

**2023 Lafayette, Colorado Building Code**

The Lafayette, Colorado Building Code contains the administrative requirements of the Lafayette Building Division as well as the amendments to the IBC, IRC, IFC, IEBC, IPC, IFGC, IMC, IECC, ISPSC, and IPMC published by the ICC. This code includes any amendments to the most recent edition of the NEC published by the NFPA adopted by the State of Colorado. Any Section or article referenced in this code that is identical to a section referenced in any of the previously referenced codes shall be deemed to be replaced in its entirety or amended as described herein. Any Section or article that is not referenced in any of the previously referenced codes shall be deemed to be a section added to the referenced code, enforceable as described in the Section or article. Any section that is not replaced or amended in any of the previously referenced codes shall be deemed to be retained in its entirety.

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**Article 1- Reserved**

**Article 2- Amendments to the 2021 International Building Code (IBC)**

**Chapter 1.**

**Section 101 Scope and General Requirements**

**101.1 Title.** These regulations shall be known as the Building Code of the City of Lafayette, Colorado, hereinafter referred to as “this code”.

**101.2 Scope.** The provisions of this 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.

**Exception 1:** Detached one- and two- family dwellings and townhouses not more than three stories above grade plan in height with a separate means of egress, and their accessory structures not more than three stories above grade plane shall comply with this code or the International Residential Code.

**Exception 2:** The following shall be permitted to be constructed in accordance with the International Residential Code where provided with an automatic sprinkler system complying with NFPA 13, NFPA 13R, NFPA 13D, or IRC Section P2904:

1. Live/ work units located in townhomes and one- and two-family dwellings and complying with the requirements of Section 508.5 of this code.
2. Owner-occupied lodging houses with five or fewer guestrooms.
3. A care facility with five or fewer persons receiving custodial care within a one- or two-family dwelling or a townhouse.
4. A care facility with five or fewer persons receiving medical care within a one- or two-family dwelling or a townhouse.
5. A care facility with five or fewer persons of any age receiving care that are within a one- or two- family dwelling or a townhouse.

### **103 Building Division**

**103.1 Lafayette, Colorado Building Division.** The City of Lafayette, Colorado Building Division is responsible for the implementation, administration, enforcement, and interpretation of the provisions of this code and the official in charge there of shall be known as the building official.

### **105 Permits**

**105.2 Work exempt from permit.** Exemptions from permit requirements from this code shall not be deemed to grant authorization for work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this jurisdiction. Permits shall not be required for the following:

#### **Building:**

1. One-story detached accessory structures used as tool and storage sheds, and similar non-habitable uses, provided that they are one story, and the floor area is less than 120 square feet.
2. Fences of any type not over 4 feet high. Posthole-dug fences up to 8 feet high, such as chain link, cedar pine, redwood, and wrought iron. Retaining walls that are under 3 feet in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge or impounding Class I, II, or III liquids.
3. Water Tanks supported directly on grade if the capacity is not greater than 5,000 gallons and the ratio of height to diameter or width is not greater than 2:1.
4. Sidewalks and driveways that are not more than 30 inches above adjacent grade, and not over any basement or story below and are not part of an accessible route.
5. Painting, papering, flooring, tiling, countertops, and similar finish work.

6. Temporary motion picture, television and theater stage sets and scenery.
7. Prefabricated swimming pools accessory to a Group R-3 occupancy that are less than 24 inches deep, are not greater than 5,000 gallons and are installed entirely above ground.
8. Shade cloth structures constructed for nursery or agricultural purposes, not including service systems.
9. Swings and other playground equipment accessory to detached one- and two-family dwellings.
10. Window awnings in Group R-3 and U occupancies, supported by an exterior wall that do not project more than 54 inches from the exterior wall and do not require additional support.
11. Nonfixed and movable fixtures, cases, racks, counters, and partitions not over 5 feet 9 inches in height.
12. Replacement windows where the size of the opening and the framing for the window is not changed.

**Electrical:**

1. **Repairs and Maintenance:** Minor repair work, including the replacement of lamps or the connection of approved portable electrical equipment to approved permanently installed receptacles. This includes replacement of existing flush or snap switches, fuses of the required capacity installed in the same location, breakers of the required capacity installed in the same location, lamp sockets and receptacles, and other minor maintenance and repair work such as replacing worn cords and tightening connections on a wiring device.
2. **Radio and television transmitting stations:** The provisions of this code shall not apply to electrical equipment used for radio and television transmissions but do apply to equipment and wiring for a power supply and the installation of towers and antennas.
3. **Temporary Testing systems:** The process of manufacturing, testing, servicing, or repairing electrical equipment or apparatus.

**Gas:**

1. Portable heating appliance.
2. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.

**Mechanical:**

1. Portable heating equipment.
2. Portable ventilation equipment.
3. Portable cooling equipment.

4. Steam, hot or chilled water piping within any heating or cooling equipment regulated by this code.
5. Replacement of any minor part that does not alter approval or equipment or make such equipment unsafe.
6. Portable evaporative cooler.
7. Self-contained refrigeration system containing 10 pounds or less of refrigerant and actuated by motors of 1 horsepower or less.

**Plumbing:**

1. The stopping of leaks in drains, water, soil, waste or vent pipe, provided however, that if any concealed trap, drainpipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered new work and a permit shall be obtained and inspection made as provided in this code.
2. The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures and the removal and installation of water closets, provided that such repairs do not involve or require the replacement or rearrangement of valves or pipes.
3. The replacement of sinks, lavatories, toilets, bidets, or mop sinks provided that the new fixture is the same size and its replacement does not require the replacement or rearrangement of valves or pipes.

**105.5 Expiration.** Every permit issued shall become invalid, unless the work on the site authorized by such permit is commenced within 180 days after its issuance, or if the work authorized on the site by such permit is suspended or abandoned for a period of 180 days after the time the work is commenced. The building official is authorized to grant, in writing, one or more extensions of time, for periods not more than 180 days each provided that the permit has been expired for less than sixty days and the permit was issued under the same adopted codes as are currently adopted by the city. The scope of work must remain unchanged. The extension shall be requested in writing and justifiable cause demonstrated. If a permit has expired for sixty days or more, but less than 180 days, a fee prescribed by 109.3.1 shall be paid to re-issue the permit after a written request has been made. If a permit has expired for 180 days or more, the applicant shall provide a new permit application and construction documents complying to the code as adopted at the time of filing as required by Section 107.

**107 Construction Documents**

**107.1 General.** Submittal documents consisting of construction documents, statement of special inspections, geotechnical report, energy documents required by the energy code or state and federal requirements, and other data shall be submitted digitally with each permit application. The construction documents shall be prepared by a registered design professional where required by the State of Colorado or the building official. Where special conditions exist, the building official is authorized to require additional construction documents to be prepared by a registered design professional.

**Exception:** The building official is authorized to waive the submission of construction documents and other data not required to be prepared by a registered design professional if it is found

that the nature of the work applied for is such that review of the construction documents is not necessary to obtain compliance with this code.

### **108 Temporary Structures, Uses, Systems and Equipment**

**108.1 General.** The building official is authorized to issue a permit for temporary structures, uses, and equipment. Such permits shall be limited as to time of service but shall not be permitted for more than 180 days. The building official is authorized to grant extensions for demonstrated cause.

**108.3 Temporary Power and Utilities.** The building official is authorized to give permission to temporarily supply and use power and utilities before an installation has been fully completed and the final certificate of completion has been issued. The part covered by the temporary certificate shall comply with the requirements specified for temporary lighting, heat, power, water piping, or sewer piping in the code.

### **109 Fees**

**109.3 Permit valuations.** The applicant for a permit shall provide an estimated permit value at the time of application. Permit valuations shall reflect the total value of work including materials, labor, overhead, and profit, for which the permit is being issued, such as all building, electrical, gas, mechanical, plumbing equipment and permanent systems. If, in the opinion of the building official, the valuation is underestimated on the application, the permit shall be denied, unless the applicant can show detailed estimates to meet the approval of the building official. Final building permit valuation shall be set by the building official.

**109.3.1 Re-issuance of an expired permit.** If a permit has expired and exceeded the time limit for which an extension can be granted, the fee for the new permit shall be half of the permit fee, but at least the building permit minimum specified in Exhibit A of the City of Lafayette Fee Schedule. The reissued permit will be required to comply with all codes and regulations that are in place at the time the permit is reissued.

**109.4 Work commencing before permit issuance.** Any person who commences any work before obtaining the necessary permits shall be subject to a fee that is equal to the permit fee which will be paid in addition to the required permit fee.

**109.6 Refunds.** Refunds may be approved by the building official for permits that have been issued where no inspections have been conducted. The cost labor efforts to the jurisdiction for reviewing, issuing, refunding, and other efforts made relating to the permit will not be refunded. Plan review fees are not refundable.

### **110 Inspections**

**110.3.1 Footing, foundation, and concrete encased electrode inspection.** Footing, foundation, and concrete encased electrode inspection shall be made after excavations for footings are complete and any required reinforcing steel is in place. For concrete foundations, any required forms shall be in place prior to inspection. Materials for the foundation shall be on the site, except where concrete is ready mixed in accordance with ASTM C94, the concrete need not be on the job. Concrete encased electrodes shall conform to the requirements found in NFPA 70.

**110.3.2 Underground, concrete slab, and under-floor inspection.** Underground, concrete slab and under-floor inspections shall be made after underground, in-slab, or underfloor reinforcing steel and 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. Underground inspection shall be made after trenches are excavated and bedded, building service equipment and piping is in place and tested as required by this code, and before backfilling is put in place. The building official or designee shall observe the connection of water and sewer service piping from the stub on the property line to the building entrance. Loose earth free from rocks, broken concrete, frozen chunks, construction material, and debris shall be on the jobsite for backfill.

**110.3.4 Rough inspection.** Rough inspection shall be made after all framing, including exterior and roof deck sheathing, load bearing and non-load bearing framing, fire-blocking and bracing are in place; electrical wiring for power, lighting, and heating are in place; heating, ventilation, air conditioning, refrigeration, hydronic piping, radiant piping, and gas piping are in place, sealed and tested as required in the International Mechanical Code, International Fuel Gas Code, or the International Residential Code; and plumbing for potable water and drain, waste, and vent systems are in place, sealed and tested as required by the International Plumbing Code or the International Residential Code.

**110.3.9 Energy efficiency inspections.** Inspections shall be made to determine compliance to Chapter 13 and the International Energy Conservation Code and shall include, but not be limited to, inspections for: envelope insulation R- and U- values, fenestration U-value and SHGC, duct system R-value and sealing, and HVAC and water- heating equipment efficiency. The building official is authorized to accept reports from third- party inspection agencies not affiliated with the building design or construction, provided that such agencies satisfy the requirements as to qualifications and reliability. Such agencies shall have the duties and powers granted by the building official.

**110.3.12 Final Inspection.** The final inspection shall be made after all work required by the building permit is completed.

**110.3.12.1 Flood hazard documentation.** If located in a flood hazard area, documentation of the elevation of the lowest floor as required in Section 1612.4. shall be submitted to the building official prior to final inspection.

**110.3.12.2 Improvement Location Certificate and Elevation Certificate documentation.** Documentation of the building's location on the property and height shall be submitted to the building official prior to final inspection.

**110.3.12.3 Other documentation.** All other documentation either required by this code or the building official shall be submitted to the building official prior to final inspection.

**110.3.13 Conveyance inspections.** Elevators, escalators, dumb waiters, and moving walks shall be installed and inspected per the requirements of the State of Colorado. Elevators, escalators, dumb waiters, and moving walks shall be subject to periodic inspections as required by the State of Colorado and evidence of such inspections shall be available at the building and accessible to the building official or designee.

**110.3.14 Evaluation and follow-up inspection services.** Prior to the approval of a closed prefabricated equipment system and the issuance of a permit for the equipment system, the building official shall require the submittal of an evaluation report on each prefabricated equipment system indicating the complete details of the equipment system, including a description of the system and its components, the basis on which the plumbing system is being evaluated, test results and similar information, and other data as necessary for the building official to determine conformance to this code.

**110.3.14.1 Evaluation service.** The building official shall designate the evaluation service of an approved agency as the evaluation agency and review such agency's evaluation report for adequacy and conformance to this code.

**110.3.14.2 Follow-up inspection.** Except where ready access is provided to all equipment systems and accessories for complete inspection at the site without disassembly or dismantling, the building official shall conduct the frequency of facility inspections necessary to ensure conformance to the approved evaluation report or shall designate an independent, approved inspection agency to conduct such inspections. The inspection agency shall furnish the building official with the follow-up inspection manual and a report of inspections on request, and the equipment system shall have an identifying label permanently affixed to the system indicating inspections have been made.

**110.3.14.3 Test and inspection records.** Required test and inspection records shall be always available to the building official during the fabrication of the equipment system and the erection of the building, or such records as the building official designates shall be filed.

**110.7 Special inspections.** Special inspections of alternative engineered design equipment systems shall be conducted in accordance with 110.7.1 and 110.7.2.

**110.7.1 Periodic inspection.** The registered design professional or designated inspector shall periodically inspect and observe the alternative engineered design to determine that the installation is in accordance with the approved construction documents. Discrepancies shall be brought to the immediate attention of the owner or owner's authorized agent for correction. Records shall be kept of all inspections.

**110.7.2 Written report.** The registered design professional shall submit a final report in writing to the building official upon completion of the installation, certifying that the alternative engineered design conforms to the approved construction documents. A certificate of completion for the equipment system shall not be issued until a written certification has been submitted and approved by the building official.

**110.8 Testing.** Equipment systems and ducts or pipes shall be tested as required by the International Plumbing Code, the International Fuel Gas Code, and the International Energy Conservation Code and in accordance with sections 110.8.1 through 110.8.3. Tests shall be made by the permit holder and observed by the building official.

**110.8.1 New, altered, extended, or repaired systems.** New equipment systems and parts of existing systems that have been altered, extended, or repaired shall be tested as prescribed herein to disclose leaks and defects.

**110.8.2 Equipment, material, and labor for tests.** Equipment, material, and labor required for testing an equipment system or part thereof shall be furnished by the permit holder.

**110.8.3 Reinspection and testing.** Where any work or installation does not pass any initial test or inspection, the necessary corrections shall be made to comply with this code. The work or installation shall then be resubmitted to the code official for inspection and testing.

## **114 Violations**

**114.4 Violation Penalties.** Persons who shall violate a provision of this code or shall fail to comply with any of the requirements thereof or who shall erect, install alter, repair or do work in violation of the approved construction documents or directive of the fire code official, or of a permit or certificate used

under provisions of this code, shall be subject to the general penalty provisions set forth in 1-10 of the Code of Ordinances, City of Lafayette, Colorado. Each day that a violation continues after due notice has been served shall be deemed a separate offense.

**114.4.1 Abatement of violation.** The imposition of the penalties herein prescribed shall not preclude the legal officer of the jurisdiction from instituting appropriate action to prevent unlawful construction or to restrain, correct, or abate a violation, or to prevent illegal occupancy of a building, structure, or premises, or to stop an illegal act, conduct, business, or utilization of the systems or structures on or about any premises.

## **115 Stop Work Order**

**115.4 Failure to Comply.** Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be subject to the general penalty provisions set forth in 1-10 of the Code of Ordinances, City of Lafayette, Colorado. Each day that a violation continues after due notice has been served shall be deemed a separate offense.

## **116 Unsafe Structures and Equipment**

**116.1 Unsafe structures or equipment.** Any structures or equipment regulated by this code that are or hereafter become unsafe or that constitutes a fire or health hazard because of inadequate means of egress facilities or inadequate light and ventilation, insanitary condition or is otherwise dangerous to human life or public welfare, or that involve illegal or improper occupancy or inadequate maintenance, is hereby declared unsafe. Unsafe structures or equipment shall be taken down and removed or made safe, as the building official deems necessary and as provided for in this section. A vacant structure that is not secured against unauthorized entry shall be deemed unsafe.

**116.1.1 Authority to condemn structures or equipment.** Where the building official determines that any structure or equipment regulated by this code has become hazardous to life, health, or property or has become insanitary, the building official shall order in writing that such structures or be removed or restored to a safe or sanitary condition. A time limit for compliance with such order shall be specified in the written notice. A person shall not use or maintain defective equipment or structures after receiving such notice.

Where power or utilities are to be disconnected, written notice as described in 114.2 shall be given. In cases of immediate danger to life or property, such disconnection shall be made immediately without such notice.

**116.1.2 Authority to disconnect service utilities.** The building official shall have the authority to authorize disconnection of utility service to the building structure or system regulated by the technical codes in case of emergency, where necessary, to eliminate an immediate danger to life or property. Where possible, the owner or the owner's authorized agent and occupant of the building, structure, or service system shall be notified of the decision to disconnect utility service prior to taking such action. If not notified prior to disconnecting, the owner, the owner's authorized agent or occupant of the building, structure or service system shall be notified in writing, as soon as practical thereafter.

**116.1.3 Connection after order to disconnect.** A person shall not make connections from any energy, fuel, power supply or water distribution system or supply energy, fuel or water to any equipment regulated by this code that has been disconnected or ordered to be disconnected by the



building official or the use of which has been ordered to be discontinued by the building official until the building official authorizes the reconnection and use of such equipment.

Where any structures or equipment is maintained in violation of this code, and in violation of any notice issued pursuant to the provisions of this section, the building official shall institute any appropriate action to prevent, restrain, correct, or abate the violation.

### **Section 202 Definitions**

**SHORT TERM RENTAL UNIT.** Any dwelling, dwelling unit or portion of any dwelling unit rented, leased, or furnished to or used by a person for valuable consideration for periods of time less than thirty days, but excludes commercial residential care facilities, state-licensed group homes, bed and breakfast inns, boarding and rooming houses, hotels, motels, or similar establishments. A short-term rental is a use that is accessory to such dwelling or dwelling unit..

### **508 Mixed Use and Occupancy**

**508.6 Short Term Rental Unit.** Short term rental units shall comply with this section and are subject to inspection prior to occupancy and at intervals required by the building official.

**508.6.1 Minimum Facilities.** Short term rental units shall contain the following:

1. Address Identification as required by Section 502.1.
2. Smoke alarms as required by 907.2.11.2.
3. Carbon monoxide alarms as required by 915.1.4.
4. A minimum 2A10BC multi-purpose portable fire extinguisher installed on each floor level in a readily accessible location.
5. An operable egress window installed in each sleeping room complying with Section 1031.
6. GFCI protection of receptacles as required by NFPA 70.

## **Chapter 9 Fire Protection and Life Safety Systems**

**Sections 902 through 918.** Sections 902 through 918 are hereby deleted in their entirety and all provisions for fire protection and life safety systems shall comply with the currently adopted International Fire Code and its local amendments because the language of these sections are duplicated therein.

### **1507 Requirements for Roof Coverings**

**1507.2.9.4. Impact resistance of asphalt shingles.** Asphalt shingles shall be Class 4 impact resistant and be tested in accordance with UL 2218 or FM 4473 and installed in accordance with the manufacturer's installation instructions.

**Exception:** When the owner is repairing or adding to existing asphalt shingles that are less than class 4 impact resistant, the owner may use the same or similar materials as the current existing asphalt shingles, even if that same or similar material is not impact resistant.

## **1608 Snow Loads**

**1608.2 Snow loads.** The ground snow load shall be 30 psf. The design roof snow load shall be no less than 30 psf at any element of the roof.

## **1612 Flood Loads**

**1612.3 Establishment of flood hazard areas.** 1612.3 Establishment of flood hazard areas. To establish flood hazard areas, the applicable governing authority shall adopt a flood hazard map and supporting data. The flood hazard map shall include, at a minimum, areas of special flood hazard as identified by the Federal Emergency Management Agency in an engineering report entitled Flood Insurance Study Number 08013CV004D & 08013CV006D dated August 15, 2019, as amended or revised with the accompanying Flood Insurance Rate Map (FIRM) and the Flood Boundary and Floodway Map (FBFM) and related supporting data along with any revisions thereto. The adopted flood hazard map supporting data are hereby adopted by reference and declared to be part of this section.

## **Section 3002 Hoistway Enclosures**

**3002.4 General Stretcher Requirements.** All buildings and structures with one or more passenger service elevators shall be provided with not less than one medical emergency service elevator to all landings meeting the provisions of Section 3002.4. The medical emergency service elevator(s) shall be identified in the construction documents specified in Section 107.

### **Exceptions:**

1. Elevators in structures used only by maintenance and operating personnel.
2. Elevators in jails and penal institutions.
3. Elevators in buildings or structures where each landing is at ground level or is accessible at grade level or by a ramp.
4. Elevators in two-story buildings or structures equipped with stairs of a configuration that will accommodate the carrying of the gurney or stretcher as permitted by the building official.

**3002.4.1 Gurney size.** The medical emergency service elevator shall accommodate the loading and transport of two emergency personnel, each requiring a minimum clear 21-inch diameter circular area and an ambulance gurney or stretcher with a minimum size of 24 inches by 84 inches with not less than 5-inch radius corners in the horizontal, open position.

**3002.4.2 Hoistway doors.** The hoistway landing openings shall be provided with power-operating doors.

**3002.4.3 Elevator recall.** The elevator(s) designated as the medical emergency elevator shall comply with 3003.2.

**3002.4.4 Medical emergency elevators designation, size, and location.** Medical emergency elevators shall be identified by the international symbol (Star of Life) for emergency medical services. The symbol shall be not less than 3 inches in height and shall be permanently attached to each side of the hoistway door frame on the portion of the frame at right angles to the hallway or landing area. Each

symbol shall be not less than 78 inches and not more than 84 inches above the floor level at the threshold on each floor level.

**Article 3 – Amendments to the 2021 International Residential Code (IRC)**

**Chapter 1.** Chapter 1 is hereby deleted. Please refer to the 2021 International Building Code Chapter 1 and 2023 Lafayette, Colorado Building Code Chapter 1 amendments to the International Building Code for Scope and Administrative requirements.

