

CHAPTER 1

FIRE PREVENTION STANDARDS

SECTION:

7-1-1: ASSUMING JURISDICTION OF FIRE PREVENTION STANDARDS

7-1-1: ASSUMING JURISDICTION OF FIRE PREVENTION STANDARDS:

Pursuant to the provisions of A.R.S. Section 41-2163(A)(2), the City of Mesa, having in effect a nationally recognized fire code, does hereby assume jurisdiction from the State Fire Safety Committee for prescribing and enforcing fire prevention standards throughout the City. Such standards shall not supersede or exempt State or County owned and operated buildings and public schools from the State Fire Safety Committee's established fire prevention standards. (2211)

CHAPTER 2

FIRE CODE

(3076,3695,3766,3767,4552,4789,5021)

Section Two. ADOPTED BY REFERENCE

7-2-1: That Title 7, Chapter 2, Section 1 of the Mesa City Code is amended and shall read as follows:

The following publications are hereby adopted by reference as if set out at length in this Code:

(1) 2006 International Fire Code, including:

- Appendix B – FIRE-FLOW REQUIREMENTS FOR BUILDINGS
- Appendix C – FIRE HYDRANT LOCATIONS AND DISTRIBUTION
- Appendix E – HAZARD CATEGORIES
- Appendix F – HAZARD RANKING
- Appendix G – CRYOGENIC FLUIDS – WEIGHT AND VOLUME EQUIVALENTS
- Appendix H – FIRE SPRINKLER PLAN SUBMISSION REQUIREMENTS
- Appendix I – FIRE ALARM PLAN SUBMISSION REQUIREMENTS

Section Three. AMENDMENTS TO THE 2006 INTERNATIONAL FIRE CODE

SECTION 7-2-2 That Title 7, Chapter 2, Section 2 of the Mesa City Code is hereby amended and shall read as follows:

Note: <u>Underlined</u> indicates proposed addition and Strikethrough indicates deletions to the text of the 2006 International Fire Code.

The 2006 International Fire Code is hereby amended in the following respects:

(A) CHAPTER 1 ADMINISTRATION

(1) **Revise the following:**

101.1 Title. These regulations shall be known as the ~~Fire Code of [NAME OF JURISDICTION]~~ Mesa Fire Code, hereinafter referred to as “this code.”

(2) Revise the following:

102.3 Change of use or occupancy. No change shall be made in the use or occupancy of any structure that would place the structure in a different division of the same group or occupancy or in a different group of occupancies, unless such structure is made to comply with the requirements of this code and the ~~International Building Code~~ Mesa Building Code and the Mesa Existing Building Code. Subject to the approval of the fire code official, the use or occupancy of an existing structure shall be allowed to be changed and the structure is allowed to be occupied for purposes in other groups without conforming to all the requirements of this code and the ~~International Building Code~~ Mesa Building Code and Mesa Existing Building Code for those groups, provided the new or proposed use is less hazardous, based on life and fire risk, than the existing use.

(3) Revise the following:

102.4 Application of building code. The design and construction of new structures shall comply with the ~~International Building Code~~ Mesa Building Code, and any alterations, additions, changes in use or changes in structures required by this code, which are within the scope of the ~~International Building Code~~ Mesa Building Code, shall be made in accordance therewith.

(4) Add the following:

102.6.1 International codes references. Within the technical codes and the referenced codes and standards therein, specific references to the following International Codes shall be deemed and interpreted to mean the specific City of Mesa Codes as listed herein:

1. International Building Code = Mesa Building Code.
2. International Residential Code for One- and Two- Family Dwellings = Mesa Residential Code.
3. International Electrical Code = Mesa Electrical Code.
4. International Plumbing Code = Mesa Plumbing Code.
5. International Mechanical Code = Mesa Mechanical Code.
6. International Fuel Gas Code = Mesa Fuel Gas Code.
7. International Fire Code = Mesa Fire Code.
8. International Existing Building Code = Mesa Existing Building Code.

(5) Revise the following:

105.1.2 Types of permits. There shall be ~~two~~ three types of permits as follows:

1. Operational permit. An operational permit allows the applicant to conduct an operation or a business for which a permit is required by Section 105.6 for either:
 - 1.1. A prescribed period.
 - 1.2. Until renewed or revoked.
2. Construction permit. A construction permit allows the applicant to install or modify systems and equipment for which a permit is required by Section 105.7.
3. Fire Safety operational permit. Fire Safety operational permit allows the applicant to conduct business within the City of Mesa and requires the applicant to provide business information annually as required by the fire code official. The permit is valid for one year from date of issuance.

Exception: Home-based businesses are not required to obtain a Fire Safety Operational Permit.

(6) Revise the following:

105.4.1 Submittals. Construction documents shall be submitted in one or more sets and in such form and detail as required by the fire code official. The construction documents shall be prepared by a registered design professional licensed by the State of Arizona to design fire protection systems ~~where required by the statutes of the jurisdiction in which the project is to be constructed.~~

105.4.2 Information on construction documents. Construction documents shall be drawn to scale upon suitable material. Electronic media documents are allowed to be submitted when approved by the fire code official. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations as determined by the fire code official. Fire sprinkler and fire alarm documents shall comply with the recommended submittal packages from the Arizona Fire Marshal's Association and the Arizona Fire Alarm Association. See Appendix H and I.

(7) Revise the following:

105.6 Required operational permits. The fire code official is authorized to issue operational permits for the operations set forth in Sections 105.6.1 through 105.6.~~1346~~.

(8) Delete Sections 105.6.1 through 105.6.46

(9) Add the following:

105.6.1 Carnivals and fairs. An operational permit is required to conduct a carnival or fair.

105.6.2 Covered mall buildings. An operational permit is required for:

1. The placement of retail fixtures and displays, concession equipment, displays of highly combustible goods and similar items in the mall.
2. The display of liquid- or gas-fired equipment in the mall.
3. The use of open-flame or flame-producing equipment in the mall.

105.6.3 Exhibits and trade shows. An operational permit is required to operate exhibits and trade shows in facilities not designed for large public gatherings (>50 people).

105.6.4 Explosives. An operational permit is required for the manufacture, storage, handling, sale or use of any quantity of explosive, explosive material, fireworks, or pyrotechnic special effects within the scope of Chapter 33

Exception: Storage in Group R-3 and R-5 occupancies of smokeless propellant, black powder and small arms primers for personal use, not for resale and in accordance with Section 3306.

105.6.5 Flammable and combustible liquids. An operational permit is required:

1. To remove Class I or Class II liquids from an underground storage tank used for fueling motor vehicles by any means other than the approved, stationary on-site pumps normally used for dispensing purposes.
2. To change the type of contents stored in a flammable or combustible liquid tank to a material which poses a greater hazard than that for which the tank was designed and constructed.
3. To install, alter, remove, abandon, and place temporarily out of service or otherwise dispose of a flammable or combustible liquid tank.
4. To use and operate temporary tanks for vehicle fuel transfer operations.

105.6.6 Gated Access. An operational permit is required to use and maintain gated access.

105.6.7 Hazardous materials. An operational permit is required to store, transport on site, dispense, use or handle hazardous materials in excess of the amounts listed in Table 105.6.21.

105.6.8 Home Delivery of Liquid Oxygen. An operational permit is required to deliver liquid oxygen to residential occupancies.

105.6.9 Open burning. An operational permit is required for the kindling or maintaining of an open fire or a fire on any public street, alley, road, or other public or private ground. A 48-hour notice is required to obtain a permit. Instructions and stipulations of the permit shall be adhered to. The permit applicant shall demonstrate that permission has been obtained by the appropriate government agency, the owner, or the owner's authorized agent. When limits for atmospheric conditions or hours restrict burning, such limits shall be designated in the permit restrictions.

Exception: Recreational fires.

105.6.10 Pyrotechnic special effects material. An operational permit is required for use and handling of pyrotechnic special effects material.

105.6.11 Residential Care. An operational permit is required to operate a residential licensed Group Home.

105.6.12 Spraying or dipping. An operational permit is required to conduct a spraying or dipping operation utilizing flammable or combustible liquids or the application of combustible powders regulated by Chapter 15.

105.6.13 Temporary membrane structures, tents and canopies. An operational permit is required to operate an air-supported temporary membrane structure or a tent having an area in excess of 400 square feet (37 m²), or a canopy in excess of 1200 square feet (112 m²).

Exceptions:

1. Tents used exclusively for recreational camping purposes.
2. Fabric canopies open on all sides which comply with all of the following:
 - 2.1 Individual canopies having a maximum size of 700 square feet (65 m²).
 - 2.2 The aggregate area of multiple canopies placed side by side without a firebreak clearance of not less than 12 feet (3658 mm) shall not exceed 700 square feet (65 m²) total.
 - 2.3 A minimum clearance of 12 feet (3658 mm) to structures and other tents shall be provided.

(10) Revise the following:

105.7 Required construction permits. The Mesa Administrative Code shall apply to fire code official is authorized to issue construction permits for work as set forth in Sections 105.7.1 through 105.7.13. Any conflicts with the provisions of Sections 105.7.1 through 105.7.13 and the Mesa Administrative Code, the Mesa Administrative Code shall take precedence.

(11) Revise the following:

SECTION 108

BOARD OF APPEALS

108.1 Board of appeals established. ~~In order to hear and decide appeals of orders, decisions or determinations made by the fire code official relative to the application and interpretation of this code, there shall be and is hereby created a board of appeals. The board of appeals shall be appointed by the governing body and shall hold office at its pleasure. The fire code official shall be an ex officio member of said board but shall have no vote on any matter before the board. The board shall adopt rules of procedure for conducting its business, and shall render all decisions and findings in writing to the appellant with a duplicate copy to the fire code official. Orders, decisions, or determinations made by the fire code official may, within thirty (30) days of the receipt of the notice of the decision, be appealed to the Building Board of Appeals, Section 2-11 of the Mesa City Code. The request for an appeal shall be in writing, shall set forth the specific objections to the decision of the fire code official, and this shall form the basis of the appeal. A hearing shall be set as soon as practicable. The decision of the Building Board of Appeals shall be based on the evidence presented.~~

~~**108.2 Limitations on authority.** An application for appeal shall be based on a claim that the intent of this code or the rules legally adopted hereunder have been incorrectly interpreted, the provisions of this code do not fully apply, or an equivalent method of protection or safety is proposed. The board shall have no authority to waive requirements of this code.~~

~~**108.3 Qualifications.** The board of appeals shall consist of members who are qualified by experience and training to pass on matters pertaining to hazards of fire, explosions, hazardous conditions or fire protection systems and are not employees of the jurisdiction.~~

(B) CHAPTER 2 DEFINITIONS

(1) Add the following:

DIRECTED CARE SERVICE. The care of residents who are incapable of recognizing danger, summoning assistance, expressing need or making basic care decisions. Directed care services include providing life sustaining programs and services, and may include personal care or supervisory care services.

(2) Revise the following:

FIRE CODE OFFICIAL. The fire chief or fire marshal ~~other designated authority~~ charged with the administration and enforcement of the code, or a duly authorized representative.

(3) Add the following:

FIXED BASE OPERATOR (FBO). A commercial business granted the right by the airport sponsor to operate on an airport and provide aeronautical services such as fueling, hangaring, tie-down and parking, aircraft rental, aircraft maintenance, and flight instruction.

GAZEBO. A free-standing, detached, open-sided, roofed building not exceeding 50 square feet in roof area. Same as a ramada.

GROUP I HANGAR: A Group I Hangar is an aircraft hangar as defined by NFPA 409.

GROUP II HANGAR. A Group II Hangar is an aircraft hangar as defined by NFPA 409.

GROUP III HANGAR: A Group III Hangar is an aircraft hangar that is either a single hangar building or a hangar building cluster as defined by NFPA 409 including separation distance requirements.

NURSING HOME. A facility that provides nursing services to residents. Nursing services include the curative, restorative and preventive aspects of nursing care that are performed at the direction of a physician by or under the supervision of a registered nurse licensed by the State.

(4) Revise the following:

[B] Factory Industrial F-1 Moderate-hazard Occupancy. Factory industrial uses which are not classified as Factory Industrial F-2 Low Hazard shall be classified as F-1 Moderate Hazard and shall include, but not be limited to, the following:

Aircraft (manufacturing, not including aircraft repair)
Appliances
Athletic equipment
Automobiles and other motor vehicles
Bakeries
Beverages; over 12-percent alcohol content
Bicycles
Boats
Brooms or brushes
Business machines
Cameras and photo equipment
Canvas or similar fabric
Carpets and rugs (includes cleaning)
Clothing
Construction and agricultural machinery
Disinfectants
Dry cleaning and dyeing
Electric generation plants
Electronics
Engines (including rebuilding)
Food processing
Furniture
Hemp products
Jute products
Laundries
Leather products
Machinery
Metals
Millwork (sash & door)
Motion pictures and television filming (without spectators)
Musical instruments
Optical goods
Paper mills or products
Photographic film
Plastic products
Printing or publishing
Recreational vehicles
Refuse incineration
Shoes
Soaps and detergents
Textiles
Tobacco
Trailers
Upholstering
Wood; distillation
Woodworking (cabinet)

(5) Revise the following:

[B] Group I-1. This occupancy shall include buildings, structures or parts thereof housing more than 16 persons, on a 24-hour basis, who because of age, mental disability or other reasons, live in a supervised residential environment that provides supervisory care or personal care services. The occupants are capable of self-preservation and of responding to an emergency situation without physical assistance from staff. This group shall include, but not be limited to, the following:

- Alcohol and drug centers
- Assisted living ~~facilities~~ center, licensed by the State of Arizona Department of Health Services with more than 16 residents
- Congregate care facilities
- Convalescent facilities
- Group homes
- Half-way houses
- Residential board and care facilities
- Social rehabilitation facilities

A facility such as the above with five or fewer persons shall be classified as Group R-3 or R-5 as applicable ~~shall comply with the *International Residential Code* in accordance with Section 101.2 of the *International Building Code*~~. A facility such as above, housing at least six and not more than 16 persons, shall be classified as Group R-4.

