



GILA COUNTY

RESIDENTIAL

BUILDING CODE HANDBOOK

Gila County Community Development

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The information contained in this Handbook is based primarily on the Gila County Building Code Ordinance No. 2017-02 and the 2012 International Residential Code. It is intended to answer some of the most commonly asked questions regarding residential construction and to assist you in designing and building in compliance with the Building Code. If you do not find the information you need, please check our website at www.gilacountyaz.gov or call our office in Payson at (928)474-9276 or our Globe office at (928)402-4224.

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GENERAL INFORMATION

ADDRESS NUMBERS: (R319.1)

Approved numbers or addresses must be plainly visible and legible from the street or road fronting the property. Addresses must conform to Gila County's Rural Addressing System. For questions on Rural Addressing, call (800)304-4452, ext. 8510.

ADOPTED BUILDING CODES* EFFECTIVE OCTOBER 2, 2014

- 2012 International Residential Code
- 2012 International Building Code
- 2012 International Existing Building Code
- 2011 National Electrical Code
- 2012 International Plumbing Code
- 2012 International Fuel Gas Code
- 2012 International Mechanical Code
- 2012 International Swimming Pool and Spa Code
- Accessible and Usable Buildings and Facilities ICC A117.1-2009
- The Latest Publication of Manufactured Home and Factory Built Buildings Installation Standards

*With amendments as listed in the Gila County Building Code Ordinance No. 2017-02

CLIMATIC and GEOGRAPHIC DESIGN CRITERIA for GILA COUNTY		
TABLE R301.2(1) AMENDED		
SNOW LOADS¹		
BELOW 4,500 ft. elevation	4,500 to 6,000 ft. elevation	ABOVE 6000 ft. elevation
ROOF LIVE LOAD 20 PSF²	ROOF LIVE LOAD 40PSF	ROOF LIVE LOAD 40 PSF³
GROUND SNOW LOAD 28 PSF	GROUND SNOW LOAD 57 PSF	GROUND SNOW LOAD 57 PSF³
Includes: Christmas, Claypool, Cutter, Deer Creek Village, Doll Baby Ranch, Dripping Springs, Gisela, Globe, Gila County Fairgrounds, Greenback Valley, Hayden, Jakes Corner, Miami, North Bay Estates, Punkin Center, Roosevelt, Rye, Tonto Basin, Tonto Creek Shores, Wheatfields, Winkelman	Includes: Bear Flat, Beaver Valley, Bonita Creek Estates, Camp Geronimo, Christopher Creek, East Verde Park, El Capitan, Ellison Creek Estates, Flowing Springs, Geronimo Estates, Haigler Creek subdivision, Hunter Creek Ranch, Kohl's Ranch, Mesa Del Caballo, Oxbow Estates, Payson, Pine, Rose Creek Lodge, Round Valley, Strawberry, Tonto Natural Bridge, Tonto Village, Verde Glen, Whispering Pines, Young	Includes: Canyon Creek Fish Hatchery, Colcord Mountain Estates, Diamond Point Lookout, El Capitan Peak, Gordon Canyon Ranch, Mazatzal Peak, Mead Ranch, Mountain Meadows, Mt. Ord, Nail Ranch, OW Ranch, Pinal Peak, Ponderosa Springs, Signal Peak, Tonto Creek Fish Hatchery, Washington Park
1. Some ground snow loads were interpolated from known roof snow loads.		
2. The minimum roof / live load required by Code = 20 psf		
3. or per historical data available.		
SEISMIC DESIGN CATEGORY^{4, 5}		WIND DESIGN
B	C	County-wide
Includes: Christopher Creek, Doll Baby Ranch, East Verde Park, Gisela, Geronimo Estates, Haigler Creek, Hayden, Jake's Corner, Kohl's Ranch, Payson, Pine, Ponderosa Springs, Punkin Center, Rose Creek Ranch, Rye, Roosevelt, Roosevelt Lake Estates, Strawberry, Tonto Basin, Tonto Village, Wheatfields, Washington Park, Whispering Pines, Winkelman, Young	Includes: Chapparal Estates, Central Heights, Copper Canyon Ranches, Christmas Mine, Claypool, Cutter, Dripping Springs, Dripping Springs Rd., El Capitan, Gila County Fairgrounds, Globe, Hobbs Ranch Rd., Miami, Peridot, Pioneer Hills, Pioneer Pass Rd., Russell Gulch Rd., San Carlos, San Carlos Reservoir, Six Shooter Canyon	<p>SPEED: 3 Second gust = 90 m.p.h. Fastest mile wind speed = 76 m.p.h.</p> <p>TOPOGRAPHIC EFFECTS: No (Exposure B is presumed)</p>
4. See map on file in Community Development for more detailed information.		
5. Site Category D is presumed		
FACTORS AFFECTING DESIGN		
	BELOW 4,500 feet	4,500 feet and ABOVE
WEATHERING	Negligible	Moderate
FROST	Bottom of footing must be 12" min. below undisturbed ground surface.	Bottom of footing must be 12" min. below undisturbed ground surface and 18" min. below finished grade.
WINTER DESIGN TEMP	Averages 28 degrees	Averages 17 degrees
MEAN ANNUAL TEMPERATURE	Averages 65 degrees	Averages 55 degrees ⁶
AIR FREEZING INDEX	Less than 1500 cumulative degree days below freezing	
ICE BARRIER UNDERLAYMENT	Not required	
TERMITES	Moderate to heavy	
FLOOD HAZARDS	As determined by the Gila County Floodplain Dept. and/or Engineer	
6. Based on Payson area.		

FIRE DISTRICTS:

Hellsgate, Pine/Strawberry, and Tri-City are Fire Districts in Gila County with an adopted Fire Code. Any project within those districts that requires a building permit will require approval of the Fire District with jurisdiction.

Hellsgate Fire Department	928-474-3835
Pine/Strawberry Fire Department	928-476-4272
Tri-City Fire Department	928-425-0815

FLOODPLAIN INFORMATION:

Contact: Payson Office: (928) 474-7196 OR (928) 474-7116

GRADING AND DRAINAGE INFORMATION AND PERMITS:

Contact: (928) 402-8502

PERMITS REQUIRED: (R105.1)

Any owner or authorized agent who intends to construct, enlarge, alter, repair, move, demolish, or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by the 2012 IRC, or to cause any such work to be done, shall first make application to the building official and obtain the required permit.

RESIDENTIAL BUILDING PLAN REQUIREMENTS:

See separate Gila County handout titled "Residential Building Plan Requirements"

TOILET FACILITIES:

Shall be provided for construction workers and such facilities shall be maintained in sanitary condition. Portable toilets shall be allowed on a temporary basis during construction or repair of an approved private sewage-disposal system and is not to be used as a permanent sanitary source.

