribute toward the total number of required plumbing fixtures for the sex to which they are designated.

Exception: Multi-user toilet rooms complying with Section 2902.8 shall be permitted to be identified for use by all genders. Water closets and lavatories provided in multi-user toilet rooms identified for use by all genders shall contribute toward the total number of required plumbing fixtures as calculated per Section 2902.1.1 Exception 2. Where both separate and all-gender facilities are provided, separate independent multi-user male and female facilities shall be provided.

[P] Section 2902.1.3 Lavatory distribution is replaced as follows:

2902.1.3 Lavatory Distribution. Where two or more toilet rooms are provided, the required number of lavatories shall be distributed proportionally to the required number of water closets. The required lavatories shall be permitted to be located within water closet compartments provided not less than the larger of one-half of the required lavatories or two lavatories shall be located outside of the water closet compartments.

[P] Section 2902.2 Separate facilities and its exception is replaced in its entirety as follows:

[P] 2902.2 Minimum number of facilities. Where plumbing fixtures are required, a minimum of two facilities shall be provided.

Exceptions: The minimum number of two facilities shall not be required for the following:

1. *Dwelling units* and *sleeping units*.
2. Structures or tenant spaces with a total occupant load, including both employees and customers, of 15 or fewer.
3. Mercantile occupancies in which the maximum occupant load is 100 or fewer.
4. Business occupancies in which the maximum occupant load is 25 or fewer.
5. Occupancies in which all-gender multi-user toilet rooms complying with Section 2902.8 are provided.

[DPHE] Sections 2902.3.2 Prohibited location for toilet facilities shall be amended by adding the following to the last sentence:

Access to toilet rooms shall not be through food preparation areas, food storage areas, or ware washing or utensil storage areas, except for toilet rooms provided exclusively for the use of employees who primarily work in the food preparation area.

~~**[P] Section 2902.3.6 Door locking is replaced in its entirety as follows:**~~

~~**[P] 2902.3.6 Door locking.** Door locking of toilet rooms, bathing rooms and toilet compartments shall comply with this section.~~

~~**[P] 2902.3.6.1 Multi-user toilet and bathing rooms.** Where provided, an egress door for the room shall not be lockable from the inside of the room.~~

~~**[P] 2902.3.6.2 Single-user toilet and bathing rooms.** The egress door for the room shall be lockable from the inside of the room for privacy. The privacy lock shall be in accordance with Sections 1010.2.2 and 1010.2.3.~~

~~**Exceptions:**~~

~~1. Privacy locking shall not be required in sleeping units or dwelling units.~~

~~2. Where *approved* in Group I occupancies, toilet room privacy is not required where care recipients or detainees require observation for clinical or security reasons.~~

~~**[P] 2902.3.6.3 All-gender multi-user toilet rooms toilet compartment doors.** Toilet compartment doors in all-gender multi-user toilet rooms shall have a privacy lock that has an indicator which notifies occupants on the exterior side of the door when the door is secured from the inside of the compartment.~~

~~**[P] Section 2902.4. Signage is replaced as follows (subsection remains unchanged):**~~

~~**[P] 2902.4 Signage.** Required public facilities shall be provided with signs that designate the sex or gender as required by Section 2902.1.2. Signs shall be readily visible and located near the entrance to each toilet facility or bathing room. Signs for accessible toilet and bathing room facilities shall comply with Section 1112.~~

[DPHE] Section 2902.7 Service sink location is amended by adding the following:

Service sinks are required on each floor where toilet facilities are provided as defined below:

1. In food service facilities and occupancies,
2. In Group R occupancies that have food, drink, or ice for consumption or handling.

[P] Section 2902.8 All-gender multi-user toilet rooms and its subsections are added:

[P] 2902.8 All-gender multi-user toilet rooms. Where all-gender multi-user toilet rooms are provided, they shall be in accordance with this s~~S~~ection.

~~**[P] 2902.8.1 Minimum number of fixtures.** All-gender multi-user toilet rooms shall contain not less than six toilet compartments and three lavatories.~~

~~**Exception:** Where a single-user toilet room is clustered at a single location with an all-gender multi-user toilet room, the all-gender multi-user toilet room shall be permitted to contain not less than three toilet compartments and two lavatories.~~

~~**[P] 2902.8.2 Clearance.** Toilet rooms shall be provided with a minimum clearance of not less than 60 inches (1524 mm) between all opposing toilet compartments, walls, and lavatories.~~

~~**Exception:** Circulation areas serving not more than one plumbing fixture.~~

~~**[P] 2902.8.3 Toilet compartments.**~~ Water closets shall each be provided in individual compartments. Compartments shall be permitted to include walls, partitions and doors and shall begin at the floor and extend to the finished ceiling, have no sightlines when the door is in the closed position and have a lockable door in accordance with Section 2902.3.6.3. A urinal shall be permitted only within a water closet compartment; such urinal shall not contribute towards the total number of required plumbing fixtures.

Exceptions:

1. Compartment door undercuts shall be permitted to be not more than 0.5 inches. (13 mm).
2. Air transfer grills at the entrance side of a compartment shall be allowed where they are provided at a height not less than 80 inches (2134 mm).
3. Partial-height toilet compartments are permitted where they begin at a height not more than 4.5 inches (114 mm) and extend to a height not less than 96 inches (2438 mm) above the finished floor surface.

~~**[DPHE] Section 2902.9 Toilet room accessories is added as follows:**~~

~~**[DPHE] 2902.9 Toilet room accessories.** A minimum of one hand-drying facility shall be provided in each toilet room where lavatories are provided.~~

Section 2902.10 Drive-in facilities is added as follows:

2902.10 Drive-in facilities. In addition to plumbing facilities otherwise required by Section 2902.1, public toilet facilities shall be provided to serve an occupant load equal to twice the number of parking stalls provided at drive-in restaurants and drive-in movie theaters.

~~CHAPTER 30~~
CHAPTER 30: ELEVATORS AND CONVEYING SYSTEMS

SECTION 3001 GENERAL

Section 3001.1 Scope is replaced in its entirety as follows:

3001.1 Scope. This chapter and the *Denver Fire Code* govern the design, construction, installation, *alteration* and repair of elevators and conveying systems and their components. In addition, Article 5.5, Title 9, C.R.S. governs and takes precedence over the design, construction, installation, alteration and repair of:

(1) Hoisting and lowering mechanisms equipped with a car or platform for carrying persons between two

or more landings.

(2) Power-driven stairways and walkways for carrying persons between landings. Such equipment includes, but is not limited to:

(a) Escalators

(b) Moving Walks

(3) Automated people movers (APMs) as defined in ASCE 21.

Section 3001.3 Referenced Standards is amended by adding the following sentence to the end of the paragraph:

The edition of the referenced standards listed ~~below~~ in Table 3001.3 and Section 3001.6 is as adopted by the State of Colorado and Chapter 80 of the *Denver Fire Code*, or as adopted by Chapter 35 for standards not adopted by the State of Colorado.

SECTION 3002 HOISTWAY ENCLOSURES

Section 3002.3 Emergency signs is amended by adding the following sentences to the end of the paragraph:

All exit stairs, areas of refuge and area of rescue assistance shall be graphically located on a sign adjacent to the elevator call buttons. The sign's characters and the characters' height above the floor shall comply with ICC A117.1.

[F] SECTION 3003 EMERGENCY OPERATIONS

[F] Section 3003 Emergency Operations and all subsections are replaced in their entirety as follows:

Section 3003.1 General. Emergency elevator operations shall comply with Section 604 of the *Denver Fire Code*.

~~**[F] SECTION 3006**~~
~~**ELEVATOR LOBBIES AND HOISTWAY OPENING PROTECTION**~~

~~**[F] Section 3006.3 Elevator hoistway door protection item 4 is replaced in its entirety as follows:**~~

~~4. The elevator hoistway shall be pressurized in accordance with the design criteria of Section 909.15.2 of the *Denver Fire Code*.~~

[F] SECTION 3007 FIRE SERVICE ACCESS ELEVATOR

~~**[F] Section 3007.6 Fire service access elevator lobby is amended to add the following sentence to the end of the section:**~~

~~The enclosed fire service access elevator lobby shall have direct access to the building floor plate without passing through an *interior exit stairway or ramp*.~~

~~**[F] Section 3007.6.2 Elevator lobby separation is replaced in its entirety as follows:**~~

~~**3007.6.2 Elevator lobby separation.** The fire service access elevator lobby shall be separated from each~~

floor with a *smoke barrier* in accordance with Section 709, except that lobby doorways shall comply with Section 3007.6.3. Fire service access elevator lobby shall not be used for storage.

Exceptions:

1. Fire service access elevator lobbies are not required at the *levels of exit discharge*.
2. Fire service access elevator lobbies are not required in *open parking garages*.
3. Fire service access elevator lobbies in enclosed parking garages shall be permitted to be separated from each floor in accordance with Section 509.4.2.

[F] Section 3007.6.3 Elevator lobby doorways is amended by adding an exception as follows:

Exception: 3/4 hour *fire door assembly* is not required in enclosed parking garages. Such door shall comply with Section 509.4.2.

[F] Section 3007.6.4 Lobby size is amended by adding the following at the end of the paragraph:

An *area of rescue assistance* shall be permitted to be combined with the fire service access elevator lobby provided the 150 square feet (13.9 m^2) minimum area is increased to accommodate the *wheelchair spaces* required by Section 1009.6.3.

[F] Section 3007.8 Electrical power is replaced in its entirety as follows:

3007.8 Electrical power. The following features serving each fire service access elevator shall be supplied by both normal power and Type 60/Class 2/Level 1 emergency power:

1. Elevator equipment.

2. Elevator hoistway lighting.

3. *Ventilation* and cooling equipment for elevator machine rooms, control rooms, machine spaces and control spaces.

4. Elevator car lighting.

[F] Section 3007.9.1 Access is amended by adding an exception as follows:

Exception: The exit enclosure shall be permitted to have access to an enclosed parking garage through a fire service access elevator lobby.

CHAPTER 31
CHAPTER 31: SPECIAL CONSTRUCTION

SECTION 3103 TEMPORARY STRUCTURES

Section 3103 Temporary Structures is replaced in its entirety with the following:

SECTION 3103

~~**TEMPORARY STRUCTURES AND TEMPORARILY PLACED RELOCATABLE BUILDINGS**~~

~~**3103.1 General**. Except for structures associated with an R-X occupancy, the provisions of Sections 3103.1 through 3103.4 shall apply to structures erected for a period of less than 180 days and relocatable buildings placed upon a specific site for a period of less than 180 days, or for a longer timeframe as allowed by the *building official* after review of a specific proposal. *Special event buildings*, tents, umbrella structures and other membrane structures erected for a period of less than 180 days shall comply with the *Denver Fire Code*. Temporary structures and temporarily placed relocatable buildings associated with an R-X occupancy may be erected for a period of 2 years, with one 2-year extension only, subject to more strict timeframes in Section 429.13. Temporary structures erected, and relocatable buildings placed on a site for a longer period of time shall comply with applicable sections of this codethis code.~~

~~**Exception:** Where approved by the *building official*, temporary structures and relocatable buildings may be placed on a site for a period of up to four years without a permanent foundation.~~

~~**3103.1.1 Conformance**. Temporary structures, temporary uses, and relocatable buildings shall conform to the structural strength, fire safety, *means of egress*, accessibility, light, ventilation, and sanitary requirements of this codethis code as necessary to ensure public health, safety, and general welfare.~~

~~**3103.1.2 Permit required.** Temporary structures and relocatable buildings that cover an area greater than 120 square feet (11.16 m^2), including connecting areas or spaces with a common *means of egress* or entrance that are used or intended to be used for the gathering together of 10 or more persons; and Group R-X occupancy individual sleeping units shall not be erected, operated, or maintained for any purpose without obtaining a permit from the *building official*.~~

~~**3103.2 Construction documents**. A permit application and construction documents shall be submitted for each installation of a temporary structure or relocatable building. The construction documents shall include a site plan indicating the location of the temporary structure or relocatable building and information delineating the *means of egress* and the *occupant load*.~~

~~**3103.3 Location.** Temporary structures and relocatable buildings shall be located in accordance with the requirements of Table 602 based on the *fire-resistance rating* of the *exterior walls* for the proposed type of construction.~~

~~**3103.4 Means of egress.** Temporary structures and relocatable buildings shall conform to the *means of egress* requirements of Chapter 10 and shall have an exit access travel distance of 100 feet (30 480 mm) or less.~~

Section 3103.1 General is amended by adding the following exception:

Exceptions:

3. Temporary structures and temporarily placed relocatable buildings associated with an R-X occupancy are permitted to be erected for periods allowed by Section 134.2.

Section 3103.1.1 Extended period of service time is amended by replacing the reference to Section 108.1 with reference to Section 134.2.

Section 3103.1.3 Permit required is replaced as follows:

3103.1.3 Permit required. *Temporary structures* and relocatable buildings that cover and area greater than 120 square feet (11.15 m^2), including connecting areas or spaces with a common *means of egress* or entrance that are used or intended to be used for the gathering together of 10 or more persons, and Group R-X occupancy individual *sleeping units* of any size, shall not be erected, operated, or maintained for any purpose without obtaining a *permit* from the *building official*.

Exception: Temporary membrane structures exempt from permit in accordance with Section 130.3.

Section 3103.4.1 Seat stability is added as follows:

3103.4.1 Seat stability. Temporary loose seats, folding chairs, or similar seating used for assembly purposes that are not fixed to the floor or ground shall be securely fastened together in groups of five or more.

Exception: Accessible and companion seating as required by ICC A117.1

SECTION 3105 AWNINGS AND CANOPIES

Section 3105.1 General is amended by adding the following sentence:

For the purposes of this section, a porte-cochere is permitted to be considered a canopy.

Section 3105.2 Design and Construction is amended by replacing the last sentence as follows:

Awnings and *canopies* shall have frames that comply with projection requirements of Section 705.2 and shall be fixed, retractable, folding or collapsible.

~~**Section 3105.4 Canopy special provisions is added as follows:**~~

~~**3105.4 Canopy special provisions.** Canopies shall comply with all of the following:~~

~~1. A canopy may be entirely supported by the building to which it is attached.~~

~~2. Separation between different types of construction shall not be required.~~

~~3. Canopies shall comply with *Denver Fire Code* access requirements. The minimum height of canopies at locations not requiring Fire Department access shall be 8 feet (203 mm).~~

~~4. Can opies in the public right-of-way shall comply with Section 3202.~~

~~5. Canopies shall not obstruct required *exits*.~~

~~6. For the purposes of this codethis code, a porte-cochere may be considered a canopy.~~

~~7. Canopies shall be built of materials consistent with the types permitted for the type of construction of the building.~~

SECTION 3109 SWIMMING POOLS, SPAS AND HOT TUBS

Section 3109.1 General is replaced~~amended~~ as follows:

3109.1. General. The design and construction of *swimming pools*, spas and hot tubs shall comply with Section 305 of the *International Swimming Pool and Spa Code*, except as modified below~~Appendix T~~.

Section 305.2.1 Barrier height and clearances is amended by replacing Item 1 as follows:

1. The top of the barrier shall be not less than 60 inches (1524 mm) above grade where measured on the side of the barrier that faces away from the pool or spa. Such height shall exist around the entire perimeter of the barrier and for a distance of 3 feet (914 mm) measured horizontally from the outside of the required barrier.

Section 305.2.5.1 Setback for mesh fences is replaced as follows:

[DPHE] 305.2.5.1 Setback for mesh fences. The inside of a mesh fence shall be not closer than 48 inches (1219 mm) to the nearest edge of the water of a pool or spa.

Section 305.2.11 Poolside barrier setbacks is added as follows:

[DPHE] 305.2.11 Poolside barrier setbacks. The pool or spa side of the required barrier shall be not less than 48 inches (1219 mm) from the water's edge.

Section 305.4 Structure wall as a barrier is replaced as follows:

305.4 Structure wall as a barrier. Where a wall of a dwelling or structure serves as part of the barrier and where doors, gates or windows provide direct access to the pool or spa through that wall, one of the following shall be required:

1. Operable windows having a sill height of less than 48 inches (1219 mm) above the indoor finished floor, doors and gates shall have an alarm that produces an audible warning when the window, door or their screens are opened. The alarm shall be *listed* and *labeled* as a water hazard entrance alarm in accordance with UL 2017.

   1.1 In dwellings not required to be Accessible units, Type A units or Type B units, the operable parts of the alarm deactivation switches shall be located at not less than 54 inches (1372 mm) above the finished floor.

   1.2 In dwellings that are required to be Accessible units, Type A units or Type B units, the operable parts of the alarm deactivation switches shall be located not greater than 54 inches (1372 mm) and not less than 48 inches (1219 mm) above the finished floor.

   1.3 In structures other than dwellings, the operable parts of the alarm deactivation switches shall be located not greater than 54 inches (1372 mm) and not less than 48 inches (1220 mm) above the finished floor.

2. A *safety* cover that is *listed* and *labeled* in accordance with ASTM F 1346 is installed for the pools and spas.

3. An *approved* means of protection, such as self-closing doors with self-latching devices, is provided. Such means of protection shall provide a degree of protection that is not less than the protection afforded by Item 1 or 2.

Section 3115 HUD homes and factory-built structures is added as follows:

[CDH] SECTION 3115 HUD HOMESAND FACTORY-BUILT STRUCTURES

3115.1 Scope. This section shall regulate the installation, relocation, placement, alteration, repair, and addition of HUD homes and factory-built structures.

Exception: Construction trailers that are exempt from permit by Section 130.3. ~~as allowed by Article 1, Section 1 of the Denver Building Code set for the sole purpose of sheltering construction management activity on a future or active construction site.~~

3115.2 Definitions.

~~**Certified Installation Inspector.** Independent contractors authorized by DOH to perform inspections and enforcement of the proper installation of manufactured homes. Enforcement shall include issuance of installation authorizations and permanent attachment of the certificate of installation insignia signifying compliance with Manufactured Home Installation Program.~~

~~**Construction, Closed.** Any building, building component, assembly, or system manufactured in such a manner that all concealed parts or processes of manufacture cannot be inspected before installation at the building site without disassembly, damage, or destruction.~~

Closed Panel System. A building component or assembly built off-site that may include electrical, plumbing, mechanical, or insulation with finishes applied to both sides and then transported to be erected on-site to complete a residential or nonresidential building.

Construction, Open. Any building, building component, assembly, or system manufactured in such a manner that all concealed parts or processes of manufacture can be readily inspected at the building site without disassembly, damage, or destruction.

Data Plate (HUD). A d~~D~~ata plate~~s of~~ in a (HUD) manufactured home~~s are~~ posted inside the unit and affixed in a permanent manner near the main electrical panel or other readily accessible and visible location.

~~The data plate shall indicate the following minimum design criteria:~~

~~WIND ZONE: ZONE I~~

~~THERMAL: ZONE 3~~

~~ROOF LOADS: MIDDLE (30 PSF)~~

~~No HUD home shall be installed if any criteria do not meet these minimum requirements.~~

DOH. Colorado Division of Housing.

Factory-Built. The construction of nonresidential structures or residential structures (modular homes, tiny homes, or multi-family structures) that occurs at an offsite location (e.g., manufacturing plant, small business space or school workshop, or private barn), separate from the site where the structure is to be installed.

Factory-Built Nonresidential Structure. Any structure or component, including any closed panel system, designed primarily for commercial, industrial, or other nonresidential use, either permanent or temporary, including a manufactured unit that is wholly or in substantial part made, fabricated, formed, or assembled in manufacturing facilities for installation or assembly and installation on a permanent or temporary foundation at the building site. All nonresidential structures manufactured after December 2, 1991, must display a DOH Factory-Built Certification insignia.

Factory-Built Residential Structure. A manufactured home, including any closed panel system, constructed to the building codes adopted by the Colorado State Housing Board and designed to be installed on a permanent foundation, except for homes constructed to a federal manufactured home construction and safety standard and any home designated as a mobile home~~-~~.

Factory-Built Structure. A factory-built nonresidential structure; ~~and~~ a factory-built residential structure; and a factory-built tiny home.

Factory-Built Tiny Home. A structure that:

(a) Is permanently constructed on a vehicle chassis;
(b) Is designed for long-term residency;
(c) Includes electrical, mechanical, or plumbing services that are fabricated, formed, or assembled at a location other than the site of the completed home;
(d) Is not self-propelled; and
(e) Has a square footage of not more than four hundred square feet.

Federal Act. The "National Manufactured Housing Construction and Safety Standards Act of 1974", 42 U.S.C. Sec. 5401 *et seq*.

Foundation, Permanent. A structure that is designed or intended to:

(a) Support a building from underneath;
(b) Keep a building firmly affixed to the ground;
(c) Prevent the building from moving; and
(d) Not be removed from the ground or building.

~~(e) comply with all applicable provisions of the Denver Building Code.~~

Foundation, Temporary. A structure that is designed or intended to:

(a) Support a building from underneath;
(b) Keep a building firmly affixed to the ground;
(c) Prevent the building from moving; and
(d) Be removable from the ground or building.

HUD Home. A manufactured home constructed in compliance with the Federal Act, and any standard promulgated by the Secretary of the U.S. Department of Housing and Urban Development (HUD) pursuant to that federal act.

Manufactured Home. Any pre-constructed building unit or combination of pre-constructed building units or closed panel system that:

(a) Includes electrical, mechanical, or plumbing services that are fabricated, formed, or assembled at a location other than the site of the completed home;
(b) Is designed for residential occupancy in either temporary or permanent locations;
(c) Is constructed in compliance with the federal act, factory-built residential requirements, including those for multi-family structures, or mobile home standards;
(d) Is not self-propelled; and
(e) Is not licensed as a recreational vehicle.

Mobile Home. A manufactured home built prior to the adoption of the Ff~~f~~ederal Aa~~a~~ct. Such mobile homes may be unlabeled, or for Colorado homes built between 1971 and 1976, possess a State of Colorado Mobile Home Certification label.

3115.3 State of Colorado and Federal Regulations~~Permits required~~. Colorado Division of Housing (DOH)

regulates the construction standards, permit issuance, installation and setup, certification, and inspections of HUD homes and factory-built structures. Except as noted in Section 3115.4, the adopted codes and standards of the Colorado Housing Board and the Federal Act preempt the Denver Building Code in relation to HUD homes and factory-built structures.~~HUD homes and factory-built structures shall comply with the provisions of the Denver Building Code to the extent outlined in Table 3116.3.~~

~~Construction documents shall be submitted for review and approval for all HUD homes or factory-built structures prior to the issuance of permits.~~

~~Plans of the factory-built structure approved by the DOH or third-party agency, shall be submitted for use as the City's Record Set and for use by the City Assessor's office. Permanent or temporary foundation plans shall be signed and sealed by a Colorado registered engineer for Factory-Built Non-residential Structures. Permanent foundation plans shall be signed and sealed by a Colorado registered engineer for Factory-Built Residential Structures.~~

~~Prior to beginning the installation of a manufactured home, the owner or registered installer must receive an Installation Authorization from the DOH. A certified Installer is not required to obtain an Installation Authorization.~~

3115.4 Denver Building Code Applicability. HUD homes, mobile homes, and factory-built structures shall comply with the provisions of the *Denver Building Code* to the extent outlined in Table 3115.4 and Sections 3115.4.1 through 3115.4.4.

3115.4.1 Design Criteria. Structures, except mobile homes and HUD homes, designed to the *International Residential Code* shall comply with the climatic and geographic design criteria in *Denver Residential Code* Section R301.2 for ground snow load, wind design, seismic design category, frost line depth, winter design temperature, flood hazards, air freezing index, mean annual temperature, wildfire risk.

Structures designed to the *International Building Code* shall comply with the roof snow load and wind speed in the *Denver Commercial Building Code*.

Mobile homes and HUD homes must comply with the climatic and geographic design criteria in *Denver Residential* Code Section R301.2 for ground snow load and wind design.

3115.4.2 Fire Separation Distance. The minimum required *fire separation distance* of all structure types shall be in accordance with the provisions of the *Denver Commercial Building Code* or *Denver Residential Code*, as applicable. *The fire-resistance rating* provided by the structure's exterior wall is used to determine the minimum *fire separation distance*. Fire-resistance rated exterior wall ratings shall be established in accordance with ASTM E-119.

3115.4.3 Energy Code Compliance. The *International Energy Conservation Code* adopted by the Colorado Housing Board shall apply to the permanent or temporary foundations that a factory-built structure is installed on.

3115.4.4 Radon Compliance. Manufactured homes shall comply with Appendix BE of the *Denver Residential Code*.

Table 3115.43 – Regulatory Requirements[a]

Structure Type	Applicability of Denver Commercial Building Code requirements to HUD homes and factory-built structures
Factory-Built Residential Structure containing an insignia of approval from the DOH	The *Denver Commerical Building* Code regulates all of the following: 1. The design construction and inspection of the permanent foundation. 2. On-site construction unless included in the DOH approval, and excluding materials shipped loose by the factory. 3. On-site interconnection of factory assembled modules unless included in the DOH approval. 4. Repairs, alterations and additions. ~~Denver Building Code authority is limited to the design, construction, and inspection of a permanent foundation; and any other site-built construction, except for materials shipped loose by the factory. The Denver Building Code regulates all alteration, repair, and additions to a factory-built residential structure.~~
Factory-Built Nonresidential Structure containing an insignia of approval from the DOH	The *Denver Commerical Building Code* regulates all of the following: 1. The design construction and inspection of the temporary or permanent foundation. 2. On-site construction unless included in the DOH approval, and excluding materials shipped loose by the factory. 3. On-site interconnection of factory assembled modules unless included in the DOH approval. 4. Repairs, alterations and additions. ~~Denver Building Code has authority over the design, construction, and inspection of the structure's temporary or permanent foundation, any other site-built construction, and all on-site interconnection of the factory assembled modules. The Denver Building Code regulates all alteration, repair, and additions to factory-built non-residential structures.~~
Factory-Built Tiny Home	The *Denver Commercial Building Code* regulates the design, construction, and inspection of a temporary foundation.
HUD Home containing a HUD label and Date Plate	A HUD home preempts Denver's building code requirements. The *Denver Commercial Building Code* regulates all of the following:~~alteration, repair, and additions to HUD homes after they are initially occupied for residential use.~~ 1. The design, construction, and inspection of a permanent or temporary foundation. ~~1.~~2. Repairs, alterations, and additions to HUD homes after they are initially occupied for residential use.

Mobile Home	Mobile homes ~~which~~ that do not possess State of Colorado certification label must ~~conform to~~comply with all the provisions of the *Denver Commercial Building Code*. ~~DOH labeled homes are exempt from the provisions of the Denver Building Code but must provide, when required, documented mitigation measures for approval which will enable the structure to withstand Denver's minimum snow loads.~~ The *Denver Commercial Building Code* regulates all of the following for mobile homes with a DOH label: 1. The design, construction, and inspection of a permanent or temporary foundation. ~~1.~~2. Repairs, alterations, and additions.
Open Construction	These structures are regulated by the *Denver Commercial Building Code* unless specifically *approved* otherwise by DOH.

~~a. The minimum required *fire separation distance* of all structure types shall be in accordance with the provisions of the *Denver Commercial Building Code* or *Denver Residential Code*, as applicable. The fire resistance rating provided by the structure's exterior wall is used to determine the minimum fire separation distance. Fire resistance rated exterior wall ratings shall be established in accordance with ASTM E 119. Minimum setbacks shall be as determined by Denver's zoning code.~~

3115.54 Manufactured Home Installation. Every manufactured home installed in a temporary or permanent location and designed and commonly used for occupancy by persons for residential purposes, must display a Certificate of Installation Insignia issued by the DOH, certifying that the unit is installed in compliance with the DOH standards. New homes shall be installed in accordance with the Colorado Manufactured Housing Installation Code, i.e., the home manufacturer's written installation instructions, or State approved alternate standards for used homes when instructions are not available. Application of the certification insignia is evidence that permanent utility service may be established. Permanent insignia application is required prior to the issuance of a Certificate of Occupancy to the home.

Exception: Temporary installations which are for the purpose of home display, which will be relocated to another location prior to use as a residence.

~~**3115.5 Inspection and notice.** Except as noted in Table 3116.3, the adopted codes and standards of the Colorado Housing Board and the Federal Act preempt the Denver Building Code in relation to HUD homes and factory built structures.~~

~~The following statement shall appear on the certificate of occupancy issued to a HUD home or factory built structures: "In accordance with Federal and Colorado law, this manufactured structure has not been inspected in its entirety by the City and County of Denver and may or may not meet the requirements of the Denver Building Code."~~

~~CHAPTER 32~~

CHAPTER 32: ENCROACHMENTS INTO THE PUBLIC RIGHT-OF-WAY

[DOTI] SECTION 3202 ENCROACHMENTS

Section 3201.1 Scope ~~General~~ is replaced in its entirety as follows:

[DOTI] 3201.1 Scope~~General~~. ~~All encroachments into the public right-of-way shall comply with~~ The provisions of this chapter, the Denver Revised Municipal Code, Chapter 49, Rules & Regulations of the Department of Transportation and Infrastructure (DOTI), and all DOTI departmental published standards shall govern the encroachment of *structures* into the public right-of-way.

~~Unless otherwise permitted by the Department of Transportation and Infrastructure, the exterior doors of buildings located within the boundary described as - beginning at the intersection of East 14th Avenue and Grant Street, thence north on Grant Street to 21st Street, thence northwest on 21st Street to Blake Street, thence southwest on Blake Street to Cherry Creek, thence southeast on Cherry Creek to West 14th Avenue, thence east on 14th Avenue to the point of beginning - shall not project more than one foot beyond the property line, except that in alleys no projection beyond property line is permitted. The exterior doors of buildings located outside of the above-described described boundary that swing over the property line shall be maintained normally closed.~~

Sections 3202.2 and 3202.3 are deleted in their entirety.

~~**Section 3202.4 Temporary encroachments is replaced in its entirety as follows:**~~

~~**3202.4 Temporary encroachments.** Where allowed by the local authority having jurisdiction, vestibules and storm enclosures shall not be erected for a period of time exceeding 7 months in any one year and shall not encroach more than 3 feet (914 mm) nor more than one-fourth of the width of the sidewalk beyond the street lot line, unless otherwise permitted by the Department of Transportation and Infrastructure. Temporary entrance *awnings* shall be erected with a clearance of not less than 7 feet (2134 mm) to the lowest portion of the hood or *awning* where supported on removable steel or other *approved* noncombustible support.~~

~~CHAPTER 33~~

CHAPTER 33: SAFEGUARDS DURING CONSTRUCTION

SECTION 3301 GENERAL

~~**Section 3301.1 Scope is replaced in its entirety as follows:**~~

~~**3301.1 Scope.** The provisions of this chapter shall govern safety during construction, demolition, or moving; and the protection of adjacent public and private properties. Fire safety during construction shall also comply with the applicable provisions in Chapter 33 of the *International Fire Code*.~~

[DOTI] Section 3301.5 Removal of waste materials is amended by adding of the following sentence:

All adjacent streets, alleys and other public ways and places shall be kept free and clear of all rubbish, refuse and loose material resulting from the moving, demolition or demolition removal operations.

[DPHE] Section 3301.5.1 Dust is added as follows:

[DPHE] 3301.5 Dust. All dust resulting from demolition operations shall be settled with water and *approved* by the Agency.

Section 3301.6 Demolition ~~and moving~~ standard is added as follows:

3301.6 Demolition ~~and moving~~ standard. Unless provided for in other portions of ~~this code~~this code, the following additional standard shall be utilized in relation to the demolition ~~and moving~~ work covered in this chapter~~,~~: ~~American National Standard Institute publication,~~ "Safety and Health Program Requirements for Demolition Operations~~Demolition Safety Requirements~~ ANSI/ASSP A10.6-2006 (R2016)".

SECTION 3302 OWNER'S RESPONSIBILITY FOR FIRE PROTECTION

Section 3302.1 Site safety plan is replaced as follows (subsection remains):

3302.1 Site safety plan. The *owner* or *owner's* authorized agent shall be responsible for the development, implementation and maintenance of an *approved*, written site safety plan establishing a fire prevention program at the project site applicable throughout all phases of the construction, *repair*, *alteration* or demolition work. The plan shall be available on site at all times and provided to the *building official* upon request. Any changes to the plan shall address the requirements of this chapter and other applicable portions of the *Denver Fire Code*, the duties of staff, and staff training requirements.

Section 3302.3.1 Violations is replaced in its entirety as follows:

3302.3.1 Violations. Violations, penalties and remedies shall be administered in accordance with Section 107.

SECTION 3303 DEMOLITION

Section 3303.1.1 Registered design professional's reports is added as follows:

Registered design professional's reports. If the building to be demolished shares a common wall with an adjacent building, the owner of the building to be demolished shall provide a *registered design professional's* report assessing the effect the removal of the adjacent building will have on the structural capacity and stability of the remaining buildings. Should the *registered design professional's* report indicate adverse effects on the adjacent buildings, a demolition permit will not be issued until the stability of the buildings is resolved. Buildings four or more stories in height shall require a *registered design professional's* report to be filed with the Agency as part of the application for a demolition permit being issued. The registered design professional's report shall contain information as to:

1. Type of construction.
2. Method of demolition.
3. A structural survey made to determine the condition of the structure.
4. Determination of the possibility of unplanned collapse of any portion of the building or structure.
5. Street, sidewalk or other public way closures.
6. Method of protecting the public.
7. Pertinent data and analysis pertaining to adjacent structures.
8. Any other information deemed necessary by the *building official* to determine adverse effects on adjacent buildings.

The Agency may request additional *registered design professional's* reports for other demolition operations when deemed necessary.

[DPHE] Section 3303.1.2 Asbestos is added as follows:

[DPHE] 3303.1.2Asbestos. Buildings, or portions of buildings, being demolished containing friable asbestos shall conform to the provisions of the National Emission Standard for Asbestos and all other federal and state regulations. A demolition permit shall not be issued until a copy of the Demolition Approval Notice from the Colorado Department of Public Health and Environment (CDPHE) is submitted to the Agency.

Section 3303.4 Vacant lot is replaced in its entirety as follows:

3303.4 Vacant lot. Where a structure has been demolished or removed, the vacated lot shall be filled and maintained to the existing grade. Upon completion of the removal of a building, structure, or utility, by demolition the ground shall be left in a clean, smooth condition. Holes, basements, or cellars shall be filled with an inorganic material, but the top one foot of fill shall be clean earth. The filling of such excavations shall not be required when a building permit has been issued for a new building on the site and construction is to be started within 60 days after completion of the demolition or moving operations. The contractor who is issued the building permit shall provide a temporary barricade protecting the excavation on all sides as specified for safety by the Agency. The temporary barricade may remain in position for a time not exceeding 3 days, after which a solid barricade or fence shall be provided, or the excavation filled.

~~**Section 3303.6 Utility connections is amended by adding the following sentence:**~~

~~All service utility connections shall be shut off, capped, or otherwise controlled outside the building line, or area of demolition prior to beginning demolition work.~~

Section 3303.6.1 Relocation of utilities is added as follows:

3303.6.1 Relocation of utilities. Any power, water or other utilities required to be maintained during demolition shall be temporarily relocated and protected.

Section 3303.6.2 Dangerous utilities is added as follows:

3303.6.2 Dangerous utilities. A determination shall be made by the contractor if any type of hazardous chemicals, gases, explosives, flammable materials, or similarly dangerous substances have been used in any pipes, tanks, or other equipment on the property. When the presence of any such substance is apparent or suspected, testing and purging shall be performed by the demolition contractor and the hazard eliminated prior to demolition operations. A summary of hazard mitigation shall be provided to the Agency upon request.

Section 3303.8 Shoring and bracing of damaged structures is added as follows:

3303.8 Shoring and bracing of damaged structures. When persons are required to work within a structure to be demolished which has been damaged by fire, flood, explosion or other cause, the structure shall be braced or shored for safety.

Section 3303.9 Machine and explosive demolition is added as follows:

3303.9 Machine and explosives demolition. Machine demolition shall be subject to approval by the

Agency as a part of the permit issuance process described in the Total Demolition Guide. Contractors utilizing explosives in their demolition operation shall be specifically *approved* by the *building official*. For storage and transportation of explosives, see the *Denver Fire Code*.

SECTION 3306 PROTECTION OF PEDESTRIANS

Section 3306.1.1 Safety watchman is added as follows:

3306.1.1 Safety watchman. On demolition sites, when approved by the Agency, a safety watchman may be used in lieu of site protection required by Section 3306.1. The~~A~~ safety watchman shall be present on the job site to prevent the entry of unauthorized persons. The safety watchman shall not simultaneously participate in other demolition tasks. ~~On demolition sites, when approved by the Agency, the safety watchman may be used in lieu of site protection required by Section 3306.1.~~

SECTION 3307 PROTECTION OF ADJACENT PROPERTY

Section 3307.1 Protection required is replaced in its entirety as follows:

3307.1 Protection required. Adjacent~~oining~~ public and private property shall be protected from damage during construction, excavation, remodeling, demolition, and building relocation work. Protection is the responsibility of the person performing said ~~the construction, excavation, remodeling, demolition or building relocation~~ work. Protection shall be provided for footings, foundations, party walls, chimneys, skylights, roofs, fences, and landscaping. Provisions shall be made to control water runoff and erosion during construction, excavation, remodeling, demolition, or relocation activities.

Section 3307.1.1 Notification for construction activities~~buildings regulated by the DRC~~. A person ~~performing construction activities including~~ The person making or causing an excavation that requires shoring~~,~~ or benching, a demolition requiring a total demolition permit, ~~or~~ a relocation, a new building greater than 200 square feet, or a building addition greater than 200 square feet shall provide written notice to the owners ~~or homeowner associations~~ of adjacent~~oining~~ properties to inform them of planned construction activities as described in policy by the *building official*.~~that the excavation, demolition, or relocation is to be made;~~ The person performing construction activities shall provide contact information for the person(s) doing the ~~excavation, demolition or relocation~~work; and additionally shall protect adjoining properties as required by the applicable provisions of Chapter 33 of the *Denver Fire Code*. ~~Said n~~Notification shall be delivered not less than 10 days prior to the scheduled starting date of the work.~~excavation, demolition, and/or relocation.~~ Where required by the Agency, approval of adjoining property owners shall be provided where elements extend into their property.

~~Written notice to adjoining property owners will be verified at the time of permit application submittal. The applicant shall submit a copy of the notification letter and one of the following: Personal notification forms, showing name and address of property owner notified, and signature of accepting party.~~

~~Personal notification forms, showing name and address of property owner notified and signature of accepting party.~~

~~USPS certified mail return receipts, showing name and address of property owner notified, and signature of accepting party.~~

~~When either the signed return receipt or return of the notification is delayed by USPS:~~

~~3.1. A USPS tracking report indicating notification was sent by certified mail with return receipt,~~

showing the USPS assigned tracking number and date of first attempted delivery not less than 21 days prior, and

3.2. A letter or form, signed by the contractor, with license information, which correlates the USPS assigned tracking number to the name and address of the notified property owner, and states that personal contact with the property owner has been unsuccessfully attempted.

A signed affidavit that lists the name and address of the notified property owners and date of notice. All USPS certified mail return receipts shall be maintained on the site at all times for random inspection by the Agency.

Section 3307.1.2 Notification for all other buildings. The person making or causing an excavation, demolition, or relocation shall provide written notice to the owners of adjoining properties to inform them that the excavation, demolition, or relocation is to be made; shall provide contact information for the person doing the excavation, demolition, or relocation; and shall protect adjoining properties as required by Section 3307.1 of this codethis code. Said notification shall be delivered not less than 10 days prior to the scheduled starting date of the excavation, demolition, and/or relocation. Where required by the Agency, approval of adjoining property owners shall be provided where elements extend into their property.

Written notice to adjoining property owners will be verified at the time of permit application submittal. The applicant shall submit a copy of the notification letter and one of the following:

1. Personal notification forms, showing name and address of property owner notified, and signature of accepting party.

2. USPS certified mail return receipts, showing name and address of property owner notified, and signature of accepting party.

3. When either the signed return receipt or return of the notification is delayed by USPS:

    3.1. A USPS tracking report indicating notification was sent by certified mail with return receipt, showing the USPS assigned tracking number and date of first attempted delivery not less than 21 days prior, and

    3.2. A letter or form, signed by the contractor, with license information, which correlates the USPS assigned tracking number to the name and address of the notified property owner, and states that personal contact with the property owner has been unsuccessfully attempted.

4. A signed affidavit that lists the name and address of the notified property owners and date of notice. All USPS certified mail return receipts shall be maintained on the site at all times for random inspection by City and County representatives.

Section 3307.3 Repair of damage to public property is added as follows:

[DOTI] 3307.3 Repair of damage to public property. As a condition of obtaining a permit to demolish or move any building, structure, or utility, the contractor assumes liability for any damage to public property occasioned by such moving, demolition or removal operations. The contractor agrees to repair any damage to public property, including any public sidewalks, occasioned by such moving, demolition or removal operations. Failure to make such repairs within 30 days shall be grounds for the revocation of the contractor's license.

~~**Section 3307.4 Work abutting the public way is added as follows:**~~

~~**[DOTI] 3307.4 Work abutting the public way.** Prior to the issuance of a permit by the Agency for the construction, demolition, or relocation of any building involving excavation extending within one foot of the angle of repose or a slope of one to one under any public sidewalk, street, alley or other public property, the owner of the property or proposed building shall submit to the Manager of the Department of Transportation and Infrastructure an indemnity bond in the amount determined by the Manager in a form approved by the City Attorney.~~

SECTION 3308 TEMPORARY USE OF STREETS, ALLEYS AND PUBLIC PROPERTY

[DOTI] Section 3308.3 Transportation approval is added as follows:

[DOTI] 3308.3 Transportation approval. Trucks and other equipment used by the contractor shall not interfere with or block either vehicular or pedestrian traffic, except when approved by the Department of Transportation and Infrastructure. Where it becomes necessary to transport units of a demolished building, structure, or utility through public streets, alleys, or other public ways and places, permission to do so shall be obtained from DOTI.

~~**Section 3315 Moving and relocation of structures is added as follows:**~~

~~**SECTION 3315**~~
~~**MOVING AND RELOCATION OF STRUCTURES**~~

~~**3315.1 Scope.** Buildings, structures, or utilities which are moved from one location to another within, to, or from the City shall conform to all requirements of this code. These buildings, structures, or utilities shall be inspected and approved by the Agency prior to moving.~~

~~**[DOTI] 3315.2 Transportation approval.** Moving of structures on the public way by the contractor shall not interfere with or block either vehicular or pedestrian traffic, except when approved by the Department of Transportation and Infrastructure. Where it becomes necessary to transport units of a demolished building, structure, or utility through public streets, alleys, or other public ways and places, permission to do so shall be obtained from DOTI. As required by DOTI the Contractor shall submit to the Manager of DOTI an indemnity bond in the amount determined by the Manager in a form approved by the City Attorney.~~

~~**[DOTI] 3315.3 Moving on the Public Way.** Moving on the public right of way shall follow Department of Transportation and Infrastructure regulations.~~

~~**3315.4 Storage of moved buildings.** Buildings, structures, or utilities shall not be stored on any property for more than 72 hours, unless approved by the Agency.~~

~~CHAPTER 35~~
CHAPTER 35: REFERENCED STANDARDS

The following standards **are**~~is~~ **added** ~~as follows~~**:**

CGSB Canadian General Standards Board
Portage, III, 6B1
11 Laurier Street
Gatineau QC K1A 1G6
Canada

CGSB-37.50-M89: Asphalt, Rubberized for Roofing and Waterproofing
1507.18.1

NFPA National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169-7471

415-22: Standard on Airport Terminal Buildings, Fueling Ramp Drainage, and Loading Walkways
Appendix S

Standard ANSI/SPRI VF-1 edition is revised as follows:

SPRI Single-Ply Roofing Industry
465 Waverly Oaks Road, Suite 421
Waltham, MA 02452

ANSI/SPRI VF-1-2023 External Fire Design Standard for Vegetative Roofs
1505.10

APPENDICES
APPENDIX ADOPTION STATUS

Appendices are Added, Adopted, Adopted as Amended, or Not Adopted as part of ~~this code~~this code as noted in Appendix Adoption Table 1. Provisions in Appendices that are added, adopted, or adopted as amended carry the full weight and mandatory enforceability of ~~this code~~this code.

COMMERCIAL BUILDING CODE APPENDIX ADOPTION TABLE 1

APPENDIX	TITLE	STATUS
A	Employee Qualifications	Not Adopted
B	Board of Appeals	Not Adopted
C	Group U – Agricultural Buildings	Not Adopted
D	Fire Districts	Not Adopted
E	Supplementary Accessibility Requirements	Adopted
F	Rodentproofing	Adopted
G	Flood-Resistant Construction	Not Adopted
H	Signs	Adopted as Amended
I	Patio Covers	Adopted
J	Grading	Not Adopted
K	Administrative Provisions	Not Adopted
L	Earthquake Recording Instrumentation	Not Adopted
M	Tsunami-Generated Flood Hazard	Not Adopted
N	Replicable Buildings	Not Adopted
O	Performance-Based Application	Not Adopted
P	Sleeping Lofts	~~Not~~ Adopted
Q	Construction in Designated Special Construction Zones	Added
R	Colorado Title 9 Article 5 – Standards for Accessible Housing	Added
S	Construction of Airport Buildings and Structures	Added
~~T~~	~~2024 International Swimming Pool and Spa Code Section 305, remainder of the 2024 International Swimming Pool and Spa Code is not adopted.~~	~~Added as Amended~~

Appendix H Signs is amended as follows:

~~APPENDIX H~~
APPENDIX H: SIGNS

SECTION H101 GENERAL

Section H101.1.1 Coordination with zoning code is added as follows:

H101.1.1 Coordination with zoning code. The provisions of this appendix, including definitions used herein, are specific to the application of ~~this code~~this code and appurtenant references. The *Denver Zoning Code* (DZC) contains independent requirements for signs that apply in addition to ~~this code~~this code. If a sign is exempt from a permit in the *Denver Building Code*, a zoning permit may still be required based on regulations in the DZC. If a sign is exempt from a permit in the DZC, a building permit may still be required based on regulations in ~~this code~~this code. Where there is a conflict between the requirements of ~~this code~~this code and the *Denver Zoning Code*, the most restrictive criteria shall govern.

Appendix Q Construction in designated special construction zones is added as follows:

~~APPENDIX Q~~
APPENDIX Q: CONSTRUCTION IN DESIGNATED SPECIAL CONSTRUCTION ZONES

SECTION Q101 GENERAL

Q101.1 Scope. All construction, alteration, repairs, demolition, or relocation in areas designated under Article VII, Chapter 10 of the Revised Municipal Code as Special Construction Zones shall conform to the provisions of this Appendix.

SECTION Q102 GENERAL PROVISIONS

Q102.1 Permits. No permits for construction, alteration, repairs, demolition, or relocation in a designated Special Construction Zone shall be issued without being in compliance with all recommendations contained in the engineer's report as required by Article 1, Section 1 of the *2025 Denver Building Code*.

Q102.2 Engineers reports. If the applicant is required to prepare an engineer's report pursuant to Article 1, Section 1 of the *2025 Denver Building Code*, the Agency may require such additional information and recommendations as it deems necessary and may require such additional measures as are necessary to minimize potential hazards during construction and control hazards from the completed structure.

Q102.3 Inspections. All construction and excavation sites shall be subject to inspection by the Agency, Fire Department and the Environmental Quality section within The Department of Public Health and Environment, and results of tests or monitoring required by this Chapter shall be available at the site for inspection.

Q102.4 Work stoppage. In the event of a material violation with the requirements of this Chapter, the Agency may stop all construction activity until it is satisfied that the violation has been corrected.

SECTION Q103 HAZARDOUS GASES GENERATED BY LANDFILLS

Q103.1 New construction. Except as provided in Article 1, Section 1 of the *2025 Denver Building Code*, all new buildings, structures, and utilities to be constructed in a Special Construction Zone, which is so designated because of the presence of hazardous gases generated by landfills, shall be designed by an engineer registered in the State of Colorado to control and protect against accumulation of over 1.0 percent by volume of flammable gas in the building, structure or utility. The following precautions shall be taken during and after construction activity:

1. A flammable gas indicator shall be utilized at all times during trenching, excavating, drilling or when working within 10 feet of an open excavation.
2. When trenching, excavating, or drilling deeper than 2 feet (610 mm) into the soil or fill, or in the presence of detectable concentrations of 1.0 percent by volume of flammable gas, the operating equipment shall be provided with spark proof exhausts.
3. A dry chemical fire extinguisher, *approved* by the Fire Department, shall be provided on all equipment used in the landfill.
4. Personnel within or near an open trench or drill hole deeper than 2 feet (610 mm) into the soil or fill shall be fully clothed, wear shoes with nonmetallic soles and wear a hard hat and safety goggles or glasses.
5. Exhaust blowers shall be used in instances where trenches may show a build-up of flammable gas of 1.0 percent by volume or less than 19.5 percent by volume of oxygen.
6. Smoking and/or an open flame shall not be permitted in any area within 100 feet (30 480 mm) of the excavation.
7. Personnel shall be kept upwind of any open trench unless the trench and the downwind atmosphere are continuously monitored.
8. Before personnel are permitted to enter an open trench, the trench shall be monitored for flammable gas and at least a 19.5 percent-by-volume oxygen sufficiency. When in the excavation, each work party shall be working no more than 5 feet (1524 mm) from a continuously operating flammable gas and oxygen monitor.
9. The applicant shall employ an inspector whose duty it shall be to effect continuous compliance with the foregoing precautions. The inspector shall be a qualified person approved by the Agency or shall be an engineer registered with the State of Colorado or a person in the employ of, or subject to, the direct supervision and control of such an engineer. Said inspector shall submit a written report of his inspection to the applicant and to the Agency at 10-day intervals during active construction stating that all new construction is in compliance with these regulations, and that all testing and monitoring has been and is being done as required by ~~this Code~~this code.
10. After construction is completed, hazardous gas monitoring devices *approved* by the Fire Department shall be installed in the completed building or structure in such number and in such places within the building or structure as may be required by the Fire Department.

Q103.2 Alteration or repair of existing buildings, structures, or utilities. Except as provided in Article 1, Section 103 of the *2025 Denver Building Code* and Section Q103.3, no alterations or repairs to any existing building, structure or utility shall be made unless the following precautions are taken:

1. Within 5 days prior to applying for a permit under Article 1, Section 1 of the *2025 Denver Building Code* to alter or repair an existing building, structure or utility, the work site shall be tested for the

presence of flammable gas by an engineer registered in the State of Colorado.

2. The applicant shall be exempt from all other requirements of this Section Q103.2 if:
    a. Test results show that there is less than 2.0 percent of the Lower Explosive Limit (L.E.L.) of hazardous gas, then the permit for the work shall be issued; and
    b. Upon completion of the work, the applicant shall install hazardous gas monitoring devices *approved* by the Fire Department in such number and in such places within the building or structure as may be required by the Fire Department.
3. If the test results show that there is 2 percent or more of the Lower Explosive Limit (L.E.L.) of hazardous gas, then the applicant shall take all of the precautions pursuant to Section Q103.1 as if the construction were new construction.

Q103.3 Exemption. Whether or not he is an applicant for a permit, the owner of real property within a Special Construction Zone may apply to the Agency for a certificate of exemption from the provisions of Article VII, Chapter 10 of the Revised Municipal Code and Section Q103 of this Section. To obtain such exemption, said owner shall have his property tested by an engineer registered in the State of Colorado and tests shall meet the following requirements:

1. A test for the presence of flammable gas shall be performed at a time when there is frost on his property to a depth of at least 6 inches (152 mm) in the soil, again at a time when there is no frost in the soil, and again within 5 days of the date when an exemption certificate is applied for.
2. The test holes shall be placed along each major boundary line of the real property for which the exemption is sought in such number and at such locations as the engineer deems proper.
3. If the test results show that there is less than 2.0 percent of the lower explosive limit (L.E.L.) of flammable gas, and if such test results are satisfactory to the Agency, then the Agency shall issue a certificate stating that the real property described in the certificate is exempt from the provisions of Article 647 of the Revised Municipal Code and Section Q103.
4. As a condition of receiving an exemption certificate from the Agency, the owner shall acquire and install in all existing and future buildings and structures devices *approved* by the Fire Department to monitor for the presence of hazardous gas in such number and in such places within the building or structure as may be required by the Fire Department.
5. Upon a finding that flammable gas is present in amounts greater than 2 percent of the lower explosive limit on any property where an exemption certificate has been issued, the Agency shall revoke the exemption certificate. Further, upon a finding that the monitoring devices on any property for which an exemption certificate has been issued are inoperative, the Agency may suspend or revoke the exemption certificate.

Appendix R Colorado Revised Statutes Title 9 Article 5 – Standards for Accessible Housing is added as follows:

~~APPENDIX R~~

APPENDIX R: COLORADO REVISED STATUTES TITLE 9 ARTICLE 5 - STANDARDS FOR ACCESSIBLE HOUSING

SECTION R101 REFERENCE DOCUMENTS

R101.1 Accessibility standard. The ICC/ANSI A117.1 Accessible and Usable Buildings and Facilities standard referenced in this appendix and as described in definition 5.5 of Colorado Revised Statutes 9-5-101 shall mean the 2017 ICC A117.1 standard as referenced in the *Denver Commercial Building Code* and the *Denver Residential Code*.

SECTION R102 STATE STATUTE AS AMENDED

Colorado Revised Statutes Title 9, Article 5 is reproduced in this appendix for reference. (This language is current through all Laws passed during the 2024~~2~~ Legislative Session)

9-5-101. Definitions

As used in this article 5, unless the context otherwise requires:

(1) "Accessibility point" means a unit of value exchanged for different levels of accessible dwelling types to satisfy the requirements for dwelling accessibility contained in this article.

(2) "Accessible route" means an interior or exterior circulation path that complies with ICC/ANSI A117.1.

(3) Repealed.

(4) "Detached residence" means a one- or two-family residence that is separated from adjacent dwellings by an unobstructed physical space. A one- or two-family residence that is separated from an adjacent dwelling by a physical space of less than three feet shall not be considered a detached residence.

(5) "Ground story level" means the lowest story in a dwelling unit containing habitable rooms or areas with an accessible entrance located on an accessible route that contains living, sleeping, cooking, bathing, and toilet facilities. For the purposes of this article, a basement shall not be considered the ground story level if the finished basement floor is located more than four feet below the exterior finished grade determined at any point along the exposed periphery of the dwelling unit.

(5.5) "ICC/ANSI A117.1" means the "Accessible and Usable Buildings and Facilities" standard, or any successor standard, promulgated and amended from time to time~~revised~~ by the International Code Council.

(6) "Project" means the total number of parcels and buildings in a development planned or constructed by the same developer, builder, or entity on one site or contiguous sites, and also includes all parcels and structures that are parts of the same planned development application or agreement. The separation of contiguous individual buildings, units, lots, tracts, or parcels of land by a property line or by a public or private road shall not create a separate project.

(7) "Property" means the site, parcels of land, plats, lots, tracts, individual dwelling units, existing and proposed structures, and the built environment.

(8) "Residential dwelling unit" means any portion of a building that contains living facilities, including a room or rooms in a facility that have shared cooking, bathing, toilet, or laundry facilities such as dormitories, shelters, assisted living facilities, and boarding homes. "Residential dwelling unit" also means facilities that include provisions for sleeping, cooking, bathing, and toilet facilities for one or more persons and are used for extended

stays, such as time-shares and extended-stay motels. "Residential dwelling unit" does not mean a guest room in a motel or hotel.