(6) Revise the following:

[B] Group I-2. This occupancy shall include buildings and structures used for medical, surgical, psychiatric, nursing or custodial care or directed care services on a 24-hour basis of more than five persons who because of age, mental or physical disability are not capable of self-preservation or responding to an emergency situation without physical assistance from staff. This group shall include, but not be limited to, the following:

- Assisted living homes licensed by the State of Arizona Department of Health Services with 5 or fewer residents that are not classified as R-3 or R-5.
- Hospitals
- Nursing homes (both intermediate care facilities and skilled nursing facilities)
- Mental hospitals
- Detoxification facilities

A facility such as the above with five or fewer persons shall be classified as Group R-3 or R-5 as applicable ~~shall comply with the *International Residential Code* in accordance with Section 101.2 of *International Building Code*~~.

(7) Revise the following:

[B] Group I-4, day care facilities. This occupancy group shall include buildings and structures occupied by persons of any age who receive custodial care for less than 24 hours by individuals other than parents or guardians, relatives by blood marriage, or adoption, and in a place other than the home of the person cared for. A facility such as the above with ten five or fewer persons, including not more than 5 infants 2 ½ years of age or less, shall be classified as Group R-3 or R-5 as applicable ~~shall comply with the *International Residential Code* in accordance with Section 101.2 of the *International Building Code*~~. Places of worship during religious functions are not included.

Adult care facility. A facility that provides accommodations for less than 24 hours for more than ten five unrelated

adults and provides ~~supervised care supervision~~ and personal care services shall be classified as Group I-4.

Exception: Where the occupants are capable of responding to an emergency situation without physical assistance from the staff the facility shall be classified as Group A-3.

Child care facility. A facility that provides supervision and personal care on less than a 24-hour basis for more than ~~ten~~ five children 2 ½ years of age or less shall be classified as Group I-4.

Exception: A child day care facility ~~that which~~ provides care for more than ~~ten~~ five but no more than 100 children 2 ½ years or less of age, when the rooms where such children are cared for are located on the level of exit discharge and each of these child care rooms has an exit door directly to the exterior, shall be classified as Group E.

Revise the following:

[B] Residential Group R. Residential Group R includes, among others, the use of a building or structure, or a portion thereof, for sleeping purposes when not classified as an Institutional Group I ~~or when not regulated by the International Residential Code in accordance with Section 101.2 of the International Building Code~~. Residential occupancies shall include the following:

R-1 Residential occupancies containing sleeping units where the occupants are primarily transient in nature, including:

- Boarding houses (transient)
- Hotels (transient)
- Motels (transient)

R-2 Residential occupancies containing sleeping units or more than two dwelling units where the occupants are primarily permanent in nature, including:

- Apartment houses
- Boarding houses (not transient)
- Convents
- Dormitories
- Fraternities and sororities
- Hotels (nontransient)
- Monasteries
- Motels (nontransient)
- Vacation timeshare properties

~~Congregate living facilities with 16 or fewer occupants are permitted to comply with the construction requirements for Group R-3.~~

R-3 Residential occupancies where the occupants are primarily permanent in nature and not classified as R-1, R-2, R-4, R-5 or I, and where buildings do not contain more than two dwelling units, or one of the following including:

- ~~Buildings that do not contain more than two dwelling units~~
- Adult care facilities that provide accommodations for ~~ten~~ five or fewer persons of any age for less than 24 hours. Such adult care facilities that are within a single residence are permitted to comply as R-5.

Child care facilities that provide accommodations for ~~ten~~ five or fewer persons of any age for less than 24 hours. Such childcare facilities that are within a single residence are permitted to comply as R-5.

Congregate living facilities with 16 or fewer occupants.

~~Adult and child care facilities that are within a single family home are permitted to comply with the *International Residential Code*.~~

Assisted living homes licensed by the State of Arizona Department of Health Services with 5 or fewer residents that are capable of self-preservation and of responding to an emergency situation without physical assistance from staff.

Assisted living homes licensed by the State of Arizona Department of Health Services, including facilities providing directed care services, with 5 or fewer residents that are not capable of self-preservation or of responding to an emergency situation without physical assistance from staff. Such assisted living homes shall be protected with automatic sprinkler systems in accordance with Section 903.3 and a smoke alarm system in accordance with Section 907.2.10.1.3.

R-4 Residential occupancies shall include buildings arranged for occupancy as residential care/assisted living facilities including more than five but not more than 16 occupants, excluding staff.

Group R-4 occupancies shall meet the requirements for construction as defined for Group R-3 or R-5, in the *International Building Code* for Group R-3, except as otherwise provided for in this that code or shall comply with the *International Residential Code*. All occupants shall be capable of self-preservation and of responding to an emergency situation without physical assistance from staff. R-4 occupancies shall include, but are not limited to:

Assisted living homes located in residentially zoned districts in accordance with Title 11 (Zoning) of the Mesa City Code licensed by the State of Arizona Department of Health Services with more than 5 but not more than 10 residents.

Assisted living centers located in commercially zoned districts in accordance with Title 11 (Zoning) of the Mesa City Code licensed by the State of Arizona Department of Health Services with more than 5 but not more than 16 residents.

A facility such as above in which any occupant is incapable of self-preservation or of responding to an emergency situation without physical assistance from staff, shall be classified as I-2 and protected by an automatic sprinkler system and an automatic fire alarm system.

(9) Add the following:

R-5 Residential occupancies arranged for occupancy as detached one- and two-family dwellings and multiple single-family dwellings (townhouses) and their accessory structures conforming with the Mesa Residential Code. R-5 occupancies may also include:

Adult care facilities that provide accommodations for ten or fewer persons of any age for less than 24 hours that are within a single residence.

Childcare facilities that provide accommodations for ten or fewer persons of any age for less than 24 hours that are within a single residence.

Assisted living homes licensed by the State of Arizona Department of Health Services with 5 or fewer residents that are capable of self-preservation or responding to an emergency situation without physical assistance from staff.

Assisted living homes licensed by the State of Arizona Department of Health Services, including facilities providing directed care services, with 5 or fewer residents that are not capable of self-preservation or responding to an emergency situation without physical assistance from staff. Such assisted living homes shall be protected with automatic sprinkler systems in accordance with section 903.3 and a smoke alarm system in accordance with section 907.2.10.1.3.
Congregate living facilities with 16 or fewer occupants.

(10) Revise the following:

[B] Moderate-hazard storage, Group S-1. Buildings occupied for storage uses that are not classified as Group S-2, including, but not limited to, storage of the following:

Aerosols, Levels 2 and 3
 Aircraft ~~repair~~ hangar
 Bags: cloth, burlap and paper
 Bamboos and rattan
 Baskets
 Belting: canvas and leather
 Books and paper in rolls or packs
 Boots and shoes
 Buttons, including cloth covered, pearl or bone
 Cardboard and cardboard boxes
 Clothing, woolen wearing apparel
 Cordage
 Dry boat storage (indoor)
 Furniture
 Furs
 Glues, mucilage, pastes and size
 Grains
 Horns and combs, other than celluloid
 Leather
 Linoleum
 Lumber
Motor vehicle repair garages complying with the maximum allowable quantities of hazardous materials listed in Table 307.1(1) (see Section 406.6)
 Photo engravings
 Resilient flooring
 Silks
 Soaps
 Sugar
 Tires, bulk storage of
 Tobacco, cigars, cigarettes and snuff
 Upholstery and mattresses
 Wax candles

(11) Revise the following:

[B] Low-hazard storage, Group S-2. Includes, among others, buildings used for the storage of noncombustible materials such as products on wood pallets or in paper cartons with or without single thickness divisions; or in paper wrappings. Such products are permitted to have a negligible amount of plastic trim, such as knobs, handles or film wrapping. Storage uses shall include, but not be limited to, storage of the following:

~~Aircraft hangar~~

Asbestos

Beverages up to and including 12-percent alcohol in metal, glass or ceramic containers

Cement in bags

Chalk and crayons

Dairy products in nonwaxed coated paper containers

Dry cell batteries

Electrical coils

Electrical motors

Empty cans

Food products

Foods in noncombustible containers

Fresh fruits and vegetables in nonplastic trays or containers

Frozen foods

Glass

Glass bottles, empty or filled with noncombustible liquids

Gypsum board

Inert pigments

Ivory

Meats

Metal cabinets

Metal desks with plastic tops and trim

Metal parts

Metals

Mirrors

Oil-filled and other types of distribution transformers

Parking garages, open or enclosed

Porcelain and pottery

Stoves

Talc and soapstones

Washers and dryers

(12) Add the following:

PERSONAL CARE SERVICE. The care of residents who do not require chronic or convalescent medical or nursing care. Personal care service includes assisting with activities of daily living that can be performed by persons without professional skills or professional training and may include the coordination or provision of intermittent nursing services and the administration of medications and treatments by a nurse who is licensed by the State.

RAMADA. See definition for Gazebo.

READILY ACCESSIBLE. Access that is capable of being reached safely and quickly for operation, repair or inspection without requiring those to whom ready access is requisite to climb over or remove obstacles, or to resort to the use of portable access equipment.

RESIDENTIAL CARE/ASSISTED LIVING FACILITIES. A building or part thereof housing persons on a 24-hour basis, who because of age, mental disability or other reasons, live in a supervised residential environment that provides personal care, supervisory care or directed care services. This classification shall include, but not be limited to, the following: assisted living facilities, residential board and care facilities, halfway houses, group homes, congregate care facilities, social rehabilitation facilities, alcohol and drug abuse centers and convalescent facilities.

SUPERVISORY CARE SERVICE. The care of residents who require general supervision, including providing daily awareness of resident functioning and continuing needs, the ability to intervene in a crisis and assistance in the self-administration of prescribed medications. Provision of any of the following services shall constitute supervisory care: cooking or meal service, laundry service, linen or maid service.

TRANSIENT AIRCRAFT. Aircraft based at another location and is at the transient location for not more than 90 days.

(C) CHAPTER 3 GENERAL PRECAUTIONS AGAINST FIRE

(1) Revise the following:

304.1.1 Waste material. Accumulations of materials such as but not limited to: wastepaper, wood, hay, straw, weeds, litter, vehicle parts, tires or combustible or flammable waste or rubbish of any type shall not be permitted to remain on a roof or in any court, yard, vacant lot, alley, parking lot, open space, or beneath a grandstand, bleacher, pier, wharf, manufactured home, recreational vehicle or other similar structure. All placement of waste material awaiting removal shall comply with 315.3.

(2) Revise the following:

311.2.2 Fire protection. Fire alarm, sprinkler and standpipe systems shall be maintained in an operable condition at all times.

Exceptions:

1. When the premises have been cleared of all combustible materials and debris and, in the opinion of the fire code official, the type of construction, fire separation distance and security of the premises do not create a fire hazard.
2. Where buildings will not be heated and fire protection systems will be exposed to freezing temperatures, fire alarm and sprinkler systems are permitted to be placed out of service and standpipes are permitted to be maintained as dry systems (without an automatic water supply) provided the building has no contents or storage, and windows, doors and other openings are secured to prohibit entry by unauthorized persons.
3. Where a fire alarm system was required for protection and/or evacuation of occupants, that system need not be maintained while the building is vacant.

(3) Revise the following:

311.5 Placards. Any building or structure determined to be unsafe pursuant to Section 110 of this code shall be marked as required by Sections 311.5.1 through 311.5.4~~5~~.

311.5.1 Placard location. Placards shall be posted high on a minimum of two sides of the structure, with one side being the primary entrance to the property by responding crews. For larger or more complex structures, smaller signs of approximately 6 X 6 inches shall be posted at each entry point, and additional larger signs shall be added as approved. Placards shall be applied on the front of the structure and be visible from the street. Additional placards shall be applied to the side of each entrance to the structure and on penthouses.

311.5.2 Placard size and color. A white X on a red background, with signage size of 24 X 24 inches. Placards shall be 24 inches by 24 inches (610 mm by 610 mm) in size with a red background, white reflective stripes and a white reflective border. The stripes and border shall have a 2 inch (51 mm) stroke.

(4) Delete 311.5.4 Placard Symbols.

(5) Revise the following:

311.5.35 Informational use. The use of these symbols shall be informational only and shall not in any way limit the discretion of the on-scene incident commander.

(6) Add the following:

315.2.5 Storage Under Stairways. Storage is prohibited under stairways.

Exception: Storage is allowed under interior or exterior stairways when spaces are protected below by one-hour fire-resistance-rated construction as specified in the MBC or are protected by fire sprinklers. A minimum of 18 inches (457 mm) clearance from the sprinkler head plane to the combustible storage shall be maintained.

(7) Add the following:

315.3.3 Tire Storage. Outside storage of tires shall be in accordance with this section unless the outside storage of tires complies with Chapter 25.

(D) CHAPTER 4 EMERGENCY PLANNING AND PREPAREDNESS

(1) Add the following:

401.3.2.1 Resetting alarms. No person shall reset a fire or emergency alarm system, alarm initiating device or component until the Fire Department arrives.

Exception: The person responsible for the property may investigate the building or area of alarm and if no evidence of fire or emergency is found, the system may be silenced providing the Fire Department is notified of the findings.

(2) Revise the following:

403.1 Fire watch personnel. When, in the opinion of the fire code official, it is essential for public safety in a place of assembly or any other place where people congregate, because of the number of persons, or the nature of the performance, exhibition, display, contest or activity, the owner, agent or lessee shall provide one or more fire watch personnel, as required and approved by the fire code official, to remain on duty during the times such places are open to the public, or when such activity is being conducted, or as determined by the fire code official.

403.1.1 Duties. Fire watch personnel shall keep diligent watch for fires, obstructions to means of egress and other hazards during the time such place is open to the public or such activity is being conducted and take prompt measures for remediation of hazards, extinguishment of fires that occur and assist in the evacuation of the public from the structures.

403.1.2 Qualification. Personnel utilized for fire watch shall be third-party companies or individuals and shall have no duties other than fire watch duties assigned to them. Fire watch personnel are subject to approval by the fire code official.

(E) CHAPTER 5 FIRE SERVICE FEATURES

(1) Add the following:

501.5 Fire protection in Recreational Vehicle, Mobile Home and Manufactured Housing Parks, Sales Lots and Storage Lots. Recreational vehicle, mobile home and manufactured housing parks, sales lots and storage lots shall provide and maintain fire hydrants and access roads in accordance with Sections 503 through 508.

Exception: Recreational vehicle parks located in remote areas shall be provided with fire hydrant protection and access roadways as required by the Fire Code Official.

(2) Revise the following:

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 (45 720 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 fire access roadway may extend up to 300 feet (91440mm) of all portions of any building that is protected with an automatic fire sprinkler system in accordance with Section 903.3 of this code.