WASTEWATER:

Contact: Payson Office: (928) 474-7184
Globe Office: (928) 402-4223

WORK EXEMPT FROM PERMIT: (R105.2)

Certain work is exempt from permit requirements. See page 12 for Building Exemptions. See page 29 for Plumbing exemptions. See page 35 for Mechanical exemptions. See page 26 for Electrical exemptions.

A site plan review and approval is required prior to the construction of exempt accessory

buildings and decks. There is a \$25 fee for this service.

Exemption from the permit requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this jurisdiction.

BUILDING

ANCHOR BOLTS: (R403.1.6, TABLE R603.3.1)

Must be a minimum ½ inch in diameter spaced a maximum of 6 foot on center with 7 inches minimum embedment and be within 12 inches of corners, openings, or breaks in the plate or not less than 7 bolt diameters from each end of the plate. There must be a minimum 2 bolts section of plate. A nut and washer shall be tightened on each bolt to the plate.

ATTIC ACCESS: (R807.1, E3903.4)

- Required in buildings with combustible ceilings or roof construction for attic areas that exceed 30 square feet and have vertical height of 30 inches or greater.
- Rough-framed openings shall not be less than 22 inches x 30 inches and shall be located in hallways or other readily accessible location.
- 30 inches minimum unobstructed headroom in the attic space shall be provided at some point above access opening.
- See Mechanical section for access requirements where mechanical equipment is located in attics.
- Switched light required if area is used for storage or contains equipment requiring servicing.

BEAM/JOIST/RAFTER BORING & NOTCHING: (R502.8, R802.7.2)

- Notches in solid lumber shall not exceed one-sixth of the depth of the member, shall not be longer than one-third of the depth of the member and shall not be located in the middle one-third of the span.
- Notches at the ends of the member shall not exceed one-fourth the depth of the member.
- The tension side of members 4 inches or greater nominal thickness shall not be notched except at the ends of the members.
- The diameter of holes bored or cut into the members shall not exceed one-third the depth of the members.
- Holes shall not be closer than 2 inches to the top or bottom of the member, or to any other hole located in the member.
- Where the member is also notched, the hole shall not be closer than 2 inches to the notch.

- Not allowed in engineered beams unless approved by the beam manufacturer or an engineer.

BRACED WALL DESIGN: (R106.1.1)

All braced wall lines shall be identified on the building plans and all pertinent information including but not limited to, bracing methods, location and length of braced wall panels, foundation requirements of braced wall panels at top and bottom shall be provided.

CARBON MONOXIDE ALARMS: (R315)

Required to be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms in dwelling units within which fuel-fired appliances are installed and in dwelling units that have attached garages. Not required to be hard wired or interconnected. A listed combination carbon monoxide and smoke alarm is acceptable.

CARPORTS: (R309.2)

- Shall be open on at least two sides.
- Floor surfaces shall be of approved noncombustible material.
- The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.

CEILING HEIGHT: (R305, Gila Co. Amendment)

Habitable rooms, hallways, corridors, bathrooms, toilet rooms, laundry rooms and basements shall have a ceiling height of not less than 7 feet.

- Ceilings in basements without habitable spaces may project to within 6 feet, 8 inches of the finished floor; and beams, girders, ducts or other obstructions may project to within 6 feet, 4 inches of the finished floor.
- Bathrooms shall have a minimum ceiling height of 6 feet, 8 inches over the fixture.
- A shower or tub equipped with a showerhead shall have a minimum ceiling height of 6 feet 8 inches at the showerhead.
- Garages, porches, and portions of basements that do not contain habitable space, hallways, bathrooms, toilet rooms and laundry rooms shall have a ceiling height of not less than 6 feet 8 inches,

CRAWL SPACE/UNDER FLOOR ACCESS: (R408)

Access shall be provided to all under-floor spaces.

- Access openings through the floor shall be a minimum of 18 inches x 24 inches.
- Openings through a perimeter wall shall be 16 inches x 24 inches.
- Through wall access openings shall not be located under a door to the residence.

- See Mechanical section for requirements where mechanical equipment is located under floors.

DEAD BOLTS (R311.2)

All egress doors shall be readily openable from the inside without the use of a key or special knowledge or effort.

DRYWALL:

**TABLE R702.3.5
MINIMUM THICKNESS AND APPLICATION OF GYPSUM BOARD**

THICKNESS OF GYPSUM BOARD (INCHES)	APPLICATION	ORIENTATION OF GYPSUM BOARD TO FRAMING	MAXIMUM SPACING OF FRAMING MEMBERS (INCHES O.C.)	MAXIMUM SPACING OF FASTENERS (INCHES)		SIZE OF NAILS FOR APPLICATION TO WOOD FRAMING ^c
				NAILS ^a	SCREWS ^b	
Application without adhesive						
3/8	Ceiling ^d	Perpendicular	16	7	12	13 gage, 1 1/4" long, 19/64" head; 0.098" diameter, 1 1/4" long, annular-ringed; or 4d cooler nail, 0.080" diameter, 1 3/8" long, 7/32" head.
	Wall	Either direction	16	8	16	
1/2	Ceiling	Either direction	16	7	12	13 gage, 1 3/8" long, 19/64" head; 0.098" diameter, 1 1/4" long, annular-ringed; 5d cooler nails, 0.086" diameter, 1 5/8" long, 15/64" head; or gypsum board nail, 0.086" diameter, 1 5/8" long, 9/32" head.
	Ceiling ^d	Perpendicular	24	7	12	
	Wall	Either direction	24	8	12	
	Wall	Either direction	16	8	16	
5/8	Ceiling	Either direction	16	7	12	13 gage, 1 5/8" long, 19/64" head; 0.098" diameter, 1 3/8" long, annular-ringed; 6d cooler nail, 0.092" diameter, 1 7/8" long, 1/4" head; or gypsum board nail, 0.0915" diameter, 1 7/8" long, 19/64" head.
	Ceiling ^e	Perpendicular	24	7	12	
	Wall	Either direction	24	8	12	
	Wall	Either direction	16	8	16	
Application with adhesive						
3/8	Ceiling ^d	Perpendicular	16	16	16	Same as above for 3/8" gypsum board
	Wall	Either direction	16	16	24	
1/2 or 5/8	Ceiling	Either direction	16	16	16	Same as above for 1/2" and 5/8" gypsum board, respectively
	Ceiling ^d	Perpendicular	24	12	16	
	Wall	Either direction	24	16	24	
Two 3/8 layers	Ceiling	Perpendicular	16	16	16	Base ply nailed as above for 1/2" gypsum board; face ply installed with adhesive
	Wall	Either direction	24	24	24	