(9) "Technically infeasible", in reference to a proposed alteration to a building or facility, means that the proposed alteration is not implemented because:

(a) An existing structural condition or conditions make such alteration labor- or cost-prohibitive;

(b) The building or facility is in strict compliance with minimum accessibility requirements for new construction and, due to existing physical or site constraints, such alteration would negatively impact such compliance.

(10) "Type A dwelling unit" means a dwelling unit designed in accordance with ICC/ANSI A117.1, section 1002~~3~~, or any successor section within ICC/ANSI A117.1.

(11) "Type A multistory dwelling unit" means a multiple-story dwelling unit with a ground story level designed in accordance with ICC/ANSI A117.1, section 100~~3~~2, or any successor section within ICC/ANSI A117.1, and, if provided, accessible laundry facilities on the ground story level.

(12) "Type B dwelling unit" means a dwelling unit with a ground floor level designed in accordance with ICC/ANSI A117.1, section 1003~~4~~, or any successor section within ICC/ANSI A117.1.

(13) "Type B multistory dwelling unit" means a multiple-story dwelling unit with a ground story level that is designed in accordance with ICC/ANSI A117.1, section 1003~~4~~, or any successor section within ICC/ANSI A117.1, and, if provided, accessible laundry facilities on the ground story level.

(14) "Type B visitable ground floor" means a multiple-story dwelling unit with an accessible entrance and toilet facility designed in accordance with ICC/ANSI A117.1, section 1003~~4~~, or any successor section within ICC/ANSI A117.1.

(15) "Undue hardship" means a substantial and unusual hardship that is the direct result of unique physical site conditions such as topography or geology, or that is the direct result of other unique or special conditions encountered on a property, but that are not typically encountered in the jurisdiction in which such property is located. Constraints, complications, or difficulties that may arise by complying with these statutory standards for accessibility but that do not constitute an undue hardship shall not serve to justify the granting of an exception or variance.

9-5-102. Disabilities covered - purpose

(1) This article is intended to provide accessibility standards for residential projects designed to serve persons with non~~-~~ambulatory disabilities, semi~~-~~ambulatory disabilities, sight disabilities, hearing disabilities, disabilities of incoordination, and aging.

(2) Design criteria. Design criteria must comply with ICC/ANSI A117.1.

9-5-103. Applicability of standards - enforcement

(1) The standards and specifications set forth in this article shall apply to all buildings and facilities used for housing that are constructed in whole or in part by the use of state, county, or municipal funds or the funds of any political subdivision of the state or that are constructed with private funds. All such buildings and facilities to be constructed from plans on which architectural drawings are started after July 1, 1975, from any one of

these funds or any combination thereof shall conform to each of the standards and specifications prescribed in this article. The governmental unit responsible for the enforcement of this article shall grant exceptions to or modify any particular standard or specification when it is determined that it is impractical and would create an undue hardship. Any such exception or modification of the provisions of this article shall be made in writing as a matter of public record. These standards and specifications shall be adhered to in those buildings and facilities that are constructed or proposed on or after April 29, 2003. This article shall apply to permanent buildings.

(2) The jurisdiction with responsibility for enforcement of this article pursuant to section 9-5-104 shall designate a board of appeals to hear and resolve appeals of orders, decisions, or determinations made by the enforcing agency regarding the application and interpretation of this article.

(3) Any building or facility that would have been subject to this article 5 but was under construction prior to July 1, 1976, must comply with the following:

(a) If the walls or defining boundaries of an element or space are altered, then the altered element or space shall comply with the applicable provisions of section 9-5-105, unless such alteration is technically infeasible. If full compliance with this article is technically infeasible, compliance shall be implemented up to the point of technical infeasibility. No alteration shall be undertaken that negatively impacts accessibility of a building or facility pursuant to ICC/ANSI A117.1. This subsection (3)(a) shall not be construed to require the moving of any existing walls not otherwise planned to be moved.

(b) Any additions to a building or facility shall be treated as new construction for the purposes of enforcement of this article.

(4) The general assembly finds and declares that the standards and specifications set forth in this article are of statewide concern. Nothing in this article shall prohibit any municipality or other governmental subdivision from making and enforcing standards and specifications that are more stringent, and thus provide greater accessibility, than those set forth in this article.

9-5-104. Responsibility for enforcing standards

(1) The responsibility for enforcement of this article is as follows:

(a) For factory-built residential structures as defined in section 24-32-3302 (10), C.R.S., the division of housing created in section 24-32-704, C.R.S.;

(b) In a political subdivision that does not have a local building code, the division of housing created in section 24-32-704, C.R.S.;

(c) For all other housing or in a political subdivision that has adopted a building code, by the building department, or its equivalent, of the political subdivision having jurisdiction.

9-5-105. Exemptions for certain privately funded projects

(1) Accessible dwelling units shall be provided as required in this article; except that this article does not apply to privately funded projects for the construction of a detached residence or residences or to other types of residential property containing less than seven residential units.

For the purpose of determining the number of accessibility points required pursuant to subsection (2) of this section, the accessible dwelling unit types shall have the following point values:

Type A dwelling unit …… 6
Type A multistory dwelling unit… 5
Type B dwelling unit …… 4
Type B multistory dwelling unit… 3
Type B visitable ground floor-….. 1

(2) Residential projects.

(a) A project shall be assigned accessibility points based on the number of units contained within the project as follows:

Number of units within the project: -Accessibility points~~ project and total number of points~~ required:

0-6	0
7-14	6
15-28	12
29-42	18
43-57	24
58-71	30
72-85	-36
86-99	42
100-114	48
115-128	54
129-142	60
143-157	66
158-171	72
172-185	78
186-199	84 etc.
etc.~~200 +~~	+6 additional points every 14 units or fraction thereof

(b) A project shall include enough accessible dwelling units to achieve at least the specified number of accessibility points required pursuant to paragraph (a) of this subsection (2). A project may use any combination of accessible dwelling unit types to comply with this section.

9-5-106. Implementation plan

The builder of any project regulated by this article shall create an implementation plan that guarantees the timely and evenly phased delivery of the required number of accessible units. Such plan shall clearly specify the number and type of units required and the order in which they are to be completed. Such implementation plan shall be subject to approval by the entity with enforcement authority in such project's jurisdiction. The implementation plan shall not be *approved* if more than thirty percent of the project is intended to be completed without providing a portion of accessible units required by section 9-5-105; except that, if an undue hardship can be demonstrated, or other guarantees provided are deemed sufficient, the jurisdiction having responsibility for enforcement may grant exceptions to this requirement. The implementation plan shall be approved by the governmental unit responsible for enforcement before a building permit is issue.

Appendix S Construction of airport buildings and structures is added as follows:

~~APPENDIX S~~
APPENDIX S: AIRPORT STRUCTURES AND SYSTEMS

All Chapters and Sections of 2022 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:

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 ~~this Code~~this code's and the *Denver Fire Code*'s 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 *Denver Fire Code*, per the direction of the *fire code official*, but are not otherwise subject to the *Denver Commercial Building Code*. Contractors performing work in or on these facilities, buildings, and structures need only be licensed in accordance with the *Denver Fire Code*, 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 ~~this Code~~this code's and the *Denver Fire Code's* 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.

Chapter 3, Definitions, in replaced in its entirety as follows:

CHAPTER 3 DEFINITIONS

Section 3.3 General Definitions.

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, offices, 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 in addition to 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 ~~this code~~this code.

3.3.8 Glazing. Glass or transparent or translucent plastic sheet used in windows, doors, skylights, or curtain walls.

3.3.9 Inline 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 to the overall *terminal* or *concourse* in which they're located. In *concourse buildings*, *inline tenant spaces* are usually located along an exterior wall.

3.3.10 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.

3.3.11 Passenger. A ticketed occupant that has passed through security screening.

3.3.12 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, fuel dump valves, etc.

3.3.13 Quiet Room. A room or space provided for occupants to rest and relax that is not a *dormitory*, *housing unit*, or *sleeping unit*.

Chapter 4, Airport Terminal Buildings, is replaced in its entirety as follows:

CHAPTER 4 AIRPORT TERMINAL BUILDINGS

4.1 General

4.1.1 *Airport terminal and concourse buildings* shall be of Type I or Type II construction as defined in Chapter 6 of ~~this code~~this code.

4.1.1.1 Occupancy. The Occupancy Groups of *terminals* and *concourses* and portions thereof shall be assigned in accordance with the provisions of Chapters 3 and 4 of ~~this code~~this code and shall comply with the mixed used and occupancy provisions of Section 508 of ~~this code~~this code. High-hazard Group H occupancies are not permitted in *terminals* and *concourses*.

4.1.2 Interior finish materials shall be Class A or B in accordance with Chapter 8 of ~~this code~~this 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 *Denver 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 Section 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 Section 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 *terminal* and *concourse* walls facing the airport ramp, they shall be provided with an automatically activated water spray system in accordance with Section 4.1.5.3.1 and 4.1.5.3.2 or an automatically activated, listed fire shutter system in accordance with its listing. *(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/ft2 [10.2 (L/min)/m2] over the exterior surface area of the glazing material.

4.2 Heating, Ventilating and Air-Conditioning

4.2.1 Heating, ventilating, and air conditioning systems shall be installed in accordance with Sections 4.2.2 through 4.2.6 and the applicable portions of the *Denver Mechanical Code* and the *Denver Fuel Gas Code*.

4.2.2 Air supply intake and exhaust openings for air-conditioning or ventilating equipment serving the *concourse 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 a *concourse* 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 a *concourse*. 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 *Denver 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 levels shall be vented in accordance with Section 503.8 of the *Denver 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 shall be in accordance with Chapter 6 of the *Denver Fire Code* and Chapter 5 of the *Denver Mechanical Code*.

4.3 Exits

4.3.1 *Airport terminal and concourse building* means of egress shall conform to the requirements of ~~this code~~this code.

4.3.2 In addition to the exit signage requirements specified in ~~this code~~this 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 minimum of 2 in. (50 mm) high and ½-in. (13 mm) stroke.

4.4 Electrical.

4.4.1 All electrical installations shall be in accordance with ~~NFPA 70~~ the Electrical Code as adopted by the State of Colorado.

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 Section 4.2.2.

4.5 Fire Protection.

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 *Denver Fire Code* as amended and per the following (see Annex A4.5.1.5 of NFPA 415):

1. *Passenger* 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 45 of NFPA 13 based on the occupancy and function of the area.

4. Utility tunnel and utility spaces or rooms shall be classified as Ordinary Hazard Group 1 Occupancy.

5. Baggage handling equipment tunnels shall be classified as Ordinary Hazard Group 2 Occupancy.

6. Automatic sprinkler systems in accordance with NFPA 409 shall be provided at aircraft loading positions under *concourse* canopies and roofed recesses that substantially cover the aircraft

7. Sprinkler protection for Nnew or modified electrical rooms containing electrical switch boards, panel boards, distribution boards, control equipment, generators, and/or transformers shall be protected with automatic sprinklers. Sprinkler protection shall be designed with high temperature sprinklers. Only sprinkler branch lines protecting the electrical room are permitted in the roomcomply with Section 903.3.11 of the *Denver Fire Code*.

   Exceptions:

   1. The room or space is under the control of a public utility.
   1.2. The room is dedicated to electrical distribution equipment, has equipment operating at 600 volts or more and is provided with a smoke detection system connected to a monitored fire alarm system.

8. Unless exempted by Section 903.1.1 of the *Denver Fire Code*, new and modified communication and data rooms shall be provided with automatic sprinkler protection.

4.5.2 Fire Alarm and Emergency Communications Systems.

4.5.2.1 Terminals and *concourses* shall be provided with a fire alarm and emergency communication systems installed in accordance with Sections 4.5.2.1.1 through Section 4.5.2.7 and Chapter 9 of the *Denver Fire Code*.

4.5.2.1.1 Smoke detection shall be spaced not to exceed 2,500 square feet. (232 m^2) per detector with roof/ceilings over 25 feet (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 *terminals* and *concourses*. Location of manual pull stations throughout all other areas shall comply with NFPA 72.

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.

   Exception: Smoke detectors are not required at a transformer provided the transformer is less than 112.5 KVA dry type, protected by fire sprinklers, and does not require a dedicated room as defined by NFPA 70. Transformers

located above a ceiling in a non-sprinklered plenum shall be provided with a combination smoke/heat detector.

2. In the outlet of fans used for pressurization of stairways, hoistways and refuge areas. Activation of these smoke detectors shall be annunciated as a supervisory signal in accordance with Section 4.5.2.3 and not as an alarm signal.

3. In elevator hoistways and at the top of pressurized stair enclosures and in elevator hoistways where required by ~~this code~~this code. These devices shall initiate an alarm condition and illuminate the respective indicator at the building 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 m^3/s), in the supply air duct or plenum downstream of any fan. Activation of these smoke detectors shall be annunciated as a supervisory signal in accordance with Section 4.5.2.3 and not as an alarm signal.

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 m^3/s) in accordance with Section 606.2.1 of the Denver Mechanical Code. 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 m^3/s), smoke detectors shall be provided in accordance with Section 606.2.2 of the Denver Mechanical Code. Detectors shall be listed for the air velocity in which they are installed. Activation of these smoke detectors shall be annunciated as a supervisory signal in accordance with Section 4.5.2.3 and not as an alarm signal.

   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 tenant spaces and similar rooms adjoining *terminals* and *concourses*:

   6.1 Smoke detectors shall be installed on the tenant side on inline tenant spaces at each opening into the *terminal* or *concourse* and at each exi~~s~~t from the tenant space. For openings wider than 30 lineal ft (9.1 m), an additional detector shall be provided for each 30 lineal ft (9.1 m) or fraction thereof.

   6.2 Electrical equipment rooms that are equipped with fire sprinklers shall be equipped with a smoke detector(s); rooms without fire sprinkler protection the room shall be equipped with smoke and heat detector(s).

   6.3 Manual pull stations shall be required at all kitchens exits.

4.5.2.2 Fire alarm system central station monitoring shall be provided by an *approved* radio communicator transmitting directly to DFD dispatch in accordance with Section 91~~7~~8 of the *Denver Fire Code*.

4.5.2.3 Fire alarm system signal annunciation shall be by a computer-based graphic display. All existing and new airport *terminal and concourse buildings* 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 Section 907 of the *Denver Fire Code*.

4.5.2.4 Airport *terminal and concourse buildings* 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 flight, gate, baggage, and multi-use information display systems (FIDS, GIDS BIDS, and MUFIDS, respectively), and DEN-controlled visual paging monitors shall display ECS messages. Non-DEN-controlled video displays, DEN CATV, and tenant audio systems in public areas shall be shunted upon activation of the emergency communication system.

Exception: Non-DEN-controlled video displays exceeding 60 inches (25.4mm) measured diagonally shall display ECS messages when required by the *fire code official*.

4.5.2.4.1 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.

4.5.2.5 The public areas of airport *terminal* and *concourse* buildings shall be provided with pre-signal fire alarm notification in accordance with NFPA 72.

4.5.2.6 A firefighter radio communication system shall be provided in accordance with Section 510 of the *Denver Fire Code* for an Emergency Responder Communications Enhancement System (ERCES)

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 Section 907.2.13.2 of the *Denver Fire Code*.~~

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* three stories or more [35 ft (10.7 m)] in height or 100 ft (30.5m) 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 ½-inch (63.5 mm) hose connection shall be equipped with a 2 ½-inch × 1 ½-inch (63.5 mm × 38 mm) reducer and cap.

4.5.4.2 Class III standpipe systems shall be provided in non-sprinklered 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 inches (203 mm) in diameter except that laterals shall be permitted to be 6 inches (152 mm) in diameter if not over 200 feet (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. Smoke control systems shall comply with Section 4.6.1 through 4.6.7

4.6.1 Requirements. *Terminals* and *concourses* shall be provided with smoke control. Smoke exhaust locations shall be configured to prevent accumulation of smoke in any area of the *terminals* and *concourses*. Smoke control systems shall be activated in accordance with Section 4.6.6. Where a space or corridor exceeds 20 feet (6.10m) in length and is connected to an atrium or area that has separate smoke control zones, supply air shall be provided to the space or corridor at the farthest location from the point of connection to the atrium or area. Tenant spaces less than 5,000 square feet (465m^2) and open to the *terminals* or *concourses* shall be incorporated into the *terminal* or *concourse* smoke control exhaust operating sequence and shall be separated by an 18-inch draft curtain with closely spaced sprinklers in accordance with Section 9.3.5 of NFPA 13 and smoke detections in accordance with Section 4.5.2 in the tenant space.

Exceptions:

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

4.6.2 Terminal and concourse design criteria. The smoke control equipment for *terminals* and *concourses* shall be independent of that serving tenant spaces of 5,000 square feet (465 m^2) or more. The *terminal* and *concourse* smoke removal system shall provide the greater of 4 air changes per hour or 20,000 cfm (9.4 m^3/s) from each smoke zone.

4.6.3 Large tenant spaces and similar room design criteria. All continuous tenant spaces adjoining the *terminal* and *concourses* which exceed 5,000 square feet (465m^2) shall be a separate smoke control zone per Section 4.6.2. The smoke removal system shall provide a minimum of 4 air chances per hour, with an

appropriate source of make-up air. Smoke zones shall be separated by a smoke partition or an 18-inch draft curtain with closely spaced sprinklers installed in accordance with Section 9.3.5 of NFPA 13 and smoke detectors in accordance with Section 4.5.2 in the tenant space.

4.6.4 Terminal and concourse elevators and stairs. Exit stair enclosures, elevator hoistways and exit passageways shall be pressurized in accordance with Section 909 of the *Denver Fire Code*.

Exceptions:

1. As permitted by the *building and fire code officials*.
2. Elevators and enclosed stairways from the transitway station.
3. Pressurized stairs, elevators and exit passageways shall not be required in existing *terminals* and *concourses* and additions to existing terminal and *concourse* where this system does not presently exist.

4.6.5 Baggage handling equipment tunnels and automated ground transportation system (AGTS). The baggage handling equipment and AGTS tunnel smoke control exhaust systems shall be sized to provide a minimum of 4 air changes per hour.

4.6.6 System initiation. Terminal and *concourse* smoke exhaust shall be 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 fire alarm system workstations.

Exceptions:

1. Activation of any two (2) automatic detection devices in the same smoke zone shall initiate the smoke control sequence for the following: Terminal Levels 5 and 6 and normally occupied public areas of *Concourse* Level 2. 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.
2. Manual activation from the FCC workstations shall be the only means permitted to initiate the smoke control exhaust sequence for the *terminal* atrium, baggage handling equipment tunnels, and AGTS tunnel.

In *terminal* and *concourses*, stair, and elevator hoistway enclosure vertical pressurization shall be initiated by activation of any single alarm-initiation device.

4.6.7 Adjacent zones. Where multiple smoke exhaust zones for the *terminal* and *concourses* are provided, only the smoke exhaust system for the zone in alarm shall be automatically activated. Smoke exhaust systems for adjacent zones shall not automatically activate but may be manually activated.

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, Article 1, Section 1 of the *Denver Building Code*, Section 1010.2.12 of the *Denver Commercial 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 access from *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 *fire command center* fire alarm system workstation.

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

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 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.

4.8 Emergency Power

4.8.1 Emergency Power. *Airport terminal and concourse 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 *Denver Fire Code*. 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. Egress and exit lighting.
3. Elevator power and all associated elevator equipment.
4. Fire alarm and detection systems.
5. Fire pump/jockey pump.
6. Emergency communication systems.
7. Emergency Responder Communications Enhancement System (ERCES)
8. Two-way Hardwired Fire Department Telephone Communication System
9. Two-way Communication System Section 1009.8 of ~~*this code*~~*this code*.

4.9 Quiet Rooms. The intent of this section is to provide *quiet rooms* with enhanced notification, smoke management, and separation from other functions.

4.9.1 Restrictions.

4.9.1.1 *Quiet rooms* are for use by airline personnel during layovers between flights, or by paramedics or airport employees required to be on call at night or for longer than 12 hours. Quiet rooms are not for public use.

4.9.1.2 A *quiet room* is limited to a maximum occupant load of 15 as determined by the number of lounge chairs, or similar furniture, in one or more compartments.

4.9.1.3 *Quiet rooms* are only permitted in the *airport terminal building* on Levels 5 and 6 and in the *airport concourse buildings* at any level.

4.9.1.3 Beds, closets and provisions for cooking are prohibited in *quiet rooms*.

4.9.1.4 Smoking and open flames are prohibited in *quiet rooms*.

4.9.2 Separation of Quiet Rooms.

4.9.2.1 *Quiet rooms* shall be separated from adjacent Group B, M and A occupancies with *smoke partitions* complying with Section 710 of the *Denver Commercial Building Code*.

4.9.2.2 *Quiet rooms* shall be separated from occupancies other than Group B, M and A as required by the *building official*.

4.9.2.3 *Quiet rooms* shall be separated from adjacent *quiet rooms* with *smoke partitions* complying with Section 710 of the *Denver Commercial Building Code*.

4.9.3 Separation Within Quiet Rooms.

4.9.3.1 For the purposes of Section 4.9, compartments or spaces within a *quiet room* that are separated with any continuous component that limits migration of smoke within 18" of the ceiling or impedes sprinkler pattern development in accordance with NFPA 13 shall be considered to be atmospherically separated.

4.9.3.2 Fabric curtains between compartments or spaces within a *quiet room* shall comply with Section 806.4 of the *Denver Commercial Building Code*.

4.9.4 Detection in Quiet Rooms. System smoke detectors that report an alarm to the fire alarm control panel (FACP) shall be provided in each atmospherically separated compartment or space within a *quiet room*.

4.9.5 Notification in Quiet Rooms.

4.9.5.1 Local notification shall be provided in a *quiet room* upon activation of a smoke detector within the *quiet room*.

4.9.5.2 Local notification shall be provided in all *quiet rooms* in a sprinkler and fire alarm zone upon activation of the sectional flow switch controlling water flow to that zone and an automatic detection device to that fire alarm zone.

4.9.5.3 System notification shall be provided in a *quiet room* when system notification is activated at the FACP.

4.9.5.4 Where notification is required, audible notification shall be provided by low-frequency sounder bases located in accordance with NFPA 72. Each compartment within a *quiet room* that is separated by floor to ceiling partitions shall have dedicated audible notification. Local audible notification shall not extend outside the *quiet room*.

4.9.5.5 Where notification is required, visible notification shall be provided by strobes located in accordance with NFPA 72.

4.9.6 Suppression in Quiet Rooms.

4.9.6.1 *Quiet rooms* shall be provided with an *automatic sprinkler system* in accordance with NFPA 13.

4.9.6.2 Density shall comply with NFPA 13 Ordinary Hazard Group 1 requirements as a minimum.

4.9.7 Illumination in Quiet Rooms.

4.9.7.1 Illumination shall be provided in *quiet rooms* as required for office occupancies.

4.9.7.2 Illumination may be controlled (on and off) by readily accessible switches located at every door providing access to or egress from a *quiet room*.

4.9.7.2 Illumination shall return to normal illumination levels upon activation of any of the notifications required in Section 4.9.5.

Chapter 5, Aircraft fueling ramp drainage, is replaced in its entirety with the follow:

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 *concourses*, aircraft hangars, aircraft loading walkways, or other structures, with a minimum grade of 1 percent (1:100) for the first 50 feet (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 Section 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 feet (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 buildings* 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 feet (38 m) in length with a minimum interval of 6 feet (1.8 m) between open-trench sections to act as fire stops. Each 125 feet (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.

CHAPTER 6 AIRCRAFT LOADING WALKWAYS

Delete Sections 6.1 through 6.2.12 in their entirety and substitute as follows:

6.1 Design Basics

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 Chapter 6 of ~~this code~~this 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 concourse buildings* shall swing into the *airport 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 Section 6.2 and in compliance with FAA Circular AC 150/5220-12C. Structural loading shall comply with Chapter 16 of ~~this code~~this code. All walkways shall be provided with a permanently affixed placard certifying compliance with

NFPA 415. These requirements shall not apply to Sections 6.2.1 through 6.2.4.

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 ~~this code~~this code.

6.2.2 Textile wall coverings used as interior finish shall be in accordance with Section 803.5 of ~~this code~~this code.

6.2.3 Textile ceiling coverings used as interior finish shall be in accordance with Section 803.6 of ~~this code~~this code.

6.2.4 Interior floor finish in walkways shall be Class I as defined in Section 804 of ~~this code~~this code.

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

6.2.6 The pressurization system to the aircraft loading walkway shall adequately restrict the entry of smoke into the walkway from a free-burning jet fuel spill, to allow safe egress by passengers from an aircraft.

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

6.2.8 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.

6.2.9 Where loading walkways are provided, the walkway, including the bumpers, curtains, and canopies, shall be seated according to the manufacturer's instruction and training whenever the walkway is in service.

6.2.10 Cab and Rotunda Slat Curtains.

6.2.10.1 Cab slat curtains and rotunda slat curtains shall meet the requirements of Section 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 Section 6.5.2.
4. Automatically activated fie 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 feet (4.6 m) beyond the perimeter of the cab and rotunda. This shall supersede the 10 feet (3 m) criteria of 6.5.3.

6.2.10.2 When the rotunda is located more than 50 feet (15 m) from the fuel fill or fuel vent point of aircraft and the rotunda slot curtain is of noncombustible construction, 6.2.10.1 shall not apply.

6.2.11 Emergency lights shall be installed in all aircraft loading walkways in accordance with ~~this code~~this code.

6.2.12 The minimum obstruction-free width of walking surface shall be 36 inches (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.

6.2.13 Sprinkler System. Permanently fixed aircraft loading walkways greater than 20 feet (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.

6.2.14 Fire Alarm and Emergency Communications System. Permanently fixed aircraft loading walkways greater than 20 feet (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 notification zone and may be combined with up to three (3) adjacent aircraft loading walkways located on the same side of the *concourse building* passenger waiting room.

2022 NFPA 415 Sections 6.3 through 6.5.3 are incorporated by reference and remain unchanged.

Add Chapter 7 Subsurface Tunnels as follows:

CHAPTER 7 SUBSURFACE TUNNELS

Section 7.1 General. All subsurface tunnels shall comply with the provisions of Sections 7.2 through 7.9.

Section 7.2 Sprinkler System Design Occupancy Classifications. Baggage Handling Equipment Tunnels (Ordinary Hazard Group 2) and Utility Tunnels (Ordinary Hazard Group I) 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.

Section 7.3 Smoke Removal System. A smoke removal system shall be provided per Section 4.6.5.

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

Section 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 feet (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 Agency and Denver Fire Department.

Section 7.6 Separation. A minimum 2-hour *fire-resistance-rated fire barrier* in accordance with Section 707 of ~~this code~~this code shall be provided between tunnels.

Section 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 feet on center (1.83 m) both sides of glass.

Section 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~~this code.

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

2022 NFPA 415 Annexes A, B, C, D are incorporated by reference and remain unchanged.

Appendix T 2024 International Swimming Pool and Spa Code Section 305 is added as modified. The remaining sections of the 2024 International Swimming Pool and Spa Code are not adopted.

APPENDIX T

INTERNATIONAL SWIMMING POOL AND SPA CODE

Section 305 of the 2024 International Swimming Pool and Spa Code is amended as follows:

SECTION 305

BARRIER REQUIREMENTS

305.1 General. The provisions of this section shall apply to the design of barriers for pools and spas. These design controls are intended to provide protection against the potential drowning and near drowning by restricting access to such pools or spas. These requirements provide an integrated level of protection against potential drowning through the use of physical barriers and warning devices. All portions of the water surface shall be directly visible from any location within the pool barrier.

Exceptions:

1. Spas and hot tubs with a lockable *safety cover* that complies with ASTM F 1346.

2. Swimming pools with a powered *safety cover* that complies with ASTM F 1346.

305.1.1 Construction fencing required. The construction sites for in-ground swimming pools and spas shall be provided with construction fencing to surround the site from the time that any excavation occurs up to the time that the permanent barrier is completed. The fencing shall be not less than 4 feet (1219 mm) in height.

305.2 Outdoor swimming pools and spas and indoor swimming pools. Outdoor pools and spas and indoor swimming pools shall be surrounded by a barrier that complies with Sections 305.2.1 through 305.7.

305.2.1 Barrier height and clearances. Barrier heights and clearances shall be in accordance with all the following:

1. The top of the barrier shall be not less than 60 inches (1524 mm) above grade where measured on the side of the barrier that faces away from the pool or spa. Such height shall exist around the entire perimeter of the barrier and for a distance of 3 feet (914 mm) measured horizontally from the outside of the required barrier.

2. The vertical clearance between grade and the bottom of the barrier shall not exceed 2 inches (51 mm) for grade surfaces that are not solid, such as grass or gravel, where measured on the side of the barrier that faces away from the pool or spa.

3. The vertical clearance between a surface below the barrier to a solid surface, such as concrete, and the bottom of the required barrier shall not exceed 4 inches (102 mm) where measured on the side of the required barrier that faces away from the pool or spa.

4. Where the top of the pool or spa structure is above grade, the barrier shall be installed on grade or shall be mounted on top of the pool or spa structure. Where the barrier is mounted on the top of the pool or spa, the

vertical clearance between the top of the pool or spa and the bottom of the barrier shall not exceed 4 inches (102 mm).

305.2.2 Openings. Openings in the barrier shall not allow passage of a 4-inch-diameter (102 mm) sphere.

305.2.3 Solid barrier surfaces. Solid barriers that do not have openings shall not contain indentations or protrusions that form handholds and footholds, except for normal construction tolerances and tooled masonry joints.

305.2.4 Screen enclosure as a barrier. A swimming pool screen enclosure shall be permitted to be utilized as part, or all, of a required barrier provided that the enclosure complies with the requirements of Section 305.2. Such screen enclosures shall be designed by a *registered design professional*. Walls of such screen enclosures shall not be considered to be dwelling walls.

305.2.4.1 Mesh for screen enclosures. The mesh utilized in the barrier portion of the screen enclosure shall have a tensile strength of not less than 100 pounds per square foot (20.5 kg/m^2) when tested in accordance with ASTM D5034 and a ball burst strength of not less than 150 pounds per square foot (30.7 kg/m^2) when tested in accordance with ASTM D3787.

305.2.5 Mesh fence as a barrier. Mesh fences, other than chain link fences in accordance with Section 305.2.8, shall be installed in accordance with the manufacturer's instructions and shall comply with ASTM F2286 and with both of the following:

1. Where a hinged gate is used with a mesh fence, the gate shall comply with Section 305.3.

2. Mesh fences shall not be installed on top of on-ground *residential* pools.

[DPHE] 305.2.5.1 Setback for mesh fences. The inside of a mesh fence shall be not closer than 48 inches (1219 mm) to the nearest edge of the water of a pool or spa.

305.2.6 Closely spaced horizontal members. Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is less than 45 inches (1143 mm), the horizontal members shall be located on the pool or spa side of the fence. Spacing between vertical members shall not exceed 1¾ inches (44 mm) in width. Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1¾ inches (44 mm) in width.

305.2.7 Widely spaced horizontal members. Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is 45 inches (1143 mm) or more, spacing between vertical members shall not exceed 4 inches (102 mm). Where there are decorative cutouts within vertical members, the interior width of the cutouts shall not exceed 1¾ inches (44 mm).

305.2.8 Chain link dimensions. The maximum opening formed by a chain link fence shall be not more than 1¾ inches (44 mm). Where the fence is provided with slats fastened at the top and bottom which reduce the openings, such openings shall be not more than 1¾ inches (44 mm).

305.2.9 Diagonal members. Where the barrier is composed of diagonal members, the maximum opening formed by the diagonal members shall be not more than 1¾ inches (44 mm). The angle of diagonal members shall be not greater than 45 degrees (0.79 rad) from vertical.

305.2.10 Clear zone. Where equipment, including pool equipment such as pumps, filters and heaters, is on the same lot as a pool or spa and such equipment is located outside of the barrier protecting the pool or spa, such equipment shall be located not less than 36 inches (914mm) from the outside of the barrier.

[DPHE] 305.2.11 Poolside barrier setbacks. The pool or spa side of the required barrier shall be not less than 48 inches (1219 mm) from the water's edge.

305.3 Doors and gates. Doors and gates in barriers shall comply with the requirements of Sections 305.3.1 through 305.3.3 and shall be equipped to accommodate a locking device. Pedestrian access doors and gates shall open outward away from the pool or spa, shall be self-closing and shall have a self-latching device. Doors and gates shall not swing over stairs.

305.3.1 Utility or service doors and gates. Doors and gates not intended for pedestrian use, such as utility or service doors and gates, shall remain locked when not in use.

305.3.2 Double or multiple doors and gates. Double doors and gates or multiple doors and gates shall have not fewer than one leaf secured in place and the adjacent leaf shall be secured with a self-latching device.

305.3.3 Latch release. For doors and gates in barriers, the door and gate latch release mechanisms shall be in accordance with the following:

1. Where door and gate latch release mechanisms are accessed from the outside of the barrier and are not of the self-locking type, such mechanism shall be located above the finished floor or ground surface in accordance with the following:

1.1. At public pools and spas, not less than 52 inches (1219 mm) and not greater than 54inches (1372 mm).

1.2. At residential pools and spas, not less 54 inches (1372 mm).

2. Where door and gate latch release mechanisms are of the self-locking type such as where the lock is operated by means of a key, an electronic opener or the entry of a combination into an integral combination lock, the lock operation control and the latch release mechanism shall be located above the finished floor or ground surface in accordance with the following:

2.1. At public pools and spas, not less than 34 inches and not greater than 48 inches (1219 mm).

2.2. At residential pools and spas, at not greater than 54 inches (1372 mm).

3. At private pools, where the only latch release mechanism of a self-latching device for a gate is located on the pool and spa side of the barrier, the release mechanism shall be located at a point that is at least 3 inches (76 mm) below the top of the gate.

305.3.4 Barriers adjacent to latch release mechanisms. Where a latch release mechanism is located on the inside of a barrier, openings in the door, gate and barrier within 18 inches (457 mm) of the latch shall not be greater than 1/2 inch (12.7 mm) in any dimension.

305.4 Structure wall as a barrier. Where a wall of a dwelling or structure serves as part of the barrier and where doors, gates or windows provide direct access to the pool or spa through that wall, one of the following shall be required:

1. Operable windows having a sill height of less than 48 inches (1219 mm) above the indoor finished floor, doors and gates shall have an alarm that produces an audible warning when the window, door or their screens are opened. The alarm shall be *listed* and *labeled* as a water hazard entrance alarm in accordance with UL 2017.

1.1In dwellings not required to be Accessible units, Type A units or Type B units, the operable parts of the alarm deactivation switches shall be located at not less than 54 inches (1372 mm) above the finished floor.

1.2In dwellings that are required to be Accessible units, Type A units or Type B units, the operable parts of the alarm deactivation switches shall be located not greater than 54 inches (1372 mm) and not less than 48 inches (1219 mm) above the finished floor.

1.3In structures other than dwellings, the operable parts of the alarm deactivation switches shall be located not greater than 54 inches (1372 mm) and not less than 48 inches (1220 mm) above the finished floor.

2. A *safety* cover that is *listed* and *labeled* in accordance with ASTM F 1346 is installed for the pools and spas.

3. An *approved* means of protection, such as self-closing doors with self-latching devices, is provided. Such means of protection shall provide a degree of protection that is not less than the protection afforded by Item 1 or 2.

305.5 On-ground residential pool structure as a barrier. An on-ground *residential* pool wall structure or a barrier mounted on top of an on-ground *residential* pool wall structure shall serve as a barrier where all the following conditions are present:

1. Where only the pool wall serves as the barrier, the bottom of the wall is on grade, the top of the wall is not less than 48 inches (1219 mm) above grade for the entire perimeter of the pool, the wall complies with the requirements of Section 305.2 and the pool manufacturer allows the wall to serve as a barrier.

2. Where a barrier is mounted on top of the pool wall, the top of the barrier is not less than 48 inches (1219 mm) above grade for the entire perimeter of the pool, and the wall and the barrier on top of the wall comply with the requirements of Section 305.2.

3. Ladders or steps used as means of access to the pool are capable of being secured, locked or removed to prevent access except where the ladder or steps are surrounded by a barrier that meets the requirements of Section 305.

4. Openings created by the securing, locking or removal of ladders and steps do not allow the passage of a 4-inch (102 mm) diameter sphere.

5. Barriers that are mounted on top of on-ground *residential* pool walls are installed in accordance with the pool manufacturer's instructions.

305.6 Natural barriers. In the case where the pool or spa area abuts the edge of a lake or other natural body of water, public access is not permitted or allowed along the shoreline, and required barriers extend to and beyond the water's edge not less than 18 inches (457 mm), a barrier is not required between the natural body of water shoreline and the pool or spa.

305.7 Natural topography. Natural topography that prevents direct access to the pool or spa area shall include but not be limited to mountains and natural rock formations. A natural barrier *approved* by the governing body shall be acceptable provided that the degree of protection is not less than the protection afforded by the requirements of Sections 305.2 through 305.5.

305.8 Means of egress. Outdoor public pools provided with barriers shall have means of egress as required by Chapter 10 of this codethis code.

END OF 2025 DENVER COMMERCIAL BUILDING CODE

2025

DENVER EXISTING BUILDING CODE

COMPRISED OF

2025 DENVER AMENDMENTS

TO THE 2024 EDITION OF THE

INTERNATIONAL EXISTING BUILDING CODE (IEBC) AND APPENDICES

AS PUBLISHED BY THE INTERNATIONAL CODE COUNCIL (ICC)

The 2024 International Existing Building Code and all errata to that code is hereby adopted and incorporated by reference except for the amendments to each chapter and appendix of the 2024 International Existing Building Code specified below.

~~CHAPTER 1~~
CHAPTER 1: SCOPE AND ADMINISTRATION

SECTION 101 GENERAL

Section 101.1 Title is replaced in its entirety as follows:

[A] 101.1 Title. These regulations shall be known as the *Denver Existing Building Code* (DEBC), hereinafter referred to as "~~this code~~this code".

Section 101.4.2 Buildings Previously Occupied is deleted and replaced by Section 102.6.2 of the *2025 Denver Commercial Building Code*.

Section 101.5 Safeguards during construction is deleted in its entirety.
Chapter 33 Safeguards During Construction of the *2025 Denver Commercial Building Code* shall govern.

SECTION 102 APPLICABILITY

Section 102.4.3 Renaming of certain referenced codes is added to read as follows:

102.4.3 Renaming of certain referenced codes. All references to the *International Building Code, International Energy Conservation Code, International Fire Code, International Plumbing Code, International Residential Code, International Mechanical Code, International Existing Building Code,* and *NFPA 70* means the Denver Commercial Building Code, Denver Energy Code, Denver Fire Code, Denver Plumbing Code, Denver Residential Code, Denver Mechanical Code, Denver Existing Building Code, and the Electrical Code as adopted by the State of Colorado, respectively.

~~All references to the *International Energy Conservation Code* are to the *2021 International Energy Conservation Code* including the 2025 Denver amendments.~~

Sections 103 through 117 are deleted in their entirety. Sections 103 through 142 of the *Denver Commercial Building Code* shall govern.~~Sections 101.4 Applicability and 101.5 Safeguards during construction are replaced in their entirety as follows:~~

~~Article 1, Section 1 of the *2025 Denver Building Code* shall govern.~~

~~**Sections 103 through 117 are replaced in their entirety as follows:**~~

~~Article 1, Section 1 of the *2025 Denver Building Code* shall govern.~~

~~CHAPTER 2~~
~~DEFINITIONS~~

~~SECTION 202~~

~~GENERAL DEFINITIONS~~

~~Section 202 General Definitions is amended by replacing item 2 for the definition of Substantial Structural Damage as follows:~~

~~2. The capacity of any vertical component carrying gravity load , or any group of such components, whose tributary area is greater than 30 percent of the total area of the structure's floor(s) and roof(s) has been reduced more than 20 percent from its predamaged condition, and the remaining capacity of such affected elements, with respect to all dead, live, and snow loads, is less than 75 percent of that required by the *Denver Commercial Building Code* for new buildings of similar structure, purpose and location.~~

~~CHAPTER 3~~
~~PROVISIONS FOR ALL COMPLIANCE METHODS~~

~~SECTION 302~~

~~GENERAL PROVISIONS~~

~~Section 302.2 Additional codes is replaced in its entirety as follows:~~

~~302.2 Additional codes.~~ ~~Any references to the International Building Code, International Energy Conservation Code, International Fire Code, International Fuel Gas Code, International Mechanical Code, International Plumbing Code, International Residential Code, and NFPA 70 means the Denver Commercial Building Code, Denver Energy Code, Denver Fire Code, Denver Fuel Gas Code, Denver Mechanical Code, Denver Plumbing Code, Denver Residential Code, and the Electrical Code of the City and County of Denver, respectively. *Alterations*, *repair*, *additions*, and *changes of occupancy* to, or relocation of, *existing buildings* and structures shall comply with the provisions for *alterations*, *repairs*, *additions*, and *changes of occupancy* or relocation, respectively, in this codethis code and the *Denver Energy Code*, *Denver Fire Code*, *Denver Fuel Gas Code*, *Denver Mechanical Code*, *Denver Plumbing Code*, *Denver Residential Code* and Electrical Code of the City and County of Denver, respectively. Where provisions of the other codes conflict with the provisions of this codethis code, the provisions of this codethis code shall take precedence.~~

~~CHAPTER 5~~
CHAPTER 5: PRESCRIPTIVE COMPLIANCE METHOD

SECTION 502 ADDITIONS

Section 502.3 Existing structural elements carrying gravity load is replaced as follows (exception to remain):

502.3 Existing structural elements carrying gravity load. Any existing gravity load-carrying structural element for which an *addition* and its related *alterations* cause an increase in the *load effects* due to design gravity loads of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *Denver Commercial Building Code* for new structures. Any existing gravity load-carrying structural element whose vertical load-carrying capacity is decreased as part of the *addition* and its related *alterations* shall be considered to be an altered element subject to the requirements of Section 503.3. Any existing element that will form part of the lateral load path for any part of the *addition* shall be considered to be an existing lateral load-carrying structural element subject to the requirements of Section 502.4.

SECTION 503 ALTERATIONS

Section 503.1 General is amended by adding exception 4 as follows:

4. In buildings constructed prior to March 26, 1994, two existing stairways within the same enclosure but completely separated from each other by rated construction in conformance with the requirements of the building code under which the building was last certified for occupancy (scissor stairs), including DCBC Section 104 Modifications ~~Under Special Circumstances~~ and applicable retrofit ordinances, shall be considered two separate exits, provided:

    1. This scissor stair is currently recognized as two separate exits.

    2. This scissor stair has been used continuously as two separate exits since the building was certified for occupancy.

    3. The number of existing exits shall not be reduced.

    4. The doors leading into each side of the exit enclosure for scissor stairs shall not be required to meet the dimensional separation requirements of Section 1007.1.1 of the *Denver Commercial Building Code*.

Section 503.3 Existing structural elements carrying gravity load is replaced as follows (exceptions to remain):

503.3 Existing structural elements carrying gravity load. Any existing gravity load-carrying structural element for which an *alteration* causes an increase in *load effects* due to design gravity loads of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *Denver Commercial Building Code* for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the *alteration* shall be shown to have the capacity to resist the applicable *load effects* due to design gravity loads required by the *Denver Commercial Building Code* for new structures.

Section 503.12 Roof diaphragms resisting wind loads in high-wind regions is deleted in its entirety.

~~CHAPTER 7~~
CHAPTER 7: ALTERATIONS – LEVEL 1

SECTION 706 STRUCTURAL

Section 706.2 Addition or replacement of roofing or replacement of equipment is replaced as follows (exceptions to remain):

706.2 Addition or replacement of roofing or replacement of equipment. Any existing gravity load-carrying structural element for which an *alteration* causes an increase in *load effects* due to design gravity loads of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *Denver Commercial Building Code* for new structures.

Section 706.3.2 Roof diaphragms resisting wind loads in high-wind regions is deleted in its entirety.

~~CHAPTER 8~~
CHAPTER 8: ALTERATIONS—LEVEL 2

SECTION 804 MEANS OF EGRESS

Section 804.5.1 Minimum number is replaced in entirety as follows:

804.5.1 Minimum number. Every story utilized for human occupancy on which there is a *work area* that includes exits or corridors shared by more than one tenant within the *work area* shall be provided with the minimum number of exits based on the occupancy and the occupant load in accordance with the *Denver Commercial Building Code*. In addition, the exits shall comply with Sections 804.5.1.1, 804.5.1.2, and 804.5.1.3

Section 804.54.1.3 Scissor stair is added as follows:

804.5.1.3 Scissor Stairs. In *buildings* constructed prior to March 26, 1994, two existing stairways within the same enclosure but completely separated from each other by rated construction in conformance with the requirements of the building code under which the *building* was last certified for occupancy (scissor stairs), including Modifications Under Special Circumstances and applicable retrofit ordinances, shall be considered two separate exits, provided:

1. This scissor stair is currently recognized as two separate exits.
2. This scissor stair has been used continuously as two separate exits since the building was certified for occupancy.
3. The number of existing exits shall not be reduced.
4. The doors leading into each side of the exit enclosure for scissor stairs shall not be required to meet the dimensional separation requirements of Section 1007.1.1 of the *Denver Commercial Building Code*.

SECTION 805 STRUCTURAL

Section 805.2 Existing structural elements carrying gravity loads. is replaced as follows (exceptions to remain):

805.2 Existing structural elements carrying gravity loads. Any existing gravity load-carrying structural element for which an *alteration* causes an increase in *load effects* due to design gravity loads of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *Denver Commercial Building Code* for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the *alteration* shall be shown to have the capacity to resist the applicable *load effects* due to design gravity loads required by the *Denver Commercial Building Code* for new structures.

~~CHAPTER 10~~
CHAPTER 10: CHANGE OF OCCUPANCY

~~**SECTION 1001**~~

~~**GENERAL**~~

~~**Section 1001.2.2.2 Denver Residential Code structures is added as follows:**~~

~~**1001.2.2.2 Denver Residential Code Structures. For the purposes of this code**~~**this code**~~**, structures that are currently under the scope of the *Denver Residential Code* shall be considered to have an existing *occupancy classification* of Group R-3.**~~

SECTION 1011 CHANGE OF OCCUPANCY CLASSIFICATIONS

Section 1011.2.1 Fire sprinkler system is amended by deleting all 3 exceptions.

~~CHAPTER 11~~
CHAPTER 11: ADDITIONS

SECTION 1103 STRUCTURAL

Section 1103.1 Additional gravity loads is replaced as follows (exception to remain):

1103.1 Additional gravity loads. Any existing gravity load-carrying structural element for which an *addition* and its related *alterations* cause an increase in *load effects* due to design gravity loads of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *Denver Commercial Building Code* for new structures. Any existing gravity load-carrying structural element

whose gravity load-carrying capacity is decreased as part of the *addition* and its related *alterations* shall be considered to be an altered element subject to the requirements of Section 805.2. Any existing element that will form part of the lateral load path for any part of the *addition* shall be considered to be an existing lateral load-carrying structural element subject to the requirements of Section 1103.2.

~~CHAPTER 12~~
CHAPTER 12: HISTORIC BUILDINGS

~~**SECTION 1201**~~
~~**GENERAL**~~

~~**Section 1201.2 Report is amended by renumbering Exception 1 and adding Exception 2 as follows:**~~

~~**Exception 2:** For projects not requiring preparation by an architect or engineer in Article 1, Section 133 of the *Denver Building Code*, and no such professional is involved with the project, the *building official* has the authority to allow the report to be prepared by a qualified licensed contractor who is responsible for the work.~~

SECTION 1203 FIRE SAFETY

Section 1203.9 Stairway railings is replaced in its entirety as follows:

1203.9 Stairway railings. Historically significant stairways as determined by the *building official* in consultation with the local preservation authority in the *Agency* or the State Historic Preservation Office, shall be permitted to be accepted without complying with the *handrail* and *guard* requirements. Existing *handrails* and *guards* at all *stairways* shall be permitted to remain, subject to approval by the *building official* and provided they are not structurally *dangerous*.

Exception: This provision shall not be applied to exterior metal fire escapes.

Section 1203.10.2 Guard openings is replaced in its entirety as follows:

1203.10.2 Guard openings. The spacing between existing intermediate railings or openings in existing ornamental patterns shall be accepted. Missing elements or members of a *guard* may be replaced to match historic features of the building or structure.

~~CHAPTER 13~~
CHAPTER 13: PERFORMANCE COMPLIANCE METHODS

~~**SECTION 1303**~~

~~**ACCEPTANCE**~~

~~**Section 1303.1.2 Compliance with other codes is amended by deleting the reference to the *International Property Maintenance Code*.**~~

SECTION 1305 SCORING AND EVALUATION

Section 1305.2.11 Means of egress capacity and number is amended by adding the following sentence at the end of the first paragraph:

Existing scissor stairs shall be accepted as components in the means of egress when conforming to Section 503.1 Exception 4.

~~CHAPTER 14~~
~~RELOCATED OR MOVED BUILDINGS~~

~~**SECTION 1401**~~

~~**GENERAL**~~

~~**Section 1401.2 Conformance is amended by deleting the reference to the *International Property Maintenance Code*.**~~

CHAPTER 15: CONSTRUCTION SAFEGUARDS

SECTION 1502 OWNER'S RESPONSIBILITY FOR FIRE PROTECTION

Section 1502.1 Site safety plan is replaced as follows (subsection remains):

~~33~~1502.1 Site safety plan. The *owner* or *owner's* authorized agent shall be responsible for the development, implementation and maintenance of an *approved*, written site safety plan establishing a fire prevention program at the project site applicable throughout all phases of the construction, *repair*, *alteration* or demolition work. The plan shall be available on site at all times and provided to the *code official* upon request. Any changes to the plan shall address the requirements of this chapter and other applicable portions of the *Denver Fire Code*, the duties of staff and staff training requirements.

Section ~~33~~1502.3.1 Violations is replaced in its entirety as follows:

~~33~~1502.3.1 Violations. Violations, penalties and remedies shall be administered in accordance with *Denver Commercial Building Code* Section 107.

EXISTING BUILDING CODE APPENDICES
STATUS OF APPENDICES ON ADOPTION

Appendices and Sections thereof are Adopted or Not Adopted as part of ~~this Code~~this code as noted in Appendix Adoption Table 1. Provisions in Appendices that are Adopted carry the full weight and mandatory enforceability of the Code.

EXISTING BUILDING CODE APPENDIX ADOPTION TABLE 1

APPENDIX	TITLE	STATUS
A	Guidelines for the Seismic Retrofit of Existing Buildings	Not Adopted
B	Supplementary Accessibility Requirements for Existing Buildings and Facilities	Section B101 is Adopted Remainder is Not Adopted
C	Guidelines for the Wind Retrofit of Existing Buildings	Not Adopted
D	Board of Appeals	Not Adopted
E	Temporary Emergency Uses	Not Adopted

END OF 2025 DENVER EXISTING BUILDING CODE

2025
DENVER RESIDENTIAL CODE

COMPRISED OF

2025 DENVER AMENDMENTS

TO THE 2024 EDITION OF THE

INTERNATIONAL RESIDENTIAL CODE (IRC) AND APPENDICES

AS PUBLISHED BY

INTERNATIONAL CODE COUNCIL (ICC)

The content of the sections in ~~this Code~~this code that begin with letters designations are maintained by other City or State entities.

[CRS] **Colorado Revised Statute**
[DOTI] **Department of Transportation and Infrastructure/Wastewater Management**

The 2024 International Residential Code and all errata to that code is hereby adopted and incorporated by reference except for the amendments to each chapter and appendix of the 2024 International Residential Code specified below.

~~CHAPTER 1~~
CHAPTER 1: ADMINISTRATION

SECTION R101 SCOPE AND GENERAL REQUIREMENTS

[R] Section R101.1 Title is replaced in its entirety as follows:

R101.1 Title. These provisions shall be known as the Denver Residential Code (DRC) and shall be cited as such and will be referred to herein as "~~this code~~this code".

[R] Section R101.2 Scope is amended by replacing the Exceptions as follows:

Exception:

1. The provisions of Section 311~~5~~6 of the *Denver Commercial Building Code* shall apply to the construction, *alteration*, movement, enlargement, replacement, *repair*, equipment, use, and occupancy of *factory-built structures*, *HUD homes*, and *mobile homes*.

Section R101.2.2 Permitted uses in one-family dwelling units is added as follows:

R101.2.2 Permitted uses in one-family dwelling units. The following uses shall be permitted to be established in and regulated as one-family *dwelling units* in accordance with ~~this code~~this code:

1. One *household*.
2. *Congregate living facility* with 10 or fewer occupants.
3. *Lodging house* with five or fewer *guestrooms* and 10 or fewer occupants.
4. *Care facility* with 5 or fewer persons receiving *custodial or medical care*.
5. *Live/work unit* complying with the requirements of Section 508.5 of the *Denver Commercial Building Code*.
6. A *Family Child Care Home (FCCH)* complying with the provisions of Appendix ~~AM~~ BD of ~~this code~~this code~~the *Denver Residential Code*~~.
7. Uses that are accessory and incidental to the uses listed above, including short-term rentals and *home occupations*.

Section R101.2.3 Permitted uses in a dwelling unit of a two-family dwelling is added as follows:

R101.2.3 Permitted uses in a dwelling unit of a two-family dwelling. The following uses shall be permitted to be established in and regulated as a dwelling unit of a two-family dwelling in accordance with ~~this code~~this code:

1. One *household*.
2. *Care facility* with 5 or fewer persons receiving *custodial or medical care*.
3. *Live/work unit* complying with the requirements of Section 508.5 of the *Denver Commercial Building Code*.

4. A *Family Child Care Home (FCCH)* complying with the provisions of Appendix ~~AM~~BD of ~~this code~~this code.
5. Uses that are accessory and incidental to the uses listed above, including short-term rentals and *home occupations*.

Section R101.2.4 Permitted uses in townhouse units is added as follows:

R101.2.4 Permitted uses in townhouse units. The following uses shall be permitted to be constructed and regulated as *townhouse units* in accordance with ~~this code~~this code:

1. One *household*.
2. *Care facility* with 5 or fewer persons receiving *custodial or medical care*.
3. *Live/work unit* complying with the requirements of Section 508.5 of the *Denver Building Code.*
4. A *Family Child Care Home (FCCH)* complying with the provisions of Appendix ~~AM~~BD of ~~this code~~this code~~the *Denver Residential Code*~~.
5. Uses that are accessory and incidental to the uses listed above, including short-term rentals and *home occupations*.

Section R101.2.5 Permitted uses in accessory structures is added as follows:

R101.2.5 Permitted uses in accessory structures. The following uses shall be permitted to be constructed and regulated as *accessory structures* in accordance with ~~this code~~this code:

1. *Home occupations*.
2. Uses that are accessory and incidental to the *dwelling unit* or *townhouse unit* use~~, excluding short-term rentals~~.

Section R101.2.5.1 Living space in accessory structures is added as follows:

R101.2.5.1 Living space in accessory structures. *Living space* within *accessory structures* shall comply with the provisions of the code that are applicable to *dwellings*, *dwelling units*, and *residences*.

Exceptions:

1. The provisions of Sections R326.1 and R326.2 shall not apply to *living space* within *accessory structures.*
2. ~~*Accessory structures* with less than 200 square feet (18.6 m^2) of *living space* are not required to comply with Appendix BE.~~
3. Where not required by the building official based on site-specific constraints that do not allow for the explicit compliance of the living space or where alternative methods of code compliance are applicable.