Exceptions: ~~The fire code official is authorized to increase the dimension of 150 feet (45720 mm) where:~~

- ~~1. The building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3.~~
- 1.2 The fire code official is authorized to increase the dimension of 150 feet (45720 mm) where fire Fire apparatus access roads cannot be installed because of location on property, topography, waterways, nonnegotiable grades or other similar conditions, and an approved alternative means of fire protection is provided.
- ~~3. There are not more than two Group R-3 or Group U occupancies.~~
2. Fire apparatus access roads are not required for detached, unoccupied telecommunications buildings, which do not exceed 500 square feet in size.

(3) Revise the following:

503.2.1 Dimensions. Fire apparatus access roads shall have an unobstructed width of not less than 20 feet (6096 mm), except for approved security gates in accordance with Section 503.6, and an unobstructed vertical clearance of not less than 15 feet (4572 mm) ~~13 feet six inches (4115 mm)~~.

(4) Revise the following:

503.2.3 Surface. Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus and shall be surfaced so as to provide all-weather driving capabilities as determined by the fire code official.

(5) Revise the following:

503.2.5 Dead ends. Dead-end fire apparatus access roads in excess of 150 feet (45 720 mm) in length shall be provided with an approved area for turning around fire apparatus. Dead-end access roads may be up to 300 feet to buildings protected by an automatic fire sprinkler system in accordance with Section 903.3 of this code. Dead-end fire apparatus access road shall not have more than one turn for the fire apparatus to back around. The total aggregate of the turn shall be not more than 90°.

(6) Revise the following:

503.2.7 Grade. ~~The grade of the fire apparatus access road shall be within the limits established by the fire code official based on the fire department's apparatus.~~ Whether temporary or permanent, fire apparatus access roads with grades equal to or less than 6% may be designed with materials such as materials or compacted ABC or compacted decomposed granite. All fire apparatus access roads that exceed 6% shall be designed with paved materials such as concrete or asphalt. All fire apparatus access roads with grades that exceed 12% shall be subject to the approval of the Fire Code Official.

(7) Add the following:

503.7. Residential developments. The access to residential developments shall comply with this section. A residential development may have public streets or private streets.

503.7.1. Multiple access roads. Residential developments where the number of dwelling units exceeds 30 shall be provided with a minimum of two separate and approved fire apparatus access roads, and shall meet the requirements of Section 503.7.2 or Section 503.7.3.

503.7.2 Public streets. Public streets and private streets 34 feet wide and greater in residential developments shall meet the requirements of the *Mesa Sub-division Regulations*.

503.7.2.1 Parking. Fire department access shall have an unobstructed width of not less than 20 feet. Road widths shall be as follows:

1. No parking on either side of the roadway when the road is 20 to 28 feet wide.
2. No parking on one side of the roadway when the road is between 28 and 34 feet wide.
3. Parking is not restricted when a road is 34 feet wide or greater.

503.7.2.2 Maintenance of Parking Restrictions. Maintenance of fire department access parking restrictions as initiated by the Fire Department will be the responsibility of the homeowners association or individual property owner of the property affected by the restriction. If there is not a homeowners association or individual property owner, the City of Mesa shall be responsible for the maintenance of the fire department access parking restrictions.

503.7.3. Private streets. Private streets in residential developments less than 34 feet wide shall meet the requirements of Section 503 and the following:

503.7.3.1. Dead-ends. Shall meet the requirements of Section 503.2.5.

503.7.3.2. Gates. Shall meet the requirements of Section 503.6.

503.7.3.2.1. Queuing distance. The queuing distance between the gate swing and arterial roadways shall accommodate the length of the fire apparatus. This distance is not required for automatic gates when no manual action is required to close and lock the gate.

503.7.3.3. Parking. Fire department access shall have an unobstructed width of not less than 20 feet. Road widths shall be as follows:

1. No parking on either side of the roadway when the road is 20 to 28 feet wide.
2. No parking on one side of the roadway when the road is between 28 and 34 feet wide.
3. Parking is not restricted when a road is 34 feet wide or greater.

503.7.3.4 Maintenance of Parking Restrictions. Maintenance of fire department access parking restrictions as initiated by the Fire Department will be the responsibility of the homeowners association or individual property owner of the property affected by the restriction.

(8) Revise the following:

504.1 Required access. Exterior doors and openings ~~required by this code or the *International Building Code*~~ shall be maintained readily accessible for emergency access by the fire department. An approved access walkway leading from fire apparatus access roads to exterior openings shall be provided when required by the fire code official.

(9) Add the following:

504.4 Access to roof. For buildings 2 stories and less, maintain a flat area at grade from the building wall to any retention area at a minimum of two faces of two building corners. The purpose of this flat area shall be to provide ladder access to the roof by a flat area out from the base of the building wall that is a minimum of a 15° protection from the roof eave or top of the parapet to a vertical line at grade plus four feet.

(10) Add the following:

505.1.1 Aircraft Operation Area. New and existing buildings shall have approved address numbers placed in a position that is plainly legible and visible from the taxiway or airport fire access road fronting the property. These numbers shall contrast with their background. Address numbers shall be Arabic numerals or alphabet letters. Numbers shall be a minimum of 6 inches (152 mm) high with a minimum stroke width of 0.75 inches (19.1 mm).

505.1.2. Multiple Tenant Buildings. Strip malls and other multiple tenant buildings shall have their address and suite number posted on all rear doors of each tenant space.

(11) Revise the following:

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 and shall contain keys to gain necessary access as required by the fire code official.

Exceptions:

1. Buildings of other than H and I occupancies less than 12,000 square feet.
2. Buildings other than H and I occupancies that are continually occupied (24 hours a day, 365 days a year) with staff available with keys to secured areas.

(12) Add the following:

507.4 Smoke obscuration systems. Smoke obscuration systems such as those associated with security or burglar alarm systems are not allowed.

(13) Add the following:

508.2.1.1 Detectible Underground Locator Device. Underground nonmetallic water piping larger than two (2) inches in diameter shall be installed with insulated copper tracer wire or other approved conductor located adjacent to the piping. Access shall be provided to the tracer wire or the tracer wire shall terminate above ground at each end of the nonmetallic piping. The tracer wire size shall be not less than 18 AWG and the insulation type shall be suitable for direct burial.

(14) Revise the following:

508.3 Fire flow. Fire flow requirements for buildings or portions of buildings and facilities shall be determined in accordance with Appendix B ~~an approved method.~~

(15) Add the following:

508.3.1 Minimum water supply sizing. Hydraulically calculate the minimum fire flows required by Section 508.3 as follows:

508.3.1.1 Hydraulic calculations. Calculations shall be submitted to verify the fire service main(s) (public or private) will provide the minimum required fire flow, as determined by Section 508.3, to the hydraulically most demanding on-site hydrants with the water supply that is available to the system.

508.3.1.2 System flow requirement. The minimum required fire flow rate shall be calculated using 1500 gpm increments starting at the hydraulically most demanding hydrant. An additional 1500 gpm, or remainder of the required fire flow, as determined by Section 508.3 shall be added at each successive hydrant until the minimum required fire flow has been accounted for.

508.3.1.3. System pressure requirement. A minimum 20 psi residual pressure shall be maintained in the system. All pressure losses in the system including friction loss through pipe and fittings and changes in elevation shall be accounted for from the hydraulically most demanding hydrant back to the location of the water flow test that was used to determine the water supply available to supply the new private hydrants and mains.

508.3.1.3.4 Method for determining friction loss. Friction loss through pipe and fittings shall be determined using the Hazen-Williams formula or other approved hydraulic formula. The Hazen-Williams formula is as follows:

$$P = \frac{4.52 \times Q^{1.85}}{C^{1.85} \times D^{4.87}}$$

Where:

P = friction loss in psig per foot of pipe

Q = flow in gpm

C = surface roughness coefficient Hazen-Williams coefficient of roughness, friction loss coefficient, pipe roughness coefficient.

D = actual internal diameter of the pipe in inches

508.3.2. Residential developments. The minimum fire flow for a residential development with buildings no larger than 3,600 square feet shall be as required in Section B105.1. For residential developments with buildings larger than 3,600 square feet the minimum fire flow shall be as required by Table B105.1. The minimum fire flow is then based on the square footage of the home and the construction type as defined by the Mesa Building Code. The minimum fire flow then is used in Table B105.1 to determine the required average maximum spacing for the fire hydrants. For residential developments with lots capable of having a buildable area larger than 3,600 square feet, the plat shall contain the following note:

“Fire hydrant spacing:

This sub-division has fire hydrants spaced at an average spacing of () feet.

This allows the largest home on the lots to be a maximum of () square feet under roof.

Constructed per the Mesa Building Code of at least Type () construction.”

508.3.3. Residential Developments with automatic fire sprinklers. For residential developments that take advantage of the 50% reduction in the fire flow requirement for an automatic fire sprinkler system in each building and the resulting increase in fire hydrant spacing requirement, the sub-division plat shall contain the following note:

“Fire hydrant spacing:

All the homes in this sub-division shall have a residential fire sprinkler system due to the increased fire hydrant spacing credit.”

(16) Revise the following:

508.5.1 Where required. Fire hydrant spacing requirements shall be determined by Appendix C. Where a portion of the facility or building hereafter constructed or moved into or within the jurisdiction is more than 400 feet (122 m) from a hydrant on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains shall be provided where required by the fire code official.

Exceptions:

1. ~~For Group R-3 and Group U occupancies, the distance requirement shall be 600 feet (183 m).~~
2. ~~For buildings equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, the distance requirement shall be 600 feet (183 m).~~

(17) Add the following:

508.5.2 Phased systems. Phased systems with piping looped through a future phase shall have the complete looped piping system installed prior to any combustibile construction above ground. The loop connection may be installed with the next phase of the development if it can be shown through calculation that the system can deliver the required fire flow without the loop connection.

(18) Revise the following:

508.5.32 Inspection, testing and maintenance. Fire hydrant systems shall be subject to periodic tests as required by the fire code official. 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.

508.5.43 Private 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 at the following intervals:

1. Private fire hydrants (all types): Inspection annually and after each operation; flow test and maintenance annually.
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.

508.5.54 Obstruction. Posts, fences, vehicles, landscaping growth, trash, storage and other materials or objects shall not be placed or kept near fire hydrants, fire department inlet connections or fire protection system control valves in a manner that would prevent such equipment or fire hydrants from being immediately discernible. The fire department shall not be deterred or hindered from gaining immediate access to fire protection equipment or fire hydrants. No parking will be allowed in front of, or in-line with fire department connections.

(19) Add the following:**Section 511 Aerial Fire Apparatus Access Roads**

511.1 Where required. Aerial apparatus access roads for high-rise structures shall be provided as approved by the fire code official.

(F) CHAPTER 7 FIRE-RESISTANCE-RATED CONSTRUCTION**(1) Revise the following:**

703.4 Testing. Horizontal and vertical sliding and rolling fire doors, smoke and/or fire dampers, fire shutters and smoke vents shall be inspected and tested annually to confirm proper operation and full closure. Resetting of the release mechanism shall be done in accordance with the manufacturer's written instructions. A written record shall be maintained and be available to the fire code official.

(G) CHAPTER 8 INTERIOR FINISH, DECORATIVE MATERIALS AND FURNISHINGS**(1) Revise the following:**

806.1.1 Restricted occupancies. Natural cut trees shall be prohibited in Group A, E, I-1, I-2, I-3, I-4, M, R-1, R-2 and R-4 occupancies and other facilities licensed for directed care services, and limited to 30 days in all other occupancies, except there shall be no time restrictions in R-3 and R-5 Occupancies.

Exceptions:

1. Trees located in areas protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 shall not be prohibited in Groups A, E, M, R-1 and R-2.
2. Trees shall be allowed within dwelling units in Group R-2 occupancies.

(H) CHAPTER 9 FIRE PROTECTION SYSTEMS**(1) Revise the following:**

901.6 Inspection, testing and maintenance. Fire detection, alarm and extinguishing systems shall be maintained in an operative condition at all times, and shall be replaced or repaired where defective. Nonrequired fire protection systems and equipment shall be inspected, tested and maintained or removed. The building owner shall be responsible for ensuring that each fire protection system is maintained in an operable condition at all times per the applicable standard for that specific system. If a backflow prevention assembly, as defined in 8-1-5 of Mesa City Code, is installed as part of a fire sprinkler system, it shall be tested in accordance with 8-1-4 of the Mesa City Code. The annual backflow prevention assembly tests shall be performed at the same time as the annual automatic fire sprinkler system tests. All work and periodic testing/maintenance shall be performed in accordance with the applicable standard for the fire protection system.

(2) Add the following:

901.6.2 Contractors. Individuals or businesses conducting inspections, testing, repair or maintenance of fire protection systems shall possess an appropriate valid fire protection system license issued by the Arizona Registrar of Contractors and must provide a copy annually of such valid license and a copy of a valid City of Mesa tax I.D. number to the Fire Code Official to provide such services.

901.6.32 Records. Records of all system inspections, tests and maintenance required by the referenced standards shall be maintained on the premises for a minimum of three years and made available to the fire code official upon request ~~shall be copied to the fire code official upon request.~~ All individuals/businesses performing tests, maintenance, and/or repair on any fire protection system, shall forward itemized reports of such work to the Fire Code Official within 30 days of the work performed.

Exception: R3 and R5 occupancies not including residential care facilities.

901.6.32.1 Records information. Initial records shall include the name of the installation contractor, type of components installed, manufacturer of the components, location and number of components installed per floor. Records shall also include the manufacturers' operation and maintenance instruction manuals. Such records shall be maintained on the premises.

(3) Delete Section 903.2. Through 903.2.10.3

(4) Add the following:

Section 903.2. Where Required. Approved automatic sprinkler systems shall be provided in the locations described in this Section.

903.2.1 New buildings or structures. All areas of new buildings or structures, and other locations required by this Chapter or the Mesa Fire Code, shall be provided with an automatic fire sprinkler system complying with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3 as applicable.