For SI: 1 inch = 25.4 mm

- For application without adhesive, a pair of nails spaced not less than 2 inches apart or more than 2 1/2 inches apart may be used with the pair of nails spaced 12 inches on center.
- Screws shall be Type S or W per ASTM C 1002 and shall be sufficiently long to penetrate wood framing not less than 5/8 inch and metal framing not less than 3/8 inch.
- Where metal framing is used with a clinching design to receive nails by two edges of metal, the nails shall be not less than 5/8 inch longer than the gypsum board thickness and shall have ringed shanks. Where the metal framing has a nailing groove formed to receive the nails, the nails shall have barbed shanks or be 5d, 13 1/2 gage, 1 5/8 inches long, 1 5/64-inch head for 1/2-inch gypsum board; and 6d, 13 gage, 1 7/8 inches long, 15/64-inch head for 5/8-inch gypsum board.
- Three-eighths-inch-thick single-ply gypsum board shall not be used on a ceiling where a water based textured finish is to be applied, or where it will be required to support insulation above a ceiling. On ceiling applications to receive a water-based texture material, either hand or spray applied, the gypsum board shall be applied perpendicular to framing. When applying a water-based texture material, the minimum gypsum board thickness shall be increased from 3/8 inch to 1/2 inch for 16-inch on center framing, and from 1/2 inch to 5/8 inch for 24-inch on center framing or 1/2-inch sag-resistant gypsum ceiling board shall be used.
- Type X gypsum board for garage ceilings beneath habitable rooms shall be installed perpendicular to the ceiling framing and shall be fastened at a maximum 6 inches o.c. by minimum 1 7/8 inches 6d coated nails or equivalent drywall screws.

EMERGENCY ESCAPE: (R310, R311.2, Gila Co. Amendment)

- Every sleeping room, basements with habitable space, and habitable attics shall have at least one openable emergency escape and rescue opening. Where basements contain one or more sleeping rooms, emergency egress and rescue opening shall be required in each sleeping room, but shall not be required in adjoining areas of the basement.
 - Sill height of not more than 44 inches above the floor.
 - Minimum net clear opening height of 24 inches.
 - Minimum net clear opening width of 20 inches.
 - Shall be operational from the inside without the use of tools or keys.
 - Minimum net clear opening of 5.7 square feet.
- **Exception:** Grade floor openings shall have a net clear opening of 5 square feet.
- All egress doors shall be readily openable from the side from which egress is to be made without the use of a key or special knowledge or effort.
- Escape windows under decks and porches provided the location of the deck allows the emergency escape window to be fully opened and provides a relatively level and unobstructed path not less than 36 inches in height by 36 inches in width for a maximum distance of 8 feet to a yard or court.

ENGINEERED PLANS: (R106.1)

Construction documents shall be submitted in one or more sets with each application for a permit. The construction documents shall be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed. Where special conditions exist, the building official is authorized to require additional construction documents to be prepared by a registered design professional.

ENERGY STANDARDS:

The following minimum energy values shall apply for all commercial and habitable residential buildings:

- Roof: 2x4 construction R-13
 - 2x6, 2x8, 2x10, 9.5" & 11.875 I-Joist construction R-19
 - 2x12 construction R-30
 - All other dimensions and ceilings with attic spaces R-38
 - Alternative materials - Discretion of the Building Official
- Wall: 2x4 construction and basements R-13
 - 2x6 construction or greater R-19
 - Alternative materials - Discretion of the Building Official
- Floor (wood or steel framed): R-19
- Window U-Factor: .35
- Skylight U-Factor: .55

Chapter 11, Energy Efficiency is optional and not required. If an applicant requests to follow this chapter at the time of plan submission and the construction complies with this chapter, the County will note such compliance on the Certificate of Occupancy.

EXEMPT FROM PERMIT: (R105.2, Gila Co. Amendment)

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

1. One-story ***detached*** accessory structures used as garages, carports, storage sheds, tool sheds, playhouses, garden structures and other similar non-habitable uses, provided the floor area measured using the outside dimensions of the foundation does not exceed 200 square feet and the floor surface is not more than 30 inches above grade (plumbing, electrical, & mechanical work will require separate permit). Detached accessory structures shall be located an approved distance from other structures and property lines.
2. Wood, wire, chain link and similarly constructed fences not over 6 feet high measured from grade. Rock, concrete, masonry and similarly constructed fences not over 4 feet high measured from grade.
3. Retaining walls that will retain 48 inches or less of unbalanced fill.
4. Water tanks supported directly upon grade if the capacity does not exceed 5,000 gallons and the ratio of height to diameter or width does not exceed 2 to 1.
5. Sidewalks and driveways not more than 30 inches above adjacent grade and not over any basement or story below.
6. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.
7. Prefabricated swimming pools that are less than 24 inches deep.
8. Swings and other playground equipment accessory to a one or two-family dwelling.
9. Window awnings supported by an exterior wall which do not project more than 54 inches from the exterior wall and do not require additional support.
10. Detached decks not exceeding 200 square feet that are not more than 30 inches above grade at any point. Detached accessory structures shall be located an approved distance from other structures and property lines.

Note: Zoning, Floodplain and other regulations may still apply to exempt structures. A site plan review and approval is required prior to the construction of exempt accessory buildings and decks. There is a \$25 fee for this service.

FENCES: (Gila Co. Amendment)

- Wood, wire, chain link and similarly constructed fences not over 6 feet high measured from grade do not require a permit.
- Rock, concrete, masonry and similarly constructed fences not over 4 feet high measured from grade do not require a permit.
- All fences must comply with Gila County Zoning regulations.

FLOOR JOISTS:

FLOOR JOIST TABLE 2012 IRC R502.3.1(2)			
Size	Spacing	HF #2	DF #2
2x6	16" O.C.	9'-1"	9'-9"
	24" O.C.	7'-11"	8'-1"
2x8	16" O.C.	12'-0"	12'-7"
	24" O.C.	10'-2"	10'-3"
2x10	16" O.C.	15'-2"	15'-5"
	24" O.C.	12'-5"	12'-7"
2x12	16" O.C.	17'-7"	17'-10"
	24" O.C.	14'-4"	14'-7"

BEAM/JOIST/RAFTER BORING AND NOTCHING for limitations.

Floor cantilevers not listed in the building code tables shall be limited to a span of 48 inches without Building Official approval or engineered design.

FOOTING/FOUNDATIONS: (R403, R405, R406)

Minimum width of concrete of masonry footings:

- Conventional light-frame construction: 1 story: 12 inches, 2 story: 15 inches, 3 story: 23 inches.
- 4 inch brick veneer over light frame or 8 inch hollow concrete masonry: 1 story: 12 inches, 2 story: 21 inches, 3 story: 32 inches.
- 8 inch solid or fully grouted masonry: 1 story: 16 inches, 2 story: 29 inches, 3 story: 42 inches.
- All exterior footings shall be placed at least 12 inches below the undisturbed ground surface or provide soils compaction report to office for approval.
- All footings installed at elevations below 4900 feet shall be a minimum 12 inches below finished grade for frost protection.
- All footings installed at elevations of 4900 feet and above shall be a minimum 18 inches below finished grade for frost protection.
- Assumed soil bearing capacity = 1500 p.s.f. (unless information/engineering provided to the contrary)
- Spread footings shall be at least 6 inches in thickness.
- Foundation walls that retain earth and enclose habitable or usable spaces located below grade shall be waterproofed from the top of the footing to the finished grade.
- French type drain system or equivalent may also be required to be installed.