**R301 Design Criteria**

**R301.2 Climate and geographic design criteria.** Buildings shall be constructed in accordance with the provisions of this code as limited by the provisions of this section. Additional criteria shall be established by the City of Lafayette and set forth in Table R301.2. All subsections of this section as written in the IRC shall be retained in their entirety.

**TABLE R301.2  
CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA<sup>a</sup>**

<b>STRUCTURAL/ BUILDING DESIGN CRITERIA</b>	
Snow Load (Non-reducible)	30 psf
Wind Speed/ Topographic Effects/ Special Wind Region/ Windborne Debris Zone	105mph $V_{asd}$ / No/ Yes <sup>b</sup> / No
Seismic Design Category	B
Subject to Damage From Weathering	Severe
Subject to Damage From Frost Below Grade	36 inches
Subject to Damage From Termites	Negligible/ Slight
Ice and Water Barrier Underlayment Required	Yes
Flood Hazards	3/18/1980 Current revision 8/15/2019. Flood Insurance Study Number 08013CV004D & 08013CV006D.
Air Freezing Index	459
Mean Annual Temperature	52 °F
<b>MANUAL J DESIGN CRITERIA</b>	
Elevation	5210
Altitude Correction Factor	0.84
Coincident Wet Bulb	59° F

Indoor Winter Design Dry-bulb Temperature	70° F
Outdoor Winter Design Dry-bulb Temperature	1° F
Heating Temperature Difference	69° F
Latitude	40° North
Daily Range	High
Indoor Summer Design Relative Humidity	50%
Summer Design Gains	-39
Indoor Summer Design Dry-bulb Temperature	75° F
Outdoor Summer Design Dry-bulb Temperature	91° F
Cooling Temperature Difference	16° F

- a. Refer to all footnotes in the IRC.
- b. Refer to IBC Section 1609 for more information about special wind regions.

### **R313 Automatic Fire Sprinkler Systems**

**R313.1 Townhouse automatic fire sprinkler systems.** An automatic fire sprinkler system shall be installed in townhouses.

**Exceptions:**

1. An automatic fire sprinkler system shall not be required where additions or alterations are made to existing townhouses that do not have an automatic fire sprinkler system.
2. An automatic sprinkler system shall not be required where an existing tap from the city main water line serving the building and a water meter pit have been installed and approved without adequate capacity for an automatic sprinkler system.
3. An automatic sprinkler system shall not be required for detached Accessory Dwelling Units where the existing primary structure is not sprinklered.
4. An automatic sprinkler system shall not be required for existing residences being used as Short Term Rentals in accordance with the Lafayette Land Use Code.

**R313.1.1 Design and installation.** Automatic fire sprinkler systems for townhouses shall be designed and installed in accordance with Section P2904 or NFPA 13D.

**R313.2 One- and two- family dwellings automatic fire sprinkler systems.** An automatic fire sprinkler system shall be installed in one- and two- family dwellings.

**Exceptions:**

1. An automatic fire sprinkler system shall not be required where additions or alterations are made to existing one- and two- family dwellings that do not have an automatic fire sprinkler system.

2. An automatic sprinkler system shall not be required where an existing tap from the city main water line serving the building and a water meter pit have been installed and approved without adequate capacity for an automatic sprinkler system.
3. An automatic sprinkler system shall not be required for detached Accessory Dwelling Units where the existing primary structure is not sprinklered.
4. An automatic sprinkler system shall not be required for existing residences being used as Short Term Rentals in accordance with the Lafayette Land Use Code.

**R313.2.1 Design and installation.** Automatic fire sprinkler systems in one- and two- family dwellings shall be designed and installed in accordance with Section P2904 or NFPA 13D.

### **R314 Smoke Alarms**

**R314.2 Where required.** Smoke alarms shall be provided where required by this section.

**R314.2.1 New construction.** Smoke alarms shall be provided in dwelling units.

**R314.2.2 Alterations, repairs, and additions.** Where alterations, repairs, or additions requiring a permit occur, the individual dwelling unit shall be equipped with smoke alarms as required for new dwellings.

**Exceptions:**

1. Work involving the exterior surfaces of dwellings, such as the replacement of roofing or siding.
2. Repairs of plumbing or mechanical systems.

### **R905 Requirements for Roof Coverings**

**R905.2.4.2. Impact resistance of asphalt shingles.** Asphalt shingles shall be Class 4 impact resistant and be tested in accordance with UL 2218 or FM 4473 and installed in accordance with the manufacturer's installation instructions.

**Exception:** When the owner is repairing or adding to existing asphalt shingles that are less than class 4 impact resistant, the owner may use the same or similar materials as the current existing asphalt shingles, even if that same or similar material is not impact resistant.

### **Chapter 11 Energy Efficiency**

**Chapter 11 Energy Efficiency.** Chapter 11 Energy Efficiency is hereby deleted in its entirety and all provisions for energy efficiency shall comply with the currently adopted International Energy Conservation Code, residential provisions, and its local amendments because the language of this chapter is duplicated therein.

## Chapter 24 Fuel Gas

**Chapter 24 Fuel Gas.** Chapter 24 Fuel Gas is hereby deleted in its entirety and all provisions for fuel gas shall comply with the currently adopted International Fuel Gas Code and its local amendments because the language of this chapter is duplicated therein.

### Section P2503 Inspection and Tests

**P2503.5 Drain, waste and vent systems testing.** Rough-in and finished plumbing installations of drain, waste, and vent systems shall be tested in accordance with Sections P2503.5.1 and P2503.5.2.

**P2503.5.1 Rough Plumbing.** DWV systems shall be tested on completion of the rough piping installation by water or 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:

1. Water Test. Each section shall be filled with water to a point not less than 10 feet above the highest fitting connection in that section, or to the highest point in the completed system. Water shall be held in the section under test for a period of 15 minutes. The system shall prove leak free by visual inspection.
2. Air test. The portion under test shall be maintained at a gauge pressure of 5 pounds per square inch (psi) or 10 inches of mercury column. This pressure shall be held without introduction of additional air for a period of 15 minutes.
3. Vacuum test. The portion under test shall be evacuated of air by a vacuum-type pump to achieve a uniform gauge pressure of -5 psi or negative 10 inches of mercury column. This pressure shall be held without the removal of additional air for a period of 15 minutes.

**P2503.7 Water-supply system testing.** Upon completion of the water-supply system or a section of it, the system or portion completed shall be tested and proved tight under a water or air pressure of not less than the working pressure of the system, but not less than 50 psi. This pressure shall be held for not less than 15 minutes. The water used for tests shall be obtained from a potable water source.

### P2903 Water Supply System

**P2903.2 Maximum flow and water consumption.** The maximum water consumption flow rates and quantities for plumbing fixtures and fixture fittings shall be in accordance with Table P2903.2.

**TABLE P2903.2**

**MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS<sup>b</sup>**

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY
Lavatory faucet	2.2 gpm at 60 psi

Shower head <sup>a</sup>	2.0 gpm at 80 psi
Sink faucet	2.2 gpm at 60 psi
Water closet	1.6 gallons per flushing cycle

- a. A hand-held shower spray is a shower head.
- b. Consumption tolerances shall be determined from referenced standards.

**P2903.5 Water hammer.** The flow velocity of the water distribution system shall be controlled to reduce the possibility of water hammer. A water-hammer arrestor shall be installed where quick-closing valves are utilized. Water hammer arrestors shall be installed in accordance with the manufacturer’s instructions and be provided with ready access. Water hammer arrestors shall conform to ASSE 1010.

**P2903.12 Irrigation Rain Sensors.** An approved rain sensor device shall be installed at an approved location for all new or replaced irrigation systems.

**Chapter 34 Through 43 Electrical**

**Chapter 34 through 43 Electrical.** Chapter 34 through 43 Electrical are hereby deleted in their entirety and all provisions for electrical shall comply with the currently adopted National Electrical Code NFPA 70 and its local amendments because the language of this chapter is duplicated therein.

**Article 4 – Amendments to the 2021 International Fire Code (IFC)**

**TITLE.** Section 101.1 of the International Fire Code 2021 Edition is amended to read as follows:

**101.1 Title.** These regulations shall be known as the Fire Code of the City of Lafayette, hereinafter referred to as “this code.”

**SCOPE.** Section 101.2. of the International Fire Code 2021 Edition is amended to read as follows:

**Section 101.2 Scope.** The provisions of this code shall supplement any and all laws relating to fire safety and shall apply to all persons without restriction, unless specifically exempted.

This code establishes regulations affecting or relating to facilities, structures, processes, premises and safeguards regarding all of the following:

1. The hazard of fire and explosion arising from the storage, handling or use of structures, materials or devices.
2. Conditions hazardous to life, property or public welfare in the occupancy of structures or premises.
3. Fire hazards in the structure or on the premises from occupancy or operation.

4. Matters related to the construction, extension, repair, alteration or removal of fire protection systems.
5. Authority to extinguish, mitigate and investigate fires, explosions, hazardous materials incidents, and other related emergency incidents.
6. Conditions affecting the safety of fire fighters and emergency responders during emergency operations.

**Exception:**

The provisions of this code do not apply to off-site transportation of hazardous materials in accordance with DOT requirements.

**RESPONSIBLE PARTY.** Section 101 of the International Fire Code 2021 Edition is amended to add Section 101.6 to read as follows:

**101.6 Responsible party.** The property owner, tenant or occupant in control of the premises and/or the person, firm or corporation performing the work have the duty to ensure that all applicable requirements of this code are complied with unless a particular section, subsection or clause places compliance responsibility upon a different person.

Failure to comply with the provisions of this code or with a lawful order of the *fire code official*, subjects the owner, tenant, or occupant and/or the firm or corporation performing the work to the criminal penalties and civil remedies prescribed in Section 109.

**CHANGE OF USE OR OCCUPANCY.** Section 102.3 of the International Fire Code 2021 Edition is amended to read as follows:

**102.3 Change of Use or Occupancy.** A change of occupancy shall not be made unless the use or occupancy is made to comply with the requirements of this code and the *International Existing Building Code*. All changes of use or occupancy shall be coordinated with the *fire code official* prior to issuance of a temporary or permanent Certificate of Occupancy.

**Exception:** Where *approved* by the *building code official* and *fire code official*, a change of occupancy shall be permitted without complying with the requirements of this code and the *International Existing Building Code*, provided that the new or proposed use or occupancy is less hazardous, based on life and fire risk, than the existing use or occupancy.

**FIRE CODE COMPLIANCE AGENCY.** Section 103.1 of the International Fire Code 2021 Edition is amended to read as follows:

**103.1 Fire code compliance agency.** The Fire & Life Safety Division is hereby created, and the *fire marshal* shall be known as the *fire code official*. The function of the agency shall be implementation, administration and enforcement of the provisions of this code.



**GENERAL.** Section 104.1 of the International Fire Code 2021 Edition is amended to read as follows:

**104.1 General.** The *fire code official* or authorized designee is hereby authorized to enforce the provisions of this code and shall have the authority to issue citations, render interpretations of this code, and to develop policies, procedures, rules and regulations in order to clarify the application of its provisions. Such interpretations, policies, procedures, rules and regulations shall be in compliance with the intent and purpose of this code and shall not have the effect of waiving requirements specifically provided for in this code.

**104.1.1 Organization and deployment.** The Fire & Life Safety Division will use NFPA 1730 *Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations* standard as a guideline relating to the organization and deployment of fire prevention inspection and code enforcement, plan review, investigation, and public education operations to the public.

**104.1.2 Community Risk Assessment.** The Fire & Life Safety Division will use the NFPA 1730 *Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations* standard and *NFPA 1300 Community Risk Assessment and Community Risk Reduction Plan Development* standard as a guideline to conduct a community risk assessment.

**104.1.3 Community Risk Reduction Plan.** The Fire & Life Safety Division will use the NFPA 1730 *Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations* standard and the *NFPA 1300 Community Risk Assessment and Community Risk Reduction Plan Development* standard as a guideline to develop a community risk reduction plan.

**REQUIRED INFORMATION.** Section 104.6 of the International Fire Code is amended to add Section 104.6.5 to read as follows:

**104.6.5 Required Information.** In order to facilitate the Community Risk Assessment process each business and building owner shall provide the following information to the *fire code official* upon request: responsible party address, responsible party telephone number, responsible party email address, building owner address, building owner phone number, building owner email address, square footage of the building and/or leased space, fire alarm monitoring company, insurance company name, insurance company number, and insurance company telephone number. Complexes with multiple buildings such as schools, apartments, and retail centers shall provide a 24-hour emergency contact person with a 24-hour contact phone number.

**FIRE PROTECTION AND LIFE SAFETY ANALYSIS.** Section 104.8 of the International Fire Code is amended to add Section 104.8.3 to read as follows:

**104.8.3 Fire Protection and Life Safety Analysis.** Prior to submitting construction drawings for high-rise buildings, hospitals, buildings containing atriums, covered mall buildings, institutional facilities, hazardous materials facilities, high-piled storage facilities, or other complex structures or uses as determined by the *fire code official* or *building code official*, a *Fire Protection and Life Safety Analysis* shall be provided to insure minimum code compliance and how these features interact to provide the level of protection intended by the Codes. The *Fire Protection and Life Safety Analysis* shall describe the basic concepts used for water supply, fire suppression, alarm, notification, egress, fire-resistive assemblies, smoke control, and other related systems, as well as the coordination of these systems. The *Fire Protection and Life Safety Analysis* shall also describe the basic concepts the emergency plan and evacuation strategy and how they are coordinated with the passive and active fire protection systems. The *Fire Protection and Life Safety Analysis* shall be performed by a qualified Colorado Registered Fire Protection Engineer with a Firm/Branch office registered with the State Board of Licensure for Architects, Professional Engineers and Professional Land Surveyors. Upon completion of the project, the professional registrant shall provide a written and sealed report to the *fire code official* and *building code official* summarizing compliance with the *Fire Protection and Life Safety Analysis*. A copy of the *approved* documentation shall be maintained at the site and by the fire department until demolition of the building. The *Fire Protection and Life Safety Analysis* shall comply with the Supplemental Rules and Regulations.

**FIRE INVESTIGATIONS.** Section 104.11.1 of the International Fire Code is amended to read as follows:

**104.11.1 Assistance from other agencies.** Police and designated local fire investigation agencies shall have authority to render necessary assistance in the investigation of fires when requested to do so.

**REQUIRED OPERATIONAL PERMITS.** Section 105.5 of the International Fire Code is amended to read as follows:

**105.5 Required operational permits.** The *fire code official* is authorized to issue operational permits for the operations set forth in Sections 105.5.2 through 105.5.61. An operational permit shall be obtained from the Fire & Life Safety Division prior to engaging in the following activities, functions, operations, or practices.

**REQUIRED OPERATIONAL PERMITS.** Section 105.5 of the International Fire Code 2021 Edition is amended to delete the following subsections:

**105.5.4 Aviation facilities.**

**105.5.6 Cellulose nitrate film.**

**105.5.12 Cutting and welding.**

**105.5.17 Fire hydrants and valves.**

**105.5.26 Industrial ovens.**

**105.5.33 Motor fuel-dispensing facilities.**

**105.5.34 Open burning.**

**105.5.41 Private fire hydrants.**

**105.5.44 Refrigeration equipment.**

**105.5.46 Rooftop heliports.**

**105.5.48 Storage of scrap tires and tire byproducts.**

**REQUIRED OPERATIONAL PERMITS.** Section 105.5 of the International Fire Code 2021 Edition is amended to add Subsection 105.5.53 through 105.5.61 to read as follows:

**105.5.53 Assisted living facility.** An operational permit is required for the operation of an assisted living facility.

**105.5.54 Blasting operations.** An operational permit is required for blasting operations.

**105.2.55 Cold spark effect or cold sparkler fountains.** An operational permit is required for the use of cold spark effects and cold sparkler fountains.

**105.5.56 CO2 leak detection.** An operational permit is required for the use of CO2 leak detection systems.

**105.5.57 Flame effects.** An operational permit is required for the use of flame effects.

**105.5.58 Fire performance.** An operational permit is required for the operation of flame performances. Flame performances shall be conducted in accordance with NFPA 160.

**105.5.59 Smoke Control Systems.** An operational permit is required for facilities that have smoke control systems.

**105.5.60 Smoke Removal Systems.** An operational permit is required for facilities that have smoke removal systems.

**105.5.61 Spraying and dipping operations.** An operational permit is required for spraying and/or dipping operations.

**REQUIRED CONSTRUCTION PERMITS.** Section 105.6 of the International Fire Code 2021 Edition is amended to read as follows:

**105.6 Required construction permits.** The *fire code official* is authorized to issue construction permits for work as set forth in Sections 105.6.1 through 105.6.33. A construction permit shall be obtained from the Fire & Life Safety Division prior to initiating any alterations, construction, installation, modification, remodel, of any fire protection system or other fire- or life- safety system, as defined by the International Fire Code 2021 Edition.

**PRIVATE FIRE HYDRANTS.** Section 105.6 of the International Fire Code 2021 Edition is amended to delete the following subsections:

**105.6.18 Private fire hydrants.**

**FIRE ALARM AND DETECTION SYSTEMS AND RELATED EQUIPMENT.** Section 105.6.6 of the International Fire Code 2021 Edition is amended to read as follows:

**105.6.6 Fire alarm and detection systems and related equipment.** A construction permit is required for installation of or modification to fire alarm and detection systems and related equipment, including the installation of a new fire alarm control panel and the installation of a new fire alarm communicator. Maintenance performed in accordance with this code is not considered to be a modification and does not require a construction permit.

**ADDRESS DIRECTORIES.** Section 105.6 of the International Fire Code 2021 Edition is amended to add the following subsections:

**105.6.25. Address directories.** A construction permit is required to install or modify address directories.

**105.6.26. CO2 Leak detection systems.** A construction permit is required to install or modify CO2 leak detection systems.

**105.6.27. Controlled egress doors in I-1 and I-2.** A construction permit is required to install or modify controlled egress electric locking systems and/or the connection to the fire alarm system in accordance with Section 1010.2.14.

**105.6.28. Delayed egress locking systems.** A construction permit is required to install or modify delayed egress locking systems and/or the connection to the fire alarm system in accordance with Section 1010.2.13.

**105.6.29. Temporary fire apparatus access roads.** A construction permit is required to install or modify a temporary fire apparatus access road when used in lieu of an *approved* surface per Section 503.2.3 and Chapter 33. As part of the application, the applicant shall provide engineered plans, a temporary road maintenance plan, construction schedule and a comprehensive construction site fire protection plan.

**105.6.30. Temporary Heating with LP-Gas.** A construction permit is required to install or modify a temporary LP-Gas heating system.

**105.6.31. Sensor release of electrically locked egress doors.** A construction permit is required to install or modify sensor release of electrically locked egress doors when connected to the fire alarm system in accordance with Section 1010.2.12.

**105.6.32 Underground firelines.** A construction permit is required for the installation or modification of underground firelines. Maintenance performed in accordance with this code is not considered to be a modification and does not require a fire department permit. The City of Lafayette Public Works Department may require permits for maintenance.

**105.6.33 Water tanks** A construction permit is required for the installation of or modification to a water tank used for supply of a fire protection system.

**CONSTRUCTION DOCUMENTS.** Subsection 106.1 of the International Fire Code 2021 Edition is amended to read as follows:

**106.1 Submittals.** Construction documents and supporting data, with application, shall be submitted to the *fire code official* electronically in an *approved* format for a permit. The construction documents shall be prepared by a registered design professional where required by the State of Colorado or the statutes of the jurisdiction in which the project is to be constructed.

**Exception:** The *fire code official* is authorized to waive the submission of fire code related construction documents and supporting data not required to be prepared by a registered design professional if it is found that the nature of the work applied for is such that review of construction documents is not necessary to obtain compliance with this code. A scope of work letter may be submitted for *fire code official* approval.

**FEES.** Section 107 of the International Fire Code 2021 Edition is amended to add sections 107.7 and 107.8 to read as follows:

**107.7 Operational Permit Fees.** The fee for operational permits required by subsection 105.5 of the International Fire Code 2021 Edition shall be as set forth in the fee schedule adopted by resolution by the City Council. These fees shall be assessed by and paid to the City in accordance with the provisions of the fee schedule adopted by resolution by the City Council.

**107.8 Construction Permit Fees.** Permit fees are required for fire protection and life safety systems required by subsection 105.6 of the International Fire Code 2021 Edition for initiating any alterations, construction, installation modification, remodel, of any fire protection system or other fire- or life-safety system, as defined by the International Fire Code 2021 Edition. These fees shall be assessed by and paid to the City in accordance with the provisions of the fee schedule adopted by resolution by the City Council.

**RECORDKEEPING.** Subsection 109.3 of the International Fire Code 2021 Edition is amended to read as follows:

**109.3 Recordkeeping.** All records of periodic inspections, tests, servicing and other operations and maintenance shall be submitted to the Lafayette Fire Department through the *approved* manner within 30 days of the inspection.

**BOARD OF APPEALS.** Section 111 of the International Fire Code 2021 Edition is amended to read as follows:

**111.1 Board of appeals established.** In order to hear and decide appeals of orders, decisions or determinations made by the fire code official in the application and interpretation of this

code, there is hereby created a board of appeals. The three-member board of appeals shall be comprised of the Chief Building Official, the Fire Chief, and an independent fire safety engineer, architect, industrial hygienist or other qualified individual with expertise in interpreting and applying this code with respect to the specific issues being appealed, and who is mutually agreed upon by the Chief Building Official and the Fire Chief. The board of appeals may adopt rules of procedure for conducting its business, and shall render all decisions and findings in writing to the appellant with a copy to the fire code official.