Section R101.2.6 Complete and independent dwelling unit is added as follows:

Section R101.2.6 Complete and independent dwelling unit. A space in a structure will be deemed a dwelling unit if it contains all the following elements.

1. Provisions for living.
2. Provisions for cooking.

3. Provisions for sanitation.
4. Provisions for bathing.
5. Provisions for sleeping including a bedroom or other area designated for sleeping.
6. Independent egress to the exterior of the structure from an egress door.

Exception: A structure will be deemed one dwelling unit if it contains a *non-separated, continuous, and open access path* between spaces in a structure that would be considered more than one dwelling unit.

SECTION R102 APPLICABILITY

~~**Section R102 Applicability is replaced in its entirety as follows:**~~**Section R102 is deleted in its entirety and replaced with Section 102 of the Denver Commercial Building Code, except as modified below.**

~~**R102.1 Repairs, Alterations, Additions, Change of Occupancy.** The repair, alteration, addition, change of occupancy, and relocation of existing structures regulated by this code~~this code ~~shall comply with Appendix BO or the *Denver Existing Building Code*. Where the alteration, addition, or change of occupancy causes the structure to be changed to one outside the scope of this code~~this code~~, the provisions of the *Denver Existing Building Code* shall apply.~~

Section R102.4.3 Renaming of certain referenced codes is added:

R102.2 Renaming of certain referenced codes. All~~ny~~ references to *the International Building Code, International Energy Conservation Code, International Fire Code, International Fuel Gas Code, International Mechanical Code, International Plumbing Code, International Existing Building Code,* and *NFPA 70* means the *Denver Commercial Building Code, Denver Energy Code, Denver Fire Code, Denver Fuel Gas Code, Denver Mechanical Code, Denver Plumbing Code, Denver Existing Building Code,* and the Electrical Code as adopted by the State of Colorado~~of the City and County of Denver~~, respectively.

All references to the International Property Maintenance Code in this code and any referenced codes are deleted.

Section R102.8 Repairs, Alterations, Additions, Change of Occupancy, and Relocation is added:

R102.~~1~~8 Repairs, Alterations, Additions, Change of Occupancy, and Relocation. The repair, alteration, addition, change of occupancy, and relocation of existing structures regulated by ~~this code~~this code shall comply with Appendix BO or the *Denver Existing Building Code*. Where the alteration, addition, or change of occupancy causes the existing structure to be changed to one outside the scope of ~~this code~~this code, the provisions of the *Denver Existing Building Code* shall apply.

Section R102.9 Safeguards during construction is added:

R102.9 Safeguards during construction. –Chapter 33 "Safeguards During Construction" of the Denver Commercial Building Code shall apply to all work regulated by this code.

SECTIONS R103-R114

Sections R103 through R114 are deleted in their entirety. ~~and replaced as follows:~~

~~Article 1, Section 1 of the~~**Sections 103 through 142 of the ~~2025~~ *Denver Commercial Building Code* shall govern.**

~~CHAPTER 2~~
CHAPTER 2: DEFINITIONS

SECTION R202 DEFINITIONS

Section R202 is modified by adding or modifying the following definitions:

ALTERATION. Any construction, retrofit or renovation to an existing structure other than repair or addition. Also, a change in a building, electrical, gas, mechanical or plumbing system that involves an extension, addition or change to the arrangement, type, or purpose of the original installation. For the definition applicable in Chapter 11, see Section N1101.6. For the definition applicable in Chapter 24, see Section G2403.

~~**ALTERATION.** Any construction, retrofit or renovation to an existing structure other than repair or addition that requires a permit. Also, a change in a building, electrical, gas, mechanical, HVAC, or plumbing system that involves an extension, addition or change to the arrangement, type or purpose of the original installation that requires a permit., including the addition or elimination of any door or window, space, or structures, the enlargement or installation of additional equipment. For the definition applicable in Chapter 11, see Chapter 11.~~

BASEMENT. A *story* that is not a *story above grade* plane and is not ~~or~~ a *crawl space*.

CARE FACILITY. A *building*, *structure*, or portion thereof occupied by persons who reside on a 24-hour basis in a supervised residential environment and receive *custodial care* and/or medical care. Examples of *care facilities* include: alcohol and drug centers, assisted living facilities, congregate care facilities, group homes, halfway houses, residential board and *care facilities*, and social rehabilitation facilities.

CELLAR. A *basement* constructed prior to 1990 that does not meet the minimum ceiling height requirements in Section R305 and does not contain living space.

CONGREGATE LIVING FACILITY. A *building*, *structure*, or portion thereof occupied by persons who do not jointly occupy the entirety of the *dwelling unit*. Residents have independent personal quarters that includes permanent provisions for sleeping, and may include provisions for living, eating, and either bathroom or kitchen facilities, but not both. Residents share bathroom or kitchen facilities, or both. Examples of congregate living facilities include boarding houses, convents, dormitories, fraternities and sororities, and monasteries. Congregate living facilities do not include *care facilities*.

CRAWL SPACE. A space without a floor between the ground and the first floor, or a *story* with a ceiling height of 5 feet or less that is not a *story above grade* plane.

~~**CUSTODIAL CARE.** Assistance with day-to-day living tasks; such as assistance with cooking, taking medication, bathing, using toilet facilities and other tasks of daily living. Custodial care includes person~~

~~receiving care who have the ability to respond to emergency situations and evacuate at a slower rate and/or who have mental and psychiatric complications.~~

~~**DEEP FOUNDATION.** A *deep foundation* is a foundation element that does not satisfy the definition of a *shallow foundation*.~~

FAMILY CHILD CARE HOME (FCCH). ~~A *dwelling unit* in which care is provided on a regular basis, for less than 24 hours at any time, in the provider's place of residence, for two or more children up to 18 years of age who are not directly related to the caregiver by blood, marriage, or adoption. The residents of the home under 12 years of age who are on the premises, in addition to all unrelated children who are on the premises for supervision, are counted as children receiving care.~~

~~A regular Family Child Care Home provides care for no more than six children, with no more than two children under 2 ½ years of age. Care may be provided for two additional children six years of age and older who are enrolled in the first grade or above. The child-to-provider ratio shall be not more than six children per provider.~~

~~A large Family Child Care Home provides care for no more than a total of 12 children less than 18 years of age, with no more than three children under 2 ½ years of age. There shall be a minimum of two providers.~~

"Family Child Care Home" means a facility for child care in a dwelling unit for the purpose of providing less than twenty-four-hour care for children under the age of eighteen years who are not related to the head of such home. Types of family child care homes, their maximum occupancy and age requirements are further detailed in section 7.707 ~~of Code of Colorado Regulation:~~ 12 Colo. Code Regs. 2509-8.

GARAGE. A *building* or space within a *building*, enclosed by three or more sides, with a vehicle entry doorway or a garage door in accordance with Section R609.4 and R609.4.1 installed in the exterior wall, and provided a vehicular driving surface from a way to the vehicle entry doorway or garage door.

GEOTECHNICAL INVESTIGATION REPORT. A report prepared by, or under the direct supervision of, a *registered design professional* with experience in geotechnical engineering.

~~**HELICAL PILE.** Manufactured steel *deep foundation* element consisting of a central shaft and one or more helical bearing plates. A helical pile is installed by rotating it into the ground. Each helical bearing plate is formed into a screw thread with a uniform defined pitch.~~

HOUSEHOLD. Any number of persons ~~related to each other by blood, marriage, civil union, committed partnership, adoption, or documented responsibility (such as foster care or guardianship),~~ plus any permitted domestic employees~~; or up to 10 occupants of any relationship~~ who live together as a family or as the functional equivalent of a family. Members of the household is determined by the occupants rather than by a landlord, property manager, or other third party. Members of a household are not required to seek services or care of any type as a condition of residency. All members of the household jointly occupy the entire premises of the *dwelling unit.*

LIVE/WORK UNIT. A *dwelling unit* or *sleeping unit* in which a significant portion of the space includes a nonresidential use that is operated by the tenant and does not have approval from the Zoning Administrator as a *home occupation*.

[MP] LIVING SPACE. Space within a building utilized for living, sleeping, eating, cooking, bathing, washing and sanitation purposes. *Garages*, greenhouses, *closets*, storage spaces, and utility spaces are not considered *living space*.

~~**MEDICAL CARE.** Care involving medical or surgical procedures, nursing, or for psychiatric purposes.~~

NON-SEPARATED, CONTINUOUS, AND OPEN ACCESS PATH. A continuous and unobstructed path of vertical and/or horizontal egress travel that is not closed off by doors, contains a minimum clear width of 48 inches (1219 mm) at openings, and the standard width of a hallway or *stair*.

RESIDENCE. See "*Dwelling unit*."

~~**SALVAGED MATERIAL.** Material, component, or assembly removed in a whole form from a *structure* or site in which it was permanently installed and subsequently reused in the *building* project.~~

SLEEPING ROOM. Any room used or intended to be used for sleeping purposes.

~~**SHALLOW FOUNDATION.** A shallow foundation is an individual or strip footing, a mat foundation, a slab-on-grade foundation, or a similar foundation element.~~

TOWNHOUSE UNIT. A single-family *dwelling unit* in a *townhouse* that extends from foundation to roof and that has a *yard* or *public way* on the full length of one of the four principal sides and has a *yard* or *public way* on at least 50 percent of the length of another principal side.

~~CHAPTER 3~~
CHAPTER 3: BUILDING PLANNING

SECTION R301 DESIGN CRITERIA

Table R301.2 CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA, and footnotes, is replaced as follows:

GROUND SNOW LOAD	WIND DESIGN				SEISMIC DESIGN CATEGORY	SUBJECT TO DAMAGE FROM			WINTER DESIGN TEMP	ICE BARRIE UNDER-LAYMENT REQUIRED	FLOOD HAZARDS[g]	AIR FREEZIN INDEX	MEAN ANNUAL TEMP
	Speed (mph)	Topographic effects	Special wind region [b]	Wind-borne debris zone		Weathering [a]	Frost line depth	Termite					
~~43 psf~~35 ~~psf~~ [c]	115/125/140	No	Yes	No	B	Severe	36 inches	Slight/ Mod	1° F	No	~~978~~04/15/198 FEMA Flood nsurance Stud S) for the City unty of Denv vised 07/03/2	712	40-45
MANUAL J DESIGN CRITERIA													
Elevation		Altitude correction factor		Coincident wet bulb		Indoor winter design dry-bulb temperature			Outdoor winter design dry-bulb temperature		Heating temperature difference		

5,285 feet	0.85	60º F	70º F	3º F	67º F
Latitude	Daily range	Indoor summer design relative humidity	Indoor summer design dry-bulb temperature	Outdoor summer design dry-bulb temperature	Cooling temperature difference
40º N	High	50%	75º F	91º F	16º F

TABLE R301.2 CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA

a. The grade of masonry units shall be determined from ASTM C 34, C 55, C 62, C73, C 90, C129, C 145, C216 or C652.
b. See Section 1609 of the *Denver Commercial Building Code* for additional information.
c. Location-specific ground snow load values (using risk category II) ~~are~~ provided in the Ground Snow Load Geodatabase of geocoded design ground snow load values, which can be accessed at the ASCE 7 Hazard Tool at https://asce7hazardtool.online, shall be permitted.
d. ~~-~~See Denver Article V. – Floodplain Management, Section 56-200 through 56-206 of the Revised Municipal Code of the City and County of Denver, Colorado for additional requirements.

Section R301.9 Aircraft Noise Reduction for Townhouses Built in the Denver International Airport Influence Area is added:

Section R301.9 Aircraft Noise Reduction for Townhouses Built in the Denver International Airport Influence Area The provisions of Denver Commercial Building Code Section 430 shall apply to any new or remodeled townhouse unit within the area shown in the Section 430 Exhibit A - DIA Influence Area.

SECTION R302 FIRE-RESISTANT CONSTRUCTION

Section R302.1 Exterior walls is ~~replaced in its entirety as follows:~~modified by replacing exception two and adding exception six:

~~**R302.1 Exterior walls.** Construction, projections, openings, and penetrations of *exterior walls* of *dwellings*, *townhouse units*, and *accessory buildings* shall comply with Table R302.1(1); or *dwellings* and *townhouse units* equipped throughout with an *automatic sprinkler system* installed in accordance with Section R309 shall comply with Table R302.1(2).~~

Exceptions:

~~1. Walls, projections, openings, or penetrations in walls perpendicular to the line used to determine the *fire separation distance*.~~

2. Walls of *individual dwelling units* and their *accessory structures*, without *living space* located on the same *lot*.

~~2. Detached tool sheds and storage sheds, playhouses and similar *structures* exempt from permits are not required to provide wall protection based on the location on the *lot*. Projections, external gutters, and storm drainage systems that extend beyond the *exterior wall* shall not extend over the *lot line*.~~

~~3. Detached *garages* accessory to a *dwelling* or *townhouse* located within 2 feet (610 mm) of a *lot line* are permitted to have roof eave projections not exceeding 4 inches (102 mm).~~

~~4. Foundation vents installed in compliance with this code~~this code ~~are permitted.~~

6. External gutters and other storm drainage systems are not considered projections.

~~**Section R302.1.1 Townhouse unit imaginary lines is added as follows:**~~

~~**R302.1.1 Townhouse unit imaginary lines.** For the purposes of determining *fire separation distance* and requirements of Section R302.1, *townhouse units* shall have assumed imaginary lines established. Assumed imaginary lines shall begin at the ends of the walls separating *townhouse units* required by Section R302.2 and shall extend to a *lot line* or to another imaginary line.~~

Section R309 Automatic fire sprinkler systems is replaced in its entirety as follows:

SECTION R309 AUTOMATIC FIRE SPRINKLER SYSTEMS

R309.1 Townhouses automatic sprinkler systems. An *automatic sprinkler system* shall be installed in *townhouses units*:

1. Where a *habitable attic* is constructed above the third *story above grade plane.*

2. Used as a *Family Child Care Home* when the frontage of the *townhouse unit* is more than 125 ft. (38.1m) from a street or fire access road.

R309.1.1 Design and installation. Where required or provided, *automatic sprinkler systems* shall be designed and installed in accordance with NFPA 13D or NFPA 13R. Sprinkler system demand shall be satisfied by Denver Water's site pressures without a fire pump.

R309.2 One- and two-family dwellings automatic fire sprinkler systems. An *automatic sprinkler system* shall be installed in one- and two-family *dwellings* where a *habitable attic* is constructed above the third *story above grade plane.*

R309.2.1 Design and installation. Where required or provided, *automatic sprinkler systems* shall be designed and installed in accordance with NFPA 13D or NFPA 13R. Sprinkler system demand shall be satisfied by Denver Water's site pressures without a fire pump.

R309.3 Live/work units automatic sprinkler systems. An *automatic sprinkler system* shall be installed in *live/work units.*

R309.3.1 Design and installation. *Automatic sprinkler systems* for *live/work units* shall be designed and installed in accordance with NFPA 13R. Sprinkler system demand shall be satisfied by Denver Water's site pressures without a fire pump.

R309.4 Care facilities automatic sprinkler systems. An *automatic sprinkler system* shall be installed in *care facilities*.

R309.4.1 Design and installation. *Automatic sprinkler systems* for *care facilities* shall be designed and installed in accordance with NFPA 13D. Sprinkler system demand shall be satisfied by Denver Water's site pressures without a fire pump.

SECTION R310 SMOKE ALARMS

Section R310.2.2 Alterations, repairs and additions is modified, and Exceptions are replaced as follows:

Section R310.2.2 Alterations and additions. Where alterations or additions requiring a permit occur, the individual *dwelling unit* shall be equipped with smoke alarms located as required for new *dwellings*.

Exceptions:

1. *Repairs.*

2. The removal and replacement or the covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same purpose.
3. Work involving the exterior surfaces of *buildings*, such as the replacement of roofing or siding, the addition or replacement of windows or doors, or the addition of porches or decks.
4. Installation, *alteration*, or *repairs* of plumbing or mechanical systems, other than fuel-burning appliances.

~~**SECTION R310.6**~~
~~**POWER SOURCE**~~

Section R310.6 Power source Exceptions are amended by adding the following:

Battery powered or battery-operated smoke alarms or combination smoke/CO alarms shall be listed in accordance with UL 217 for smoke, UL 2034 for CO, or both for combination alarms, and provided with permanent integral 10-year lithium batteries.

SECTION R311 CARBON MONOXIDE ALARMS

Section R311.1 General is amended by adding an exception:

Exception: *Dwelling units* regulated by this code as allowed by Sections 305.2.3, 308.2.4, 308.3.2, 308.5.4, 308.5.5 ~~of this code~~this code, or 310 of the *Denver Commercial Building Code*, shall comply with Section 915 of the *Denver Fire Code*.

Section R311.2.1 New construction is amended by replacing Exception 1 as follows:

1. The *dwelling unit* contains a fireplace or other fuel-fired *appliance.*

Section R311.2.2 Alterations, repairs and additions is modified, and Exceptions are replaced as follows:

R311.2.2 Alterations and additions. Where alterations or additions requiring a permit occur, the individual *dwelling unit* shall be equipped with *carbon monoxide (CO) alarms* located as required for new *dwellings*.

Exceptions:

1. *Repairs.*
2. The removal and replacement or the covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same purpose.
3. Work involving the exterior surfaces of *buildings*, such as the replacement of roofing or siding, the addition or replacement of windows or doors, or the addition of porches or decks.
4. Installation, *alteration*, or *repairs* of plumbing or mechanical systems, other than fuel-burning appliances.

Section R311.2.3 Family Child Care Homes is added as follows:

R311.2.3 Family Child Care Homes. The installation of combination carbon monoxide alarms and detectors within *Family Child Care Homes* shall comply with Section 915.5.3 of the *Denver Fire Code*.

These devices shall be powered by premise wiring or battery-operated provided with permanent integral 10-year lithium batteries.

Section R311.3 Location is replaced in its entirety as follows:

R311.3 Location. Carbon monoxide alarms in *dwelling units* shall be installed outside of each sleeping area within 15 feet (4572 mm) of the sleeping area doorway and in a central location on every occupiable level. Where a fuel-burning *appliance* is located within a bedroom or its attached bathroom, a carbon monoxide alarm shall be installed within the bedroom.

~~**SECTION R311.6**~~
~~**POWER SOURCE**~~

Section R311.6 Power source Exceptions are amended by adding the following:

Battery powered or battery-operated smoke alarms or combination smoke/CO alarms shall be listed in accordance with UL 217 for smoke, UL 2034 for CO, or both for combination alarms, and provided with permanent integral 10-year lithium batteries.

Section R311.8 Visual notification is added as follows:

R311.8 Visual notification. Visual notification shall be provided in *dwelling units* required to be accessible to persons with disabilities. Such devices shall be listed in accordance with UL 1971 for *Safety and Signaling devices for Hearing Impaired*.

~~**SECTION R313**~~
~~**CEILING HEIGHT**~~

~~**Section R313.1 Minimum height is amended by adding Exception 5**~~

~~**Exceptions:**~~

~~5. The *ceiling height* in *basements* built prior to October 1990 shall be a minimum of 6 feet 8 (2032 mm) inches, with a minimum clearance of 6 feet 4 inches (1931 mm) to any ceiling projection caused by beams, ducts, or pipes.~~

~~**Section R313.1.1 Basements is amended by replacing the Exception as follows:**~~

~~**Exception:** At beams, girders, ducts, *stair* headroom, and other obstructions, the *ceiling height* shall be not less than 6 feet 4 inches (1931 mm) from the finished floor.~~

SECTION R316 HABITABLE ATTICS

Section R316.5 Attic alterations is added as follows:

R316.5 Attic alterations. Where existing *attics* in *dwelling units* are located above the third *story above grade plane* and modified into *habitable attics*, an *automatic sprinkler system* shall be installed throughout the *dwelling unit* in accordance with Section R309.1 or R309.2.

~~**SECTION R319**~~

~~EMERGENCY ESCAPE AND RESCUE OPENINGS~~

~~Section R319.1 Emergency escape and rescue opening required is replaced as follows. The exceptions within Section R319.1 and Section R319.1.1 remain unchanged.~~

> **~~R319.1 Emergency escape and rescue opening required.~~** ~~*Basements*, *habitable attics*, the room to which a sleeping loft is open, *accessory structures* with *living space*, and every sleeping room shall have not less than one operable *emergency escape and rescue opening*. Where *basements* contain one or more sleeping rooms, an *emergency escape and rescue opening* shall be required in each sleeping room. *Emergency escape and rescue openings* shall open directly into a *public way*, or to a *yard* or *court* having a minimum width of 36 inches (914 mm) that opens to a *public way*.~~

SECTION R319 EMERGENCY ESCAPE AND RESCUE OPENINGS

Section R319.5 is amended by adding item 3.

> 3. An existing operable window shall provide a minimum net clear opening of 4 square feet (0.38m2) with a minimum net clear opening height of 22 inches (559 mm) and a minimum net clear opening width of 20 inches (508 mm)

SECTION R321 GUARDS AND WINDOW FALL PROTECTION

~~Section R321.1.1 Where required is replaced as follows:~~

> **~~R321.1.1 Where required.~~** ~~*Guards* shall be provided for those portions of open-sided walking surfaces, including floors, *stairs*, ramps, landings, decks, patios, and other hardscaped and landscaped surfaces designed and intended for walking that are located more than 30 inches (762 mm) measured vertically to the floor or *grade* below at any point within 36 inches (914 mm) horizontally to the edge of the open side. Insect screening shall not be considered as a *guard*.~~
>
> > **~~Exception.~~** ~~A *guard* shall not be required at retaining walls adjacent to hardscaped or landscaped walking surfaces located 36 inches (914 mm) or more, measured horizontally and perpendicularly, from the top edge of the retaining wall.~~

Section R321.1.2 Height is ~~replaced as follows~~ amended by adding the following sentence~~(with exceptions to remain):~~

> ~~Required *guards* at open-sided walking surfaces~~ Where any integral or built in, abutting raised horizontal surfaces exist adjacent to an open-sided walking surface located greater than 72 inches (1829 mm) above finished *grade*, the required guard shall be not less than 36 inches (914 mm) in height as measured vertically above the ~~adjacent walking surface, above any~~ integral or built in, abutting raised horizontal surface~~, or the line connecting the *nosings*~~.

[CRS] SECTION R322 ACCESSIBILITY

Section R322.1 Scope is amended by adding the following sentences:

In addition to the requirements of this section, the provisions of Colorado Revised Statute 9-5-101, *et seq.* shall be applicable. CRS 9-5-101, *et seq.* are reproduced in Appendix R of the *Denver Commercial Building Code*.

SECTION R328 SWIMMING POOLS, SPAS AND HOT TUBS

Section R328 Swimming Pools, Spas and Hot Tubs is replaced in its entirety ~~as follows:~~as follows:

R328 SWIMMING POOLS, SPAS AND HOT TUBS

R328.1 General. The design and construction of swimming pools, spas, and hot tubs shall comply with Section 305 of the International Swimming Pool and Spa Code, except as modified below.

Section 305.4 Structure wall as a barrier is replaced as follows:

305.4 Structure wall as a barrier. Where a wall of a dwelling or structure serves as part of the barrier and where doors, gates or windows provide direct access to the pool or spa through that wall, one of the following shall be required:

1. Operable windows having a sill height of less than 48 inches (1219 mm) above the indoor finished floor, doors and gates shall have an alarm that produces an audible warning when the window, door or their screens are opened. The alarm shall be listed and labeled as a water hazard entrance alarm in accordance with UL 2017.

1.1 In dwellings not required to be Accessible units, Type A units or Type B units, the operable parts of the alarm deactivation switches shall be located at not less than 54 inches (1372 mm) above the finished floor.

1.2 In dwellings that are required to be Accessible units, Type A units or Type B units, the operable parts of the alarm deactivation switches shall be located not greater than 54 inches (1372 mm) and not less than 48 inches (1219 mm) above the finished floor.

1.3 In structures other than dwellings, the operable parts of the alarm deactivation switches shall be located not greater than 54 inches (1372 mm) and not less than 48 inches (1220 mm) above the finished floor.

2. A safety cover that is listed and labeled in accordance with ASTM F 1346 is installed for the pools and spas.

3. An approved means of protection, such as self-closing doors with self-latching devices, is provided. Such means of protection shall provide a degree of protection that is not less than the protection afforded by Item 1 or 2.

~~**SECTION R328**~~
~~**SWIMMING POOL, SPA, AND HOT TUB BARRIERS**~~

~~**R328.1 General.** The provisions of this section shall apply to the design of barriers for restricting entry into areas having pools and spas. Where spas or hot tubs are equipped with a lockable safety cover complying with ASTM F1346 and swimming pools are equipped with a powered safety cover that complies with ASTM F1346,~~

the areas where those spas, hot tubs or pools are located shall not be required to comply with Sections R328.2 through R328.7.

R328.1.1 Construction fencing required. The construction sites for in-ground swimming pools and spas shall be provided with construction fencing to surround the site from the time that any excavation occurs up to the time that the permanent barrier is completed. The fencing shall be not less than 4 feet (1219 mm) in height.

R328.2 Outdoor swimming pools and spas. Outdoor pools and spas and indoor swimming pools shall be surrounded by a barrier that complies with Sections R328.2.1 through R328.7.

R328.2.1 Barrier height and clearances. Barrier heights and clearances shall be in accordance with all of the following:

1. The top of the barrier shall be not less than 48 inches (1219 mm) above *grade* where measured on the side of the barrier that faces away from the pool or spa. Such height shall exist around the entire perimeter of the barrier and for a distance of 3 feet (914 mm) measured horizontally from the outside of the required barrier.
2. The vertical clearance between *grade* and the bottom of the barrier shall not exceed 2 inches (51 mm) for *grade* surfaces that are not solid, such as grass or gravel, where measured on the side of the barrier that faces away from the pool or spa.
3. The vertical clearance between a surface below the barrier to a solid surface, such as concrete, and the bottom of the required barrier shall not exceed 4 inches (102 mm) where measured on the side of the required barrier that faces away from the pool or spa.
4. Where the top of the pool or spa *structure* is above *grade*, the barrier shall be installed on *grade* or shall be mounted on top of the pool or spa *structure*. Where the barrier is mounted on the top of the pool or spa, the vertical clearance between the top of the pool or spa and the bottom of the barrier shall not exceed 4 inches (102 mm).

R328.2.2 Openings. Openings in the barrier shall not allow passage of a 4-inch-diameter (102 mm) sphere.

R328.2.3 Solid barrier surfaces. Solid barriers that do not have openings shall not contain indentations or protrusions that form handholds and footholds, except for normal construction tolerances and tooled masonry joints.

R328.2.4 Mesh fence as a barrier. Mesh fences, other than chain link fences in accordance with Section R328.2.7 shall be installed in accordance with the manufacturer's instructions and shall comply with the following:

1. The bottom of the mesh fence shall be not more than 1 inch (25 mm) above the deck or installed surface or *grade*.
2. The maximum vertical clearance from the bottom of the mesh fence and the solid surface shall not permit the fence to be lifted more than 4 inches (102 mm) from *grade* or decking.
3. The fence shall be designed and constructed so that it does not allow passage of a 4-inch (102mm) sphere under any mesh panel. The maximum vertical clearance from the bottom of the mesh fence and the solid surface shall not be more than 4 inches (102 mm) from *grade* or decking.
4. An attachment device shall attach each barrier section at a height not lower than 45 inches (1143 mm) above *grade*. Common attachment devices include, but are not limited to, devices that provide the security equal to or greater than that of a hook-and-eye-type latch incorporating a spring-actuated retaining lever such as a safety gate hook.
5. Where a hinged gate is used with a mesh fence, the gate shall comply with Section 305.3.

6. Patio deck sleeves such as vertical post receptacles that are placed inside the patio surface shall be of a nonconductive material.

7. Mesh fences shall not be installed on top of on-ground *residential* pools.

R327.2.4.1 Setback for mesh fences. The inside of a mesh fence shall be not closer than 20 inches (508 mm) to the nearest edge of the water of a pool or spa.

R328.2.5 Closely spaced horizontal members. Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is less than 45 inches (1143 mm), the horizontal members shall be located on the pool or spa side of the fence and shall not be scalable from the exterior side of the barrier. Spacing between vertical members shall not exceed 1¾ inches (44 mm) in width. Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1¾ inches (44 mm) in width.

R328.2.6 Widely spaced horizontal members. Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is 45 inches (1143 mm) or more, spacing between vertical members shall not exceed 4 inches (102 mm). Where there are decorative cutouts within vertical members, the interior width of the cutouts shall not exceed 1¾ inches (44 mm).

R328.2.7 Chain link dimensions. The maximum opening formed by a chain link fence shall be not more than 1¾ inches (44 mm). Where the fence is provided with slats fastened at the top and bottom which reduce the openings, such openings shall be not more than 1¾ inches (44 mm).

R328.2.8 Diagonal members. Where the barrier is composed of diagonal members, the maximum opening formed by the diagonal members shall be not more than 1¾ inches (44 mm). The angle of diagonal members shall be not greater than 45 degrees (0.79 rad) from vertical.

R328.2.9 Clear zone. Where equipment, including pool equipment such as pumps, filters and heaters, is on the same lot as a pool or spa and such equipment is located outside of the barrier protecting the pool or spa, such equipment shall be located not less than 36 inches (914 mm) from the outside of the barrier.

R328.3 Doors and gates. Doors and gates in barriers shall comply with the requirements of Sections R328.3.1 through R328.3.3 and shall be equipped to accommodate a locking device. Pedestrian access doors and gates shall open outward away from the pool or spa, shall be self-closing and shall have a self-latching device.

R328.3.1 Utility or service doors and gates. Doors and gates not intended for pedestrian use, such as utility or service doors and gates, shall remain locked when not in use.

R328.3.2 Double or multiple doors and gates. Double doors and gates or multiple doors and gates shall have not fewer than one leaf secured in place and the adjacent leaf shall be secured with a self-latching device.

R328.3.3 Latch release. For doors and gates in barriers, the door and gate latch release mechanisms shall be in accordance with the following:

1. Where door and gate latch release mechanisms are accessed from the outside of the barrier and are not of the self-locking type, such mechanism shall be located not less than 54 inches (1372 mm) above the finished floor or ground surface.

2. Where door and gate latch release mechanisms are of the self-locking type such as where the lock is operated by means of a key, an electronic opener or the entry of a combination into an integral combination lock, the lock operation control and the latch release mechanism shall be located not greater than 54 inches (1372 mm) above the finished floor or ground surface.

3. At private pools, where the only latch release mechanism of a self-latching device for a gate is located on the pool and spa side of the barrier, the release mechanism shall be located at a point that is at least 3 inches (76 mm) below the top of the gate.

R328.3.4 Barriers adjacent to latch release mechanisms. Where a latch release mechanism is located on the inside of a barrier, openings in the door, gate and barrier within 18 inches (457 mm) of the latch shall not be greater than 1/2 inch (12.7 mm) in any dimension.

R328.4 Structure wall as a barrier. Where a wall of a *dwelling* or *structure* serves as part of the barrier and where doors, gates, or windows provide direct access to the pool or spa through that wall, one of the following shall be required:

1. Operable windows having a clear opening height of less than 48 inches (1219 mm) above the indoor finished floor, doors, and gates shall have an alarm that produces an audible warning when the window, door or their screens are opened. The alarm shall be *listed* and *labeled* as a water hazard entrance alarm in accordance with UL 2017.
2. In dwellings not required to be Accessible units, Type A units or Type B units, the operable parts of the alarm deactivation switches shall be located at not less than 54 inches (1372 mm) above the finished floor.
3. In dwellings required to be Accessible units, Type A units or Type B units, the operable parts of the alarm deactivation switches shall be located not greater than 54 inches (1372 mm) and not less than 48 inches (1219 mm) above the finished floor.
4. In *structure*s other than dwellings, the operable parts of the alarm deactivation switches shall be located not greater than 54 inches (1372 mm) and not less than 48 inches (1220 mm) above the finished floor.
5. A *safety* cover that is *listed* and *labeled* in accordance with ASTM F 1346 is installed for the pools and spas.
6. An *approved* means of protection, such as self-closing doors with self-latching devices, is provided. Such means of protection shall provide a degree of protection that is not less than the protection afforded by Item 1 or 2.

R328.5 On-ground residential pool structure as a barrier. An on-ground *residential* pool wall *structure* or a barrier mounted on top of an on-ground *residential* pool wall *structure* shall serve as a barrier where all the following conditions are present:

1. Where only the pool wall serves as the barrier, the bottom of the wall is on *grade*, the top of the wall is not less than 48 inches (1219 mm) above *grade* for the entire perimeter of the pool, the wall complies with the requirements of Section R328.2 and the pool manufacturer allows the wall to serve as a barrier.
2. Where a barrier is mounted on top of the pool wall, the top of the barrier is not less than 48 inches (1219 mm) above *grade* for the entire perimeter of the pool, and the wall and the barrier on top of the wall comply with the requirements of Section R328.2.
3. Ladders or steps used as means of access to the pool are capable of being secured, locked, or removed to prevent access except where the ladder or steps are surrounded by a barrier that meets the requirements of Section R328.
4. Openings created by the securing, locking or removal of ladders and steps do not allow the passage of a 4 inch (102 mm) diameter sphere.
5. Barriers that are mounted on top of on-ground *residential* pool walls are installed in accordance with the pool manufacturer's instructions.

R328.6 Natural barriers. In the case where the pool or spa area abuts the edge of a lake or other natural body of water, public access is not permitted or allowed along the shoreline, and required barriers extend to and beyond the water's edge not less than 18 inches (457 mm), a barrier is not required between the natural body of water shoreline and the pool or spa.

~~**R328.7 Natural topography.** Natural topography that prevents direct access to the pool or spa area shall include but not be limited to mountains and natural rock formations. A natural barrier *approved* by the governing body shall be acceptable provided that the degree of protection is not less than the protection afforded by the requirements of Sections R328.2 through R328.5.~~

SECTION R329 SOLAR ENERGY SYSTEMS

Section R329.4.1 Structural requirements is amended by adding the following sentence:

See *Denver Energy Code* Section R404.6 for requirements at solar ready zones.

~~**SECTION R330**~~
~~**ENERGY STORAGE SYSTEMS**~~

~~**Section R330.4 Locations is replaced as follows:**~~

~~**R330.4 Locations.** ESS shall be installed only in the following locations:~~

~~1. Detached *garages* and detached *accessory structures* without *living space*.~~

~~2. Attached *garages* separated from the *dwelling unit living space* in accordance with Section R302.6.~~

~~3. Outdoors or on the exterior side of exterior walls located not less than 3 feet (914 mm) from doors and windows directly entering the *dwelling unit*.~~

~~4. Enclosed utility closets, *basements*, storage, or utility spaces within *dwelling units* with finished or noncombustible walls and ceilings. Walls and ceilings of unfinished wood-framed construction shall be provided with not less than 5/8-inch (15.9 mm) Type X gypsum wallboard~~

~~**Section R330.5 Energy ratings is replaced as follows:**~~

~~**R330.5 Energy ratings.** Individual ESS units shall have a maximum rating of 20 kWh. The aggregate rating of the ESS shall not exceed:~~

~~1. 40 kWh within utility closets, *basements* and storage or utility spaces.~~

~~2. 80 kWh in attached or detached *garages* and detached *accessory structures* without *living space*.~~

~~3. 80 kWh on exterior walls.~~

~~4. 80 kWh outdoors on the ground.~~

Section R333 Materials is added as follows:

SECTION R333 MATERIALS

R333.1 Low-volatile organic compound (VOC) materials. All permanently installed interior finish materials such as flooring, sealants and adhesives, composite wood resilient flooring, carpeting and pad, site-applied paints and coatings, stains and varnishes, thermal and acoustic insulation, wall coverings and wall panels, gypsum board, acoustical ceiling tiles and ceiling panels, structural wood panels, hardwood veneer plywood, particle board, oriented strand board and fiber board building products shall meet specified

volatile organic compound (VOC) emissions limits in accordance with California Department of Public Health 01350; GREENGUARD Environmental Institute GGPS.001 standard for building materials and finishes; Green Seal® standards, or *approved* equivalent.

Exceptions.

1. Furniture and inherently non-emitting materials, such as stone, ceramic, powder-coated metals, plated or anodized metal, glass, concrete, clay brick, or unfinished/untreated solid wood) without binders, surface coatings, or sealants that include organic chemicals.
2. Salvaged materials that have not been refurbished or refinished within one year prior to installation.

~~CHAPTER 4~~
CHAPTER 4: FOUNDATIONS

SECTION R401 GENERAL

~~**[DOTI] Section R401.1 Application is amended by adding the following sentence to the end of the section:**~~

~~The Wastewater Management Division of the Department of Transportation and Infrastructure regulates the requirements for excavation, grading, and earthwork construction, including fills and embankments.~~

Section R401.4 Soil tests is amended by replaci~~nged~~ the first sentence as follows:

R401.4 Soil tests. Where quantifiable data created by acceptable soil science methodologies indicate *expansive soils*, *compressible soils*, shifting soils or other questionable soil characteristics are likely to be present, a soils test to determine the soil's characteristics at a particular location is required. ~~The classification of the soil at each *building* site shall be investigated and reported in accordance with Sections R401.4.1 and R401.4.2 under any of the following conditions:~~

~~1. Construction of new *dwellings*, *townhouses*, or *accessory structures* with living space.~~

~~2. *Additions* to existing *dwellings*, *townhouses*, or *accessory structures* when a *deep foundation*, other than a *helical pile* foundation, is used.~~

~~3. *Alterations* or *repairs* of existing foundation systems utilizing *deep foundations*, other than *helical pile* foundations.~~

~~4. When a permit is required for excavation, benching, or shoring.~~

~~5. When expansive soils or other questionable soils are likely to be present.~~

~~**Exception:** *Additions*, *alterations*, *repairs*, or *a change of occupancy* to *dwellings*, *townhouses*, and *accessory structures* shall be permitted to use the soil load-bearing values provided in Table R401.4.1(1) for prescriptive *shallow foundation* design in accordance with this Chapter.~~

~~**Section R401.4.1 Geotechnical evaluation is replaced as follows (Table R401.4.1(1) and Table R401.4.1(2) remain):**~~

~~**R401.4.1 Investigation.** The classification shall be based on observation and any necessary tests of the materials disclosed by borings or excavations made in appropriate locations. Additional studies may be necessary to evaluate soil strength, the effect of moisture variation on soil bearing capacity, compressibility, liquefaction, and expansiveness.~~

~~**Section R401.4.2 Compressible or shifting soil is replaced in its entirety as follows:**~~

~~**R401.4.2 Reports.** The soil classification and design bearing capacity shall be determined by a *geotechnical investigation report* and shown on the permit application drawings in accordance with Section R133.2.2~~ of the ~~*Denver Building Code*~~.

~~**Section R401.4.3 Geotechnical Investigation Report is added as follows:**~~

~~**R401.4.3 Geotechnical Investigation Report.** Where required by Section R401.4, a *geotechnical investigative report* shall include the following information and shall be provided in the permit application drawings.~~

~~1. The date of the report within two years of the date of permit application submittal or within five years of the date of permit application submittal and including a signed and sealed letter by the geotechnical engineering firm of record, confirming the applicability and recommendations in the original report.~~

~~2. A plot showing the location of the test borings and/or excavations.~~

~~3. Description and classifications of the materials encountered.~~

~~4. Elevation of the water table, if encountered.~~

~~5. Recommendations for foundation type and design criteria, including bearing capacity, provisions to mitigate the effects of expansive soils, provisions to mitigate the effects of liquefaction and soil strength, and the effects of adjacent loads.~~

~~6. Expected total and differential settlement.~~

SECTION R403 FOOTINGS

Section R403.1 General is amended by adding the exception as follows.

Exception. Footings are not required for support of exterior walls or floors of storage sheds of light-frame construction, or other *accessory structures* as approved by the *building official*, in accordance with all the following:

1. 200 square feet (18.6 m^2) or less in area.
2. 10 feet (3048 mm) or less in height, measured from *grade plane* to the top of the wall's top plate.

3. Anchored to a slab or secured with one earth anchor at each corner and a total of at least 4 anchors. Anchors shall be installed in accordance with the manufacturer's specifications.

Section R403.1.4.1 Frost protection is modified by replacing ~~item 1 and both~~ the Exceptions as follows (all other language remains unchanged):

R403.1.4.1 Frost protection.

~~1. Bearing on or below the frost line of 36 inches (914 mm).~~

Exceptions:

1. Protection of free-standing, *accessory structures* without *living space* with an area of 600 square feet (56 m^2) or less measured to the exterior face of the exterior wall, of light-frame construction, with a wall height of 10 feet (3048 mm) or less, measured from *grade plane* to the top of the wall's top plate, shall not be required. Each individual *accessory structure* shall be structurally independent and free of support or attachment to other *structures*.
2. Protection of free-standing, *accessory structures* without *living space* with an area of 400 square feet (37 m^2) or less measured to the exterior face of the exterior wall, of other than light-frame construction, with a wall height of 10 feet (3048 mm) or less, measured from *grade plane* to the top of the concrete or masonry wall, shall not be required. Each individual *accessory structure* shall be structurally independent and free of support or attachment to other *structures*.
3. Protection of additions to one-story, free-standing, *accessory structures* without *living space* where the addition does not have *living space* and the existing structure does not have frost protection.

~~CHAPTER 7~~
CHAPTER 7: WALL COVERING

~~**SECTION R702**~~
~~**INTERIOR COVERING**~~

~~**Section R702.7 Vapor retarders is replaced as follows:**~~

~~**R702.7 Vapor retarders** Vapor retarder materials shall be classified in accordance with Table R702.7(1). A vapor retarder shall be provided on the interior side of frame walls of the class indicated in Table R702.7(2). An *approved* design using accepted engineering practice for hygrothermal analysis shall be permitted as an alternative. The climate zone shall be determined in accordance with *Denver Energy Code* Section R301.1.~~

~~**Exceptions:**~~

~~1. *Basement walls.*~~

~~2. Below-grade portion of any wall.~~

3. Construction where accumulation, condensation or freezing of moisture will not damage the materials.

4. A vapor retarder shall not be required in climate zones 1, 2 and 3

Table R702.7(2) Vapor retarder options is replaced as follows:

TABLE R702.7(2)
VAPOR RETARDER OPTIONS

CLIMATE ZONE	VAPOR RETARDER CLASS		
	CLASS I[a]	CLASS II[a]	CLASS III
5b	Permitted[b]	Permitted[c]	Permitted

a. Class I and II vapor retarders with vapor permeance greater than 1 perm when measured by ASTM E96 water method (Procedure B) shall be allowed on the interior side of any frame wall in all climate zones.

b. Use of a Class I interior vapor retarder in frame walls with a Class I vapor retarder on the exterior side shall require an approved design.

c. Where a Class II vapor retarder is used in combination with foam plastic insulating sheathing installed as continuous insulation on the exterior side of frame walls, the continuous insulation shall comply with Table R702.7(5) and the Class II vapor retarder shall have a vapor permeance greater than 1 perm when measured by ASTM E96 water method (Procedure B).

Table R702.7(3) Class III vapor retarders is deleted in its entirety.

Table R702.7(4) Continuous insulation with class I or II Responsive vapor retarder is deleted in its entirety.

Section R702.7.1 Spray foam plastic insulation for moisture control with Class II and III vapor retarders is replaced as follows.

R702.7.1 Spray foam plastic insulation for moisture control with Class II and III vapor retarders. Spray foam with a maximum permeance of 1.5 perms at the installed thickness applied to the interior side of wood structural panels, fiberboard, insulating sheathing or gypsum shall be deemed to meet the Class II or Class III continuous insulation moisture control requirement in accordance with one of the following conditions:

1. The spray foam R-value is equal to or greater than the specified continuous insulation R-value.

2. The combined R-value of the spray foam and continuous insulation is equal to or greater than the specified continuous insulation R-value.

SECTION R703 EXTERIOR WALL COVERING

Section R703.1.3 Clearance above roof covering is added as follows:

R703.1.3 Clearances above roof covering. Where manufacturer's installation instructions do not provide clearances to roof coverings, the following clearances between wall covering and roof covering shall apply:

1. Minimum of 8 inches (203 mm) above roof coverings installed on roof slopes less than 2 units vertical in 12 units horizontal (17-percent slope).

2. Minimum of 2 inches (51 mm) above roof coverings installed on roof slopes 2 units vertical in 12 units horizontal or greater (17-percent slope).

~~CHAPTER 9~~
CHAPTER 9: ROOF ASSEMBLIES

SECTION R903 WEATHER PROTECTION

~~**Section R903.2.3 Flashing for single-ply roof systems is added as follows:**~~

~~**R903.2.3 Flashing for single-ply roof systems.** All flashing installations for single-ply roofing systems shall be installed per manufacturer's latest recommendations and details for the system.~~

~~**Section R903.2.4 Flashing for interior roof drains is added as follows:**~~

~~**R903.2.4 Flashing for interior roof drains.** Flashing for interior roof drains shall be one of the following:~~

~~1. A minimum of 2 x 2 feet (610 x 610 mm), 4-pound lead sheet or lead-copper-coated sheet, set on completed felts in flashing cement. The metal shall be turned a minimum of ½ inch (12.7 mm) into a drain sump and plied with two plies of Type 4 felt or modified bitumen membrane of sufficient dimension to extend a minimum of 6 inches (152 mm) past metal sheet.~~

~~2. A 2-component drain system. The membrane flashing shall be polyvinyl chloride sheet measuring 22 inches in length and factory-attached to the underside of the strainer flange. The membrane flashing shall be applied on top of the completed felt, shall extend a minimum of 6 inches (152 mm) from the outside diameter of the drain throat, shall be set into hot asphalt or *approved* sealants and plied in with two plies of Type 4 felt.~~

~~Drain details for single-ply systems shall be installed in accordance with the manufacturers' specifications.~~

~~**Section R903.2.5 Vertical projections is added as follows:**~~

~~**R903.2.5 Vertical projections.** All projections through the roof surface shall be properly flashed to prevent moisture entry.~~

~~1. Pipe penetrations shall be completed with a standard roof jack or manufacturer-recommended detail.~~

~~2. Pitch pans may be used to flash multiple penetrations with prior approval. Pourable sealer or sheet metal caps shall be used to seal pitch pans.~~

Section R903.2.6 Penetration of roof membrane is added as follows:

R903.2.6 Penetration of roof membrane. Exterior wall finishes such as, but not limited to**,** stucco and siding on walls extending above the roof shall terminate a minimum of 8 inches (203 mm) above the

finished roofing of a flat roof and 2 inches (50.8 mm) above shingle, shake and tile roofs. Fasteners for exterior wall finished shall not penetrate the manufacturer's minimum required vertical upturn leg of the roofing membrane.

Section R903.4.2 Equipment on roof is added as follows:

R903.4.2 Equipment on roof. Equipment placed over roofing shall be supported by 8-inch (203-mm) legs or curbs bearing on the decking, which shall not inhibit the flow of water from the roof.

~~**SECTION R905**~~
~~**REQUIREMENTS FOR ROOF COVERINGS**~~

~~**Section R905.5.2 Slope is replaced in its entirety as follows:**~~

~~**R905.5.2 Slope.** Mineral surfaced rolled roofing (90 lbs.) shall not be applied on roof slopes below 2 units vertical in 12 units horizontal.~~

~~**Exception:** Detached *garages*, patios and carports open on three sides may have a slope of 1 unit vertical in 12 units horizontal (8 percent slope).~~

~~**Section R905.9.5 Flashing – new built-up roof covering is added as follows:**~~

~~**R905.9.5 Flashing – new built-up roof covering.** Flashing shall be installed on all vertical walls and curbs in accordance with the manufacturers' specifications and:~~

~~1. All old wall flashing shall be removed prior to installation of new flashing.~~
~~2. All flashings shall extend at least 8 inches (203 mm), but not more than 12 inches (305 mm), up all vertical surfaces and at least 4 inches (102 mm) from the base of the cant.~~
~~3. The top edges of the flashing shall be fastened at 3-inch (76-mm) intervals and sealed with plastic cement.~~
~~4. End laps shall be at least 3 inches (6 mm) long and covered with 4 inches (102 mm) of mesh embedded in plastic cement.~~
~~5. All vertical walls and projections shall be counter flashed with a 2-piece metal system installed watertight.~~

~~Nailing strips shall be provided on vertical walls, drip edge and curbs which will not accept conventional nailing.~~

~~CHAPTER 10~~
CHAPTER 10: CHIMNEYS AND FIREPLACES

SECTION R1002 MASONRY HEATERS

Section R1002.1 Definition is amended by adding the following sentence to the end of the definition:

Masonry heaters shall be approved by the Colorado Department of Public Health and Environment and listed on their currently published list of Colorado Approved Masonry Heaters.

~~CHAPTER 11~~
CHAPTER 11: ENERGY EFFICIENCY

Chapter 11 Energy Efficiency is replaced in its entirety by the Residential Provisions of the ~~2025~~ 2022 *Denver Energy Code*.

~~CHAPTER 14~~
CHAPTER 14: HEATING AND COOLING EQUIPMENT AND APPLIANCES

SECTION M1410 VENTED ROOM HEATERS

Section M1410.1 General is amended by adding the following sentence to the end of the section:

Pellet fuel-burning appliances and wood burning *fireplace stoves* and room heaters shall be listed by an *approved* testing agency and shall meet 2020 "~~"~~Step 2~~"~~" emissions limits standard in the EPA Certified Wood Heater Database published by the Environmental Protection Agency and approved by Colorado Department of Public Health & Environment. Wood-burning appliances ~~is~~ not on the EPA *approved* list cannot be installed unless converted to a gas log fireplace in accordance with the requirements of Section 602 of the *Denver Fuel Gas Code.*

SECTION M1414 FIREPLACE STOVES

Section M1414.1 General is amended by adding the following sentence to the end of the section:

Pellet fuel-burning appliances and wood burning *fireplace stoves* and room heaters shall be listed by an *approved* testing agency and shall meet 2020 "~~"~~Step 2~~"~~" emissions limits standard in the EPA Certified Wood Heater Database published by the Environmental Protection Agency and approved by Colorado Department of Public Health & Environment. Wood-burning appliances ~~is~~ not on the EPA *approved* list cannot be installed unless converted to a gas log fireplace in accordance with the requirements of Section 602 of the *Denver Fuel Gas Code.*

~~CHAPTER 24~~
CHAPTER 24: FUEL GAS

SECTION G2414 PIPING MATERIALS

Section G2414.4.3 Copper or copper-alloy tubing is replaced in its entirety as follows:

G2414.4.3 (403.4.3) Copper or copper-alloy tubing. Copper or copper-alloy tubing is not permitted.

SECTION G2415 PIPING SYSTEM INSTALLATION

Section G2415.3 (404.3) Prohibited locations is amended by adding the following sentence to the end of the section:

Gas meters shall not be located in or under any *building* unless the meter is located in its own dedicated, adequately ventilated vault.

SECTION G2417 INSPECTION, TESTING AND PURGING

Section G2417.4.1 Test pressure is replaced as follows:

G2417.4.1 (406.4.1) Test pressure. The test pressure to be used shall be no less than 1½ times the proposed maximum working pressure, but not less than 10 psig (69 kPa gauge), irrespective of design pressure. For welded piping and for piping carrying gas at pressures exceeding 14 inches water column (3.5 kPa gauge) pressure, the test pressure shall be no less than 60 psig (414 kPa gauge). Where the test pressure exceeds 125 psig (862 kPa gauge), the test pressure shall not exceed a value that produces a hoop stress in the piping greater than 50 percent of the specified minimum yield strength of the pipe.

SECTION G2437 FLOOR FURNACES

Sections G2437.1 (609.1) General through G2437.6 (609.6) Upper-floor installations are deleted in their entirety and replaced as follows:

G2437.1 (609.1) General. Floor furnaces are prohibited.

SECTION G2445 UNVENTED ROOM HEATERS

Sections G2445.1 General through G2445.7.1 Ventless firebox enclosures are deleted in their entirety and replaced as follows:

G2445.1 General. Unvented room heaters, and open-flame or radiant heaters shall not be installed or operated within *dwelling units*.

~~CHAPTER 25~~

CHAPTER 25: PLUMBING ADMINISTRATION

SECTION P2503 INSPECTION AND TESTS

Section P2503.5.1 Rough plumbing is modified as follows (Items 1, 2, and 3 remain unchanged):

P2503.5.1 Rough Plumbing. DWV systems shall be tested on completion of the rough piping installation by water, by air, or by vacuum of air, without evidence of leakage. The test shall be applied to the drainage system in its entirety or in sections after rough-in piping has been installed, as follows:

~~CHAPTER 26~~

CHAPTER 26: GENERAL PLUMBING REQUIREMENTS

~~SECTION P2602~~

~~INDIVIDUAL WATER SUPPLY AND SEWAGE DISPOSAL~~

~~Section P2602.3 Existing buildings is added as follows:~~

~~**P2602.3 Existing buildings.** Plumbing in existing *buildings* may have their use continued if such use was legally permitted at the time of enforcement of the plumbing code in effect at the time of construction and such use is not detrimental to the health and safety of the occupants for the current use or occupancy.~~

~~Any change in the use or occupancy of any existing *building* or *structure* shall comply with the provisions of this code~~this code~~.~~

SECTION P2603 STRUCTURAL AND PIPE PROTECTION

Section P2603.5.1 Sewer depth is replaced in its entirety as follows:

P2603.5.1 Sewer depth. *Building* sewers that connect to a private sewage disposal system shall be installed at a depth in accordance with DOTI Wastewater Management Standards and Details.

~~CHAPTER 27~~

CHAPTER 27: PLUMBING FIXTURES

SECTION P2716 FOOD-WASTE DISPOSER

Section P2716.1 Food-waste disposer waste outlets is replaced in its entirety as follows:

P2716.1 Food-waste disposer waste outlets. Food waste disposers with a waste outlet of 1 ½ inches (38 mm) in diameter shall be connected to a drain of not less than 2 inches (51 mm) in diameter.

~~CHAPTER 29~~
CHAPTER 29: WATER SUPPLY AND DISTRIBUTION

SECTION P2904 DWELLING UNIT FIRE SPRINKLER SYSTEMS

Section P2904.1 General is replaced in its entirety as follows:

P2904.1 General. *Automatic sprinkler systems* shall be designed and installed in accordance with Section R309.

All subsections of Section P2904 are deleted in entirety.

SECTION P2906 MATERIALS, JOINTS AND CONNECTIONS

Section 2906.4 Water service pipe is replaced in its entirety as follows, though the subsection remains:

2906.4 Water service pipe. Water service pipe shall conform to NSF 61 and shall conform to Denver Water Engineering Standards. Water service pipe or tubing, installed underground and outside of the *structure*, shall have a working pressure rating of not less than 160 pounds per square inch at 73°F (1103 kPa at 23°C). Where the water pressure exceeds 160 pounds per square inch (1103 kPa), piping material shall have a rated working pressure equal to or greater than the highest available pressure. Water service piping materials not third-party certified for water distribution shall terminate at or before the full open valve located at the entrance to the *structure*. Ductile iron water service piping shall be cement mortar lined in accordance with AWWA C104/A21.4.

