



CITY OF MESA  
BUILDING SAFETY DIVISION  
SINGLE FAMILY DWELLING REQUIREMENTS

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PROJECT STREET ADDRESS: \_\_\_\_\_

PERMIT # \_\_\_\_\_

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THIS CHECKLIST IS TO BE USED AS A GUIDE WHEN REVIEWING PLANS FOR RESIDENTIAL CONSTRUCTION. THESE COMMENTS CAN BE CUT AND PASTED INTO YOUR ELECTRONIC DOCUMENT REVIEW. **NOTE: ALL REFERENCES WERE TAKEN FROM THE 2018 MESA RESIDENTIAL CODE.**

### Chapter 3 Building Planning

- \_\_\_\_\_ 1. Provide a fully dimensioned site plan, drawn to scale, including all fences, property lines, right-of-way centerline measurements and easements.
- \_\_\_\_\_ 2. Specify livable area(s) in square feet and non-livable area(s) in square feet. Identify areas separately by stories.
- \_\_\_\_\_ 3. Openings from a garage directly into a room used for sleeping purposes shall not be permitted. R302.5.1
- \_\_\_\_\_ 4. Openings from a garage into livable area shall be equipped with solid core doors not less than 1 3/8" thick or 20-minute fire-rated doors, equipped with a self-closing or automatic-closing device. R302.5.1
- \_\_\_\_\_ 5. Ducts in the garage or penetrating the walls or ceiling that separate the dwelling from the garage shall be a minimum No. 26 gage sheet metal, or other approved material, and shall not have openings into the garage. R302.5.2
- \_\_\_\_\_ 6. Dwelling-garage separation shall be as required by Table R302.6. The garage shall be separated from the residence and its attic area by not less than 1/2" (12.7mm) gypsum board applied to the garage side. Garages beneath habitable rooms shall be separated from all habitable rooms above by not less than 5/8" (15.9mm) Type X gypsum board or equivalent. Where the separation is a floor/ceiling assembly, the structure supporting the separation shall be protected by not less than 1/2" (12.7mm) gypsum board or equivalent. Table R302.6
- \_\_\_\_\_ 7. Habitable rooms shall have an aggregate glazing area of not less than 8% of the floor area of such rooms. Natural ventilation shall be through windows, skylights, doors, louvers or other approved openings to the outdoor air. The openable area to the outdoors shall not be less than 4% of the floor area being ventilated. R303.1

- \_\_\_\_\_ 8. Bathrooms shall be provided with aggregate glazing area in windows of not less than 3 square feet, one half of which shall be openable or be provided with artificial light and a local exhaust system. R303.3
- \_\_\_\_\_ 9. Air exhaust and intake openings that terminate outdoors shall be protected with corrosion-resistant screens, louvers or grilles having an opening size of not less than ¼" and maximum opening size of ½", in any dimension. R303.7
- \_\_\_\_\_ 10. Interior stairways shall be provided with an artificial light source to illuminate the landings and treads. R303.7
- \_\_\_\_\_ 11. Exterior stairways shall be provided with an artificial light source located at the top of the landing of the stairway. R303.8
- \_\_\_\_\_ 12. Provide heating facilities capable of maintaining a room temperature of not less than 68°F at a point 3' above the floor and 2' away from exterior walls. R303.10
- \_\_\_\_\_ 13. Minimum room areas: Floor area not less than 70 square feet (except kitchens). R304.1
- \_\_\_\_\_ 14. Minimum room dimension: Not less than 7' in any horizontal direction. R304.2
- \_\_\_\_\_ 15. Minimum room height required for room area calculation: Not less than 7' in a horizontal direction and not less than 5' for sloped ceilings. R304.3
- \_\_\_\_\_ 16. Minimum room height for habitable rooms, hallways and portions of basements containing these spaces shall have a ceiling height of not less than 7'. Bathrooms, toilet rooms and laundry rooms shall have a ceiling height of not less than 6' 8". For rooms with sloped ceilings, the required floor area of the room shall have a ceiling height of not less than 5' and not less than 50% of the required floor area shall have a ceiling height of not less than 7'. R305.1
- \_\_\_\_\_ 17. Glazing subject to human impact shall be safety glazed per Sections R308.4 through R308.4.7
- \_\_\_\_\_ 18. Basements, habitable attics and every sleeping room shall have not less than one operable emergency escape and rescue opening. Opening shall have a net clear opening of not less than 5.7 square feet. The net clear height of the opening shall be not less than 24 inches and the net clear width shall be not less than 20 inches.  
**Exception:** Grade floor openings or below-grade openings shall have a net clear opening are of not less than 5 square feet. R310.2.1
- \_\_\_\_\_ 19. Where a window is provided as the emergency escape and rescue opening, it shall have a sill height of not more than 44 inches above the floor. R310.2.2
- \_\_\_\_\_ 20. Window wells shall comply with R310.2.3
- \_\_\_\_\_ 21. When a door is provided as the required emergency escape and rescue opening, it shall be a side-hinged door or a slider. R310.3 The landings at the required egress door shall be not more than 1 ½" lower than the top of the threshold. R311.3.1
- \_\_\_\_\_ 22. Exterior doors and windows shall comply with Section R328, Security Standards of the Mesa Residential Code.

