

ORDINANCE NO. _____

AN ORDINANCE OF THE MAYOR AND COUNCIL OF THE CITY OF MESA, MARICOPA COUNTY, ARIZONA, AMENDING PORTIONS OF THE AMENDMENTS TO THE 2006 INTERNATIONAL FIRE CODE, CODIFIED AT MESA CITY CODE TITLE 7, CHAPTER 2, SECTION THREE.

NOW THEREFORE, BE IT ORDAINED by the City Council of the city of Mesa as follows:

ADDITIONS TO THE TEXT ARE SHOWN IN RED, BOLD, ALL CAPTIAL LETTERS AND UNDERLINED: ABC

DELETIONS TO THE TEST ARE SHOWN AS RED STRIKEOUTS: ~~Abe~~

SECTION 1: That Chapter 5, entitled “Fire Service Features,” of Title 7, Chapter 2, Section Three of the Mesa City Code is hereby amended as follows:

(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.

- 1. FIRE APPARATUS ACCESS ROADS ARE NOT REQUIRED FOR ONE AND TWO FAMILY GROUP R3/R5 DWELLINGS THAT COMPLY WITH BOTH OF THE FOLLOWING: (I) THE DWELLING DOES NOT EXCEED 5000 SQUARE FEET OF CONDITIONED SPACE AS DEFINED BY THE MESA ENERGY CONSERVATION CODE, AND (II) THE DWELLING HAS A MINIMUM LOT FRONTAGE OF 50 FEET ADJACENT TO A FIRE APPARATUS ACCESS ROAD COMPLYING WITH SECTION 503 OF THE FIRE CODE. IN ADDITION, FOR ONE AND TWO**

FAMILY GROUP R3/R5 DWELLINGS THAT DO NOT COMPLY WITH BOTH OF THESE REQUIREMENTS, THE FIRE CODE OFFICIAL IS AUTHORIZED TO INCREASE THE 150-FOOT FIRE ACCESS DISTANCE REQUIREMENT SET FORTH IN SECTION 503.1.1, TAKING INTO ACCOUNT OTHER HAZARD-MITIGATING FACTORS SUCH AS, BUT NOT LIMITED TO, PROXIMITY OF THE PROPERTY TO THE CLOSEST FIRE STATION, PROXIMITY OF THE PROPERTY TO A FIRE HYDRANT, THE LOCATION OF THE PROPERTY WITHIN THE SUBDIVISION, OR ABILITY TO ACCESS THE PROPERTY FROM TWO OR MORE FIRE ACCESS ROADS.~~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.~~

2. **FIRE APPARATUS ACCESS ROADS ARE NOT REQUIRED FOR:**

A. DETACHED, UNOCCUPIED TELECOMMUNICATIONS BUILDINGS.

B. ACCESSORY STRUCTURES OF GROUP U OCCUPANCY LOCATED ON ONE AND TWO FAMILY LOTS.

3. 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.
4. The fire code official is authorized to increase the dimension of 150 feet (45720 mm) where 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. Examples of alternative means of fire protection that may be approved include, but are not necessarily limited to:
- A. Alternative means as prescribed in sections 104.6.4 through 104.9 of the Fire Code.
 - B. Alternative construction type VA as provided in Chapter 6 of the Mesa Building Code.
 - C. Alternative construction type IIB as provided in Chapter 6 of the Mesa Building Code.
 - D. Automatic fire sprinkler system installed in accordance with section 903.3 of this Code.
- ~~3. The fire code official is authorized to increase the distance between the fire access roadway and the facility, building or portion of a building by alternative means as prescribed in sections 104.6.4 through 104.9 of the Fire Code.~~
- ~~4. Fire apparatus access roads are not required for detached, unoccupied telecommunications buildings.~~
- ~~5. Fire apparatus roads are not required for One and Two Family Group R3/R5 dwellings that comply with all of the following:~~

~~5.1 The dwelling shall not exceed 5000 square feet of conditioned space as defined by the Mesa Energy Conservation Code.~~

~~5.2 The dwelling must have a minimum lot frontage of 50 feet on a fire apparatus access road complying with section 503 of the Fire Code.~~

~~6. Fire apparatus access roads are not required for accessory structures of Group U occupancy located on one and two family lots.~~

(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.”

(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 combustible 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.

SECTION 2: That the Mesa City Code, as amended, will remain in full force and effect, save and except as amended by this Ordinance.

SECTION 3: That the terms and provisions of this Ordinance are severable and if any section, subsection, sentence, clause, phrase or portion of this Ordinance, or any part of the Mesa City Code adopted herein by reference, is for any reason held to be invalid, unenforceable or unconstitutional by a court of competent jurisdiction, the remaining provisions of this Ordinance shall remain in effect.

PASSED AND ADOPTED by the City Council of the City of Mesa, Maricopa County, Arizona, this 12th day of December, 2016.

APPROVED:

Mayor

ATTEST:

City Clerk