~~CHAPTER 30~~
CHAPTER 30: SANITARY DRAINAGE

SECTION P3003 JOINTS AND CONNECTIONS

Section P3003.9.2 Solvent cementing is modified – by deleting "or other *approved* primer" and the exception~~s~~:

SECTION P3005 DRAINAGE SYSTEM

Section P3005.2.4 Changes of direction is amended as follows:

P3005.2.4 Changes of direction. Where a horizontal drainage pipe, or a *building* drain has a change of horizontal direction greater than 135 degrees (2.36 rad), a cleanout shall be installed at the change of direction. Where more than one change of direction occurs in a run of piping, only one cleanout shall be required for each 40 feet (12 192 mm) of developed length of piping.

~~CHAPTER 31~~
CHAPTER 31: VENTS

SECTION P3103 VENT TERMINALS

Section P3103.1.1 Roof extension is replaced in its entirety as follows:

P3103.1.1 Roof extension. Open vent pipes that extend through a roof that do not meet the conditions of Section P3103.1.2 or P3103.1.3 shall terminate not less than 12 inches (305 mm) above the roof.

SECTION P3111 COMBINATION WASTE AND VENT SYSTEMS

Section P3111.1 Type of fixture is amended by adding the following sentence to the end of the section:

A combination waste and vent system shall not receive the discharge of a food waste disposer.

~~**SECTION P3114**~~
~~**AIR ADMITTANCE VALVES**~~

~~**Section P3114.8 Prohibited installations is replaced in its entirety as follows:**~~

~~**P3114.8 Prohibited installations.** Air admittance valves shall not be used to vent sumps or tanks. Air admittance valves shall not be installed on outdoor vent *terminals* for the sole purpose of reducing clearances to gravity or mechanical air intakes.~~

CHAPTER 34-43

Chapters 34-43 are replaced in their entirety with:

All electrical work shall be in accordance with the ~~NFPA 70~~ Electrical Code as adopted by the State of Colorado~~Electrical Code as adopted by the State of Colorado~~.

~~CHAPTER 36~~
~~SERVICES~~

~~SECTION E3601~~
~~GENERAL SERVICES~~

~~Section E3601.2 Number of services is replaced in its entirety as follows:~~

> **~~E3601.2 Number of services.~~** ~~*One- and two-family dwellings* and any associated *structures* shall be supplied by one set of service entrance conductors, as defined in the currently adopted NFPA 70NEC, whether overhead or underground.~~

RESIDENTIAL CODE APPENDICES
STATUS OF APPENDICES ON ADOPTION

Appendices are Adopted, Adopted as Amended, or Not Adopted as part of ~~this Code~~this code as noted in Appendix Adoption Table 1. Provisions in Appendices that are adopted or adopted as amended carry the full weight and mandatory enforceability of the Code.

RESIDENTIAL CODE APPENDIX ADOPTION TABLE 1

APPENDIX	TITLE – SUBJECT	STATUS
AA	Board of Appeals	Not Adopted
AB	Permit Fees	Not Adopted
AC	Reserved	Not Adopted
BA	Manufactured Housing Used as Dwellings	~~Adopted as Amended~~Not Adopted
BB	Tiny Houses	Adopted
BC	Accessory Dwelling Unit (ADU)	Not Adopted
BD	Home Day Care Occupancy	Adopted as Amended
BE	Radon Control Methods	Adopted as Amended
BF	Patio Covers	Adopted
BG	Sound Transmission	Adopted
BH	Automatic Vehicular Gates	Not Adopted
BI	Light Straw-Clay Construction	Adopted
BJ	Strawbale Construction	Adopted
BK	Cob Construction (Monolithic Adobe)	Not Adopted
BL	Hemp-Lime (Hempcrete) Construction	Not Adopted
BM	3D-Printed Building Construction	Not Adopted
BN	Extended Plate Wall Construction	~~Not~~ Adopted as Am~~m~~ended
BO	Existing Buildings and Structures	Adopted as Amended
CA	Sizing and Capacities of Gas Piping	Not Adopted
CB	Sizing of Venting Systems Serving Appliances Equipped with Draft Hoods, Category 1 Appliances and Appliances Listed for use with Type B Vents	Not Adopted
CC	Recommended Procedure for Safety Inspection of an Existing Appliance Installation	Not Adopted
CD	Piping Standards for Various Applications	Not Adopted
CE	Venting Methods	Not Adopted
CF	Sizing of Water Piping System	Not Adopted
CG	Nonsewered Sanitation Systems	Not Adopted
CH	Private Sewage Disposal	Not Adopted

~~APPENDIX BA~~
~~MANUFACTURED HOUSING USED AS DWELLINGS~~

~~**Appendix BA Manufactured housing used as dwellings is replaced as follows:**~~

~~The provisions of Section 3115~~6 ~~of the *Denver Commercial Building Code* shall apply to the construction, *alteration*, movement, enlargement, replacement, *repair*, equipment, use, and occupancy of *manufactured homes*.~~

~~APPENDIX BD~~
APPENDIX BD: HOME DAY CARE OCCUPANCY

SECTION BD101 GENERAL

Appendix Section BD101.1 General is amended by adding the following sentence to the end of the section:

Floor levels two or more stories above the ground-level story shall not be used for child care.

SECTION BD103 MEANS OF EGRESS

Section BD103.1.4 Child care exits is added as follows:

BD103.1.4 Child care exits. A floor level used for child care that is no more than four feet measured vertically from adjacent ground level, may be considered a complying ground-level *story*.

All rooms used for child care shall have access to two exits. The primary exit access shall be a door, stairway, or ramp providing a means of unobstructed travel to the outside of the *dwelling unit* at finished ground level. The secondary exit access shall be one of the following:

1. A door, *stairway*, or ramp providing a means of unobstructed travel to the outside of the *dwelling unit* at finished ground level that is independent of and remote from the primary exit access.
2. An emergency escape and rescue opening conforming to the provisions of Section R319.2.

There shall be no dead-end corridors exceeding 20 feet (6096 mm) in length.

In large *Family Child Care Homes* (FCCH), when the first level above the ground-level *story* is used for child care, the primary exit access shall be one of the following:

1. A door leading directly to the outside with access to finish ground level,
2. A door leading directly to an outside stairway going to finished ground level or,
3. An interior stairway leading directly to the outside with access to finished ground level. The interior stairway shall be separated from other stories by not less than ½-inch gypsum board or equivalent.

The under-stair surface, including any intermediate landings shall be protected with ½-inch gypsum board or equivalent.

Section BD103.5 Large Family Child Care Homes protection of vertical openings is added as follows.

BD103.5 Large Family Child Care Home protection of vertical openings. For large *Family Child Care Homes*, a door equipped with a self-closing or automatic-closing device shall be provided between the first story and the *basement* at the top of all stairways. Where the story above the level of exit discharge is used for sleeping purposes, there shall be a door equipped with a self-closing or automatic-closing device at the top or the bottom of each *stairway*. In all locations these doors shall be a solid wood door not less than 1-3/8 inches (35 mm) in thickness, a solid or honeycomb-core steel door not less than 1-3/8 inches (35 mm) thick, or a 20-minute labeled fire door.

~~APPENDIX BE~~
APPENDIX BE: RADON CONTROL METHODS

Appendix BE is adopted with the following amendments.

Section BE101.1 General is replaced as follows:

BE101.1 General. Compliance with the provisions of Appendix BE shall be required in all the following types of construction:

1. Construction of *one- and two-family dwellings* and *townhouses*, and accessory structures with living space. ~~constructed under this code~~this code~~.~~
2. *Additions* to *dwelling units* with existing radon control systems that include *living space*, storage space, or utility space constructed over previously exposed earth.
3. ~~New *b*~~*B*asement *additions* converted from existing *crawl spaces*.
4. ~~*Additions* to *dwelling units* without existing radon control systems that include *living space*, storage space, or utility space constructed over previously exposed earth with a foundation footprint greater than 300 square feet.~~
5. ~~*Alterations* to existing *dwelling units* or *accessory structures* that convert nonliving spaces with a foundation footprint greater than 300 square feet directly over the earth into *living space* or storage or utility spaces, such as a change of use of a *garage* to a *living space*.~~

Exceptions:

1. ~~*Alterations* to existing *dwelling units* or *accessory structures* where existing floor assemblies are to remain unaltered.~~ Accessory structures with living space with a foundation footprint less than 200 square feet.
2. Unconditioned attached and detached *garages.*

Section BE103.2 Subfloor preparation is amended by adding item #4 as follows:

4. A soil gas collection mat system shall be installed on top of the sub-grade and beneath a concrete floor slab. The mat shall be installed in a continuous rectilinear loop having a minimum dimension of 1-inch in height by 12-inches (305-mm) in width and a nominal cross-sectional area for airflow of no less than 12 square inches (0.093 m^2). The mat shall be constructed of a matrix that allows for the movement of air through it and shall be capable of supporting the concrete placed upon it. The matrix shall be covered by approved filter material on all four sides to prevent dirt or concrete from entering the matrix. All breaches and joints in the filter material shall be repaired prior to the placement of the slab. The loop shall be located within 18 inches (458 mm) of the inside of the exterior perimeter foundation walls. Flat mat materials shall not be spaced further than 20 feet (6096 mm) between runs and shall communicate with the bottom of the concrete slab. Where foundation walls, grade beams, or similar separate the under-slab areas, the mat shall communicate through the separations, into each separate area and form a continuous loop around the exterior perimeter foundation walls. Both ends of the loop shall enter a "T" or equivalent connection from either side to reduce restrictions at the point of connection to the riser.

Section BE103.5.3 Vent pipe is amended by adding an exception as follows:

Exception: For manufactured houses, the vent pipe is not required to extend vertically through *building* floors and the roof where an active wall vent in accordance with Section BE103.13 is installed.

Section BE103.6.1 Vent pipe is amended by adding an exception as follows:

Exception: For new basement additions and manufactured houses, the vent pipe is not required to extend vertically through *building* floors and the roof where an active wall vent in accordance with Section BE103.13 is installed.

Section BE103.6.2 Multiple vent pipes is amended by adding an exception as follows:

Exception: A separate vertical vent pipe is not required in a separate sub-slab area where a minimum of 2 penetrations are provided through the footing or barrier adjacent to a vented sub-slab area. Each penetration shall be a minimum of 12 sq in (0.093 m^2) for each 10 feet (3048 mm) or less of footing or barrier length.

Section BE103.8 Vent pipe accessibility is deleted in its entirety and amended to read as follows:

BE103.8 Vent pipe accessibility. Access to radon vent pipes and a space for future fan installation shall be provided in accessible attic or roof top areas outside the habitable space. Access for future fans shall not be located in *crawl spaces*, *basements*, below *grade*, or below habitable spaces. Fans located in unvented attic space shall be isolated in an enclosure that does not communicate with the rest of the attic space. The fan enclosure shall be sealed against air leakage and shall be vented to the outdoors.

Section BE103.13 Exterior wall vent is added as follows:

Section BE103.13 Exterior wall vent. The vent pipe for new *basement additions* and manufactured houses may be installed on the outside of the *building* when in accordance with all the following:

1. The vent pipe shall be an active system with fan locations compliant with section BE103.8.
2. The vent pipe shall extend vertically past the roof eave and terminate not less than 12 inches (305 mm) above the surface of the roof covering.
3. The vent pipe termination shall be no less than 3 feet (914 mm) above any forced-air inlet located within 10 feet (3048 mm), not less than 2 feet (610 mm) above any window or other opening located within 10 feet (3048 mm), and not less than 10 feet (3048 mm) from any window or other opening in

adjoining or adjacent *buildings*.

4. The vent pipe shall not terminate over public walkways or over an area where condensate or vapor could create a nuisance or hazard or could be detrimental to the operation of regulators, relief valves or other equipment.
5. Piping joints and connections to fans and other components that are subject to fan- induced positive pressure shall be tested for leakage while the system is operating normally. Leak tests shall be conducted with a liquid bubble solution or other *approved* method.

~~APPENDIX BN~~
APPENDIX BN: EXTENDED PLATE WALL CONSTRUCTION

Appendix BN is adopted with the following amendments.

Section BN101.1 General is amended by replacing item 3 as follows:

3. Limited to ultimate design wind speeds not more than 115 mph (185 kph) as determined from Table R301.2.

~~APPENDIX BO~~
APPENDIX BO: EXISTING BUILDINGS AND STRUCTURES

Appendix BO is deleted and replaced in its entirety as follows:

SECTION BO101 PURPOSE AND INTENT

BO101.1 Scope. The provisions of this appendix shall apply to the *repair*, *alteration*, *addition*, *change of occupancy*, and *relocation* of existing *buildings* regulated by ~~this code~~this code.

Exceptions. Work performed in accordance with the *Denver Existing Building Code* is deemed to comply with the provisions of this appendix.

BO101.2 Purpose. The purpose of these provisions is to encourage the continued use or reuse of legally existing *buildings* and *structures*. These provisions are intended to permit work in existing *buildings* that is consistent with the purpose of ~~this code~~this code. Compliance with these provisions is deemed to meet the requirements of ~~this code~~this code.

SECTION BO102 COMPLIANCE

BO102.1 Classification of Work. Work in existing *buildings* shall be classified into categories of work: *repair*, *alteration*, *addition*, *change of occupancy*, and *relocation*. Historic *buildings* shall comply with the requirements of BO110.

BO102.1.1 Repairs. *Repairs* shall comply with the requirements of BO104 and BO105.

BO102.1.2 Alterations. *Alterations* shall comply with the requirements of BO104 and BO106.

BO102.1.3 Additions. *Additions* shall comply with the requirements of BO104 and BO107.

BO102.1.4 Change of Occupancy. A *change of occupancy* shall comply with the requirements of BO104 and BO108.

BO102.1.5 Relocation. Relocated *buildings* shall comply with the requirements of BO109.

BO102.2 Multiple categories of work. Work of more than one category shall be part of a single work project. Related work permitted within a 12-month period shall be considered to be a single work project. Where a project includes one category of work in one *building* area and another category of work in a separate and unrelated area of the *building*, each project area shall comply with the requirements of the respective category of work. Where a project with more than one category of work is performed in the same area or in related areas of the *building*, the project shall comply with the requirements of the more stringent category of work.

BO102.3 Work area. The work area shall be identified on the construction documents.

BO102.4 Equivalent alternatives. These provisions are not intended to prevent the use of any alternative material, alternative design or alternative method of construction not specifically prescribed herein, provided that any alternative has been deemed to be equivalent and its use authorized by the *building official* as allowed through processes found in Article 1, Section 1 of the *Denver Building Code*.

BO102.5 More restrictive requirements. *Buildings* or systems in compliance with the requirements of ~~this code~~this code for new construction do not need to comply with any more restrictive requirement of these provisions.

BO102.6 Features exceeding code requirements. Elements, components, and systems of existing *buildings* with features regulated by ~~this code~~this code that exceed the requirements of ~~this code~~this code for new construction that are not otherwise required as part of *approved* alternative compliance pathway in accordance with DBC Section 104 may be modified as long as they remain in compliance with the applicable requirements for new construction.

SECTION BO103 DEFINITIONS

BO103.1 Scope. For purposes of this appendix, terms used are defined as follows:

~~**ALTERATION.** The change, strengthening or addition of load-bearing elements; the refinishing, replacement, bracing, strengthening, upgrading or extensive *repair* of existing materials, elements, components, equipment, or fixtures; the reconfiguration of any space; the addition or elimination of any door or window; the reconfiguration or extension of any system; or the installation of any additional equipment.~~

CATEGORIES OF WORK. The nature and extent of construction work undertaken in an existing *building*. The categories of work covered in this appendix are *repair*, *alteration*, addition, change of occupancy, and relocation.

CHANGE OF OCCUPANCY. Any of the following shall be considered a change of occupancy where ~~this code~~this code requires a greater degree of safety, accessibility, structural strength, fire protection, means of egress, ventilation or sanitation than is existing in the current *building* or *structure*:

1. Any change in the occupancy classification of a *building* or *structure*.
2. Any change in the purpose of, or a change in the level of activity within, a *building* or *structure*.
3. A *change of use*.

CHANGE OF USE. A change in the use of a *building* or a portion of a *building*, within the same group classification, for which there is a change in application of the code requirements.

~~**DANGEROUS.** Any *building*, *structure*, or portion thereof that meets any of the conditions described below shall be deemed dangerous:~~

~~1. The *building* or *structure* has collapsed, has partially collapsed, has moved off its foundation or lacks the necessary support of the ground.~~

~~2. There exists a significant risk of collapse, detachment or dislodgement of any portion, member, appurtenance or ornamentation of the *building* or *structure* under permanent, routine, or frequent loads; under actual loads already in effect; or under snow, wind, rain, flood, earthquake, or other environmental loads when such loads are imminent.~~

~~**EQUIPMENT OR FIXTURE.** Any plumbing, heating, electrical, ventilating, air-conditioning, refrigerating and fire protection equipment; and elevators, dumb waiters, boilers, pressure vessels, and other mechanical facilities or installations that are related to *building* services.~~

~~**HISTORIC BUILDING.** Any *building* or *structure* that is one or more of the following:~~

~~1. Listed, or certified as eligible for listing, by the State Historic Preservation Officer or the Keeper of the National Register of Historic Places, in the National Register of Historic Places.~~

~~2. Designated as individually historic under an applicable state or local law.~~

~~3. Certified as a contributing resource within a National Register listed, or a state listed, or locally designated historic district.~~

HISTORIC PRESERVATION PROFESSIONAL. An individual meeting the Professional Qualification Standards for Architectural History, Architecture, or Historic Architecture, as outlined by the National Park Service in Code of Federal Regulations, 36 CFR Part 61.

MATERIALS AND METHODS REQUIREMENTS. Those requirements in ~~this code~~this code that specify material standards; details of installation and connection; joints; penetrations; and continuity of any element, component, or system in the *building*. The required quantity, fire resistance, flame spread, acoustic or thermal performance, or other performance attribute is specifically excluded from materials and methods requirements.

RELOCATION. The movement of an existing *building* from one lot to another, the movement of an existing *building* within the same lot, or any change to the boundaries of the lot for an existing *building* with or without movement of the existing *building*.

REPAIR. The reconstruction, replacement, or renewal of any part of an existing *building* for the purpose of its maintenance or to correct damage. *Repairs* include the patching, restoration or minor replacement of materials, elements, components, equipment, or fixtures for the purposes of maintaining those materials, elements, components, equipment, or fixtures in good or sound condition. *Repairs* exclude complete or substantial replacement of that portion of the existing *building* and new work.

SUBSTANTIAL DAMAGE. To determine compliance with the flood provisions of this codethis code, damage of any origin sustained by a *structure* whereby the cost of restoring the *structure* to its before-damaged condition would equal or exceed 50 percent of the market value of the *structure* before the damage occurred.

SUBSTANTIAL IMPROVEMENT. To determine compliance with the flood provisions of this codethis code, any *repair*, *alteration*, addition or improvement of a *building* or *structure*, the cost of which equals or exceeds 50 percent of the market value of the *structure* before the improvement or *repair* is started. If the *structure* has sustained substantial damage, any *repairs* are considered substantial improvement regardless of the actual *repair* work performed. The term does not, however, include either of the following:

1. Any project for improvement of a *building* required to correct existing health, sanitary or safety code violations identified by the *building official* and that is the minimum necessary to ensure safe living conditions.
2. Any *alteration* of a historic *structure*, provided that the *alteration* will not preclude the *structure's* continued designation as a historic *structure*.

SUBSTANTIAL STRUCTURAL ALTERATION. An *alteration* in which the gravity load-carrying structural elements altered within a 5-year period support more than 30 percent of the total floor and roof area of the *building* or *structure*. The areas to be counted toward the 30 percent shall include mezzanines, penthouses, and in-filled courts and shafts tributary to the altered structural elements.

SUBSTANTIAL STRUCTURAL DAMAGE. A condition where any of the following apply:

1. The vertical elements of the lateral force-resisting system have suffered damage such that the lateral load-carrying capacity of any story in any horizontal direction has been reduced by more than 33 percent from its pre-damage condition.
2. The capacity of any vertical component carrying gravity load, or any group of such components, that has a tributary area more than 30 percent of the total area of the *structure*'s floor(s) and roof(s) has been reduced more than 20 percent from its pre-damage condition, and the remaining capacity of such affected elements, with respect to all dead and live loads, is less than 75 percent of that required by this codethis code for new *buildings* of similar *structure*, purpose and location.
3. The capacity of any structural component carrying snow load, or any group of such components, that supports more than 30 percent of the roof area of similar construction has been reduced more than 20 percent from its pre-damage condition, and the remaining capacity with respect to dead, live, and snow loads is less than 75 percent of that required by this codethis code for new *buildings* of similar *structure*, purpose, and location.

UNSAFE. See Has the same meaning as the terms is used inArticle I, Denver Commercial Building Code Section 105.1.

WORK AREA. That portion or portions of a *building* consisting of any *repair*, *alteration*, addition, change of occupancy and relocation as indicated on the construction documents. Work area excludes other portions

of the *building* where incidental work entailed by the intended work must be performed, and portions of the *building* where work not initially intended by the owner is specifically required by ~~this code~~this code.

SECTION BO104 PROVISIONS APPLICABLE TO ALL CATEGORIES OF WORK

BO104.1 General. Regardless of the category of work being performed, the work shall not cause the *structure* to become unsafe or adversely affect the performance of the *building*; shall not cause an existing mechanical or plumbing system to become unsafe, hazardous, unsanitary, or overloaded; and unless expressly permitted by these provisions, the work shall not make the *building* any less compliant with ~~this code~~this code than it was before the work was undertaken.

BO104.2 Existing materials. Materials already in use in a *building* that were in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the *building official* to be unsafe.

BO104.3 New and replacement materials. Except as otherwise required or permitted by ~~this code~~this code, materials permitted by ~~this code~~this code for new construction shall be used. Like materials shall be permitted for *repairs* and *alterations*, provided that unsafe conditions are not created. Hazardous materials shall not be used where the code for new construction would not permit their use in *buildings* of similar occupancy, purpose, and location.

BO104.4 Flood hazard areas. Work performed in existing *buildings* located in a flood hazard area as established by Table R301.2 shall be subject to the provisions of Denver Commercial Building Code Section 1612.3.

BO104.5 Fire-resistance rated construction. Fire-resistance rated construction of existing *buildings* or portions thereof shall comply with this section.

BO104.5.1 Archaic materials and assemblies. The Appendix to Resource A Guidelines on Fire Ratings of Archaic Materials and Assemblies of the *Denver Existing Building Code* shall be incorporated into this appendix in its entirety. The *fire-resistance rating* of existing assemblies may be established in accordance with the tabular prescriptive requirements of the Appendix to Resource A and the requirements of this section.

BO104.5.1.1 Condition of existing assemblies. The effects of age and wear and tear shall be repaired so that the assembly is in good repair and the original thickness of all components is restored.

BO104.5.1.2 Penetrations of existing assemblies. All penetrations in the assembly shall be packed with noncombustible cementitious materials and so fixed that the packing material will not fall out when it loses its water of hydration.

Exception: Penetrations in accordance with Section R302.4.1 or Section R302.4.2

BO104.6 Smoke alarms. Existing *buildings* shall be provided with smoke alarms in accordance with Section R310.

~~**Exceptions:**~~

~~1. *Repairs.*~~

~~2. The removal and replacement or the covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same purpose.~~

3. Work involving the exterior surfaces of *buildings*, such as the replacement of roofing or siding, the addition or replacement of windows or doors, or the addition of porches or decks.

4. Installation, *alteration*, or *repairs* of plumbing or mechanical systems, other than fuel-burning appliances.

BO104.7 Carbon Monoxide Detection. Existing *buildings* shall be provided with carbon monoxide detection in accordance with Section R311.

Exceptions:

1. *Repairs.*

2. The removal and replacement or the covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same purpose.

3. Work involving the exterior surfaces of *buildings*, such as the replacement of roofing or siding, the addition or replacement of windows or doors, or the addition of porches or decks.

4. Installation, *alteration*, or *repairs* of plumbing or mechanical systems, other than fuel-burning appliances.

BO104.8 Replacement windows. Regardless of the category of work, where an existing window, including the sash and glazed portion, or safety glazing is replaced, the replacement window or safety glazing shall comply with the requirements of Sections BO104.8.1 through BO104.8.4, as applicable.

BO104.8.1 Energy efficiency. Replacement windows shall comply with the requirements of the *Denver Energy Code*.

BO104.8.2 Safety glazing. Replacement glazing in hazardous locations shall comply with the safety glazing requirements of Section R324.

BO104.8.3 Replacement windows for emergency escape and rescue openings. Where Replacement windows are required to provide for *emergency escape and rescue openings*, replacement windows shall comply with Section R319.5.be exempt from Sections R319.2 and R319.4.4 provided that the replacement window meets the following conditions:

1. The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.

2. An existing operable window shall provide a minimum net clear opening of 4 square feet (0.38m^2) with a minimum net clear opening height of 22 inches (559 mm) and a minimum net clear opening width of 20 inches (508 mm).

3. Where the replacement window is not part of a change of occupancy. Window opening control devices and fall prevention devices complying with ASTM F2090 shall be permitted for use on windows serving as required emergency escape and rescue openings.

BO104.8.3.1 Control devices. Window fall protection. Window fall protection shall be installed in accordance with Section R321.2Emergency escape and rescue openings with window opening control devices or fall prevention devices complying with ASTM F2090, after operation to release the control device allowing the window to fully open, shall not reduce the net clear opening area of the window

~~unit. Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys or tools.~~

~~**BO104.8.4 Window control devices.** Window opening control devices or fall prevention devices complying with ASTM F2090 shall be installed where an existing window is replaced and where all of the following apply to the replacement window:~~

~~1. The window is operable.~~

~~2. One of the following applies:~~

~~2.1. The window replacement includes replacement of the sash and the frame.~~

~~2.2. The window replacement includes the sash only when the existing frame remains.~~

~~3. The bottom of the clear opening of the window opening is at a height less than 24 inches (610 mm) above the finished floor.~~

~~4. The window will permit openings that will allow passage of a 4-inch diameter (102 mm) sphere where the window is in its largest opened position.~~

~~5. The vertical distance from the top of the sill of the window opening to the finished *grade* or other surface below, on the exterior of the *building*, is greater than 72 inches (1829 mm).~~

BO104.9 New structural members and connections. New structural members and connections shall comply with the detailing provisions of ~~this code~~this code for new *buildings* of similar *structure*, purpose, and location.

Exception: Where alternative design criteria are specifically *approved* through processes defined in Article 1, Section 1 of the Denver Building Code.

BO104.10 Energy Conservation. Work performed in existing *buildings* shall be in accordance with the energy conservation requirements in the *Denver Energy Code*.

BO104.11 Radon Control Methods. Work performed in existing *buildings* shall be in accordance with the radon control methods in Appendix BE of ~~this code~~this code.

BO104.12 Accessibility. Work performed in existing *buildings* shall be in accordance with the accessibility requirements in Section 306 of the *Denver Existing Building Code* or as outlined in ~~this code~~this code for new construction.

BO104.13 Electrical. Work performed in existing buildings shall be in accordance with ~~NFPA 70~~the Electrical Code as adopted by the State of Colorado ~~Electrical Code as adopted by the State of Colorado~~.

SECTION BO105 REPAIRS

BO105.1 Flood Hazard Areas. In flood hazard areas, *repairs* that constitute *substantial improvement* shall require that the *building* comply with Section R306.

BO105.2 Fire Protection. *Repairs* shall be done in a manner that maintains the level of fire protection provided.

BO105.3 Means of Egress. *Repairs* shall be done in a manner that maintains the level of protection provided for the means of egress.

BO105.4 Structural. Structural damage~~*repairs*~~ shall be repaired in compliance~~accordance~~ with Sections BO105.4.1 through BO105.4.6.

BO105.4.1 Minimum Design Loads. The minimum design loads for the *structure* shall be the loads applicable at the time the *building* was constructed, provided that a dangerous condition is not created. Structural elements that are uncovered during the *repair* and that are found to be unsound or dangerous shall be made to comply with the applicable requirements of ~~this code~~this code.

BO105.4.2 Repairs for less than substantial structural damage. Unless otherwise required by this section, for damage less than *substantial structural damage*, the damaged elements shall be permitted to be restored to their pre-damaged condition.

BO105.4.2.1 Snow damage. Structural components whose damage was caused by or related to snow load effects shall be repaired, replaced, or altered to comply with the framing requirements of ~~this code~~this code.

BO105.4.3 Substantial structural damage to vertical elements of the lateral force-resisting system. A *building* that has sustained substantial structural damage to the vertical elements of its lateral force-resisting system shall be evaluated in accordance with Section BO105.4.3.1, and either repaired in accordance with Section BO105.4.3.2 or repaired and retrofitted in accordance with Section BO105.4.3.3, depending on the results of the evaluation.

BO105.4.3.1 Evaluation. The *building* shall be evaluated by a registered design professional, and the evaluation findings shall be submitted to the *building official*. The evaluation shall establish whether the lateral damaged *building including its foundation*, if repaired to its pre-damage state, would comply with the framing requirements of ~~this code~~this code.

BO105.4.3.2 Extent of repair for compliant buildings. If the evaluation establishes that the *building* in its pre-damage condition complies with the provisions of Section BO105.4.3.1, then the damaged elements shall be permitted to be restored to their pre-damage condition.

BO105.4.3.3 Extent of repair for noncompliant buildings. If the evaluation does not establish that the lateral force-resisting system of the *building* in its pre-damage condition complies with the provisions of Section BO105.4.3.1, then the lateral force-resisting system, and its foundation, ~~*building*~~ shall be retrofitted to comply with the provisions of this section. The wind loads for the *repair* and retrofit shall be those required by the building code in effect at the time of original construction, unless the damage was caused by wind, in which case the wind loads shall be in accordance with ~~this code~~this code. The seismic loads for this retrofit design shall be those required by the building code in effect at the time of original construction, but not less than the reduced seismic forces.

BO105.4.4 Substantial structural damage to gravity load-carrying components. Gravity load-carrying components that have sustained *substantial structural damage* shall be retrofitted~~habilitated~~ to comply with the applicable provisions for dead, live, and snow loads in the ~~*Denver Commercial Building Code*~~*this* ~~*code*~~*this code*. Undamaged gravity load carrying components, including undamaged foundation components, that receive dead, live, or snow loads from retrofitted ~~habilitated~~ components shall also be retrofitted ~~habilitated~~ if required to comply with these design loads ~~of the rehabilitation design~~.

BO105.4.4.1 Lateral force-resisting elements. Regardless of the level of damage to vertical elements of the lateral force-resisting system, if *substantial structural damage* to gravity load-carrying components was caused primarily by wind or seismic effects, then the *building* shall be evaluated in accordance with Section BO105.4.3.1 and, if noncompliant, retrofitted in accordance with Section BO105.4.3.3.

BO105.4.5 Substantial structural damage to snow load-carrying components. Where *substantial structural damage* to any snow load-carrying components is caused by or related to snow load effects, any

components required to carry snow loads on roof framing of similar construction shall be repaired, replaced or retrofitted to comply with the framing requirements of ~~this code~~this code.

BO105.4.6 Flood hazard areas. In flood hazard areas, *buildings* that have sustained *substantial structural damage* shall be brought into compliance with Section R306.

~~**BO105.5 Electrical.** *Repair* or replacement of existing electrical wiring and equipment undergoing *repair* with like material shall be permitted.~~

~~**Exceptions:**~~

~~1. Replacement of electrical receptacles shall comply with the requirements of the currently adopted NFPA 70NEC.~~

~~2. Plug fuses of the Edison-base type shall be used for replacements only where there is no evidence of overfusing or tampering in accordance with the applicable requirements of the currently adopted NFPA 70NEC.~~

~~3. For replacement of non-grounding-type receptacles with grounding-type receptacles and for branch circuits that do not have an equipment grounding conductor in the branch circuitry, the grounding conductor of a grounding-type receptacle outlet shall be permitted to be grounded to any accessible point on the grounding electrode system, or to any accessible point on the grounding electrode conductor, as allowed and described in of the currently adopted NFPA 70NEC.~~

BO105.6 Plumbing materials and supplies. The following plumbing materials and supplies shall not be used:

1. All-purpose solvent cement, unless listed for the specific application.
2. Flexible traps and tailpieces, unless listed for the specific application.
3. Solder having more than 0.2-percent lead in the *repair* of potable water systems.

BO105.7 Water closets. Where any water closet is replaced with a newly manufactured water closet, the replacement water closet shall comply with the requirements of Section P2903.2.

SECTION BO106 ALTERATIONS

BO106.1 Newly constructed elements. Unless expressly permitted by this appendix, new construction elements, components, systems, and spaces shall comply with the requirements of ~~this code~~this code for new construction.

BO106.2 Materials and methods. The work shall comply with the materials and methods requirements of ~~this code~~this code.

BO106.3 Interior wall and ceiling finishes. Interior wall and ceiling finishes shall be in accordance with Sections BO106.3.1 through BO106.3.3 and the requirements of Section R333.

BO106.3.1 Replacement. Like materials shall be permitted for interior wall and ceiling finishes that are being replaced, provided that unsafe conditions are not created, and the material complies with the requirements of Section R333.

Exception: Wood paneling and textile wall coverings used as an interior finish shall comply with the flame spread requirements of Section R302.9.

BO106.3.2 Newly installed. Newly installed interior wall and ceiling finishes shall comply with the requirements of Sections R302.9 and R333.

BO106.3.3 Extensive alterations. Where the total work area included in the *alteration* exceeds 50 percent of the floor area of the *dwelling unit*, the interior finish of walls and ceilings in any work area shall comply with the requirements of Section R302.9. Existing interior finish materials that do not comply with those requirements shall be removed or shall be treated with an approved fire-retardant coating in accordance with the manufacturer's instructions to secure compliance with the requirements of this section.

BO106.4 Fire Protection. *Alterations* shall be done in a manner that maintains the level of fire protection provided.

BO106.4.1 Separation walls. Where the total work area included in the *alteration* exceeds 50 percent of the floor area of the *dwelling unit* and the work area is in an attached *dwelling unit*, walls separating *dwelling units* that are not continuous from the foundation to the underside of the roof sheathing shall be constructed to provide a continuous fire separation using construction materials consistent with the existing wall or complying with the requirements for new *structures*. Performance of work shall be required only on the side of the wall of the *dwelling unit* that is part of the work area.

BO106.5 Ventilation. Ventilation shall be in accordance with this section.

BO106.5.1 Replacement windows. Replacement windows and newly added openable windows are not required to comply with the light and ventilation requirements of Section R325.

BO106.5.2 Reconfigured spaces. Reconfigured spaces intended for occupancy and spaces converted to *living space* in any work area shall be provided with ventilation in accordance with Section R325.

BO106.6 Ceiling height. *Living space* created in existing *basements* ~~built prior to 1990 shall have ceiling heights of not less than 6 feet 8 inches (2032 mm)~~ shall comply with Section R313.1.2. Existing finished *ceiling heights* in *basements* without *living space* shall not be reduced.

~~**Exception:** Beams, girders, ducts, or other obstructions in *basements* containing *living space* shall be permitted to project to within 6 feet 4 inches (1931 mm) of the finished floor.~~

BO106.7 Door and window dimensions. Minor reductions in the clear opening dimensions of replacement doors and windows that result from the use of different materials shall be allowed, whether or not they are permitted by ~~this code~~this code.

BO106.8 Means of egress. *Alterations* shall be done in a manner that maintains the level of protection provided for the means of egress.

Exception: A change in occupancy resulting in floor levels without any *living space* converted to *living space*, or a portion thereof, shall be provided with vertical egress in accordance with R318.4.

BO106.8.1 Stairways. Stairs shall support a minimum concentrated load at any location on a tread of 300 pounds and shall maintain the level of protection provided for the means of egress. The requirements of Sections BO106.8.1.1 through BO106.8.1.5 shall apply to stairs along the egress path from the work area to the required egress door. Stairs or stairways that do not meet the criteria below may be required to be repaired or replaced.

BO106.8.1.1 Width. *Stairs* not otherwise being altered or modified shall be permitted to maintain their current clear width at, above, and below existing *handrails*.

BO106.8.1.2 Headroom. *Stairs* not otherwise being altered shall be permitted to maintain the current finished headroom. Headroom height on existing stairs being altered or modified shall not be reduced below the existing *stairway* finished headroom.

BO106.8.1.3 Landings. *Stairs* not otherwise being altered shall be permitted to maintain the current landing depth and width. Landings serving existing stairs being altered or modified shall not be reduced below the existing *stairway* landing depth and width.

BO106.8.1.4 Illumination. *Stairways* within the work area shall be provided with illumination in accordance with Section R325.6 and R325.7.

BO106.8.1.5 Rise and Run. Stairs not otherwise altered shall have treads with a depth of not less than 8-inches and a stair risers shall have a height not exceeding 9-inches.

BO106.8.2 Handrails. The requirements of Sections BO106.8.2.1 and BO106.8.2.2 shall apply to *handrails* from the work area floor to the required egress door.

BO106.8.2.1 Minimum requirement. Every required exit *stairway* that has four or more *risers*, and is not provided with one *handrail*, or in which the existing *handrails* cannot support a load of 200 pounds applied in any direction, shall be provided with handrails for the full length of the *stairway* on at least one side.

BO106.8.2.2 Design. *Handrails* shall be designed and installed in accordance with Section R318.

BO106.8.3 Guards. The requirements of Sections BO106.8.3.1 and BO106.8.3.2 shall apply to guards along the egress path from the work area to the required egress door.

BO106.8.3.1 Minimum requirement. Every open portion of a *stairway*, landing, or balcony that is more than 30 inches (762 mm) above the floor or *grade* below and is not provided with *guards*, or those portions in which existing guards cannot support a load of 200 pounds applied in any direction, shall be provided with *guards*.

BO106.8.3.2 Design. *Guards* shall be designed and installed in accordance with Section R321.

BO106.9 Structural. Structural *alterations* shall be in accordance with Sections BO10~~5~~6.9.1 through BO10~~5~~6.9.4.

BO106.9.1 Minimum design loads. The minimum design loads for the *structure* shall be the loads applicable at the time the *building* was constructed, provided that a dangerous condition is not created. Structural elements that are uncovered during the *alteration* and that are found to be unsound or dangerous shall be made to comply with the applicable requirements of ~~this code~~this code.

BO106.9.2 Existing structural elements carrying gravity loads. Any existing gravity load-carrying structural element for which an *alteration* causes an increase in design dead, live, or snow load, including snow drift effects, of more than 5 percent shall be replaced or altered as needed to comply with the framing requirements of ~~this code~~this code. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the *alteration* shall comply with the framing requirements of ~~this code~~this code.

Exception: *Buildings* in which the increased dead load is due entirely to the addition of a second layer of roof covering weighing 3 pounds per square foot (0.1437 kN/m2) or less over an existing single layer of *roof covering*.

BO106.9.3 Existing structural elements resisting lateral loads. Except as permitted by Section BO106.9.4, where the *alteration* increases design lateral loads, or where the *alteration* results in prohibited

structural irregularity as defined in ASCE 7, or where the *alteration* decreases the capacity of any existing lateral load-carrying structural element, the lateral force-resisting system ~~*structure*~~ of the altered *building* or *structure* shall comply with the framing requirements of ~~this code~~this code.

Exception: Any existing lateral load-resisting structural element whose demand-capacity ratio with the *alteration* considered is not more than 10 percent greater than its demand-capacity ratio with the *alteration* ignored shall be permitted to remain unaltered. For the purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of *additions* and *alterations* since original construction.

BO106.9.4 Voluntary lateral force-resisting system alterations. Structural *alterations* that are intended exclusively to improve the lateral force-resisting system and are not required by other sections of ~~this code~~this code shall not be required to meet the framing requirements of ~~this code~~this code, provided that the following conditions are met:

1. With the *alteration* compete, t~~T~~he capacity of existing structural systems to resist forces is not reduced.

~~2. New structural elements are detailed and connected to existing or new structural elements as required by this code~~this code ~~for new construction.~~

~~3~~2. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required by ~~this code~~this code for new construction.

~~3~~4. The *alterations* do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

~~**BO106.10 Electrical.** Electrical *alterations* shall be in accordance with this section.~~

~~**BO106.10.1 Materials and methods.** Newly installed electrical equipment and wiring relating to work done in any work area shall comply with the materials and methods requirements of the currently adopted NFPA 70~~NEC~~.~~

~~**BO106.10.2 Electrical service.** Service to the *dwelling unit* shall be not less than 100 ampere three-wire capacity and service equipment shall be dead front having no live parts exposed that could allow accidental contact. Type "S" fuses shall be installed where fused equipment is used.~~

~~**Exception:** Existing service of 60 ampere, three-wire capacity, and feeders of 30 ampere or larger two- or three-wire capacity shall be accepted if adequate for the electrical load being served.~~

~~**BO106.10.3 Additional electrical requirements.** Where the work area includes any of the following areas within a *dwelling unit*, the requirements of Sections BO106.10.3.1 through BO106.10.3.5 shall apply.~~

~~**BO106.10.3.1 Enclosed areas.** Enclosed areas other than closets, kitchens, *basements*, *garages*, hallways, laundry areas, and bathrooms shall have not less than two duplex receptacle outlets, or one duplex receptacle outlet and one ceiling- or wall-type lighting outlet.~~

~~**BO106.10.3.2 Kitchen and laundry areas.** Kitchen areas shall have not less than two duplex receptacle outlets. Laundry areas shall have not less than one duplex receptacle outlet located near the laundry equipment and installed on an independent circuit.~~

~~**BO106.10.3.3 Ground-fault circuit interruption.** Ground-fault circuit interruption shall be provided on newly installed receptacle outlets if required by the currently adopted NFPA 70~~NEC~~.~~

~~**BO106.10.3.4 Lighting outlets.** Not less than one lighting outlet shall be provided in every bathroom, hallway, stairway, attached *garage*, and detached *garage* with electric power to illuminate outdoor entrances and exits, and in utility rooms and *basements* where these spaces are used for storage or contain equipment requiring service.~~

~~**BO106.10.3.5 Clearance.** Clearance for electrical service equipment shall be provided in accordance with the currently adopted NFPA 70NEC.~~

SECTION~~CHAPTER~~ BO107 ADDITIONS

BO107.1 Scope. An addition to a *building* or *structure* shall comply with ~~this code~~this code for new construction without requiring the existing *building* or *structure* to comply with any requirements of those codes or of these provisions, except as required by this chapter. Where an addition impacts the existing *building* or *structure*, that portion shall comply with ~~this code~~this code.

BO107.2 Other work. Any *repair* or *alteration* work within an existing *building* to which an *addition* is being made shall comply with the applicable requirements for the category of work.

BO107.3 Structural. Structural *additions* shall be in accordance with this section.

BO107.3.1 Additional gravity loads. Any existing gravity load-carrying structural element for which an addition and its related *alterations* cause an increase in design dead, live, or snow load, including snow drift effects, of more than 5 percent shall be replaced or altered as needed to comply with the faming requirements of ~~this code~~this code. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the *alteration* shall comply with the framing requirements of ~~this code~~this code.

BO107.3.2 Lateral force-resisting system. Where the addition is structurally independent of the existing *structure*, existing lateral force-resisting system ~~load-carrying structural elements~~ shall be permitted to remain unaltered. Where the addition is not structurally independent of the existing *structure*, the existing *structure* and its addition acting together as a single *structure* shall comply with the framing requirements of ~~this code~~this code.

BO107.3.3 Flood hazard areas. Additions and foundations in flood hazard areas shall comply with the following requirements:

1. For horizontal additions that are structurally interconnected to the existing *building*:
    1.1. If the addition and all other proposed work, when combined, constitute *substantial improvement*, the existing *building* and the addition shall comply with Section R306 of ~~this code~~this code.
    1.2. If the addition constitutes *substantial improvement*, the existing *building* and the addition shall comply with Section R306 of ~~this code~~this code.

2.For horizontal additions that are not structurally interconnected to the existing *building*:
    2.1. The addition shall comply with Section R306 of ~~this code~~this code.
    2.2. If the addition and all other proposed work, when combined, constitute *substantial improvement*, the existing *building* and the addition shall comply with Section R306 of ~~this code~~this code

3. For vertical additions and all other proposed work that, when combined, constitute *substantial improvement*, the existing *building* shall comply with Section R306 of ~~this code~~this code.

4. For a raised or extended foundation, if the foundation work and all other proposed work, when combined, constitute *substantial improvement*, the existing *building* shall comply with Section R306 of ~~this code~~this code.

5. For a new foundation or replacement foundation, the foundation shall comply with Section R306 of ~~this code~~this code.

SECTION BO108 CHANGE OF OCCUPANCY

BO108.1 Scope. The provisions of this chapter shall apply where a change of occupancy occurs.

BO108.2 Other work. Any work undertaken in connection with a change in use or change in occupancy classification shall conform to the applicable requirements of ~~this code~~this code applicable to the work performed, and to the requirements of BO108.

BO108.3 Light and ventilation. Light and ventilation shall comply with the requirements R325 of ~~this code~~this code.

BO108.4 Fire sprinkler system. An automatic sprinkler system shall not be required in *one- or two-family dwellings*, *townhouses*, or *accessory structures*.

BO108.5 Fire-Resistant Construction. The provisions of this section shall apply to *buildings* or portions thereof undergoing a change of occupancy classification. This includes a *change of occupancy* classification within a group as well as a change of occupancy classification from one group to a different group. Hazard categories related to *fire-resistance ratings* ~~of exterior walls~~ shall be in accordance with Table BO108.1.

TABLE BO108.1

~~EXPOSURE OF EXTERIOR WALLS~~ HAZARD CATEGORIES FOR FIRE-RESITANCE RATINGS

RELATIVE HAZARD	DENVER COMMERCIAL BUILDING CODE OCCUPANCY CLASSIFICATIONS	DENVER RESIDENTIAL CODE OCCUPANCY CLASSIFICATION
1 (Highest Hazard)	H	
2	F-1; M; S-1	
3	A; B; E; I; R	One- and two-family *dwellings* and *townhouses*
4 (Lowest Hazard)	F-2; S-2; U	*Accessory structures*

BO108.5.1 ~~Exterior wall~~Fire-resistance ratings for change of occupancy classification to a higher-hazard category. Where a change of occupancy classification is made to a higher hazard category as shown in Table BO108.1, construction, projections, openings, and penetrations of exterior walls of dwellings and accessory buildings shall have fire resistance and exterior opening protective as required by Section R302.

BO108.5.2 ~~Exterior wall~~ Fire-resistance ratings for change of occupancy classification to an equal or lesser-hazard category. Where a change of occupancy classification is made to an equal or lesser-hazard category as shown in Table BO108.1, ~~existing exterior walls, including openings,~~ construction, projections, openings, and penetrations of exterior walls of dwellings and accessory buildings shall be accepted.

BO108.5.3 Opening protectives. Openings in exterior walls shall be protected as required by ~~this code~~this code. Where openings in the exterior walls are required to be protected because of their distance from the lot line, the sum of the area of such openings shall not exceed 50 percent of the total area of the wall in each story.

Exceptions:

1. Where ~~this code~~this code permits openings in excess of 50 percent.
2. Exterior opening protectives are not required where the change of occupancy group is to an equal or lower hazard classification in accordance with Table BO108.1.

BO108.6 Fire-resistance separation walls. Fire-resistance separation walls shall be in accordance with this section.

BO108.6.1 Townhouses. *Townhouse units* shall be separated from adjoining units in accordance with Section R302.2 of ~~this code~~this code.

BO108.6.2 Two-family dwellings. *Dwelling units* in two-family *dwellings* shall be separated from each other in accordance with Section R302.3 of ~~this code~~this code.

BO108.8 Means of egress. A change of occupancy shall comply with Section BO108.8.1 through BO108.8.4. A change of occupancy classification shall comply with Section BO108.8.1 through BO108.8.5.

BO108.8.1 Handrails. The requirements of Sections BO108.8.1.1 and BO108.8.1.2 shall apply to *changes of occupancy* or portions thereof.

BO108.8.1.1 Minimum requirement. Every required exit stairway that has four or more risers, and is not provided with one handrail, or in which the existing *handrails* are judged to be in danger of collapsing, shall be provided with handrails for the full length of the *stairway* on at least one side.

BO108.8.1.2 Design. Handrails shall be designed and installed in accordance with Section R318.

BO108.8.2 Guards. The requirements of Sections BO108.8.2.1 and BO108.8.2.2 shall apply to changes of occupancy or portions thereof.

BO108.8.2.1 Minimum requirement. Every open portion of a stairway, landing, or balcony that is more than 30 inches (762 mm) above the floor or *grade* below and is not provided with guards, or those portions in which existing guards are judged to be in danger of collapsing, shall be provided with *guards*.

BO108.8.2.2 Design. *Guards* shall be designed and installed in accordance with Section R321.

BO108.8.3 Emergency escape and rescue openings. Where a change of occupancy would require an emergency escape and rescue opening in accordance with Section R319 of ~~this code~~this code, operable windows serving as the *emergency escape and rescue opening* shall comply with the following:

1. An existing operable window shall provide a minimum net clear opening of 4 square feet (0.38 m2) with a minimum net clear opening height 22 inches (559 mm) and a minimum net clear opening width of 20 inches (508 mm).
2. A replacement window where such window complies with both of the following:

2.1. The replacement window meets the size requirements in Item 1.

2.2. The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.

BO108.8.4 Required Vertical Egress. Floor levels without any *living space* converted to *living space*, or a portion thereof, shall be provided with vertical egress in accordance with R318.4.

BO108.8.5 Change in occupancy classification. The provisions of this section shall apply to *buildings* or portions thereof undergoing a change of occupancy classification. This includes a change of occupancy classification within a group as well as a change of occupancy classification from one group to a different group. Hazard categories related to life safety and means of egress shall be in accordance with Table BO108.2.

TABLE BO108.2

MEANS OF EGRESS HAZARD CATEGORIES

RELATIVE HAZARD	DENVER COMMERCIAL BUILDING CODE OCCUPANCY CLASSIFICATIONS	DENVER RESIDENTIAL CODE OCCUPANCY CLASSIFICATION
1 (Highest Hazard)	H	
2	I-2; I-3; I-4	
3	A; E; I-1; M; R-1; R-2; R-4, Condition 2	
4	B; F-1; R-3; R-4, Condition 1; S-1	One- and two-family *dwellings* and *townhouses*
5 (Lowest Hazard)	F-2; S-2; U	*Accessory structures*

BO108.8.5.1 Means of egress for change to a higher hazard category. Where a change of occupancy classification is made to a higher-hazard category (lower number) as shown in Table BO108.2, the means of egress shall comply with the requirements of Section R318 of ~~this code~~this code.

Exceptions:

1. Existing *stairways* including *handrails* and *guards* complying with the requirements of BO106 shall be permitted for continued use.
2. Any *stairway* replacing an existing *stairway* within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.
3. An operable window complying with Section BO108.8.3 shall be accepted as an *emergency escape and rescue opening*.

BO108.8.5.2 Means of egress for change of use to an equal or lower-hazard category. Where a change of occupancy classification is made to an equal or lesser-hazard category (higher number) as shown in Table BO108.2, existing elements of the means of egress shall comply with the requirements of BO106 for the new occupancy classification. Newly constructed or configured means of egress shall comply with the requirements of Section R318 of ~~this code~~this code.

Exception: Any *stairway* replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.

BO108.9 Structural requirements. Structural requirements for a *change of occupancy* shall be in accordance with this section.

BO108.9.1 Live loads. Structural elements carrying tributary *live loads* from an area with a *change of occupancy* shall satisfy the requirements of Section R301. Design *live loads* for areas of new occupancy shall be based on Section R301 of ~~this code~~this code.

~~**BO108.9.2 Snow and wind loads.** Where a *change of occupancy* results in a *structure* being assigned to a higher risk category, the *structure* shall satisfy the requirements of Section R301 of this code~~this code~~.~~

~~**BO108.10 Electrical requirements.** Electrical requirements for a *change of occupancy* shall be in accordance with this section.~~

~~**BO108.10.1 Unsafe conditions.** Where the occupancy of an existing *building* or part of an existing *building* is changed, all unsafe conditions shall be corrected without requiring that all parts of the electrical system comply with the currently adopted NFPA 70NEC.~~

~~**BO108.10.2 Service upgrade.** Where the occupancy of an existing *building* or part of an existing *building* is changed, electrical service shall be upgraded to meet the requirements of the currently adopted NFPA 70NEC for the new occupancy.~~

~~**BO108.10.3 Number of electrical outlets.** Where the occupancy of an existing building or part of an existing *building* is changed, the number of electrical outlets shall comply with the currently adopted NFPA 70NEC for the new occupancy.~~

BO108.11 Mechanical requirements. Where the occupancy of an existing *building* or part of an existing *building* is changed such that the new occupancy is subject to different kitchen exhaust requirements or to increased mechanical ventilation requirements in accordance with ~~this code~~this code, the new occupancy shall comply with the respective exhaust system provisions of Chapter 15 of ~~this Code~~this code.

BO108.12 Plumbing requirements. Where the occupancy of an existing *building* or part of an existing *building* is changed such that the new occupancy is subject to increased or different plumbing fixture requirements or to increased water supply requirements in accordance with ~~this code~~this code, the new occupancy shall comply with the intent of the respective code provisions.

SECTION BO109 RELOCATION

BO109.1 Other work. The *building* shall be safe for human occupancy. Any *repair*, *alteration*, or *change of occupancy* undertaken within the moved *structure* shall comply with the requirements of ~~this code~~this code applicable to the work being performed. Any field--fabricated elements shall comply with the requirements of ~~this code~~this code.

BO109.2 Location on the lot. The *building* shall be located on the lot in accordance with the requirements of ~~this code~~this code.

BO109.3 Fire Protection. Relocations as a result of a lot line reconfiguration shall be done in a manner that maintains the level of fire protection provided. All other relocations shall comply with the fire protection requirements of ~~this code~~this code.

BO109.4 Foundation. The foundation system of relocated *buildings* shall comply with ~~this code~~this code.

BO109.5 Connection to the foundation. The connection of the relocated *building* to the foundation shall comply with ~~this code~~this code.

BO109.6 Wind loads. *Buildings* shall comply with the wind provisions of ~~this code~~this code.

Exceptions:

1. *Buildings* where wind loads at the new location are not higher than those at the previous location.
2. Structural elements whose stress is not increased by more than 10 percent.

BO109.7 Snow loads. *Structures* shall comply with the snow loads of ~~this code~~this code.

Exceptions:

1. *Structures* where snow loads at the new location are higher than those at the previous location.
2. Structural elements whose stress is not increased by more than 5 percent.

BO109.8 Flood hazard areas. If relocated or moved into a flood hazard area, *structures* shall comply with Section R306 of ~~this code~~this code.

BO109.9 Required inspection and repairs. The *building official* shall be authorized to inspect, or to require approved professionals to inspect at the expense of the owner, the various structural parts of a relocated *building* to verify that structural components and connections have not sustained structural damage. Any *repairs* required by ~~this code~~this code as a result of such inspection shall be made prior to the final approval.

SECTION BO110 HISTORIC BUILDINGS

BO110.1 Scope. Historic *buildings* subject to *repair*, *alteration*, addition, change of occupancy, or relocation in conformance with this section shall not be required to comply with individual requirements of ~~this code~~this code to the extent that such compliance would threaten, degrade, or destroy the historic building features, form, materials, or functions that are historic and character-defining.

BO110.2 Compliance. The historic *building* or portion thereof shall be made to comply with the requirements of ~~this code~~this code to the maximum extent feasible without threatening, degrading, or destroying the historic building features, form, materials, or functions that are historic and character-defining.

BO110.3 Hazardous conditions. The historic *building* or portion thereof to remain shall not constitute a distinct life safety hazard and shall not otherwise be dangerous to human life or the public welfare.