- \_\_\_ 23. Provide a landing at every exterior door. The width of the landing shall not be less than the door served but shall not be less than 36" measured in the direction of travel with a slope not exceeding ¼" vertical in 12" horizontal (2%). R311.3
- \_\_\_ 24. Hallways shall be not less than 3 feet wide. R311.6
- \_\_\_ 25. Stairways must meet the following requirements:
- Width – minimum 36" in clear width at all points above the permitted handrail height and below the required headroom height. The clear width below the handrail height shall not be less than 31 ½" where a handrail is installed on one side and 27" where handrails are installed on both sides. R311.7.1
- Headroom – The headroom in stairways shall be not less than 6' 8" measured vertically from the sloped line adjoining the tread nosing or from the floor surface of the landing or platform on that portion of the stairway. R311.7.2
- Vertical rise – A flight of stairs shall not have a vertical rise larger than 151 inches (12'7") between floor levels or landings. R311.7.3
- Risers – The riser height shall be not more than 7 ¾". The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8". R311.7.5.1
- Treads – The tread depth shall be not less than 10". The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8". R311.7.5.2
- Winder treads shall comply with R311.7.5.2.1
- Provide a stair section that complies with the above requirements.
- \_\_\_ 26. Handrails are required on at least one side of a flight of stairs with four or more risers and shall not be less than 34" and not more than 38" measured vertically from the sloped plane adjoining the tread nosing, or finish surface of ramp slope. The handrail shall not project more than 4 ½" on either side of the stairway. Handrails adjacent to a wall shall have a space of not less than 1 ½" between the wall and the handrails. Handrails shall be continuous for the full length of the flight, from a point directly above the top riser of the flight to a point directly above the lowest riser of the flight. R311.7.8 thru R311.7.8.4 Handrails shall have a grip size complying with R311.7.8.5. Provide a detail that complies with these requirements.
- \_\_\_ 27. Spiral stairways and bulkhead enclosure stairways shall comply with R311.10.1 and R311.10.2.
- \_\_\_ 28. Provide a detail for the guardrail that complies with Section R312. Note: Required guards shall have intermediate rails or ornamental closures which do not allow the passage of a sphere 4" or larger in diameter. R312.1.3
- \_\_\_ 29. Provide a smoke detector in each sleeping room, outside each separate sleeping area in the immediate vicinity of the bedrooms and on each story of the dwelling, including basements and habitable attics. The smoke alarm must be installed not less than 3 feet horizontally from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by this Section. R314.3

- \_\_\_\_\_ 30. Smoke detectors must be hard wired with battery backup and all smoke alarms must be interconnected in such a manner that the actuation of one alarm will activate all the alarms in the individual dwelling unit. Physical interconnection of smoke alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm. Combination smoke and carbon monoxide alarms shall be permitted to be used in lieu of smoke alarms. R314.4 thru R314.6
- \_\_\_\_\_ 31. Provide a carbon monoxide detector outside of each separate sleeping area in the immediate vicinity of the bedrooms. Where a fuel burning appliance is located in a bedroom or its attached bathroom, a carbon monoxide alarm shall be installed within the bedroom. Carbon monoxide detectors must be hard wired with battery backup. Where more than one carbon monoxide alarm is required within a dwelling unit the carbon monoxide alarms must be interconnected. R315.1 thru R315.7.4
- \_\_\_\_\_ 32. Foam insulation products are permitted to be used in building construction in accordance with the following:

Flame spread and smoke-developed index – shall have a flame spread index of not more than 75 and shall have a smoke-developed index of not more than 450 when tested in the maximum thickness and density intended for use in accordance with ASTM E84 or UL 723. **Exception:** Foam plastic insulation more than 4 inches thick shall have a flame spread index of not more than 75 and a smoke-developed index of not more than 450 where tested at a thickness of not more than 4 inches provided that the end use is approved in accordance with Section R316.6 using the thickness and density intended for use. R316.3