**111.2 Limitations on authority.** An application for appeal shall be based on a claim that the true intent of this code or the rules legally adopted hereunder thereunder have been incorrectly interpreted, the provisions of this code do not fully apply, or an equivalent method of protection or safety or better form of construction is proposed. The board shall not have authority to waive requirements of this code or interpret the administration of this code.

**VIOLATIONS.** Section 112.4 of the International Fire Code 2021 Edition is amended to read as follows:

**112.4 Violation Penalties.** Persons who shall violate a provision of this code or shall fail to comply with any of the requirements thereof or who shall erect, install alter, repair or do work in violation of the approved construction documents or directive of the fire code official, or of a permit or certificate used under provisions of this code, shall be subject to the general penalty provisions set forth in 1-10 of the Code of Ordinances, City of Lafayette, Colorado. Each day that a violation continues after due notice has been served shall be deemed a separate offense.

**112.4.1 Abatement of violation.** In addition to the imposition of the penalties herein described, the fire code official is authorized to institute appropriate action to prevent unlawful construction or to restrain, correct, or abate a violation; or to prevent illegal occupancy of a structure or premises; or to stop an illegal act, conduct of business or occupancy of a structure on or about any premises.

**FAILURE TO COMPLY.** Section 113.4 of the International Fire Code 2021 Edition is amended to read as follows:

**113.4 Failure to comply.** Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be subject to the general penalty provisions set forth in 1-10 of the Code of Ordinances, City of Lafayette, Colorado. Each day that a violation continues after due notice has been served shall be deemed a separate offense.

**GENERAL DEFINITIONS.** Section 202 of the International Fire Code 2021 Edition is amended by adding the following definitions:

**ADDRESS DIRECTORIES.** Graphic displays of dwelling unit or business suite locations that are weather resistant, internally illuminated and permanently mounted adjacent to the fire department access road.

**ALL-WEATHER DRIVING SURFACE.** Asphaltic pavement, Portland cement concrete hard surface or other pavement that can be well maintained and that is capable of supporting fire apparatus weighing up to 70,000 pounds (31751kg) with a load of 28,000 pounds (12700kg) per axle.

**COMMUNITY RISK ASSESSMENT.** See definition in *NFPA 1300 Community Risk Assessment and Community Risk Reduction Plan Development*.

**COMMUNITY RISK REDUCTION.** See definition in *NFPA 1300 Community Risk Assessment and Community Risk Reduction Plan Development*.

**COMMUNITY RISK REDUCTION PLAN.** See definition in *NFPA 1300 Community Risk Assessment and Community Risk Reduction Plan Development*.

**FIRE FLOW.** The flow rate of a water supply, measured at 20 psi residual pressure, that is available for firefighting.

**PREEMPTION DEVICE.** A listed and *approved* electronic device that receives a signal compatible with transmitters on emergency vehicles and that is used to automatically open and close fire apparatus access gates.

**SPREAD NUMBERS.** A means of building identification that are a numerical indication of the dwelling units found on each floor of each multifamily residential building.

**WASTE ACCUMULATION PROHIBITED.** Section 304.1 of the International Fire Code 2021 Edition is amended to read as follows:

**304.1 Waste accumulation prohibited.** Combustible waste material and combustible material creating a fire hazard in the opinion of the *fire code official* shall not be allowed to accumulate in buildings or structures or upon premises.

**STORAGE IN BUILDINGS.** Section 315.3 of the International Fire Code 2021 Edition is amended by adding Section 315.3.5 to read as follows:

**315.3.5. Marking maximum permitted storage height.** Identification of the maximum *approved* storage height shall be provided in areas where stacked or shelved storage of materials occurs. The maximum *approved* height will be based upon the requirements of Section 315 and Chapter 32. Maximum storage height identification shall consist of a minimum of a four 4-inch (101.6mm) stripe on a contrasting background shall be placed at the maximum storage height as determined by Section 315 and Chapter 32 above the finished floor and clearly labeled with the designation “No Storage Above This Line”.

**FIREFIGHTER FALL PROTECTION** Section 316 of the International Fire Code 2021 Edition is amended by adding Section 316.7 to read as follows:

**316.7 Firefighter fall protection.** The following precautions are required to ensure safe and effective rooftop access for rooftop maintenance and firefighting operations. Materials shall comply with UL 1994. Signs or decals shall be posted in

English and in the predominant language of workers. Signs, decals and striping affixed to the exterior of the building shall be suitable for the environment.

1. Self-luminous or reflective signs or decals *approved* by the *fire code official* are required on building exterior walls when the locations of rooftop access landing areas are not apparent from the street.
2. Self-luminous or reflective signs or decals *approved* by the *fire code official* shall be attached to each skylight, trap door, roof hatch, and scuttle cover; the sign or decal shall be on the surface, with striping around the entire perimeter.
3. Self-luminous or reflective signs or decals *approved* by the *fire code official* shall be placed at entries (doors, stairs, ladders, or roof hatches) to areas containing skylights, trap doors, roof hatches, and scuttle covers.
4. Existing non-metallic panels with curb heights 8-inches or less that are present between metal panels on roofs shall be replaced with metal panel(s) with the equivalent gauge and material properties as the existing roof panels. Perimeter guardrails or fall protection can be used in lieu of replacement of existing non-metallic panels when these systems comply with OSHA 29 CFR1926.502. Self-luminous or reflective signs or decals *approved* by the *fire code official* shall be placed on perimeter guardrails.

**Exception:** One-family, two-family and townhouse dwellings constructed in accordance with the *International Residential Code*.

**BUILDINGS AND FACILITIES.** Section 503.1.1. of the International Fire Code 2021 Edition is amended to read as follows:

**503.1.1 Buildings and facilities.** *Approved* fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within the jurisdiction. The fire apparatus access road shall comply with the requirements of this Section and shall extend to within 150 feet (45720 mm) of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an *approved* route around the exterior of the building or facility. The path of measurement shall be a minimum of a 5 foot (1524 mm) wide unobstructed pathway around the external walls of the structure within the property line.

**Exceptions:**

1. The *fire code official* is authorized to increase the dimension to 200 feet (60960 mm) for buildings provided with an approved automatic sprinkler system.
2. The *fire code official* is authorized to increase the dimension of 150 feet (45720 mm) where fire apparatus access roads cannot be installed due to location on property, topography, waterways, non-negotiable grades or other similar conditions and an *approved* alternative means of fire protection is provided.



**SPECIFICATIONS.** Section 503.2 of the International Fire Code 2021 Edition is amended to read as follows:

**503.2 Specifications.** Fire apparatus access roads shall be installed and arranged in accordance with Sections 503.2.1 through 503.2.12 and the City of Lafayette Standards and Specifications for the Design and Construction of Public Infrastructure. Where the provisions of this section conflict with the City of Lafayette Standards and Specifications for the Design and Construction of Public Infrastructure at the time of construction, the most restrictive provision shall apply.

**Exception:**

*Fire apparatus access roads* established and *approved* per City of Lafayette Fire Department or Planning and Development Department site plan prior to the effective date of this code are not required to be widened if maintained and marked in accordance with this chapter.

**503.2.1 Dimensions.** Fire apparatus access roads shall have an unobstructed width of not less than 20 feet (6096 mm), exclusive of shoulders, except for approved security gates in accordance with Section 503.6, and an unobstructed vertical clearance of not less than 13 feet 6 inches (4115 mm).

**503.2.2 Authority.** The *fire code official* is the only authority authorized to designate a *fire apparatus access road*. The *planning department*, *city engineer* and *fire code official* shall have the authority to require or permit modifications to the required access widths where they are inadequate for fire or rescue operations or where necessary to meet the public safety objectives of the City of Lafayette.

**503.2.3. Surface.** *Fire apparatus access roads* shall be designed and constructed of hard surface, i.e. asphalt or concrete. *Fire apparatus access roads* shall be designed and maintained to support the imposed loads of 70,000 pounds (31751 kg) with a load of 28,000 pounds (12700 kg). Underground water detention systems are not allowed under fire apparatus access drive aisles.

**503.2.4. Turning radius.** The required turning radius of a fire apparatus access road shall have a minimum 45-foot (13716 mm) center line radius, 35-foot (10668mm) inside radius and 55-foot (16764 mm) outside radius on curves.

**503.2.5 Dead ends.** Dead-end *fire apparatus access roads* in excess of 150 feet (45720 mm) shall be provided with width and turnaround provisions in accordance with Table D103.4 and the City of Lafayette Standards and Specifications for the Design and Construction of Public Infrastructure. Whereas the provisions are in conflict, the provisions as adopted by the City of Lafayette shall prevail.

**Exception:**

1. For buildings equipped throughout with an *approved* automatic sprinkler system installed in accordance with **Section 903.3.1.1** fire apparatus access roads in excess of 200 feet (60960 mm) in length shall be provided with an approved area for turning around fire apparatus.
2. For residential developments where all dwellings are equipped throughout with an *approved* automatic sprinkler system installed in accordance with **Section 903.3.1.2 or 903.3.1.3**, fire apparatus access roads in excess of 200 feet (60960 mm) in length shall be provided with an approved area for turning around fire apparatus.

**503.2.6 Bridges and elevated surfaces.** Where a bridge or an elevated surface is part of a *fire apparatus access road*, the bridge shall be constructed and maintained in accordance with **AASHTO HB-17**. Bridges and elevated surfaces shall be designed for a live load sufficient to carry the imposed loads of fire apparatus 70,000 pounds (31751 kg) with a load of 28,000 pounds (12700 kg). Vehicle load limits shall be posted at both entrances to bridges when required by the *fire code official*. Where elevated surfaces designed for emergency vehicle use are adjacent to surfaces which are not designed for such use, *approved barriers*, *approved signs* or both shall be installed and maintained when required by the *fire code official*.

**503.2.7 Grade.** The grade of a *fire apparatus access road* shall not exceed seven percent.

**Exception:**

1. For buildings equipped throughout with an *approved* automatic sprinkler system installed in accordance with **Section 903.3.1.1** the grade requirement shall be ten percent.
2. For residential developments where all dwellings are equipped throughout with an *approved* automatic sprinkler system installed in accordance with **Section 903.3.1.2 or 903.3.1.3**, the grade requirement shall be ten percent.

**503.2.8 Angles of approach and departure.** The angles of approach and departure for fire apparatus access roads shall be a maximum of 8 percent grade for 25 feet (7.6 m) of approach/departure.

**503.2.9 Access road width next to a hydrant.** Where a fire hydrant is located on a fire apparatus access road, the minimum road width shall be 26 feet (7925 mm), exclusive of shoulders (see Figure D103.1).

**Exception:**

Buildings equipped throughout with an *approved* automatic sprinkler system installed in accordance with **Section 903.3.1.1, Section 903.3.1.2 or Section 903.3.1.3**.

**503.2.10 Loading areas and passenger drop-off areas.** On private property, where fire apparatus access roads are utilized for loading or unloading or are utilized for passenger drop off or pickup, an additional 8 feet of width shall be added to the fire apparatus access road. This width is in addition to the minimum 20 feet (6096 mm) access road width exclusive of shoulders.

**503.2.11 Vehicle passing points.** When *fire department access roads* exceed 300 feet (91440 mm) in length, vehicle passing points shall be installed at intervals not to exceed 300 feet (91440 mm). Vehicle passing points shall be a minimum of 30 feet (9144 mm) in width exclusive of shoulders and 50 feet (15240 mm) in length.

**Exception:** When code compliant fire lanes are continuous through a property leading to an *approved* exit point, no passing points are required.

**503.2.12 Curbs.** A rolled curb shall be installed at the entrances to *fire apparatus access roads* in accordance with City of Lafayette Standards and Specifications for the Design and Construction of Public Infrastructure.

**MARKINGS.** Section 503.3 of the International Fire Code is amended to add Section 503.3.1 to read as follows:

**503.3.1. Marking approval.** The marking of fire lanes on private property devoted to public use shall be *approved* by the *fire code official* in accordance with the *International Fire Code 2021* Edition and the latest edition of the Manual on Uniform Traffic Control. The property owner is responsible for all costs.

**TRAFFIC CALMING DEVICES.** Section 503.4.1. of the International Fire Code 2021 Edition is amended to read as follows:

**503.4.1 Traffic calming devices.** Traffic calming devices on private property shall be prohibited unless *approved* by the *fire chief*.

**Exception:**

Traffic calming devices that comply with the Fire Department Guideline for "*Traffic Calming on Private Property*".

The *fire chief* is authorized to require the removal from any private property of any existing traffic management or calming device, including speed bumps that do not meet the applicable criteria, and has been determined by the *fire chief* to unnecessarily hinder emergency apparatus response. The property owner is responsible for all costs.

**OBSTRUCTION OF FIRE APPARATUS ACCESS ROADS.** Section 503.4 of the International Fire Code is amended to add Section 503.4.2 to read as follows:

**503.4.2. Enforcement.** The *fire code official* or any of the *fire code official's* designees, or the Police Department with knowledge of the existence of any vehicle parked in the fire lane, or in such manner as to interfere with the use of may fire hydrant, or in any manner in violation of this Section may have such vehicle towed away and the charges of such towing shall be assessed to the owner of such vehicle. The aforesaid violation shall be sufficient grounds to cause a citation to be issued. In the event of an emergency, the fire department shall have the authority to cause any vehicle blocking a fire hydrant or fire lane to be removed with the vehicle's owner to be responsible for any loss or damage resulting from removal of the vehicle. If the vehicle cannot be expeditiously removed during an emergency the fire department is authorized to take whatever action is necessary to manage the emergency. The fire department is not responsible for any damage caused to illegally parked vehicles.

**FIRE APPARATUS ACCESS GATES.** Section 503.6 of the International Fire Code is amended to read as follows:

**503.6 Fire apparatus access gates.** The installation of gates across a *fire apparatus access road* shall comply with fire department policies and be *approved by the planning department, city engineer and fire code official*. A construction permit in accordance with the requirements of Section 105.6.11 is required to install or modify both manual and automatic fire apparatus access gates and their appurtenances. Where gate access is installed, an *approved* means of emergency operation shall be provided.

**503.6.1 Gate design.** Gates shall be designed so that the access roadway or turning radius (AASHTO WB-50) shall not be obstructed by the operation of the gate. Minimum set back from the public streets shall 30 feet to allow emergency vehicles the ability to safely operate the lock box or panel without stopping apparatus in the roadway.

**503.6.1.2 Width.** Clear width of the roadway and gates shall be a minimum of 20 feet (6096 mm) on all entrances.

**503.6.1.3 Divided gates.** Residential sub-divisions may have divided entrance and exit gates. A minimum 20 feet (6096 mm) wide, clear access opening on the entrance side 14 feet (4267 mm) wide, clear access opening on the exit is required.

**503.6.1.4 Limited access.** All gates limiting fire apparatus access will be required to provide emergency access controls for fire department entry. Operation of all motorized gate(s) shall be by a traffic pre-emption device with an *approved* Knox key switch backup. Manual gates shall use an *approved* padlock locking bar and Knox padlock.

**503.6.1.5 Open time.** Gates must fully open within 20 seconds of activation and remain in the open position until manually closed by operation of the electrical control device.

**503.6.1.6 Back-up.** Battery back-up is required for all motorized gates, unless the gates fail safe (open) in the event of a power failure.

**503.6.1.7 Gate devices.** Traffic pre-emption devices, key boxes, key switches or padlocks on gates must be *approved* models, utilized by the fire department.

**503.6.1.8 Access controls.** Access controls shall be exterior to the gate and located for activation by the fire apparatus operator without dismounting from the fire apparatus. The height of the lock box/control panel shall be 66-inches (1677 mm), measured from the finished grade line of the street.

**503.6.1.9 Control pedestal.** The control pedestal must be identified with a minimum 6-inch (153 mm) by 10-inch (254 mm) sign with red letters on a white background, stating, EMERGENCY FIRE DEPARTMENT ACCESS. This sign must be securely fastened to the pedestal and legible from the approaching vehicle.

**503.6.1.10 Secondary “exit only” gates.** Secondary “exit only” gates shall be set up for fire department emergency access. Exit only gates, which are not motorized, shall be installed per fire department policy. Exit only gates shall have a minimum clearance of 20 feet (6096 mm) clear width and be posted with a sign that states “Caution Gate Opens Out.” The ground shall be painted with a yellow strip showing the depth of the gate swing. NO PARKING signs shall be installed.

**503.6.1.11 Gate maintenance.** Gate components shall be maintained in an operative condition at all times and replaced or repaired when defective.

**503.6.1.12 Signs.** Signs shall be installed in accordance with fire department policy.

**503.6.1.13 Preemption devices.** Preemption devices are required on all new automatic fire access gates. The installation of preemption devices shall comply with the following:

**Exception:** Access roads serving 3 or fewer R-3 occupancies.

1. The devices shall be installed such that the gate will open for both ingress and egress of emergency vehicles.
2. Detectors shall be mounted 8 feet to 10 feet (2439mm to 3048 mm) above grade.
3. Detectors shall be located a minimum of 18-inches (457 mm) behind the gate on the property side.
4. Detectors shall be mounted on a separate 4-inch by 4-inch (102 mm to 102 mm) metal post and not on the guidepost. The metal post shall be cemented a minimum of 18-inches (457 mm) below grade.
5. Detectors shall activate at a minimum of 150 feet (45720 mm) from the gate.
6. Detectors shall point toward both the approach and the exit path of the emergency vehicle.

7. The sight path of the detector shall be free of visual obstructions such as signs, covered parking, canopies and vegetation.
8. Individual detectors shall be mounted together with the power module in the dual detector-mounting box. Detectors shall be *approved* by the fire department. A list of *approved* devices will be maintained by the fire department and available to the public.

**503.6.1.14 Electric and solar voltaic power system operated gates standby power systems.** Electric and solar operated gates shall be provided with a standby power system. Standby power is permitted to be, but not limited to, battery back-up or connection to an emergency generator. The activation of the system shall open gates and maintain them in the open position until primary power is restored to the system. Standby power systems are required to comply with the *National Electrical Code* Article 701.

**Exception:** Controlled access gates installed at occupancies other than multifamily residential properties may remain closed until the emergency gate switch is activated and shall then remain open while the standby power system is operating the gate.

**ALTERNATIVE SURFACE FIRE APPARATUS ACCESS ROADS.** Section 503 of the International Fire Code 2021 Edition is amended by adding Section 503.7 to read as follows:

**503.7 Alternative surface fire apparatus access roads.** Alternative surface *fire apparatus access roads* shall be in accordance with this section and sections 503.1.5.1 through 503.1.5.9.

**503.7.1 Surface.** The surface of *fire apparatus access roads* may differ from the above requirements if it is shown that the surface provided is sufficient to support an imposed live load of 70,000 pounds (31751kg) with a load of 28,000 pounds (12700kg). A Colorado registered professional engineer shall prepare and seal the soil compaction report. The report shall be provided to the *city engineer* and *fire code official*.

**503.7.2 Report.** Alternative surface *fire apparatus access roads* shall be designed by a Colorado registered professional engineer. The engineer shall prepare a sealed design report and plans for submittal to and approval by the *city engineer* and *fire code official*.

**503.7.3 Minimum Standard.** At a minimum, the surface of *fire apparatus access roads* shall be as follows:

1. Minimum 6-inches (152 mm) of native soil compacted to 95 percent of standard proctor density (ASTM D 698), and
2. Minimum 4-inches (102 mm) of aggregate base compacted to 100 percent of standard proctor density (ASTM D 698).

**503.7.4 Stabilization.** Stabilization of the *fire apparatus access road* surface shall be addressed in the *alternative surface fire apparatus access road* report and may be accomplished by curbing.

**503.7.5 Compaction.** Minimum 95 percent compaction of sub-grade soil is required.

**503.7.6 Drainage.** Water drainage shall be directed away from or piped under the fire apparatus access roads. Ponding of water on an access road shall not exceed a depth of 6-inches (152 mm).

**503.7.7 Stabilized edge.** A stabilized edge meeting City of Lafayette Standards and Specifications for the Design and Construction of Public Infrastructure or equivalent is required on fire apparatus access roads.

**503.7.8 Special inspections.** A Colorado registered professional engineer shall conduct a special inspection prior to final approvals being issued for the alternative surface fire apparatus access road.

**503.7.9 Special inspection documentation.** The special inspection documentation shall include, but not be limited to, the following:

1. Subgrade soil compaction report.
2. Base material quality, thickness and compaction.
3. Concrete depth and compressive strength, when applicable.
4. An evaluation of the installation in accordance with design drawings and manufacturer specifications.
5. Crown and drainage requirements.
6. Stabilization (if curbing is not used).

**PREMISES IDENTIFICATION.** Section 505 of the International Fire Code 2021 Edition is amended to read as follows:

**505.1 Premise identification for residential occupancies.** Premise identification for residential occupancies.

**505.1.1 Single-family homes.** The address numbers for single-family homes that are Group R-3 occupancies shall be a minimum of 3-inches (74 mm) high, with a minimum 3/8-inch (9.53 mm) brush stroke on a contrasting background.

**505.1.2 Address marking of multifamily residential occupancies other than Group R-3 occupancies.** The address, individual building, spread, and dwelling numbers in other than Group R-3 occupancies shall be in accordance with Sections 505.1.2.1 through 505.1.2.6.

**505.1.2.1 Building or site address.** The street address numbers shall be a minimum 12-inches (305 mm) high with a minimum 2-inch (51 mm) wide brush stroke on contrasting color. For *buildings* less than 100 feet (30480 mm) long, a minimum of one address shall be provided. For *buildings* greater than 100 feet (30480 mm) in length, the address is required in a minimum of two places. Each *building* in a complex shall display its own identification.

**505.1.2.2 Building identification numbers.** Each *building* shall display its specific alphabetical or numerical designation which must be clearly visible from the *fire apparatus access road*. The building identification numbers shall be a minimum of 18-inches (457 mm) high with a minimum 3-inch (76 mm) brush stroke on contrasting color. For *buildings* less than 100 feet (30480 mm) long, a minimum of one building identification number per building shall be provided. The building identification number is required to be internally or externally illuminated.