BO110.4 Historic building report. A Historic Building Report meeting the requirements of this section shall be submitted to the *building official* where portions of historic *buildings* to remain do not comply with the requirements of ~~this code~~this code, and compliance with the requirements of ~~this code~~this code would threaten, degrade, or destroy the historic building features, form, materials, or functions that are historic and character-defining.

BO110.4.1 Qualifications. The Historic Building Report shall be prepared and signed by either a historic preservation professional or a registered design professional and shall be signed by the owner of the historic *building*.

BO110.4.2 Minimum requirements. The Historic Building Report shall include the following information:

1. Documentation of the historic *building* listing or designation.
2. A narrative identifying each specific provision of ~~this code~~this code that would threaten, degrade, or destroy the historic building features, form, materials, or functions that are historic and character-defining.
3. A narrative and documentation, including but not limited to drawings or photographic documentation where applicable, identifying and describing each such historic building feature, form, material, or function.
4. A narrative identifying each aspect of the *repair*, *alteration*, addition, change of occupancy or relocation intended to demonstrate maximum feasible compliance with the requirements of ~~this code~~this code and to provide reasonable levels of life-safety compliance through alternative methods as needed.
5. Certification by a registered design professional that the portions of the historic *building* to remain, together with any proposed alternative methods, do not constitute a distinct life safety hazard and are not otherwise dangerous to human life or the public welfare.

BO110.4.3 Review. The Historic Building Report shall be reviewed either by the local historic preservation authority having jurisdiction within the *Agency* or by the State Historic Preservation Office having jurisdiction prior to submittal to the *building official* to verify that compliance with the specific provisions of ~~this code~~this code identified in the report would threaten, degrade, or destroy the historic building features, form, materials, or functions that are historic and character-defining identified in the report, and to verify the *repair*, *alteration*, addition, relocation, or change of occupancy would not threaten, degrade, or destroy such features, form, materials, or functions.

END OF 2025 DENVER RESIDENTIAL CODE

2025

DENVER MECHANICAL CODE

COMPRISED OF

2025 DENVER AMENDMENTS

TO THE 2024 EDITION OF THE

INTERNATIONAL MECHANICAL CODE (IMC) AND APPENDICES

AS PUBLISHED BY

INTERNATIONAL CODE COUNCIL (ICC)

The 2024 International Mechanical Code and all errata to that code is hereby adopted and incorporated by reference except for the amendments to each chapter and appendix of the 2024 International Mechanical Code specified below.

~~CHAPTER 1~~
CHAPTER 1: ADMINISTRATION

SECTION 101 GENERAL

Section 101.1 Title is deleted in its entirety and replaced as follow:

101.1 Title. These regulations shall be known as the Denver Mechanical Code (DMC), hereinafter referred to as "~~this code~~this code."

Section 102.8.3 Renaming of certain referenced codes is added to read as follows:

102.8.3 Renaming of certain referenced codes. Any references to the *International Building Code*, *International Energy Conservation Code, International Fire Code, International Fuel Gas Code, International Residential Code*, *International Plumbing Code*, *International Existing Building Code*, and *NFPA 70* means the Denver Commercial Building Code (DCBC), Denver Energy Code (DEC), Denver Fire Code (DFC), Denver Fuel Gas Code (DFGC), Denver Residential Code (DRC), Denver Plumbing Code (DPC), Denver Existing Building Code (DEBC), and the Electrical Code ~~of the City and County of Denver~~as adopted by the State of Colorado, respectively.

All references to the International Energy Conservation Code are to the 2021 International Energy Conservation Code including the 2025 Denver amendments.

All references to ASHRAE 90.1 are to ASHRAE 90.1-2019.

Sections 103 through ~~105,~~ 108, ~~111,~~ and 112~~,~~ ~~114 and~~ through 115 are ~~replaced~~ deleted in their entirety ~~as follows:~~. Sections 103 through 142 of the *Denver Commercial Building Code* shall govern.

~~Article 1, Section 1 of the *2025 Denver Commercial Building Code* shall govern.~~

~~CHAPTER 3~~
CHAPTER 3: GENERAL REGULATIONS

SECTION 303 EQUIPMENT AND APPLIANCE LOCATION

Section 303.8 Elevator Shafts is amended by adding an exception:

Exception: Mechanical systems providing independent ventilation, heating, or cooling for elevator equipment complying with the following items shall be allowed in elevator shafts and elevator equipment rooms.

1. Mechanical systems shall not be located directly above any elevator equipment and shall not encroach on required clearances in the hoistway, machinery space, machine room, control space, or control room.
2. If mechanical systems are located in an alcove or niche within in the elevator shaft, then the opening into the vertical shaft must be covered with steel mesh per ASME A17.1 Section 2.1.6.2(d). The alcove or niche shall be constructed to maintain the fire rating of the elevator shaft as required per chapter 7 of the Denver Commercial Building Code.
3. Condensate must discharge to the outside of the elevator shaft or elevator equipment room to an *approved* place of disposal. Condensate lines shall not be located directly above elevator equipment and shall not encroach on required clearances in the hoistway, machinery space, machine room, control space, or control room.
4. Access from outside the elevator shaft to mechanical systems located in an alcove or niche within the elevator shaft is permitted through a fire rated access opening not less than 30 inches high and 22 inches wide and large enough to remove the largest appliance.

SECTION 309 TEMPERATURE CONTROL

Section 309.2 Outside air is added as follows:

309.2 Outside air. For spaces that require space heating systems per section 309.1, the mechanical system delivering outside air to the space shall be capable of a discharge temperature of not less than 60 deg F during heating mode.

~~CHAPTER 4~~
CHAPTER 4: VENTILATION

SECTION 402 NATURAL VENTILATION

Section 402.2 Ventilation area required is amended by adding the following to the end of the section:

If windows used for natural ventilation are required to have window fall prevention devices in accordance with Section 1015.8 of the *Denver Commercial Building Code*, only the restricted opening area can be used in the calculation for natural ventilation. The open area of each window and door used for natural ventilation shall be shown on the drawings.

Section 402.5 Distance to opening is added as follows:

402.5. Distance to opening. Excluding residential occupancies, naturally ventilated spaces shall be permanently open to and within 25 feet (7620 mm) of operable openings to the exterior.

SECTION 403 MECHANICAL VENTILATION

Section 403.1 Ventilation system is replaced as follows:

403.1 Ventilation system. Mechanical ventilation shall be provided by a method of supply air and return or exhaust air. The amount of supply air shall be approximately equal to the amount of return and exhaust air. The system shall not be prohibited from producing negative or positive pressure. The system to convey ventilation air shall be designed and installed in accordance with Chapter 6.

Section 403.2.1 Item 1 is replaced as follows:

1. Ventilation shall not be recirculated from one *dwelling unit* to another. Ventilation air shall not be recirculated between residential and nonresidential occupancies. Ventilation air shall not be recirculated between nonresidential occupancies of dissimilar use.

Section 403.3 Outdoor air and local exhaust airflow rates is replaced as follows:

403.3 Outdoor air and local exhaust airflow rates. Group R-2, R-3, and R-4 occupancies shall be provided with outdoor air and local exhaust in accordance with Section 403.3.2. Other buildings intended to be occupied shall be provided with outdoor air and local exhaust in accordance with Section 403.3.1.

~~**Section 403.3.1.1 Outdoor air flow rate is amended by adding the following sentence:**~~

~~The calculations required by this section shall be provided by the design professional. It is recommended to use the ASHRAE 62.1-2019 spreadsheet.~~

Table 403.3.1.1 Minimum ventilation rates is amended by adding the following to the end of the table and ~~amending~~deleting and replacing footnote e as follows:

OCCUPANCY CLASSIFICATION	OCCUPANT DENSITY #/1000 FT^2 [a]	PEOPLE OUTDOOR AIRFLOW RATE IN BREATHING ZONE, R_P CFM/PERSON	AREA OUTDOOR AIRFLOW RATE IN BREATHING ZONE R_a CFM/FT^2 [a]	EXHAUST AIRFLOW RATE CFM/FT^2 [a]
Workrooms Service sinks[g]	--	--	--	~~1.0~~50/70[e]

e. Rates are per water closet, urinal, service sink, or adult changing station. The higher rate shall be provided where the exhaust system is designed to operate intermittently. The lower rate shall be permitted only where the exhaust system is designed to operate continuously while occupied.

Section 403.3.2.1 Outdoor air for dwelling units is replaced as follows with Equation 4-9 and the exceptions to remain:

403.3.2.1 Outdoor air for dwelling units. An outdoor air ventilation system shall be installed for each *dwelling unit.* Local supply systems, including outdoor air ducts connected to the return side of an air handler, are permitted to serve as such a system. The outdoor air ventilation system shall be designed to provide the required rate of outdoor air continuously during the period that the building is occupied. The minimum continuous outdoor airflow rate shall be determined in accordance with Equation 4-9.

SECTION 404 ENCLOSED PARKING GARAGES

Section 404.1.1 CO detector limits is added as follows:

404.1.1 CO detector limits. Where the system is arranged to operate automatically upon detection of a concentration of carbon monoxide, the limit shall be set at 25 parts per million (ppm).

Section 404.1.2 Nitrogen dioxide detector limits is added as follows:

404.1.2 Nitrogen dioxide detector limits. Where the system is arranged to operate automatically upon detection of a concentration of nitrogen dioxide, the limit shall be set at 1 part per million (ppm).

~~CHAPTER 5~~
CHAPTER 5: EXHAUST SYSTEMS

SECTION 501 GENERAL

Section 501.2 Independent system required is replaced as follows:

501.2 Independent system required. Single or combined mechanical exhaust systems for environmental air shall be independent of all other exhaust systems. Dryer, and hazardous exhaust shall be independent of all other systems. Type I exhaust systems shall be independent of all other exhaust systems except as provided in Section 506.3.5. Single or combined Type II exhaust systems for food-processing operations shall be independent of all other exhaust systems. Kitchen exhaust systems shall be constructed in accordance with Section 505 for domestic cooking operations and Sections 506 through 509 for commercial cooking operations.

SECTION 505 DOMESTIC KITCHEN EXHAUST EQUIPMENT

Section 505.3 Exhaust Ducts is replaced as follows, Exceptions 1, 2 and all subsections of 2 to remain:

505.3 Exhaust Ducts. Domestic cooking exhaust *equipment* shall discharge to the outdoors through sheet metal ducts constructed of galvanized steel, stainless steel, aluminum, or copper. Such ducts shall have smooth inner walls, shall be airtight, shall be equipped with a backdraft damper, and shall be independent of all other exhaust systems. Installations in Group I-1 and I-2 Occupancies shall be in accordance with the *Denver Commercial Building Code* and Section 904.15 of ~~the~~ *Denver Fire Code* and Section 505.7 or 505.8.

Section 505.4 Makeup air required is amended by adding an exception:

Exception: Make-up air shall not be required when the design professional can demonstrate that the exhaust system will not adversely affect the operation or exhaust of combustion gases of any equipment or appliance within the *dwelling unit*. This exception does not alleviate the requirement for pressure equalization per Section 501.4.

Section 505.6 Other than Group R is replaced as follows:

505.6. Other than individual dwelling units. In other than individual *dwelling units*, where domestic cooktops, ranges, and open-top broilers are used for domestic purposes, a residential hood that contains a listed UL300A fire suppression system shall be provided. The fire suppression system shall be connected to the fire alarm system in buildings that have a fire alarm.

Section 505.9 Residential cooking appliances vented by exhaust hoods is added as follows:

Section 505.9 Residential cooking appliances vented by exhaust hoods. Where residential cooking appliances are gas-fired, a fan powered exhaust system shall be installed with an exhaust hood over the appliance and ~~must~~ shall be ~~vented~~ exhausted to the ~~outside~~outdoors. ~~System~~ The exhaust hood shall be sized ~~and installed~~ in accordance with the appliance manufacturer's instructions.

SECTION 506 COMMERCIAL KITCHEN HOOD VENTILATION SYSTEM DUCTS AND EXHAUST EQUIPMENT

Section 506.3.11 is amended by adding exception 2:

Exception 2. A duct enclosure shall not be required for a grease duct that penetrates only an exterior wall and all the following are true:

1. The grease duct does not penetrate, or pass-through openings, gaps, or holes in rated or non-rated interior walls or shafts.
2. The grease duct does not leave the tenant boundary.
3. The grease duct shall be permitted to penetrate a non-fire-resistance-rated ceiling.

Section 506.3.13.2 Termination through an exterior wall is amended by adding the following sentence to the end of the section:

Exhaust outlets shall be permitted to terminate through exterior walls when a pollution-control unit is used. The pollution control unit shall have 95 percent efficiency at the particle size of .3 microns in accordance with ASHRAE Standard 52.2 or equivalent.

Section 506.5.2 Pollution-control units is amended by adding the following:

17. Where PCU's are installed above the ceiling and/or in return air plenums the manufacturer's recommended service clearances and clearances from combustibles shall be maintained. The unit shall be installed in accordance with the manufacturer's recommendations and limitations. PCUs installed above a ceiling shall be installed in a rated enclosure unless the associated grease duct is not required by 506.3.11 to be enclosed. Where an enclosure is required, the PCU enclosure shall be of noncombustible construction or gypsum wallboard attached to noncombustible structures forming the enclosure. A clearance of not less than 6 inches (152 mm) shall be maintained between the enclosure and the PCU. (Section 506.3.11.1)
18. Ductwork downstream of a PCU is considered grease duct and shall comply with code sections pertaining to grease duct.
19. The fire protection system installed within the Pollution Control Unit shall provide protection of the component sections of the equipment, and ductwork downstream of the equipment. (NFPA 96 2017 9.3.3).
20. Equipment commissioning reports shall be provided for the PCU.

~~21. Where a PCU enclosure is required, the construction documents shall include details showing:~~

~~21.1 The construction of the pollution control unit enclosure and the UL designation number of the construction.~~

~~21.2. Clearances between the PCU and the enclosure.~~

~~21.3. Service access clearances.~~

~~21.4. Duct wrap penetration and sealing at the PCU enclosure.~~

~~21.5. Support and anchoring methods for the enclosure and the PCU.~~

~~21.6. Access fire door size, type, rating, location, and UL listing.~~

~~21.7. Where the PCU manufacturer requires a service platform or a service platform is provided, provide stamped calculations and details of the platform construction including handrails and how the platform is anchored.~~

SECTION 507 COMMERCIAL KITCHEN HOODS

Section 507.1 General is amended by deleting Exception 2.2.3

SECTION 512~~3~~ SMOKE CONTROL SYSTEMS

Sections 512.2~~3~~ through 512.19 are deleted. Refer to Section 909 of the *Denver Fire Code* for requirements. ~~Section 512.2 Design requirements is amended by adding the following sentence at the end of the section:~~

~~All sections shall be replaced with Section 909 of the *Denver Fire Code*.~~

~~CHAPTER 6~~
CHAPTER 6: DUCT SYSTEMS

[B] SECTION 607 DUCT AND TRANSFER OPENINGS

~~Section 607.5.5 Shaft enclosures is amended by deleting Exception 1.3 and Exception 4.~~

Section 607.6.2.1.2 Static systems is amended by deleting Exceptions 2 and 3 and replacing Exception 1 as follows:

Exceptions:

1. When the fans associated with heating, ventilation, air-conditioning, and exhaust systems are interlocked to shut down during a fire, static ceiling radiation dampers may be used within the associated systems.

~~CHAPTER 9~~

CHAPTER 9: SPECIFIC APPLIANCES, FIREPLACES AND SOLID FUEL-BURNING EQUIPMENT

~~SOLID FUEL-BURNING EQUIPMENT~~

SECTION 901 GENERAL

Section 901.5 EPA certification for pellet fuel burning appliances and wood-burning fireplace stoves is added as follows:

901.5 Pellet or wood-burning appliances and stoves or heaters. *Pellet fuel-burning appliances* and wood burning *fireplace stoves* and room heaters shall be listed by an *approved* testing agency and shall meet Step 2, 2020 standards in the EPA Certified Wood Heater Database published by the Environmental Protection Agency and approved by Colorado Department of Public Health & Environment. Wood-burning appliances not on the EPA *approved* list cannot be installed unless converted to a gas log fireplace in accordance with the requirements of Section 602 of the *Denver Fuel Gas Code.*

SECTION 910 FLOOR FURNACES

Section 910 Floor furnaces is deleted in its entirety.

SECTION 911 DUCT FURNACES

Section 911.1 General is replaced as follows:

911.1 General. Duct furnaces shall be installed in accordance with the manufacturer's instructions and shall be installed in the same duct system as the fan. Electric duct furnaces shall comply with UL 1996. The fan shall provide at least the minimum airflow required by the furnace manufacturer.

~~CHAPTER 11~~

CHAPTER 11: REFRIGERATION

SECTION 1101 GENERAL

Section 1101.1.1 is modified as follows:

1101.1.1 Refrigerants other than ammonia. ~~-~~**Refrigerant piping design and installation for systems containing a refrigerant than ammonia, including pressure vessels and pressure relief devices, shall comply with this chapter and ASHRAE 15, as specified below.**

1. Group A1 refrigerants shall comply with this chapter, ASHRAE 15 as referenced in this chapter, *Denver Commercial Building Code* and the *Denver Fire Code*.

Refrigeration systems containing carbon dioxide as the refrigerant shall also comply with IIAR CO2.

2. Group A2L, B2L, B1, A2, B2, A3, and B3 refrigerants shall comply with ASHRAE 15 Sections 3 through 13, *Denver Commercial Building Code* and the *Denver Fire Code*, and shall not be required to comply with this chapter.

SECTION 1109 REFRIGERANT PIPE INSTALLATION

Section 1109.7 Termination of relief devices is added as follows:

1109.9 Termination of relief devices. Pressure-relief devices and fusible plugs on any system containing more than 110 pounds (50 kg) of a group A1 refrigerant shall discharge to the atmosphere at a location not less than 15 feet (4572 mm) above adjoining ground level and not less than 20 feet (6096 mm) from any window, ventilation opening, or exit in any building. The discharge shall terminate in a manner that will prevent the discharged refrigerant from being sprayed directly on personnel in the vicinity and foreign material or debris from entering the discharge piping. Discharge piping connected to the discharge side of a fusible plug or rupture member shall have provisions to prevent plugging the pipe in the event the fusible plug or rupture member functions.

~~CHAPTER 15~~
CHAPTER 15: REFERENCED STANDARDS

ASHRAE

ASHRAE 15-~~2019~~ 2022 and ASHRAE 34-~~2019~~ 2022 are replaced as follows:

15-~~2022~~2024	Safety Standard for Refrigeration Systems including Addenda ~~a through ab.~~af. 1101.1.1, 1106.4.2, 1106.4.3, 1110.6
34-~~2022~~2024	Designation and Safety Classification of Refrigerants~~, including Addenda a through n.~~ 202, 1103.1

MECHANICAL CODE APPENDICES
STATUS OF ADOPTION FOR APPENDICES

Appendices are Adopted or Not Adopted as part of ~~this Code~~this code as noted in Appendix Adoption Table 1. Provisions in Appendices that are Added, Adopted, or Adopted as Amended carry the full weight and mandatory enforceability of the Code.

MECHANICAL CODE APPENDIX ADOPTION TABLE 1

APPENDIX	TITLE	STATUS
A	Chimney Connector Pass-Throughs	Adopted
B	Recommended Permit Fee Schedule	Not Adopted
C	Board of Appeals	Not Adopted
D	Clean Air Delivery	Not Adopted
E	Clean Air Delivery and Monitoring	Not Adopted

END OF 2025 DENVER MECHANICAL CODE

2025

DENVER PLUMBING CODE

COMPRISED OF

2025 DENVER AMENDMENTS

TO THE 2024 EDITION OF THE

INTERNATIONAL PLUMBING CODE (IPC) AND APPENDICES

AS PUBLISHED BY THE INTERNATIONAL CODE COUNCIL (ICC)

The content of the sections in ~~this Code~~this code that begin with a letter or letters designations are maintained by other City or State entities.

[DOTI]	**Denotes Department of Transportation and Infrastructure**
[EB]	**Existing Buildings**
[CC]	**City Council**
[DPHE]	**Department of Public Health and Environment**
[CPB]	**Colorado Plumbing Board**
[DW]	**Denver Water**
[FCWA]	**Federal Clean Water Act**

The 2024 International Plumbing Code and all errata to that code is hereby adopted and incorporated by reference except for the amendments to each chapter and appendix of the 2024 International Plumbing Code specified below.

~~CHAPTER 1~~
CHAPTER 1: ADMINISTRATION

SECTION 101 GENERAL

Section 101.1 Title is deleted in its entirety and replaced as follows:

101.1 Title. These regulations shall be known as the Denver Plumbing Code (DPC), hereinafter referred to as "~~this code~~this code."

Section 102.8.3 Renaming of certain referenced codes is added to read as follows:

102.8.3 Renaming of certain referenced codes. Any references to the *International Building Code*, *International Energy Conservation Code*, *International Fire Code*, *International Fuel Gas Code*, *International Residential Code*, *International Mechanical Code*, *International Existing Building Code, and NFPA 70* means the Denver Commercial Building Code (DCBC), Denver Energy Code (DEC), Denver Fire Code (DFC), Denver Fuel Gas Code (DFGC), Denver Residential Code (DRC), Denver Mechanical Code (DMC), Denver Existing Building Code (DEBC), and the Electrical Code ~~of the City and County of Denver~~as adopted by the State of Colorado, respectively.

All references to the International Energy Conservation Code are to the 2021 International Energy Conservation Code including the 2025 Denver amendments.

Sections 103 through ~~109~~108, and 112 through 115 are ~~replaced~~ deleted in their entirety. Sections 103 through 142 of the *Denver Commercial Building Code* shall govern. ~~as follows:~~

~~Article 1, Section 1 of the *2025 Denver Commercial Building Code* shall govern.~~

~~CHAPTER 2~~
CHAPTER 2: DEFINITIONS

SECTION 202 GENERAL DEFINITIONS

Section 202 General definitions is amended by adding and modifying the following definitions:

SERVICE SINK: A sink or receptor intended for custodial use that is capable of being used to fill and empty a janitor's bucket. Included are mop sinks, laundry sinks, utility sinks and similar fixtures but not a kitchen sink or lavatory.

PUBLIC OR PUBLIC UTILIZATION: In the classification of plumbing fixtures, "*public*" applies to fixtures in general toilet rooms of schools, gymnasiums, hotels, airports, bus and railroad stations, public buildings, bars, public comfort stations, office buildings, stadiums, stores, restaurants, and other installations where a number of fixtures are installed so that their utilization is similarly unrestricted.

~~CHAPTER 3~~
~~GENERAL REGULATIONS~~

~~**SECTION 301**~~

~~**GENERAL**~~

~~**[EB] Section 301.8 Existing buildings is added as follows:**~~

~~**301.8 Existing buildings.** Plumbing fixtures in existing *buildings* may have their use continued if such use was legal at the time of enforcement of the Plumbing Code in force at the time of construction and such use is not detrimental to the health or safety requirements of current occupancy or use.~~

~~Any change in the use or occupancy of any existing building or structure shall comply with the provisions of this code~~this code~~. Any deviations may be *approved* by the *building official* as allowed through processes found in Article 1, Section 1 of the Denver Building Code.~~

~~**SECTION 306**~~

~~**TRENCHING, EXCAVATION AND BACKFILL**~~

~~**[DOTI] Section 306.2.5 Trench safety is added as follows:**~~

~~**306.2.5 Trench safety.** All excavations shall follow guidelines as required by OSHA.~~

~~CHAPTER 4~~
CHAPTER 4: FIXTURE, FAUCETS AND FIXTURE FITTINGS

SECTION 401 GENERAL

[CC] Section 401.3.1 Rain sensing is added as follows:

401.3.1 Rain sensing. An *approved* rain sensing system shall be installed on all new automatic lawn sprinkler systems. Said rain sensing system shall be capable of turning the lawn sprinkler system off in the event adequate rain has fallen.

[CC] Section 401.3.2 Metering is added as follows:

401.3.2 Metering. Each individual *dwelling unit* shall be metered in such a way that all water used by a *dwelling unit* can be recorded and billed. The maintenance and repair of meters shall be the responsibility of the owner of the metered property.

Exception:

Where individual *dwelling units* are served by a domestic central water heating system.

SECTION 403 MINIMUM PLUMBING FACILITIES

Section 403 Minimum Plumbing Facilities and all subsections are deleted in their entirety and replaced as follows:

Minimum Plumbing Facilities shall comply with Section 2902 of the *Denver Commercial Building Code*.

~~**SECTION 403**~~
~~**MINIMUM PLUMBING FACILITIES**~~

~~**Section 403.1.1 Fixture calculations is amended by replacing exception 2:**~~

~~**Exceptions:**~~

~~2. Calculations of fixtures provided in toilet and bathing rooms identified as all-gender shall be permitted to sum fractional numbers for each sex and then round up to the next whole number. Fixtures shall contribute equally to the number of male and female fixtures required. For occupancies where the required number of female fixtures is more than the required number of male fixtures, the additional fixtures are permitted to be provided in all-gender facilities.~~

~~**Section 403.1.2 Fixtures in single-user toilet facilities and bathing rooms is replaced in its entirety as follows:**~~

~~**403.1.2 Toilet and bathing room fixture designation.** Toilet and bathing fixtures shall be located in single-user or multi-user toilet and bathing rooms and shall be identified for use by sex or gender in accordance with Section 2902.1.2.1 and Section 2902.1.2.2 of the *Denver Commercial Building Code*.~~

~~**403.1.2.1 Single-user toilet and bathing rooms.** A single-user toilet and bathing room shall contain not more than one water closet, one bathtub and one shower. Plumbing fixtures provided in single-user toilet and bathing rooms shall contribute toward the total number of required plumbing fixtures as calculated per Section 2902.1.1 Exception 2 of the *Denver Commercial Building Code*. Single-user toilet and bathing rooms, including family or assisted-use toilet and bathing rooms shall be identified for use by all genders. Toilet fixtures shall not be in separate compartments.~~

~~**Exception:** In addition to a single water closet, one child-height water closet and one urinal shall be permitted to be located in a single-user toilet or bathing room. Not more than one water closet provided for each single-user toilet or bathing room shall contribute toward the total number of required plumbing fixtures.~~

~~**403.1.2.2 Multi-user toilet and bathing rooms.** Multi-user toilet and bathing rooms with not less than two water closet compartments, or one water closet compartment and one urinal, or two bathing fixtures shall be provided as separate male and female facilities. Plumbing fixtures provided in multi-user toilet and bathing rooms shall contribute toward the total number of required plumbing fixtures for the sex to which they are designated.~~

~~**Exception:** Multi-user toilet rooms complying with Section 2902.7 of the *Denver Commercial Building Code*. shall be permitted to be identified for use by all genders. Water closets and lavatories provided in multi-user toilet rooms identified for use by all genders shall contribute toward the total number of required plumbing fixtures as calculated per Section 2902.1.1 Exception 2. Where both separate and all-gender facilities are provided, separate independent multi-user male and female facilities shall be provided.~~

Section 403.1.3 Lavatory distribution is replaced as follows:

403.1.3 Lavatory Distribution. Where two or more toilet rooms are provided, the required number of lavatories shall be distributed proportionally to the required number of water closets. The required lavatories shall be permitted to be located within water closet compartments provided not less than the larger of one-half of the required lavatories or two lavatories shall be located outside of the water closet compartments.

Section 403.2 Separate facilities and its exception is replaced in its entirety as follows:

403.2 Minimum number facilities. Where plumbing fixtures are required, a minimum of two facilities shall be provided.

Exceptions: The minimum number of toilet facilities shall not be required for the following:

1. *Dwelling units* and *sleeping units*.

2. Structures or tenant spaces with a total occupant load, including both employees and customers, of 15 or fewer.

3. Mercantile occupancies in which the maximum occupant load is 100 or fewer.

4. Business occupancies in which the maximum occupant load is 25 or fewer.

5. Occupancies in which all-gender multi-user toilet rooms complying with Section 2902.8 of the *Denver Commercial Building Code* are provided.

[DPHE] Sections 403.3.2 Prohibited location for toilet facilities shall be amended by adding the following to the end of the section:

Access to toilet rooms shall not be through food preparation areas, food storage areas, or ware washing or utensil storage areas, except for toilet rooms provided exclusively for the use of employees who primarily work in the food preparation area.

Section 403.3.6 Door locking is replaced in its entirety as follows:

403.3.6 Door locking. Door locking of toilet rooms, bathing rooms, and toilet compartments shall comply with this section.

403.3.6.1 Multi-user toilet and bathing rooms. Where provided, an egress door for the room shall not be lockable from the inside of the room.

403.3.6.2 Single-user toilet and bathing rooms. The egress door for the room shall be lockable from the inside of the room for privacy. The privacy lock shall be in accordance with Sections 1010.2.2 and 1010.2.3 of the *Denver Commercial Building Code*.

Exceptions:

1. Privacy locking shall not be required in *sleeping units* or *dwelling units*.

2. Where *approved* in Group I occupancies, toilet room privacy is not required where care recipients or detainees require observation for clinical or security reasons.

403.3.6.3 All-gender multi-user toilet rooms toilet compartment doors. Toilet compartment doors in all-gender multi-user toilet rooms shall have a privacy lock that has an indicator which notifies occupants on the exterior side of the door when the door is secured from the inside of the compartment.

Section 403.4. Signage is replaced as follows (subsection remains unchanged):

403.4 Signage. Required public facilities shall be provided with signs that designate the sex or gender as required by Section 2902.2 of the *Denver Commercial Building Code*. Signs shall be readily visible and located near the entrance to each toilet facility or bathing room. Signs for accessible toilet and bathing room facilities shall comply with Section 1112 of the *Denver Commercial Building Code*.

[DPHE] Section 403.6 Service sink location is amended by adding the following to the end of the section:

Service sinks are required on each floor where toilet facilities are provided in the following locations:

1. In food service facilities and occupancies,

2. In Group R occupancies that have food, drink, or ice for consumption or handling.

Section 403.7 All-gender multi-user toilet rooms and its subsections are added:

403.7 All-gender multi-user toilet rooms. Where all-gender multi-user toilet rooms are provided, they shall be in accordance with this Section.

403.7.1 Minimum number of fixtures. All-gender multi-user toilet rooms shall contain not less than six toilet compartments and three lavatories.

Exception: Where a single-user toilet room is clustered at a single location with an all-gender multi-user toilet room, the all-gender multi-user toilet room shall be permitted to contain not less than three toilet compartments and two lavatories.

403.7.2 Clearance. Toilet rooms shall be provided with a minimum clearance of not less than 60 inches (1524 mm) between all opposing toilet compartments, walls, and lavatories.

Exception: Circulation areas serving not more than one plumbing fixture.

403.7.3 Toilet compartments. Water closets shall each be provided in individual compartments. Compartments shall be permitted to include walls, partitions and doors and shall begin at the floor and extend to the finished ceiling, have no sightlines when the door is in the closed position and have a lockable door in accordance with Section 2902.3.6.3 of the *Denver Commercial Building Code*. A urinal shall be permitted only within a water closet compartment; such urinal shall not contribute towards the total number of required *plumbing fixtures*.

Exceptions:

1. Compartment door undercuts shall be permitted to be not more than 0.5 inches. (13 mm).

2. Air transfer grills at the entrance side of a compartment shall be allowed where they are provided at a height not less than 80 inches (2 133.6 mm).

3. Partial-height toilet compartments are permitted where they begin at a height not more than 4.5 inches (114.3 mm) and extend to a height not less than 96 inches (2 438.4 mm) above the finished floor surface.

[DPHE] Section 403.8 Toilet room accessories is added as follows:

[DPHE] 403.8 Toilet room accessories. A minimum of one hand-drying facility shall be provided in each toilet room where lavatories are provided.

Section 403.9 Drive-in facilities is added as follows:

403.9 Drive-in facilities. In addition to plumbing facilities otherwise required by Section 2902.1 of the *Denver Commercial Building Code*, public toilet facilities shall be provided to serve an occupant load equal to twice the number of parking stalls provided at drive-in restaurants and drive-in movie theaters.

SECTION 416 FOOD WASTE DISPOSER UNITS

Section 416.2 Domestic food waste disposer outlets is replaced as follows:

416.2 Domestic food waste disposer outlets. Domestic food waste disposer outlets may be 1 ½ inch (38.1 mm) but shall be connected to a *drain* of at least 2 inches (50.8 mm) in diameter.

Section 416.3 Commercial food waste disposer waste outlets is replaced as follows:

416.3 Commercial food waste disposer waste outlets. Commercial food waste disposers shall be connected to a drain not less than 2 inches (50.8 mm) in diameter. Commercial food waste disposers shall be connected and trapped separately from any other fixtures or sink compartments.

~~**[DOTI] Section 416.3.1 Discharge into grease interceptor is added as follows:**~~

~~**416.3.1 Discharge into grease interceptor.** All food waste disposals in commercial kitchens shall be connected to and discharge into the *grease interceptor*.~~

~~**Exception:** Vegetable preparation area disposal may discharge to either sanitary or grease waste system.~~

~~CHAPTER 5~~
CHAPTER 5: WATER HEATERS

SECTION 501 GENERAL

Section 501.2 Water heater as space heater is amended by adding the following to the end of the section:

When the space heating system is inactive, one of the following methods of preventing stagnation of the water shall be employed:

1. The space heating coil circulation pump shall be cycled on with valves open every 12 hours for a minimum of 5 minutes.
2. Other methods ~~*approved* by the *building official* per~~in accordance with the space heating coil manufacturer's recommendations that prevent stagnation~~ and submitted in accordance with Article 1, Section 104.10 of the Denver Building Code~~.

Section 501.7.1 ASME label required is added as follows:

501.7.1 ASME label required. When heated by steam or any other indirect means, hot water storage tanks shall comply with ASME construction requirements and bear the ASME label if nominal water containing capacity is 120 gal. or greater, or if either of the following limitations are exceeded: heat input of 200,000 Btu/hr; water temperature of 210° F.

~~**SECTION 502**~~

~~**INSTALLATION**~~

~~**Section 502.2 Rooms used as a plenum is amended by adding an Exception:**~~

~~**Exception:**~~

~~The water heater is a direct-vent appliance installed in accordance with the conditions of the listing and the manufacturer's instructions.~~

~~CHAPTER 6~~

CHAPTER 6: WATER SUPPLY AND DISTRIBUTION

SECTION 603 WATER SERVICE

[DW] Section 603.1 Size of water service pipe is replaced as follows:

603.1 Size of water service pipe. The *water service pipe* shall be sized to supply water to the structure in the quantities and at the pressures required in ~~this code~~this code. The minimum diameter of water service pipes shall be ¾ inch (19 mm). The service line shall remain the same size from tap through meter, then may be increased in size thereafter.

SECTION 604 DESIGN OF BUILDING WATER DISTRIBUTION SYSTEM

Table 604.4 Maximum flow rates and consumption for plumbing fixtures and fixture fittings is replaced as follows:

PLUMBING FIXTURE OR FIXTURE FITTIN(	MAXIMUM FLOW RATE OR QUANTITY
Lavatory, private	1.5 gpm at 60 psi
Lavatory, public (metering)	0.25 gallon per metering cycle
Lavatory, public (other than metering)	0.5 gpm at 60 psi
Shower head	1.8 gpm at 80 psi
Sink faucet	1.5 gpm at 60 psi
Urinal	0.125 gallon per flushing cycle
Water closet (tank)	1.28 gallon per flushing cycle
Water closet (flushometer valve)	1.28 gallon per flushing cycle
Kitchen sink faucet	1.8 gpm (temporary override to 2.2 gpm permitted)

SECTION 608 PROTECTION OF POTABLE WATER SUPPLY

~~**[DW, FCWA] Section 608.1.1 Backflow devices is added as follows:**~~

~~**608.1.1 Backflow devices.** *Backflow* devices installed in water service lines shall be inspected and maintained per Denver Water/State of Colorado Clean Water Act, and the Colorado Cross-Connection Control Manual, most recent edition, as published by the Colorado Department of Public Health and Environment Water Quality Control Division.~~

Section 608.8 Valves and outlets prohibited below grade is amended by adding Exception 2 and numbering the existing Exception as Exception 1:

Exceptions:

2. Combination stop and waste valves may be installed underground if an *approved* means of removing wastewater from the seep hole is provided, such as a gravel bedding, etc.

Section 608.15.2.1 Relief port piping is amended by adding the following to the section as follows:

If this discharge is by means of a pump, the pump shall be sized to handle the maximum discharge of the device.

CHAPTER 7: SANITARY DRAINAGE
~~SANITARY DRAINAGE~~

~~**SECTION 703**~~
~~**BUILDING SEWER**~~

~~**[DOTI] Section 703.7 Slope of building sewer piping is added as follows:**~~

~~**703.7 Slope of building sewer piping.** Building sewers shall be installed at uniform grade or slope. The minimum grade of building sewers shall be in accordance with Denver Wastewater Management Standards.~~

SECTION 705 JOINTS

705.10.2 Solvent cementing is modified by deleting the exception.

SECTION 708 CLEANOUTS

[DOTI] Section708.1.3 Building drain and building sewer junction is replaced in its entirety as follows:

708.1.3 Building drain and building sewer junction. There shall be a cleanout at the junction of the building sewer. An *approved* two-way cleanout shall be used and brought up to finished grade. Minimum size shall be 4” or as approved by Denver Wastewater Management.

[DOTI] Section 708.1.4 Changes of direction is replaced in its entirety as follows:

708.1.4 Changes of direction. Cleanouts shall be installed at each change of direction of the building drain or horizontal waste or soil lines greater than 135 degrees (2.36 rad.). Where more than one change of direction occurs in a run of piping, only one cleanout shall be required for each 40 feet (12 192 mm) of developed length of the drainage piping.

SECTION 712 SUMPS AND EJECTORS

Section 712.4 Sewage pumps and sewage ejectors is amended as follows:

712.4 Sewage pumps and sewage ejectors. In public use occupancies, dual (duplex) sewage ejectors shall be required and shall be arranged to function independently in case of mechanical failure. All dual ejectors shall be alarmed to provide visual and/or audible notification of failure.

Exceptions:

1. A single ejector pump may be used in ~~commercial~~ non-residential applications when it is used for a single exam room or breakroom sink and associated dishwasher and/or disposer.

~~1.~~2. A single ejector pump may be used in non-residential application for a single fixture or a single-user restroom that is not a required fixture to meet code minimum fixtures in DBC Table 2902.1 or other laws, rules, regulations, or ordinances applicable in this jurisdiction.

SECTION 717 RELINING BUILDING SEWERS AND BUILDING DRAINS

Section 717.4 Permitting is amended by adding the following sentence:

Prior to the commencement of the relining of existing building sewer or building drain piping, plans shall be submitted to Denver Wastewater Management for approval.

SECTION 718 REHABILITATION OF BUILDING SEWERS AND BUILDING DRAINS

Section 718.1 Cure-in-place is amended by adding the following sentence:

Prior to the commencement of the rehabilitation of existing building sewer or building drain piping, plans shall be submitted to Denver Wastewater Management for approval.

~~CHAPTER 8~~
CHAPTER 8: INDIRECT/SPECIAL WASTE

SECTION 803 SPECIAL WASTES

[DW] Section 803.3 Cooling water is added as follows:

803.3 Cooling water. Domestic water used for cooling purposes shall be consumed or recycled and shall not be discharged to a storm drain, above-ground drainage, or below-ground drainage unless specifically

approved by Denver Water.

Exception: Diesel driven fire pump.

~~CHAPTER 9~~
CHAPTER 9: VENTS

SECTION 903 VENT TERMINALS

903.1.1 Roof extension unprotected is modified as follows:

903.1.1 Roof extension unprotected. Open vent pipes that extend through a roof shall be terminated not less than 12 inches (305 mm) above the roof.

~~CHAPTER 10~~
CHAPTER 10: TRAPS, INTERCEPTORS AND SEPARATORS

SECTION 1003 INTERCEPTORS AND SEPARATORS

[DOTI] Section 1003.2 Approval is replaced in its entirety as follows:

1003.2 Approval. The size, type, and location of each interceptor and of each separator shall be designed and installed in accordance with the manufacturers' instructions and the requirements of this section based on the anticipated conditions of use. Wastes that do not require treatment or separation shall not be discharged into any interceptor or separator. Prior to installation of any interceptor or separator and their associated piping, plans shall be submitted to Denver Wastewater Management for approval.

Section 1003.3 Grease interceptors and all its subsections are deleted and replaced as follows:

1003.3 Grease interceptors. *Grease interceptors* shall comply with the requirements of the Wastewater Management Division, the Department of Public Health & Environment, and this section.

1003.3.1 Grease interceptors and automatic grease removal devices required. A *grease interceptor* shall be required to receive the drainage from all fixtures, drains, and equipment located in commercial kitchen areas and warewashing areas.

Exceptions:

1. Bars and beverage stations that are not within the kitchen area.
2. Where approved in accordance with the procedures established by the Wastewater Management Division.

1003.3.2 Food waste disposers. Food waste disposers in commercial kitchens shall be routed through the *grease interceptor*.

Exception: Food waste disposers dedicated to vegetable preparation, and where other means of disposal of meats, oil, and grease waste is provided.

1003.3.3 Grease interceptor capacity. *Grease interceptors* shall be sized in accordance with the procedures established by the Wastewater Management Division.

1003.3.4 Hydromechanical grease interceptors and automatic grease removal devices. Hydromechanical *grease interceptors* and *automatic grease removal devices* shall not be allowed, except as *approved* under the provisions of Section 104 of Article 1, Section 1 of the Denver Building Code, and in accordance with the procedures established by the Wastewater Management Division.

1003.3.5 Sewage ejectors. Sewage ejectors shall not be installed upstream of *grease interceptors*.

Section 1005 Abandoned interceptors is added as follows:

SECTION 1005 ABANDONED INTERCEPTORS

[DOTI] 1005.1 Abandoned food/oil grease interceptors and sand/oil interceptors. All food/oil/*grease interceptors* and sand/oil interceptors that are to be abandoned or by-passed, shall have all piping removed, the structure capped or plugged, and the lid broken as to make it unusable. It shall be pumped clean and filled with granular material to satisfy Denver Wastewater Management standards.

~~CHAPTER 11~~
CHAPTER 11: STORM DRAINAGE

SECTION 1101 GENERAL

[DOTI] Section 1101.1 Scope is replaced in its entirety as follows:

1101.1 Scope. The provisions of this chapter shall govern the materials, design, construction, and installation of storm drainage. That portion of the storm drainage system from the building to the public storm sewer shall be in accordance with the procedures established by the Wastewater Management Division.

SECTION 1106 SIZE OF CONDUCTORS, LEADERS, AND STORM DRAINS

Section 1106.1 General is replaced in its entirety as follows:

1106.1 General. The size of the vertical conductors and leaders, building storm sewers and any horizontal branches of such drains shall be based on 2.4-inch (61 mm) rainfall per hour per figure 1106.1(1).

~~**Section 1106.2.2 Alternative storm drain sizing is added as follows:**~~

1106.2.2 Alternative storm drain sizing. The size of the building *storm drain*, building storm *sewer* and their horizontal branches having a slope of one-half unit or less vertically in 12 units horizontally (4-percent slope) shall be based on the maximum projected roof area in accordance with Table 1106.2.2. The minimum slope of horizontal branches shall be one-eighth unit vertical in 12 units horizontal (1-percent slope) unless otherwise *approved* in accordance with Article I, Section 104.10 of the Denver Building Code.

~~Table 1106.2.2 Size of horizontal storm drainage piping is added as follows:~~

~~TABLE 1106.2.2~~

~~SIZE OF HORIZONTAL STORM DRAINAGE PIPING~~

SIZE OF HORIZONTAL PIPING (inches)	HORIZONTALLY PROJECTED ROOF AREA (square feet)					
	Rainfall rate (inches per hour)					
	1	2	3	4	5	6
	$^1/_8$ unit vertical in 12 units horizontal (1-percent slope)					
3	3,288	1,644	1,096	822	657	548
4	7,520	3,760	2,506	1,800	1,504	1,253
5	13,360	6,680	4,453	3,340	2,672	2,227
6	21,400	10,700	7,133	5,350	4,280	3,566
8	46,000	23,000	15,330	11,500	9,200	7,600
10	82,800	41,400	27,600	20,700	16,580	13,800
12	133,200	66,600	44,400	33,300	26,650	22,200
15	218,000	109,000	72,800	59,500	47,600	39,650
	$^1/_4$ unit vertical in 12 units horizontal (2-percent slope)					
3	4,640	2,320	1,546	1,160	928	773
4	10,600	5,300	3,533	2,650	2,120	1,766
5	18,880	9,440	6,293	4,720	3,776	3,146
6	30,200	15,100	10,066	7,550	6,040	5,033
8	65,200	32,600	21,733	16,300	13,040	10,866
10	116,800	58,400	38,950	29,200	23,350	19,450
12	188,000	94,000	62,600	47,000	37,600	31,350
15	336,000	168,000	112,000	84,000	67,250	56,000
	$^1/_2$ unit vertical in 12 units horizontal (4-percent slope)					
3	6,576	3,288	2,295	1,644	1,310	1,096
4	15,040	7,520	5,010	3,760	3,010	2,500
5	26,720	13,360	8,900	6,680	5,320	4,450
6	42,800	21,400	13,700	10,700	8,580	7,140
8	92,000	46,000	30,650	23,000	18,400	15,320
10	171,600	85,800	55,200	41,400	33,150	27,600
12	266,400	133,200	88,800	66,600	53,200	44,400
15	476,000	238,000	158,800	119,000	95,300	79,250

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 m^2.

~~Section 1106.3.1 Alternative vertical leader sizing is added as follows:~~

~~1106.3.1 Alternative vertical leader sizing.~~ ~~Vertical conductors and leaders shall be sized for the maximum projected roof area, in accordance with Tables 1106.3.1(1) and 1106.3.1(2)~~

~~Table 1106.3.1(1) and 1006.3.1(2) is added as follows:~~

~~TABLE 1106.3.1(1)~~
~~SIZE OF CIRCULAR VERTICAL CONDUCTORS AND LEADERS~~

DIAMETER OF LEADER (inches)[a]	HORIZONTALLY PROJECTED ROOF AREA (square feet)											
	Rainfall rate (inches per hour)											
	1	2	3	4	5	6	7	8	9	10	11	12
2	2,880	1,440	960	720	575	480	410	360	320	290	260	240
3	8,800	4,400	2,930	2,200	1,760	1,470	1,260	1,100	980	880	800	730
4	18,400	9,200	6,130	4,600	3,680	3,070	2,630	2,300	2,045	1,840	1,675	1,530
5	34,600	17,300	11,530	8,650	6,920	5,765	4,945	4,325	3,845	3,460	3,145	2,880
6	54,000	27,000	17,995	13,500	10,800	9,000	7,715	6,750	6,000	5,400	4,910	4,500
8	116,000	58,000	38,660	29,000	23,200	19,315	16,570	14,500	12,890	11,600	10,545	9,600

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 m^2.

a. Sizes indicated are the diameter of circular piping. This table is applicable to piping of other shapes, provided the cross-sectional shape fully encloses a circle of the diameter indicated in this table. For rectangular leaders, see Table 1106.2(2). Interpolation is permitted for pipe sizes that fall between those listed in this table.

~~TABLE 1106.3.1(2)~~
~~SIZE OF RECTANGULAR VERTICAL CONDUCTORS AND LEADERS~~

DIMENSIONS OF COMMON LEADER SIZES width x length (inches)[a]	HORIZONTALLY PROJECTED ROOF AREA (square feet)											
	Rainfall rate (inches per hour)											
	1	2	3	4	5	6	7	8	9	10	11	12
$1^3/_4 \times 2^1/_2$	3,410	1,700	1,130	850	680	560	480	420	370	340	310	280
2×3	5,540	2,770	1,840	1,380	1,100	920	790	690	610	550	500	460
$2^3/_4 \times 4^1/_4$	12,830	6,410	4,270	3,200	2,560	2,130	1,830	1,600	1,420	1,280	1,160	1,060
3×4	13,210	6,600	4,400	3,300	2,640	2,200	1,880	1,650	1,460	1,320	1,200	1,100
$3^1/_2 \times 4$	15,900	7,950	5,300	3,970	3,180	2,650	2,270	1,980	1,760	1,590	1,440	1,320
$3^1/_2 \times 5$	21,310	10,650	7,100	5,320	4,260	3,550	3,040	2,660	2,360	2,130	1,930	1,770
$3^3/_4 \times 4^3/_4$	21,960	10,980	7,320	5,490	4,390	3,660	3,130	2,740	2,440	2,190	1,990	1,830
$3^3/_4 \times 5^1/_4$	25,520	12,760	8,500	6,380	5,100	4,250	3,640	3,190	2,830	2,550	2,320	2,120
$3^1/_2 \times 6$	27,790	13,890	9,260	6,940	5,550	4,630	3,970	3,470	3,080	2,770	2,520	2,310
4×6	32,980	16,490	10,990	8,240	6,590	5,490	4,710	4,120	3,660	3,290	2,990	2,740
$5^1/_2 \times 5^1/_2$	44,300	22,150	14,760	11,070	8,860	7,380	6,320	5,530	4,920	4,430	4,020	3,690
$7^1/_2 \times 7^1/_2$	100,500	50,250	33,500	25,120	20,100	16,750	14,350	12,560	11,160	10,050	9,130	8,370

a. Sizes indicated are nominal width × length of the opening for rectangular piping.

b. For shapes not included in this table, Equation 11-1 shall be used to determine the equivalent circular diameter, D_e, of rectangular piping for use in interpolation using the data from Table 1106.2(1).

$D_e = [\text{width} \times \text{length}]^{1/2}$ **(Equation 11-1)**

where:

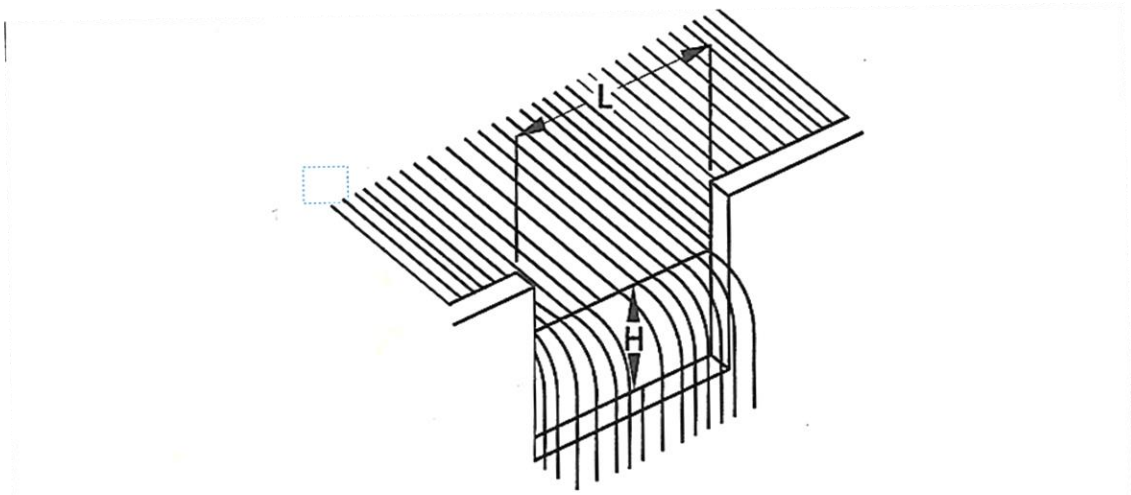
D_e = equivalent circular diameter and D_e, width and length are in inches.

Section IPC 1106.5 Parapet wall scuppers is replaced in its entirety as follows:

1106.5 Parapet wall scuppers. Where scuppers are used for primary roof drainage or for secondary (emergency over-flow) roof drainage or both, the quantity, size, location, and inlet elevation of the scuppers shall be chosen to prevent the depth of ponding water on the roof from exceeding the maximum water depth that the roof was designed for as determined by Section 1611.1 of the *Denver Commercial Building Code*. Scuppers shall have an opening height of not less than 4 inches (102 mm), a width of not less than 4 inches (102 mm) and shall be sized in accordance with 1106.5.1 or 1106.5.2. The flow through the primary system shall not be considered when locating and sizing secondary scuppers.

1106.5.1 Equivalent circumference. The scupper width shall be equal to or greater than the strainer circumference of a roof drain sized for the same roof area.

1106.5.2 Francis formula. The scupper shall be sized by the Francis formula in accordance with Figure 1106.5.2



HEAD (*H*) (inches)	CAPACITY OF SCUPPER (gallons per minute) Length (*L*) of scupper (inches)									
	4	6	8	10	12	18	24	30	36	48
1	10.7	17.4	23.4	29.3	35.4	53.4	71.5	89.5	107.5	143.7
2	30.5	47.5	64.4	81.4	98.5	149.4	200.3	251.1	302.1	404.0
3	52.9	84.1	115.2	146.3	177.8	271.4	364.9	458.5	552.0	739.0
4	76.7	124.6	172.6	220.5	269.0	413.3	557.5	701.8	846.0	1135.0
6	123.3	211.4	299.5	387.5	476.5	741.1	1005.8	1270.4	1535.0	2067.5

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 gallon per minute = 3.785 L/m.
Based on the Francis formula:

Figure 1106.5.2 Francis Formula

Francis Formula:

$Q = 3.33 (L - 0.2H) H^{1.5}$

Where:

Q = Flow rate (cubic feet per second)

L = Length of scupper opening (feet).

H = Head on scupper [feet (measured 6 feet back from opening)]

~~CHAPTER 13~~
~~NONPOTABLE WATER SYSTEMS~~
~~CHAPTER 13~~
CHAPTER 13: NONPOTABLE WATER SYSTEMS

~~SECTION 1301~~
~~GENERAL~~
SECTION 1301 GENERAL
Section 1301.1 General is modified by adding the following sentence:

For nonpotable graywater, Regulation 86 as adopted by *Denver Department of Public Health & Environment* shall take precedence over the provisions in ~~this code~~this code.

~~CHAPTER 14~~
CHAPTER 14: SUBSURFACE GRAYWATER SOIL ABSORPTION SYSTEMS

SECTION 1401 SCOPE
Section 1401.1 General is modified by adding the following sentence:

The use and application of nonpotable water for subsurface graywater soil absorption systems shall comply with Regulation 86 as adopted by *Denver Department of Public Health & Environment* and shall take precedence over the provisions in ~~this code~~this code.

~~**Section 1301.13 Sub-metered irrigated landscape thresholds is added as follows:**~~

~~**1301.13 Sub-metered irrigated landscape thresholds.** Irrigated landscape area greater than 25,000 square feet (2322.6 m^2) shall have a master valve and shall be sub-metered with equipment that can remotely measure and transmit water use data.~~

PLUMBING CODE APPENDICES
STATUS OF ADOPTION FOR APPENDICES

Appendices are Adopted or Not Adopted as part of ~~this Code~~this code as noted in Appendix Adoption Table 1. Provisions in Appendices that are Adopted carry the full weight and mandatory enforceability of ~~this code~~this code.