Thermal barrier – foam plastic shall be separated from the interior of a building by an approved thermal barrier of not less than ½” gypsum wallboard, 22/32” wood structural panel or a material that is tested in accordance with and meets the acceptance criteria of both the Temperature Transmission Fire Test and the Integrity Fire Test of NFPA 275. R316.4

Attics – The thermal barrier specified in R316.4 is not required where all of the following apply:

1. Attic access is required by Section R807.1
2. The space is entered only for purposes of repairs or maintenance.
3. The foam plastic insulation has been tested in accordance with Section R316.6 or the foam plastic insulation is protected against ignition using one of the following ignition barrier materials:
  - 3.1. 1 ½-inch-thick mineral fiber insulation.
  - 3.2. ¼-inch-thick wood structural panels.
  - 3.3. 3/8-inch particleboard.
  - 3.4. ¼-inch hardboard.
  - 3.5. 3/8-inch gypsum board.
  - 3.6. Corrosion-resistant steel having a base metal thickness of 0.016 inch.
  - 3.7. 1 ½-inch-thick cellulose insulation.
  - 3.8. ¼-inch fiber-cement panel, soffit or backer board.

If intumescent paint will be used as an ignition barrier, specify the system and provide forms for the Special Inspection required for this coating.

**Note:** The unvented portion of the attic cannot be open to the vented portions of the roof, by definition. Also, the unvented portion cannot be open to the over framed areas. Penetrations need to be sealed to obtain an unvented attic. If the air handler is in the attic, the flue will need to be sealed. State this on the drawings.

- \_\_\_ 33. Identify if solar roof panels will be installed. Show on the elevations and show compliance with R324.
- \_\_\_ 34. Provide compliance with electric vehicle charging stations per R327.

#### **Chapter 4 Foundations**

- \_\_\_ 35. Provide drainage away from foundation walls. The grade shall fall not fewer than 6" within the first 10'. Where lot lines, walls, slope or other physical barriers prohibit 6" of fall within 10', drains or swales shall be constructed to ensure drainage away from the structure. Impervious surfaces within 10' of the building foundation shall be sloped not less than 2% away from the building. R401.3
- \_\_\_ 36. Provide a front to rear cross-section of the foundation for the building.
- \_\_\_ 37. Spread footings are undersized. Revise to meet R403.1.1 and Table R403.1(1).
- \_\_\_ 38. Provide foundation anchorage per R403.1.6.
- \_\_\_ 39. Add note to plan: Top of exterior foundation shall be 12" plus 2% above the elevation of the street gutter at a point of discharge or the inlet of an approved drainage device. R403.1.7.3
- \_\_\_ 40. Provide a detail for the retaining wall and its foundation. R404
- \_\_\_ 41. Provide a detail that shows how waterproofing for basement walls will be achieved. R406

#### **Chapter 5 Floors**

- \_\_\_ 42. Floor joists are over spanned. Revise floor framing plan to meet requirements of R502 and Table R502.3.1(1)
- \_\_\_ 43. Provide a detail showing floor-to-exterior load-bearing wall stud connection. R505.3.1
- \_\_\_ 43. Detail connection between:

#### **Chapter 6 Wall Construction**

- \_\_\_ 44. Exterior walls shall be designed and constructed in accordance with Chapter 6 of the 2018 Mesa Residential Code or shall be designed in accordance with accepted engineering practice. Provide details that identify compliance.
- \_\_\_ 45. Stud size, height and spacing shall be in accordance with Table R602.3(5). See exceptions.
- \_\_\_ 46. Provide wall bracing per R602.10 or provide engineering for wall bracing.
- \_\_\_ 47. Exterior wall construction must comply with R302.1 for fire resistance construction.

- \_\_\_ 48. Wall heights must comply with R301.3.
- \_\_\_ 49. King, jack and cripple studs at header locations must comply with R603.7 for the number, dimension and thickness. See Tables R603.7(1) and R603.7(2)
- \_\_\_ 50. Wall sheathing shall be attached according to R603.9.
- \_\_\_ 51. Masonry wall construction must comply with R606.
- \_\_\_ 52. Exterior concrete wall construction must comply with R608.
- \_\_\_ 53. Windows and doors shall be installed and flashed in accordance with the fenestration manufacturer's written instructions. Window and door openings shall be flashed in accordance with R703.4. Written installation instructions shall be available to the Building Inspector for each window and/or door. R609.1
- \_\_\_ 54. Gypsum sheathing shall be attached to exterior wall in accordance with Table R602.3 (1). Gypsum board and gypsum panel products shall comply with Table 702.3.5 or be engineered.