**505.1.2.3 Spread numbers.** *Spread numbers* shall be provided adjacent to the building identification numbers to indicate the apartment or unit numbers by floors in the *building*. *Spread numbers* shall be a minimum of 7-inches (178 mm) high with a 1-inch (25 mm) brush stroke on a contrasting background. The *spread numbers* are required to be internally or externally illuminated.

**505.1.2.4 Unit identification at entrances.** When more than one dwelling or unit is accessed from an entrance, a spread plate is required.

**505.1.2.5 Apartment or unit numbers.** Individual apartment or unit numbers shall be a minimum 4-inch high with a minimum 3/8- inch (9.52 mm) brush stroke on a contrasting background.

**505.1.2.6 Additional unit identification signs.** Where a building is not visible from the *fire apparatus access road*, a directional sign indicating the location of the unit is required.

**505.2 Premise identification for commercial buildings.** Commercial buildings less than 200 feet (60960 mm) long and less than 100 feet (30480 mm) from the road shall be identified with building address numbers that are a minimum of 12-inches (305 mm) high with a minimum 2-inch (51 mm) brush stroke on contrasting background. The address shall be visible from all access directions.

When *buildings* are more than 200 feet (60960 mm) long or set back from the road more than 100 feet (30480 mm) they shall be identified with building address numbers that are a minimum of 24 -inches (610 mm) high with a 4-inch (102 mm) brush stroke of a contrasting color.

When *buildings* are greater than 500 feet (152400 mm) in length, the number and address shall be provided in a minimum of two locations. When buildings have multiple access points, numbers and addresses shall be provided at each access point.

**505.2.1 Multi-tenant commercial buildings.** Individual tenant spaces in multi-tenant commercial buildings shall have their address or suite number posted at the front entrance and rear access doors. This number shall be a minimum of 6-inches (152 mm) high with a 1-inch (25 mm) brush stroke on a contrasting background.

**505.2.2 Multiple buildings at a single address.** Each building shall display its specific alphabetical or numerical designation that shall be clearly visible from the *fire apparatus*



*access road* (see Section 505.2.1 for minimum letter height and brush stroke requirements).

**505.2.3 Interior room numbers.** New and existing buildings shall have *approved* room and suite number identification placed in positions that are plainly legible and visible. Numbers shall contrast with the background; interior suite and room numbers shall be Arabic numeral or alphabet letters. Interior room and suite numbers shall be a minimum of 1.25 (1 ¼) inches (31.75 mm) high with a brush stroke width of 0.25 (1/4) inches (6.35 mm).

**505.3.4 Stairway identification.** When determined by the *fire code official* that access is necessary for lifesaving or fire-fighting purposes, stairwells shall be marked as *approved* by the *fire code official*.

### **505.3 Address directories.**

**505.3.1 When required.** An *approved address directory* shall be provided at properties containing any one of the following:

1. More than one principal *building*.
2. *Buildings* with unit identification numbers that are randomly numbered or sequenced.
3. When, in the opinion of the *fire code official*, emergency response may be delayed due to the physical layout of the complex.

**505.3.2 Specifications.** *Address directories* shall be constructed and installed in accordance with this section and fire department policy.

**505.3.3 Dimensions.** The number of buildings in the complex shall determine the minimum dimensions of the directory. Minimum directory dimensions shall be as follows:

1. Complexes containing 12 or fewer *buildings* require a minimum 3 by 3 feet (914 by 914 mm) [9 square feet (0.836 m<sup>2</sup>)] *site* directory.
2. Complexes containing 13 to 30 *buildings* require a minimum 4 by 4 feet (1219 by 1219 mm) [16 square feet (1.486 m<sup>2</sup>)] *site* directory.
3. Complexes containing 31 or more *buildings* require a minimum 5 by 5 feet (1524 by 1524 mm) [(25 square feet (2.323 m<sup>2</sup>))] *site* directory. Stanchions or supports shall not be included in the 5 by 5 feet (1524 by 1524mm) required size of the directory.

**505.3.4 Framing.** Framing materials shall not encroach upon the directory face by more than 1½ inches (39 mm).

**505.3.5 Protection.** The directory shall be protected against vandalism and disfigurement by a clear polycarbonate cover, which shall have a minimum thickness of 1/8 inch (3.17 mm), and be sealed to protect the directory from weather.

**505.3.6 Illumination.** *Address directories* shall be internally illuminated utilizing white light.

**505.3.7 Installation requirements.** Support posts or stanchions shall be set in concrete. Directories with dimensions of 3 by 3 feet (914 by 914 mm) [9 square feet (0.836 m<sup>2</sup>)] shall be mounted with the bottom of the directory not less than 36-inches (914 mm) above grade. Directories with dimensions of 4 by 4 feet (1219 by 1219 mm) [16 square feet (1.486 m<sup>2</sup>)] and 5 by 5 feet (1524 by 1524 mm) [25 square feet (2.32 m<sup>2</sup>)] shall be mounted with the bottom of the directory not less than 24-inches (610 mm) above grade.

**505.3.8 Depictions.** All depictions must be clear, easily understood, and legible at a distance of 8 feet (2438 mm). The directory shall depict structures, building numbers, units, apartment or space numbers, tennis courts, swimming pools, elevators, driveways, streets, laundry rooms, fire hydrants, *fire apparatus access roads* and other features as determined by the fire department. The depictions shall comply with the following:

1. Directories shall be a dark print on a contrasting light background. *Buildings* shown on the directory shall not be the same color as other features indicated on the directory.
2. The name and address of the complex are required and shall not exceed 10 percent of the total size of the site directory.
3. Swimming pools, canals, and waterway areas shall be translucent blue.
4. Tennis courts shall be translucent green.
5. Fire hydrants shall be a ¼ -inch (6.35 mm) diameter black circle filled in with a translucent yellow center. The abbreviation "HYD" must be affixed by the location of the fire hydrant on the directory.
6. The directory shall be properly oriented to the viewer with a red dot, 1-inch (25 mm) in diameter, with the words "YOU ARE HERE" affixed at the appropriate location on the directory.
7. A north arrow shall be included in the upper-right quadrant of the directory. The arrow shall be a minimum of 3-inches (76 mm) in length with a minimum 1-inch (25 mm) brush stroke.
8. Interior *fire apparatus access roads*, where provided, shall be marked on the directory with red cross-hatching.

**505.3.9 Setbacks.** The directory shall be installed on the occupancy's property, at locations *approved* by the *fire code official*. Placement of the *address directory* shall be as follows:

1. The directory shall be set back from the street or curbing at least 25 feet (7620 mm) to allow emergency vehicles to clear the public right-of-way.
2. Shall not exceed a distance of 4 feet (1219 mm) from the edge of the fire apparatus access road facing the direction of oncoming traffic.

3. Shall not conflict with traffic visibility zones as provided for by other ordinances.
4. Shall be immediately visible and free from obstructions including architectural design and landscaping.

**505.3.10 Prohibitions.** Information such as advertising or additional art work shall not be allowed on the address directory.

**505.3.11 Maintenance.** All premise identification shall be maintained clearly visible and free from obstructions, including landscaping.

**505.4 Street or road signs.** Streets and roads shall be identified with *approved* signs. Temporary signs shall be installed at each street intersection when construction of new roadways allows passage by vehicles. Signs shall be of an approved size, weather resistant and be maintained until replaced by permanent signs.

**WHERE REQUIRED.** Section 506.1 of the International Fire Code 2021 Edition is amended to read as follows:

**506.1 Where required.** Where access to or within a structure or an area is restricted because of secured openings or where immediate access is necessary for life-saving or fire-fighting purposes, the *fire code official* is authorized to require a key box to be installed in an approved location. The key box shall be of an approved type listed in accordance with UL 1037, and shall contain keys to gain necessary access as required by the *fire code official*.

**506.1.1 Locks.** An approved lock shall be installed on gates or similar barriers where required by the *fire code official*.

**506.1.2 Key boxes.** Key boxes shall be required on all commercial structures that contain a fire protection system and when otherwise required by the *fire code official*. The key box type shall be Knox Box, as *approved* by the fire department, and shall contain a full set of labeled keys to open all areas inside and outside the structure, including the fire alarm panel. Knox Boxes shall be installed on all sides of commercial structures where there are access doors, or as otherwise required by the *fire code official*. Knox Boxes and keys shall be installed in all other locations as directed by the fire department policy.

Existing key boxes that are inconsistent with the type *approved* by the fire department shall be upgraded as required by the *fire code official*. Existing buildings that have a fire protection system and do not have a Knox Box shall be required to purchase and install an approved Knox Box and provide the necessary keys.

Knox Boxes allow firefighters to access buildings to investigate without damage during emergency responses such as afterhours automatic fire alarms or sprinkler activations. If the building is on fire, firefighters will attempt to use Knox Box keys for access. However, depending on conditions firefighters may use forcible entry during firefighting operations. The fire department is not responsible for damage.

**506.1.3 Key boxes for non-standardized fire service elevator keys.** Key boxes provided for non-standardized fire service elevator keys shall comply with **Section 506.1** and all of the following:

1. The key box shall be compatible with an existing rapid entry key box system in use in the jurisdiction and approved by the *fire code official*.
2. The front cover shall be permanently labeled with the words “FIRE DEPARTMENT USE ONLY—ELEVATOR KEYS.”
3. The key box shall be mounted at each elevator bank at the lobby nearest to the lowest level of fire department access.
4. The key box shall be mounted 5 feet 6 inches (1676 mm) above the finished floor to the right side of the elevator bank.
5. Contents of the key box are limited to fire service elevator keys. Additional elevator access tools, keys and information pertinent to emergency planning or elevator access shall be permitted where authorized by the *fire code official*.
6. In buildings with two or more elevator banks, a single key box shall be permitted to be used where such elevator banks are separated by not more than 30 feet (9144 mm). Additional key boxes shall be provided for each individual elevator or elevator bank separated by more than 30 feet (9144 mm).

**Exception:** A single key box shall be permitted to be located adjacent to a fire command center or the nonstandard fire service elevator key shall be permitted to be secured in a key box used for other purposes and located in accordance with Section 506.1.

**TYPES OF WATER SUPPLY.** Section 507.2 of the International Fire Code 2021 Edition is amended to read as follows:

**507.2.1 Public fire service mains.** Public fire service mains and appurtenances shall be installed in accordance with the City of Lafayette Standards and Specifications for the Design and Construction of Public Infrastructure and AWWA Standards. Underground fire main systems shall be installed in accordance with *NFPA 24, Private Fire Service Mains and Their Appurtenances*.

**507.2.2 Private fire service mains.** Private fire service mains and appurtenances shall be installed in accordance with the City of Lafayette Standards and Specifications for the Design and Construction of Public Infrastructure and AWWA Standards. Underground fire main systems shall be installed in accordance with *NFPA 24, Private Fire Service Mains and Their Appurtenances*.

**507.2.3 Water tanks.** Water tanks for private fire protection are prohibited in the City of Lafayette.

**FIRE FLOW.** Section 507.3 of the International Fire Code 2021 Edition is amended to read as follows:

**507.3 Fire Flow.** Fire-flow requirements for buildings and portions of buildings and facilities shall be determined by Appendix B, as amended.

**WATER SUPPLY TEST.** Section 507.4 of the International Fire Code 2021 Edition is amended to read as follows:

**507.4 Water supply test.** The *fire code official* shall be notified prior to the water supply test. Water supply tests shall be witnessed by the *fire code official*. *Approved* documentation of the test shall be provided to the *fire code official* prior to final approval of the water supply system.

**507.4.1 Fire flow or Fire Sprinkler Design water supply information.** The City of Lafayette makes no guarantee that the flow is presently available, nor does it guarantee that these flows will be available in the future due to continued growth which places additional demands for water on our distribution system. Availability of flow is also subject to periodic shutdowns and variations required by the operation of the City's distribution system.

It is the contractor's responsibility to obtain the *approved* civil utility plans to verify the appropriate backflow device(s) have been or will be installed on the system and to verify the existing on-site pressure prior to final system acceptance. The Contractor shall notify the *fire code official* immediately upon discovery of any major pressure discrepancies.

**507.4.2 Fire flow water supply or fire sprinkler design field test.** When *approved*, a manual water supply field test may be permitted. Prior to performing the water supply field test, the Public Works Department and *fire code official* shall be contacted to schedule the test. The water supply field test shall be witnessed by the *fire code official*. The test shall be documented by the contractor. Digital copies shall be provided to the Public Works Department and the *fire code official*. Water supply information obtained through this test shall be valid for a period of six (6) months.

Fire flow tests shall be conducted in accordance with NFPA 291.

**WHERE REQUIRED.** Section 507.5.1 of the International Fire Code 2021 Edition is amended to read as follows:

**507.5.1 Where required.** Fire hydrants shall be required in accordance with Appendix C, as amended.

**WHERE REQUIRED.** Section 507.5.2 of the International Fire Code 2021 Edition is amended to read as follows:

**507.5.2 Inspection, testing and maintenance.** Private fire hydrant systems shall be subject to periodic tests as required by the *fire code official*. Private fire hydrant systems shall be maintained in an operative condition at all times and shall be repaired, where defective. Additions, repairs, alterations, and servicing shall comply with *approved*

standards. Records of tests and required maintenance shall be maintained. All records of periodic inspections, tests, servicing and other operations and maintenance shall be submitted to the Lafayette Fire Department through the in an *approved* manner within 30 days of the inspection.

**WHERE REQUIRED.** Section 507.5.3 of the International Fire Code 2021 Edition is amended to read as follows:

**507.5.3 Private hydrant systems, fire service mains and water tanks.** Private fire service mains and water tanks shall be periodically inspected, tested and maintained in accordance with NFPA 25. Privately owned hydrant systems, fire service mains and water tanks shall be maintained at the expense of the private property owner, subject to the direction and requirements of the City of Lafayette Public Works Department and *fire code official*.

1. **Private fire hydrants of all types:** Inspection annually and after each operation. Flow test and maintenance annually. In the event such testing reveals that the flow from private hydrants is inadequate according to applicable standards, modifications necessary to meet these standards shall be ordered by the *fire code official* and made at the expense of the property owner.
2. **Fire service main piping:** Inspection of exposed, annually; flow test every 5 years.
3. **Fire service main piping strainers:** Inspection and maintenance after each use.

**507.5.3.1 Existing Private Fire Hydrants.**

1. All private hydrants shall be painted the same color as hydrants on public rights-of-way or elsewhere throughout the City.
2. Appropriate markings or signs restricting parking in front of or adjacent to fire hydrants shall be required and must be *approved* by the *fire code official* and implemented at the expense of the owner of the property.
3. No point of connection to any private fire hydrant shall be left uncapped without permission of the *fire code official*.
4. Hydrant locks shall be required at the discretion of the City Public Works Department for the purposes of securing private hydrants to prevent water theft.
5. Existing hydrants which do not conform to City of Lafayette Standards and Specifications for the Design and Construction of Public Infrastructure., or which

do not face in the direction most consistent with emergency use by the fire department, as established by the *fire code official*, shall be changed by the property owner, and at the property owner's expense, to meet the City of Lafayette Standards and Specifications for the Design and Construction of Public Infrastructure within 15 days of service of notice of the required changes upon the property owner or its agent.

**EMERGENCY RESPONDER COMMUNICATIONS.** Section 510.1 of the International Fire Code 2021 Edition is amended to read as follows:

**510.1 Emergency responder radio communication coverage in new buildings.** In-building, two-way emergency responder communication radio coverage for emergency responders shall be provided in all new buildings. In-building, two-way emergency responder communication coverage within the building shall be based on the existing coverage levels of the public safety communication systems utilized by the jurisdiction, measured at the exterior of the building.

The emergency responder radio communication system shall be a standalone system totally dedicated to public safety and no components of this system may be shared with any other radio or cell phone systems. This section shall not require improvement of the existing public safety communication systems.

**Exceptions:**

1. Where it is determined by the *fire code official* that the radio coverage system is not needed. Where it is determined by the *fire code official* that current radio coverage within the building is adequate, written documentation of the compliance of radio coverage shall be maintained on site.
2. In facilities where emergency responder radio coverage is required and such systems, components or equipment required could have a negative impact on the normal operations of that facility, the *fire code official* shall have the authority to accept an automatically activated emergency responder radio coverage system.

**510.1.1 Testing and proof of compliance.** The owner of a new building, or owner's authorized agent, shall hire qualified personnel in accordance with **Section 510.5.3** to conduct a test showing the existing coverage levels of the public safety communication systems utilized by the jurisdiction. Testing shall consist of an in-building test as described in **Section 510.5.4**. At the conclusion of the testing, a proof of compliance report shall be submitted to the *fire code official* for approval.

**EMERGENCY RESPONDER COMMUNICATION COVERAGE SYSTEM SIGNAL STRENGTH.** Section 510.4.1 of the International Fire Code 2021 Edition is amended to read as follows:

**510.4.1 Emergency responder communication enhancement coverage system signal strength.** The building shall be considered to have acceptable in-building, two-way emergency responder communications enhancement communication system coverage where signal strength measurements in 95 percent of all areas and 99 percent of areas designated as critical areas by the *fire code official*. Critical areas shall include: all designated areas of refuge, stairwells, main building lobbies, elevator lobbies, Fire Command Centers and other areas designated by the *fire code official*. Each floor of the building shall meet the signal strength requirements in **Sections 510.4.1.1 through 510.4.1.3**.

**MINIMUM DESIGN REQUIREMENTS AND QUALIFICATIONS OF PERSONNEL.** Section 510.5.3 of the International Fire Code 2021 Edition is amended to read as follows:

**510.5.3 Minimum qualifications of personnel.** The minimum design standards and qualifications of the system designer, lead installation personnel and testing personnel shall include the following:

1. A valid FCC-issued general radio operator's license.
2. The design of the system shall be performed by a RF system designer in accordance with NFPA 1225.
3. The designer may use the requirements of *NFPA 1225 Standard for Emergency Services Communications*, Chapter 18 in the system design.
4. The design of the system shall be *approved* by the frequency license holder(s).
5. The design of the system shall be *approved* by the *fire code official* in accordance with *NFPA 1225 Standard for Emergency Services Communications*.

**LOCATION.** Section 510.6 of the International Fire Code 2021 Edition is amended to add Section 510.6.5 to read as follows:

**510.6.5 Location.** All essential components shall be installed near the fire alarm control panel in a room accessible for repair and testing.

**EXHAUST SYSTEM MAINTENANCE.** Chapter 6 of the International Fire Code 2021 Edition is amended to add Section 611 to read as follows:

#### **611 EXHAUST SYSTEM MAINTENANCE**

**611.1 Exhaust systems.** Exhaust systems shall be in accordance with **Sections 611.1.1 and 611.1.2**.



**611.1 Exhaust fan maintenance.** Exhaust fan systems shall be installed in accordance with the manufacture's installation instructions.

**611.2 Exhaust fan maintenance.** Exhaust fan systems shall be maintained in accordance with the manufacture's operation instructions to prevent accumulation of lint or debris. Exhaust fans shall be maintained free from of lint or other debris.

**NON-REQUIRED FIRE PROTECTION SYSTEMS.** Section 901.4.2 of the International Fire Code 2021 Edition is amended to read as follows:

**901.4.2 Non-required fire protection systems.** Non-required fire protection systems providing partial protection shall not be recognized for exceptions or reductions permitted by other requirements of this code or the *International Building Code*. Non-required fire protection systems providing complete protection that take advantage of any exception or reduction permitted by other requirements of this code or the *International Building Code* shall become required systems.

**PUMP AND RISER ROOM SIZE.** Section 901.4.7 of the International Fire Code 2021 Edition is amended to read as follows:

**901.4.7 Fire control rooms.** In newly constructed buildings with a fire sprinkler system and/or fire pump, a fire control room shall be provided and shall comply with Sections 901.4.7.1 through 901.4.7.10.

**901.4.7.1 Access.** When an automatic fire sprinkler system and/or fire pump is provided within a building the main fire sprinkler riser and control valves shall be placed within an *approved* fire control room that that is accessible directly from the building exterior.

**901.4.7.2 Location.** The location and access to the fire control room shall be *approved* by the *fire code official*.

**901.4.7.3 Size.** The fire control room shall be designed with adequate space for all equipment necessary for the installation, as defined by the manufacturer, with sufficient working space around the stationary equipment. Clearances around equipment to elements of permanent construction, including other installed equipment and appliances, shall be sufficient to allow inspection, service, repair or replacement without removing such elements of permanent construction or disabling the function of a required fire-resistance-rated assembly. Fire control rooms shall be provided with doors and unobstructed passageways large enough to allow removal of the largest piece of equipment. The door shall be not less than three (3) feet in width by six (6) feet (6) inches in height. The room shall provide a minimum of 36 square feet working space around a fire pump or *automatic sprinkler system* riser. A layout of the fire control room and all features required by this section to be contained therein shall be submitted to the *fire code official* for approval prior to installation.

**901.4.7.4 Separation.** The fire control room shall be separated from the remainder of the building by not less than a 1-hour fire barrier constructed in accordance with

**Section 707** of the *International Building Code* or horizontal assembly constructed in accordance with **Section 711** of the *International Building Code*, or both.

**901.4.7.5 Storage.** Storage unrelated to operation of the fire control room shall be prohibited. *Approved* signs are required to be posted.

**901.4.7.6 Environment.** Fire control rooms and fire pump rooms shall be maintained at a temperature of not less than 40°F (4°C). Heating units shall be permanently installed.

**901.4.7.7 Emergency Lighting.** Fire control rooms and fire pump rooms shall be provided with emergency lighting.

**901.4.7.8 Marking on access doors.** Access doors for fire control rooms and fire pump rooms shall be labeled with an *approved* sign. The lettering shall be white letters on red background. Letters shall have a minimum height of 4-inches (102 mm) with a minimum stroke of 3/4 inch (20 mm).