PLUMBING CODE APPENDIX ADOPTION TABLE 1

APPENDIX	TITLE	STATUS
A	Plumbing Permit Fee Schedule	Not Adopted
B	Rates of Rainfall for Various Cities	Not Adopted
C	Structural Safety	~~Adopted~~Not Adopted
D	Degree Day and Design Temperatures	Not Adopted
E	Sizing of Water Piping System	Adopted
F	Board of Appeals	Not Adopted

END OF 2025 DENVER PLUMBING CODE

2025

DENVER FUEL GAS CODE

COMPRISED OF

2025 DENVER AMENDMENTS

TO THE 2024 EDITION OF THE

INTERNATIONAL FUEL GAS CODE (IFGC) AND APPENDICES

AS PUBLISHED BY INTERNATIONAL CODE COUNCIL (ICC)

The 2024 International Fuel Gas Code and all errata to that code is hereby adopted and incorporated by reference except for the amendments to each chapter and appendix of the 2024 International Fuel Gas Code specified below as part of the Denver Building Code.

~~CHAPTER 1~~
CHAPTER 1: ADMINISTRATION

SECTION 101 ~~-~~GENERAL

Section 101.1 Title is deleted in its entirety and replaced as follows:

101.1 Title. These regulations shall be known as the Denver Fuel Gas Code (DFGC), hereinafter referred to as "~~this code~~this code."

Section 102.8.3 Renaming of certain referenced codes is added to read as follows:

102.8.3 Renaming of certain referenced codes. Any references to the *International Building Code*, *International Energy Conservation Code*, *International Fire Code*, *International Plumbing Code*, *International Residential Code*, *International Mechanical Code*, *International Existing Building Code*, *and NFPA 70* means the Denver Commercial Building Code (DCBC), Denver Energy Code (DEC), Denver Fire Code (DFC), Denver Plumbing Code (DPC), Denver Residential Code (DRC), Denver Mechanical Code (DMC), Denver Existing Building Code (DEBC), and the Electrical Code ~~of the City and County of Denver~~as adopted by the State of Colorado, respectively.

All references to the International Energy Conservation Code are to the 2021 International Energy Conservation Code including the 2025 Denver amendments.

Sections 103 through 108, and 112 through 114 are amended by deleting those sections in their entirety. Sections 103 through 142 of the *Denver Commercial Building Code* shall govern.~~Section 1 of the 2025 *Denver Commercial Building Code* shall govern.~~

~~CHAPTER 4~~
CHAPTER 4: GAS PIPING INSTALLATIONS

SECTION 403 ~~-~~PIPING MATERIALS

Section 403.3.3 Copper and copper alloy is replaced in its entirety as follows:

403.3.3 Copper and copper alloy. Copper and copper alloy pipe shall not be used.

Section 403.4.3 Copper and copper alloy tubing is replaced in its entirety as follows:

403.4.3 Copper and copper alloy tubing. Copper and copper alloy tubing shall not be used.

SECTION 404 PIPING SYSTEM INSTALLATION

Section 404.3 Prohibited locations is amended by adding the following sentence to the end of the section:

Gas meters shall not be located in or under any building unless the meter is located in its own dedicated,

adequately ventilated vault.

SECTION 406 INSPECTION, TESTING AND PURGING

Section 406.4.1 Test pressure is replaced in its entirety as follows:

406.4.1 Test pressure. The test pressure to be used shall be no less than 1½ times the proposed maximum working pressure, but not less than 10 psig (69 kPa gauge), irrespective of design pressure. For welded piping and for piping carrying gas at pressures exceeding 14 inches water column (3.5 kPa gauge) pressure, the test pressure shall be no less than 60 psig (414 kPa gauge). Where the test pressure exceeds 125 psig (862 kPa gauge), the test pressure shall not exceed a value that produces a hoop stress in the piping greater than 50 percent of the specified minimum yield strength of the pipe.

~~CHAPTER 5~~
CHAPTER 5: CHIMNEYS AND VENTS

SECTION 501 GENERAL

Section 501.8 Appliances not required to be vented is amended by deleting Item 8 in its entirety.

~~CHAPTER 6~~
CHAPTER 6: SPECIFIC APPLIANCE

SECTION 609 ~~-~~FLOOR FURNACES

Section 609 Floor furnaces is replaced in its entirety as follows:

609 Floor furnaces. Floor furnaces are prohibited.

SECTION 611 NONRECIRCULATING DIRECT-FIRED INDUSTRIAL AIR HEATERS

Section 611.2 Installation is amended by adding the following to the end of the section:

Non-recirculating direct-fired industrial air heaters shall be installed only in Group F, H, S and U occupancies and in commercial kitchens as makeup air for range hood exhaust systems. Such equipment shall only be used together with powered exhaust systems having airflow capacity at least equal to the capacity of the direct-fired heater to prevent the accumulation of products of combustion.

Section 611.7 Relief opening is deleted in its entirety.

SECTION 612 RECIRCULATING DIRECT-FIRED INDUSTRIAL AIR HEATERS

Section 612.3 Installation is amended by adding the following to the end of the section:

Recirculating direct-fired industrial air heaters may be installed only in Group F, H, S and U occupancies. All areas served by recirculating direct-fired industrial heaters must be protected by the

installation of CO sensors spaced per manufacturer's recommendations. Whenever automatic carbon monoxide sensing devices exceed the NAAQS of 9 ppm for an 8-hour average or 35 ppm for a one-hour average, the CO sensors shall activate an increase in the exhaust air volume in order to reduce CO concentrations back below those prescribed levels.

Section 612.7 Relief opening is deleted in its entirety.

SECTION 621 UNVENTED ROOM HEATERS

Section 621 Unvented room heaters is replaced in its entirety as follows:

621 Unvented room heaters. Unvented room heaters are prohibited.

SECTION 623 COOKING APPLIANCES

Section 623.3.1 Residential cooking appliances vented by exhaust hoods is added as follows:

623.3.1 Residential cooking appliances vented by exhaust hoods. Where residential cooking appliances are gas-fired, a fan-powered exhaust system shall be installed with an exhaust hood over the appliance and shall be ~~vented~~ exhausted to the ~~outside~~outdoors. The ~~system~~ exhaust hood shall be sized ~~and installed~~ in accordance with the appliance manufacturer's instructions. ~~Where not specified by the manufacturer, other *approved* published methods shall be used.~~

END OF 2025 DENVER FUEL GAS CODE

~~DRAFT~~ 2025~~2~~

DENVER ENERGY CODE

COMPRISED OF

2022~~2~~5 DENVER AMENDMENTS

TO THE 2021 EDITION OF THE

INTERNATIONAL ENERGY CONSERVATION CODE (IECC) AND APPENDICES

AS PUBLISHED BY THE

INTERNATIONAL CODE COUNCIL (ICC)

The content of the sections in this Code that begin with a letter or letters designations are maintained by other City or State entities.

[CRS] Colorado Revised Statute
[DOTI] Department of Transportation and Infrastructure/Wastewater Management

~~The 2021 International Energy Conservation Code and all errata to that code is hereby adopted and incorporated by reference except for the amendments to each chapter of the 2021 International Energy Conservation Code specified below.~~

AMENDMENTS ~~AND DELETIONS~~ TO THE 2021 INTERNATIONAL ENERGY CONSERVATION CODE

The 2021 International Energy Conservation Code adopted in D.R.M.C. Sec. 10-16 is amended in the following particulars:

ENERGY CODE COMMERCIAL PROVISIONS

CHAPTER 1 [CE]: SCOPE AND ADMINISTRATION

SECTION C101 SCOPE AND GENERAL REQUIREMENTS

Section C101.1 Title is replaced in its entirety as follows:

C101.1 Title. These regulations shall be known as the Denver Energy Code (DEC) and shall be cited as such. It is referred to herein as "this code".

SECTION C102 ALTERNATIVE MATERIALS DESIGN AND METHODS OF CONSTRUTION AND EQUIPMENT

Sections C102 Alternative Materials, Design and Methods of Construction and Equipment is deleted in its entirety and replaced ~~as follows~~by: ~~with~~

~~Article 1,~~ Section 104.2.3 1 Alternative materials, design and methods of construction and equipment ~~1~~ of the ~~2022~~ 2025 *Denver Commercial Building Code* ~~shall govern~~.

SECTION C103 CONSTRUCTION DOCUMENTS

Section C103.2 Information on construction documents~~The following information on construction documents~~ is amended by adding ~~at the end~~ the following ~~new items~~:

14. Location and size of the *solar-ready zone*.

15. Structural design loads of roof dead load and roof live load for the *solar-ready zone*.

16. Location and layout diagram of the electrical energy storage system-ready area.

17. Locations of conduit and termination points for *future electric equipment* infrastructure.

18. Locations of electric vehicle parking spaces and designation of spaces as *EVSE Installed Spaces* or *EV Capable Spaces*.

Section C103.2.2 Energy compliance, is added as follows:

C103.2.2 Energy compliance. The Building Official is authorized to require additional documentation ~~through written policy~~ to ensure compliance with this code.

Section C103.2.3 2030 target EUI, is added as follows:

C103.2.3 2030 target EUI. The construction documents shall include the final 2030 target EUI required by ~~Energize Denver (~~Art. XIV, Ch. 10 of the DRMC (High-Performance Existing Buildings Program) applicable to the *building*. The EUI shall be determined in accordance with the *Rules and Regulations Governing Energize Denver Building Energy Benchmarking and Performance Requirements* ~~document~~ available from the Office of Climate Action, Sustainability and Resiliency.

Sections C104 through C107, and C109 and C110 are deleted in their entirety. Sections 103 through 142 of the *Denver Commercial Building Code* shall govern.~~Section 1 of the 2022 Denver Building Code shall govern.~~

Section C108.1 Referenced codes and standards is amended by adding a new subsection as follows:

C108.1.3 Additional codes. Any references to the International Building Code, International Existing Building Code, International Fire Code, International Fuel Gas Code, International Mechanical Code, International Plumbing Code, International Residential Code, and NFPA 70 means the Denver Commercial Building Code, Denver Existing Building Code, Denver Fire Code, Denver Fuel Gas Code, Denver Mechanical Code, Denver Plumbing Code, Denver Residential Code, and the Electrical Code as adopted by the State of Colorado, respectively.

CHAPTER 2 [CE]: DEFINITIONS

SECTION C202 GENERAL DEFINITIONS

The following definitions are added:

ALL-ELECTRIC PROPERTY.
A property on a single assessment parcel with an accompanying legally described area of land as shown on a site plan, that, except for *emergency power systems* and *standby power systems*:

1) Contains no permanently installed equipment or appliances that utilize combustion, plumbing for *fuel gas* or fuel oil, or fuel gas utility connection installed within the *building(s)* or *site*; or,
2) Contains at least one new stand-alone all-electric building where the property includes existing *fuel gas* or fuel oil infrastructure built under a code effective prior to May 1, 2023.

AUTOMOBILE PARKING SPACE. A space within a building or private or public parking lot, exclusive of driveways, ramps, columns, ~~office,~~ and work areas, for the parking of an automobile.

~~**CODE OFFICIAL.** The building official as created in Chapter 1 of the *Denver Building Code*, Sec. 102.2~~

~~**COMBUSTION.** For purposes of this code, the rapid oxidation of fuel accompanied by the production of heat or heat and light.~~

~~**COMMERCIAL COOKING APPLIANCE.** Appliances used in a commercial food service establishment for heating or cooking food. For this definition, a commercial food service establishment is where food is prepared for sale or is prepared on a scale that is by volume and frequency not representative of domestic household cooking.~~

COMBUSTION EQUIPMENT. ~~For this code, a~~Any equipment or appliance used for space heating, ventilation conditioning, space cooling, service water heating (including pools and spas), cooking, clothes drying, humidification, or lighting that uses *fuel gas* or fuel oil.

CORE AND SHELL. The phase of a new commercial *building* that has the outer building envelope constructed and may contain interior lighting and heating and has not received a permanent Certificate of Occupancy.

DEMAND RESPONSE PROGRAM. An agreement between a *building* occupant or *building* owner and third party to install and operate *demand responsive controls* in the building that automatically adjust building operations in response to a *demand response signal* from the third party.

DEMAND RESPONSE SIGNAL. A signal that indicates a price or a request to modify electricity consumption for a limited time period.

DEMAND RESPONSIVE CONTROL. A control capable of receiving and automatically responding to a *demand response signal*.

DIRECT CURRENT FAST CHARGING (DCFC) EVSE: (fast/rapid charging) Equipment capable of fast charging on a 100A or higher 480VAC three-phase branch circuit. AC power is converted into a controlled DC voltage and current within the EVSE that will then directly charge the *electric vehicle*.

ELECTRIC VEHICLE (EV). An automotive-type vehicle for on-road use, such as passenger automobiles, buses, trucks, vans, neighborhood electric vehicles, and electric motorcycles, primarily powered by an electric motor that draws current from a building electrical service, EVSE, a rechargeable storage battery, a fuel cell, a photovoltaic array, or another source of electric current.

ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE). Equipment for plug-in power transfer including the ungrounded, grounded and equipment grounding conductors, and the *electric vehicle* connectors, attachment plugs, personal protection system and all other fittings, devices, power outlets or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the *electric vehicle*.

ELECTRIC VEHICLE SUPPLY EQUIPMENT INSTALLED SPACE (EVSE Installed Space). An *automobile parking space* that is provided with a dedicated *EVSE* connection.

ELECTRIC VEHICLE CAPABLE SPACE (EV CAPABLE SPACE). ~~A designated *automobile parking space* that is provided with electrical infrastructure, such as, but not limited to, raceways necessary for the future installation of an *EVSE*. No electrical service or panel capacity is required for EV Capable Spaces at the time of construction.~~ A designated automobile parking space that has conduit or other raceway installed to support future installation of *EVSE* and has sufficient physical space adjacent to the existing electrical equipment for future upgrades. *EV Capable Spaces* do not require a building to provide sufficient electrical panel or service load capacity for future EV charging.

ELECTRIC VEHICLE ENERGY MANAGEMENT SYSTEM (EVMS). An *electric vehicle energy management system* is a technology that controls electric vehicle supply equipment (*EVSE*)

loads by connecting, disconnecting, increasing, or decreasing power simultaneously to multiple electric vehicles. *Electric vehicle energy management systems* are also known as 'smart charging', 'power sharing', or 'load sharing' systems.

~~**ELECTRIC VEHICLE READY SPACE (EV READY SPACE).** An *automobile parking space* that is provided with a branch circuit and at least one of the following: an outlet; junction box; receptacle; or *EVSE*.~~

ELECTRIFICATION RETROFIT FEASIBILITY REPORT. A ~~means a~~ report that analyzes the feasibility of using an electric heat pump when certain appliances are proposed to be replaced without an electric heat pump, and that also lists the following: the cost of the appliance with and without an electric heat pump~~,~~; the annual energy cost of the appliance with and without an electric heat pump~~,~~; and the social cost of carbon dioxide over the life of the appliance with and without an electric heat pump.

EMERGENCY EQUIPMENT REPLACEMENT. Where only one piece of heating equipment, cooling equipment, ventilation system, or service water heating equipment is failing and is replaced by another having the same heating or cooling capacity, and no other alterations are made to the central HVAC system or central water heating system.

EMERGENCY POWER SYSTEM. A source of automatic electric power of a required capacity and duration to operate required life safety, fire alarm, detection, and ventilation systems in the event of a failure of the primary power. Emergency power systems are those required for electrical loads where interruption of the primary power could result in loss of human life or serious injuries.

FIRST TENANT FINISH. The construction activities associated with the first-time build out of any space(s) in a *core and shell* building that have not been previously occupied and resulting in the issuance of a *certificate of occupancy*.

FUTURE ELECTRIC EQUIPMENT. Electrically-powered equipment that could be installed in the future to replace *combustion equipment* to meet a similar end use or load.

NEW PARKING FACILITY. A new *parking facility* or the area of expansion of an existing *parking facility* having an expansion area greater than 30% of the existing *parking facility*.

PARKING FACILITY. A contiguous parking area that can be accessed by a vehicle from a single entrance.

Delete Group R and replace with:

GROUP R. Buildings or portions of buildings that contain any of the following occupancies as established in the *Denver Commercial Building Code*:

1. Group R-1.
2. Group R-2.
3. Group R-4 more than three stories in height above grade plane.

PREDICTED ENERGY USE INTENSITY (pEUI): the annual site energy use of the *proposed design* per year in units of kBtu/sq.ft. (of building floor area).

Delete residential building and replace with:

RESIDENTIAL BUILDING. For purposes of this code, detached one- and two-family dwellings and multiple single-family dwellings (townhouses) and Group R-3 and R-4 buildings three stories or less in height above grade plane.

~~**PREDICTED ENERGY USE INTENSITY (pEUI):** the annual site energy use of the *proposed design* per year in units of kBtu/sq.ft. (of building floor area).~~

SOCIAL COST OF CARBON DIOXIDE. Means either $79 per metric ton of carbon dioxide with annual escalation rate of 2.5% from January 1st, 2022, or the social cost of carbon dioxide as determined by the Public Utilities Commission of the State of Colorado, whichever is greater.

SOLAR-READY ZONE. A section or sections of the roof or building designated and reserved for the future installation of a solar photovoltaic ~~and/~~or solar thermal system.

STANDBY POWER SYSTEM. A source of automatic electric power of a required capacity and duration to operate required building, hazardous materials or ventilation systems in the event of a failure of the primary power. Standby power systems are those required for electrical loads where interruption of the primary power could create hazards or hamper rescue or fire-fighting operations.

STEEP-SLOPED ROOF. A roof or roof section with a rise over run of at least two~~2~~ vertical units in twelve~~12~~ horizontal units (2:12).

UNGUARDED BLOWER DOOR TEST. A test where pressures are induced only via a Blower Door (or Blower Doors) attached to the subject Dwelling Unit, not induced through the use of Blower Doors attached to spaces adjacent to the subject Dwelling or Sleeping Unit.

WATER USAGE EFFECTIVENESS, SITE. The total water consumed onsite for a data center divided by its electrical energy consumption, in units of liters per kilowatt hour (L/kWh). Represented as WUE_{site} or WUE; when no subscript is present the water usage effectiveness is presumed to be at the site level.

CHAPTER 4 [CE]: COMMERCIAL ENERGY EFFICIENCY

SECTION C401 GENERAL

Sections C401.2 Application and C401.2.1 International Energy Conservation Code are replaced in their entirety~~modified~~ as follows:

C401.2 Application. Commercial buildings shall comply with C401.2.1

C401.2.1 Denver Energy Code. Commercial buildings shall comply with one of the following:

1. Prescriptive Compliance. The Prescriptive Compliance Option requires compliance with Sections C402 through C406 and C408.
2. Total Building Performance. The Total Building Performance Option requires compliance with Section C407, Appendix PT, or Appendix SE.

Exception: Additions, alterations, repairs, and changes of occupancy to existing buildings complying with Chapter 5.

Section C401.2.2 ASHRAE 90.1 is deleted in its entirety.

SECTION C402 BUILDING ENVELOPE REQUIREMENTS

Section C402.1.4.3 Thermal resistance of cold-formed steel walls with exterior cavity insulation located between z-girts is added as follows:

C402.1.4.3 Thermal resistance of cold-formed steel walls with exterior cavity insulation located between z-girts ~~is added~~. Where vertical or horizontal metal z-girts extend continuously through exterior insulation on steel frame walls, the exterior insulation shall be considered *cavity insulation* and the U-factor of the assembly shall be determined for compliance in accordance with Section C402.1.4.2 and Equation 4-1. The value of ER in Equation 4-1 shall include the effective R-value of any cavity insulation located between steel studs in accordance with Table C402.1.4.2 plus the effective R-value of exterior insulation located in the cavity between continuous z-girts determined by multiplying the rated R-value of the exterior cavity insulation by one of the following correction factors:

1. 0.7 for horizontal z-girts
2. 0.6 for vertical z-girts aligned with steel studs.

Exceptions:

1. Where metal z-girts or channels are placed over top of an exterior insulation layer and are fastened through the exterior insulation without compressing the exterior insulation or are attached to intermittent clips extending through the full thickness of the exterior insulation, the exterior insulation layer shall be considered as *continuous insulation* for purposes of compliance with Section C402.1, Item 1.

2. Where a U-factor for the assembly with z-girts is determined by design using an *approved* analysis method or by testing in accordance with ASTM C1363.

The first paragraph of Section C402.1.5 Component performance alternative is modified by adding a sentence to the end of the section and Table C402.1.5 as follows. Other portions of the section remain unchanged.

C402.1.5 Component performance alternative.

Roofs, walls, and floors shall meet applicable maximum U-factor requirements of Table C402.1.5.

TABLE C402.1.5 MINIMUM INSULATION REQUIREMENTS FOR PROPOSED DESIGN[a, b, c]

Component	Assembly	Maximum U-Factor All Occupancies
Roof	Insulation entirely above deck	0.048
Roof	Metal Building	0.055
Roof	Attic and other	0.027
Wall	Mass	0.090
Wall	Metal Building	0.069
Wall	Metal Framed	0.064
Wall	Wood Framed and Other	0.064
Floors, above grade	Mass or framed	0.074

Footnotes:

a. Up to 5% of the area of the (non-spandrel) total building thermal envelope may be excluded from the U-factor requirements of Table C402.1.5
b. Spandrels/spandrel panels need not comply with the U-factor requirements of Table C402.1.5.
c. Buildings with data centers or computer rooms that have a design continuous load greater than 750 kW shall not be required to meet the insulation requirements of Table C402.1.5.

Table C402.4 is replaced as follows:

TABLE C402.4

BUILDING ENVELOPE FENESTRATION MAXIMUM U-FACTOR AND SHGC REQUIREMENTS

CLIMATE ZONE	**5**	
	VERTICAL FENESTRATION	
	U-FACTOR FOR VERTICAL CURTAIN WALLS, STOREFRONT, AND SITE-BUILT FENESTRATION TYPE AW PRODUCTS[a]	
FIXED FENESTRATION	0.36	
OPERABLE FENESTRATION	0.45	
	U-FACTOR FOR ENTRANCE DOORS	
	0.63	
	U-FACTOR FOR ALL OTHER VERTICAL FENESTRATION	
	0.30	
	SHGC	
	Fixed	**Operable**
PF < 0.2	0.38	0.33
0.2 ≤ PF <0.5	0.46	0.40
PF ≥ 0.5	0.61	0.53
	SKYLIGHTS	
U-FACTOR	0.50	
SHGC	0.40	

NR = No Requirement, PF = Projection Factor.

a. AW Products shall mean metal windows with an AW Performance Class Rating in accordance with AAMA/WDMA/CSSA 101/I.S.2/A440.

Section C402.5 Air leakage—thermal envelope is replaced as follows (other subsections remain unchanged, unless noted otherwise):

C402.5 Air leakage—thermal envelope. The *building thermal envelope* shall comply with Sections C402.5.1 through C402.5.11.1 and shall be tested in accordance with Section C402.5.2 for occupancy types R or I, or Section C402.5.3 for all other occupancy types.

C402.5.1.2 RESERVED.

C402.5.1.3 RESERVED.

C402.5.1.4 RESERVED.

Section C402.5.1.5 Building envelope performance verification is modified as follows (Item 3 remains without modification):

C402.5.1.5 Building envelope performance verification. The installation of the continuous air barrier shall be verified by a *registered design professional* or *approved agency* in accordance with the following:

1. A review of the construction documents and other supporting data shall be conducted to assess compliance with requirements in Section C402.5.1. A verification report shall be completed by the *registered design professional* or *approved agency* and included in the submittal with the permit application.
2. Inspection of continuous air barrier components and assemblies shall be conducted during construction while the air barrier is still accessible for inspection and repair to verify compliance with the requirements of Sections C402.5.2 and C402.5.3.

Section C402.5.2 Dwelling and sleeping unit enclosure testing is modified by adding the following sentence at the beginning and the exception:

Where required by the code official, testing shall be conducted by an *approved* third party.

Exception: Where the measured air leakage rate exceeds 0.30 cfm/ft^2 (1.5 L/s × m^2) but does not exceed 0.45cfm/ft^2 (2.25 L/s × m^2), a diagnostic evaluation using smoke tracer or infrared imaging shall be conducted while the building is pressurized along with a visual inspection of the air barrier. Any leaks noted shall be sealed where such sealing can be made without destruction of existing building components. An additional report identifying the corrective actions taken to seal leaks shall be submitted to the *code official* and the building owner, and shall be deemed to comply with the requirements of this section.

Section C402.5.3 Building thermal envelope testing is modified by adding the following sentence at the beginning:

Where required by the code official, testing shall be conducted by an *approved* third party.

Section C402.5.5 Rooms ~~with~~ containing fuel-burning appliances is replaced as follows~~,~~ (items 1, 2, and all subsections of 2 to remain):

C402.5.5 Rooms containing~~with~~ fuel-burning appliances. In Climate Zones 3 through 8, where combustion air is supplied through openings in an exterior wall to a room or space containing space conditioning or service water heating fuel-burning appliances, one of the following shall apply:

Section C402.5.11 Operable openings interlocking, exception #4 is added as follows:

4. Systems utilizing evaporative cooling do not need to reset the cooling setpoint and are allowed to operate using evaporative cooling only. Other forms of mechanical cooling are not allowed when operable openings are open.

SECTION C403 BUILDING MECHANICAL SYSTEMS

Section C403.1.2 Data centers is replaced in its entirety as follows:

C403.1.2 Data centers. Data center systems shall comply with Sections 6 and 8 of ASHRAE 90.4 with the following changes:

1. Replace annualized MLC values specified in Table 6.5 of ASHRAE 90.4 with the values in Table C403.1.2(1).

2. Data centers with active humidification systems that have an ITE design load exceeding 35 kW (10 tons) per/room and 20 W/ft^2 of condition floor area shall utilize only adiabatic humidification systems.

3. Data centers with air-cooled computers in racks and with an ITE design load exceeding 35 kW (10 tons) per/room and 20 W/ft^2 of conditioned floor area shall include air barriers such that there is no significant air path for computer discharge air to recirculate back to computer inlets without passing through a cooling system. When containment is required within existing data centers, containment shall only be required at new/relocated racks and at existing racks where the ITE design load is being increased.

Exceptions:

1. Expansions of existing data centers where the added ITE design load does not exceed 35 kW (10 tons) per room and 20 W/ft^2 of conditioned floor area.
2. Computer racks with a design load less than 4 kW (1.1 tons) per /rack.

4. Evaporative cooling towers used in data centers shall use utility recycled water when a recycled water tap is available to the site.

5. Data centers shall be required to report the site level water usage effectiveness (WUE_{site}) at the request of the building official.

TABLE C403.1.2(1)

MAXIMUM ANNUALIZED MECHANICAL LOAD COMPONENT (ANNUALIZED MLC)

(supersedes Table 6.5, ASHRAE 90.4)*

Climate Zones as Listed in ASHRAE Standard 169	**HVAC Maximum *Annualized MLC* For *Data Center ITE Design Power* > 300 *kW***	**HVAC Maximum *Annualized MLC* For *Data Center ITE Design Power* < 300 *kW***
5B	0.12	0.20

Section C403.2 System design is replaced as follows:

C403.2 System design. Mechanical systems shall be designed to comply with Sections C403.2.1 through C403.2.4. Where elements of a building's mechanical systems are addressed in Sections C403.3 through C403.15, such elements shall comply with the applicable provisions of those sections.

Section C403.2.3 Fault detection and diagnostics is modified as follows (with subordinate sections to remain); and the addition of exception #2:

C403.2.3 Fault detection and diagnostics. New buildings with an HVAC system serving a gross conditioned floor area of 25,000 square feet (2,322 m2) or larger shall include a fault detection and diagnostics (FDD) system to monitor the HVAC system's performance and automatically identify faults. The FDD system shall:

Exceptions:

2. Warehouse buildings with heating-only systems.

Section C403.2.4 Space heating equipment is added as follows:

Permit applications for new *buildings* submitted to the Agency after January 1st, 2024, shall comply with section C403.2.4. See Chapter 5 for *additions* and *alterations* for existing buildings.

C403.2.4 Space heating equipment. In new *buildings*, ~~F~~fossil-fuel warm air furnaces and electric resistance space heating equipment shall not be permitted for space heating and ventilation conditioning.

Exceptions:

1. Where it has been demonstrated to the *building official* that the *building* is required by an applicable law or regulation to provide space heating with an *emergency power system* or a *standby power system*.
2. Make-up air systems where energy recovery ventilation is prohibited by the *Denver Mechanical Code*.
3. *Electric resistance in buildings* that comply with Section C407, Appendix SE, or Appendix PT.
4. Electric resistance heat used for supplementary heat in accordance with Section C403.4.1.1.
5. A budget up to 5 W/ft^2 of electric resistance space heating of *conditioned floor area* in the *building*, not including supplementary heat.
6. Electric resistance heating elements integrated into heat pump equipment.
7. ~~Replacement gas-fired furnace equipment that complies with section C503.3.3.~~
7. Fossil-fuel warm air furnaces or electric resistance space heating equipment serving heated plenums or electric resistance for freeze protection elements.
8. Temporary electric resistance heat for core and shell spaces prior to *Certificate of Occupancy*.
9. ~~Replacement of electric resistance space heating equipment with the same KW input as equipment being replaced.~~

Section C403.4.1.1 Heat pump supplementary heat is replaced in its entirety as follows:

C403.4.1.1 Heat pump supplementary heat. Heat pumps having supplementary heat systems, shall have controls that limit supplementary heat operation to only those times when one of the following applies:

1. The vapor compression cycle cannot provide the necessary heating energy to satisfy the thermostat setting.
2. The heat pump is operating in defrost mode.
3. The vapor compression cycle malfunctions.
4. The thermostat malfunctions.

Section C403.5 Economizers is modified by replacing item #2 as follows.:

2. Individual fan systems with a manufacturer published nominal cooling capacity greater than or equal to 33,000 Btu/h (9.7 kW) in buildings having other than a Group R occupancy. The total supply capacity of all fan cooling units not provided with economizers shall not exceed 20 percent of the total supply capacity of all fan cooling units in the building or 300,000 Btu/h (88 kW), whichever is greater.

Section C403.5.1 Integrated economizer control is modified by replacing item #2 as follows:

2. Direct expansion (DX) units that control 75,000 Btu/h (22 kW) or greater of rated capacity of the capacity of the mechanical cooling directly based on occupied space temperature shall have not fewer than two stages of mechanical cooling capacity.

2.1. Rooftop units with a rated capacity of at least 33,000 Btu/h (9.7 kW) but less than 75,000 Btu/h (22 kW) shall have an airside economizer with at least two stages of capacity control, with the first stage controlling the economizer and the second stage controlling mechanical cooling.

Section C403.7.4.2 Spaces other than nontransient dwelling units is replaced as follows, exceptions to remain except as indicated below:

C403.7.4.2 Spaces other than nontransient dwelling units. Where the outside or exhaust airflow rate of a system serving a space other than a nontransient dwelling unit exceeds the values specified in modified Tables C403.7.4.2(1) and C403.7.4.2(2), the system shall include an energy recovery system.

The energy recovery system shall provide an enthalpy recovery ratio (ERR) of not less than 60 percent at balanced airflow conditions. Where an air economizer is required, the energy recovery system shall include bypasses on outside and exhaust air or controls that permit operation of the economizer as required by Section C403.5. Energy recovery devices shall not exceed 1.1" w.g. sea level at design airflows and shall not exceed 0.6" w.g. sea level in 100% outside air & exhaust air economizer mode. Supply and exhaust fan static efficiency must meet 65%.

Section C403.7.4.2 exceptions 6 and 8 are replaced as follows:

6. Enthalpy recovery ratio requirements at cooling design conditions in Climate Zone 5B; however heating enthalpy recovery ratio shall be required.

8. Where the largest source of air exhausted at a single location at the building exterior is less than corresponding exhaust CFM in Tables C403.7.4.2(1) or (2).

Section C403.7.4.2 ~~adds~~ exceptions 12 and 13 are added as follows:

12. When the exhaust flow in tables C403.7.4.2(1) or (2) are exceeded, and exhaust to outside ratios are below 60%, an outside air bypass shall be permitted to be employed with a control method to ensure the

exhaust to outside air ratio stays at or above 60%. Outside air heat wheel CFM and bypass CFM shall be clearly noted on the plans.

13. In Laboratories and Group I occupancies, where an authority having jurisdiction prohibits recirculation or leakage between exhaust and supply air, the ERR shall not be less than 50 percent at balanced airflow conditions.

Tables C403.7.4.2 (1) and (2) are replaced as follows:

TABLE C403.7.4.2 (1)

ENERGY RECOVERY REQUIREMENTS

(Ventilation systems operating <u>less</u> than 8,000 hours per year)

CLIMATE ZONE	PERCENT (%) OUTDOOR AIR AT FULL DESIGN AIRFLOW RATE							
	≥10 & < 20	≥20 & < 30	≥30 & < 40	≥40 & < 50	≥50 & < 60	≥60 & < 70	≥70 & < 80	≥80
	DESIGN OUTSIDE OR EXHAUST AIRFLOW RATE (CFM)							
5B Outside	NR	NR	NR	NR	6,000	5,500	5,000	4,000
5B Exhaust	NR	NR	NR	NR	4,500	4,125	3,750	3,000

For SI: 1 CFM = 0.4719 L/s.

NR = Not required

Informative note: Requirements are based on a 10-year payback

TABLE C403.7.4.2 (2)

ENERGY RECOVERY REQUIREMENTS

(Ventilation systems operating 8,000 or <u>more</u> hours per year)

CLIMATE ZONE	PERCENT (%) OUTDOOR AIR AT FULL DESIGN AIRFLOW RATE							
	≥10 & < 20	≥20 & < 30	≥30 & < 40	≥40 & < 50	≥50 & < 60	≥60 & < 70	≥70 & < 80	≥80
	DESIGN OUTSIDE OR EXHAUST AIRFLOW RATE (CFM)							
5B Outside	500	400	300	200	84	84	80	80
5B Exhaust	1,500	1,200	900	600	252	252	240	240

For SI: 1 CFM = 0.4719 L/s.

Section C403.7.8 Variable air volume, single zone variable air volume (SZVAV), dedicated outside airflow (DOAS), energy recovery ventilator (ERV) and make up air (MUA) system control is added as follows:

C403.7.8 Variable air volume, single zone variable air volume (SZVAV), dedicated outside airflow (DOAS), energy recovery ventilator (ERV) and make up air (MUA) system control. Variable air volume, SZVAV, DOAS, ERV and MAU air distribution systems, shall be provided with controls to regulate the flow of outdoor air. Such control system shall be designed to provide fault on excessive outside air, and display or report to DDC and measure and maintain the flow rate of outdoor air, at a rate of not less than that required by Section 403.3 of the *Denver Mechanical Code* over the entire range of supply air operating rates. DOAS, ERV and MAUs shall be required to measure the outside air flow on systems above 4,000 cfm.

Section C403.8 Fans and fan controls is replaced in its entirety as follows, subordinate sections to remain:

C403.8 Fans and fan controls. Fans in HVAC systems shall comply with Sections C403.8.1 through C403.8.6.2

Section C403.8.6.2 Intermittent Exhaust Control for Bathrooms and Toilet Rooms is added as follows:

C403.8.6.2 Intermittent Exhaust Control for Bathrooms and Toilet Rooms. Where an exhaust system serving a bathroom or toilet room is designed for intermittent operation, the exhaust system shall be provided with manual-on and one or more of the following controls:

1. Timer control that has a minimum set point of not greater than 30 minutes.
2. An occupant sensor control that automatically turns off exhaust fans within 30 minutes after all occupants have left the space.
3. A humidity control capable of manual or automatic adjustment from a minimum setpoint not greater than 50% to a maximum setpoint not greater than 80% relative humidity.
4. A contaminant control that responds to a particle or gaseous concentration.

Exception: Bathroom and toilet room exhaust systems serving as an integral component of an outdoor air ventilation system in Group R-2, R-3, and R-4 occupancies shall not be required to provide controls other than manual on capability.

An off setpoint shall not be used to comply with a minimum setpoint requirement.

C403.12.2.3 High-pressure duct systems is modified by adding the following sentence at the end:

Where required by the ~~code~~building official, testing shall be conducted by an *approved* third party.

Section C403.15 Dehumidification and cooling efficiency for plant growth and maintenance and subsections are added as follows:

C403.15 Dehumidification and cooling efficiency for plant growth and maintenance. Indoor agricultural operations shall follow the requirements for dehumidification and cooling from sections C403.15.1 and C403.15.2. Space cooling equipment for indoor plant grow operations shall meet the minimum energy efficiency ratio (EER) or seasonal energy efficiency ratio (SEER) specified in C403.3.2.

C403.15.1 Dehumidification. All dehumidification provided for indoor plant growth and maintenance shall utilize one of the following dehumidification options:

1. Free-standing dehumidification units with a minimum energy factor of 1.9 l/kWh. The test method for minimum energy factor shall be as specified in 10 CFR Part 430, Subpart B - Appendix X.
2. Chilled water system with heat recovery from the condenser coil to achieve dehumidification reheat.
3. Integrated HVAC system with heat recovery from the condenser coil (hot gas reheat) to achieve dehumidification reheat.

C403.15.2 Dehumidification backup. Electric or fossil fuel reheat systems may be used as supplementary heat for dehumidification when the primary dehumidification system in C403.15.1 is designed to fulfill at least 60% of the facility's dehumidification needs during peak dehumidification periods.

SECTION C404 SERVICE WATER HEATING

Section C404.10 ~~through C404.12 are~~Water heating is added as follows:

~~Effective January 1st, 2024:~~ Permit applications for new *buildings* submitted to the Agency after January 1st, 2024, shall comply with section C404.10. See Chapter 5 for *additions* and *alterations* for existing buildings.

C404.10 Water heating. In new *buildings*, ~~Ff~~Fossil fuel and electric resistance *water heaters* shall not be permitted to provide potable hot water.

Exceptions

1. Resistance heating elements integrated into heat pump water heating equipment.
2. Electric resistance elements used for recirculation loop temperature maintenance.
3. Electric storage water heaters with a rated water storage volume no greater than 20 gallons.
4. Instantaneous electric water heaters located within 10 feet of the point of use.
5. Hot water storage tanks without electric resistance or fossil-fuel heating elements.
6. Electric resistance equipment where not less than 100 percent of the annual service water-heating requirement is provided by an *on-site renewable energy system* not used to meet any other provision of this code.
7. Water heating systems that serve end-uses that require water temperature of 141°F (55°C) or greater.
8. Electric resistance storage water heating equipment in *buildings* where not less than 75% of the annual service water heating requirement is met by a solar thermal system.
9. *Electric resistance water heating in buildings* that comply with Section C407, Appendix SE, or Appendix PT.
10. ~~Replacement of gas-fired storage water heaters or instantaneous water heaters that comply with section C503.4.1.~~
11. ~~11.~~10. Water heating equipment with at least one of the following: a heat input of 200,000 Btu/hr or greater; or an operating temperature of 210 degrees F or greater; or a ~~nominal~~ rated storage capacity of 120 gallons or greater.
12. ~~Replacement of electric resistance water heaters with the same KW input and tank volume as the equipment being replaced.~~

Section C404.11 Demand responsive water heating is added as follows:

C404.11 Demand responsive water heating. Electric storage water heaters with rated water storage volume equal to or greater than 40 gallons (150L) and equal to or less than 120 gallons (450L) and a nameplate input rating equal to or less than 12kW shall be provided with *demand responsive controls* that comply with ANSI/CTA-2045 and are also capable of initiating water heating to meet the temperature set point in response to a *demand response signal* or another equivalent *approved* standard.

Exceptions:

1. Water heaters that provide a hot water delivery temperature of 180°F (82°C) or greater
2. Water heaters that comply with Section IV, Part HLW or Section X of the ASME Boiler and Pressure Vessel Code
3. Water heaters that use 3-phase electric power

Section C404.12 Water heating equipment location is added as follows:

C404.12 Water heating equipment location. In new *buildings*, *additions*, and *first tenant finish* permits, ~~F~~fossil fuel water heaters with an input capacity less than ~~300,000~~200,000 Btu/h and electric resistance storage water heaters shall be located in a space with minimum dimensions 3 feet by 3 feet by 7 feet and one of the following characteristics:

1. Minimum volume of 760 cubic feet
2. The equivalent of one 16-inch by 24-inch grill to a heated space and one 8-inch duct of no more than 10 feet in length for cool exhaust air.

Exceptions:

1. Electric storage water heaters with a rated storage volume of less than 20 gallons.
2. Instantaneous water heaters located within 10 feet of the point of use.
3. The space and ventilation requirements shall be permitted to be reduced to conform with the manufacturer's recommendations for a specific heat pump hot water heater that meets the requirements of Section C404. The specific heat pump water heater shall be identified on the construction documents.

SECTION C405 ELECTRICAL POWER AND LIGHTING SYSTEMS

Section C405.1 General is replaced in its entirety as follows:

C405.1 General. This section covers lighting system controls, the maximum lighting power for interior and exterior applications, and electrical energy consumption.

Section C405.1.1 Lighting for dwelling units ~~and sleeping units~~ is replaced in its entirety as follows:

C405.1.1 Lighting for dwelling units and sleeping units. All permanently installed luminaires in *dwelling units* and *sleeping units* shall be provided with lamps or light sources with an efficacy of not less than 65 lm/W.

Section C405.2 Lighting controls is amended by adding~~adds~~ item 2.4 as follows:

2.4 Reducing lighting power in a uniform manner by no less than 10 percent when signaled by a *demand responsive control*.

Section C405.2.7 Exterior lighting controls, Exception 1 is replaced as follows:

1. Lighting for covered vehicle entrances and exits from buildings where required for eye adaption.

Section C405.3.2 Interior lighting power allowance

Section C405.3.2 Interior lighting power allowance, Table C405.3.2(1) Interior Lighting Power Allowances: Building Area Method is modified by deleting footnotes a, b, and c.

Section C405.4 Lighting for plant growth and maintenance is replaced in its entirety as follows:

C405.4 Lighting for plant growth and maintenance. All non-LED lighting using replaceable lamps shall be installed with electronic ballasts. In addition, not less than 95 percent of the total Watts of lighting for areas used for plant growth and plant maintenance shall be provided by lighting having a photosynthetic photon efficacy of not less than 1.6 µmol/J (luminaires), or 1.9 µmol/J (lamps). Indoor agriculture facilities shall demonstrate lighting requirements in accordance with one of the following:

1. LED luminaires listed in the Design Lights Consortium's Horticultural Qualified Products List (QPL), https://www.designlights.org/horticultural-lighting/search.
2. Double-ended high-pressure sodium (HPS) lamps with efficacies of 1.9 µmol/J or greater, used with any reflector and ballast combination.
3. For lamps or luminaires not included in 1) or 2) above, compliance with the efficacy requirements of this section must be demonstrated by either providing manufacturer's documentation indicating the luminaire or lamp efficacy or by submitting for review a third-party test report providing the lamps' or luminaires' photosynthetic photon efficacy (measured in µmol/J), generated by a facility accredited to the ANSI/ASABE S642, ANSI/IES LM-79, or ANSI/IES LM-51 standards.

Section C405.13. Electric vehicle (EV) supply equipment is added as follows:

C405.13 *Electric Vehicle Supply Equipment.* *New parking facilities* shall be provided with electric vehicle charging infrastructure in accordance with Sections C405.13.1 through C405.13.4~~6~~.

C405.13.1 Quantity. The number of required *EVSE Installed Spaces*~~,~~ and *EV Capable spaces* ~~and *EV Ready spaces*~~ shall be determined in accordance with this Section and Table C405.13.1 based on the total number of *automobile parking spaces*. The number of required *EVSE Installed Spaces* and *EV Capable Spaces*, *respectively*, ~~and~~ shall be rounded ~~up~~ to the nearest whole number, but not less than one each.

1. Where more than one *parking facility* is provided on a building site, the number of required *automobile parking spaces* required to have electric vehicle charging infrastructure shall be calculated separately for each *parking facility*.
2. Where one shared *parking facility* serves multiple ~~building occupancies~~ occupancy groups, the required number of spaces shall be determined proportionally based on the floor area of each ~~building~~ occupancy group.
3. *EVSE Installed ~~s~~Spaces* that exceed the minimum requirements of this section may be used to meet minimum requirements for ~~*EV Ready Spaces* and~~ *EV Capable ~~s~~Spaces*.
4. ~~Installed *EV ready spaces* that exceed the minimum requirements of this section may be used to meet minimum requirements for *EV Capable spaces*.~~
5. ~~5.~~4. Requirements for a Group S-2 parking garage shall be determined by the occupancies served by that parking garage. Where new automobile spaces do not serve specific occupancies, the values for All Other Occupancy Groups~~Group S-2 parking garage~~ in Table C405.13.1 shall be used.
5. The number of *EVSE Installed Spaces* for occupancy groups other than Groups~~ R-1 and~~ R-2 ~~Groups A, B, E, I, M and S-2 Occupancies~~ may be reduced by up to ten per *DCFC EVSE* provided that the *building* includes not less than one parking space equipped with a *DCFC EVSE* and not less than one *EV ~~Ready~~ Capable ~~s~~Space*.~~-~~ A maximum of fifty spaces may be reduced from the total number of *EVSE Installed spaces*.
6. If the *EV Capable* raceway and/or conduit terminates adjacent to and between two parking spaces, then both parking spaces can be considered *EV Capable*.
6. ~~6.~~7. If the EVSE is capable of charging multiple vehicles simultaneously and is installed adjacent to and between two parking spaces, then both parking spaces can be considered *EVSE Installed.*

Exception: *Parking facilities* serving occupancy groups ~~occupancies~~ other than ~~R-1 and~~ R-2~~. occupancies~~ with fewer than 10 automobile parking spaces.

Table C405.13.1 REQUIRED EV CHARGING INFRASTRUCTURE

~~OCCUPANCY~~	~~EVSE INSTALLED SPACES~~	~~EV READY SPACES~~	~~EV CAPABLE SPACES~~
~~GROUP A, B, E, M~~	~~10%~~	~~5%~~	~~10%~~
~~GROUP I~~	~~5%~~	~~0%~~	~~5%~~
~~GROUP R-1 AND R-2[a]~~	~~15%~~	~~5%~~	~~40%~~
~~GROUP R-3 AND R-4~~	~~2%~~	~~0%~~	~~5%~~
~~GROUP S-2 parking garages~~	~~10%~~	~~5%~~	~~0%~~

~~[a] Where all parking spaces serving R-2 occupancies are *EV ready spaces*, requirements for *EVSE spaces* for R-2 occupancies shall not apply.~~

Occupancy Served	EVSE Installed Space	EV Capable
Occupancy Groups R-1 and R-2	15%	45%

All Other Occupancy Groups	10%	20%

C405.13.2 EV Capable Spaces. Each *EV Capable ~~s~~Space* used to meet the requirements of Section C405.13.1 shall comply with all the following:

1. Dedicated physical space shall be provided to accommodate all future equipment necessary for the electrical service or panel to future *EVSE*.
~~1.~~2. A continuous raceway or cable assembly shall be installed from a dedicated physical space and terminate ~~between an enclosure or outlet located~~ within 3 feet (914 mm) of the *EV Capable ~~s~~Space* and shall be capped.~~future or existing panelboard or switchboard location(s).~~
~~2.~~3. Installed raceway or cable assembly shall be sized and rated to supply a minimum circuit capacity of 8.3 kVA. ~~in accordance with C405.13.5.~~
~~3. The electrical equipment room shall be provided with dedicated space for the future installation of the electrical distribution equipment required to serve the *EVSE*. Such equipment may include service switchgear, distribution panelboards, and transformers.~~
4. The routing of the raceway and/or conduit must be noted on the construction documents and the raceway shall be permanently and visibly marked 'EV CAPABLE' at the electrical panel and service distribution board and termination points.~~The electrical enclosure or outlet and the electrical distribution equipment directory shall be marked: "For future electric vehicle supply equipment (EVSE)."~~

~~**C405.13.3 EV Ready Spaces.** Each branch circuit serving *EV Ready Spaces* used to meet the requirements of Section C405.13.1 shall comply with all the following:~~

~~1. Terminate at an outlet or enclosure, located within 3 feet (914 mm) of each *EV Ready space* it serves.~~
~~2. Have a minimum circuit capacity in accordance with C405.13.5.~~
~~3. The panelboard or other electrical distribution equipment directory shall designate the branch circuit as "For electric vehicle supply equipment (EVSE)" and the outlet or enclosure shall be marked "For electric vehicle supply equipment (EVSE)."~~

C405.13.~~3~~4 EVSE Installed Spaces. An installed *EVSE* can serve either a single or multiple spaces. An installed *EVSE* with multiple output connections shall be permitted to serve multiple *EVSE Installed Spaces*. Each *EVSE* ~~installed to meet the requirements of Section C405.13.1,~~ serving either a single *EVSE Installed ~~s~~Space* or multiple *EVSE Installed ~~s~~Spaces*, shall comply with all the following:

1. Have a minimum circuit capacity of 8.3 kVA per space it serves. ~~in accordance with C405.13.5.~~
2. Have a minimum charging rate of 6.3 kVA.~~in accordance with C405.13.4.1.~~
3. Be located within 3 feet (914 mm) of each *EVSE Installed ~~s~~Space* it serves.
4. *EVSE* capable of charging multiple vehicles simultaneously to be in accordance with C405.13.1~~.6~~ Item 8.~~Be installed in accordance with Section C405.13.6.~~

~~**C405.13.4.1 EVSE Minimum Charging Rate.** Each installed *EVSE* shall comply with one of the following:~~

~~1. Be capable of charging at a minimum rate of 6.2 kVA (208/240V).~~
~~2. For R-1 and R-2 Occupancies, where serving multiple *EVSE Installed spaces* and controlled by an energy management system providing load management, be capable of simultaneously charging each *EVSE Installed space* at a minimum rate of no less than 3.3 kVA.~~
~~3. Where serving *EVSE Installed spaces* allowed to have a minimum circuit capacity of 2.7 kVA in accordance with C405.13.5.1 and controlled by an energy management system providing load management, be capable of simultaneously charging each *EVSE space* at a minimum rate of no less than 2.1 kVA.~~

~~**C405.13.5 Circuit Capacity.** The capacity of electrical infrastructure serving each *EV Ready space* and *EVSE Installed space* shall comply with one of the following:~~

~~1. A branch circuit shall have a rated capacity not less than 8.3 kVA for each *EV Ready space* or *EVSE Installed space* it serves.~~
~~2. The requirements of C405.13.5.1.~~

~~**C405.13.5.1 Circuit Capacity Management.** The capacity of each branch circuit serving multiple *EVSE Installed Spaces* or *EV Ready Spaces* designed to be controlled by an energy management system providing load management in accordance with NFPA 70, shall comply with one of the following:~~

~~a. Have a minimum capacity of 4.1 kVA per space.~~
~~b. Have a minimum capacity of 2.7 kVA per space when serving *EV ready spaces* or *EVSE spaces* for a building site when all (100%) of the automobile parking spaces are designed to be *EV ready* or *EVSE spaces*.~~

C405.13.3.1 Electric Vehicle Energy Management Systems (EVMS).
EVSE serving multiple *EVSE Installed Spaces* and controlled by an *EVMS* providing load management shall comply with the following:

1. Have a minimum circuit capacity of 4.1 kVA per space.
2. Have a minimum charging rate capable of simultaneously charging each *EVSE Installed Space* at a minimum rate of 3.3 kVA.
3. When all ~~100%~~ of the automobile parking spaces are designated to be *EVSE Installed Spaces*, shall comply with all of the following:
   a. Have a minimum circuit capacity of 2.7 kVA per space.
   b. Have charging rate capable of simultaneously charging each *EVSE Installed Space* at a minimum rate of 2.1 kVA.

C405.13.3.2 New EVSE Installed on Existing Infrastructure. Where a new *EVSE* has a maximum circuit capacity of 6.65 kVA (at 208V, 1phase) or 7.68 kVA (at 240V, 1phase), the existing 40A infrastructure may be used to install the new *EVSE*. Where the maximum circuit capacity exceeds these values, new infrastructure must be installed to accommodate the new *EVSE* in accordance with Electrical Code as adopted by the State of Colorado~~NFPA 70~~.

C405.13.~~4~~6 EVSE Installation. *EVSE* shall be installed in accordance with the Electrical Code as adopted by the State of Colorado~~NFPA 70~~ and shall be listed and labeled in accordance with UL 2202 or UL 2594. *EVSE Installed Spaces* shall comply with accessible and universal requirements of *Denver Commercial Building Code* Section 1107.

Section C405.14. Solar access requirement and its subsections are added as follows:

~~**C405.14 Solar access requirement.** All newly constructed buildings of Occupancy Group A, B, E, M, R1 and R2 shall designate a dedicated solar ready zone on the building plans that meets the specifications of Appendix CB. This zone shall be located on the roof or overhang of the building or on the roof or overhang of another structure located within 250 feet of the building on the building premise or on covered parking installed with the building project.~~

C405.14 Solar ready requirement. A *solar-ready zone* shall be located on the roof of any new *commercial buildings* five stories or less in height above grade plane that are oriented between 110 and 270 degrees of true north or have low-sloped roofs. *Solar-ready zones* shall comply with Sections C405.14.1 through C405.14.8.

Exceptions:

1. A building with a permanently-installed, on-site renewable energy system that meets the following criteria.
   a. The system capacity is at a minimum the greater of 1 W/sf of roof area and 5 kW DC.
   b. The system is located on the roof or overhang of the building or on the roof or overhang of another structure located within 250 feet (76.2 m) of the building, on the building premises, on covered parking, or another approved location installed with the building project and under the same property ownership.
2. A building with a *solar-ready zone* that is shaded for more than 70 percent of daylight hours annually.
3. A building where a licensed design professional certifies that the incident solar radiation available to the building is not suitable for a *solar-ready zone*.
4. A building where a licensed design professional certifies that the *solar-ready zone* area required by Section C405.14.2 cannot be met because of extensive rooftop equipment or other obstructions.

C405.14.1 Construction Document Requirements for a Solar-Ready Zone. Construction documents shall indicate the *solar-ready zone*.

C405.14.2 Solar-Ready Zone Area. The total *solar-ready zone* area shall not be less than 60 percent of the roof area calculated as the horizontally projected gross roof area less the area covered by skylights, occupied roof decks, vegetative roof areas, and mandatory access or set back areas as required by the *Denver Fire Code*. The *solar-ready zone* shall be a single area or smaller, separated sub-zone areas. Each sub-zone area shall be not less than 5 feet (1524 mm) in width in the narrowest dimension.

The *solar-ready zone* shall be located on the roof or overhang of the building or on the roof or overhang of another structure located within 250 feet (76.2 m) of the building, on the building premises, on covered parking, or another approved location installed with the building project and under the same property ownership.

C405.14.3 Obstructions. *Solar-ready zones* shall be free from obstructions, including pipes, vents, ducts, HVAC equipment, skylights, and roof-mounted equipment.

C405.14.4 Roof Loads and Documentation. A collateral dead load of not less than 5 pounds per square foot (5 psf) (24.41 kg/m^2) shall be included in the gravity and lateral design calculations for the *solar-ready zone*. The structural design loads for roof dead load and roof live load shall be indicated on the construction documents.

C405.14.5 Electrical energy storage system-ready area. The floor area of the electrical energy storage system-ready area shall not be less than 2 feet (610 mm) in one dimension and 4 feet (1219 mm) in another dimension, and shall be located in accordance with Section 1207 of the *Denver Fire Code*. The location and layout diagram of the electrical energy storage system-ready area shall be indicated on the construction documents.

C405.14.6 Electrical Service Reserved Space. Provide for a reserved space in a 200 amps minimum electrical service panel to allow for the installation of a dual-pole circuit breaker for an interconnection to a future solar electric system and a reserved space for a two-pole circuit breaker for an interconnection to a future electrical energy storage system. These reserved spaces shall be labeled "For Future Solar Electric System" and "For Future Energy Storage System", respectively. The reserved spaces shall allow for compliance with the requirements of the Electrical Code as adopted by the State of Colorado Article 705. The "Future Solar Electric" reserved space shall be positioned at the end of the panel that is opposite from the panel supply conductor connection.