Exceptions: Unless the use of the facility otherwise requires automatic fire sprinkler protection, fire sprinkler systems shall not be required for the following:

1. R-3 occupancies complying with the Mesa Residential Code, and R-5, not including residential care or assisted living facilities.
2. Detached, unoccupied telecommunications buildings which do not exceed 500 square feet.
3. Detached gazebos and ramadas.
4. Detached restroom facilities associated with golf courses, parks and similar uses.
5. Detached guard houses less than 300 square feet in floor area.
6. Detached, non-combustible shade canopies that are less than 5,000 square feet in roof area not closer than five feet to any building, property line or other shade canopy, and that shade one of the following: for vehicle parking, vehicle washing or vehicle fuel dispensing stations.
7. Detached non-residential buildings less than 360 square feet in floor area.
8. B Occupancies less than 5000 square feet, excluding outpatient surgery clinics. The firewall provisions of IBC Section 705 do not apply to this exception for determining building area.

9. Other buildings or structures accessory to and located on the same lot with R-3 or R-5 occupancies, not including residential care or assisted living facilities.
10. Fabric shade canopies less than 5,000 square feet; not closer than 5 feet to any building, property line or other shade canopy; and shading one of the following: vehicles for sale at a dealership, playground equipment, or outdoor eating areas without cooking.
11. Portable storage containers used for storage purposes and not closer than 5 feet to any building, property line or other container.
12. Exterior roofs, overhangs or canopies of Type I, II or III construction with no combustible storage beneath.
13. Exterior covered/enclosed walkways of Type I, II or III construction, not greater than 12 feet in width, no combustible storage beneath, and with enclosing walls that are at least 50 percent open.

903.2.2 Residential Care/Assisted Living Facilities. All occupancies licensed by the Arizona Department of Health Services to provide nursing services, directed care services, supervisory care services and/or personal care services shall be provided with an automatic fire protection system complying with Section 903.3, as applicable, and shall utilize fast response or residential sprinkler heads appropriate for the specific occupancy. The fire sprinkler system activation and control valves shall be monitored by an approved central station service.

Exceptions:

1. State licensed residential care/assisted living facilities in which all of the care recipients are capable of self-preservation and responding to an emergency situation without assistance from another person.
2. State licensed residential care/assisted living facilities in which some or all of the care recipients are incapable of self-preservation or of responding to an emergency situation without assistance from another person, and that legally existed prior to January 1, 2001.

903.2.3. One and Two Family Dwelling Sprinkler Option (R5). All contractors of one and two family dwellings (R5 occupancies) shall provide an option for residential fire sprinklers. The contractor or their agent shall provide an informational packet containing educational materials approved by the Fire Code Official, including a form explaining the option for residential sprinklers, to all prospective buyers and shall obtain a signed receipt for the educational material from the prospective buyer. Copies of the signed forms shall be kept on file and available for review upon request by the Mesa Fire Department. Upon the request and execution of a purchase agreement by the homebuyer, the contractor shall install the residential fire sprinklers. Such fire sprinkler systems shall comply with the requirements of Section 903.3.1.1 or 903.3.1.3.

903.2.4. Group H-5 occupancies. An automatic sprinkler system shall be installed throughout buildings containing Group H-5 occupancies. The design of the sprinkler system shall not be less than that required under the *Mesa Building Code* for the occupancy hazard classifications in accordance with Table 903.2.4.2.

Where the design area of the sprinkler system consists of a corridor protected by one row of sprinklers, the maximum number of sprinklers required to be calculated is 13.

TABLE 903.2.4.2
GROUP H-5 SPRINKLER DESIGN CRITERIA

<u>LOCATION</u>	<u>OCCUPANCY HAZARD CLASSIFICATION</u>
<u>Fabrication areas</u>	<u>Ordinary Hazard Group 2</u>
<u>Service corridors</u>	<u>Ordinary Hazard Group 2</u>
<u>Storage rooms without dispensing</u>	<u>Ordinary Hazard Group 2</u>
<u>Storage rooms with dispensing</u>	<u>Extra Hazard Group 2</u>
<u>Corridors</u>	<u>Ordinary Hazard Group 2</u>

903.2.5. Change of occupancy. An existing building or portion thereof undergoing a change of occupancy shall provide an automatic sprinkler system complying with the requirements of this chapter when required by the Mesa Existing Building Code.

903.2.6. Additions. All additions to existing buildings or structures and all buildings or structures that are expanded by an addition(s) shall be provided with an automatic fire protection system complying with Section 903.3 as applicable.

Exceptions:

- Existing non-sprinklered R-3 and R-5 occupancies complying with the Mesa Residential Code, but not including residential care facilities.
- An existing non-sprinklered building or structure and additions to such existing building, provided the occupancy of the existing building is not changed, the addition is the same occupancy, and the total area of all such additions to the building do not exceed the allowable tabular amounts in Table 903.2.6.

These exceptions do not relieve the building from other Mesa City Code requirements.

Table 903.2.6
Allowed Building Additions

<u>Existing Building Area</u>	<u>1-1,999 sq. ft.</u>	<u>2,000-3,333 sq. ft.</u>	<u>3,334-4,000 sq. ft.</u>	<u>>4,000 sq. ft.</u>
<u>Maximum Aggregate Addition Area – All occupancies, except B, including outpatient clinics</u>	<u>1,000 sq. ft.</u>	<u>Up to 50% of the existing building area.</u>	<u>1,666 –1,000 sq. ft. to no more than 5,000 sq. ft. total building area.</u>	<u>1,000 sq. ft.</u>
<u>Maximum Aggregate Addition Area – B occupancies, not including outpatient clinics</u>	<u>Maximum total aggregate building area including all additions = 5,000 sq. ft.</u>			

The above exceptions do not supersede other requirements of this Chapter or the Mesa Building Code.

903.2.7. Rubbish and linen chutes. An automatic sprinkler system shall be installed at the top of rubbish and linen chutes and in their terminal rooms. Chutes extending through three or more floors shall have additional sprinkler heads installed within such chutes at alternate floors. Chute sprinklers shall be accessible for servicing.

903.2.8 Other hazards. Automatic sprinkler protection shall be provided for the hazards indicated in Sections 903.2.8.1 and 903.2.8.3.

903.2.8.1 During construction. Automatic sprinkler systems required during construction, alteration and demolition operations shall be provided in accordance with Section 1413.

903.2.8.2 Ducts conveying hazardous exhausts. Where required by the Mesa Mechanical Code, automatic sprinklers shall be provided in ducts conveying hazardous exhaust, or flammable or combustible materials.

Exceptions: Ducts in which the largest cross-sectional diameter of the duct is less than 10 inches (254 mm).

903.2.8.2.1 Protection of sprinklers. Automatic sprinklers installed in flammable vapor areas shall be protected from the accumulation of residue from spraying operations in an approved manner. Bags used as a protective covering shall be 0.003-inch-thick (0.076 mm) polyethylene or cellophane or shall be thin paper. Automatic sprinklers contaminated by overspray particles shall be replaced with new automatic sprinklers.

903.2.8.3 Commercial cooking operations. An automatic sprinkler system shall be installed in commercial kitchen exhaust hood and duct system where an automatic sprinkler system is used to comply with Section 904.

903.2.9 Other required suppression systems. In addition to the requirements of Section 903.2, the provisions indicated in Table 903.2.9 also require the installation of a suppression system for certain buildings and areas.

(5) **Renumber Table 903.2.13 to Table 903.2.9.**

(6) **Revise the following:**

903.3.1.1 NFPA 13 sprinkler systems. Where the provisions of this code require that a building or portion thereof be equipped throughout with an automatic sprinkler system in accordance with this section, sprinklers shall be installed throughout in accordance with NFPA 13 except as provided in Section 903.3.1.1.1.

903.3.1.1.1 Exempt locations. Automatic sprinklers shall not be required in the following rooms or areas where such rooms or areas, when approved by the fire code official, are protected with an approved automatic fire detection system in accordance with Section 907.2 that will respond to visible or invisible particles of combustion. Sprinklers shall not be omitted from any room merely because it is damp, of fire-resistance rated construction or contains electrical equipment.

1. Any room where the application of water, or flame and water, constitutes a serious life or fire hazard.
2. Any room or space where sprinklers are considered undesirable because of the nature of the contents ~~when approved by the fire code official~~.
3. Generator and transformer rooms separated from the remainder of the building by walls and floor/ceiling or roof/ceiling assemblies having a fire-resistance rating of not less than 2 hours.
4. In rooms or areas that are of noncombustible construction with wholly noncombustible contents.

(7) Add the following:

903.3.1.1.2 Minimum design requirements. The minimum design requirements for fire sprinkler systems shall be as determined by the Mesa Fire Code or as defined in Section 903.3.1.1.2 whichever is greater.

903.3.3.1.1.2.1 Shell buildings. The minimum sprinkler system design for shell buildings shall be Ordinary Group II as defined in 903.3.1.1.

Exception: If the property owner records against the property a restriction stating that the building will only be a B occupancy and the building is used for Group B Occupancy, the shell building sprinkler design may be designed to light hazard occupancy according to 903.3.1.1.

903.3.3.1.1.2.2 Buildings with roof structure over 20 feet. The minimum design requirements for buildings with the roof structure over 20 feet above the finished floor shall be for rack storage of Group IV commodities as defined in Chapter 23 and Section 903.3.1.1.

Exception: If the property owner records against the property a restriction stating that the building will not have rack or high pile storage and the building is not used for such purposes, the shell building sprinkler design may be designed as required according to 903.3.3.1.1.2.1.

(8) Add the following:

903.3.1.2.2 Required fire protection systems. For the purpose of inspection, testing, or maintenance of NFPA 13R fire protection systems in R-1 and R-2 occupancies, there shall be provided, at the time of construction, an exterior access door on the side of the building next to the fire sprinkler riser of adequate size to allow for valves and gauges to be accessed, repaired and viewed from the exterior for testing and maintenance purposes. The dimensions of the access door will be dependent upon the design of the riser and system devices but shall, in no case, require that service personnel must enter a private dwelling or garage to reach the riser for service and/or repair.

903.3.1.2.3 Attics. Sprinkler protection shall be provided for attics. For areas outside the dwelling unit including attics, design criteria shall comply with NFPA 13.

(9) Revise the following:

903.3.5 Water supplies. Water supplies for automatic sprinkler systems shall comply with this section and the standards referenced in Section 903.3.1. The potable water supply shall be protected against backflow in accordance with the requirements of City of Mesa Standard Detail M-31.6 ~~this section and the *International Plumbing Code*.~~

(10) Add the following:

903.3.5.3 Detectible Underground Locator Device. Underground nonmetallic water and irrigation system piping larger than two (2) inches in diameter shall be installed with insulated copper tracer wire or other approved conductor located adjacent to the piping. Access shall be provided to the tracer wire or the tracer wire shall terminate above ground at each end of the nonmetallic piping. The tracer wire size shall be not less than 18 AWG and the insulation type shall be suitable for direct burial.

(11) Revise the following:

903.3.6 Hose threads. Fire hose threads and fittings used in connection with automatic sprinkler systems shall be National Standard Thread as prescribed by the fire code official.

903.3.7 Fire department connections. The location of fire department connections shall be located on the building, nearest to the fire access road, but away from the main entry to the building. Locations shall be approved by the fire code official. Fire department connections remote from the buildings they service shall be clearly identified with address and building number with permanent, all-weather marking or signage, as determined by the fire code official approved by the fire code official.

(12) Add the following:

903.3.7.1. Fire department connection sizing. The size of the fire department connection and piping is dependent on the automatic sprinkler design flow. The maximum design flow for a 2-½ inch siamese connection is 500 gpm. For design flows greater than 500 gpm install a single 2-½ inch siamese connection and 5 inch Storz connection.

903.3.8 Safety Factor. All fire sprinkler designs shall have a 10 percent (pressure) safety margin.

903.3.9 Remodel. Fire sprinkler design drawings shall be required for tenant improvement or remodeling projects when 10 or more sprinkler heads are relocated and/or added.

903.3.10 Freeze Protection. Exterior sprinkler piping with a minimum of 2 inches may be used in lieu of freeze protection required by Section 903.3.1.1.

(13) Revise the following:

903.4 Exception 2:

2. Unless supervision is required by another provision of this Code or MBC, supervision is not required in buildings less than 12,000 square feet in total aggregate area. For the purposes of this Section, MBC Section 705 shall not apply. Note: All control valves on fire sprinkler systems that are not electrically supervised shall be locked in the open/normal position Limited area systems serving fewer than 20 sprinklers.

(14) Revise the following:

903.4.1 Signals. Alarm, supervisory and trouble signals shall be distinctly different and shall be automatically transmitted to an Underwriters Laboratory listed or Factory Mutual approved central station, remote supervising station or proprietary supervising station as defined in NFPA 72 or, when approved by the fire code official, shall sound an audible signal at a constantly attended location.

Exceptions:

1. Underground key or hub valves in roadway boxes provided by the municipality or public utility are not required to be monitored.
2. 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.

(15) Revise the following:

904.2.1 Commercial hood and duct systems. Each required commercial kitchen exhaust hood and duct system required by Section 609 to have a Type I hood shall be protected with an approved automatic fire-extinguishing system installed in accordance with this code.

Exception: type I hood serving a single electric or gas conveyor pizza oven, unless the oven manufacturer requires the fire suppression system.

(16) Revise the following:

904.11.2 System interconnection. The actuation of the fire extinguishing system shall automatically shut down the fuel or electrical power supply to the cooking equipment. The fuel and electrical supply reset shall be manual. Where resetting of the supply gas valve requires opening the valve cover, and the valve is located above ceiling, the valve shall be readily accessible.

(17) Revise the following:

~~**905.3.4.1 Hose and cabinet.** The 1½ inch (38 mm) hose connections shall be equipped with sufficient lengths of 1½ inch (38 mm) hose to provide fire protection for the stage area. Hose connections shall be equipped with an approved adjustable fog nozzle and be mounted in a cabinet or on a rack.~~

(18) Revise the following:

~~**905.5.3 Class II system 1-inch hose.** A minimum 1 inch (25 mm) hose shall be allowed to be used for hose stations in light hazard occupancies where investigated and listed for this service and where approved by the fire code official.~~

(19) Revise the following:

905.8 Dry standpipes. Dry standpipes shall not be installed, except where approved by the Fire Code Official.

Exception: Where subject to freezing and in accordance with NFPA 14.

(20) Add the following:

905.12 Standpipe Hose. The fire hose and nozzle as part of Class II or Class III wet standpipe system(s) may be removed or eliminated with written approval of the Fire Code Official.