**901.4.7.9 Multi-tenant buildings.** In buildings that have warehouse space(s) that have the ability to allow high-piled combustible storage per Chapter 32 shall have a fire line installed with a main that runs the length of the building for future addition of fire sprinkler systems.

**901.4.7.10 Multi-tenant residential buildings.** In multi-tenant residential buildings with an automatic sprinkler system the fire riser and main control valves shall be located within an *approved* room that is accessible directly from the building exterior. The door shall be not less than three (3) feet in width by six (6) feet (6) inches in height.

**SPECIFIC BUILDING AREAS AND HAZARDS.** Section 903.2.11 of the International Fire Code 2021 Edition is amended to read as follows:

**903.2.11 Specific buildings areas and hazards.** In all occupancies other than Group U, an automatic sprinkler system shall be installed for building design or hazards in the locations set forth in Sections 903.2.11.1 through 903.2.11.7.

**CONCEALED SPRINKLERS.** Section 903.2.11.7 of the International Fire Code 2021 Edition is added to read as follows:

**903.2.11.7 Concealed sprinklers.** In R-1 and R-2 occupancies, concealed sprinklers shall be installed in all internal hallways/corridors and other areas as designated by the *fire code official* to reduce the risks of accidental sprinkler activations.

**SPECIAL REQUIREMENTS FOR SPECULATIVE WAREHOUSES.** Section 903.3.1.1 of the International Fire Code 2021 Edition is amended by adding Section 903.1.1.3 to read as follows:

**903.3.1.1.3 Special requirements for speculative warehouses.** Speculative warehouses shall comply with this Chapter, Chapter 32, and the following. The minimum sprinkler design in

speculative warehouses shall be based upon the maximum allowable storage height in the building as follows:

1. If the maximum allowable storage height can exceed 12 feet (3658 mm) but cannot exceed 22 feet (6706 mm), comply with requirements of Chapter 32 and with the following design requirements:
  - a. A Class IV non-encapsulated commodity, double row rack storage, 8 foot (2439 mm) wide aisles and 286 degree Fahrenheit sprinklers.
  - b. Hydraulically designed in accordance to protect the maximum possible clear height of storage without in-rack sprinklers.
  - c. Add 500 gallons per minute (1892 L) at the base of the riser allowance for inside hose to the hydraulic calculations and provide hose stub-outs for future installation or use existing columns for hose installation locations.
2. If the maximum allowable storage height exceeds 22 feet (6706 mm), comply with the requirements of Chapter 32, and with the following design requirements:
  - a. The system shall be hydraulically designed to protect the maximum possible clear height of storage without in-rack sprinklers and provide .64 gallons per minute (2.42 L) per square foot over the hydraulically most remote 2000 square feet (186 m<sup>2</sup>) or use an *approved* alternate design such as Early Suppression Fast Response (ESFR) sprinklers.

**Exception:** A non-speculative warehouse being built for an owner/operator with less than Class IV commodities may be designed to the expected commodity class.

**HOSE THREADS.** Section 903.3.6 of the International Fire Code 2021 Edition is amended to read as follows:

**903.3.6 Hose threads.** Fire hose threads used in connection with automatic sprinkler systems shall be National Standard Threads.

**FIRE DEPARTMENT CONNECTIONS.** Section 903.7 of the International Fire Code 2021 Edition is amended by adding Section 903.7.1 to read as follows:

**903.3.7.1** The Fire Department Connection (FDC) shall be located on the street addressed side of the building in a location visible to the responding fire apparatus. The FDC shall have a fire hydrant within 150 feet (45720 mm) in a location *approved* by the *fire code official*.

**SPRINKER SYSTEM SUPERVISION AND ALARMS.** Section 903.4 of the International Fire Code 2021 Edition is amended as follows:

**Exception #5 is deleted in its entirety.**

**MONITORING.** Section 903.4.1 of the International Fire Code 2021 Edition is amended to read as follows:

**903.4.1 Monitoring.** Alarm, supervisory and trouble signals shall be distinctly different and shall be automatically transmitted to an *approved* supervising station. An *approved* audible and visual notification device shall be located on the exterior of the building a minimum of 8 feet (2438 mm) above the Fire Department Connection (FDC). Such sprinkler waterflow alarm devices shall be activated by water flow equivalent to the flow of a single sprinkler of the smallest orifice size installed in the system. *Approved* audible and visual notification devices shall be located in accordance with **Section 903.4.2.**

Existing alarm, supervisory and trouble signals systems shall be monitored in accordance with the fire code that was in effect when the fire alarm system was installed.

**Exception:** Backflow prevention device test valves located in limited area sprinkler system supply piping shall be locked in the open position. In occupancies required to be equipped with a fire alarm system, the backflow preventer valves shall be electrically supervised by a tamper switch installed in accordance with NFPA 72 and separately annunciated.

**903.4.2 ALARMS.** Section 903.4.2 of the International Fire Code 2021 Edition is amended to read as follows:

**903.4.2. Alarms.** Where a fire alarm system is installed, actuation of the automatic sprinkler system shall actuate the building fire alarm system and cause occupant notification as set forth in **Section 907.5.** When buildings have multiple tenant spaces occupant notification devices shall be installed in each tenant space in accordance with **Section 907.5.**

Where a fire alarm system is not installed, actuation of the automatic sprinkler system shall actuate:

1. A minimum of one interior audible and visual notification appliance located near the main entrance or at a constantly attended location.
2. In multiple-tenant commercial facilities, a minimum of one interior audible and visual notification appliance shall be located near the main entrance for each tenant space.
3. In R-1 and R-2 occupancies, a minimum of one interior audible and visual notification appliance shall be located in each living unit.

**903.4.2.1 EXISTING BUILDING AUDIBLE AND VISUAL SIGNALS.** Section 903.4.2 of the International Fire Code 2021 Edition is amended by adding Section 903.4.2.1 to read as follows:

**903.4.2.1 Existing building audible and visual signals.** During renovations or tenant finish work in existing buildings with automatic sprinkler systems and a fire alarm system, audible and visual fire alarm notification devices shall be connected to each automatic sprinkler system. Such audible and visual devices shall be activated throughout the renovated or tenant finish areas upon water flow. When buildings have multiple tenant spaces, notification devices shall be installed in each renovated or tenant finish space in accordance with **Section 907.5**.

During renovations or tenant finish work in existing buildings with automatic sprinkler systems and a fire alarm system is not installed, actuation of the automatic sprinkler system shall actuate:

1. A minimum of one interior audible and visual notification appliance located in the renovated or tenant finish areas near the main entrance or at a constantly attended location.
2. In multiple-tenant commercial facilities, a minimum of one interior audible and visual notification appliance shall be located in the renovated or tenant finish areas near the main entrance for each tenant space.

**Exception:** One- and two-family dwelling units and townhouses constructed in accordance with the *International Residential Code*.

**903.4.3 FLOOR CONTROL VALVES.** Section 903.4.3 of the International Fire Code 2021 Edition is amended to read as follows:

**903.4.3 Sprinkler zones.** *Approved*, supervised, indicating control valves shall be provided to allow each floor and/or area water-flow initiating device to be identified by zone and to allow each floor or area to be independently shut-off without having an effect on the operation of the sprinkler system on other floors or in other areas. The following areas shall be zoned separately:

1. Multi-story buildings shall be zoned separately by floor.
2. Multi-story multi-family residential buildings that are separated by a breezeway or fire rated assembly can be zoned separately by building section if *approved* in advance by the *fire code official*. The required section control valves shall be located in the main sprinkler control valve room.
3. Smoke zones shall be zoned separately. The operation of one sprinkler will actuate the alarm system and the appropriate smoke control equipment.
4. Hazardous areas such as spray booths, flammable liquid storage rooms, hazardous materials control areas, etc. shall be zoned separately. The required zone control valves shall be located in an accessible area outside the spray booth, storage room, control area, or in the main sprinkler control valve room.
5. Special systems such as pre-action systems shall be zoned separately.
6. Computer rooms shall be zoned separately. The required zone control valves shall be located in an accessible area outside the computer room, or in the main sprinkler control valve room.

7. Subfloor areas shall be zoned separately. The required zone control valves shall be located in an accessible area outside the subfloor area, or in the main sprinkler control valve room.
8. Elevator hoistways shall be zoned separately. The required zone control valve shall be located in an accessible area outside the elevator hoistway, or in the main sprinkler control valve room.
9. In racks sprinklers shall be zoned separately.
10. Separate zones shall be required where the zoning of the sprinkler system and installation of separate control valves will increase the level of fire protection for the building, and the life safety of the occupants and firefighters as determined by the *fire code official*.

**COLORADO DEPARTMENT OF PUBLIC SAFETY, DIVISION OF FIRE PREVENTION AND CONTROL.**

Section 903 of the International Fire Code 2021 Edition is amended by adding Section 903.7 to read as follows:

**903.7 Colorado Department of Public Safety, Division of Fire Prevention and Control.** The Colorado Department of Public Safety, Division of Fire Prevention and Control manages the Colorado Fire Suppression System Program to ensure that life safety systems, installed in commercial and residential occupancies, are installed and maintained properly, according to nationally recognized standards.

All fire suppression system work in the City of Lafayette shall comply with Colorado Rule 8 CCR 1507-11 - Fire Suppression Program.

Any individual or company that employs individuals who physically work on, design, test, inspect, or install any part of a Fire Suppression System, including underground supply lines from public water lines to system risers and backflow preventers, must be registered in accordance with Section 3.

Any sprinkler fitter that works on Fire Suppression Systems must be registered in accordance with Section 5.

Fire Suppression Systems must not be installed or modified unless plans have been *approved* by a certified Fire Inspector III-Plans Examiner in accordance with this section. Plans, product data sheets, and hydraulic calculations must be submitted to the AHJ prior to the installation, fabrication, modification, or alteration of any Fire Suppression System in the State of Colorado. Required documents must be submitted in accordance with local rules.

Installation of underground fire protection system supply lines.

1. Underground supply lines installed between the public water main or a private water source and the Fire Suppression System riser must be installed in accordance with NFPA 24 or NFPA 13, chapter 10, Underground Piping.
2. Underground supply lines must be installed by State registered Fire Suppression Contractors-Underground.

3. The contractor who installs the underground piping from the point of service is responsible for completing the installation to the aboveground connection flange.
4. The contractor who installs the underground piping from the point of service to the aboveground connection flange shall complete the *Contractor's Material and Test Certificate for Underground Piping* document.
5. Aboveground contractors may not complete the *Contractor's Material and Test Certificate for Underground Piping* document for underground piping or portions thereof which have been installed by others.

**ALARMS AND WARNING SIGNS.** Section 904.3.4 of the International Fire Code 2021 Edition is amended to read as follows:

**904.3.4 Alarms and warning signs.** Alarms are required to indicate the operation of automatic fire-extinguishing systems including wet-chemical, dry-chemical, foam, carbon dioxide and halon systems. Distinctive audible, visible alarms and warning signs shall be provided to warn of agent discharge and or activation. Where exposure to automatic-extinguishing agents poses a hazard to persons and a delay is required to ensure the evacuation of occupants before agent discharge, a separate warning signal shall be provided to alert occupants once agent discharge has begun. Audible signals shall be in accordance with Section 907.5.2.

New wet chemical systems shall be provided with an audible and visual notification appliance to show that the system has operated, that personnel response is needed, and that the system is in need of recharge.

**MODIFICATIONS, UPGRADES AND REPLACEMENTS.** Section 904.5 of the International Fire Code 2021 Edition is amended by adding Section 904.5.3 to read as follows:

**904.5.3 Modifications, upgrades and replacements.** Existing pre-UL300 wet chemical systems protecting commercial cooking operations are required to be modified, upgraded or replaced to meet UL 300 requirements where changes in the cooking medium (i.e. from animal fats to vegetable oils), positioning of cooking equipment, or the replacement of cooking equipment occur in existing commercial cooking operations. The extinguishing systems shall comply with the applicable provisions of the adopted IFC and NFPA Standards.

**HEIGHT.** Section 905.3.1 of the International Fire Code 2021 Edition is amended to read as follows:

**905.3.1 Height.** Class III automatic wet standpipe systems shall be installed throughout buildings where any of the following conditions exist:

1. Four or more stories are above or below grade plane.
2. The floor level of the highest story is located more than 30 feet (9144 mm) above the lowest level of the fire department vehicle access.

3. The floor level of the lowest story is located more than 30 feet (9144 mm) below the highest level of fire department vehicle access.

**Exceptions:**

1. Class I automatic wet standpipes are allowed in buildings equipped throughout with an automatic sprinkler system in accordance with **Section 903.3.1.1** or **903.3.1.2**.
2. Class I automatic wet standpipes are allowed in Group B and E occupancies.
3. Class I standpipes are allowed in parking garages.
4. Class I standpipes are allowed in basements equipped throughout with an automatic sprinkler system.
5. Class I automatic wet standpipes are allowed in buildings where occupant-use hose lines will not be utilized by trained personnel or the fire department.
6. In determining the lowest level of fire department vehicle access, it shall not be required to consider either of the following:
  1. Recessed loading docks for four vehicles or less.
  2. Conditions where topography makes access from the fire department vehicle to the building impractical or impossible

**OUTLET PRESSURE GAUGES.** Section 905 of the International Fire Code 2021 Edition is amended by adding Section 905.13 to read as follows:

**905.13 Outlet gauges.** *Approved* pressure gauges are required to be installed on each hose outlet.

**SIGNAGE.** Section 905 of the International Fire Code 2021 Edition is amended by adding Section 905.14 to read as follows:

**905.14 Signage.** In addition to all signage required by NFPA 14, an *approved* architectural floor plan with room numbers shall be provided adjacent to each standpipe hose valve outlet. The plan shall graphically show the area reachable by 100 feet (30 480 mm) of hose from the specific outlet and the location of adjacent outlets (if any) and the distance away.

**CONNECTIONS TO OTHER SYSTEMS.** Section 907.1 of the International Fire Code 2021 Edition is amended by adding Section 907.1.4 to read as follows:

**907.1.4 Connections to other systems.** A fire alarm system shall not be used for any purpose other than fire warning or as specifically *approved*, e.g. pool alarm, access control release in accordance with **Section 1010.1.9** of the *International Building Code*, elevator recall and shunt



trip in accordance with **Section 907**, emergency alarms in accordance with **Section 908**, CO alarms in accordance with **Section 915**, hazardous materials alarms in accordance with **Chapter 50**, compressed gas alarms in accordance with **Chapter 53** or mass notification systems as *approved by the fire code official*.

**WHERE REQUIRED-NEW BUILDINGS, STRUCTURES AND FACILITIES.** Section 907.2 of the International Fire Code 2021 Edition is amended to read as follows:

**907.2 Where required—new buildings, structures and facilities.** An *approved* fire alarm system installed in accordance with the provisions of this code and NFPA 72 shall be provided in new buildings, structures and facilities in accordance with Sections 907.2.1 through 907.2.25 and provide occupant notification in accordance with Section 907.5, unless other requirements are provided by another section of this code.

Where other sections of this code allow elimination of fire alarm boxes due to sprinklers, a minimum of two fire alarm boxes shall be installed. One manual fire alarm box shall be provided in the fire control room. One manual fire alarm box shall be provided in a normally occupied location, as *approved by the fire code official*, to initiate a fire alarm signal for fire alarm systems.

**EXISTING E OCCUPANCIES.** Section 907.2.3 of the International Fire Code 2021 Edition is amended by adding Section 907.2.3.1 to read as follows:

**907.2.3.1 Existing E occupancies.** Where an existing Group E occupancy building undergoes an addition or alteration, an emergency voice/alarm communication system shall be provided throughout the new and existing Group E occupancy in accordance with Section 907.5.2.2.

**Exceptions:**

1. Where the Group E area increase is less than 20 percent and locations of smoke detectors comply with the existing building coverage.
2. Where the building alteration or addition does not increase the aggregate occupant load of the Group E occupancy to 100 or more.

**FIRE ALARM SYSTEM SERVING MULTIPLE BUILDINGS.** Section 907.2 of the International Fire Code 2021 Edition is amended by adding Section 907.2.24 to read as follows:

**907.2.24 Fire alarm system serving multiple buildings.** A fire alarm system serving multiple buildings shall use class A wiring methods. The outgoing and return conductors shall not be run in the same cable assembly, enclosure, or raceway. Underground fire alarm wiring circuits shall be installed in *approved* conduit rated for use in damp conditions.

**MULTIPLE FIRE ALARM SYSTEMS IN A SINGLE BUILDING.** Section 907.2 of the International Fire Code 2021 Edition is amended by adding Section 907.2.25 to read as follows:

**907.2.25 Multiple fire alarm systems in a single building.** Only one fire alarm system shall be installed per building. Multiple points of silence and reset are prohibited on a single system. In new buildings the fire alarm control panel shall be located in the fire control room. A fire alarm annunciator shall be installed in a location *approved by the fire code official*. In new buildings the fire alarm control unit shall be designed with the capacity to handle the expected fire alarm equipment in all tenant spaces. A minimum of one horn/strobe shall be installed in each vacant tenant space.

**Exceptions:**

1. When permitted by the *fire code official*, portions of a building separated by fire walls without openings and identified with separate legitimate addresses are allowed to be considered separate buildings. When protected by an automatic sprinkler system, each portion of the building so considered shall be protected by a separate independent sprinkler system or a portion of a single sprinkler system dedicated to the separated portion of the building.
2. Multiple points of silence and reset as allowed by Section 907.1.9 Exception.
3. Multiple buildings constructed over a common structure where *approved by the fire code official*.

**EMERGENCY VOICE/ALARM COMMUNICATIONS.** Section 907.5.2.2 Emergency voice/alarm communication is amended by adding the following subsection:

**907.5.2.2.6. Intelligibility.** The intelligibility of a voice/alarm communication system shall be tested in an objective manner in accordance with NFPA 72.

**VISIBLE NOTIFICATION APPLIANCES IN GROUP R-2 OCCUPANCIES.** Section 907.5.2.3 of the International Fire Code 2021 Edition is amended by adding Section 907.5.2.3.4 to read as follows:

**907.5.2.3.4 Audible and visible notification appliances in sprinklered Group R-2 occupancies.** New sprinklered Group R-2 sleeping and dwelling units shall be provided with audible and visible notification activated by the building fire alarm and/or automatic sprinkler system.

**ZONING INDICATOR PANEL** Section 907.6.4.1 of the International Fire Code 2021 Edition is amended to read as follows:

**907.6.4.1 Zoning indicator panel.** A zoning indicator panel and the associated controls shall be provided in an *approved* location. The visual zone indication shall lock in until the systems is reset and shall not be canceled by the operation of an audible alarm-silencing switch. A permanently mounted graphic map must be located adjacent to either the FACP or the remote annunciator. All fire alarm initiating devices shall be shown on the map, name, and address with unit numbers of the building. This map shall be framed and mounted in such a way that it will be sturdy and not be damaged during normal business operations. The graphic map and location shall be *approved* in advance by the *fire code official*.

**MONITORING.** Section 907.6.6 of the International Fire Code 2021 Edition is amended to read as follows:

**907.6.6 Monitoring.** Fire alarm systems required by this chapter or by the *International Building Code* shall be monitored by an *approved* supervising station in accordance with NFPA 72.

Existing fire alarm systems, including waterflow and tamper alarms, shall be monitored in accordance with the fire code that was in effect when the fire alarm system was installed.

**Exception:** Monitoring by a supervising station is not required for:

1. Single- and multiple-station smoke alarms required by Section 907.2.11.
2. Smoke detectors in Group I-3 occupancies.
3. Automatic sprinkler systems in one- and two-family dwellings.

**LOCATION.** Section 912.2 of the International Fire Code 2021 Edition is amended to read as follows:

**912.2. Location.** With respect to hydrants, driveways, buildings and landscaping, fire department connections shall be so located that fire apparatus and hoseconnected to supply the system will not obstruct access to the buildings for other fire apparatus. The fire department connection for automatic sprinkler systems and standpipe systems shall be located a maximum 150 feet (45720 mm) from a fire hydrant.

**LOCKING FIRE DEPARTMENT CONNECTION CAPS.** Section 912.4.1. Locking fire department connection caps is amended in to read as follows:

**912.4.1. Locking fire department connection caps.** Knox Box locking fire department connection caps shall be installed on all new water-based fire protection systems. Locking fire department connection caps shall be installed when fire department connection caps are found missing on existing water-based fire protection systems and the fire department connection is subjected to internal obstructions.

**CHAPTER 10 MEANS OF EGRESS.** Chapter 10 Means of Egress is amended to read as follows:

**Chapter 1001 through 1031.** Chapter 1001 through 1031 are hereby deleted in their entirety and all provisions for means of egress shall comply with the currently adopted International Building Code and its local amendments because the language of these sections are duplicated therein.

**Chapter 1032 Maintenance of the Means of Egress.** Chapter 1032 maintenance of the means of egress is hereby retained in its entirety.

**STRUCTURAL STABILITY AND ANCHORAGE REQUIRED.** Section 3103.9 Structural stability and anchorage required is amended to read as follows:

**3103.9 Structural stability and anchorage required.** Tents or membrane structures and their appurtenances shall be designed and installed to withstand the elements of weather and prevent collapsing. Water barrels are strictly prohibited from use for anchorage of tents and membrane structures. Documentation of structural stability shall be furnished to the *fire code official*. The preferred documentation is an engineer's letter or the *Industrial Fabrics Association International, Tent Rental Division* ballasting tool using the manufactures' recommendation for safe tent installation.