C405.14.7 Construction documentation certificate. A permanent certificate, indicating the *solar-ready zone* shall be posted near the electrical distribution panel, water heater or other conspicuous location by the builder or registered design professional.

Section C405.15 Additional electric infrastructure and its subsections are added as follows:

~~**C405.15 Additional electric infrastructure.** The following fossil fuel appliances and equipment or connections serving new *buildings* shall be installed in accordance with this section and Section C404.12.~~

~~Water heating equipment with an input capacity less than 300,000 Btu/h, and used for either space heating, service water heating, or process water heating.~~

~~Warm air furnaces serving spaces without space cooling.~~

~~Fireplaces, ranges, and stoves not defined as *commercial cooking appliances*.~~

~~*Commercial cooking appliances*~~

~~Fossil Fuel appliances and equipment serving *dwelling units* or *sleeping units*~~

~~**C405.15.1 Electric infrastructure.** Fossil fuel appliances and equipment listed in Section C405.15 shall be provided with a junction box located within the same space of the fossil fuel appliance or equipment that is connected to an electrical panel by continuous raceways that meet the following requirements. Said junction box shall allow for the appliance or equipment to be installed within the same place of the fossil fuel equipment that it replaces:~~

~~The junction box, raceway, and bus bar in the electrical panel and conductors serving the electrical panel shall be sized to accommodate electrical equipment sized to serve the same load as the fossil fuel appliance or equipment.~~

~~The panel shall have reserved physical space for a two-pole or three-pole circuit breaker.~~

~~The junction box and electrical panel directory entry for the dedicated circuit breaker space shall have labels stating, "For future electric equipment".~~

C405.15 Additional Electric Infrastructure. *Combustion equipment* in new *buildings* and *first tenant finish* permits shall comply with Sections C405.15.1 through C405.15.3 and Section C404.12.

Exceptions:

1. Water heating equipment with an input capacity of 200,000 Btu/h or greater, and used for either space heating, service water heating, or process water heating.
2. Warm air furnaces serving spaces with mechanical cooling.
3. Exterior fireplaces and firepits, grills, and patio heaters.
4. Unit heaters and radiant unit heaters.
5. *Emergency power systems* and *standby power systems.*
6. *First tenant finish* permits where the *core and shell building* is under a code effective prior to May 1, 2023.

C405.15.1 Electric Infrastructure. All *combustion equipment* shall be provided with the following:

1. A junction box, continuous raceway, bus bar in the electrical panel with capacity for the new electric infrastructure, and conductors serving the electrical panel. The raceway will extend from the panel to a junction box installed at the location of the *future electric equipment*. The electrical capacity for the building's electrical utility service shall be evaluated and modified as necessary to support the *future electrical equipment.*

2. In locations where *combustion equipment* is utilized for space and water heating, dedicated physical space shall be allocated for all *future electric equipment*. This dedicated space shall include but not be limited to the future electrical space and water heating equipment, electric transformers, and electrical panels necessary to support the future electric infrastructure.

C405.15.2 Electrical Panel Space. The electrical panel shall have a dedicated physical space for a minimum two-pole or three-pole circuit breaker for each branch circuit sized to support *future electric equipment* with a capacity sufficient to meet the load requirements.

C405.15.3 Labeling. The dedicated circuit breaker space serving *future electric equipment* in the electrical panel shall be labeled "For future Electric Equipment".

SECTION C406 ADDITIONAL EFFICIENCY PACKAGE OPTIONS

Section C406.1 Additional energy efficiency credit requirements is modified as follows, subordinate sections and items 1 through 11 to remain.

C406.1 Additional energy efficiency credit requirements. New *buildings* and *additions* ~~New buildings~~ shall ~~receive~~ achieve credits from Table C406.1(1) in accordance with the credit requirements in Table C406.1(2) based on the use group of the building and from credit calculations as specified in relevant subsections of C406. Where a building contains multiple use groups, credits from each use group shall be weighted by floor area of each group to determine the weighted average building credit. Credits from the tables or calculation shall be received where a building complies with one or more of the following:

12. Where not required by Section C403.2.4, include electric space heating in accordance with Section C406.13.
13. Cold climate heat pump in accordance with Section C406.14.
14. Where not required by Section C404.10, include electric water heating in accordance with Section C406.15.
15. Demand responsive controls in accordance with Section C406.16.
16. HVAC system fan power in accordance with Section C406.17.

Exception: New *buildings* with a *conditioned floor area* of 2,000 sf or less and *additions* with a *conditioned floor area* of 500 sf to 2,000 sf shall achieve a minimum of 10 credits.

TABLE C406.1(1) - Additional Energy Efficiency Credits for Denver

Sub-section / Occupancy	Group B	Group R and I	Group E	Group M	Other Occupancies[a]
C406.2.1: 5% Heating Eff Imprv.	1	1	1	2	1
C406.2.2: 5% Cooling Eff Imprv.	2	1	1	1	1
C406.2.3: 10 % Heating Eff Imprv.	2	2	3	3	3
C406.2.4: 10 % Cooling Eff Imprv.	4	1	2	2	2
C406.2.5: >10% Cooling Eff Imprv.	See Section				
C406.2.6: >10% Heating Eff Imprv.	See Section				
C406.3: Reduced Light Power	7	2	8	12	7
C406.3.2: Reduced lighting power by 15%	11	3	12	18	11
C406.3.2: Reduced lighting power by >15%	See Section				
C406.4: Enhanced Digital Light Ctrl	2	NA	2	3	2
C406.5.1: Basic Renewable Credit.	9	7	6	7	7
C406.5.2: Enhanced Renewable Credit	9-18	7-14	6-12	7-14	7-14

C406.6: Dedicated OA Sys (DOAS)	5	8	NA	2	5
C406.7.2: Recovered/Renew SWH[b]	NA	14	1	NA	14
C406.7.3: Eff fossil fuel SWH[b]	NA	9	2	NA	6
C406.7.4: Heat Pump SWH[b]	NA	5	1	NA	5
C406.8.1: Reduced envelope UA	10	4	2	4	5
C406.8.2: Further reduced envelope UA	15	6	3	6	8
C406.9.1: Reduced Air Infiltration	4	5	NA	2	4
C406.9.2: Further Reduced Air Infiltration	7	8	NA	3	7
C406.10: Energy Monitoring	2	1	2	3	2
C406.11: Fault Detection	1	1	1	1	1
C406.12: Efficient Kitchen Equipment	See Section				
C406.13: All-Electric Space Heating	4	6	6	9	6
C406.14: Cold Climate Heat Pumps	4	5	5	9	6
C406.15: All-Electric Water Heating	9	13	13	4	9
C406.16: Demand Responsive Thermostats	1	1	1	1	1
C406.17.1: Reduced Fan Power	2	NA	6	7	3
C406.17.2: Further Reduced Fan Power	4	NA	11	14	6

a. Other occupancy groups include all Groups except for Groups B, R, I, E, and M
b. For occupancy groups listed in C406.7.1.

TABLE C406.1(2)
DENVER CREDIT REQUIREMENTS

Building Type	**Credit Requirement for *All-Electric Properties*** [a]	**Credit Requirement for All Other *Buildings***
Multifamily	10	40
Healthcare/Hospital	10	40
Hotel/Motel	10	36
Office	10	31
Retail	10	35
School	10	24
Warehouse	10	48
All Other	10	40

a. Where the *all-electric property* complies with Sections C406.13 and C406.15. *All-electric properties* shall not be eligible for credits from Sections C406.13 and C406.15.

Section C406.1.1 Tenant spaces is modified, and Exception 2 is added as follows:

C406.1.1 First tenant finish spaces~~Tenant spaces~~. ~~Non-previously occupied~~*First tenant finish* spaces shall comply with sufficient options from Table C406.1(1) to achieve a minimum number of 10 credits, where credits are selected from Sections C406.2, C406.3, C406.4, C406.5, C406.6, C406.7, C406.8, C406.9, C406.10, C406.11, C406.12, C406.13, C406.14, C406.15, C406.16, or C406.17. Where analysis and documentation is provided to show the entire building, including the *first tenant finish* spaces, complies with Table C406.1(2), *first tenant finish* spaces shall be deemed to comply with this section.

Exceptions:

2. Where it can be demonstrated that the entire building complies with Section C407 or Appendix SE. Application of this exception is only valid if the *first tenant finish* space was accurately modeled as a part of the entire building model.

Section C406.2.5 is amended by deleting the meanings of the following expression from equation 4-12 and replacing them as follows:

EEC_{10}= C406.2.4 credits from Table C406.1(1)

CEI = the improvement above minimum cooling and heat rejection efficiency requirements

Section C406.2.6 More than ten percent heating efficiency improvement is added as follows:

C406.2.6 More than ten percent heating efficiency improvement. Where equipment exceeds the minimum annual heating efficiency requirements by more than 10 percent, energy efficiency credits for heating may be determined using Equation 4-12b, rounded to the nearest whole number. Where multiple heating performance requirements are provided, the equipment shall exceed the annual energy requirement, including HSPF and COP.

$$\mathbf{EEC_{HEC} = EEC_{10} \times [1 + ((HEI - 10\ percent) / 10\ percent)]} \qquad \textbf{(Equation 4-12b)}$$

Where:

EEC_{HEC}= energy efficiency credits for heating efficiency improvement

EEC_{10}= C406.2.3 credits from Table C406.1(1)

HEI = the improvement above minimum heating efficiency requirements

Section C406.5.2 Enhanced renewable credit is replaced as shown below, Equation 4-14 and expressions remain except as indicated:

C406.5.2 Enhanced renewable credit. Where the total minimum ratings of on-site renewable energy systems exceed the rating in Section C406.5.1, additional energy efficiency credits shall be determined based on Equation 4-14, rounded to the nearest whole number. The credits shall not exceed the maximum credits indicated in Table C406.1(1).

Expression $AEEC_{2.5}$ in Equation 4-14 is replaced as follows:

$AEEC_{2.5}$ = Section C406.5 credits from Table C406.1(1)

Section C406.8 Enhanced envelope performance is replaced~~deleted~~ in its entirety ~~and replaced~~ as follows with additional subsections:

C406.8 Enhanced envelope performance. The total UA of the building thermal envelope as designed shall be not less than Section C406.8.1 or C406.8.2.

C406.8.1 Reduced envelope UA. 15 percent below the total UA of the building thermal envelope in accordance with Section C402.1.5.

C406.8.2 Further Reduced envelope UA. 25 percent below the total UA of the building thermal envelope in accordance with Section C402.1.5.

Section C406.9 Reduced air infiltration is replaced~~deleted~~ in its entirety ~~and~~ as follows with additional subsections:

C406.9 Reduced air infiltration. Air infiltration shall be verified by whole-building pressurization testing conducted in accordance with ASTM E779 or ASTM E1827 by an independent third party. The measured air leakage rate of the building envelope shall be tested under a pressure differential of 0.3 inches water column (75 Pa), with the calculated surface area being the sum of the above- and below-grade building envelope. A report that includes the tested surface area, floor area, air by volume, stories above grade, and leakage rates shall be submitted to the *code official* and the building owner. *Buildings* shall comply with Section C406.9.1 or C406.9.2.

Exception: For buildings having over 250,000 ft^2 (25 000 m^2) of conditioned floor area, air leakage testing need not be conducted on the whole building where testing is conducted on representative above-grade sections of the building. Tested areas shall total not less than 25 percent of the conditioned floor area and shall be tested in accordance with this section.

C406.9.1 Reduced air infiltration. Air infiltration shall be verified in accordance with Section C406.9. The air leakage shall not exceed 0.25 cfm/ft^2 (2.0 L/s x m^2).

C406.9.2 Further reduced air infiltration. Air infiltration shall be verified in accordance with Section C406.9. The air leakage shall not exceed 0.15 cfm/ft^2 (1.2 L/s x m^2). Credits for this section shall not be combined with credits for Section C406.9.1.

Sections C406.13 through C406.17.2, inclusive, are added as follows:

C406.13 Electric Space Heating. All space heating shall be provided by electric equipment in accordance with this section. The total electric resistance load shall not exceed 5W per square foot of *conditioned floor area* for areas of the *building* served by Variable Air Volume systems and 1.35W per square foot of *conditioned floor* for all other areas of the *building.*

Exceptions:
1. Electric resistance elements integrated into heat pump equipment
2. Supplementary electric resistance heating
3. Electric resistance in heated plenums
4. Electric resistance for freeze protection elements

C406.14 Cold climate heat pump. Space heating equipment shall be heat pumps that comply with the following:

1. Packaged Terminal Heat Pumps and Single Package Vertical Heat Pumps shall have a rated COP of not less than 1.5 when operating at 5°F.
2. All other heat pumps shall have a rated COP of not less than 1.75 when operating at 5°F.
3. The total electric resistance load of the *building* shall not exceed 1.35W per square foot of *conditioned floor area* of the *building* for all other *areas.*

C406.15 Electric water heating. All *service water heating* shall be provided by electric water heating equipment.

C406.16 Demand responsive controls. All thermostatic controls serving the building shall be provided with *demand responsive controls* that serves the *building site*.

C406.17 HVAC system fan power. The total design fan power for all HVAC units shall comply with Section C406.17.1 or C406.17.2.

C406.17.1 Reduced HVAC system fan power. The total design fan power for all HVAC units shall be no less than 10 percent lower than the fan power allowance defined in Table C403.8.1.

C406.17.2 Further reduced HVAC system fan power. The total design fan power for all HVAC units shall be no less than 20 percent lower than the fan power allowance defined in Table C403.8.1, Option 2.

~~**Section C407 Total Building Performance is deleted in its entirety and replaced as follows:**~~

SECTION C407 TOTAL BUILDING PERFORMANCE

Section C407 Total Building Performance is replaced~~deleted~~ in its entirety ~~and replaced~~ as follows:

C407.1 Scope. This section establishes criteria for demonstrating compliance using total building performance in accordance with option c of section 4.2.1.1 of ANSI/ASHRAE/IESNA 90.1.

1. ANSI/ASHRAE/IESNA 90.1 Appendix G Proposed Building Performance G3.1.5(b) Infiltration shall be replaced in its entirety as follows:

   b. Infiltration shall be modeled using the same methodology and adjustments for weather and building operation in both the proposed design and the baseline building design. These adjustments shall be made for each simulation time step and must account for but not be limited to weather conditions and HVAC system operation, including strategies that are intended to positively pressurize the building. Intermittent HVAC system operation in buildings that can be occupied 24/7 shall be modeled as operating continuously. The air leakage rate of the building envelope (I_{75Pa}) at a fixed building pressure differential of 0.3 in. of water shall be 0.4 cfm/ft^2. The air leakage rate of the building envelope shall be converted to appropriate units for the simulation program using one of the methods in Section G3.1.1.4. Infiltration coefficients for the simulation program shall use DOE-2 Infiltration Methodology: Constant Coefficient (A) is 0, Temperature Coefficient (B) is 0, Wind Speed Coefficient (Linear term) (C) is 0.224, Wind Speed Coefficient (Quadratic term) is 0, Reference Wind Speed is 10 mph.

2. ANSI/ASHRAE/IESNA 90.1 Appendix G Baseline Building Performance G3.1.5(h) Air leakage rate is not changed.

3. Mandatory requirements shall not be included in the baseline building design except as required in Appendix G of ANSI/ASHRAE/IESNA 90.1.

C407.1.1 Additions to existing buildings. When an addition to an existing building cannot comply by itself, trade-offs will be allowed by modification to one or more of the existing components of the existing building. Modeling of the modified components of the existing building and addition shall employ the procedures of Section C407 or Appendix SE. The addition shall not increase the energy consumption of the existing building plus the addition beyond the energy that would be consumed by the existing building plus the addition if the addition alone did comply.

C407.1.2 Alterations to existing buildings. *Alterations* to existing *buildings* shall comply with Section C407 or Appendix SE with the following modifications:

1. The requirements of Section C407.2 shall not be required for unaltered portions of the building.
2. The requirements of C407.2 #4 shall not be required for *alterations.*
3. The *alteration* shall comply with Sections C503.3.2, C503.3.3, C503.4.1, and C503.5.1.
4. The PCI_t required by Section 4.2.1.1 of ANSI/ASHRAE/IESNA 90.1 and $PSEI_t$ required by SE103 shall be permitted to be multiplied by 1.1.

C407.2 Mandatory requirements. In addition to the mandatory requirements identified in section G1.2.1 of Appendix G of ANSI/ASHRAE/IESNA 90.1, *buildings* shall comply with the following:

1. The requirements of the sections indicated within Table C407.2.
2. The *pEUI* of the *proposed design* as calculated in accordance with Appendix G of ANSI/ASHRAE/IESNA 90.1 shall be included in the documentation required by section G1.3.2.
3. Performance modeling utilized to meet the requirements of this section shall be conducted under the supervision of an individual who holds an ASHRAE Building Energy Modeling Professional Certification or *approved* equivalent certification. The name, affiliation and contact information of the modeler who supervised the performance modeling shall be included in the documentation required by section G1.3.2.
4. Roofs, walls, and floors in new *buildings* shall meet applicable maximum U-factor requirements of Table C402.1.5.
5. *Buildings* shall comply with section C402.5, and not section 5.4.3 of ASHRAE 90.1.
6. *Buildings* shall comply with section C405.12, and not section 8.4.3 of ASHRAE 90.1.
7. *Buildings* shall comply with section C408, and not section 4.2.5 of ASHRAE 90.1.

TABLE C407.2

REQUIREMENTS FOR TOTAL BUILDING PERFORMANCE

SECTION	TITLE
C402.5	Air Leakage Testing
C403.1.2	Data Centers
C403.2.3	Fault Detection Diagnostics

C403.2.4	Space Heating Equipment
C403.4.1.1	Heat Pump Supplementary Heat
C404.10	Water Heaters
C404.11	Demand Responsive Water Heating
C404.12	Water Heater Equipment Location
C405.4	Lighting for Plant Growth
C405.13	Electric Vehicle Supply Equipment
C405.14	Solar Access Requirement
C405.15	Electric Infrastructure

C407.3 Compliance based on energy cost. *Buildings* shall comply with option c: Normative Appendix G, "Performance Rating Method" of section 4.2.1.1 of ANSI/ASHRAE/IESNA 90.1 as modified by this section.

C407.3.1 Building performance factors. Table 4.2.1.1 Building Performance Factor (BPF) shall be replaced with Table C407.3.

C407.3.2 Renewable energy. Section 4.2.1.1 of ANSI/ASHRAE/IESNA 90.1 shall be modified as follows:

When $(PBP_{nre} - PBP)/BBP > 0.10$, new *buildings*, *additions* to *existing buildings*, and/or *alterations* to *existing buildings* shall comply with the following:

$$PCI + [(PBP_{nre} - PBP)/BBP] - 0.10 < PCI_t \qquad \text{Equation C407.3 - 1}$$

TABLE C407.3

BUILDING PERFORMANCE FACTOR (BPF)

Building Type	***All-electric properties***	**All other *buildings***
Multifamily	0.78	0.57
Healthcare/Hospital	0.70	0.56
Hotel/Motel	0.71	0.51
Office	0.57	0.42
Restaurant	0.63	0.51
Retail	0.49	0.39
School	0.58	0.40
Warehouse	0.29	0.23
All Other	0.58	0.44

SECTION C408 MAINTENANCE INFORMATION AND SYSTEM COMMISSIONING

Section C408.2 Mechanical systems and service water heating systems commissioning, and completion requirements is amended by adding Exception 3 as follows:

Exceptions:

3. Systems in existing buildings where the area of work or the area served is less than 10,000 square feet.

Section C408.2.4 Preliminary commissioning report is replaced in its entirety as follows:

C408.2.4 Preliminary commissioning report. A preliminary report of commissioning test procedures and results shall be completed and certified by the *registered design professional* or *approved agency* and provided to the building owner or owner's authorized agent and to the Agency. The report shall be organized with mechanical, lighting controls, and service hot water findings in separate sections to allow independent review. The report shall be identified as "Preliminary Commissioning Report," shall include the completed Commission Compliance Checklist (see Figure C408.2.4, below) and shall identify:

1. Itemization of deficiencies found during testing required by this section that have not been corrected at the time of report preparation.
2. Deferred tests that cannot be performed at the time of report preparation because of climatic conditions.
3. Climatic conditions require for performance of the deferred tests.
4. Results of functional performance tests.
5. Functional performance test procedures used during the commissioning process including measurable criteria for test acceptance.

Figure C408.2.4 is replaced as follows:

Commissioning Compliance Checklist

Project Information	Project Name:
	Project Address:
	Registered design professional or approved agency who completed commissioning:
Commissioning Plan (Section C408.2.1)	Commissioning Plan was used during construction and includes all items required by Section C408.2.1: (owner or owner representative to initial here)
Systems Adjusting and Balancing (Section C408.2.2)	Systems Adjusting and Balancing has been completed 1. Air and water flow rates have been measured and adjusted to deliver final flow rates within the tolerances provided in the product~~e~~ specifications.
Functional Testing (Sections C408.2.3 and C408.3.1)	HVAC Equipment Functional Testing has been executed. If applicable, deferred and/or follow-up testing is scheduled to be provided on:__
	HVAC Controls Functional Testing has been executed. If applicable, deferred and/or follow-up testing is scheduled to be provided on:__
	Economizers Functional Testing has been executed. If applicable, deferred and/or follow-up testing is scheduled to be provided on:__
	Lighting Controls Functional Testing has been executed. If applicable, deferred and/or follow-up testing is scheduled to be provided on:__
	Service Water Heating System Functional Testing has been executed. If applicable, deferred and/or follow-up testing is scheduled to be provided on:__
Supporting Documents (Sections C408.2.5)	Manuals, record documents and training have been completed or are scheduled 1. System documentation has been provided to the owner or scheduled to be delivered to the owner on:__ 2. Record documents have been submitted to owner or scheduled to be delivered to the owner on:__ 3. Training has been completed or scheduled to be completed on:__
Preliminary Commissioning Report (Section C408.2.4 and C408.3.2.3.1)	Preliminary Commissioning Report submitted to Owner and includes all items required by Sections C408.2.4 and C408.3.2.3.1 as amended: (owner or owner representative to initial here)
Certification	I hereby certify that the commissioning provider has provided me with evidence of mechanical, service water heating and lighting systems commissioning in accordance with the Denver Energy Code. Signature of Building Owner or Owner's Representative Date

FIGURE C408.2.4

COMMISSIONING COMPLIANCE CHECKLIST

Section C408.2.5.2 Final commissioning report is replaced in its entirety as follows:

C408.2.5.2 Final commissioning report. A report of test procedures and results identified as "Final Commissioning Report" shall be delivered to the building owner or owner's agent. The report shall be organized with mechanical system, lighting controls, and service hot water system findings in separate sections to allow independent review. The report shall include the following:

1. Results of functional performance tests.
2. Disposition of deficiencies found during testing, including details of corrective measures used or proposed.
3. Functional performance test procedures used during the commissioning process including measurable criteria for test acceptance, provided herein for repeatability.

Exception: Deferred tests that cannot be performed at the time of report preparation due to climatic conditions.

Section C408.3 Functional testing of lighting controls is amended by adding the following Exception:

Exception:

New lighting systems are exempt from the functional testing requirements in Section C408.3.1 in buildings where the new installed lighting load is less than 10 kW and the area of work is less than 10,000 square feet.

Section C408.3.2.3 Report is replaced in its entirety as follows:

C408.3.2.3 Reports. The commissioning reports shall be provided as follows:

C408.3.2.3.1 Preliminary commissioning report. A preliminary report of commissioning test procedures and results shall be completed and certified by the *registered design professional* or *approved agency* and provided to the building owner or owner's authorized agent and to the project electrical inspector. The report shall be organized with mechanical, lighting controls, and service hot water findings in separate sections to allow independent review. The report shall be identified as "Preliminary Commissioning Report," shall include the completed Commission Compliance Checklist (see Figure C408.2.4, below) and shall identify:

1. Itemization of deficiencies found during testing required by this section that have not been corrected at the time of report preparation.
2. Results of functional performance tests.
3. Functional performance test procedures used during the commissioning process including measurable criteria for test acceptance.

C408.3.2.3.2 Final commissioning report. A report of test procedures and results identified as "Final Commissioning Report" shall be delivered to the building owner or owner's agent. The report shall be organized with mechanical system, lighting controls, and service hot water system findings in separate sections to allow independent review. The report shall include the following:

1. Results of functional performance tests.
2. Disposition of deficiencies found during testing, including details of corrective measures used or proposed.
3. Functional performance test procedures used during the commissioning process including measurable criteria for test acceptance, provided herein for repeatability.

CHAPTER 5 [CE]: EXISTING BUILDING

SECTION C501 GENERAL

Section C501.2 Compliance is replaced in its entirety as follows:

C501.2 Compliance. *Alterations*, *repairs*, *additions*, and changes of occupancy to, or relocation of, existing buildings and structures shall comply with the provisions for *alternations*, *repairs*, *additions* and changes of occupancy or relocation, respectively, in this code and the *Denver Commercial Building Code*, *Denver Fire Code*, *Denver Fuel and Gas Code*, *Denver Mechanical Code*, *Denver Plumbing Code*, and the the Electrical Code as adopted by the State of Colorado~~Electric Code of the City and County of Denver~~.

Section C501.5 Historic buildings is replaced in its entirety as follows:

C501.5 Historic buildings. No provision of this code relating to the construction, *repair*, *alteration*, restoration, and movement of structures, and *change of occupancy* shall be mandatory for *historic buildings* provided that one of the following applies:

1. A report has been submitted to the *building official* and signed by a *registered design professional*, demonstrating that compliance with that provision would threaten, degrade, or destroy the contributing historic character or features, or the historic form, materials, or function of the building.
2. The Colorado State Historic Preservation Officer provides a letter to the *building official* with a finding that compliance would conflict with the Secretary of the Interior's Standards for Rehabilitation, outlining the specific provisions that are in conflict and how compliance would threaten, degrade, or destroy the contributing historic character or features, or the historic form, materials, or function of the building.
3. The Denver Landmark Preservation Commission or Lower Downtown Design Review Commission provides documentation to the *building official* with a finding that compliance with that provision would conflict with locally adopted historic preservation policies, standards, and guidelines, outlining the specific provisions that are in conflict and how compliance would threaten, degrade, or destroy the historic character or features, or the historic form, materials, or function of the building.

SECTION C502 ADDITIONS

Section C502.3 Compliance is replaced as follows, subordinate sections remain:

C502.3 Compliance. *Additions* shall comply with Sections C502.3.1 through C502.3.7 and Sections C503.3.2, C503.3.3, and C503.4.1.

Section C502.3.7 is added as follows:

C502.3.7 Additional energy efficiency requirements. *Additions* shall comply with Section C406. *Alterations* to the existing building that are not part of the *addition*, but are permitted with an *addition*, are allowed to be used to achieve the required C406 credits.

Exceptions:

1. Buildings in Group U.

2. *Additions* less than 500 square feet (46 m^2) and less than 50 percent of existing floor area.
3. *Additions* that do not include addition or replacement of equipment covered by Tables C403.3.2(1) through C403.3.2(16) or Section C404.2.
4. *Additions* that do not increase *conditioned space*.
5. Where the *addition* alone or the existing building and *addition* together comply with Section C407.

SECTION C503 ALTERATIONS

Section C503.1.1 Alteration compliance (performance option) is added as follows:

C503.1.1 Alteration compliance (performance option). Where *alterations* do not result in a change of occupancy or space conditioning per C505.1 or C502.2, the building shall comply with this code if the annual energy cost or energy use of the *alterations* that are part of the project is less than or equal to the annual energy cost or energy use of the existing *building* when modeled in accordance with Section C407.1.2, with the following changes:

1. Systems and building components that are not part of the alteration shall be modeled identically in both baseline and proposed models.
2. Unaltered spaces may be excluded from the models if the energy use of the space is not impacted by the scope of the alterations.
3. Where existing conditions are unknown for the spaces and systems the alterations affect, C407 shall be used to determine baseline.
4. Where existing conditions are known for the spaces and systems the alterations affect, they shall be modeled as such in the baseline.
5. Where existing conditions are unknown and unaltered, C407 shall be used to determine baseline and proposed conditions.
6. Where the alterations include envelope improvements, the baseline building shall represent existing conditions prior to the alterations.
7. Alterations are not subject to the mandatory requirements of C407.2 except where outlined in C503.

Section C503.2.1 Roof replacement is amended by adding an exception as follows:

Exception: Where increasing the thickness of above deck insulation would result in existing exterior wall openings becoming less compliant with the *Denver Commercial Building Code*, increased insulation to the maximum extent feasible shall be considered in compliance with Section C402.1.4.

~~***Effective March 1st, 2023: Permit applications submitted to the Agency after March 1st, 2023, shall comply with section C503.3.2.***~~

Section C503.3.2 Low-Nitrogen Emissions is added as follows:

C503.3.2 Low-Nitrogen Emissions. In existing *buildings* and *additions*, new or replacement ~~Where an~~ indoor gas-fired warm air furnaces ~~is replaced with another gas-fired warm air furnace, the new furnace~~ shall meet one of the following:

1. Low-nitrogen dioxide emissions shall not exceed 14 nanograms of nitrogen dioxide per joule of useful heat delivered to the heated space.
2. An Annual Fuel Utilization Efficiency of not less than 90 percent.

Exception: Indoor gas-fired make-up air units are not required to comply with this section.

~~***Effective March 1st, 2023: Permit applications submitted to the Agency after March 1st, 2023, shall comply with section C503.3.3.***~~

C503.3.3 Partial electrification for space heating requirements is added as follows:

C503.3.3 Partial electrification for space heating requirements. In existing *buildings* and *additions*, new and~~Where a gas-fired warm air furnace is replaced with a~~ or replacement gas-fired warm-air furnaces ~~, two of the following are required; when a~~ unitary air conditioners or condensing units serving a heated space ~~is replaced with another unitary air conditioner or condensing unit~~ shall meet ~~,~~ one of the following ~~is required~~:

1. Provide ~~A~~an *Electrification Retrofit Feasibility Report*.
2. The equipment shall be sized per Section C403.3.1.
3. All gas piping connected to the gas meter serving new and replacement ~~the replaced~~ warm-air furnaces shall be tested per Section 406 of the *Denver Fuel Gas Code* ~~IFGC~~.

Exceptions:

1. This section shall not apply when equipment is replaced as an *emergency equipment replacement*.
2. This section shall not apply to ~~the replacement of~~ gas-fired boilers used for space heating.
3. This section shall not apply to ~~the replacement of~~ package terminal air conditioners (PTACs) or vertical terminal air conditioners (VTACs).

~~3.~~4. This section shall not apply to heat pumps installed as the primary heat source.

~~***Effective March 1st, 2023: Permit applications submitted to the Agency after March 1st, 2023, shall comply with section C503.4.1.***~~

Section C503.4.1 Electrification for service water heating requirements is added as follows:

C503.4.1 Electrification for service water heating requirements. In existing *buildings* and *additions*, new or replacement ~~Where a gas-fired storage water heater or instantaneous water heater is replaced with another~~ gas-fired storage water heaters or instantaneous water heaters ,shall meet one of the following ~~is required~~:

1. Provide an *Electrification Retrofit Feasibility Report.*
2. All gas piping connected to the gas meter serving the new and replacement~~d~~ gas-fired water heater shall be tested per Section 406 of the *Denver Fuel Gas Code* ~~IFGC~~.

Exceptions:

1. This section shall not apply when equipment is replaced *as an emergency equipment replacement.*
2. This section shall not apply to ~~the replacement of~~ gas-fired boilers used for water heating.

Section C503.5.1 Lighting acceptance testing is added as follows:

C503.5.1 Lighting acceptance testing. New lighting systems that serve *alterations* shall comply with Section C408.3.

Exception: The new installed lighting load is less than 10 kW, and the work area is less than 10,000 sq. ft.

Section C503.5.2 Lighting systems for plant growth vegetation areas is added as follows:

C503.5.2 Lighting systems for plant growth vegetation areas. New lighting installed in new canopy areas (areas used for plant growth and plant maintenance) as part of an expansion of operations or change of use within an existing building shall comply with Section C405.4.

Exceptions:

1. Replacement luminaires in existing plant growth and maintenance areas.
2. New lighting in new canopy areas where the building ceiling height is 9 feet or less.

SECTION C505 CHANGE OF OCCUPANCY OR USE

Section C505.1 General is replaced~~deleted~~ in its entirety ~~and replaced~~ as follows:

C505.1 General. Spaces undergoing a change in occupancy to a higher energy-demand category (higher number) as shown in Table C505.1 shall comply with the requirements of this code's sections C402, C403, C404, C405, and C408. Where the space undergoing a change in occupancy or use is in a building with a fenestration area that exceeds the limitations of Section C402.4.1, the space is exempt from Section C402.4.1 provided there is not an increase in fenestration area.

Exceptions:

1. Where it is calculated that the change in occupancy or the alterations (Section C503) will not result in an increase in demand for fossil fuel and electrical energy, the space shall comply with the requirements of this code for *alterations*.
2. Where the component performance alternative in Section C402.1.5 is used to comply with this section, the proposed UA shall be not greater than 110 percent of the target UA.
3. Where the space undergoing a change in occupancy complies with C407.1.2.

Table C505.1 Energy-demand categories is added as follows:

TABLE C505.1
ENERGY-DEMAND CATEGORIES

ENERGY-DEMAND CATEGORY	IBC OCCUPANCIES	IRC ~~USES~~STRUCTURES
4 (highest energy-demand)	A, B small assembly space	
3	B gym, E, I-4, M	
2	B (except as listed above), I-1, I-2, I-3, R	One- and two-family dwellings and townhouses~~All uses permitted in IRC structures~~
1 (lowest energy-demand)	F, H, S	Accessory structures with or without living space

CHAPTER 6 [CE]: REFERENCED STANDARDS

The following referenced standards are added as follows:

CTA

1919 South Eads Street
Arlington, VA 22202

2045—Modular Communications Interface for Energy Management

ASME

Two Park Avenue
New York, NY 10016-5990
(800) 843-2763;
https://www.asme.org

BPVC—Boiler and Pressure Vessel Code

ASABE

2950 Niles Road
St. Joseph, MI 49085
www.asabe.org

S642- SEP2018— Recommended Methods for Measurement and Testing of LED Products for Plant Growth And Development

IES

120 Wall Street, 17th Floor
New York, NY 10005-4001
www.ies.org

LM-79-19—Optical And Electrical Measurements of Solid-State Lighting Products

LM-51-20—Electrical and Photometric Measurement of High Intensity Discharge Lamps

IESNA Lighting Handbook – 10th edition (2011)

ASHRAE

180 Technology Parkway NW
Peachtree Corners, GA 30092

90.4-2019: Energy Standard for Data Centers,

DOE

1000 Independence Avenue SW
Washington, DC 20585

10 CFR Part 430, Subpart B - Appendix X – (2018): Uniform Test Method for Measuring the Energy Consumption of Dehumidifiers

RESNET

ANSI/RESNET/ICC 380—2022 Standard for Testing Airtightness of Building, Dwelling Unit and Sleeping Unit Enclosures; Airtightness of Heating and Cooling Air Distribution Systems, and Airflow of Mechanical Ventilation Systems C402.5.2, C402.5.3	Residential Energy Services Network, Inc. P.O. Box 4561 Oceanside CA 92052-4561

Appendix CB Solar-ready zone—commercial is adopted with the following amendments:

APPENDIX CB
SOLAR-READY ZONE—COMMERCIAL

SECTION CB103
SOLAR-READY ZONE

Section CB103.1 General is replaced as follows:

CB103.1 General. A *solar-ready zone* shall be located on the roof of buildings that are five stories or less in height above grade plane and are oriented between 110 degrees and 270 degrees of true north or have low-slope roofs. *Solar-ready zones* shall comply with Sections CB103.2 through CB103.9.

Exceptions:

1. A building with a permanently installed, on-site renewable energy system with existing capacity that is at a minimum the greater of 1 W/sf of roof area and 5 kW DC.
2. A building with a solar-ready zone that is shaded for more than 70 percent of daylight hours annually.
3. A building where the licensed design professional certifies that the incident solar radiation available to the building is not suitable for a solar-ready zone.

Section CB103.3 Solar-ready zone area is replaced as follows:

CB103.3 Solar-ready zone area. The total *solar-ready zone* area shall be not less than 60 percent of the roof area calculated as the horizontally projected gross roof area less the area covered by skylights, occupied roof decks, vegetative roof areas and mandatory access or set back areas as required by the Denver Fire Code. The *solar-ready zone* shall be a single area or smaller, separated sub-zone areas. Each sub-zone shall be not less than 5 feet (1524 mm) in width in the narrowest dimension.

Exception:

A building where the licensed design professional certifies that a portion of the solar zone area required by Section CB103.3 cannot be met because of extensive rooftop equipment, skylights, vegetative roof areas or other obstructions.

Section CB103.4 Obstructions is replaced as follows:

~~CB103.4 Obstructions.~~ ~~No obstructions, including but not limited to, vents, chimneys, HVAC equipment, skylights, architectural features, and roof-mounted equipment, shall be located in or impact the solar zone. Any obstruction, located on the roof or any other part of the building that projects above a solar zone shall be located two times the height of the obstruction from the closest edge of the solar zone.~~

~~Exceptions:~~

1. ~~Any roof obstruction, located on the roof or any other part of the building, that is oriented north of all points on the solar zone.~~
2. ~~Equipment designated for solar water heating systems, if present, are permitted to be installed in the solar zone.~~

~~Section CB103.8 Electrical service reserved space is replaced as follows:~~

~~CB103.8 Electrical service or distribution reserved space.~~ ~~Provide for reserved spaces in the electrical service or distribution system to allow for installation of a two-pole or three-pole circuit breaker or disconnect switch for an interconnection to a future solar electric system and a two-pole or three-pole circuit breaker or disconnect switch for an interconnection to a future electrical energy storage system. These spaces shall be labeled "For Future Solar Electric System" and "For Future Energy Storage System" respectively. The reserved spaces shall allow for compliance with the requirements of National Electrical Code (NEC) 705.~~

Appendix PT Modeling to a Performance Target is added as follows:

APPENDIX PT: MODELING TO A PERFORMANCE TARGET

PT101 Scope. This section establishes criteria for demonstrating compliance utilizing a modeled performance target.

PT102 Mandatory requirements. *Buildings* complying with this appendix shall comply with section C407.2.

PT103 Modeled Performance target. Projects of the types listed in Table PT103 shall be permitted to demonstrate compliance based on a modeled performance target. The modeled performance target shall be calculated in accordance with this appendix. The *pEUI* of the *building* shall be less than or equal to the values in Table PT103. For *buildings* with multiple occupancy types, the modeled performance target shall be a weighted average of the floor area of each occupancy type.

PT103.1 Modeling procedures. The *pEUI* of the proposed design shall be calculated utilizing the energy modeling procedures of Appendix G of ASHRAE 90.1 for proposed building performance as modified by the "Denver Modeling Rules and Procedures" document available from the Agency through the adoption of rules and regulations.

TABLE PT103
MODELED PERFORMANCE TARGETS

Building Type	Modeled Performance Target (kBtu/sf/yr)
Apartment (Multi-family)	38
Hotel (Motel)	55
Office	43
Retail	39
Restaurant/Bar	175
Parking garages	3

PT104 Documentation. Permit submittals shall include a report documenting that the proposed design has annual energy use less than or equal to the energy target required in Section PT103.1. The compliance documentation shall include the information identified in the *Denver Modeling Rules and Procedures.*

PT105 Renewable Energy. The reduction in energy of the proposed design associated with on-site renewable energy is limited to 10% when complying with Appendix PT.

PT106 Excluded Energy Use. Energy used for data centers and EV charging equipment shall be permitted to be excluded from the total *pEUI* of the building provided the load is metered separately from the rest of the *building* loads.

Appendix SE is added as follows:

APPENDIX SE: TOTAL BUILDING PERFORMANCE WITH SITE ENERGY

SE101 Scope. This section establishes criteria for demonstrating compliance using total building performance utilizing site energy in accordance with option c of section 4.2.1.1 of ANSI/ASHRAE/IESNA 90.1.

SE102 Mandatory requirements. *Buildings* complying with this appendix shall comply with section C407.2.

SE103 Compliance based on site energy. *Buildings* shall comply with option c: Normative Appendix G, "Performance Rating Method" of section 4.2.1.1 of ANSI/ASHRAE/IESNA 90.1 as modified by this section.

SE103.1 Terms. For the purposes of compliance with this appendix, terminology in ANSI/ASHRAE/IESNA 90.1 shall be modified as follows:

1. Replace references to energy cost with references to site energy in Sections G1.2.2, G1.3.2, G2.1, G2.5 and G2.4.2 section heading.
2. *Baseline building performance* shall be defined as "the annual site *energy* for a *building* design intended for use as a baseline for rating above-standard design or when using the *Performance Rating Method* as an alternative path for minimum standard compliance in accordance with Section 4.2.1.1."
3. *Proposed building performance* shall be defined as **"**the annual site *energy* calculated for a *proposed design*."

SE103.2 Section 4.2.1.1. Section 4.2.1.1 is replaced with the following:

Buildings shall comply with the provisions of Appendix G of ANSI/ASHRAE/IESNA 90.1, "Performance Rating Method." The Performance Site Energy Index (PSEI) shall be less than or equal to the Performance Site Energy Index Target ($PSEI_t$) when calculated in accordance with the following:

$$PSEI_t = [BBUSE + (BPF \times BBRSE)] / BBPSE \qquad \text{Equation SE103 - 1}$$

where

PSEI = Performance Site Energy Index calculated in accordance with section G1.2.

BBUSE = baseline *building* unregulated site energy, the portion of the annual site energy of a baseline building design that is due to unregulated energy use.

BBRSE = baseline *building* regulated site energy, the portion of the annual site energy of a baseline building design that is due to regulated energy use.

BPF = *building* performance factor from table SE103.2. for building area types not listed in table SE103.2 use "all others." where a building has multiple building area types, the required BPF shall be equal to the area-weighted average of the building area types.

BBPSE = baseline *building* performance site energy

PBPSE = *proposed building performance site energy*, including the reduced, annual purchased site *energy* associated with all *on-site renewable energy* generation systems.

$PBPSEn_{re}$ = *proposed building performance site energy* without any credit for reduced annual *energy* from *on-site renewable energy* generation systems.

When (PBPSEn*re* – PBPSE)/BBPSE > 0.10, new *buildings*, *additions* to *existing buildings*, and/or *alterations* to *existing buildings* shall comply with the following:

PSEI + [(PBPSE*nre* – PBPSE)/BBPSE] – 0.10< PSEI*t* ———Equation SE103 - 2

SE103.3 Building performance factors. Table 4.2.1.1 Building Performance Factor (BPF) shall be replaced with Table SE103.3.

TABLE SE103.3
BUILDING PERFORMANCE FACTOR (BPF)

Building Type	***All-electric properties***	**All other *buildings***
Multifamily	0.71	0.60
Healthcare/Hospital	0.73	0.62
Hotel/Motel	0.70	0.59
Office	0.59	0.51
Restaurant	0.75	0.63
Retail	0.58	0.48
School	0.69	0.58
Warehouse	0.40	0.33
All Other	0.64	0.54

SE103.5 Section G1.2.2. Section G1.2.2 shall be replaced with the following:

The performance of the *proposed design* is calculated in accordance with provisions of this appendix using the following formula:

Performance Site *Energy* Index = *Proposed building performance/Baseline building performance*

Both the *proposed building performance* and the *baseline building performance* shall include all end-use load components within and associated with the *building* when calculating the Performance Site *Energy* Index.

SE103.6 Section G1.3.2. Item a. in Section G1.3.2 shall be replaced, and item r. added as follows:

a. The following documentation shall be submitted to the rating authority: The *simulation program* used, the version of the *simulation program*, and the results of the *energy* analysis including the calculated values for the baseline *building* unregulated site *energy* (BBUSE), baseline *building* regulated site *energy* (BBRSE), *Building* Performance Factor (BPF), *baseline building performance*, the *proposed building performance*, Performance Site *Energy* Index (PSEI), and Performance Site *Energy* Index Target (PSEIt).

r. For any exceptional calculation methods employed, document the predicted *energy* savings by *energy* type, the site *energy* savings, a narrative explaining the exceptional calculation method performed, and theoretical or empirical information supporting the accuracy of the method.

SE103.7 Section G2.4.2. Section G2.4.2 shall be renamed "Annual Site Energy." The informative note for sections G2.4.2 and G2.4.2.2 shall be removed. The first sentence in section G2.4.2. shall be replaced with the following:

Site energy shall be calculated in accordance with the following:

1. 3,412 Btu per kWh of electricity
2. 100,000 Btu per therm of natural gas

SE103.8 Section G2.5. Section G2.5, item e. is replaced with the following:

e. The Performance Site *Energy* Index calculated with and without the exceptional calculation method.

ENERGY CODE RESIDENTIAL PROVISIONS

CHAPTER 1 [RE]: SCOPE AND ADMINISTRATION

~~PART 1 – SCOPE AND APPLICATION~~

SECTION R101 SCOPE AND GENERAL REQUIREMENTS

Section R101.1 Title is replaced in its entirety as follows:

R101.1 Title. These regulations shall be known as the Denver Energy Code and shall be cited as such. It is referred to herein as "this code".

SECTION R103 CONSTRUCTION DOCUMENTS

Section R103.2 Information on Construction documents ~~number 10~~ is ~~added as follows~~amended by adding at the end the following new items:

10. Total area of glazed *vertical fenestration* as a percentage of conditioned floor area.

11. Location and size of the *solar-ready zone*.

12. Structural design loads of roof dead load and roof live load for the *solar-ready zone*.

13. Locations of conduit and termination points for *future electric equipment* infrastructure.

14. Locations of electric vehicle parking spaces that are *EV Ready*.

Section R103.2.2 Energy compliance, is added as follows:

R103.2.2 Energy compliance. The Building Official is authorized to require additional documentation through written policy to ensure compliance with the *Denver Energy Code*.

SECTION R105 INSPECTIONS

Section R105.2 Required inspections revised as follows, subordinate sections to remain:

R105.2 Required inspections. The *code official* or his or her designated agent, upon notification, shall make the inspections, and shall report the result of inspections, set forth in Sections R105.2.1 through R105.2.5, to verify compliance with the requirements of this code.

Section 105.2.5 Final inspection is modified by adding subsection R105.2.5.1 Final inspection reporting as follows:

R105.2.5.1 Final inspection reporting. Reporting needed for certificate of occupancy in addition to what may be called for within a specific compliance path. Blower door, mechanical ventilation systems, and duct leakage testing results, Section R401.3 certificate, *approved* third party reports as required.

Section R105.4 Approved third party inspection agencies is replaced in its entirety ~~revised and added to~~ as follows:

R105.4 Approved third-party inspection agencies. The Agency is authorized to accept reports of third-party inspection agencies not affiliated with the *building* construction, provided that such agencies are *approved* as to qualifications and reliability relevant to the *building* components and systems that they are inspecting or testing.

R105.4.1 Third-Party Credentials. *Approved* third-party inspector shall be an accredited RESNET HERS Rater, BPI Building Analyst, IECC/HERS compliance specialist, or have IECC residential energy inspector/plans examiner certification.

R105.4.2 Approved third-party inspections reporting. The *approved* agency shall submit rough and final inspection reports to the *code official* and to the owner's representative in accordance with Section R105.2 and R105.4.

Sections R103.3 through R104, R106, and R108 through R109 are deleted in their entirety. Section 103 through 142 of the *Denver Commercial Building Code* shall govern.~~Section 1 of the 2022 Denver Building Code shall govern.~~

CHAPTER 2 [RE]: DEFINITIONS

~~**Section R201.3 Terms defined in other codes is deleted and replaced as follows:**~~

~~**R201.3 Terms defined in other codes.** Terms that are not defined in this code but are defined in the Denver Commercial Building Code, the Denver Fire Code, the Denver Fuel Gas Code, the Denver Mechanical Code, the Denver Plumbing Code, or the Denver Residential Code shall have the meanings given to them in those codes.~~

SECTION R202 GENERAL DEFINITIONS

The following definitions are amended or added as follows:

ALL-ELECTRIC RESIDENTIAL BUILDING. A building that has no *fuel- gas* or propane plumbing combustion equipment installed in or out of the building, and that uses electricity as the sole source of energy for its space heating and cooling, water heating (including pools and spas), cooking appliances, and clothes dryer appliances. All-electric buildings may include any or all sources of on-site renewable energy

ALL-ELECTRIC PROPERTY.
A property on a single assessment parcel with an accompanying legally described area of land as shown on a site plan, that, except for *emergency power systems* and *standby power systems*:

1) Contains no permanently installed equipment or appliances that utilize combustion, plumbing for *fuel gas* or fuel oil, or fuel gas utility connection installed within the *building(s)* or *site*; or,
2) Contains at least one new stand-alone all-electric building where the property includes existing *fuel gas* or fuel oil infrastructure built under a code effective prior to May 1, 2023.

~~**CODE OFFICIAL.** The building official as created in Chapter 1 of the *Denver Building Code*, Sec. 102.2~~

~~**COMBUSTION**. In the context of this code, refers to the rapid oxidation of fuel accompanied by the production of heat or heat and light.~~

COMBUSTION EQUIPMENT. For this code, any equipment or appliance used for space heating, ventilation conditioning, space cooling, service water heating (including pools and spas), cooking, clothes drying, humidification, or lighting that uses *fuel gas* or fuel oil.

DEMAND RESPONSE SIGNAL. A signal that indicates a price or a request to modify electricity consumption for a limited time period.

DEMAND RESPONSIVE CONTROL. A control capable of receiving and automatically responding to a *demand response signal*.

ELECTRIC VEHICLE (EV). An automotive-type vehicle for on-road use, such as passenger automobiles, buses, trucks, vans, neighborhood electric vehicles, and electric motorcycles, primarily powered by an electric motor that draws current from a building electrical service, EVSE, a rechargeable storage battery, a fuel cell, a photovoltaic array, or another source of electric current.

ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE). Equipment for plug-in power transfer including the ungrounded, grounded and equipment grounding conductors, and the *electric vehicle* connectors, attachment plugs, personal protection system and all other fittings, devices, power outlets or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the *electric vehicle*.

ELECTRIC VEHICLE READY SPACE (EV READY SPACE). An *automobile parking space* that is provided with a branch circuit and either an outlet, junction box or receptacle, that will support an installed *EVSE*.

EMERGENCY POWER SYSTEM. A source of automatic electric power of a required capacity and duration to operate required life safety, fire alarm, detection and ventilation systems in the event of a failure of the primary power. Emergency power systems are required for electrical loads where interruption of the primary power could result in loss of human life or serious injuries.

FUTURE ELECTRIC EQUIPMENT. Electrically-powered equipment that could be installed in the future to replace *combustion equipment* to meet a similar end use or load.

LEVEL 3 ALTERATION. Alterations where the work area exceeds 50 percent of the original building area or more than 10 parking spaces are substantially modified.

LOW-SLOPED ROOF. A roof having a slope less than 2units vertical in 12 units horizontal.

ON-SITE PARKING SPACE. A covered~~Interior or exterior~~ area on the *lot* with minimum dimensions of ~~8.5~~6-feet by 1~~4~~7.5-feet provided with an all-weather surface of asphalt, asphaltic concrete, concrete, crushed aggregate, or similar material and accessible by a vehicle from a *public way*.

RESIDENTIAL BUILDING. For this code, includes detached one- and two-family dwellings and multiple single-family dwellings (townhouses) and Group R-3 and R-4 buildings three stories or less in height above grade plane.

SOLAR READY ZONE. A section or sections of the roof or building designated and reserved for the future installation of a solar photovoltaic or solar thermal system.

STANDBY POWER SYSTEM. A source of automatic electric power of a required capacity and duration to operate required building, hazardous materials, or ventilation systems in the event of a failure of the primary power. Standby power systems are required for electrical loads where interruption of the primary power could create hazards or hamper rescue or fire-fighting operations.

TOWNHOUSE. A single-family *dwelling unit* constructed in a group of three or more attached units in which each unit extends from foundation to roof and has a *yard* or public way on the full length of one of the four principal sides and has a *yard* or public way on at least 50% of the length of another principal side.

CHAPTER 3 [RE]: GENERAL REQUIREMENTS

SECTION R302 DESIGN CONDITIONS

Section R302.1 Interior design conditions is replaced in its entirety as follows:

R302.1 Interior design conditions. The interior design temperatures used for heating and cooling load calculations shall be a maximum of 70°F (21°C) for heating and minimum of 75°F (24°C) for cooling.

SECTION R303 MATERIALS, SYSTEMS AND EQUIPMENT

Section R303.2 Installation is replaced as follows, subordinate sections to remain:

R303.2 Installation. Materials, systems, and equipment shall be installed in accordance with the manufacturer's instructions. Insulation shall be to minimum Grade I installation in accordance with ANSI/RESNET/ICC 301 ~~RESNET/ICC 301~~ and the *Denver Commercial Building Code* or the *Denver Residential Code*, as applicable.

CHAPTER 4 [RE]: RESIDENTIAL ENERGY EFFICIENCY

SECTION R401 SCOPE AND GENERAL REQUIREMENTS

Section R401.2 Application is replaced as follows (other subsections remain unchanged except as shown below):

R401.2 Application. Residential buildings shall comply with Sections R401.2.1, R401.2.2, or R401.2.3.

Exception: Additions, alterations, repairs, and changes of occupancy to existing buildings complying with Chapter 5.

Section R401.2.1 Prescriptive Compliance Option is replaced in its entirety as follows:

R401.2.1 Prescriptive Compliance Option. The Prescriptive Compliance Option requires compliance with Sections R401 through R404, and Section R408

Section R401.2.5 Additional Energy Efficiency is deleted in its entirety.

Section R401.3 Certificate is modified to substitute the term "space conditioning equipment" for "furnace", (the remainder of Section R401.3 is unchanged):

R401.3 –Certificate. A permanent certificate shall be completed by the builder or other *approved* party and posted on a wall in the space where the space conditioning equipment is located, a utility room or an *approved* location inside the *building*. Where located on an electrical panel, the certificate shall not cover or obstruct the visibility of the circuit directory *label*, service disconnect *label* or other required labels. The certificate shall indicate the following and shall be posted for review by the time of the project's final inspection:

Section R401.4 Homeowner manual is added as follows:

Section R401.4 Homeowner manual. The builder or owner's agent shall provide the owner with a binder of all equipment and appliance manufacturers' installation manuals, except for manuals that are required to be affixed to the equipment, and any information required to be included on the permanent certificate in accordance with R401.3. This includes any energy assessment report and/or ERI certificate.

SECTION R402 BUILDING THERMAL ENVELOPE

Section R402.1.1 Vapor retarder is replaced in its entirety as follows:

Section R402.1.1 Vapor retarder. Wall assemblies in the *building thermal envelope* shall comply with the vapor retarder requirements of Section R702.7 of the *Denver Residential Code* or Section 1404.3 of the *Denver Commercial Building Code*, as applicable.