(21) Revise the following:

906.1 Where required. Portable fire extinguishers shall be installed in the following locations.

1. In new and existing Group A, B, E, F, H, I, M, R-1, R-2, R-4 and S occupancies. ~~**Exception:** in new and existing Group A, B and E occupancies equipped throughout with quick response sprinklers, portable fire extinguishers shall be required only in locations specified in Items 2 through 6.~~

2. Within 30 feet (9144 mm) of commercial cooking equipment.
3. In areas where flammable or combustible liquids are stored, used or dispensed.
4. On each floor of structures under construction, except Group R-3 occupancies, in accordance with Section 1415.1.
5. Where required by the sections indicated in Table 906.1.
6. Special-hazard areas, including but not limited to laboratories, computer rooms and generator rooms, where required by the fire code official.

(22) Revise the following:

907.2.10.1.2 Groups R-2, R-3, R-4, R-5 and I-1. Single or multiple-station smoke alarms shall be installed and maintained in Groups R-2, R-3, R-4, R-5 and I-1 regardless of occupant load at all of the following locations:

1. On the ceiling or wall outside of each separate sleeping area in the immediate vicinity of bedrooms.
2. In each room used for sleeping purposes.
3. In each story within a dwelling unit, including basements but not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.

(23) Add the following:

907.2.10.1.4 Groups R-3 Residential Care Facilities and R-4. Multiple-station smoke alarms shall be installed and maintained in Groups R-3 Residential Care Facilities and R-4, regardless of occupant load, throughout the facility except in bathrooms, kitchens, garages, or mechanical rooms.

(24) Revise the following:

~~**912.5 Backflow protection.** The potable water supply to automatic sprinkler and standpipe systems shall be protected against backflow as required by the *International Plumbing Code*.~~

(25) Revise the following:

914.8.2 Fire suppression. Aircraft hangars shall be provided with fire suppression as required by NFPA 409 based on Table 914.8.2.

Exception: When a Fixed Based Operator has other repair facilities on site, Group II hangars operated by a Fixed Base Operator (FBO) used for storage of transient aircraft only, as defined in NFPA 409, storing private aircraft without major maintenance or overhaul are shall have a fire suppression system, but the system is exempt from foam suppression requirements.

Table 914.8.2 Hangar Group/Fire Suppression Requirements^a

Maximum Single Fire Area, sq. ft. (m²)	Type of Construction								
	IA	IB	IIA	IIB	IIIA	IIIB	IV	VA	VB
>40,001 (3,716)	Group I	Group I	Group I	Group I	Group I	Group I	Group I	Group I	Group I
40,000 (3,716)	Group II	Group II	Group II	Group II	Group II	Group II	Group II	Group II	Group II
30,000 (2,787)	Group III	Group II	Group II	Group II	Group II	Group II	Group II	Group II	Group II
20,000 (1,858)	Group III	Group III	Group II	Group II	Group II	Group II	Group II	Group II	Group II
15,000 (1,394)	Group III	Group III	Group III	Group II	Group III	Group II	Group III	Group II	Group II
12,000 (1,115)	Group III	Group III	Group III	Group III	Group III	Group III	Group III	Group II	Group II
8,000 (743)	Group III	Group III	Group III	Group III	Group III	Group III	Group III	Group III	Group II
5,000 (465)	Group III	Group III	Group III	Group III	Group III	Group III	Group III	Group III	Group III

^a All aircraft hangars with a door height greater than 28 feet shall be provided with fire suppression for a Group I hangar regardless of maximum fire area.

914.8.2.1 Hazardous Operations. Any aircraft hangar that has a Group III fire suppression system according to Table 914.8.2 and that contains hazardous operations including but not limited to the following shall be provided with a Group I or Group II fire suppression system as applicable:

1. Doping.
2. Hot work including, but not limited to welding, torch cutting, and torch soldering.
3. Fuel transfer.
4. Fuel tank repair or maintenance not including de-fueled tanks per NFPA 409, inerted tanks or tanks that have never been fueled.
5. Spray finishing operations.
6. Total fuel capacity of all aircraft within the maximum single fire area in excess of 1,600 gal.
7. Total fuel capacity of all aircraft within the maximum single fire area in excess of 7,500 gal for a hangar with a fire sprinkler system per NFPA 13.

914.8.2.2 Separation of Maximum Single Fire Areas. Maximum single fire areas shall be separated by fire walls.

(26) Add the following:

915. Firefighter Breathing Air Replenishment Systems

915.1. General. A firefighter breathing air replenishment system (FBAR System) is a complete, self-contained high pressure breathing air replenishment system for emergency responders. This system consists of a fire department air connection panel, remote air fill panels and high pressure interconnected piping, permanently installed within a structure. This allows fire department personnel to replenish empty self-contained breathing apparatus (SCBA) cylinders within close proximity to the location of the incident requiring emergency response, thus reducing the amount of travel distance, time and support personnel needed at an emergency incident.

915.2. Applicability. The requirements of this subsection shall apply to all new buildings and structures meeting the specifications set forth in paragraph 915.3.

915.3. Buildings and structures requiring FBAR System. A FBAR System shall be installed in all new buildings, existing buildings that have a change of occupancy and structures meeting any of the following criteria:

915.3.1 Buildings and structures five (5) floors or more above grade or high rise buildings as defined by the Mesa Building Code; or

915.3.2 Underground buildings and structures, or components thereof, totaling ten thousand (10,000) square feet or more that are either more than two (2) floors below grade or more than thirty (30) feet below grade.

915.4. Drawings. Submit scaled drawings of the FBAR system to the City of Mesa as required in Section 105 of the Mesa Fire Code.

915.5. Contractor qualifications. The FBAR system shall be installed, tested and maintained by a contractor with an Arizona Registrar of Contractors license and have knowledge of high pressure and medical gas piping.

915.6. FBAR System requirements. The FBAR System installation shall allow fire department personnel to simultaneously replenish four (4), 45 cubic foot self-contained breathing apparatus cylinders at any one (1) time, with two (2) connections at three thousand (3,000) psi and two (2) connections at four thousand five hundred (4,500) psi. Fire department personnel shall be able to connect into the FBAR System's fire department air connection panel at grade level from a mobile air support apparatus thereby providing a constant source of breathing air supplied directly from the air support apparatus to the system's remote air fill panels.

915.7. FBAR System components. The FBAR System shall consist of the following minimum components:

915.7.1 Exterior fire department air connection panel;

915.7.2 Interior cylinder fill panels;

915.7.3 Interconnected piping; and

915.7.4 Low pressure monitoring switches and alarm.

915.8. Exterior Fire Department Air Connection Panel.

915.8.1 Location: An exterior fire department air connection panel shall be installed on the exterior of the building or within a remote monument at a location approved by the Fire Chief with a minimum of six (6) foot – 180 degree clear unobstructed access to the front of the panel and shall be interconnected to the building's interior remote air fill panels. Locate the fire department fill panel within 50 feet of the approved fire access.

915.8.2 Enclosure: The fill inlet and associated components of the air connection panel shall be contained in a lockable, weather tight enclosure. The enclosure shall be a weather resistant metal cabinet constructed of minimum 18-gauge carbon steel or equivalent. The enclosure shall be provided with a coating or other means to protect the enclosure from corrosion.

915.8.3 Enclosure components: The exterior fire department connection panel shall contain all of the necessary gauges, isolation valves, pressure relief valves, pressure regulating valves, check valves, tubing, fittings, supports, connectors, adapters and other necessary components as may be required to allow the fire department's mobile air unit to quickly connect and augment the system with a constant source of breathing air. The panel shall be locked at all times, unless in use by fire department personnel. The locking mechanism for the panel cover shall be contained in an approved key box installed at a location approved by the Fire Chief. The key to unlocking the cover shall be stored in the approved key box. Each fire department connection panel shall contain at least two (2) connections.

915.8.4 Pressure relief valve: Install a pressure relief valve downstream of the pressure regulator inlet. The relief valve shall meet the requirements of CGA S-1.3 Safety Relief Valves and shall not be field adjustable. The relief valve shall have a set to open pressure not exceeding 1.1 times the design pressure of the system. Pressure relief valve discharge shall terminate so that the exhaust air stream cannot impinge upon personnel in the area. Valves, plugs or caps shall not be installed in the discharge of a pressure relief valve. Where discharge piping is used the end shall not be threaded.

915.8.5 Damage protection: The fire department air connection panel shall be installed in an area protected from physical damage.

915.9. Interior cylinder fill panels.

915.9.1 New buildings. Unless otherwise approved by the chief, the interior cylinder fill panels shall be installed in the above grade portion of applicable structures in all stairwells. Install the required interior cylinder fill panels commencing on the third floor and on every other floor above the third floor. The interior cylinder fill panels are not required on the highest floor or on the floor immediately below the highest floor. Unless otherwise approved by the chief, the interior cylinder fill panels shall be installed in the below grade portion of applicable structures at stairwells, or other areas of ingress or egress approved by the chief, commencing on the third floor below ground level and every other floor below grade level thereafter or, if there are fewer than three (3) floors below ground level, the lowest floor.

915.9.2 Existing buildings. Install the interior cylinder fill panels per Section 915.9 in existing buildings within one stairwell only. The Fire Chief shall approve that stairwell. The interior cylinder fill panels may be surfaced mounted within the stairwell and shall be at the stairwell floor landing.

915.9.3 Cabinet requirements. Each cylinder fill panel shall be installed in a metal cabinet constructed of minimum 18-gauge carbon steel or equivalent. The depth of the cabinet shall not create an exit obstruction when installed in building stairwells. With the exception of the shutoff valve, pressure gauges, fill hoses and ancillary components, no system components shall be visible and shall be contained behind a minimum 18-gauge interior panel.

915.9.3.1 Door. Hinges for the cabinet door shall be located inside of the cabinet. The door shall be arranged such that when the door is open, it does not reduce the required exit width or create an obstruction in the path of egress.

915.9.3.2 Cabinet components. The cabinet shall be of sufficient size to allow for the installation of the following components:

915.9.3.2.1 The cylinder fill panel shall contain all of the gauges, isolation valves, pressure relief valves, pressure regulating valves, check valves, tubing, fittings, supports, connectors, hoses, adapters and other components to refill SCBA cylinders.

915.9.3.2.2 Cylinder filling hose. The design of the cabinet shall provide a means for storing the hose to prevent kinking. When the hose is coiled, the brackets shall be installed so that the hose bend radius is maintained at 4 inches or greater. Fill hose connectors for connection to SCBA cylinders shall comply with the requirements of NFPA 1981. No other SCBA cylinder fill connections shall be permitted.

915.9.3.2.3 Security. Each panel cover shall be maintained locked by an approved means.

915.9.3.3 Clearance and access. The panel shall be a minimum of 36 inches but not more than 60 inches above the finished floor or stairway landing. Clear unobstructed access shall be provided to each panel.

915.9.4 The interior cylinder fill panel capacity. The interior cylinder fill panels shall contain all of the necessary gauges, isolation valves, pressure relief valves, pressure regulating valves, check valves, tubing, fittings, supports, connectors, adapters and other necessary components as may be required to allow firefighters and other first responders to safely and reliably replenish a minimum of two (2) forty-five (45) cubic feet breathing air cylinders simultaneously.

915.10 Tubing, valves and fittings. Unless otherwise approved by the Fire Chief, all tubing, valves and fittings shall be compatible and support a minimum working pressure of five thousand (5,000) psi. Design the tubing, valves and fittings with a safety factor of four (4). Support the tubing not less than at five-foot intervals.

915.10.1 Tubing. Tubing shall be stainless steel complying with ASTM A269 or other approved materials that are compatible with breathing air at the system pressure. Routing of tubing and bends shall be such as to protect the tubing from mechanical damage.

915.10.2 Fittings. Fittings shall be constructed of stainless steel complying with ASTM A403/A403M or other approved materials that are compatible with breathing air at the system pressure.

915.10.3 Prohibited materials. The use of non-metallic materials, carbon steel, iron pipe, malleable iron, high strength gray iron, or alloy steel shall be prohibited for breathing air pipe and tubing materials.

915.10.4 Protection. The entire system shall be protected by a minimum of two-hour rated construction that protects the system from possible damage. When piping must pass through a fire rated or solid material, protect the piping with a sleeve that is at least three (3) times the pipe diameter. Fill both ends of the sleeve and wall gap with an approved fire stop. Label the piping with "Rescue Breathing Air" at intervals not less than 10 feet.

915.11. Low pressure monitoring and alarm. When not being utilized by fire department personnel, the FBAR System shall maintain a constant pressure of at least four thousand five hundred (4,500) psi. An alarm or monitoring system capable of detecting, and that is set to detect, a pressure drop of one thousand (1,000) psi shall be included and maintained with the FBAR System. The low-pressure alarm shall transmit a supervisory signal to the building alarm fire system and to the central alarm monitoring station when the system pressure falls below the minimum allowed pressure. A building or structure owner or designee, shall notify the fire department of any scheduled test of the system conducted by the owner of the building or structure. Unless otherwise approved by the Fire Chief, the low-pressure alarm shall be monitored by an approved fire and smoke alarm system for the building or structure.

Exception: In lieu of the low pressure monitoring and alarm, the building owner shall test the air quality of the system every three months according to NFPA 1989.

915.12. Isolation valve. A system isolation valve shall be installed downstream of each air fill station and shall be located in the panel or within 3 feet of the station. The isolation valve shall be marked with its function in letters that are a minimum of 3/16-inches high with a 1/16-inch brush stroke.

915.13. Markings and record keeping. The fire department air connection panel and the remote air fill panels shall be clearly identified by means of permanently installed signage which says: "FIREFIGHTER AIR SYSTEM" in minimum letters 1½ inch high with a ¼ inch stroke and be located where plainly visible. The building or structure owner shall keep the area in and around the fire department air connection panel and the remote air fill panels free of objects that may block use of these panels and shall maintain and test the FBAR System in accordance with NFPA Standards and manufacturer specifications. Records of all maintenance and testing of the FBAR System shall be kept on-site for a minimum of three (3) years and be available to fire department personnel upon request.

915.14. Testing requirements. When fabrication, assembly and installation of the FBAR System is complete, the entire system shall be tested in accordance with the following:

915.14.1 The system shall be inspected for leaks by pneumatically pressure testing the system to five thousand (5,000) psi using oil-free, dry air. An approved solution shall be used on each joint and fitting in the system to detect leaks. All leaks or failure to maintain five thousand (5,000) psi pneumatic pressure shall be documented by the system installer and forwarded to the system manufacturer for inspection, repair and/or replacement.