**ACCESS FOR FIREFIGHTING AND EMERGENCY MEDICAL SERVICES.** Section 3311 is amended to read as follows:

**3311.1. Required access.** *Approved fire apparatus access* for firefighting and emergency medical services is required to all construction or demolition sites. Access shall be provided to within 200 feet (60960 mm) of all portions of the exterior walls of the first story of the building as measured by an *approved* route around the exterior of the building. *Fire apparatus access* shall be provided to within 150 feet (45720 mm) of temporary or permanent fire department connections (FDC's).

**3311.2. Temporary access.** When *approved* and permitted per **Section 105.7.29**, temporary fire apparatus access can be installed before construction at sites not consisting of one- and two-family dwellings, or Group R occupancies, or where practical difficulty exists with providing permanent access during construction. A construction permit is required in accordance with **Section 105.7.29** to install or modify temporary fire apparatus access roads. As part of the application, the applicant shall provide a comprehensive written site safety plan establishing a fire prevention program in accordance with **Section 3303.1**.

**3311.3 Width.** Fire apparatus access roads shall be a minimum of 20 feet (6096 mm) in width.

**3311.4 Surface.** At a minimum, the surface of fire apparatus access roads shall be as follows:

1. Minimum 6-inches (152 mm) of native soil compacted to 95 percent of standard proctor density (ASTM D 698), and
2. Minimum 4-inches (102 mm) of aggregate base compacted to 100 percent of standard proctor density (ASTM D 698).
3. The surface of fire apparatus access roads may differ from the above requirements if it is shown that the surface provided is sufficient to support an imposed live load of 70,000

pounds (31751kg) with a load of 28,000 pounds (12700kg). An engineer registered by the State of Colorado shall prepare and seal the soil compaction report. The report shall be provided to the *fire code official*.

**3311.5 Stabilization.** Curbs are not required for fire apparatus access roads for sites under construction.

**3311.6 Turning radius.** Fire apparatus access roads shall have a minimum 45-foot (13716 mm) center line radius 35-foot (10668mm) inside radius, 55-foot (16764 mm) outside radius] on curves (see Appendix D).

**3311.6 Dead-ends.** Dead-end fire apparatus access roads in excess of 200 feet (60960 mm) in length shall terminate in an *approved* turnaround as shown in Appendix D.

**3311.7 Drainage.** Water drainage shall be directed away from the fire apparatus access road.

**3311.8 Key boxes and padlocks.** Key boxes and padlocks shall be provided as required by Chapter 5.

**3311.9 Signs.** Fire apparatus access roads shall be provided with *approved* signs in accordance with fire department policy to identify direct emergency responders into and through the construction sites and prohibit the obstruction of fire apparatus access roads.

**ASBESTOS OPERATIONS.** Chapter 33 is amended to add Section 3319 to read as follows:

#### **SECTION 3319 ASBESTOS OPERATIONS**

**3319.1 General.** Operations involving asbestos or asbestos-containing materials in buildings and other structures regulated by this code shall be in accordance with this Section.

**3319.2 Notification.** The *fire code official* shall be notified 24 hours prior to the commencement and closure of asbestos operations. The permit applicant shall notify the *building official* when asbestos abatement involves the removal of materials which were used as a feature of the building's fire resistance.

**3319.3 Signs.** *Approved* signs shall be posted at the entrance, exit, decontamination areas and waste-disposal areas for asbestos operations. The signs shall state asbestos abatement operations are in progress in the area, asbestos is a suspected carcinogen and proper respiratory protection is required. Signs shall have a reflective surface and lettering shall be a minimum of 2-inches (51 mm) in height.

**GAS DETECTION SYSTEM.** Section 5307.3.2 is amended to read as follows:

**5307.3.2 Gas detection system.** In new and existing facilities where ventilation is not provided in accordance with **Section 5307.3.1**, a gas detection system shall be provided in rooms or indoor areas and in below-grade outdoor locations with insulated carbon dioxide systems. Carbon dioxide sensors shall be provided within 12-inches (305 mm) of the floor in the area

where the gas is expected to accumulate or other *approved* locations. The system shall be designed as follows:

1. Activates an audible and visible supervisory alarm at a normally attended location upon detection of a carbon dioxide concentration of 5,000 ppm (9000 mg/m<sup>3</sup>).
2. Activates an audible and visible alarm within the room or immediate area where the system is installed upon detection of a carbon dioxide concentration of 30,000 ppm (54 000 mg/m<sup>3</sup>).
3. Where a building fire alarm system is installed, gas detection systems shall be monitored by the building fire alarm system.

**GENERAL STORAGE LIMITATIONS.** Section 5604.1 is amended to add Subsection 5604.1.1 to read as follows:

**5604.1.1 General Storage Limitations.** The storage of explosives and blasting agents is prohibited within all zones except PUD (Planned Unit Development) where such storage is specifically listed as an allowed use, except for temporary storage for use in connection with *approved* blasting operations; provided, however, that this prohibition shall not apply to wholesale and retail stocks of small arms, ammunition, explosive bolts, explosive rivets, or cartridges for explosive-actuated power tools in aggregate quantities involving less than 500 pounds of explosive material.

**GENERAL.** Section 5607.1 is amended to read as follows:

**5607.1 General.** Blasting operations shall be conducted only by *approved*, competent operators familiar with the required safety precautions and the hazards involved and in accordance with the provisions of **NFPA 495**. A fire department permit is required a minimum of 30 days in advance.

**APPROVED FIREWORKS DISPLAYS.** Section 5608.3 is deleted in its entirety and replaced with the following:

**5608.3 Approved fireworks displays.** Approved fireworks displays shall include only the *approved* fireworks 1.3G, fireworks 1.4G, fireworks 1.4S and pyrotechnic articles 1.4G, which shall be handled by an *approved*, competent operator. The *approved* fireworks shall be arranged, located, discharged and fired in a manner that will not pose a hazard to property or endanger any person.

All aerial shells shall be fired using electrical ignition or other means of remote ignition that place the shooter and assistants at least 75 ft (23 m) away from the mortars or behind a sturdy barricade at the time of ignition of the lift charge as *approved by the fire code official*.

Cold spark effect or cold sparkler fountains shall be regulated as pyrotechnic devices, shall comply with NFPA 1126, and requires a fire department permit.

**MAXIMUM CAPACITY WITHIN ESTABLISHED LIMITS.** Subsection 6104.2 of the International Fire Code 2021 Edition is amended to read as follows:

**6104.2 Maximum capacity within established limits.** Within the limits established by law restricting the storage of liquefied petroleum gas for the protection of heavily populated or congested areas, the aggregate capacity of any one installation shall not exceed a water capacity of 2,000 gallons (7570 L) within the city limits.

**Exception:** In particular installations, this capacity limit shall be determined by the *fire code official*, after consideration of special features such as topographical conditions, nature of occupancy, and proximity to buildings, capacity of proposed LP-gas containers, degree of fire protection to be provided and capabilities of the local fire department.

*Chapter 80 Referenced Standards*, is hereby amended by addition of the following sections and subsections:

**ADOPTION OF STANDARDS** Section 8001 of the International Fire Code 2021 Edition is added to read as follows:

**Section 8001.1 NFPA Standards.** In every case where this code references a standard published by the National Fire Protection Association (NFPA), the most current edition of the referenced standard is hereby adopted. The most current edition of the referenced NFPA standard shall become effective on January 1<sup>st</sup> following publication and release of the standard.

**Chapter 80** the following NFPA standard reference numbers are deleted and replaced with the following:

- |            |  |
|------------|--|
| 13 – 2022  | <i>Standard for the Installation of Sprinkler Systems.</i>   |
| 13D – 2022 | <i>Standard for the Installation of Sprinkler Systems in One- and Two-family Dwellings and Manufactured Homes.</i> |
| 13R – 2022 | <i>Standard for the Installation of Sprinkler Systems in Low-rise Residential Occupancies.</i>                     |
| 14 – 2019  | <i>Standard for the Installation of Standpipe and Hose Systems.</i>  |
| 17A – 2021 | <i>Standard for Wet Chemical Extinguishing Systems.</i>  |
| 20 - 2022  | <i>Standard for the Installation of Stationary Pumps for Fire Protection.</i>                                      |

24 – 2022:	<i>Standard for the Installation of Private Fire Service Mains and Their Appurtenances.</i>
25 - 2020	<i>Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.</i>
30 - 2021	<i>Flammable and Combustible Liquids Code.</i>
30A - 2021	<i>Code for Motor Fuel Dispensing Facilities and Repair Garages.</i>
30B – 2023	<i>Code for the Manufacture and Storage of Aerosol Products.</i>
33 - 2021	<i>Standard for Spray Application Using Flammable or Combustible Materials.</i>
58 - 2020	<i>Liquefied Petroleum Gas Code.</i>
72 – 2022	<i>National Fire Alarm and Signaling Code.</i>
96 - 2021	<i>Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations.</i>
99 – 2021	<i>Health Care Facilities Code.</i>
101-2021	<i>Life Safety Code</i>
160 - 2021	<i>Standard for the Use of Flame Effects Before an Audience.</i>
291 – 2022	<i>Recommended Practice for Water Flow Testing and Marking of Hydrants.</i>
654 - 2020	<i>Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids.</i>
906 - 1998	<i>Guide for Fire Incident Field Notes.</i>
915 - PRO	<i>Standard for Remote Inspections.</i>
921 - 2021	<i>Guide for Fire and Explosion Investigations.</i>
1123 - 2022	<i>Code for Fireworks Display.</i>
1124 – 2022	<i>Code for the Manufacture, Transportation, and Storage of Fireworks and Pyrotechnic Articles.</i>
1126 - 2021	<i>Standard for the Use of Pyrotechnics Before a Proximate Audience.</i>
1194 – 2021	<i>Standard for Recreational Vehicle Parks and Campgrounds.</i>
1221 – 2019:	<i>Standard for the Installation, Maintenance and Use of Emergency Services Communications Systems.</i>
1225-2022	<i>Standard for Emergency Services Communications.</i>
1300 - 2020	<i>Standard on Community Risk Assessment and Community Risk Reduction Plan Development.</i>
1321 - PRO	<i>Standard for Fire Investigation Units.</i>



- 1452 – 2020 *Guide for Training Fire Service Personnel to Conduct Community Risk Reduction for Residential Occupancies.*
- 1620 – 2020 *Standard for Pre-Incident Planning.*
- 1730 - 2019 *Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations.*
- 2001 – 2022 *Standard on Clean Agent Fire Extinguishing Systems.*

In the event of a conflict between the provisions of these codes or standards and Colorado State Statutes, the most stringent provisions shall apply.

**ONE-AND TWO-FAMILY DWELLINGS, GROUP R-3 AND R-4 BUILDINGS.** Section B105.1 of the International Fire Code 2021 Edition is amended to read as follows:

**B105.1 One- and two-family dwellings, Group R-3 and R-4 buildings.** The minimum fire-flow and flow duration requirements for one-and two-family dwellings, Group R-3 and R-4 buildings and townhouses having a fire flow calculation area that does not exceed 3,600 square feet (344.5 m<sup>2</sup>) shall be 1,000 gallons per minute (3785 L/min) for 1 hour. Fire-flow and flow duration for one- and two-family dwellings, Group R-3 and R-4 buildings and townhouses having a fire-flow calculation area in excess of 3,600 square feet (344.5 m<sup>2</sup>) shall not be less than that specified in Table B 105.1(2).

**Exception:** A reduction in required fire-flow of 25 percent, as *approved*, is allowed when the building is equipped with an *approved* automatic fire sprinkler system.

**BUILDINGS OTHER THAN ONE-AND TWO-FAMILY DWELLINGS, GROUP R-3 AND R-4.** Section B105.2 of the International Fire Code 2021 Edition is amended to read as follows:

**B105.2 Buildings other than one- and two-family dwellings, Group R-3 and R-4 buildings and townhouses.** The minimum fire-flow and flow duration for buildings other than one and two-family dwelling, Group R-3 and R-4 buildings and townhouses shall be as specified in Table B105.1(2).

**Exception:** A reduction in required fire-flow of 50 percent, as *approved*, is allowed when the building is equipped with an *approved* automatic fire sprinkler system installed in accordance with **Section 903.3.1.1**. A reduction in required fire-flow of 25 percent, as *approved*, is allowed when the building is equipped with an *approved* automatic fire sprinkler system installed in accordance with **Section 903 .3 .1.2**. The resulting fire-flow shall not be less than 1,500 gallons per minute (5678 L/min) for the prescribed duration in Table B105.1(2).

**Section B105.3 is deleted in its entirety.**

**Table B105.1(1) is deleted in its entirety.**

**Table B105.2 is deleted in its entirety.**

**Section B106 and Table B106.1 are deleted in their entirety.**

Appendix C of the International Fire Code 2021 Edition is amended to read as follows:

## **SECTION C101 GENERAL**

**C101.1 Scope.** Fire hydrants shall be provided in accordance with this appendix for the protection of buildings, or portions of buildings, as required by Section 507. Design shall comply with the City of Lafayette Standards and Specifications for the Design and Construction of Public Infrastructure, for public installations or NFPA 24 for private installations, as applicable. Where the provisions of this section conflict with the City of Lafayette Standards and Specifications for the Design and Construction of Public Infrastructure at the time of construction, the most restrictive provision shall apply.

## **SECTION C102 NUMBER OF FIRE HYDRANTS**

**C102.1 Minimum number of fire hydrants for a building.** The number of fire hydrants available to a building shall be not less than the minimum specified in Table C102.1.

**C102.2 Minimum number of hydrants for fire flow.** The minimum number of fire hydrants required to meet the fire flow shall be based on a maximum flow of 1,000 gallons per minute per hydrant. All hydrants utilized in providing the fire flow shall be within 750 feet of the structure being protected as measured along the street or approved fire apparatus access road.

## **SECTION C103 FIRE HYDRANT SPACING**

**C103.1 Hydrant spacing.** Fire apparatus access roads and public streets providing required access to buildings in accordance with Section 503 shall be provided with one or more fire hydrants, as determined by Section C102.1. Where more than one fire hydrant is required, the distance between required fire hydrants shall be in accordance with Sections C103.2 and C103.3.

**C103.2 Average spacing.** The average spacing between fire hydrants shall be in accordance with Table C102.1.

**Exception:** The average spacing shall be permitted to be increased by 10 percent where existing fire hydrants provide all or a portion of the required number of fire hydrants.

## **SECTION C104 CONSIDERATION OF EXISTING FIRE HYDRANTS**

**C104.1 Existing fire hydrants.** Existing fire hydrants on public streets are allowed to be considered as available to meet the requirements of Sections C102 and C103. Existing fire hydrants on adjacent properties are allowed to be considered as available to meet the requirements of Sections C102 and C103 provided that a fire apparatus access road extends between properties and that an easement is established to prevent obstruction of such roads.

**C102.2 Hydrants on adjacent properties.** Fire hydrants on adjacent properties shall not be considered unless fire apparatus access roads extend between properties and recorded easements are established.

## SECTION C105 LOCATIONS

**C105.1 Fire hydrant locations.** Fire hydrants shall be provided along required fire apparatus access roads.

**C105.2 Intersections.** The spacing of fire hydrants shall start by placing fire hydrants at intersections.

**C105.3 R-3 Occupancies and single-family dwellings built under the IRC.** In all residential areas (R-3 occupancies and single-family dwellings built under the IRC only), hydrants shall be spaced not to exceed 500 feet, or 600 feet if all homes are protected by approved automatic fire sprinkler systems.

**C105.4 Distance from Hydrant to R-3 Occupancy and single-family dwelling built under the IRC.** The maximum distance from a one- or two-family dwelling to a fire hydrant shall not exceed 300 feet, as measured from an approved point on a street or road frontage to a fire hydrant. An approved point is defined as the property line furthest from the hydrant, at a right angle to the street.

**C105.5 Commercial and Residential Occupancies other than R-3 and single-family dwelling built under the IRC.** In all commercial and industrial areas, including multi-family R-1 and R-2 occupancies, hydrants shall be spaced not to exceed 300 feet, or 400 feet if all buildings are protected by approved automatic sprinkler systems.

**C105.6 Distance to Dead-End Street.** The maximum distance from a hydrant to the end of a dead-end street shall not exceed 200 feet.

**C105.7 Distance to a Fire Department Connection (FDC).** The maximum distance from a fire hydrant to a fire department connection (FDC) supplying fire sprinklers and/or standpipes shall not exceed 150 feet (45720 mm), as measured by an approved route. An approved route is defined as an unobstructed path of travel on which hose can easily be laid as approved by the *fire code official*.

**C105.8 Spacing Along Major Streets.** Where streets are provided with median dividers, or have four or more travel lanes and a traffic count of more than 30,000 vehicles per day, hydrants shall be spaced at a maximum of 1,000 feet along both sides of the street; arranged on an alternating basis at 500-foot intervals.

**C105.9 Hydrants Provided with New Water Mains.** Where new water mains are extended along streets where hydrants are not needed for protection of structures or similar fire problems, fire hydrants shall be provided at spacing not to exceed 1,000 feet to provide water for transportation hazards

**C105.10 Hydrant Clearances.** No fire hydrant shall be located within 6 feet of a driveway, power pole, light standard, or any other obstruction. For wall, fence and planter locations, a perimeter around the hydrant measuring a minimum of 3 feet from its exterior shall be maintained clear of all obstructions at all times.

**C105.11 Hydrant set-back from curbs.** Fire hydrants shall be located 4 feet to 7 feet from the back of curb. Where it is not possible to locate the hydrant a minimum of 4 feet from the back of the curb, the hydrant shall be protected against vehicular impact in accordance with Section 312.

## **SECTION C106 APPROVED FIRE HYDRANTS**

**C106.1 Scope.** Hydrants that are proposed for installation in public water systems shall be in accordance with *approved* fire hydrants as allowed by the City of Lafayette. Hydrants proposed for installation on private water systems shall be in accordance with approved fire hydrants as allowed by the City of Lafayette.

## **SECTION C107 SUPPLY AND UNDERGROUND MAINS**

**C107.1 Supply points.** The water system is required to be looped with a minimum of two separate connections under the following conditions:

1. Dead end water line exceeds 300' (30480 mm). Dead-end lines require a fire hydrant at the end.
2. Water lines serve a building over 52,000 sq. ft. (40,000 sq. ft. when used for any amount of high-piled storage).
3. Water lines serve a building over two stories.
4. Water lines serve more than one commercial building.
5. Water lines serve over 30 single-family residential units.
6. Water lines serve a Group "H" occupancy.
7. Whenever 4 or more fire hydrants and/or sprinkler (per Section 903.3.1.1 and/or 903.3.1.2) lead-ins are installed on a single system.
8. As otherwise required by the City of Lafayette Public Works Department or *fire code official*.

**C107.2 Supply point separation.** Where two water supply points are required, they shall meet the following separation requirements:

1. The connections shall be placed a distance apart equal to not less than one half of the length of the maximum overall diagonal dimension of the property or area to be served, measured in a straight line between the water connections.
2. The connections shall be made to separate water lines.

**C107.3 Sectional Control Valve.** For systems required to have two sources of water supply per C107.1, sectional control valves shall be installed so that no more than 2 fire hydrants and/or fire sprinkler (per Section 903.1.1 and/or 903.3.1.2 only) lead-ins can be out of service due to a service interruption.

**C107.4 Minimum Size of Line.** Supply lines feeding multiple fire hydrants shall have a minimum diameter of 8 inches, with a dead-end maximum length of 150 feet (45720 mm) of 6-inch underground pipe supplying only one hydrant.

**C107.5 Pressure Rating.** Underground piping shall have a minimum working pressure of 150 psi (Class 235). Underground piping connected to a fire pump or a Fire Department Connection (FDC) shall have a minimum working pressure of 200 psi (Class 305).

**C107.6 Restraint.** All underground water lines shall be restrained in accordance with applicable codes and standards.

**C107.7 Listings.** All on-site underground water mains and materials shall be U.L. listed, A.W.W.A. compliant, NFPA 24 compliant for firelines and shall be rated for the appropriate working pressure

## **SECTION C108 CONSTRUCTION OPERATIONS**

**C108.1 Construction Hydrants.** Hydrants shall be provided for construction in accordance with Section 3312.

**C108.2 Placing hydrant out of service.** If during construction it becomes necessary to close any control valve or place a hydrant out of service, approval shall be obtained from the Fire Department prior to placing the hydrant out of service.

**SCOPE.** Appendix D, Section D101.1 of the International Fire Code 2021 Edition is amended to read as follows:

**Appendix D, Section D101.1 Scope.** Fire apparatus access roads shall be in accordance with this appendix, all applicable requirements of the International Fire Code and the City of Lafayette Standards and Specifications for the Design and Construction of Public Infrastructure. Where the provisions of this section conflict with the City of Lafayette Standards and Specifications for the Design and Construction of Public Infrastructure at the time of construction, the most restrictive provision shall apply.

**Section D102 is deleted in its entirety.**

**Sections D103.1 through D103.5 are deleted in their entirety except for Figure D103.1 and Table D103.4**

**BUILDINGS EXCEEDING THREE STORIES OR 30 FEET IN HEIGHT.** Section D104.1 of the International Fire Code 2021 Edition is amended to read as follows:

**D104.1 Buildings exceeding three stories or 30 feet in height.** Buildings or facilities where the vertical distance between the grade plane and the highest roof surface exceeds 30 feet (9144 mm) or three stories in height shall have not fewer than two means of fire apparatus access for each structure. For purposes of this section, the highest roof surface shall be determined by measurement to the eave of a pitched roof, the intersection of the roof to the exterior wall, or the top of parapet walls, whichever is greater.

**WIDTH.** Section D105.2 of the International Fire Code 2021 Edition is amended to read as follows:

**D105.2 Width.** Aerial fire apparatus access roads shall have a minimum unobstructed width of 26 feet (7925 mm), exclusive of shoulders, in the immediate vicinity of the building or portion thereof.