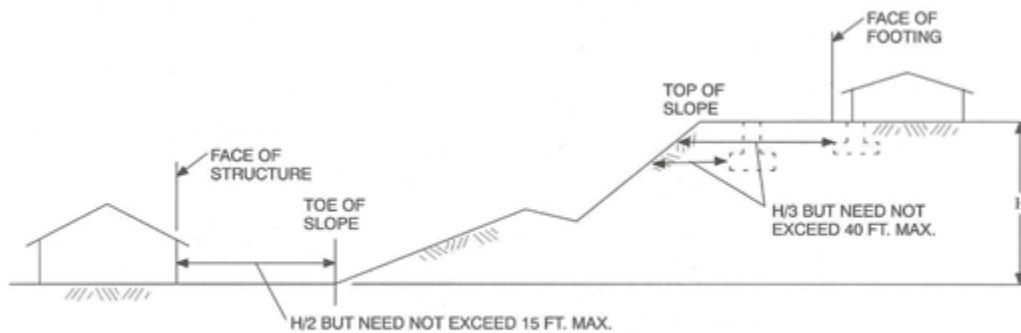
FOOTINGS ON OR ADJACENT TO SLOPES: (R403.1.7.1)

FIGURE R403.1.7.1
FOUNDATION CLEARANCE FROM SLOPES

GARAGES:

- Openings from a private garage directly into a room used for sleeping shall not be permitted. **(R302.5)**
- Other openings between the garage and the residence shall be equipped with solid wood, not less than 1 3/8 inches thick, solid or honeycomb core steel, not less than 1 3/8 inches thick or 20 minute fire rated doors. Door shall be self-closing and self latching. **(R302.5.1)**
- Ducts in the garage and ducts penetrating the walls or ceilings separating the dwelling from the garage shall be constructed of a minimum No. 26 gage sheet steel or other approved material and shall have no openings into the garage. **(R302.5.2)**
- The garage shall be separated from the residence and its attic areas with not less than 5/8 inch Type "X" gypsum board. For all habitable rooms above the garage not less than 5/8 inch Type "X" gypsum board. Where separation is a floor – ceiling assembly, the structural supporting the separation shall also be protected by not less than 5/8 inch Type "X" gypsum board. **(Table R302.6 amended)**
- The floor surfaces shall be of approved noncombustible material. **(R309.1)**
- The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway. **(R309.1)**
- Termite pre-treatment required if attached to habitable space. **(R318)**
- Private garages classified as Group U occupancies shall not exceed 1,000 square feet in area or one story in height except as provided in section 406.1.2 of the International Building Code. **(IBC 406.1.1)**
- Group U occupancies used for the storage of private or pleasure-type motor vehicles where no repair work is done or fuel dispensed are permitted to be 3,000 square feet when the provisions of the International Building Code section 406.1.2 are met. **(IBC 406.1.2)**

GUARDRAILS: (R312)

- Porches, balconies or raised floor surfaces located more than 30 inches above the floor or grade below shall have guards not less than 36 inches in height.
- Open sides of stairs with a total rise of more than 30 inches above the floor or grade below shall have guards not less than 34 inches in height measured vertically from the nosing of the treads.
- Porches and decks which are enclosed with inset screening shall be provided with guards where the walking surface is located more than 30 inches above the floor or grade below.
- Openings shall not allow passage of a sphere 4 inches or more in diameter.

HANDRAILS: (R311)

- Handrail height measured vertically from the sloped plane adjoining the tread nosing shall not be less than 34" and not more than 38".
- Handrails for stairways shall be continuous for the full length of the flight from a point directly above lowest riser of the flight. Handrail ends shall terminate in newel posts or safety terminals.
- Handrails shall be provided on at least one side of each continuous run of treads or flight with 4 or more risers.
- Handrail grip must be one of the following types:
 - Type I. Handrails with a circular cross section shall have an outside diameter of at least 1 ¼ inches and not greater than 2 inches. If the handrail is not circular it shall have a perimeter dimension of at least 4 inches and not greater than 6 ¼ inches with a maximum cross section dimension of 2 ¼ inches.
 - Type II. Handrails with a perimeter greater than 6 ¼ inches shall provide a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of ¾ inch measured vertically from the tallest portion of the profile and achieve a depth of at least 5/16 inch within 7/8 inch below the widest portion of the profile. This required depth shall continue for at least 3/8 inch to a level that is not less than 1 ¾ inches below the tallest portion of the profile. The minimum width of the handrail above the recess shall be 1 ¼ inches to a maximum of 2 ¾ inches. Edges shall have a minimum radius of 0.01 inches.

HEIGHT LIMITS:

See separate Gila County handout titled "Height Limits"

LIVE LOADS: (Table R301.5, Gila Co. Amendment)

Minimum Uniformly Distributed Live Loads (in pounds per square foot)

- Uninhabitable attics without storage: 10 psf

- Uninhabitable attics with limited storage: 20 psf
- Habitable attics and attics served with fixed stairs: 40 psf
- Balconies (exterior) and decks: 40 psf
- Sleeping rooms: 40 psf
- Stairs: 40 psf (Individual stair treads shall be designed for the uniformly distributed live load or a 300 pound concentrated load acting over an area of 4 square inches, whichever produces the greatest stresses.)

MANUFACTURED HOMES:

See the Manufactured Home and Factory Built Building Installation Standards as published and provided by the State of Arizona Office of Manufactured Housing.

MEANS OF EGRESS: (R311)

- Not less than one exit door shall provide direct access from the habitable space to the exterior without passing through the garage.
- The minimum clear width of exit door shall not be less than 32 inches when measured between the face of the door and the stop with the door open 90 degrees and not less than 78 inches in height measured from the top of the threshold to the bottom of the stop.
- The minimum width of hallways shall be 36 inches.
- All egress doors shall be readily openable from the side from which egress is to be made without the use of a key or special knowledge or effort.
- Enclosed accessible space under stairs shall have walls, under stair surface and any soffits protected on the enclosed side with 1/2 inch gypsum board. **(R302.7)**

MOBILE HOMES (PRE-HUD):

A permit shall not be issued for the installation or relocation of a manufactured home within the unincorporated areas of Gila County unless the home can be shown to comply with the manufactured home construction and safety standards adopted by the US Department of Housing and Urban Development.