915.14.2 Upon successful completion of the five thousand (5,000) psi pressure testing, the entire system shall be pneumatically pressure tested to one and one-half (1 1/2) times the working pressure (seven thousand five hundred (7,500) psi) using oil free, dry air for at least one (1) hour. All leaks or failure to maintain seven thousand five hundred (7,500) psi pneumatic pressure shall be documented by the system installer and forwarded to the system manufacturer for inspection, repair and/or replacement.

915.15 Air quality testing. Upon completion of the pressure testing, test the air quality of the systems according to NFPA 1989.

915.14.1 Final Proof Test. The Authority Having Jurisdiction shall witness filling of two (2) empty sixty six (66) cubic foot capacity SCBA cylinders in three (3) minutes or less using compressed air supplied by fire department equipment connected to the exterior fire department connection panel. The SCBA cylinders shall be filled at the air fill panel or station farthest from the exterior fire department connection panel. Following this, a minimum of two (2) air samples shall then be taken from separate air filling stations and submitted to an independent certified gas analyst laboratory to verify the system's cleanliness and that the air meets the requirements of NFPA 1989. The written report shall be provided to the Authority Having Jurisdiction certifying that the air analysis complies with the above requirements.

(I) CHAPTER 10 MEANS OF EGRESS**(1) Add the following:**

1003.8 No exit signage. Where a door is adjacent to, constructed similar to, and can be confused with a means of egress door, that door shall be identified with an approved sign that identifies the room name or use of room. The sign shall consist of letters having a principal stroke of not less than 0.75 inch (19.1mm) wide and at least 6 inches (152mm) high on a contrasting background.

(2) Add the following:

1008.1.1.2 Group R-3 Residential Care Facilities and R-4. Every required exit doorway shall be of a size as to permit the installation of a door not less than 3 feet (914 mm) in width and not less than 6 feet 8 inches (2032 mm) in height. When installed, exit doors shall be capable of opening so that the clear width of the exit is not less than 32 inches (813 mm). The door(s) shall be of the pivoted or side-hinged, swinging type.

(3) Revise the following:

1008.1.2 Door swing. Egress doors shall be side-hinged swinging.

Exceptions:

1. Private garages, office areas, factory and storage areas with an occupant load of 10 or less.
2. Group I-3 occupancies used as a place of detention.
3. Critical or intensive care patient rooms within suites of health care facilities.
4. Doors within or serving a single dwelling unit in Groups R-2, ~~and R-3~~ and R-5 as applicable in the Mesa Administrative Code, Chapter 1.
5. In other than Group H occupancies, revolving doors complying with Section 1008.1.3.1.
6. In other than Group H occupancies, horizontal sliding doors complying with Section 1008.1.3.3 are permitted in a means of egress.
7. Power-operated doors in accordance with Section 1008.1.3.2.
8. Doors serving a bathroom within an individual sleeping unit in Group R-1.

Doors shall swing in the direction of egress travel where serving an occupant load of 50 or more persons or a Group H occupancy.

The opening force for interior side-swinging doors without closers shall not exceed a 5-pound (22 N) force. For other side-swinging, sliding and folding doors, the door latch shall release when subjected to a 15-pound (67 N) force. The door shall be set in motion when subjected to a 30-pound (133 N) force. The door shall swing to a full-open position when subjected to a 15-pound (67 N) force. Forces shall be applied to the latch side.

(4) Revise the following:

1008.1.8.3 Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exists:

1. Places of detention or restraint. For required exterior exit doors, approved magnetic door locking shall comply with 1008.1.8.6.
2. In buildings in occupancy Group A having an occupant load of 300 or less, Groups B, F, M and S, and in places of religious worship, the main exterior door or doors are permitted to be equipped with key-operated locking devices from the egress side provided:
 - 2.1. The locking device is readily distinguishable as locked,
 - 2.2. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background, 2.3. The use of the key-operated locking device is revocable by the fire code official for due cause.
3. Where egress doors are used in pairs, approved automatic flush bolts shall be permitted to be used, provided that the door leaf having the automatic flush bolts has no doorknob or surface-mounted hardware.
4. Doors from individual dwelling or sleeping units of Group R-1, R-2, R-3 (not including residential/care assisted living facilities) and R-5 ~~R~~ occupancies having an occupant load of 10 or less are permitted to be equipped with a night latch, dead bolt or security chain, provided such devices are operable from the inside without the use of a key or tool.
5. Doors from individual dwelling or sleeping units of Group R-3 residential care/assisted living facilities and R-4 occupancies are permitted to be equipped with locks or latches, provided such devices are operable from the inside without the use of a key or tool and are mounted not more than 48 inches (1219 mm) above the finished floor.

(5) Revise the following:

1008.1.8.6 Delayed egress locks. Approved, listed, delayed egress locks shall be permitted to be installed on doors serving any occupancy except Group A, E and H occupancies in buildings that are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an approved automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors unlock in accordance with Items 1 through 6 below. A building occupant shall not be required to pass through more than one door equipped with a delayed egress lock before entering an exit.

1. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.
2. The doors unlock upon loss of power controlling the lock or lock mechanism.
3. The door locks shall have the capability of being unlocked by a signal from the fire command center.

4. The initiation of an irreversible process which will release the latch in not more than 15 seconds when a force of not more than 15 pounds (67 N) is applied for 1 second to the release device. Initiation of the irreversible process shall activate a verbal messaging system ~~an audible signal~~ in the vicinity of the door. This verbal message shall announce time remaining before door releases. Once the door lock has been released by the application of force to the releasing device, relocking shall be by manual means only.

Exception: Where approved, a delay of not more than 30 seconds is permitted.

5. A sign shall be provided on the door located above and within 12 inches (305 mm) of the release device reading: PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS.
6. Emergency lighting shall be provided at the door.

(6) Add the following:

1011.6 Floor-level Exit Signs. Where exit signs are required by Section 1011.1, additional approved low-level exit signs shall be provided in all corridors serving guest rooms in R-1 occupancies. Such low-level exit signs shall be internally or externally illuminated, photo luminescent or self-luminous, and shall be mounted with the bottom of the exit sign not less than 6 inches (152 mm) nor more than 8 inches (203 mm) above the floor level. For exit doors, the sign shall be mounted on the door adjacent to the door with the closest edge of the exit sign within 4 inches (102 mm) of the doorframe.

Exception: Where all sleeping units on a floor have a direct means of egress to the exterior.

(7) Revise the following:

1019.2 Buildings with one exit. Only one exit shall be required in buildings as described below:

1. Buildings described in Table 1019.2, provided that the building has not more than one level below the first story above grade plane.
2. Buildings of Group R-3 and R-5 occupancy, not licensed as a Care Facility.
3. Single-level buildings with the occupied space at the level of exit discharge provided that the story or space complies with Section 1015.1 as a space with one means of egress.

(8) No revisions to Table 1019.2

(9) Revise the following:

1028.2 Reliability. Required exit accesses, exits or exit discharges shall be continuously maintained in good repair and free from obstructions or impediments to full instant use in the case of fire or other emergency when the areas served by such exits are occupied. Security devices affecting means of egress shall be subject to approval of the fire code official.

(10) Add the following:

1028.8 No exit signage. Where a door is adjacent to, constructed similar to, and can be confused with a means of egress door, that door shall be identified with an approved sign that identifies the room name or use of room. The sign shall consist of letters having a principal stroke of not less than 0.75 inch (19.1mm) wide and at least 6 inches (152mm) high on a contrasting background.

(J) CHAPTER 14 FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION**(1) Revise the following:**

1408.2 Prefire plans. ~~The site superintendent shall develop and maintain a pre-fire plan. The fire prevention program superintendent shall develop and maintain an approved prefire plan in cooperation with the fire chief. The fire chief and the fire code official shall be notified of changes affecting the utilization of information contained in such prefire plans.~~

(2) Revise the following:

1410.1 Required access. The access road shall be a minimum of 20 feet wide and shall be an all weather driving surface, graded to drain standing water and engineered to bear the imposed loads of fire apparatus (74,000 lbs/24,000lbs per axle) when roads are wet. For example, a minimum of six (6) inches of ABC compacted to 90% over an approved base would meet the requirement.

The access road shall be extended to within 200 feet of any combustible materials and/or any location on the jobsite where any person(s) shall be working for a minimum of four (4) continuous hours in any day. A clearly visible sign marked "Fire Department Access", in red letters, shall be provided at the entry to the access road.

All open trenches shall have steel plates capable of maintaining the integrity of the access road design when these trenches cross an access road. These access roads may be temporary or permanent. This policy applies only during construction and/or demolition. Permanent access per the Mesa Fire Code shall be in place prior to any final inspection or certificate of occupancy.

(3) Revise the following:

1410.1 Required access. ~~Approved vehicle access for fire fighting shall be provided to all construction or demolition sites. Vehicle access shall be provided to within 100 feet (30 480 mm) of temporary or permanent fire department connections. Vehicle access shall be provided by either temporary or permanent roads, capable of supporting vehicle loading under all weather conditions. Vehicle access shall be maintained until permanent fire apparatus access roads are available. The access road shall be a minimum of 20 feet wide and shall be an all weather driving surface, graded to drain standing water and engineered to bear the imposed loads of fire apparatus when roads are wet.~~

The access road shall be extended to within 200 feet of any combustible materials and/or any location on the jobsite where any person(s) shall be working for a minimum of four (4) continuous hours in any day. A clearly visible sign marked "Fire Department Access", in red letters, shall be provided at the entry to the access road.

All open trenches shall have steel plates capable of maintaining the integrity of the access road design when these trenches cross an access road. These access roads may be temporary or permanent. This policy applies only during construction and/or demolition. Permanent access per the Mesa Fire Code shall be in place prior to any final inspection or certificate of occupancy.

(4) Revise the following:

1412.1 When required. ~~An approved water supply for fire protection, either temporary or permanent, shall be made available as soon as combustible material arrives on the site~~ construction site shall meet the requirements of Appendix Chapters B and C. The minimum fire flow requirement when contractor or developer brings combustible materials on site is 1,500 gpm at 25 psi. At least one fire hydrant shall be within 500 feet of any combustible materials and capable of delivering the minimum fire flow requirement. This hydrant or hydrants may be either temporary or permanent as the project schedule permits.

In addition, there are times when hydrants and valves must be closed temporarily for repair work or construction of the water system. The developer/contractor is responsible for ensuring that the water supply is available at all times. When the work is complete, developer/contractor shall make sure that the fire hydrants are active and the valves are open.

(K) CHAPTER 15 FLAMMABLE FINISHES**Add the following:**

1504.10 Exterior finishing operations. Spray-finishing operations shall not be conducted outside of approved structures.

Exceptions:

1. Spray coating of buildings or dwellings, including appurtenances and any other ornamental objects that are not normally removed prior to coating.
2. Spray coating of facility equipment or structures which are fixed in a permanent location and cannot easily be moved into an enclosure or spray booth and which are not normally dismantled or moved prior to coating.
3. Spray coating of objects, which cannot fit inside of an enclosure with internal dimensions of 10'W x 25'L x 8'H, excluding vehicles.
4. Coating operations utilizing only hand-held aerosol cans.

(L) CHAPTER 19 LUMBER YARDS AND WOODWORKING FACILITIES**(1) Revise the following:**

1904.2 Portable fire extinguishers and hose. Portable fire extinguishers or standpipes supplied from an approved water system shall be provided within 50 feet (15 240 mm) of travel distance to any machine producing shavings or sawdust. Extinguishers shall be provided in accordance with Section 906 for extra-high hazards.

(2) Revise the following:

1909.5 Fire protection. ~~An approved hydrant and hose system~~ or portable fire-extinguishing equipment suitable for the fire hazard involved shall be provided for open storage yards. Hydrant and hose systems shall be installed in accordance with NFPA 24. Portable fire extinguishers complying with Section 906 shall be located so that the travel distance to the nearest unit does not exceed 75 feet (22 860 mm).

(M) CHAPTER 23 HIGH-PILED COMBUSTIBLE STORAGE**(1) Revise the following:**

2301.1 Scope. High-piled combustible storage shall be in accordance with this chapter. In addition to the requirements of this chapter, the following material-specific requirements shall apply:

1. Aerosols shall be in accordance with Chapter 28.
2. Flammable and combustible liquids shall be in accordance with Chapter 34.
3. Hazardous materials shall be in accordance with Chapter 27.
4. Storage of combustible paper records shall be in accordance with NFPA 13 and NFPA ~~232~~ 230.
5. Storage of combustible fibers shall be in accordance with Chapter 29.
6. Storage of miscellaneous combustible material shall be in accordance with Chapter 3.

(2) Add the following:

2306.4.1 Identification of sprinkler system capabilities and limitations. An adhesive label shall be permanently installed at or adjacent to each sprinkler riser. When a building contains more than four risers, the sign shall be located at an approved location inside the building. When sprinkler risers are located outside of the building, the sign shall be stamped metal. The minimum sign dimension is 6-inches high by 4-inches wide. The sign shall specify the capabilities and limitations of the automatic sprinkler system. The sign shall include the following information:

1. The design base or basis, including the edition used
2. A statement indicating if the sprinkler design is control mode density area method, control mode specific application, suppression mode, or any combination thereof.
3. When used, all of the storage conditions stipulated NFPA 13, Section 12.7 for special designs.
4. The maximum storage height
5. The minimum required aisle width
6. If storage is in racks, the maximum rack width and minimum transverse and longitudinal flue widths.
7. Commodities that can be protected by the automatic sprinkler system
8. Commodities that cannot be protected by the automatic sprinkler system
9. Limits on storage heights of idle wood and plastic storage

10. Limits on storage heights of miscellaneous Group A plastic, tire and rolled paper storage
11. Locations where in-rack sprinklers are required
12. Locations where horizontal and/or vertical barriers are required
13. Information explaining the manufacturer, sprinkler identification number, k-factor, and operating temperature of the overhead sprinklers protecting the high pile storage.