### **Chapter 7 Wall Covering**

- \_\_\_ 55. Exterior walls, exposed to weather, shall provide the building with a weather-resistant exterior wall envelope. R703
- \_\_\_ 56. Exterior plaster (stucco), lath and weep screeds shall comply with Section R703.7 through R703.7.5.
- \_\_\_ 57. Anchored stone and masonry veneer shall comply with Section R703.8 through R703

### **Chapter 8 Roof-Ceiling Construction**

- \_\_\_ 58. Conventionally framed roof/ceiling assemblies shall comply with R802.2 through R802.11.1.2. Revise plans to show compliance.
- \_\_\_ 59. Installation of purlins to reduce the span of rafters is permitted. Purlins shall be sized not less than the required size of the rafters that they support. Purlins shall be continuous and shall be supported by 2" by 4" braces installed to bearing walls at a slope not less than 45 degrees from the horizontal. The braces shall be spaced not more than 4 feet on center and the unbraced length of braces shall not exceed 8 feet. R802.4.5
- \_\_\_ 60. Provide attic ventilation complying with R806. Show vent locations, sizes and methods used to determine required ventilation on the plans.
- \_\_\_ 61. Provide attic access, show location and size on plans. R807

### **Chapter 9 Roof Assemblies**

- \_\_\_ 62. Identify roof pitch, decking material, underlayment, type of roofing material, flashing, etc. Provide a detail showing compliance with R903 through R905.17.7.

### **Chapter 10 Chimneys and Fireplaces**

- \_\_\_ 63. Masonry chimneys shall comply with R1003.

- \_\_\_ 64. Provide an approved barrier between factory fireplace boxes, chimneys and building insulation. Clearance shall be maintained between the chimney and combustible barriers according to the manufacturer's installation instructions. Provide a detail showing compliance and add a note that the manufacturer's installation instructions will be provided to the Building Inspector at time of inspection. R1005

### **Chapter 11 Energy Efficiency**

- \_\_\_ 65. Provide a Rescheck. The Rescheck will show compliance with Chapter 11, Energy Efficiency, that has been adopted as part of the Mesa Residential Code. Click the link provided to obtain the Rescheck. When completed upload the document with your revised plans. <https://www.energycodes.gov/>

### **Chapter 13 General Mechanical System Requirements**

- \_\_\_ 66. Provide a light at the attic access when appliances are located in the attic. M1305.1.2.1
- \_\_\_ 67. Provide a receptacle outlet at or near the appliance located in the attic. M1305.1.2.1
- \_\_\_ 68. Add note to plan: Installation of appliances shall conform to the conditions of their listing and label and the manufacturer's instructions. The manufacturer's operating and installation instructions shall remain attached to the appliance. M1307.1
- \_\_\_ 69. Appliances having an ignition source shall be elevated such that the source of ignition is not less than 18 inches above the floor in garages. Rooms or spaces that are not part of the living space of a dwelling unit and that communicate with a private garage through openings shall be considered to be part of the garage. M1307.3
- \_\_\_ 70. Provide an approved barrier to protect appliances installed in locations subject to vehicle damage. M1307.3.1

### **Chapter 14 Heating and Cooling Equipment and Appliances**

- \_\_\_ 71. Identify the location of the condensate disposal pipe per Section M1411.3.

### **Chapter 15 Exhaust Systems**

- \_\_\_ 72. Show location of dryer exhaust vent. Installation must comply with the manufacturer's installation instructions and the requirements of Section M1502 of the Mesa Residential Code.
- \_\_\_ 73. Domestic cooking exhaust equipment shall comply with M1503 of the Mesa Residential Code.
- \_\_\_ 74. Mechanical ventilation shall comply with M1505 of the Mesa Residential Code.

### **Chapter 16 Duct Systems**

- \_\_\_ 75. Return air openings for heating, ventilation and air-conditioning systems shall comply with M1602.2 #1 - #7 of the Mesa Residential Code.

### **Chapter 20 Boilers and Water Heaters**

- \_\_\_ 76. Fuel-fired water heaters shall not be installed in a room used as a storage closet. Water heaters located in a bedroom shall be installed in a sealed enclosure so that

combustion air will not be taken from the living space. Direct-vent water heaters are not required to be installed within an enclosure. M2005.2

### **Chapter 24 Fuel Gas**

- \_\_\_ 77. Identify locations and sizes for combustion air vents required by the use of fuel gas appliances. G2407 Mesa Residential Code
- \_\_\_ 78. Provide a gas piping schematic; include type of material, CFH of appliances and developed length between appliances. G2413 through G2414
- \_\_\_ 79. Show on the roof elevation the vent termination locations, with dimensions. G2427