It shall be the responsibility of the applicant to provide proof of compliance with this requirement. A label certifying that the manufactured home has been inspected and constructed in accordance with the requirements of the US Department of Housing and Urban Development in effect at the time of manufacture constitutes proof of compliance provided that date of manufacture is not prior to June 15, 1976. **(Building Code Ordinance No. 2014-03)**

PARK MODEL TRAILERS:

Park Model trailers will be permitted and inspected in the same manner as manufactured homes. However, Park Model trailers are classified as Recreational Vehicles and, as such, are subject to the zoning, building and other regulations that apply to RVs. (Gila Co. Building Code Ordinance No. 2017-02)

RETAINING WALLS:

See separate Gila County handouts for code compliant basement retaining walls. Freestanding retaining walls require engineering unless retaining 48 inches or less of unbalanced fill.

ROOF RAFTERS:

ROOF RAFTER TABLE 2012 IRC R802.5.1(4)(6)			
40 PSF SNOW LOAD with or without CEILING			
Size	Spacing	HF #2	DF #2
2x6	16" O.C.	9'-7"	9'-9"
	24" O.C.	7'-10"	7'-11"
2x8	16" O.C.	12'-2"	12'-4"
	24" O.C.	9'-11"	10'-1"
2x10	16" O.C.	14'-10"	15'-1"
	24" O.C.	12'-1"	12'-4"
2x12	16" O.C.	17'-3"	17'-6"
	24" O.C.	14'-1"	14'-3"

ROOF RAFTER TABLE 2012 IRC R802.5.1(2)			
20 PSF SNOW LOAD with CEILING			
Size	Spacing	HF #2	DF #2
2x6	16" O.C.	13'-1"	14'-1"
	24" O.C.	11'-5"	11'-9"
2x8	16" O.C.	17'-3"	18'-2"
	24" O.C.	14'-8"	14'-10"
2x10	16" O.C.	21'-11"	22'-3"
	24" O.C.	17'-10"	18'-2"
2x12	16" O.C.	25'-5"	25'-9"
	24" O.C.	20'-9"	21'-0"

ROOF RAFTER TABLE 2012 IRC R802.5.1(1)			
20 PSF SNOW LOAD without CEILING			
Size	Spacing	HF #2	DF #2
2x6	16" O.C.	14'-2"	14'-4"
	24" O.C.	11'-7"	11'-9"
2x8	16" O.C.	17'-11"	18'-2"
	24" O.C.	14'-8"	14'-10"
2x10	16" O.C.	21'-11"	22'-3"
	24" O.C.	17'-10"	18'-2"
2x12	16" O.C.	25'-5"	25'-9"
	24" O.C.	20'-9"	21'-0"

Cantilevered portions of rafters that are not notched shall be limited to a span of 48 inches without Building Official approval or engineered design.

ROOF LOAD:

See Climatic and Geographic Design Criteria on page 7

ROOM SIZES: (R304)

- Every dwelling unit shall have at least one habitable room that shall have not less than 120 square feet of gross floor area.
- Other habitable rooms shall have a floor area of not less than 70 square feet, except kitchens.
- Habitable rooms shall not be less than 7 feet in any horizontal dimension, except kitchens.
- Portions of a room with a sloping ceiling measuring less than 5 feet or a furred ceiling measuring less than 7 feet from the finished floor to the finished ceiling shall not be considered as contributing to the minimum required habitable area for that room.

SKYLIGHTS, CURBS FOR: (R308.6.8)

All unit skylights installed in a roof with a pitch flatter than three units vertical in 12 units horizontal shall be mounted on a curb extending at least 4 inches above the plane of the roof unless otherwise specified in the manufacturer's installation instructions.

SLEEPING ROOM DEFINITION (R202)

A room within a structure consisting of a minimum floor area of 70 square feet and not less than 7 feet in any horizontal dimension, has a built in closet either for clothing or storage, and used primarily for sleeping.

SNOW LOAD:

See Climatic and Geographic Design Criteria on page 7

SOIL BEARING CAPACITY: (R401.4)

In Gila County, soil bearing capacity is assumed to be 1500 pounds per square foot. In areas likely to have expansive, compressive, shifting or other unknown soil characteristics, the building official shall determine whether to require a soil test.

STAIRWAYS: (R311.7, Gila Co. Amendment)

- Minimum tread depth shall be 10 inches.
- Maximum riser height shall be 8 inches.
- Minimum headroom of 6 feet, 8 inches.

- Minimum stairway width shall be 36 inches. Handrails shall not project more than 4.5 inches on either side of the stairway and the minimum clear width at and below the handrail height, including treads and landings, shall not be less than 31.5 inches where handrail is installed and 27 inches where handrails are provided on both sides.
- There shall be a floor or landing at the top and bottom of each stairway. Exception: Not required at the top of an interior flight of stairs, provided a door does not swing over the stairs.
- Stairs shall not have a vertical rise greater than 12 feet between floor levels or landings.
- The width of each landing shall not be less than the stairway served. Every landing shall have a minimum dimension of 36 inches in the direction of travel.
- Individual stair treads shall be designed for the uniformly distributed live load of 40 lbs. psf, or a 300 lb concentrated load acting over an area of 4 square inches, whichever is greater.
- Under-stair protection of 5/8-inch Type X gypsum board required if used for storage.
- See Handrail section on page 15.

TERMITE PRE-TREATMENT: (R318)

Chemical soil treatment is required for concrete slab on grade under habitable structures and enclosed additions to those structures. Application by state licensed exterminator or owner using approved chemicals.

VENTILATION:

ATTIC/ROOF VENTILATION (R806):

- Enclosed attic and enclosed rafter spaces shall have cross ventilation for each separate space by ventilating openings protected against the entrance of rain or snow.
- Vent openings shall be provided with corrosion-resistant wire mesh with 1/8 inch minimum or 1/4 inch maximum openings.
- Total net free ventilating area shall not be less than 1:150 of area ventilated. Area may be reduced to 1:300 provided at least 50% and not more than 80% of required ventilation is provided by ventilators located in upper portions of space to be ventilated at least 3 feet above eave or cornice vents with balance of ventilation provided by eave or cornice vents.

CRAWL SPACE/UNDER FLOOR VENTILATION (R408):

- Minimum net areas of ventilation openings shall not be less than 1 square foot for each 150 square feet of under-floor area.
- One such ventilating opening shall be within 3 feet of each corner of the building.

WATER-RESISTIVE BARRIER: (R703.2)

One layer shall be applied over studs or sheathing of all exterior walls.

Exception: In detached accessory buildings

WINDOW FALL PROTECTION: (R312.2)

Where the opening of an operable window is located more than 72 inches above the finished grade or surface below, the lowest part of the clear opening of the window shall be a minimum 24 inches above the finished floor of the room in which the window is located. Operable sections of windows shall not permit openings that allow the passage of a 4 inch diameter sphere where such openings are located within 24 inches of the finished floor. See code section for exceptions.