**Exception:**

1. For residential developments three stories or less, where all dwellings are equipped throughout with an *approved* automatic sprinkler system installed in accordance with Section 903.3.1.2 or 903.3.1.3, the minimum unobstructed width can be reduced to 22 feet (6706 mm), exclusive of shoulders, in the immediate vicinity of the building or portion thereof.

**TURNING RADIUS.** Section D105 of the International Fire Code 2021 Edition is amended by adding Section D105.5 to read as follows:

**D105.5 Turning radius.** Aerial fire apparatus access roads shall have a minimum radius on curves in accordance with the turning radius capabilities of the fire department aerial fire apparatus.

**PROJECTS HAVING MORE THAN 100 DWELLING UNITS. Section D106.1 PROJECTS HAVING MORE THAN 100 DWELLING UNITS.** Section D106.1 of the International Fire Code 2021 Edition is amended to read as follows:

**D106.1 Projects having more than 100 dwelling units.** Multiple-family residential projects having more than 100 dwelling units shall be equipped throughout with two separate and *approved* fire apparatus access roads.

**Exception: Deleted in its entirety.**

**PROJECTS HAVING MORE THAN 200 DWELLING UNITS.** Section D106.2 of the International Fire Code 2021 Edition is deleted in its entirety.

## **Article 5 – Amendments to the 2021 International Existing Building Code (IEBC)**

**Chapter 1.** Chapter 1 is hereby deleted. Please refer to the 2021 International Building Code Chapter 1 and 2023 Lafayette Building Code Chapter 1 amendments to the International Building Code for Scope and Administrative requirements.

### **Section 1012 Change of Occupancy Classification**

**1012.2 Fire protection systems.** Fire protection systems shall be provided in accordance with Sections 1012.2.1 and 1012.2.2.

**1012.2.1 Fire sprinkler system.** Where a change of occupancy classification occurs or where there is a change of occupancy within a space where there is a different fire protection system threshold requirement in Chapter 9 of the International Fire Code that requires an automatic fire sprinkler system to be provided based on the new occupancy in accordance with Chapter 9 of the International Fire Code, such system shall be provided throughout the area where the change of occupancy occurs.

**Exception:** An automatic sprinkler system shall not be required for existing buildings constructed in accordance with the International Residential Code where an existing tap from the city main water line serving the building and a water meter pit have been installed and approved without adequate capacity for an automatic sprinkler system.

**1012.2.2 Fire alarm and detection system.** Where a change of occupancy classification occurs or where there is a different fire protection threshold requirement in Chapter 9 of the International Fire Code that requires a fire alarm and detection system to be provided based on the new occupancy in accordance with Chapter 9 of the International Fire Code, such system shall be provided throughout the area where the change of occupancy occurs. Existing alarm notification appliances shall be automatically activated throughout the building. Where the building is not equipped with a fire alarm system, alarm notification appliances shall be provided throughout the area where the change of occupancy occurs in accordance with Section 907 of the International Fire Code as required for new construction.

## **Article 6 – Amendments to the 2021 International Plumbing Code (IPC)**

**Chapter 1.** Chapter 1 is hereby deleted. Please refer to the 2021 International Building Code Chapter 1 and 2023 Lafayette Building Code Chapter 1 amendments to the International Building Code for Scope and Administrative requirements.

### **Section 312 Tests and Inspections**

**312.1 Required Tests.** The permit holder shall make the applicable tests prescribed in Sections 312.2 through 312.10 to determine compliance with the provisions of this code. The permit holder shall give reasonable notice to the building official when the plumbing work is ready for tests. The equipment, material, power, and labor necessary for the inspection and test shall be furnished by the permit holder and he or she shall be responsible for determining that the work will withstand the test pressure prescribed in the following tests. Plumbing system piping shall be tested with either water or air. After the plumbing fixtures have been set and their traps filled with water or air, the entire drainage system

shall be submitted to final tests. The building official shall require the removal of any cleanouts if necessary to ascertain whether the pressure has reached all parts of the system.

**312.1.1 Test Gauges.** Gauges used for testing shall be as follows:

1. Tests requiring a pressure of 10 pounds per square inch (psi) or less shall utilize a testing gauge having increments of 0.10 psi or less.
2. Tests requiring a pressure of greater than 10 pounds per square inch (psi) but less than or equal to 100 psi shall utilize a testing gauge having increments of 1 psi or less.
3. Tests requiring a pressure of greater than 100 psi shall utilize a testing gauge having increments of 2 psi or less.

**312.3 Drainage and vent air test.** An air test shall be made by forcing air into the system until there is a uniform pressure gauge of 5 psi or sufficient to balance a 10-inch column of mercury. This pressure shall be held for a test period of not less than 15 minutes. Any adjustments to the test pressure required because of changes in ambient temperatures or the seating of gaskets shall be made prior to the beginning of the test period.

**312.5 Water supply system test.** Upon completion of a section of or the entire water supply system, the system, or portion completed, shall be tested and proved tight under a working pressure not less than the working pressure of the system; or by an air test of not less than 50 psi. This pressure shall be held for not less than 15 minutes. The water utilized for tests shall be obtained from a potable source of supply. The required tests shall be performed in accordance with this section and Section 110.

**Section 604 Design of Building Water Distribution System**

**604.4 Maximum flow and water consumption.** The maximum water consumption flow rates and quantities for all plumbing fixtures and fixture fittings shall be in accordance with Table 604.4.

**Exceptions:**

1. Blowout design water closets having a water consumption not greater than 3.5 gallons per flushing cycle.
2. Vegetable sprays.
3. Clinical sinks having a water consumption not greater than 4.5 gallons per flushing cycle.
4. Service Sinks.
5. Emergency showers.

**TABLE 604.4**

**MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS**

<b>PLUMBING FIXTURE OR FIXTURE FITTING</b>	<b>MAXIMUM FLOW RATE OR QUANTITY<sup>b</sup></b>
Lavatory, private	2.2 gpm at 60 psi
Lavatory, public (metering)	.25 gallon per metering cycle



Lavatory, public (other than metering)	.5 gpm at 60 psi
Shower head <sup>a</sup>	2.0 gpm at 80 psi
Sink faucet	2.2 gpm at 60 psi
Urinal	1.0 gallon per flushing cycle
Water closet	1.6 gallons per flushing cycle

- a. A hand-held shower spray is a shower head.
- b. Consumption tolerances shall be determined from referenced standards.

**604.9 Water hammer.** The flow velocity of the water distribution system shall be controlled to reduce the possibility of water hammer. A water-hammer arrestor shall be installed where quick-closing valves are utilized. Water hammer arrestors shall be installed in accordance with the manufacturer’s instructions and be provided with ready access. Water hammer arrestors shall conform to ASSE 1010.

**604.12. Irrigation Rain Sensors.** An approved rain sensor device shall be installed at an approved location for all new or replaced irrigation systems.

## Article 7 – Amendments to the 2021 International Fuel Gas Code (IFGC)

**Chapter 1.** Chapter 1 is hereby deleted. Please refer to the 2021 International Building Code Chapter 1 and 2023 Lafayette Building Code Chapter 1 amendments to the International Building Code for Scope and Administrative requirements.

### Section 406 Inspection, Testing, and Purging

**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 20 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.

## Article 8 – Amendments to the 2021 International Mechanical Code (IMC)

**Chapter 1.** Chapter 1 is hereby deleted. Please refer to the 2021 International Building Code Chapter 1 and 2023 Lafayette Building Code Chapter 1 amendments to the International Building Code for Scope and Administrative requirements.

## Article 9 – Amendments to the 2021 International Energy Conservation Code (IECC)

### Commercial Provisions of the IECC

Section C101.1 Title is retained in its entirety with the following amendments:

**C101.1 Title.** This code shall be known as the International Energy Conservation Code of the City of Lafayette, Colorado, and shall be cited as such. It is referred to herein as “this code” or “the IECC.”

**Section C103.2 Information on construction documents**, is amended by adding items 14, 15, and 16 as follows:

14. Details of additional electric infrastructure, including branch circuits, conduit, or pre-wiring, and panel capacity in compliance with the provisions of this code.
15. Location of pathways for routing of raceways or cable from the solar ready zone to the electrical service panel.
16. Location of designated EVSE spaces, EVSE Universal spaces, EV-Ready spaces, and EV-Capable spaces in parking facilities.

Section C105.2.5 Electrical system is amended to read:

**C105.2.5 Electrical system.** Inspection shall verify lighting system controls, components, meters, and additional electric infrastructure, as required by the code, approved plans, and specifications.

**Section C202 GENERAL DEFINITIONS** is amended to add or revise the following definitions in alphabetical order:

**ALL-ELECTRIC BUILDING.** A *building* and building site that contains no *combustion equipment*, or plumbing for *combustion equipment*, and that uses heat pump technology as the primary supply for heating, cooling, and service water heating loads.

**COMBUSTION EQUIPMENT:** Any equipment or appliances used for space heating, cooling, water heating (including pools and spas), cooking, clothes drying or lighting that uses natural gas, propane, other fuel gas, or fuel oil.

**COMMERCIAL FOOD HEAT-PROCESSING EQUIPMENT.** Equipment used in a food establishment for heat-processing food or utensils and that produces grease vapors, steam, fumes, smoke, or odors that are required to be removed through a local exhaust ventilation system.

**EMERGENCY BACKUP 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.

**HORTICULTURAL LIGHTING.** Electric lighting used for horticultural production, cultivation, or maintenance.

**INVOLUNTARY DEMOLITION OR INVOLUNTARY DESTRUCTION.** The destruction or demolition of a structure caused by natural forces such as fire, flood, or tornado but not by human forces or human error.

MIXED-FUEL BUILDING. A *building* and building site that contains *combustion equipment*, or plumbing for *combustion equipment*, for space heating, cooling, water heating (including pools and spas), cooking, or clothes drying.

PHOTOSYNTHETIC PHOTON EFFICACY (PPE). Photosynthetic photon flux emitted by a light source divided by its electrical input power in units of micromoles per second per watt, or micromoles per joule ( $\mu\text{mol}/\text{J}$ ) between 400-700nm as defined by ANSI/ASABE S640.

RENEWABLE ENERGY CERTIFICATE (REC). A tradable instrument that represents the environmental attributes of one megawatt-hour of renewable electricity generation and is transacted separately from the electricity generated by the renewable energy source.

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.

Section C401.1 is added as follows:

**C401.1 New buildings.** All new commercial buildings shall be all-electric buildings.

Exceptions:

1. Emergency backup power systems for heating, water heating, and other critical loads, where required by an applicable law or regulation.
2. Equipment for emergency use where electric alternatives could jeopardize critical operations, occupant safety, or patient care.
3. Manufacturing or industrial facility equipment, other than space heating or service water heating.
4. Research and development laboratory equipment, other than space heating or service water heating.
5. Commercial food heat processing equipment.
6. Portable propane appliances for outdoor cooking, heating, or refrigeration.
7. Rebuilding a structure after involuntary demolition or involuntary destruction.

Section C401.4 Solar requirements is added as follows:

**C401.4. Solar requirements.**

**C401.1. Buildings less than 5,000 square feet.** A building that is less than 5,000 square feet shall comply with Appendix CB.

**C401.2 Buildings 5,000 square feet or larger.** A building that is 5,000 square feet or larger shall install onsite renewable energy. Documentation shall be given to the building official indicating the building owner has an exclusive chain of custody and ownership of the *RECs*. *RECs* shall be retired on behalf of the building. Onsite renewable energy shall be installed in accordance with one of the following options:

1. Photovoltaics with a rated capacity of not less than 2 W/ft<sup>2</sup> (22 W/m<sup>2</sup>) multiplied by the horizontal projection of the gross roof area over conditioned spaces and semi heated spaces. The gross roof area excludes the following:
  - a. Areas that are shaded for more than 70 percent of daylight hours annually
  - b. Area covered by skylights, occupied roof decks, vegetative roof areas, helipads, and mandatory access or setback areas as required by the International Fire Code.
2. Photovoltaics that provide at least 50% of the simulated annual site energy consumption of the proposed building project, calculated in accordance with Normative Appendix C of the International Green Construction Code, 2021 edition.
3. Renewable energy systems, other than rooftop photovoltaic systems, that result in an equal or greater annual energy production than either item 1 or item 2.

Section C402.3 Roof solar reflectance and thermal emittance, first sentence, is amended as follows, with the other parts of the section to remain:

**C402.3 Roof solar reflectance and thermal emittance.** Low-sloped roofs directly above conditioned spaces in shall comply with one or more of the options in Table C402.3.

Section C403.2.4 Space heating equipment is added as follows:

**C403.2.4 Space heating equipment.** Electric resistance space heating equipment shall not be permitted for space heating.

**Exceptions:**

1. **Certain make-up air systems.** Make-up air systems where energy recovery ventilation is prohibited by the International Mechanical Code.
2. **Supplementary heat.** Supplementary heat in accordance with Section C403.4.1.1
3. **Integrated units.** Electric resistance heating elements integrated into heat pump equipment.
4. **Heated plenums.** Electric resistance in heated plenums.
5. **Temporary systems.** Temporary electric resistance heating systems where serving future tenant spaces that are unfinished and unoccupied, provided that the heating equipment is sized and controlled to achieve interior space temperatures no higher than needed to prevent freezing.
6. **Freeze protection.** Heating systems intended for freeze protection.

7. **Outdoor systems.** Equipment used for outdoor heating.
8. **Electric resistance budget.** In addition to any exceptions in this section, up to 5 W of electric resistance space heating per square foot of conditioned floor area in the building, not including supplementary heat.

**Specific conditions.** Portions of buildings that require electric resistance space heating for specific conditions approved by the Building Official for research, health care, process or other specific needs that cannot practicably be served by heat pump systems. This does not constitute a blanket exception for any occupancy type.

Section C404.10 Water heating equipment is added as follows:

**C404.10 Water heating equipment.** Electric resistance instantaneous and storage water heaters shall not be used to provide hot water.

**Exceptions:**

1. **Integrated units.** Resistance heating elements integrated into heat pump water heating equipment.
2. **Recirculation loops.** Electric resistance elements used for recirculation loop temperature maintenance.
3. **Small systems.** Electric storage water heaters with a rated water storage volume no greater than 20 gallons.
4. **Point-of-use systems.** Instantaneous electric water heaters located within 10 feet of the point of use.
5. **Renewable electricity.** 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.
6. **Renewable or waste thermal energy.** 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 or other renewable thermal system.
7. **High-temperature requirements.** Water heating systems that serve end-uses or have a storage requirement that necessitates a water temperature of 141°F (55°C) or hotter.
8. **Commercial kitchens.** Electric booster-heaters serving commercial dishwashers, commercial food service equipment, and other approved process equipment that require supply water temperatures of 120°F (49°C) or higher.
9. **Specific conditions.** Portions of buildings that require electric resistance for specific service water heating conditions approved by the Building Official for research, health care, process or other specific needs that cannot practicably be served by heat pump systems. This does not constitute a blanket exception for any occupancy type.

Section C405.4 Lighting for plant growth and maintenance is re-titled “Horticultural Lighting” and amended to read as follows:

**C405.4 Horticultural Lighting.** Permanently installed luminaires shall have a *photosynthetic photon efficacy* of not less than 1.7  $\mu\text{mol}/\text{J}$  for *horticultural lighting* in *greenhouses* and not less than 1.9  $\mu\text{mol}/\text{J}$  for all other horticultural lighting. Luminaires for horticultural lighting in greenhouses shall be controlled by a device that automatically turns off the luminaire when sufficient daylight is available. Luminaires for horticultural lighting shall be controlled by a device that automatically turns off the luminaire at specific programmed times.

Section C405.5.3 Gas lighting is amended to read as follows:

**Section C405.5.3. Gas lighting.** Gas fired lighting appliances are not permitted.

**Table C405.12.2 ENERGY USE CATEGORIES** is amended to add a new line at the end:

<i>Electric vehicle charging</i>	<i>Electric vehicle charging loads.</i>
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A new Section C405.13 is added to read as follows:

**C405.13 Additional electric infrastructure.** All *combustion equipment* serving commercial food heat processing equipment, space heating, service water heating, or clothes drying shall be provided with a junction box that is connected to an electrical panel by continuous raceways that meet 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 *combustion equipment*.
2. The panel shall have reserved physical space for a three-pole circuit breaker.
3. The junction box and electrical panel directory entry for the dedicated circuit breaker space shall have labels stating, "For future electric equipment."
4. The junction box shall allow for the electric equipment to be installed within the same place of the *combustion equipment* that it replaces.

Section C406.1 Additional energy efficiency credit requirements, first sentence, is amended to read as follows with the other parts of the paragraph and section to remain:

**C406.1 Additional energy efficiency credit requirements.** New *all-electric buildings* shall achieve a total of 10 credits and new *mixed-fuel buildings* shall achieve a total of 20 credits from Tables C406.1(1) through C406.1(5) where the table is selected based on the use group of the building and from credit calculations as specified in relevant subsections of C406.

TABLE C406.1(2) ADDITIONAL ENERGY EFFICIENCY CREDITS FOR GROUP R AND I OCCUPANCIES is retained in its entirety, except Sections C406.7.3 and C406.7.4 in Climate Zone 5B only are amended to read as follows:

**TABLE C406.1(2)**

**ADDITIONAL ENERGY EFFICIENCY CREDITS FOR GROUP R AND I OCCUPANCIES**

SECTION	CLIMATE ZONE 5B
C406.7.3: Efficient fossil fuel water heater <sup>b</sup>	3
C406.7.4: Heat pump water heater <sup>b</sup>	9

TABLE C406.1(3) ADDITIONAL ENERGY EFFICIENCY CREDITS FOR GROUP E OCCUPANCIES is retained in its entirety, except Sections C406.7.3 and C406.7.4 in Climate Zone 5B only are amended to read as follows:

**TABLE C406.1(3)**

**ADDITIONAL ENERGY EFFICIENCY CREDITS FOR GROUP E OCCUPANCIES**

SECTION	CLIMATE ZONE 5B
C406.7.3: Efficient fossil fuel water heater <sup>a</sup>	N/A
C406.7.4: Heat pump water heater <sup>a</sup>	3

a. For schools with showers or full-service kitchens.

TABLE C406.1(5) ADDITIONAL ENERGY EFFICIENCY CREDITS FOR OTHER OCCUPANCIES is retained in its entirety, except Sections C406.7.3 and C406.7.4 in Climate Zone 5B only are amended to read as follows:

**TABLE C406.1(5)**

**ADDITIONAL ENERGY EFFICIENCY CREDITS FOR OTHER<sup>a</sup> OCCUPANCIES**

SECTION	CLIMATE ZONE 5B
C406.7.3: Efficient fossil fuel water heater <sup>b</sup>	3
C406.7.4: Heat pump water heater <sup>b</sup>	9

a. Other occupancies include all groups except Groups B, E, I, M, and R.

b. For occupancy groups listed in Section 406.7.1

**TABLE C407.2 REQUIREMENTS FOR TOTAL BUILDING PERFORMANCE** is retained in its entirety and amended to add the following items:

**TABLE C407.2  
REQUIREMENTS FOR TOTAL BUILDING PERFORMANCE**

SECTION	TITLE
<b>Envelope</b>	
C401.3	Thermal envelope certificate
C402.2.4	Slabs-on-grade
C402.2.6	Insulation of radiant heating system
C402.3	Roof solar reflectance and thermal emittance

**Appendix CB Solar- Ready Zone – Commercial** is hereby adopted in its entirety with the following amendments:

**Section CB 101 Scope**

**CB101.1 General.** These provisions shall be applicable for new construction, and major alterations as defined herein, where solar-ready provisions are required.



## **CB 102 General Definitions**

**MAJOR ALTERATION.** Any building where the work area exceeds 50 percent of the aggregate area of the building.

## **CB103 Solar-Ready Zone**

**CB103.1 General.** A solar-ready zone shall be located on the roof of all new buildings that are subject to the commercial provisions of the IECC and that 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.

This section hereby creates and adopts a new **Appendix CD EV Readiness - Commercial:**

## **APPENDIX CD**

### **EV READINESS - COMMERCIAL**

#### **CD101 Scope**

**CD101.1 Purpose and Intent.** The purpose and intent of this Appendix CD is to accommodate the growing need for EV charging infrastructure. Including these measures during initial commercial construction substantially reduces the costs and difficulty of installing EV infrastructure at a later date.

**CD101.2. Applicability.** This Appendix CD shall apply to all new commercial construction to which the current International Building Code applies and to major alterations, which the current International Existing Building Code applies.

#### **Section CD102 Definitions.**

**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.

**DIRECT CURRENT FAST CHARGING (DCFC) EVSE:** EV power transfer infrastructure 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*.

**EV LOAD MANAGEMENT SYSTEM:** A system designed to allocate charging capacity among multiple *EVSE* and that complies with the current National Electric Code.

**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 an electric source.

**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 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, cables, electrical capacity, and panelboard or other electrical distribution equipment space, necessary for the future installation of an *EVSE*.

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*.

MAJOR ALTERATION. Any building where the work area exceeds 50 percent of the aggregate area of the building.

UNIVERSAL VEHICLE CHARGING STATION. A charging station installed in a parking space for a minimum vehicle width of 120 inches (3048 mm) with 36-inch access aisles (915 mm) on each side.

### **CD103 Electrical Vehicle Readiness**

**CD103.1 Electric vehicle power transfer infrastructure.** New parking facilities shall be provided with *electric vehicle* power transfer infrastructure in compliance with Sections CD104.1 through CD104.6, CD105, and CD106.

**CD103.2 Quantity.** The number of required *EVSE* spaces, *EV ready* spaces, and *EV capable* spaces shall be determined in accordance with this Section and Table CD104.1 based on the total number of *automobile parking spaces* and shall be rounded up to the nearest whole number. For R-2 buildings, the Table requirements shall be based on the total number of dwelling units or the total number of *automobile parking spaces*, whichever is less.