### **Chapter 27 Plumbing Fixtures**

- \_\_\_ 80. Provide dimensions from the center of the water closet to the side wall. Minimum dimension from center of water closet to a side wall is 15". P2705.1 #5
- \_\_\_ 81. Provide dimensions of the shower compartment. Minimum dimension is 30" from the finished interior dimension and the minimum area is 900 square inches. P2708
- \_\_\_ 82. Provide pressure balance or thermostatic mixing valves for all shower and tub-shower combinations. P2708.4

### **Chapter 28 Water Heaters**

- \_\_\_ 83. Show location of the water heater discharge pipe. Include dimensions from ground or floor surface. P2804.6.1

### **Chapter 29 Water Supply and Distribution**

- \_\_\_ 84. Toilets must be low water use type, designed for maximum 1.6 gallons per flush. Sinks and shower heads, 3.0 gpm per Arizona Revised Statutes Section 45-312.
- \_\_\_ 85. Provide a water system schematic; include type of material and size of piping. Provide a list of fixture units, distance from water meter to furthest fixture, size of water meter and size of supply line. P2903.6

### **Chapter 30 Sanitary Drainage**

- \_\_\_ 86. Provide a sanitary drainage/venting schematic; include type of material and size of piping. Provide a list of drainage fixture units per Table P3004.1.
- \_\_\_ 87. A sump pump is required for \_\_\_\_\_. Provide information on the sump pump which complies with Section P3007.

### **Chapter 36 Services (Electric)**

- \_\_\_ 88. Identify the location of the electric service panel/meter. E3601

### **Chapter 37 Branch Circuit and Feeder Requirements**

- \_\_\_ 89. Revise the one-line diagram to meet the requirements of Chapter 37, Branch Circuit and Feeder Requirements.

## Chapter 39 Power and Lighting Distribution

- \_\_\_ 90. Receptacles shall be installed so that no point measured horizontally along the floor line of any wall space is more than 6', from a receptacle outlet. E3901.2.1
- \_\_\_ 91. Receptacles in kitchens, breakfast rooms, dining rooms with wall countertops that are a minimum of 12" wide shall be spaced so that no point along the wall line is more than 24", measured horizontally from a receptacle outlet in that space. E3901.4.1
- \_\_\_ 92. Provide at least one receptacle outlet at each island and peninsular countertop space with a long dimension of 24" or greater and a short dimension of 12" or greater. E3901.4.2 and E3901.4.3
- \_\_\_ 93. Provide at least one GFCI protected receptacle outlet in bathrooms and such outlet shall be located within 36" of the outside edge of each lavatory basin. E3901.6 & E3902.1
- \_\_\_ 94. Provide at least one GFCI protected outdoor receptacle outlet that is readily accessible from grade level and located not more than 6'6" above grade, at the front and back of each dwelling unit. E3901.7 & 3902.3
- \_\_\_ 95. Provide at least one GFCI protected outdoor receptacle outlet installed within the perimeter of any balcony, deck or porch that is accessible from the inside of the dwelling. The receptacle shall be located not more than 6'6" above the balcony, deck or porch surface. E3901.7 & E3902.3
- \_\_\_ 96. Provide at least one GFCI protected receptacle outlet in the laundry room. E3901.8 & E3902.9
- \_\_\_ 97. Provide at least one GFCI protected receptacle outlet in each unfinished portion of a basement, in each attached garage vehicle bay not more than 5.5' above the floor, in each vehicle bay not more than 5.5' above the floor in detached garages that are provided with electric power and in accessory building that are provided with electric power. E3901.9, E3902.2 & E3902.5
- \_\_\_ 98. Provide at least one receptacle outlet in hallways 10' or more in length. E3901.10
- \_\_\_ 99. All receptacle outlets located within 6' of the top inside edge of the bowl of the sink and those located within 6' of the edge of a bathtub or shower enclosure shall be GFCI protected. E3902.7 & E3902.8
- \_\_\_ 100. The receptacle outlet serving a dishwasher must be GFCI protected. E3902.10
- \_\_\_ 101. Branch circuits that supply 120-volt, single-phase, 15- and 20-ampere outlets installed in kitchens, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreations rooms, closets, hallways, laundry areas and similar rooms or areas shall be protected by an arc-fault circuit interrupter. E3902.16
- \_\_\_ 102. Provide wall-switch-controlled lighting outlets per E3903.2 through E3903.4

## Chapter 40 Devices and Luminaires

- \_\_\_ 103. Exterior flush mounted switches shall be equipped with a weatherproof cover. E4001.7

\_\_\_104. Exterior receptacles shall be protected from the weather per E4002.8 through E4002.10.