WINDOW WELLS: (R310.2)

- Minimum horizontal area of window well shall be 9 square feet.
- Minimum horizontal projection and width of 3 feet.
- The area of the window well shall be fully open above, not located below decks.
- Window wells with a depth greater than 44 inches shall be equipped with a permanently affixed ladder or steps, usable with the window in the fully open position.
- Ladders shall have an inside width of at least 12 inches, shall project at least 3 inches from the wall, and be spaced not more than 18 inches on center for the full height of the window well.
- Ladders may encroach a maximum of 6 inches into the required window well dimensions.
- Allowed under decks and porches provided there is an egress path relatively level and unobstructed, not less than 36 inches in height and width for a maximum distance of 8 feet to a yard or court. **(R310.5, Gila Co. Amendment)**

WOOD – PROTECTION AGAINST DECAY REQUIRED: (R317)

- Wood joists or the bottom of a wood structural floor when closer than 18 inches or wood girders when closer than 12 inches to exposed ground crawl spaces or unexcavated area located within the periphery of the building foundation.
- All wood framing members that rest on concrete or masonry exterior foundation walls and are less than 8 inches from the exposed ground.
- Sills and sleepers on a concrete or masonry slab that is in direct contact with the ground unless separated from such slab by an impervious moisture barrier.
- The ends of wood girder entering exterior masonry or concrete walls having clearances of less than ½ inch on tops, sides and ends.
- Wood siding, sheathing and wall framing on the exterior of a building having a clearance of less than 6 inches from the ground.
- Field cut ends, notches and drilled holes of pressure treated wood shall be retreated in the field.

- The portions of glued-laminated timbers that form the structural supports of a building or other structure and are exposed to weather and not properly protected by a roof, eave or similar covering shall be pressure treated with preservative or be manufactured from naturally durable or preservative-treated wood.

ELECTRICAL

ARC-FAULT CIRCUIT INTERRUPTER PROTECTION: (E3902)

All branch circuits that supply 120-volt, single-phase, 15- and 20-ampere outlets installed in family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreations rooms, closets, hallways and similar rooms or areas shall be protected by a combination type arc-fault circuit interrupter installed to provide protection of the branch circuit.

BONDING: (E3609)

- Metal piping where installed in or attached to a building or structure, including hot and cold water piping and gas piping, shall be bonded to the service panel with not less than a #4 copper conductor, solid or stranded, bare or insulated.
- The points of attachment for bonding shall be accessible.

BRANCH-CIRCUIT REQUIREMENTS: (TABLES E3702.13, E3705.1)

15 amp circuit protection requires 14 gauge copper conductors
20 amp circuit protection requires 12 gauge copper conductors
30 amp circuit protection requires 10 gauge copper conductors
40 amp circuit protection requires 8 gauge copper conductors
50 amp circuit protection requires 6 gauge copper conductors

CARBON MONOXIDE ALARMS: (R315)

Required to be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms in dwelling units within which fuel-fired appliances are installed and in dwelling units that have attached garages. Not required to be hard wired or interconnected. A listed combination carbon monoxide and smoke alarm is acceptable.

ELECTRICAL EQUIPMENT LOCATION AND CLEARANCES: (E3405)

- Panelboards, service equipment and similar enclosures shall not be located in bathrooms, toilet rooms, clothes closets, or over steps of a stairway.
 - Working space shall not be designated for storage.
 - Working space shall be a minimum of 30 inches wide by 36 inches deep, minimum 6 feet 6 inches height.
 - Workspaces shall be provided with artificial lighting where located indoors.
-
- In all cases, the work space shall allow at least a 90 degree opening of equipment doors or hinged panels.
 - Overhead service-drop: Open conductors and multi-conductor cables without an overall outer jacket shall have a clearance of not less than 3 feet from the sides of doors, porches, decks, stairs, ladders, fire escapes, and balconies, and from the sides and bottom of windows that open. **(E3604.1)**
 - Above roofs: Conductors shall have a vertical clearance of not less than 8 feet above the roof surface. The vertical clearance above the roof level shall be maintained for a distance of not less than 3 feet in all directions from the edge of the roof. If roof slope is 4/12 or greater, the minimum clearance shall be 3 feet. **(E3604.2.1)**

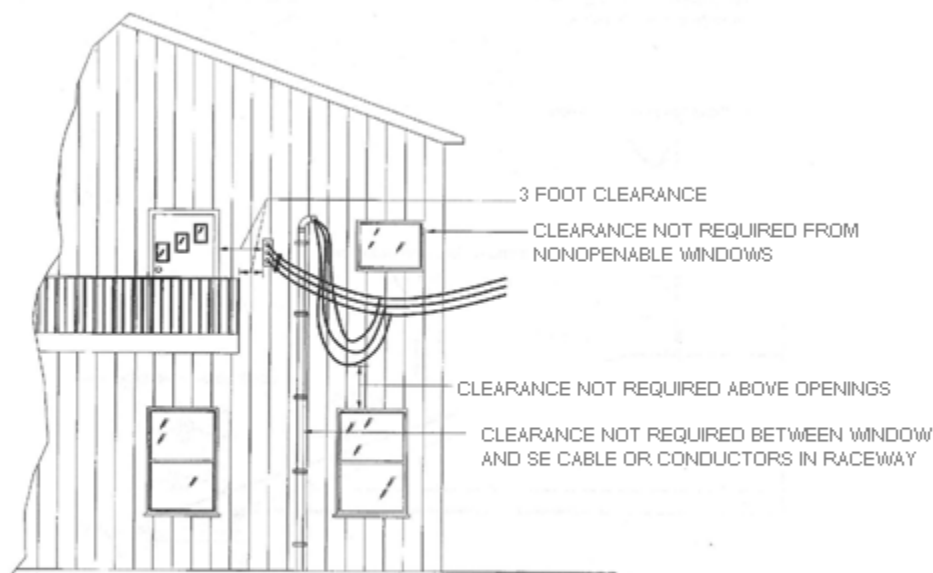
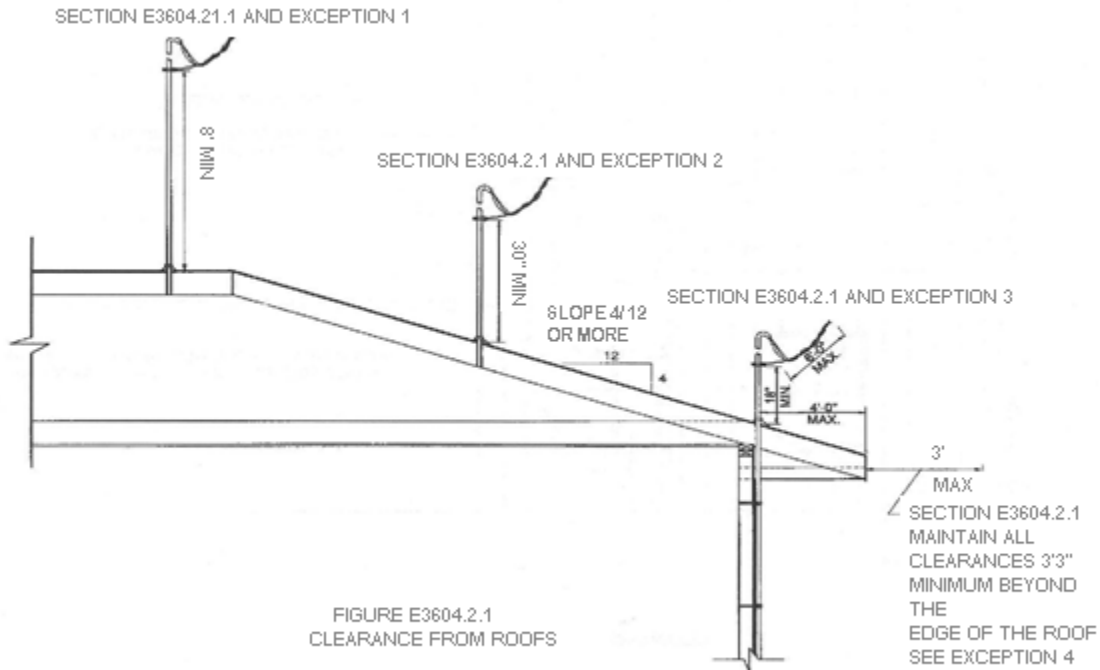