The following example illustrates a suggested label or sign:

Automatic Sprinkler System Capabilities & Limitations	
Stored Commodity	Class I water miscible flammable liquids in 1 & 5 gallon polyethylene containers in fiberboard cartons
Design Documents	NFPA 13, 2002 edition & NFPA 30-2000 edition, Table 4.8.2 (g) and section 4.8.6.2 (Scheme B)
Design Type	Control Mode, Density/Area Method
Max. Storage Height	25 feet
Min. Aisle Width	8 feet
Max. Rack Width	9 feet
Flue Dimensions	Longitudinal: Min. 6 inches Transverse: Min. 3 inches
System Capabilities	Class I-IV commodities, stored commodity, solid pile or palletized Group A plastics to 12 feet; rack storage of Group A plastics to 25 feet.
System Limitations	No level 2 or 3 aerosols, Class 2, 3 or 4 oxidizers
Idle Pallets	6 feet maximum storage height
Tire Storage	5 feet maximum storage height
Roll Paper Storage	5 feet maximum storage height
In-rack sprinklers	In-rack sprinklers are required at each of 3 rack tiers containing the stored commodity. In-rack sprinklers are Tyco/Central FS-B, 17/32" orifice, QR 155°F element, SIN TY0041
Horizontal Barriers	Required at each rack tier containing the stored commodity.
Ceiling Sprinkler	Tyco ELO-231B, ¾" orifice, SR 286°F element, upright, SIN TY0030

(3) Revise the following:

2306.7 Smoke and heat removal. Where smoke and heat removal are required by Table 2306.2, smoke and heat vents shall be provided in accordance with Section 910. Where draft curtains are required by Table 2306.2, they shall be provided in accordance with Section 910.3.4. When automatic sprinkler systems are provided in accordance with Sections 2307, 2308 and 2309:

1. The draft curtains requirements from Table 2306.2 are not required.
2. The temperature rating of the smoke and heat vents shall be two temperature ratings higher than the sprinkler head temperature rating.
3. Provide a manual pull to operate the system located on the roof through the curb on each vent.

(4) Revise the following:

2306.8 Hose Stations and Hose Connections.

2306.8.1 Small hose stations. Install 1-½ inch hose valves when the size of high-piled storage is greater than 2,500 sq. ft for Class I-IV commodities or 500 sq. ft. of high hazard commodities at approved locations in accordance with Section 905.

2306.8.2 Fire department hose connections. Where exit passageways are required by the *International Building Code* for egress, a Class I standpipe system shall be provided in accordance with Section 905.

(5) Revise the following:

2308.2.2 Racks with solid shelving. Racks with solid shelving having an area greater than 32 square feet (3 m²), measured between approved flue spaces at all four edges of the shelf, shall be in accordance with this section.

Exceptions:

1. Racks with mesh, grated, slatted or similar shelves having uniform openings not more than 6 inches (152 mm) apart, comprising at least 50 percent of overall shelf area, and with approved flue spaces, are allowed to be treated as racks without solid shelves.
2. Racks used for the storage of combustible paper records, with solid shelving, shall be in accordance with NFPA 13 and NFPA 232.

(6) Revise the following:

2308.4 Column protection. Steel building columns shall be protected in accordance with NFPA 13 ~~230~~.

(7) Revise the following:

2310.1 General. Records storage facilities used for the rack or shelf storage of combustible paper records greater than 12 feet (3658 mm) in height shall be in accordance with Sections 2306 and 2308 and NFPA 13 and NFPA 232 ~~230~~. Palletized storage of records shall be in accordance with Section 2307.

(N) CHAPTER 24 TENTS, CANOPIES AND OTHER MEMBRANE STRUCTURES

(1) Revise the following:

2403.2 Approval required. Tents and membrane structures having an area in excess of 400 ~~200~~ square feet (37 ~~19~~ m²) and canopies in excess of 1200 ~~400~~ square feet (148 ~~37~~ m²) shall not be erected, operated or maintained for any purpose without first obtaining a permit and approval from the Fire code Official.

Exceptions:

1. Tents used exclusively for recreational camping purposes.
2. Fabric canopies open on all sides which comply with all of the following:
 - 2.1. Individual canopies having a maximum size of 700 square feet (65 m²).
 - 2.2. The aggregate area of multiple canopies placed side by side without a fire break clearance of 12 feet (3658 mm), not exceeding 700 square feet (65 m²) total.
 - 2.3. A minimum clearance of 12 feet (3658 mm) to all structures and other tents.

(O) CHAPTER 27 HAZARDOUS MATERIALS—GENERAL PROVISIONS**(1) Revise the following:**

2701.5.1 Hazardous Materials Management Plan. Where required by the fire code official, each application for a permit shall include a Hazardous Materials Management Plan (HMMP) in conformance with the City of Mesa Fire Prevention Policy and Procedure. The HMMP shall include a facility site plan designating the following:

1. Storage and use areas.
2. Maximum amount of each material stored or used in each area.
3. Range of container sizes.
4. Locations of emergency isolation and mitigation valves and devices.
5. Product conveying piping containing liquids or gases, other than utility-owned fuel gas lines and low-pressure fuel gas lines.
6. On and off positions of valves for valves that are of the self-indicating type.
7. Storage plan showing the intended storage arrangement, including the location and dimensions of aisles.
8. The location and type of emergency equipment. The plans shall be legible and drawn approximately to scale. Separate distribution systems are allowed to be shown on separate pages.

(2) Add the following:

2701.5.1.1 Hazardous Materials Management Plan (HMMP) Short Form (minimal storage). A facility shall qualify as a minimal storage site if the aggregate quantity of each hazardous material present in the facility is 500 pounds or less for solids, 55 gallons or less for liquids, and 200 cubic feet or less at NTP for compressed gasses for any classification of material. The applicant for a permit for a facility that qualifies as a minimal storage site shall be permitted to submit the short form HMMP. Such a plan shall conform to City of Mesa Fire Prevention Policy and Procedure.

(3) Revise the following:

2701.5.2 Hazardous Materials Inventory Statement (HMIS). Where required by the fire code official, an application for a permit shall include an HMIS, such as SARA (Superfund Amendments and Reauthorization Act of 1986) Title III, Tier II Report, or other approved statement. A separate hazardous materials inventory statement shall be provided for each building and control area, including its appurtenant structures, and each exterior facility in which hazardous materials are stored. The HMIS shall list all hazardous materials stored and include the following information for each hazardous material stored and include the following information:

1. Chemical name and concentration ~~Manufacturer's name.~~
2. Chemical Abstract Service (CAS) identification number ~~Chemical name, trade names, hazardous ingredients.~~
3. Use amount (open and closed) ~~Hazard classification.~~
4. Storage amount ~~MSDS or equivalent.~~
5. Outdoor amount, both in storage and use ~~United Nations (UN), North America (NA) or the Chemical Abstract Service (CAS) identification number.~~
6. Mesa Fire Code hazard classification ~~Maximum quantity stored or used on site at one time.~~
7. Physical state and physical or health class ~~Storage conditions related to the storage type, temperature and pressure.~~
8. NFPA 704 hazard value.
9. Department of Transportation (DOT) hazard identification number.
10. DOT hazard classification.
11. Type of storage containers
12. Units of measurement used.
13. Physical and health affects.

(4) Add the following:

2701.5.2.1 Changes to Hazardous Materials Inventory Statements. An amended hazardous materials inventory statement shall be provided to the fire official by facilities that store or handle hazardous materials within thirty (30) days of a change or addition of hazard class, or in amounts sufficient to cause an increase or decrease in the aggregate quantity that exceeds five percent (5%) for any physical or health class.

(5) Revise the following:

3001.1 Scope. Storage, use and handling of compressed gases in compressed gas containers, cylinders, tanks and systems shall comply with this chapter, including those gases regulated elsewhere in this code. Partially full compressed gas containers, cylinders or tanks containing residual gases shall be considered as full for the purposes of the controls required.

Exceptions:

1. Gases used as refrigerants in refrigeration systems (see Section 606).
2. Compressed natural gas (CNG) for use as a vehicular fuel shall comply with Chapter 22, NFPA 52 and the *International Fuel Gas Code*.

Cutting and welding gases shall also comply with Chapter 26.

Cryogenic fluids shall ~~also~~ comply with Chapter 32. Liquefied natural gas for use as a vehicular fuel shall also comply with NFPA 57 and NFPA 59A.

Compressed gases classified as hazardous materials shall also comply with Chapter 27 for general requirements and chapters addressing specific hazards, including Chapters 35 (Flammable Gases), 37 (Highly Toxic and Toxic Materials), 40 (Oxidizers) and 41 (Pyrophoric).

LP-gas shall also comply with Chapter 38 and the *International Fuel Gas Code*.

(P) CHAPTER 33 EXPLOSIVES AND FIREWORKS

3301.1.3 Fireworks. The possession, manufacture, storage, handling and use of fireworks are prohibited except as allowed under Mesa City Code 6-21. (5021)

(1) Add the following:

3301.9 Abandonment. Explosive materials shall not be abandoned.

(2) Revise the following:

3304.2 Magazine required. Explosives and explosive materials, and Division 1.3G fireworks shall be stored in magazines constructed, located, operated and maintained in accordance with the provisions of Section 3304 and NFPA 495 or NFPA 1124.

Exceptions:

1. Storage of fireworks at display sites in accordance with Section 3308.5 and NFPA1123 or NFPA1126.
2. Portable or mobile magazines not exceeding 120 square feet (11 m²) in area shall not be required to comply with the requirements of the *International Building Code*. The number of portable or mobile magazines counted as one structure shall not exceed an aggregate of two.

(3) Add the following:

3305.9.1 Standby personnel. When required by the Chief, standby personnel shall be provided until such time as the site is determined to be safe.

(4) Revise the following:

3306.4 Storage in Group R occupancies. The storage of small arms ammunition in Group R occupancies shall comply with Sections 3306.4.1 and 3306.4.2.

3306.4.1 Black powder and smokeless propellants. Propellants for personal use in quantities not exceeding 20 pounds (9 kg) of black powder or 20 pounds (9 kg) of smokeless powder shall be stored in original containers in occupancies limited to Group R-5 ~~R-3~~. Smokeless powder in quantities exceeding 20 pounds (9 kg) but not exceeding 50 pounds (23 kg) kept in a wooden box or cabinet having walls of at least 1 inch (25 mm) nominal thickness shall be allowed to be stored in occupancies limited to Group R-5 ~~R-3~~. Quantities exceeding these amounts shall not be stored in any Group R occupancy.

3306.4.2 Small arms primers. No more than 10,000 small arms primers shall be stored in occupancies limited to Group R-5 ~~R-3~~.

(5) Revise the following:

3306.5.1.3 Small arms primers. No more than 10,000 small arms primers shall be displayed in Group M occupancies. Black powder shall not be stored with small arms primers or percussion caps.

(Q) CHAPTER 34 FLAMMABLE AND COMBUSTIBLE LIQUIDS**(1) Revise the following:**

3404.3.3.9 Idle combustible pallets. Storage of empty or idle combustible pallets inside an unprotected liquid storage area shall be limited to a maximum pile size of 2,500 square feet (232 m²) and to a maximum storage height of 6 feet (1829 mm). Storage of empty or idle combustible pallets inside a protected liquid storage area shall comply with NFPA 13 and NFPA 232 ~~230~~. Pallet storage shall be separated from liquid storage by aisles that are at least 8 feet (2438 mm) wide.

(2) Add the following:

3406.5.1.19 Disabled vehicles. When a tank vehicle or tank is disabled through accident or mechanical failure and it becomes necessary to remove the cargo at that location, such cargo is allowed to be transferred to another tank vehicle or tank car using approved means.

3406.5.1.20 Time limit for unloading. Tank vehicles and tank cars shall be unloaded as soon as possible after arrival at point of delivery and shall not be used as storage tanks. Tank cars shall be unloaded only on private sidings or railroad siding facilities equipped for transferring the liquid between tank cars and permanent storage tanks. Unless otherwise approved, a tank car shall not be allowed to remain on a siding at the point of delivery for more than 24 hours while connected for transfer operations.

(R) CHAPTER 40 OXIDIZERS**(1) Revise the following:**

4001.1 Scope. The storage and use of oxidizers shall be in accordance with this chapter and Chapter 27. Compressed gases shall also comply with Chapter 30. Oxidizing cryogenic fluids shall also comply with Chapter 32.

Exceptions:

1. Display and storage in Group M and storage in Group S occupancies complying with Section 2703.11.
2. Bulk oxygen systems at industrial and institutional consumer sites shall be in accordance with NFPA 55.
3. Liquid oxygen stored or used in home health care in I-1, I-4 and R occupancies in accordance with Section 4006.

(2) Add the following:

4002.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

LIQUID OXYGEN HOME CARE CONTAINER. A container used for liquid oxygen not exceeding 15.8 gallons (60 liters) specifically designed for use as a medical device as defined by 21 USC Chapter 9, the United States Food, Drug and Cosmetic Act that is intended to deliver gaseous oxygen for therapeutic use in a home environment.

LIQUID OXYGEN AMBULATORY CONTAINER. A container used for liquid oxygen not exceeding 0.396 gallons (1.5 liters) specifically designed for use as a medical device as defined by 21 USC Chapter 9, the United States Food, Drug and Cosmetic Act that is intended for portable therapeutic use and to be filled from its companion base unit (a liquid oxygen home care container).

OXIDIZING CRYOGENIC FLUID. An oxidizing gas in the cryogenic state.

SECTION 4006 LIQUID OXYGEN IN HOME HEALTH CARE

4006.1 General. The storage and use of liquid oxygen (LOX) in home health care in I-1, I-4 and R occupancies shall comply with Sections 4006.2 through 4006.7, or shall be stored and used in accordance with Chapter 27.

4006.2 Information and instructions to be provided. The seller of liquid oxygen shall provide the user with information in written form that includes, but is not limited to, the following:

1. Manufacturer's instructions and labeling for safe storage and use of the containers.
2. Locating containers away from ignition sources, exits, electrical hazards and high temperature devices in accordance with Section 4006.3.3.
3. Restraint of containers to prevent falling in accordance with Section 4006.3.4.
4. Requirements for handling containers in accordance with Section 4006.3.5.
5. Safeguards for refilling containers in accordance with Section 4006.3.6.
6. Signage requirements in accordance with Section 4006.6.

4006.3 Liquid oxygen home care containers. Containers of liquid oxygen in home health care shall be in accordance with Section 4006.3.1 through 4006.3.6.

4006.3.1 Maximum individual container capacity. Liquid oxygen home care containers having a maximum individual capacity not exceeding 15.8 gal (60 liters) and liquid oxygen ambulatory containers are allowed in Groups I-1, I-4, and R occupancies. Such containers shall be stored, used and filled in accordance with Sections 4006, 3203.1 and 3203.2.