1. Where more than one parking facility is provided on a building site, the number of required *automobile parking spaces* required to have EV power transfer infrastructure shall be calculated separately for each parking facility.
2. Where one shared parking facility serves multiple building occupancies, the required number of spaces shall be determined proportionally based on the floor area of each building occupancy.
3. Installed *EVSE* spaces that exceed the minimum requirements of this section may be used to meet minimum requirements for *EV ready* spaces and *EV capable* 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. Where the number of *EV ready* spaces allocated for R-2 occupancies is equal to the number of dwelling units or to the number of *automobile parking spaces*, whichever is less, requirements for *EVSE* spaces for R-2 occupancies shall not apply.

6. In commercial multi-family (R-2, R-3, and R-4) complexes, four stories or greater, that contain multiple buildings, required EV spaces shall be dispersed throughout parking areas so that each building has access to a similar number of spaces per dwelling unit.
7. Requirements for a Group S-2 parking garage shall be determined by the occupancies served by that parking garage. Where new *automobile parking spaces* do not serve specific occupancies, the values for Group S-2 parking garage in Table CD104.1 shall be used.
8. Direct Current Fast Charging. The number of *EVSE* spaces for 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* space. A maximum of fifty spaces may be reduced from the total number of *EVSE* spaces.

**Exception:** Parking facilities, serving occupancies other than R-2 with fewer than 10 *automobile parking spaces*.

**TABLE CD103.1**  
**REQUIRED EV POWER TRANSFER INFRASTRUCTURE**

BUILDING TYPE	MINIMUM EV INSTALLED SPACES	MINIMUM EV READY SPACES	MINIMUM EV CAPABLE SPACES
Group A, B, E, M	15% <sup>b</sup>	5%	30%
Group F, I, R-3, R-4	2% <sup>b</sup>	0%	5%
Group R-1 and R-2 <sup>a</sup>	25% <sup>b</sup>	5%	60%
Group S-2 Parking Garages	10% <sup>b</sup>	5%	0%

- a. Where all (100%) parking serving R-2 occupancies are EV ready spaces, requirements for EVSE spaces for R-2 occupancies shall not apply.
- b. For each EV installed space above the required percentage, 4 EV ready spaces can be eliminated.

**CD103.2 EV capable spaces.** Each *EV capable* space used to meet the requirements of Section CD103.1 shall comply with all of the following:

1. A continuous raceway or cable assembly shall be installed between an enclosure or outlet located within 3 feet (914 mm) of the *EV capable* space and a suitable panelboard or other onsite electrical distribution equipment.
2. Installed raceway or cable assembly shall be sized and rated to supply a minimum circuit capacity in accordance with CD103.5
3. The electrical distribution equipment to which the raceway or cable assembly connects shall have sufficient dedicated space and spare electrical capacity for a 2-pole circuit breaker or set of fuses.
4. The electrical enclosure or outlet and the electrical distribution equipment directory shall be marked: "For future electric vehicle supply equipment (EVSE)."
5. Reserved capacity shall be no less than 4.1 kVA (20A 208/240V) for each *EV capable* space.

**CD103.3 EV ready spaces.** Each branch circuit serving *EV ready* spaces used to meet the requirements of Section CD103.1 shall comply with all of 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 CD104.5.
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)."

**CD103.4 EVSE spaces.** An installed *EVSE* with multiple output connections shall be permitted to serve multiple *EVSE* spaces. Each *EVSE* installed to meet the requirements of Section CD103.1, serving either a single *EVSE* space or multiple *EVSE* spaces, shall comply with all of the following:

1. Have a minimum circuit capacity in accordance with CD103.5.
2. Have a minimum charging rate in accordance with CD103.4.1.
3. Be located within 3 feet (914 mm) of each *EVSE* space it serves.
4. Be installed in accordance with Section CD103.6 and CD103.7.

**CD103.4.1 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 (or 30A at 208/240V).
2. When serving multiple *EVSE* spaces 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 3.3 kVA.

- When serving *EVSE* spaces allowed to have a minimum circuit capacity of 2.7 kVA in accordance with CD103.5.1 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.

**CD103.5 Disbursement.** Required *EVSE*, *EV Ready*, and *EV Capable* spaces shall be disbursed throughout parking areas in commercial developments that contain multiple buildings so that each building has access to roughly the same number of spaces.

**CD103.6 Circuit capacity.** The capacity of electrical infrastructure serving each *EV capable* space, *EV ready* space, and *EVSE* space shall comply with one of the following:

- A branch circuit shall have a rated capacity not less than 8.3 kVA (or 40A at 208/240V) for each *EV ready* space or *EVSE* space it serves.
- The requirements of CD103.5.1.

**CD103.6.1 Circuit capacity management.** The capacity of each branch circuit serving multiple *EVSE* spaces, *EV ready* spaces or *EV capable* 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:

- Have a minimum capacity of 4.1 kVA per space.
- Have a minimum capacity of 2.7 kVA per space when serving *EV ready* spaces or *EVSE* spaces for a building site where all (100%) of the automobile parking spaces are designed to be *EV ready* or *EVSE* spaces.

**CD103.7 EVSE installation.** *EVSE* shall be installed in accordance with NFPA 70 and shall be listed and labeled in accordance with UL 2202 or UL 2594.

**CD103.8. EVSE ENERGY STAR.** All *EVSE* shall be ENERGY STAR certified.

**CD104 Universal Vehicle Charging Stations.**

**CD104.1 Universal vehicle charging stations.** Where *electric vehicle* charging stations are provided for public use, or where *electric vehicle* charging stations are shared by multiple multi-family dwelling units, the number of universal vehicle charging stations shall be provided in accordance with Table CD104.1. When multiple stalls are required, access aisles may be shared.

**TABLE CD104.1**

**UNIVERSAL EV SPACE REQUIREMENTS**

<b>TOTAL # OF EV CHARGING STATIONS</b>	<b>MINIMUM # OF UNIVERSAL VEHICLE CHARGING STATIONS</b>
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1 or more	25%
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**CD105. Identification.**

**CD105.1 Identification.** Construction documents shall designate all *EV capable spaces*, *EV ready spaces* and *EVSE spaces* and indicate the locations of conduit and termination points serving them. The circuit breakers or circuit breaker spaces reserved for the *EV capable spaces*, *EV ready spaces*, and *EVSE spaces* shall be clearly identified in the panel board directory. The conduit for *EV capable spaces* shall be clearly identified at both the panel board and the termination point at the parking space.

**Residential Provisions of the IECC**

**Section R101 Scope and General Requirements**

**R101.1 Title.** This code shall be known as the International Energy Conservation Code of the City of Lafayette, Colorado, 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,** is amended by adding items 10, 11, and 12 as follows:

- 10. Details of additional electric infrastructure, including branch circuits, conduit, or pre-wiring, and panel capacity in compliance with the provisions of this code.
- 11. Location of pathways for routing of raceways or cable from the solar ready zone to the electrical service panel.
- 12. Location of designated EVSE spaces, EVSE Universal spaces, EV-Ready spaces, and EV-Capable spaces in parking facilities, as applicable.

**Section R202 GENERAL DEFINITIONS** is amended to add the following definitions in alphabetical order:

**ALL-ELECTRIC BUILDING.** A *building* and building site that contains no *combustion equipment*, or plumbing for *combustion equipment*, and that uses heat pump technology as the primary supply for heating, cooling, and service water heating loads.

**COMBUSTION EQUIPMENT:** Any equipment or appliances used for space heating, cooling, water heating (including pools and spas), cooking, clothes drying or lighting that uses natural gas, propane, other fuel gas, or fuel oil.

**INVOLUNTARY DEMOLITION OR INVOLUNTARY DESTRUCTION.** The destruction or demolition of a structure caused by natural forces such as fire, flood, or tornado but not by human forces or human error.

MIXED-FUEL BUILDING. A *building* and building site that contains *combustion equipment*, or plumbing for *combustion equipment*, for space heating, cooling, water heating (including pools and spas), cooking, or clothes drying.

Section R40.1.1 is added to read as follows:

**R401.1.1.** All new residential buildings shall be all-electric buildings.

Exceptions:

1. Buildings constructed on a lot pursuant to a recorded plat, prior to August 1, 2023.
2. Rebuilding a structure after involuntary demolition or involuntary destruction.
3. Portable propane appliances for outdoor cooking, heating, or refrigeration.

Section R401.2.5 is amended to read as follows:

**R401.2.5 Additional energy efficiency.** This section establishes additional requirements applicable to all compliance approaches to achieve additional energy efficiency.

For buildings complying with Section R401.2.1, the building shall meet one of the following:

1.1. For *all-electric buildings*, one of the additional efficiency package options shall be installed according to Section R408.2.

2.2. For *mixed-fuel buildings*, three of the additional efficiency packages shall be installed according to R408.2, at least one of which addresses the envelope.

1. For buildings complying with Section R401.2.2, the building shall meet one of the following:

2.1. For *all-electric buildings*, one of the additional efficiency package options in Section R408.2 shall be installed without including such measures in the proposed design under Section R405.

2.2. For *mixed-fuel buildings*, three of the additional efficiency package options in Section R408.2 shall be installed, at least one of which addresses the envelope, without including such measures in the proposed design under Section R405.

2.3. For *all-electric buildings*, the proposed design of the building under Section R405.3 shall have an annual energy cost that is less than or equal to 95 percent of the annual energy cost of the standard reference design.

2.4. For *mixed-fuel buildings*, the proposed design of the building under Section R405.3 shall have an annual energy cost that is less than or equal to 80 percent of the annual energy cost of the standard reference design.

2. For buildings complying with the Energy Rating Index Alternative Section R401.2.3, the Energy Rating Index value shall be at least 5 percent less than the Energy Rating Index target specified in Table R406.5.

The options selected for compliance shall be identified in the certificate required by Section R401.3.

Section R404.1.1 Fuel gas lighting is amended to read as follows:

**Section R404.1.1. Fuel gas lighting.** Fuel gas lighting systems are prohibited.

A new Section R404.4 Additional electric infrastructure is added as follows:

**R404.4 Additional electric infrastructure.** All *combustion equipment* shall be installed in accordance with Section R403.5.4 and shall be provided with a junction box that is connected to an electrical panel by continuous raceways that meet 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 *combustion equipment*.
2. The panel shall have reserved physical space for a dual-pole circuit breaker.
3. The junction box and electrical panel directory entry for the dedicated circuit breaker space shall have labels stating "For future electric equipment."
4. The junction box shall allow for the electric equipment to be installed within the same place of the *combustion equipment* that it replaces.

Table R405.2 Requirements for Total Building Performance adds a new row under Mechanical and a new row under Electrical Power and Lighting Systems as follows:

**TABLE R405.2 REQUIREMENTS FOR TOTAL BUILDING PERFORMANCE**

SECTION	TITLE
Mechanical	
R403.5.4	Water heating equipment location
Electrical Power and Lighting Systems	
R404.4	Additional electric infrastructure

Section R406.2 ERI compliance, first paragraph, is amended to read as follows with the other parts of the section to remain:



**R406.2 ERI compliance.** Compliance based on the ERI, utilizing the HERS Index Score, requires that the rated design meets all of the following:

1. The requirements of the sections indicated within Table R406.2.
2. The maximum ERI of Table R406.5.

Table R406.2 Requirements for Energy Rating Index adds a new row under Mechanical and a new row under Electrical Power and Lighting Systems as follows:

**TABLE R406.2 REQUIREMENTS FOR ENERGY RATING INDEX**

SECTION	TITLE
Mechanical	
R403.5.4	Water heating equipment
Electrical Power and Lighting Systems	
R404.4	Additional electric infrastructure

Section R406.5 ERI-based compliance is amended as follows:

**R406.5 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 less than or equal to the appropriate value for the proposed all-electric or mixed-fuel building as indicated in Table R406.5 when compared to the ERI reference design.

**TABLE R406.5 MAXIMUM ENERGY RATING INDEX**

CLIMATE ZONE	ALL-ELECTRIC BUILDING	MIXED FUEL BUILDING
5	55	50

Section R408.2.2 More efficient HVAC equipment is amended as follows:

**R408.2.2 More efficient HVAC equipment.** Heating and cooling equipment shall meet one of the following efficiencies:

1. Greater than or equal to 10 HSPF/16 SEER air source heat pump.
2. Greater than or equal to 3.5 COP ground source heat pump.

Section R408.2.3 Reduced energy use in service water-heating option is amended as follows:

**R408.2.3 Reduced energy use in service water-heating option.** The hot water system shall meet one of the following efficiencies:

1. Greater than or equal to 2.0 EF electric service water-heating system.
2. Greater than or equal to 0.4 solar fraction solar water-heating system.

Appendix RB is hereby adopted and amended to read: “**Appendix RB Solar Ready Provisions.**”

#### **Section RB101 Scope**

**RB101.1 General.** These provisions shall be applicable for new construction and major alterations where solar-ready provisions are required.

#### **RB103 Solar-Ready Zone**

**RB103.1 General.** New residential buildings with not less than 600 square feet (55.74 m<sup>2</sup>) of roof area oriented between 110 degrees and 270 degrees of true north shall comply with Sections RB103.2 through RB103.8.

#### **Exceptions:**

1. 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 RB103 are in full or partial shade for more than 70 percent of daylight hours annually.

This section hereby creates and adopts a new **Appendix RD EV Readiness – Residential:**

#### **APPENDIX RD**

#### **EV READINESS - RESIDENTIAL**

#### **RD101 Scope**

**RD101. Purpose and intent.** The purpose and intent of this Appendix RD is to accommodate the growing need for EV charging infrastructure, in particular meeting preferences for charging at home. Including these measures during initial construction substantially reduces the costs and difficulty of installing future EV infrastructure.

**RD101.2 Applicability.** This Appendix RD shall apply to all new residential construction and to major alterations to which the International Residential Code applies.

**RD102. Definitions.**

**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.

**DIRECT CURRENT FAST CHARGING (DCFC) EVSE:** EV power transfer infrastructure 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*.

**EV LOAD MANAGEMENT SYSTEM:** A system designed to allocate charging capacity among multiple *EVSE* and that complies with the current National Electric Code.

**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 an electric source.

**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 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, cables, electrical capacity, and panelboard or other electrical distribution equipment space, necessary for the future installation of an *EVSE*.

**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*.

**MAJOR ALTERATION.** Any building where the work area exceeds 50 percent of the aggregate area of the building.

**UNIVERSAL VEHICLE CHARGING STATION.** A charging station installed in a parking space for a minimum vehicle width of 120 inches (3048 mm) with 36-inch access aisles (915 mm) on each side.

**RD103 One- and two- Family Dwellings and Townhouses**

**RD103.1 General.** One *EV ready* space shall be provided for each dwelling unit. The branch circuit shall be identified as *EV ready* in the service panel or subpanel directory, and the termination location shall be marked as *EV ready*.

**Exception:** Dwelling units where no parking spaces are either required or provided.

**RD103.1.1 Receptacle.** The EV ready space shall be provided with a receptacle, over current protection, and GFCI protection as required by NFPA 70.

**RD103.1.2 Voltage and ampacity.** The EV ready space shall be supplied with 240 volts and 40 amps.

**RD104 Residential Multi-Family Dwellings**

**RD104.1 General.** New dwelling units for residential multi-family buildings, other than duplexes and townhomes, shall be provided with *electric vehicle* power transfer infrastructure in compliance with Sections RD104.1 through RD104.6 and Sections RD105 through RD106.

**RD104.2 Quantity.** The number of required *EVSE* spaces, *EV ready* spaces, and *EV capable* spaces shall be determined in accordance with this Section and Table RD105.1 based on the total number of *automobile parking spaces* and shall be rounded up to the nearest whole number. For R-2 buildings, the Table requirements shall be based on the total number of dwelling units or the total number of *automobile parking spaces*, whichever is less.

1. Where more than one parking facility is provided on a building site, the number of required *automobile parking spaces* required to have EV power transfer infrastructure shall be calculated separately for each parking facility.
2. Installed *EVSE* spaces that exceed the minimum requirements of this section may be used to meet minimum requirements for *EV ready* spaces and *EV capable* spaces.
3. Installed *EV ready* spaces that exceed the minimum requirements of this section may be used to meet minimum requirements for *EV capable* spaces.
4. Where the number of *EV ready* spaces allocated for R-2 occupancies is equal to the number of dwelling units or to the number of *automobile parking spaces* allocated to R-2 occupancies, whichever is less, requirements for *EVSE* spaces for R-2 occupancies shall not apply.
5. In residential multi-family complexes that contain multiple buildings, required EV spaces shall be dispersed throughout parking areas so that each building has access to a similar number of spaces per dwelling unit.

**TABLE RD104.2**

**REQUIRED EV POWER TRANSFER INFRASTRUCTURE FOR MULTI-FAMILY**

<b>BUILDING TYPE</b>	<b>MINIMUM EV INSTALLED SPACES</b>	<b>MINIMUM EV READY SPACES</b>	<b>MINIMUM EV CAPABLE SPACES</b>
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<b>Group R-1 and R-2<sup>a</sup></b>	<b>15%</b>	<b>5%</b>	<b>40%</b>
<b>Group R-3 and R-4</b>	<b>2%</b>	<b>0%</b>	<b>5%</b>

a. Where all (100%) parking serving R-2 occupancies are EV ready spaces, requirements for *EVSE* spaces for R-2 occupancies shall not apply.

**RD104.3 EV capable spaces.** Each *EV capable* space used to meet the requirements of Section RD105.1 shall comply with all of the following:

1. A continuous raceway or cable assembly shall be installed between an enclosure or outlet located within 3 feet (914 mm) of the *EV capable* space and a suitable panelboard or other onsite electrical distribution equipment.
2. Installed raceway or cable assembly shall be sized and rated to supply a minimum circuit capacity in accordance with RD104.5
3. The electrical distribution equipment to which the raceway or cable assembly connects shall have sufficient dedicated space and spare electrical capacity for a 2-pole circuit breaker or set of fuses.
4. The electrical enclosure or outlet and the electrical distribution equipment directory shall be marked: "For future electric vehicle supply equipment (EVSE)."
5. Reserved capacity shall be no less than 4.1 kVA (20A 208/240V) for each *EV capable* space.

**RD104.4 EV ready spaces.** Each branch circuit serving *EV ready* spaces used to meet the requirements of Section RD105.1 shall comply with all of 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 RD104.5.
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)."

**RD104.5 EVSE spaces.** An installed *EVSE* with multiple output connections shall be permitted to serve multiple *EVSE* spaces. Each *EVSE* installed to meet the requirements of Section RD104.1, serving either a single *EVSE* space or multiple *EVSE* spaces, shall comply with all of the following:

1. Have a minimum circuit capacity in accordance with RD104.5.
2. Have a minimum charging rate in accordance with RD104.4.1.
3. Be located within 3 feet (914 mm) of each *EVSE* space it serves.

4. Be installed in accordance with Section RD104.6 and RD104.7

**RD104.5.1 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 (or 30A at 208/240V).
2. When serving multiple *EVSE* spaces 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 3.3 kVA.
3. When serving *EVSE* spaces allowed to have a minimum circuit capacity of 2.7 kVA in accordance with RD104.5.1 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.

**RD 104.6 Disbursement.** Required *EVSE*, *EV ready*, and *EV capable* spaces shall be disbursed throughout the parking areas in Residential Multi-family developments that contain multiple buildings so that each building has access to roughly the same number of spaces.

**RD104.7 Circuit capacity.** The capacity of electrical infrastructure serving each *EV capable* space, *EV ready* space, and *EVSE* space shall comply with one of the following:

1. A branch circuit shall have a rated capacity not less than 8.3 kVA (or 40A at 208/240V) for each *EV ready* space or *EVSE* space it serves.
2. The requirements of RD104.5.1.

**RD104.7.1 Circuit capacity management.** The capacity of each branch circuit serving multiple *EVSE* spaces, *EV ready* spaces or *EV capable* 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:

1. Have a minimum capacity of 4.1 kVA per space.
2. 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.

**RD104.8 EVSE installation.** *EVSE* shall be installed in accordance with NFPA 70 and shall be listed and labeled in accordance with UL 2202 or UL 2594.

**RD104.9. EVSE ENERGY STAR.** All *EVSE* shall be ENERGY STAR certified.

**RD105 Universal vehicle charging stations**

**RD105.1 General.** Where *electric vehicle* charging stations are provided for public use, or where *electric vehicle* charging stations are shared by multiple multi-family dwelling units, the number of universal vehicle charging stations shall be provided in accordance with Table RD105.1. When multiple stalls are required, access aisles may be shared.

**TABLE RD105.1**

**UNIVERSAL EV SPACE REQUIREMENTS**

<b>TOTAL # OF EV CHARGING STATIONS</b>	<b>MINIMUM # OF UNIVERSAL VEHICLE CHARGING STATIONS</b>
<b>1 or more</b>	<b>25%</b>

**RD106. Identification**

**RD 106.1 General.** Construction documents shall designate all EV Capable spaces, EV Ready spaces and EV Installed spaces and indicate the locations of conduit and termination points serving them. The circuit breakers or circuit breaker spaces reserved for the EV Capable spaces, EV Ready spaces, and EV Installed spaces shall be clearly identified in the panel board directory. The conduit for EV Capable spaces shall be clearly identified at both the panel board and the termination point at the parking space.

**Article 10 – Amendments to the 2021 International Swimming Pool and Spa Code**

**Chapter 1.** Chapter 1 is hereby deleted. Please refer to the 2021 International Building Code Chapter 1 and 2023 Lafayette Building Code Chapter 1 amendments to the International Building Code for Scope and Administrative requirements.

**Article 11 – Amendments to the 2021 International Property Maintenance Code**

**Chapter 1.** Chapter 1 is hereby deleted. Please refer to the 2021 International Building Code Chapter 1 and 2023 Lafayette Building Code Chapter 1 amendments to the International Building Code for Scope and Administrative requirements.