FIGURE E 3604.1
CLEARANCES FROM BUILDING OPENINGS



ELECTRICAL SERVICE DISCONNECT: (E3601)

A means shall be provided to disconnect all conductors in a building or other structure from the service entrance.

- Shall be installed at a readily accessible location either outside of a building or inside nearest the point of entrance of the service conductors.
- Service disconnecting means shall not be installed in bathrooms.
- Each occupant shall have access to the disconnect serving the dwelling unit in which they reside.
- Maximum number of disconnects: Not more than six switches or six circuit breakers mounted in a single enclosure or in a group of separate enclosures.

ELECTRICAL SERVICE MINIMUM: (E3602.1)

For one-family dwellings, the rating of the underground conductors shall be not less than 100 amps. For all other installations, the rating of the underground conductors shall be not less than 60 amps.

EXEMPT FROM PERMIT: (R105.2)

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

- Repairs and Maintenance: A permit shall not be required for minor repair work, including the replacement of lamps or the connection of approved portable electrical equipment to approved permanently installed receptacles.

GROUND ROD: (E3608)

Two 5/8 inch by 8 foot ground rods not less than 6 feet apart to be installed at all electrical service panels and subpanels at detached accessory buildings.

RECEPTACLE OUTLETS: (E3901, E3902, E4002)

- 15- and 20-ampere receptacles shall be listed tamper-resistant receptacles if located 5.5 feet or less above the floor.
- Appliance receptacle outlets installed for specific appliances, such as laundry equipment, shall be installed within 6 feet of the intended location of appliance.
- Receptacles shall be installed so that no point along the floor line in any wall space is more than 6 feet, measured horizontally, from an outlet in that space. Wall space shall include any space that is 2 feet or more in width, including space measured around corners, and that is unbroken along the floor line by doorways and similar openings, fireplaces, and fixed cabinets, the space occupied by fixed panels in exterior walls, excluding sliding panels, and the space created by fixed room dividers such as railings and freestanding bar-type counters.

KITCHEN AND DINING ROOMS

- A receptacle outlet shall be installed at each wall counter space 12 inches or wider and so that at no point along the wall line is more than 24 inches away, measured horizontally from a receptacle outlet in that space.
- At least one receptacle outlet shall be installed at each island counter or peninsular space with a long dimension of 24 inches or greater and a short dimension of 12 inches or greater.
- Receptacles shall not be located greater than 20 inches above the countertop and or installed in a face-up position in the countertop.
- All receptacles that serve countertop surfaces in a kitchen shall have ground-fault circuit-interrupter protection.
- Receptacles installed in a kitchen shall be supplied by not less than two 20-ampere small-appliance branch circuits and shall serve no other outlets.
- Circuits supplying 15- and 20-ampere outlets in a dining room to be protected by a combination arc-fault circuit interrupter unless GFCI protected.

BATHROOMS:

- At least one wall receptacle outlet shall be installed, located within 36 inches of the outside edge and on the wall that is adjacent to of each lavatory basin.
- All receptacles shall have ground-fault circuit-interrupter protection.

BEDROOMS:

Circuits supplying 15- and 20-ampere outlets in a bedroom to be protected by a combination arc-fault circuit interrupter.

OUTDOOR RECEPTACLES:

- At least one receptacle outlet, accessible at grade level and not more than 6 feet 6 inches above grade, shall be installed outdoors at the front and back of each dwelling unit having direct access to grade.
- A receptacle installed outdoors in a location protected from the weather or in other damp locations shall have an enclosure for the receptacle that is weatherproof when the receptacle cover(s) is closed and an attachment plug cap is not inserted. A receptacle shall be considered to be in a location protected from the weather where located under roofed open porches, canopies and similar structures and not subject to rain water runoff.
- Where installed outdoors in a wet location, 15- and 20-ampere, 125- and 250-volt receptacles shall have an enclosure that is weatherproof whether or not the attachment plug cap is inserted.
- All receptacles located in a garage shall be ground-fault circuit-interrupter protected except for a single receptacle or a duplex receptacle for two appliances located within a dedicated space for each appliance that in normal use is not easily moved from place to another, and that is cord and plug-connected.
- Accessory buildings, crawl space, unfinished basements, bar sink, boathouse shall be GFCI protected.

SMOKE DETECTORS: (R314)

- In each sleeping room.
- Outside each separate sleeping area in the immediate vicinity of the bedrooms. Can be a listed combination carbon monoxide and smoke alarm.
- One in each story, including basements, not including crawl spaces and uninhabitable attics.
- Smoke detectors shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms.
- When interior alteration, repairs or additions requiring a permit occur, or when one or more sleeping rooms are added or created in existing dwellings, the individual dwelling unit shall be provided with smoke alarms located as required for new dwelling.
- Smoke alarms shall be interconnected and hard wired, with battery back-up and arc-fault protected when installed in a bedroom

- Locate no closer than 3 feet from: door to kitchen, door to bath with shower, air supply register, or tip of ceiling fan blade.

TRACER WIRES AND WARNING RIBBONS:

All new and active underground facilities installed in any real property shall be installed with a detectible underground location device (tracer wire) unless the facility is capable of being detected from above ground with an electronic locating device or the facility is installed within single family residential property and is beneath a pool, permanent pool decking that is less than 48" from the pool or a permanent building. This includes water, sewer, gas, and electric pipes, conduits, lines and wires but not landscape irrigation systems with piping 2" or less in diameter. **(ARS 40-360.22)**

TRENCH: (TABLE E3803.1)

MINIMUM COVER REQUIREMENTS:

- Direct Burial Cables or Conductors: 24 inches.
- Rigid Metal Conduit: 6 inches.
- PVC Conduit: 18 inches.