4006.3.2 Manufacturer's instructions and labeling. Containers shall be stored, used and operated in accordance with the manufacturer's instructions and labeling.

4006.3.3 Locating containers. Containers shall not be located in areas:

1. Where they can be overturned due to operation of a door,
2. Where they are in the direct path of egress,
3. Subject to falling objects,
4. Where they may become part of an electrical circuit, or
5. Where open flames and high temperature devices can cause a hazard.

4006.3.4 Restraining containers. Liquid oxygen home care containers shall be restrained while in storage or use to prevent falling caused by contact, vibration or seismic activity. Containers shall be restrained by one of the following methods:

1. Restraining containers to a fixed object with one or more restraints.
2. Restraining containers within a framework, stand or assembly designed to secure the container.
3. Restraining containers by locating a container against two points of contact like the walls of a corner of a room or a wall and a secure furnishing or object like a desk.

4006.3.5 Container handling. Containers shall be handled by use of a cart or hand truck designed for such use.

Exceptions:

1. Liquid oxygen home care containers equipped with a roller base.
2. Liquid oxygen ambulatory containers are allowed to be hand carried.

4006.3.6 Filling of containers. The filling of containers shall be in accordance with Sections 4006.3.6.1 through 4006.3.6.3.

4006.3.6.1 Filling location. Liquid oxygen home care containers shall be filled outdoors.

Exception: Liquid oxygen ambulatory containers are allowed to be filled indoors if the supply container is specifically designed for filling such containers and written instructions are provided by the container manufacturer.

4006.3.6.2 Incompatible surfaces. A liquid oxygen compatible drip pan shall be provided under home care container fill and vent connections during the filling process in order to protect against liquid oxygen spillage from coming into contact with combustible surfaces, including asphalt.

4006.3.6.3 Open flames and high temperature devices. The use of open flames and high temperature devices shall be in accordance with Section 2703.7.2.

4006.4 Maximum aggregate quantity. The maximum aggregate quantity of liquid oxygen allowed in storage and in use in each dwelling unit shall be 31.6 gal (120 L).

Exceptions:

1. The maximum aggregate quantity of liquid oxygen allowed in Group I-4 occupancies shall be limited by the maximum allowable quantity set forth in Table 2703.1.1(1).
2. Where individual sleeping rooms are separated from the remainder of the dwelling unit by fire barriers and horizontal assemblies having a minimum fire-resistance rating of 1 hour in accordance with the *International Building Code*, the maximum aggregate quantity per dwelling unit can be increased to allow a maximum of 31.6 gal (120 L) of liquid oxygen per sleeping room.

4006.5 Smoking prohibited. Smoking shall be prohibited in rooms or areas where liquid oxygen is in use.

4006.6 Signs. Warning signs for occupancies using home health care liquid oxygen shall be in accordance with Section 4006.6.

4006.6.1 No smoking sign. A sign stating “OXYGEN NO SMOKING” shall be posted in each room or area where the liquid oxygen home care container(s) is stored or used or where liquid oxygen ambulatory containers are filled.

4006.6.2 Premises signage. When required by the fire code official, each dwelling unit or sleeping unit shall have an approved sign indicating that the unit contains liquid oxygen home care container(s).

4006.7 Fire department notification. When required by the fire code official, the liquid oxygen seller shall notify the fire department of the locations of liquid oxygen home care containers.

(S) CHAPTER 45 REFERENCED STANDARDS**(1) Revised the following NFPA Standards:**

- | | |
|----------------------------------|--|
| 10— 07 02 | Portable Fire Extinguishers |
| 11— 05 02 | Low Medium- and High-Expansion Foam |
| 13— 07 02 | Installation of Sprinkler Systems |
| 13D— 07 02 | Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes |
| 13R— 07 02 | Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height. |
| 14— 07 03 | Installation of Standpipe, Private Hydrants and Hose Systems |
| 15— 07 04 | Water Spray Fixed Systems for Fire Protection |
| 20— 07 03 | Installation of Stationary Pumps for Fire Protection |
| 24— 07 02 | Installation of Private Fire Service Mains and their Appurtenances |

- 30B—02 ~~03~~ Manufacture and Storage of Aerosol Products
- 52—06 ~~02~~ Compressed Natural Gas (CNG) Vehicular Fuel Systems
- 72—07 ~~02~~ National Fire Alarm Code
- 99—05 ~~02~~ Health Care Facilities
- 101—06 ~~03~~ Life Safety Code
- 110—05 ~~02~~ Emergency and Standby Power Systems
- 211—06 ~~03~~ Chimneys, Fireplaces, Vents and Solid Fuel-Burning Appliances
- 409-04 ~~02~~ Aircraft Hangars
- 430—04 ~~00~~ Storage of Liquid and Solid Oxidizers
- 495—06 ~~04~~ Explosive Materials Code
- 498—06 ~~04~~ Safe Havens and Interchange Lots for Vehicles Transporting Explosives
- 505—06 ~~02~~ Powered Industrial Trucks, Including Type Designations, Areas of Use, Maintenance, and Operation
- 654—06 ~~00~~ Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids.
- 750—06 ~~03~~ Standard on Water Mist Fire Protection Systems
- 1124—06 ~~03~~ Manufacture, Transportation, and Storage of Fireworks and Pyrotechnic Articles

(2) Add the following NFPA Standards:

- 232—00 Standard for the Protection of Records
- 409—04 Standard on Aircraft Hangars
- 484—06 Standard for Combustible Metals, Metal Powders, and Metal Dusts

(T) CHAPTER 46 AUTOMOBILE WRECKING YARDS

(1) Add the following:

CHAPTER 46 – AUTOMOBILE WRECKING YARDS

SECTION 4601 GENERAL

4601.1 General. Automobile wrecking yards shall be in accordance with this chapter.

4601.2 Fire department access roads. Fire Department access roads for facilities and piles shall be in accordance with Section 503.

4601.3 Fire extinguishers. Fire extinguishers shall be placed and sized in accordance with Section 906.

4601.4 Welding and cutting. Welding and cutting operations shall be in accordance with Chapter 26.

4601.5 Tire Storage. Tire storage shall be in accordance with Chapter 25.

4601.6 Burning operations. The burning of salvage vehicles and salvage or waste materials shall be prohibited.

SECTION 4602 DEFINITIONS

4602.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

AUTOMOBILE WRECKING YARD. An area that stores salvage vehicles.

MOTOR VEHICLE FLUIDS. Liquids which are flammable, combustible or hazardous materials, such as crankcase fluids, fuel, brake fluids, transmission fluids, radiator fluids and gear oil. This definition does not include liquids which are permanently sealed, such as hydraulic fluid within shock absorbers.

SALVAGE VEHICLE. A vehicle which is dismantled for parts or awaiting destruction.

SECTION 4603 MOTOR VEHICLE FLUIDS AND HAZARDOUS MATERIALS

4603.1 General. The storage, use, and handling of motor vehicle fluids and hazardous materials, such as those used to operate air bags and electrical systems, shall be in accordance with Section 4603 and Chapters 27 and 34.

4603.2 Motor vehicle fluids. Motor vehicle fluids shall be drained from salvage vehicles when such fluids are leaking. Storage and handling of motor vehicle fluids shall be done in an approved manner. Flammable and combustible liquids shall be stored and handled in accordance with Chapter 34.

4603.3 Mitigation for vehicle fluid leaks. Supplies or equipment capable of mitigating leaks from fuel tanks, crankcases, brake systems, and transmissions shall be kept available on site. Single-use plugging, diking, and absorbent materials shall be disposed of as hazardous waste and removed from the site in a manner approved by federal, state, and local requirements.

4603.4 Air bag systems. Removed air bag systems shall be handled and stored in accordance with Chapter 27.

4603.5 Lead-acid batteries. Lead-acid batteries shall be removed from salvage vehicles when such batteries are leaking. Lead-acid batteries that have been removed from vehicles shall be stored in an approved manner.

(U) CHAPTER 47 EXCAVATIONS AND CONFINED SPACES**(1) Add the following:****CHAPTER 47—EXCAVATIONS AND CONFINED SPACES**

4701.1 General. The provisions of this chapter shall apply to any man-made cut, cavity, trench or depression in an earth surface formed by earth removal and identify procedures to protect employees from the hazards of entry into confined spaces.

Section 4702 Definitions

4702.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

CONFINED SPACE. Is a space that:

1. Is large enough and so configured that an employee can bodily enter and perform assigned work; and
2. Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults and pits are spaces that may have limited means of entry); and
3. Is not designed for continuous employee occupancy.

EXCAVATION. Any man-made cut, cavity, trench or depression in an earth surface, formed by earth removal.

TRENCH. A narrow excavation made below the surface of the ground. In general, the depth is greater than the width, but the width of the trench (measured at the bottom) is not greater than 15 feet. If forms or other structures are installed or constructed in an excavation so as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet or less, the excavation is a trench.

4703.1 Excavations and trenches. Excavations and trenches shall be in accordance with the 29 CFR, Parts 1926.650-652, Subpart P.

4704.1 Confined spaces. Confined spaces shall be in accordance with the most current edition of the 29 CFR, Part 1910.146. Other recognized standards that must be adhered to include 40 CFR, Parts 280 and 281.

4705.1 Unsafe conditions. When in the opinion of the chief, an unsafe condition exists, excavation and confined space operations shall cease until such time as adequate means have been taken to provide for the safety of persons working in or around the excavation or confined space. Failure to do so may result in citations and fines.

(V) APPENDIX B FIRE-FLOW REQUIREMENTS FOR BUILDINGS**(1) Revise the following:**

B105.1 One- and two-family dwellings. The minimum fire-flow and flow duration requirements for one- and two-family dwellings having a fire-flow calculation area which does not exceed 3,600 square feet (344.5 m²) shall be 1,000 gallons per minute (3785.4L/min) for a duration of two hours. Fire-flow and flow duration for dwellings having a fire-flow calculation area in excess of 3,600 square feet (344.5 m²) shall not be less than that specified in Table B105.1.

Exception: A reduction in required fire flow of 50 percent, as approved, is allowed when the building is provided with an approved automatic sprinkler system.

B105.2 Buildings other than one- and two-family dwellings. The minimum fire-flow and flow duration for buildings other than one- and two-family dwellings shall be as specified in Table B105.1.

Exception: A reduction in required fire-flow of 50 ~~up to 75~~ percent, as approved, is allowed when the building is provided with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 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 as specified in Table B105.1.

(2) Revise the following:

Table B105.1

Footnotes:

- a. ~~The minimum required fire flow shall be allowed to be reduced by 25 percent for Group R.~~
- b. Types of construction are based on the Mesa Building Code ~~International Building Code~~.
- c. Measured at 20 psi.

(W) APPENDIX C FIRE HYDRANT LOCATIONS AND DISTRIBUTION

(1) Revise the following:

Table C105.1

Footnotes:

- a. Reduce by 100 feet for dead-end streets or roads.
- b. Where streets are provided with median dividers which can be crossed by fire fighters pulling hose lines, or where arterial streets are provided with four or more traffic lanes and have a traffic count of more than 30,000 vehicles per day, hydrant spacing shall average 500 feet on each side of the street and be arranged on an alternating basis up to a fire-flow requirement of 7,000 gallons per minute and 400 feet for higher fire-flow requirements.
- c. 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 500 ~~4,000~~ feet to provide for transportation hazards.
- d. Reduce by 50 feet for dead-end streets or roads.
- e. One hydrant for each 1,000 gallons per minute or fraction thereof.

(X) APPENDIX CHAPTER H FIRE SPRINKLER PLAN SUBMISSION REQUIREMENTS

(1) Add the following:

APPENDIX CHAPTER H FIRE SPRINKLER PLAN SUBMISSION REQUIREMENTS

(Y) APPENDIX CHAPTER I FIRE ALARM PLAN SUBMISSION REQUIREMENTS

(1) Add the following:

APPENDIX CHAPTER I FIRE ALARM PLAN SUBMISSION REQUIREMENTS

7-2-3 DIGITAL/ELECTRONIC DRAWING FILE SUBMISSIONS (4552)

(A) **General.** Projects requiring a construction permit from Building Safety Division, including projects performed under annual facilities permits shall submit a digital/electronic copy of the permit drawings in accordance with the required format. A digital/electronic copy of the drawing shall not be required for the following:

- (1) R3 occupancies. (4552)
- (2) R4 occupancies. (4552)
- (3) Single family residences. (4552)
- (4) Other buildings or structures accessory to and located on the same lot with one and two family dwellings. (4552)
- (5) Projects not required to submit drawings to obtain a permit. (Refer to Title 4, Chapter 1, Mesa Administrative Code) (4552)

The digital/electronic copy of the permit drawings shall be submitted to the Fire Department through the Building Safety Division for approval by the Fire Department's Technical Services Section prior to the issuance of the certificate of occupancy/completion by the Building Safety Director. (4552)

(B) **Required Format.** The digital/electronic files, required under this section, shall be submitted on cd/dvd-rom in one of the following formats: (dwg), (dxf), or (dgn). If submitted files are embedded with external references ("xrefs"), such (xref) drawings shall be included on the submitted cd/dvd-rom. Cryptic naming for layers/files shall include a "definition key." All digital/electronic files shall be drawn in "feet" at a 1:1 scale. (4552)

(1) Required Information. At a minimum, each file shall contain the following information:

(a) Floor Plans:

- (i) One plan for each building floor. (4552)
- (ii) All exterior and interior walls. (4552)
- (iii) All door locations (ingress/egress) throughout the building, including roll up doors and roof hatch/doors. (4552)
- (iv) Stairs and elevator locations. (4552)
- (v) Room/suite's names and/or numbers. (4552)
- (vi) Utility shutoff locations (water, electric and gas). (4552)
- (vii) Special hazards and high-piled stock/racks, if any. (4552)
- (viii) Fire Department items shall include, but are not limited to, standpipes, fire sprinkler risers, alarm panels, fire department connections, and Knox boxes. (4552)

(b) Site Plan:

Including parking lot, building numbers, parking garages, fire lanes and hydrants. (4552)

(c) Roof Plan:

Layout and access (ladder/hatch locations). (4552)

(2) Not Required. The drawings are not required to contain layers listing furnishings, floor coverings, ceiling styles/grids, plumbing fixtures, electrical (lights, switches, outlets), wall coverings, or landscape information. (4552)

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