Table R402.1.2 MAXIMUM ASSEMBLY U-FACTORS [a] AND FENESTRATION REQUIREMENTS and footnotes is replaced as follows:

TABLE R402.1.2
MAXIMUM ASSEMBLY *U*-FACTORS[a] AND FENESTRATION REQUIREMENTS

CLIMATE ZONE	FENESTRATION *U*-FACTOR[f]	SKYLIGHT *U*-FACTOR	GLAZED FENESTRATION SHGC[d,]	CEILING *U*-FACTOR	WOOD FRAME WALL *U*-FACTOR	MASS WALL *U*-FACTOR[b]	FLOOR *U*-FACTOR	BASEMENT WALL *U*-FACTOR	CRAWL SPACE WALL *U*-FACTOR

5	0.27 / 0.25	0.45	0.40	0.024	0.045	0.082	0.026	0.050	0.055

For SI: 1 foot = 304.8 mm.

a. Non-fenestration *U*-factors shall be obtained from measurement, calculation, or an approved source.
b. Mass walls shall be in accordance with Section R402.2.5. Where more than half the insulation is on the interior, the mass wall *U*-factors shall not exceed 0.065 in Climate Zone 5.
c. Reserved.
d. The SHGC column applies to all glazed fenestrations.
e. Reserved.
f. Where the proposed glazing area is greater than or equal to 15.0% of the conditioned floor area, as provided by Section R103.2, the lower U-factor shall not be exceeded.

Table R402.1.3 INSULATION MINIMUM R-VALUES AND FENESTRATION REQUIREMENTS BY COMPONENT and footnotes is replaced as follows:

Table R402.1.3
INSULATION MINIMUM R-VALUES AND FENESTRATION REQUIREMENTS BY COMPONENT

CLIMATE ZONE	FENESTRATION *U*-FACTOR[b]	SKYLIGHT[b] *U*-FACTOR	GLAZED FENESTRATION SHGC[b,]	CEILING *R*-VALUE	WOOD FRAME WALL *R*-VALUE[e]	MASS WALL *R*-VALUE[f]	FLOOR *R*-VALUE	BASEMENT[c,e] WALL *R*-VALUE	SLAB[d] *R*-VALUE & DEPTH	CRAWL SPACE[c,e] WALL *R*-VALUE
5	0.27 / 0.25[g]	0.45	0.40	60	30 or 20 & 5ci or 13&10ci or 0 & 20ci	13/17	38	15ci or 19 or 13 & 5ci	10ci, 4 ft	15ci or 19 or 13 & 5ci

For SI 1foot = 304.8mmci = continuous insulation

a. *R*-values are minimums. *U*-factors and SHGC are maximums. Where insulation is installed in a cavity that is less than the label or design thickness of the insulation, the installed *R*-value of the insulation shall be not less than the *R*-value specified in the table.
b. The fenestration *U*-factor column excludes skylights. The SHGC column applies to all glazed fenestration except for that specifically used for passive solar design heat gain which is exempt.
c. "15ci or 19 or 13 + 5ci" means R-15 continuous insulation (ci) on the interior or exterior surface of the wall; or R-19 cavity insulation on the interior side of the wall; or R-13 cavity insulation on the interior of the wall in addition to R-5 continuous insulation on the interior or exterior surface of the wall.
d. R-10 insulation shall be provided under the full slab area of a heated slab in addition to the required slab edge insulation *R*-value for slabs. as indicated in the table. Slab edge insulation shall be installed to separate conditioned from unconditioned spaces including adjacent garages, entries, and porches. The slab-edge insulation for heated slabs shall not be required to extend below the slab.
e. The first value is cavity insulation; the second value is continuous insulation. Therefore, as an example, “20 & 5” means R-20 cavity insulation plus R-5 continuous insulation.
f. Mass walls shall be in accordance with Section R402.2.5. The second *R*-value applies where more than half of the insulation is on the interior of the mass wall.
g. Where the proposed glazing area is greater than or equal to 15.0% of the conditioned floor area, as provided by Section R103.2, the lower U-factor shall not be exceeded.

Section R402.2.8 Basement walls is amended~~modified~~ as follows (exceptions remain unchanged):

R402.2.8 Basement walls. Basement walls shall be insulated in accordance with Table R402.1.2 or Table R402.1.3 or the installed R-value shall be in accordance with the compliance path that is defined at the time of obtaining the building permit.

Section R402.2.8.1 Basement wall insulation installation is added:

R402.2.8.1 Basement wall insulation installation. Where basement walls enclosing conditioned basements are insulated, the insulation shall comply with the following:

1. Where exterior basement wall insulation is installed, it shall be permanently attached to the wall and extend from the sill plate downward to not less than the top of the footing or 10 feet, whichever is less.
2. Where interior basement wall insulation is installed, it shall extend from the sill plate at the top of the foundation wall downward to the finished floor or subfloor below.

Section R402.2.10. Crawl space walls and R402.2.10.1 Crawl space wall insulation installation are replaced in their entirety~~is revised~~ as follows:

R402.2.10 Crawl space walls. Crawl space walls shall be insulated in accordance with Table R402.1.2 or Table R402.1.3 or the installed R-value shall be in accordance with the compliance path that is defined at the time of obtaining the building permit.

Exception: Crawl space walls associated with a crawl space that is vented to the outdoors and the floor overhead is insulated in accordance with Table R402.1.3 and Section R402.2.7.

R402.2.10.1 Crawl space wall insulation installations. Where crawl space wall insulation is installed, it shall comply with the following:

1. Where exterior crawl space wall insulation is installed, it shall be permanently attached to the foundation and extend from the sill plate downward to the top of the footing.
2. Where interior crawl space wall insulation is installed, it shall be permanently attached to the foundation wall and extend from the sill plate at the top of the foundation wall downward to the finished floor or subfloor of the crawlspace.

Exposed earth in crawl space foundations shall be covered with a continuous Class I vapor retarder in accordance with the *Denver Commercial Building Code* or the *Denver Residential Code*, as applicable. Joints of the vapor retarder shall overlap by 6 inches (153 mm) and be sealed or taped. The edges of the vapor retarder shall extend not less than 6 inches (153 mm) up stem walls and shall be attached to the stem walls.

TABLE R402.4.1.1 AIR BARRIER, AIR SEALING AND INSULATION INSTALLATION is replaced in its entirety as follows:

TABLE R402.4.1.1 AIR BARRIER, AIR SEALING AND INSULATION INSTALLATION[a]

Component	AIR BARRIER, AIR SEALING CRITERIA	Insulation Installation
General requirements	A continuous air barrier shall be installed in the building envelope. Breaks or joints in the air barrier shall be sealed.	Air-permeable insulation shall not be used as a sealing material.
Ceiling/attic	A sealed air barrier shall be installed in any dropped ceiling or soffit to separate it from unconditioned space.	The insulation in any dropped ceiling/soffit shall be aligned with the air barrier.

	Access openings, drop downstairs or knee wall doors to unconditioned attic spaces shall be air sealed with gasketing materials that allow for repeated entrance over time.	Access hatches and doors shall be installed and insulated in accordance with Section R402.2.4 Eave Baffles shall be installed in accordance with Section R402.2.3
Above Grade Walls	The junction of the foundation and sill plate shall be air sealed. The junction of top plates and drywall adjacent to unconditioned space shall be air sealed. The junction of the bottom plate to the subfloor on exterior walls separating conditioned space from unconditioned space shall be air sealed.	Air permeable insulation installed in wall cavities shall be enclosed. Building thermal envelope insulation for framed walls shall be installed in substantial contact and continuous alignment with the air barrier. Corners in exterior frame walls shall be insulated with material having a thermal resistance, R-value, of not less than R-3 per inch. Headers on exterior walls shall be insulated to a minimum R-5.
Windows, skylights and doors	The space between framing and skylights, and the jambs of windows and doors, shall be air sealed.	Insulation installed in framing around windows, skylights and doors shall be cut to fit the cavity and shall not interfere with flashing or drainage of the installed window.
Rim joists	Rim joists shall include an exterior air barrier[b]. The junctions of the rim board to the sill plate and the rim board and the subfloor shall be air sealed.	Rim joists shall be insulated so that the insulation maintains permanent contact with the exterior rim board.[b]
Floors, separating conditioned from unconditioned space, including cantilevered floors and floors above garages	The air barrier shall be installed, and air sealed to maintain continuity at exposed edges of the insulated floor cavity.	Air permeable insulation installed in floor cavities shall be enclosed. Floor framing cavity insulation shall be installed in accordance with the requirements of Section R402.2.7.
Basement crawl space and slab foundations	Exposed earth in unvented crawl spaces shall be covered with a Class I vapor retarder/air barrier in accordance with Section R402.2.10. Penetrations through concrete foundation walls and slabs shall be air sealed. Class 1 vapor retarders shall not be used as an air barrier or installed on the interior side of air-permeable insulation on below-grade concrete walls and shall be installed in accordance with Section R702.7 of the *Denver Residential Code*.	Crawl space insulation, where provided instead of floor insulation, shall be installed in accordance with Section R402.2.10. Conditioned basement foundation wall insulation shall be installed in accordance with Section R402.2.8.1. Slab-on-grade floor insulation shall be installed in accordance with Section R402.2.9 Slab-on-grade floors.
Shafts, penetrations	Duct and flue shafts to exterior or unconditioned space shall be sealed.	Insulation shall be fitted tightly around utilities passing through shafts and penetrations in the building thermal envelope to maintain required R-value.

	Utility penetrations of the air barrier shall be caulked, gasketed or otherwise sealed and shall allow for expansion, contraction of materials and mechanical vibration.	
Narrow cavities	Narrow cavities of 1 inch or less that are not able to be insulated shall be air sealed.	Batts to be installed in narrow cavities shall be cut to fit or narrow cavities shall be filled with insulation that on installation readily conforms to the available cavity space.
Garage separation	Air sealing shall be provided between the garage and conditioned spaces.	Insulated portions of the garage separation assembly shall be installed in accordance with Sections R303 and R402.2.7.
Recessed lighting	Recessed light fixtures installed in the building thermal envelope shall be air sealed in accordance with Section R402.4.5.	Recessed light fixtures installed in the building thermal envelope shall be airtight and IC rated, and shall be buried or surrounded with insulation.
Plumbing, wiring or other obstructions	All holes created by wiring, plumbing or other obstructions in the air barrier assembly shall be air sealed.	Insulation shall be installed to fill the available space and surround wiring, plumbing, or other obstructions, unless the required R-value can be met by installing insulation and air barrier systems completely to the exterior side of the obstructions.
Shower, tub, and fireplaces on exterior walls	An air barrier shall be installed to separate the exterior insulated framed wall from showers, tubs, and fireplaces. Tub and shower drain trap penetrations through the subfloor shall be air sealed. Fireplace doors shall have tight fitting flue dampers or doors and shall be listed in accordance with of R402.4.2	Exterior framed walls adjacent to showers, tubs, and fireplace shall be insulated.
Electrical communication, and other equipment boxes, housings, and enclosures	Boxes, housings, and enclosures that penetrate the air barrier shall be caulked, taped, gasketed, or otherwise sealed to the air barrier element being penetrated. All concealed openings into the box, housing, or enclosure shall be sealed. The continuity of the air barrier shall be maintained around boxes, housings, and enclosures that penetrate the air barrier Alternatively, air-sealed boxes shall be installed in accordance with R402.4.6	Boxes, housing, and enclosure shall be buried in or surrounded by insulation
HVAC Register boots	All HVAC supply and return register boots shall be sealed to the subfloor, wall covering, or ceiling penetrated by the boot.	HVAC supply and return register boots located in the buildings thermal envelope shall be buried in or surrounded by insulation.

Concealed sprinklers	Where required to be sealed, concealed fire sprinklers shall only be sealed in a manner that is recommended by the manufacturer. Caulking or other adhesive sealants shall not be used to fill voids between fire sprinkler cover plates and walls or ceilings.	
Common walls	Air sealing materials recognized in a listed, fire resistance rated common wall design and installed in accordance with the listing, or Air sealing materials recognized in an approved design, shall be used. Common walls separating townhouse & duplex units shall be considered an exterior wall for the purposes of air barrier and air sealing application of this Table (R402.4.1.1).	Insulation materials recognized in the listed common wall design and installed in accordance with the listing, or Insulation materials recognized in the approved design, shall be used.

a. Inspection of log walls shall be in accordance with the provisions of ICC 400.
b. Air barrier and insulation full enclosure is not required in unconditioned/ventilated attic spaces and at rim joists.

Section R402.4.1.2 Testing is replaced in its entirety as follows:

R402.4.1.2 Testing. The *building* or *dwelling unit* shall be tested and verified as having an air leakage rate not exceeding three air changes per hour (3.0 ACH50) or 0.16 cfm per square foot (0.8 L/s/m^2) of *dwelling unit enclosure area* in *climate zone* 5.

Testing shall be conducted in accordance with ANSI/RESNET/ICC 380 and reported at a pressure of 0.2-inch w.g. (50 Pascals). Where allowed by the *building official* due to the volume of tests required, testing may be conducted by an *approved* third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the *building official*. Testing shall be performed at any time after all penetrations of the *building thermal envelope* have been sealed.

Exceptions:

1. Heated, attached private garage space and heated, detached private garage space shall be thermally isolated from all other habitable, *conditioned spaces* in accordance with Sections R402.2.12 and R402.3.5, as applicable.
2. When testing individual *dwelling units*, an air leakage rate not exceeding 0.22 cubic feet per minute per square foot [0.006 $m^3/(s \times m^2)$] of the dwelling unit enclosure area, tested in accordance with ANSI/RESNET/ICC 380, ASTM E779 or ASTM E1827 and reported at a pressure of 0.2 inch w.g. (50 Pa), shall be an accepted alternative permitted for:

   2.1 Attached one- and two-family *dwelling units* and *townhouses*.

   2.2 Buildings or *dwelling units* that are 1,000 square feet (92.9 m^2) or smaller.

   2.3 Group R-X occupancies built in accordance with Section 429 of the *Denver Commercial Building Code.*

Mechanical ventilation shall be provided in accordance with Section M1505 of the *Denver Residential Code* or Section 403.3.2 of the *Denver Mechanical Code*, as applicable, or with other *approved* means of ventilation.

SECTION R403 SYSTEMS

Section R403.1.3 Continuously burning pilot lights is added as follows:

R403.1.3 Continuously burning pilot lights. The natural gas systems and equipment listed below shall not be permitted to have continuously burning pilot lights:

1. Mechanical or natural draft furnaces, boilers, and water heaters.
2. Household cooking appliances.
   Exception: Household cooking appliances without electrical supply voltage connections and in which each pilot light consumes less than 150 Btu/hr.
3. Pool heaters.
4. Spa heaters.
5. Fireplaces.

Section R403.3 Ducts ~~and air handlers~~ is replaced ~~modified~~ as follows, subordinate sections remain except as amended or deleted below:

R403.3 Ducts and air handlers. Ducts and air handlers shall be installed in accordance with Sections R403.3.1 through R403.3.7. The air handler shall be installed within conditioned space.

Section R403.3.1 Ducts located outside conditioned space is replaced in its entirety ~~modified~~ as follows:

R403.3.1 Ducts located outside conditioned space. Supply and return ducts located outside *conditioned space* shall be insulated to an *R*-value of not less than R-8 and shall comply with Section R403.3.3 Ducts within ceiling insulation.

Section R403.3.2 Ducts located in conditioned space is amended~~modified~~ by deleting item 2.3:

Section R403.3.3 Ducts buried within ceiling insulation is replaced in its entirety~~revised~~ as follows:

R403.3.3 Ducts within ceiling insulation. Supply and return air ducts located in unconditioned attic or ceiling spaces shall comply with all the following:

1. The supply and return ducts shall have an insulation *R*-value not less than R-8.

2. The duct shall be installed on the truss bottom cord or ceiling joist closest to the ceiling finish material separating conditioned space from unconditioned space and the sum of the ceiling insulation *R*-value above the top of the duct, and against the sides of the duct, shall be greater than or equal to the proposed ceiling insulation *R*-value.

Section R403.3.3.1 Effective *R*-value of deeply buried ducts is replaced in its entirety ~~revised~~ as follows:

R403.3.3.1 Effective *R*-value of deeply buried ducts. Where using the Total Building Performance or Energy Rating Index Compliance Option ducts that are installed in accordance with Section R403.3.3, shall be considered as having an effective duct insulation *R*-value of not more than R-25.

Section R403.3.5 Duct testing is replaced in its entirety~~revised~~ as follows:

R403.3.5 Duct testing. Duct~~s~~ shall be pressure tested in accordance with ANSI/RESNET/ICC 380 or ASTM E1554 to determine air leakage by one of the following methods:

1. Rough-in test: Total leakage shall be measured with a pressure differential of 0.1-inch w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure if installed at the time of the test. All portions of the Duct system, including air handler, filter box, supply and return boots shall be tested.
2. Postconstruction test: Total leakage shall be measured with a pressure differential of 0.1-inch w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. All portions of the Duct system, including air handler, filter box, supply and return boots shall be tested.

Where required by the code official, testing shall be conducted by an *approved* third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the *building official*.

Exception:

A duct air-leakage test shall not be required for ducts serving ventilation systems that are not integrated with ducts serving heating or cooling systems.

Section R403.3.6 Duct leakage is replaced in its entirety revised as follows:

R403.3.6 Duct leakage. The total leakage of the duct~~s~~ system, where measured in accordance with Section R403.3.5, shall be as follows:

1. Rough-in test: The total leakage shall be less than or equal to 4.0 cubic feet per minute (113.3 L/min) per 100 square feet (9.29 m^2) of *conditioned floor area* where the air handler is installed at the time of the test.

Exceptions:

1. Where the air handler is not installed at the time of the test, the total leakage shall be less than or equal to 3.0 cubic feet per minute (85 L/min) per 100 square feet (9.29 m2) of *conditioned floor area*.
2. If the HVAC duct system is serving less than or equal to 1,200 square feet of conditioned floor area, the allowable duct leakage shall be 50 cubic feet per minute or less.

2. Postconstruction test: Total leakage shall be less than or equal to 4.0 cubic feet per minute (113.3 L/min) per 100 square feet (9.29 m^2) of *conditioned floor area*.

Exception:

If the HVAC duct system is serving less than or equal to 1,200 square feet of conditioned floor area, the allowable duct leakage shall be 50 cubic feet per minute or less.

Section R403.5 Service hot water systems is revised as follows, subordinate sections remain:

R403.5 Service hot water systems. Energy conservation measures for service hot water systems shall be in accordance with Sections R403.5.1 through R403.5.4.

Section R403.5.4 Water heating equipment location is added as follows:

R403.5.4 Water heating equipment location. Water heaters shall be located in a space with minimum dimensions 3 feet by 3 feet by 7 feet and one of the following characteristics:

1. Minimum volume of 760 cubic feet.

2. The equivalent of one 16-inch by 24-inch grill to a heated space and one 8-inch duct of no more than 10 feet in length for cool exhaust air.

Exceptions:

1. Electric water heaters with a rated storage volume of less than 20 gallons.

2. The space and ventilation requirements may be reduced to conform with the manufacturer's recommendations for a specific heat pump hot water heater that meets the requirements of Section R403.5. The specific heat pump water heater shall be identified on the construction documents and the certificate required by Section R401.3.

Section R403.5.5 Demand responsive water heating is added as follows:

R403.5.5 Demand responsive water heating. Electric storage water heaters with rated water storage volume equal to or greater than 40 gallons (150L) and equal to or less than 120 gallons (450L) and a nameplate input rating equal to or less than 12kW shall be provided with *demand responsive controls listed for participation in a demand response program that serves the building site* that comply with ANSI/CTA-2045 and are also capable of initiating water heating to meet the temperature set point in response to a *demand response signal* or another equivalent *approved* standard.

Exceptions:

1. Water heaters that provide a hot water delivery temperature of 180°F (82°C) or greater
2. Water heaters that comply with Section IV, Part HLW or Section X of the ASME Boiler and Pressure Vessel Code
3. Water heaters that use 3-phase electric power

Section R403.6.3 Testing is modified by replacing the first sentence as follows:

Mechanical *ventilation* systems shall be tested and verified to provide the minimum *ventilation* flow rates required by Section R403.6, in accordance with ANSI/RESNET/ICC 380.

Section R403.6.4 Intermittent exhaust control for bathrooms and toilet rooms is added as follows:

R403.6.4 Intermittent exhaust control for bathrooms and toilet rooms. Where an exhaust system serving a bathroom or toilet room is designed for intermittent operation, the exhaust system shall be provided with manual-on and one or more of the following controls:

1. Timer control that has a minimum set point of not greater than 30 minutes.

2. An occupant sensor control that automatically turns off exhaust fans within 30 minutes after all occupants have left the space.

3. A humidity control capable of manual or automatic adjustment from a minimum setpoint not greater than 50% to a maximum setpoint not greater than 80% relative humidity.

4. A contaminant control that responds to a particle or gaseous concentration.

Exception: Bathroom and toilet room exhaust systems serving as an integral component of an outdoor air ventilation system shall not be required to provide controls other than manual on capability.

An off setpoint shall not be used to comply with a minimum setpoint requirement.

Section R403.8 is deleted in its entirety~~RESERVED~~.

SECTION R404 ELECTRICAL POWER AND LIGHTING SYSTEMS

Section R404.4 One- and two-family dwellings and townhouses *electric vehicle* (EV) charging requirements and subsections are added as follows:

R404.4 One- and two-family dwellings and townhouses *electric vehicle* (EV) charging requirements. *Electric vehicle (EV)* charging shall be provided and installed in accordance with this section and the Electrical Code as adopted by the State of Colorado~~National Electrical Code (*NFPA 70*)~~. Group R-3 and Group R-4 occupancies shall meet the criteria of Section C405.13 for electric vehicle infrastructure.

~~**Exception:** The number of *electric vehicle ready spaces* per *lot* shall not be required to exceed one *electric vehicle ready space* per *dwelling unit* on that *lot*.~~

~~**R404.4.1 *Electric vehicle (EV) ready spaces* for new *dwelling units*.** Each new *dwelling unit* with *on-site parking spaces* shall be provided with a minimum of one *electric vehicle ready space*.~~

~~**R404.4.2 *Electric vehicle (EV) ready spaces* for new garages and carports.** Each new garage and/or carport with *on-site parking spaces* shall be provided with a minimum of one *electric vehicle ready space*.~~

R404.4.3~~1~~ *Electric vehicle (EV) ready spaces* for new *on-site parking spaces*. Each new *on-site parking space* shall be provided with a minimum one *electric vehicle ready space*.

Exception: The number of *electric vehicle ready spaces* per *lot* shall not be required to exceed one *electric vehicle ready space* per *dwelling unit* on that *lot*.

R404.4.4~~2~~ Minimum *Electric Vehicle (EV)* Ready Space infrastructure. Each *Electric Vehicle (EV) Ready Space* shall be provided with the following infrastructure:

~~1. Installation of conductors.~~

~~a. Conductors shall be installed of sufficient size to accommodate a 240VAC 40Amp branch circuit to each parking space where required.~~

~~b. Conductors shall terminate at an outlet, receptacle or EVSE.~~

~~2. Branch circuits serving *EV Ready spaces* shall be identified as 'EV Ready' on the panelboard schedule, and the termination location shall be marked as 'EV Ready'.~~

1. Conductors installed of sufficient size to accommodate a 240VAC 40Amp branch circuit to each required parking space.
2. Conductors terminating at an outlet, junction box, receptacle, or *EVSE* within three (3) feet (914 mm) of each *EV Ready Space* that it serves.
3. A 40A overcurrent protective device installed to accommodate the circuit capacity for the future *EVSE*.
4. The electrical panel or electrical distribution equipment directory and all outlets, junction boxes, or receptacles shall be marked 'EV Ready'.

R404.4.~~5~~3 Construction Documents. Construction documents shall graphically indicate and label all *EV ready spaces* and associated termination locations. ~~For all IRC Townhouses and one- and two-family dwellings with an electrical utility service exceeding 200Amps, a panelboard schedule shall be provided indicating the EV Ready circuit breaker space(s) and the circuit designation(s).~~

Section R404.5 Additional electric infrastructure is added as follows:

~~**R404.5 Additional electric infrastructure**. Fossil fuel appliances and equipment shall be installed in accordance with this section and Section R403.5.4~~

~~**Exceptions:**~~

~~1. Fossil fuel space heating equipment where a 208/240-volt electrical circuit with a minimum capacity of 40 amps exists for space cooling equipment.~~

~~2. Water heating equipment with an input capacity greater than 300,000 Btu/h that serves multiple dwelling units or sleeping units.~~

~~**R404.5.1 Electric infrastructure.** Fossil fuel appliances and equipment shall be provided with a junction box or receptacle located within 12" of the gas appliance, equipment or end use that is connected to an electrical panel by continuous raceways or conductors that meets the following requirements:~~

~~1. The junction box, raceway, and bus bar in the electric panel and conductors serving the electric panel shall be sized to accommodate electric equipment sized to serve the same load as the fossil fuel appliance or equipment. The panel shall have reserved physical space for a two-pole circuit breaker.~~

~~2. The junction box and electrical panel directory entry for the dedicated circuit breaker space shall have labels stating, "For future electric equipment".~~

R404.5 Additional Electric Infrastructure. *Combustion equipment* in new *buildings* shall comply with Sections R404.5.1 through R404.5.3 and Section R403.5.4.

Exceptions:

1. Fossil fuel space heating equipment where a 208/240-volt electrical circuit with a minimum capacity of 40 amps exists for space cooling equipment.
2. Water heating equipment with an input capacity of 200,000 Btu/h or greater that serves multiple dwelling units or sleeping units.

3. Interior fireplaces that do not serve as a primary source of heating.
4. Exterior fireplaces and firepits, grills, and patio heaters.

R404.5.1 Electric Infrastructure. *Combustion equipment* shall be provided with all of the following:

1. A dedicated, sufficiently phased branch circuit, sized to support *future electric equipment* with a capacity sufficient to meet the load requirements.

2. A junction box or receptacle, continuous raceway, bus bar in the electrical panel with capacity for the new electric infrastructure, and conductors serving the electrical panel. The electrical capacity for the building's electrical utility service shall be evaluated and modified as necessary to support the *future electrical equipment*. The junction box or receptacle shall be located within 3 feet of the installed *future electric equipment*. For *combustion equipment* dedicated to space or water heating, the electrical receptacle or junction box shall be located not more than 6 feet from the dedicated physical space for the equivalent f*uture electric equipment.* The raceway will extend from the panel to a junction box installed at the location of the *future electrical equipment*. There shall be no obstructions at the locations of the *future electric equipment* other than the current *combustion equipment.*

3. Where *combustion equipment* is used for space or water heating, dedicated physical space shall be provided for *future electric equipment*, including an electric resistance backup coil for ducted systems, if applicable.

R404.5.2 Electrical Panel Space. The electrical panel shall have a reserved space for a minimum two-pole circuit breaker for each branch circuit provided for *future electric equipment*.

R404.5.3 Labeling. The junction box or receptacle, the dedicated circuit breaker space serving *future electric equipment* in the electrical panel, and the panel directory shall be labeled as "For future electric equipment".

Section R404.6 Solar-Ready Zone added as follows:

~~**R404.6 SOLAR-READY ZONE.** New detached one- and two-family dwellings, and (Denver Residential Code) townhouses with not less than 600 square feet (55.74 m2) of roof area that is oriented between 110 degrees and 270 degrees of true north or that is a low-sloped roof, shall comply with Sections R404.6.1 through R404.6.9.~~

~~**Exceptions:**~~

~~1. New residential buildings with a permanently installed on-site renewable energy system.~~

~~2. A building where all areas of the roof that would otherwise meet the requirements of Section R404.6 are in full or partial shade for more than 70 percent of daylight hours annually.~~

~~**R404.6.1 Construction document requirements for solar ready zone.** Construction documents shall indicate the solar ready zone.~~

~~**R404.6.2 Solar-ready zone area.** The total solar-ready zone area shall be not less than 300 square feet (27.87 m2) exclusive of mandatory access or setback areas as required by the *Denver Fire Code*. New townhouses three stories or less in height above grade plane (as defined by the Denver Residential Code) and with a total floor area less than or equal to 2,000 square feet (185.8 m2) per townhouse unit~~

~~shall have a solar-ready zone area of not less than 150 square feet (13.94 m2). The solar-ready zone shall be composed of areas not less than 5 feet (1524 mm) in width and not less than 80 square feet (7.44 m2) exclusive of access or setback areas as required by the *Denver Fire Code*.~~

~~**R404.6.3 Obstructions.** Solar-ready zones shall be free from obstructions, including but not limited to vents, chimneys, and roof-mounted equipment.~~

~~**R404.6.4 Shading.** The solar-ready zone shall be set back from any existing or new permanently affixed object on the building or site that is located south, east or west of the solar ready zone a distance not less than two times the object's height above the nearest point on the roof surface. Such objects include, but are not limited to, taller portions of the building itself, parapets, chimneys, antennas, signage, rooftop equipment, trees, and roof plantings.~~

~~**R404.6.5 Capped roof penetration sleeve.** A capped roof penetration sleeve shall be provided adjacent to a solar-ready zone located on a roof slope of not greater than 1 unit vertical in 12 units horizontal (8-percent slope). The capped roof penetration sleeve shall be sized to accommodate the future photovoltaic system conduit and shall have an inside diameter of not less than 1-1/4 inches (32 mm).~~

~~**R404.6.6 Electrical Conduit:** Install a minimum one-inch (25 mm) metal conduit for future PV system wiring below the capped roof penetration sleeve in the attic to the designated inverter location. The conduit shall be clearly labeled as a Solar ready component indicating its purpose and intended use and shall be capped on both ends. The conduit run shall be identified on construction documents.~~

> ~~**Exception:** If roof design is such that all conduit is run on the outside elevation of the house to the solar ready zone, then caped roof penetration is not required and only conduit future location shall be required on the construction documents.~~

~~**R404.6.7 Roof load documentation.** The structural design loads for roof dead load and roof live load shall be clearly indicated on the construction documents.~~

~~**R404.6.8 Electrical reserved space.** The electrical panel shall have a reserved space to allow installation of a two- or three-pole circuit breaker for future solar electric installation. The reserved space shall be labeled "For Future Solar Electric." The reserved space shall be positioned at the opposite (load) end from the input feeder location or main circuit location.~~

~~**R404.6.9 Construction documentation certificate.** A permanent certificate, indicating the solar-ready zone and other requirements of this section, shall be posted near the electrical distribution panel, water heater or other conspicuous location by the builder or registered design professional. A copy of the construction documents or a comparable document indicating the solar-ready zone information shall be provided to the occupant.~~

R404.6 Solar Ready Zone. New *residential buildings* with not less than 600 square feet (55.74 m^2) of roof area oriented between 110 degrees and 270 degrees of true north or that is a *low-sloped roof*, shall comply with Sections R404.6.1 through R404.6.9.

Exceptions:

1. New residential *dwelling units* with a permanently installed on-site renewable energy system that provides electricity to the *dwelling unit*'s electrical system.
2. A building where all areas of the roof that would otherwise meet the requirements of Section R404.6 are in full or partial shade for more than 70 percent of daylight hours annually.

R404.6.1 Construction Document Requirements for Solar-Ready Zone. Construction documents shall indicate the *solar-ready zone*.

R404.6.2 Solar-Ready Zone Areas. The total *solar-ready zone* area for each *dwelling unit* shall be not less than 300 square feet exclusive of mandatory access or setback areas as required by the Denver Fire Code. The *solar-ready zone* shall be composed of areas not less than 5 feet (1524 mm) in width and not less than 80 square feet (7.44 m^2) exclusive of access or setback areas as required by the Denver Fire Code.

Exception:

New *townhouses* three stories or less in height above grade plane and with a total floor area less than or equal to 2,000 square feet (185.81 m^2) of conditioned space per *townhouse* unit shall have a *solar-ready zone* area of not less than 150 square feet (13.94 m^2).

R404.6.3 Obstructions. *Solar-ready zones* shall be free from obstructions, including but not limited to, vents, chimneys, and roof-mounted equipment.

R404.6.4 Shading. The *solar-ready zone* shall be set back from any existing or new permanently affixed object on the building or site that is located south, east, or west of the *solar-ready zone* a distance not less than two times the object's height above the nearest point on the roof surface. Such objects include, but are not limited to, taller portions of the building itself, parapets, chimneys, antennas, signage, rooftop equipment, trees, and roof plantings either existing at the time of permit application or planned for on the construction documents.

R404.6.5 Roof Load Documentation. The structural design loads of roof dead load and roof live load shall be clearly indicated on the construction documents.

R404.6.6 Electrical Service Reserved Space. The main electrical service panel shall have sufficient reserved space to allow the installation of a dual pole circuit breaker for future solar electric installation and shall be labeled "For Future Solar Electric." The reserved space shall be positioned at the opposite (load) end from the input feeder location or main circuit location.

R404.6.7 Construction Documentation Certificate. A permanent certificate, indicating the *solar-ready zone* shall be posted near the electrical distribution panel, water heater, or other conspicuous location.

Section R404.7 Minimum renewable energy system capacity is added as follows:

R404.7 Minimum renewable energy system capacity. New dwelling units shall be provided with an onsite renewable energy system(s) capable of producing annual renewable energy output of no less than 7.2 kBtu/yr (2.1 kWh/yr) per square foot of conditioned floor area of the dwelling unit or 0.12 ft^2 of panel per square foot of conditioned floor area of the dwelling unit. System specifications and system renewable calculations demonstrating that the system meets the requirements of this section shall be included in the construction documents. Onsite renewable energy system(s) used to comply with this section shall not be included in the calculations for Section R405 or Section R406. Areas of the roof that are in full or partial shade for more than 70% of daylight hours annually may not be used to meet this requirement.

Exceptions:

1. *All-electric properties*

2. Buildings complying with Section R401.2.1 that achieve at least 13 energy efficiency credits from Table R408.1 in addition to the requirements of Section R408.1.
3. Buildings complying with Section R401.2.3 that achieve an ERI not less than 5 points lower than the requirements of section R406.
4. Buildings complying with Section R401.2.2 with a proposed energy use that is 9-percentage points lower than required by R405.
5. Dwelling units with a conditioned floor area of less than 1000 sf.
6. Buildings that comply with A and B below that are provided with an onsite renewable energy system(s) capable of producing annual renewable energy output of no less than 1.2 kBtu/yr (0.35 kWh/yr) or 0.02 ft^2 of panel per square foot of conditioned floor area of the dwelling unit.
   A. Section R408.8.2 or Section R408.8.3, and
   B. One of the four sections of R408.10.2 through R408.10.5

SECTION R405 TOTAL BUILDING PERFORMANCE

Section R405.2 Performance-based compliance Item 3 is modified as follows; (Items 1, 2, and the exception to Item 3 remain unchanged):

3. An annual energy cost that is less than or equal to 95 percent of the annual energy cost of the standard reference design for *all-electric properties* and less than or equal to 82 percent of the annual energy cost of the standard reference design for all other buildings. Energy prices shall be taken from a source approved by the *building official*, such as the Department of Energy, Energy Information Administration's State Energy Data System Prices and Expenditures reports. The *building official* shall be permitted to require time-of-use pricing in energy cost calculations when such data is available from the local utility.

TABLE R405.2 REQUIREMENTS FOR TOTAL BUILDING PERFORMANCE is deleted in its entirety and replaced as follows:

Table R405.2
REQUIREMENTS FOR TOTAL BUILDING PERFORMANCE

SECTION[a]	TITLE
General	
R401.3	Certificate
R401.4	Homeowner manual
Building Thermal Envelope	
R402.1.1	Vapor retarder
R402.2.3	Eave baffle
R402.2.4.1	Access hatches and doors
R402.2.8.1	Basement Wall Insulation Installation
R402.2.9.1	Slab-on-grade floor insulation installation
R402.2.10.1	Crawl space wall insulation installation
R402.4.1.1	Installation
R402.4.1.2	Testing
R402.4.2	Fireplaces
R402.4.3	Fenestration air leakage
R402.4.4	Rooms containing fuel burning appliances
R402.4.5	Recessed lighting

R402.4.6	Electrical and communication outlet boxes (air Sealed boxes
Mechanical	
R403.1	Controls
R403.2	Hot water boiler temperature reset
R403.3	Ducts
R403.4	Mechanical system piping insulation
R403.5.1	Heated water circulation and temperature maintenance systems
R403.5.3	Drain water heat recovery units
R403.5.4	Water heating equipment location
R403.5.5	Demand Responsive Water Heating
R403.6	Mechanical ventilation
R403.7	Equipment sizing and efficiency rating
R403.8	Systems serving multiple dwelling units
R403.9	Snow melt and ice systems
R403.10	Energy consumption of pools and spas
R403.11	Portable spas
R403.12	Residential pools and permanent residential spas
Electrical Power and Lighting Systems	
R404.1	Lighting equipment
R404.2	Interior lighting controls
R404.4	Electric Vehicle Charging Requirements
R404.5	Additional Electrical Infrastructure
R404.6	Solar Ready Zone
R404.7	Minimum renewable energy system capacity

a. Reference to a code section includes all the relative subsections except as indicated in the table.

SECTION R406 ENERGY RATING INDEX COMPLIANCE ALTERNATIVE

Section R406 Energy Rating Index Compliance Alterative is modified by ~~the deletion and~~ replacement of Sections R406.1 through R406.6 with the following:

R406.1 Scope. This section establishes criteria for compliance using an Energy Rating Index (ERI) analysis developed per ANSI/RESNET/ICC 301.

R406.2 ERI compliance. Compliance based on the ERI requires that the rated design meets all of the following:

1. The requirements of the sections indicated within Table R406.2.
2. Maximum ERI values indicated in Table R406.4.

TABLE R406.2
REQUIREMENTS FOR ENERGY RATING INDEX

SECTION[a]	TITLE
General	
R401.3	Certificate
R401.4	Homeowner manual
Building Thermal Envelope	
R402.1.1	Vapor retarder
R402.2.3	Eave baffle
R402.2.4.1	Access hatches and doors
R402.2.8.1	Basement Wall Insulation Installation
R402.2.9.1	Slab-on-grade floor insulation installation
R402.2.10.1	Crawl space wall insulation installation
R402.4.1.1	Installation
R402.4.1.2	Testing
R402.4.2	Fireplaces
R402.4.3	Fenestration air leakage
R402.4.4	Rooms containing fuel burning appliances
R402.4.5	Recessed lighting
R402.4.6	Electrical and communication outlet boxes (air Sealed boxes
Mechanical	
R403.1	Controls
R403.2	Hot water boiler temperature reset
R403.3	Ducts
R403.4	Mechanical system piping insulation
R403.5.1	Heated water calculation and temperature maintenance systems
R403.5.3	Drain water heat recovery units
R403.5.4	Water heating equipment location
R403.5.5	Demand Responsive Water Heating
R403.6	Mechanical ventilation
R403.7	Equipment sizing and efficiency rating
R403.8	Systems serving multiple dwelling units

R403.9	Snow melt and ice systems
R403.10	Energy consumption of pools and spas
R403.11	Portable spas
R403.12	Residential pools and permanent residential spas
Electrical Power and Lighting Systems	
R404.1	Lighting equipment
R404.2	Interior lighting controls
R404.4	Electric Vehicle Charging Requirements
R404.5	Additional Electrical Infrastructure
R404.6	Solar Ready Zone
R404.7	Minimum renewable energy system capacity

a. Reference to a code section includes all the relative subsections except as indicated in the table.

R406.3 Energy Rating Index. The Energy Rating Index (ERI) shall be determined in accordance with the ANSI/RESNET/ICC 301 standard.

R406.4 ERI-based compliance. Compliance based on an ERI analysis requires that the *rated proposed design* and confirmed built dwelling be shown to have an ERI score less than or equal to the appropriate value indicated in Table R406.4 prior to renewables when compared to the *ERI reference design*.

TABLE R406.4

MAXIMUM ENERGY RATING INDEX (ERI)

All-Electric Properties	**All Other *Buildings***
55	50

R406.5 Verification by approved agency. Verification of compliance with Section R406 as outlined in Sections R406.3 and R406.4 shall be completed by an *approved* third party. Verification of compliance with TABLE R406.2 shall be completed by the Agency or an *approved* third-party inspection agency in accordance with Section R105.4.

Section R406.6 is Reserved.

SECTION R408 -ADDITIONAL EFFICIENCY PACKAGE OPTIONS

Section R408 is replaced~~deleted~~ in its entirety ~~and replaced~~ with the following:

R408.1. Additional energy efficiency credit requirements. New ~~all-electric *properties*~~*All-electric properties* shall comply with the following:

1. Section R408.8.2 or R408.8.3.

2. One of the four sections of R408.10.2 through R408.10.5.

3. A total of 3 credits from Table R408.1 except sections R408.7, R408.8 and R408.10 and their subsections.

All other buildings shall achieve a total of 18 credits from Table R408.1. Credit calculations shall be as specified in relevant subsections of Section R408.

TABLE R408.1 ADDITIONAL ENERGY EFFICIENCY CREDITS

Measure Description	Credit Value
R408.2: Energy Star Appliances	4
R408.3.1: ≥ 5% reduction in total UA	2
R408.3.2: ≥ 7.5% reduction in total UA	3
R408.3.3: ≥ 10% reduction in total UA	4
R408.4.1: ≤ 2 ACH50 air leakage rate	2
R408.4.2: ≤ 1 ACH50 air leakage rate	3
R408.5: ≤ 2 CFM of total duct leakage	2
R408.6: Ducts in Conditioned Space	5
R408.7.1: High Performance Space Cooling	1
R408.7.2: Premium Performance Space Cooling	2
R408.8.1: High Performance Gas Space Heating	2
R408.8.2: High Performance Electric Space Heating	8
R408.8.3: Premium Performance Electric Space Heating	10
R408.9.1: High Performance Heat/Energy Recovery Ventilation	4
R408.9.2: Premium Performance Heat/Energy Recovery Ventilation	7
R408.10.1: High Efficiency Gas Water Heating	2
R408.10.2: High Efficiency Electric Water Heating in conditioned space	6
R408.10.3: High Efficiency Electric Water Heating in unconditioned space	4
R408.10.4: Premium Efficiency Electric Water Heating in conditioned space	8
R408.10.5: Premium Efficiency Electric Water Heating in unconditioned space	5
R408.11.1: Drain Water Heat Recovery Units	2
R408.11.2: High Performance Drain Water Heat Recovery Units	3
R408.12: High Efficacy Lighting	2
R408.13: Demand Responsive Controls	1
R408.14: Controls	1

R408.2. EnergyStar Appliances. The building shall be provided with an EnergyStar qualified refrigerator, dishwasher, clothes washer, and clothes dryer.

Exception: Where an electrical outlet is not provided for an appliance.

R408.3. Reduced envelope UA. The building thermal envelope shall comply with either Section R408.3.1, R408.3.2 or R408.3.3.

R408.3.1. UA reduction of 5 percent. The total UA of the building thermal envelope as designed shall be not less than 5.0% below the total UA of the building thermal envelope in accordance with Section R402.1.5.

R408.3.2. UA reduction of 7.5 percent. The total UA of the building thermal envelope as designed shall be not less than 7.5% below the total UA of the building thermal envelope in accordance with Section R402.1.5.

R408.3.3. UA reduction of 10 percent. The total UA of the building thermal envelope as designed shall be not less than 10% below the total UA of the building thermal envelope in accordance with Section R402.1.5.

R408.4. Reduced air leakage. The air leakage rate of the building shall comply with R408.4.1 or R408.4.2 when calculated in accordance with Section R402.4.1.2:

R408.4.1. 2 ACH. The air leakage rate of the building shall be no greater than 2 air changes per hour.

R408.4.2. 1 ACH. The air leakage rate of the building shall be no greater than 1 air change per hour.

R408.5. Low duct leakage. All ducts shall have a postconstruction leakage rate no greater than 2 cubic feet per minute per 100 square feet of conditioned floor area served by the ducts when tested in accordance with Section R403.3.5.

R408.6. Duct location. All ducts shall be located within conditioned space in accordance with Section R403.3.2.

R408.7. Space cooling equipment efficiency. Space cooling equipment shall have efficiency rating in accordance with either R408.7.1 or R408.7.2.

R408.7.1. High performance space cooling. All space cooling equipment shall have a minimum SEER2 of ~~16~~15.2.

R408.7.2. Premium performance space cooling. All space cooling equipment shall have a minimum SEER2 of ~~22~~20.9.

R408.8. Space heating equipment efficiency. Space heating equipment shall have efficiency rating in accordance with either R408.8.1, R408.8.2 or R408.8.3.

R408.8.1. High performance gas space heating. All space heating equipment shall have a minimum AFUE of 95%.

R408.8.2. High performance electric space heating. All space heating shall be provided by cold climate rated heat pumps that comply with the following:

1. Heat pumps shall have a rated COP of not less than 1.75 when operating at 5°F.
2. Non-Ducted heat pumps shall have an HSPF2 of not less than ~~10~~9.
3. Ducted heat pumps shall have an HSPF2 of not less than ~~9~~7.7.

4. The total electric resistance load for supplemental heating shall not exceed 1.35W per square foot of conditioned floor area of the building or 3 kW, whichever is greater.

5. Gas backup shall not be permitted.

R408.8.3. Premium performance electric space heating. All space heating shall be provided by heat pumps that comply with R408.8.2 and shall have a minimum HSPF2 of ~~11.2~~9.5.

R408.9. Heat/Energy Recovery Ventilation. All ventilation air shall be provided by a whole house mechanical ventilation system that complies with R408.9.1 or R408.9.2:

R408.9.1 High performance heat/energy recovery ventilation. All ventilation air shall be provided by a heat or energy recovery ventilation system with a maximum rated Sensible Recovery Efficiency (SRE) at 0°C of no less than 75%.

R408.9.2 Premium performance heat/energy recovery ventilation. All ventilation air shall be provided by a heat or energy recovery ventilation system with a maximum rated Sensible Recovery Efficiency (SRE) at 0°C of no less than 90%.

R408.10. Water heating equipment efficiency. Water heating shall comply with either R408.10.1, R408.10.2, R408.10.3, R408.10.4, or R408.10.5.

R408.10.1 High efficiency gas water heating. All gas water heating equipment shall have a Uniform Energy Factor (UEF) of no less than 0.82.

R408.10.2 High efficiency electric water heating in conditioned space. All water heating equipment shall be electric heat pump water heaters and shall have a UEF of no less than 2.0 and shall be located in conditioned space.

R408.10.3 High efficiency electric water heating in unconditioned space. All ~~electric~~ water heating equipment shall be electric heat pump water heaters and shall have a UEF of no less than 2.0 and be located outside of conditioned space.

R408.10.4 Premium efficiency electric water heating in conditioned space. All ~~electric~~ water heating equipment shall be electric heat pump water heaters and shall have a UEF of no less than 3.1 and shall be located in conditioned space.

R408.10.5 Premium efficiency electric water heating in unconditioned space. All ~~electric~~ water heating equipment shall be electric heat pump water heaters and shall have a UEF of no less than 3.1 and shall be located outside of conditioned space.

R408.11. Drain water heat recovery. The building shall be provided with drain water heat recovery units in accordance with R403.5.3 and R408.11.1 or R408.11.2.

R408.11.1. Drain water heat recovery units. All shower, bathtub, laundry and sink drains shall be provided with drain water heat recovery units with Heat Recovery Efficiency of no less than 50%.

R408.11.2. High performance drain water heat recovery units. All shower, bathtub, laundry and sink drains shall be provided with drain water heat recovery units with Heat Recovery Efficiency of no less than 65%.

R408.12. High efficacy lighting. All rooms shall be provided with hard wired lighting with a lamp efficacy of 90 lm/W or a luminaire efficacy of 55 lm/W.

R408.13. Demand responsive controls. All thermostats serving the building shall be provided with demand responsive controls listed for participation in a demand response program that serves the

building site.

R408.14 Controls. Not less than one thermostat shall be provided for each separate heating and cooling system.

R408.14.1 Thermostat. The thermostat controlling the primary heating or cooling system of the *dwelling unit* shall be capable of controlling the heating and cooling system on a daily schedule to maintain different temperature set points at different times of the day and different days of the week. This thermostat shall include the capability to set back or temporarily operate the system to maintain *zone* temperatures of not less than 55°F (13°C) to not greater than 85°F (29°C). The thermostat shall be programmed initially by the manufacturer with a heating temperature setpoint of not greater than 70°F (21°C) and a cooling temperature setpoint of not less than 78°F (26°C).

R408.14.1.1 Heat pump programmable controls. Thermostats capable of user configuration of supplemental heat operation shall have: (a) a factory default setting that disables use of supplemental heat based on space temperature differential from thermostat setting, and (b) default setting that restricts supplemental resistance heating to outside air temperatures of 20^{o} F or below.

CHAPTER 5 [RE]: EXISTING BUILDINGS

SECTION R501 GENERAL

Section R501.4 Compliance is replaced~~deleted~~ in its entirety ~~and replaced~~ as follows:

R501.4 Compliance. *Additions*, *alterations*, *repairs*, or changes of occupancy to, or relocation of, existing buildings and structures shall comply with the provisions for *alterations*, *repairs*, *additions*, and changes of occupancy or relocation, respectively, in this code and the Denver Residential Code, the Denver Commercial Building Code, the Denver Existing Building Code, the Denver Fire Code, the Denver Fuel Gas Code, the Denver Mechanical Code, the Denver Plumbing Code, and the Electrical Code of the City and County of Denver.

Section R501.6 Historic buildings is replaced in its entirety as follows:

R501.6 Historic buildings. No provision of this code relating to the construction, *repair*, *alteration*, restoration, and movement of structures, and *change of occupancy* shall be mandatory for *historic buildings* provided that one of the following applies:

1. A report has been submitted to the *building official* and signed by the owner and a *registered design professional*, demonstrating that compliance with that provision would threaten, degrade, or destroy the contributing historic character or features, or the historic form, materials, or function of the building.
2. The Colorado State Historic Preservation Officer provides a letter to the *building official* with a finding that compliance with that provision would conflict with the Secretary of the Interior's Standards for Rehabilitation, outlining the specific provisions that are in conflict and how

compliance would threaten, degrade, or destroy the contributing historic character or features, or the historic form, materials, or function of the building.

3. The Denver Landmark Preservation Commission or Lower Downtown Design Review Commission provides documentation to the *building official* with a finding that compliance with that provision would be in conflict with locally adopted historic preservation policies, standards, and guidelines, outlining the specific provisions that are in conflict and how compliance would threaten, degrade or destroy the historic character or features, or the historic form, materials or function of the building.

SECTION R502 ADDITIONS

Section R502.1 General is replaced in its entirety as follows:

R502.1 General. *Additions* to an existing building, building system or portion thereof shall conform to the provisions of this code as those provisions relate to new construction without requiring the unaltered portion of the existing building or building system to comply with this code. *Additions* shall not create an unsafe or hazardous condition or overload existing building systems. An *addition* shall be deemed to comply with this code where the addition alone complies using section R502.3, where the existing building and *addition* comply with this code as a single building, or where the building with the addition does not use more energy than the existing building. *Additions* shall be in accordance with Section R502.2 or R502.3.

Section R502.2 Change in space conditioning is amended by adding exception 4:

Exception:

4. Where complying with section R406 and when the Energy Rating Index of the *addition* and the existing *building*, and any *alterations* that are part of the project, is less than or equal to the Energy Rating Index of the existing building; the *addition* and any *alterations* that are part of the project shall comply with Section R406 in its entirety.

Section R502.3.1 Building envelope is amended~~modified~~ by ~~deleting the exception and~~ replacing the exception as follows~~ it with the following two exceptions~~:

Exception~~s~~:

~~1.~~ New envelope assemblies are exempt from the requirements of Section R402.4.1.2. The building official may require third party inspections to be performed in accordance with R402.4.1.1.

~~2. Where unconditioned space is changed to conditioned space, the air leakage rate of the *addition* shall comply where the air leakage rate, as determined in Section R402.4.1.2, of the existing building, the addition, and any alterations that are part of the project, is less than or equal to the air leakage rate of the existing building.~~

SECTION R503 ALTERATIONS

Section R503.1.4 Lighting is amended by deleting its exception.

R503.1.4 Lighting. New lighting systems that are part of the *alteration* shall comply with Section R404.1.

SECTION R505 CHANGE OF OCCUPANCY OR USE

Section R505.1 General is replaced in its entirety as follows:

R505.1 General. Any space that is converted to a residential building shall comply with the requirements of this chapter for additions, alterations, and repairs. Spaces undergoing a change in occupancy or use to a higher energy-demand category (higher number) as shown in Table R505.1 shall comply with Section R401.2.

Exceptions:

1. A change in use or occupancy from a lower-energy demand category to a residential building where it is calculated that it will not result in an increase in demand for fossil fuel and electrical energy.
2. ~~Where the prescriptive compliance option in Section R401.2.1 is used to comply with this section, compliance with Section R408 is not required.~~
3. Where the Total UA Alternative option in Section R402.1.5 is used to comply with this section, the total building thermal envelope UA shall not be greater than 110 percent of the total UA calculated by using the U-factors in Table R402.1.2.
4. Where the total building performance option in R405 is used to comply with this section, the annual energy cost of the proposed design is permitted to be 110 percent of the annual energy cost allowed by R405.2.

TABLE R505.1

ENERGY-DEMAND CATEGORY	IBC OCCUPANCIES	IRC ~~USES~~STRUCTURES
4 (highest energy-demand)	A, B small assembly space	
3	B gym, E, I-4, M	
2	B (except as listed above), I-1, I-2, I-3, R	One- and two-family dwellings and townhouses~~All uses permitted in IRC structures~~
1 (lowest energy-demand)	F, H, S	Accessory structures with or without living space

CHAPTER 6 [RE]: REFERENCED STANDARDS

The following standards are modified as follows:

ACCA

ANSI/ACCA 1 Manual D – 2023 Residential Duct Systems ANSI/ACCA 2 Manual J – 2016: Residential Load Calculation R403.7 ANSI/ACCA 3 Manual S – 2023: Residential Equipment Selection R403.7	Air Conditioning Contractors of America 1330 Braddock Place, Suite 350AlexandriaVA22314

ACCA

ANSI/ACCA 1 Manual D – 2023 Residential Duct Systems ANSI/ACCA 2 Manual J – 2016: Residential Load Calculation R403.7 ANSI/ACCA 3 Manual S – 2023: Residential Equipment Selection R403.7	Air Conditioning Contractors of America 1330 Braddock Place, Suite 350AlexandriaVA22314

RESNET

ANSI/RESNET/ICC 301—2022 Standard for the Calculation and Labeling of the Energy Performance of Dwelling and Sleeping Units using an Energy Rating Index – includes Addendum A, Approved July 28, 2022 and Addendum B, Approved October, 2022 R303.2, R406.3, R406.7.1, R406.7.6 ANSI/RESNET/ICC 380—2022 Standard for Testing Airtightness of Building, Dwelling Unit and Sleeping Unit Enclosures; Airtightness of Heating and Cooling Air Distribution Systems, and Airflow of Mechanical Ventilation Systems R402.4.1.2, R403.3.5, R403.6.3	Residential Energy Services Network, Inc. P.O. Box 4561 Oceanside CA 92052-4561

The following standards are added as follows:

CTA

1919 South Eads Street
Arlington, VA 22202

2045—Modular Communications Interface for Energy Management

ASME

Two Park Avenue
New York, NY 10016-5990
(800) 843-2763;

BPVC—Boiler and Pressure Vessel Code

IES

120 Wall Street, 17th Floor
New York, NY 10005-4001
www.ies.org

IESNA Lighting Handbook – 10th edition (2011)

END OF ~~2022~~ 2025 DENVER ENERGY CODE