WALL SPACE:

Any space that is 2 feet or more in width, including space measured around corners, and that is unbroken along the floor line by doorways and similar openings, fireplaces, and fixed cabinets, the space occupied by fixed panels in exterior walls, excluding sliding panels, and the space created by fixed room dividers such as railings and freestanding bar-type counters.

PLUMBING

BACKFLOW PREVENTION: (R2902)

A potable water supply system shall be designed and installed in such a manner as to prevent contamination. Connections shall not be made to a potable water supply in a manner that could contaminate the water supply or provide a cross-connection between the supply and source of contamination unless an approved backflow prevention device is provided. A double check valve is a commonly used backflow prevention device.

CLEARANCES: (P2705, P2708)

- The centerline of water closets or bidets shall not be less than 15 inches from adjacent walls or partitions.

- There shall be 21 inches clear in front of water closets, bidet or lavatory to any wall, fixture or door.
- Shower compartments shall not be less than 30 inches in its minimum dimension and have a minimum 900 square inches of internal cross-sectional area.

EXEMPT FROM PERMIT: (R105.2)

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

- The stopping of leaks in drains, water, soil, waste or vent pipe; provided, however, that if any concealed trap, drainpipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered as new work and a permit shall be obtained and inspection made as provided in this code.
- The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures, and the removal and reinstallation of water closets, provided such repairs do not involve or require the replacement or rearrangement of valves, pipes or fixtures.
- Gas:
 1. Portable heating, cooking or clothes drying appliances.
 2. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.
 3. Portable fuel cell appliances that are not connected to a fixed piping system and are not interconnected to a power grid.

GAS PIPING SYSTEMS AND APPLIANCES:

See separate Gila County handout titled "Residential Checklist for Installation of Gas Piping and/or Appliances".

INSTALLATION:

- Clothes Washer discharge shall be through an air break. **(P2718.1)**
- The standpipe shall extend a minimum 18 inches and a maximum 42 inches above the trap weir. **(P2706.2)**
- Dishwashing machine water supply shall be protected by an air gap or integral backflow preventer. **(P2717.1)**

TRENCHES:

- Water piping shall be installed not less than 12 inches deep or less than 6 inches below the frost line, to the top of the pipe. **(P2603.5)**

- Above 4900 feet, frost line is 18 inches deep. Below 4900 feet, frost line is 12 inches deep.
- Waste lines shall be installed a minimum of 12 inches (cover) below finished grade, to top of pipe, for protection.
- Utilities in shared trenches (recommended): Provide minimum 12 inch horizontal and 12 inch vertical separation between utilities below grade. Waste line lowest in trench.
- Piping shall be installed in trenches so that the piping rests on solid and continuous bearing. When over excavated the trench shall be backfilled to the proper grade with compacted earth, sand, fine gravel or similar granular material. Piping shall not be supported on rocks or blocks at any point. **(P2604.1)**
- Pipes through footings or foundation walls: Any pipe that passes under a footing or through a foundation wall shall be provided with a relieving arch; or there shall be built into the masonry wall a pipe sleeve two pipe sizes greater than the pipe passing through. **(P2603.4)**
- Backfill shall be free from rocks, broken concrete and frozen chunks. The pipe shall be covered by at least 12 inches of tamped earth, placed evenly on both sides of the pipe, in 6 inch layers and tamped in place. **(P2604.3)**

TESTING OF SYSTEMS:

GAS PIPING SYSTEMS: **(G2417.4.1)**

- Piping must be pressure tested at not less than 1 ½ times the maximum working pressure but not less than 3 psig.

SHOWER LINER: **(P2503.6)**

- Site built shower liners require a water tightness test

WASTE SYSTEMS: **(P2503.5)**

- A test shall be performed on the drainage system for under slab plumbing before the slab is poured and the entire system shall be tested at the time of the rough inspection before drywall.
- Water Test: shall be applied to the drainage and vent piping. All openings in the piping shall be tightly closed, except the highest opening which is filled with water to over flowing, to a point 10 feet minimum above the highest fixture opening. The water level shall be maintained for 15 minutes.
- Air Test: **ALLOWED FOR PLASTIC (ABS, PVC) PIPING**. Tightly close all opening except on one opening. Install an air inlet-pressure gauge assembly. Pressurize the system with air to 5 psi and the pressure shall be maintained for 15 minutes.

WATER SYSTEMS: **(P2503.7)**

- At the time of the rough plumbing inspection, a test shall be performed on the entire water supply system. Tightly close all openings except on one opening, install an air inlet-pressure gauge assembly. Pressurize the system with 50 psi and the pressure

shall be maintained for 15 minutes. Air test is **ALLOWED FOR PLASTIC (PVC) PIPING**. Water under pressure of not less than the working pressure of the system may be substituted.

- Water pipe yard lines that have glued joints and are not continuous below grade shall be pressure tested as above.

ALL REQUIRED PIPING TESTS SHALL BE INSPECTED PRIOR TO CONCEALMENT OR BACKFILL.

VALVES: (P2803.1, 2903.9)

- Service valve: Each dwelling unit shall be provided with an accessible main shutoff valve near the entrance of the water service.
- Water heater valve: A readily accessible full-open valve shall be installed in the cold-water supply pipe to each water heater at or near the water heater.
- Valves serving individual fixture, appliances, risers and branches shall be provided with access. An individual shutoff valve shall be required on the fixture supply pipe to each plumbing fixture other than bathtubs and showers.
- All exterior hose bibs to be the frost free and anti-siphon type.
- Pressure temperature relief valve: Required for appliances and equipment used for heating or storing water.

VENTS:

TERMINATION: (P3103)

- All open vent pipes which extend through a roof shall be terminated at least 6 inches above the roof or 6 inches above the anticipated snow accumulation whichever is greater.
- An open vent terminal from a drainage system shall not be located less than 4 feet directly beneath any door, openable window, or other air intake opening of the building or of an adjacent building, nor shall any such vent terminal be within 10 feet horizontally of such an opening unless it is at least 2 feet above the top of such opening.
- Vent terminals extending through the wall shall terminate a minimum of 10 feet from the lot line and 10 feet above the highest adjacent grade within 10 feet horizontally of the vent terminal.
- Vent terminals shall not terminate under the overhang of a structure with soffit vents.
- Side wall vent terminals shall be protected to prevent birds or rodents from entering or blocking the vent opening.

SIZE OF VENTS: (P3113.1)

- Pipes shall be not less than 1 ¼ inch in diameter.
- Vents exceeding 40 feet in developed length shall be increased by one nominal pipe size for the entire developed length of the vent pipe.

WASTE OUTLET TRAPS AND TRAP ARM SIZES: (TABLE P3201.7)

Bathtub (with or without shower head)	1.50 inches
Bidet	1.25 inches
Clothes washer standpipe	2 inches
Floor drain	2 inches
Kitchens sink (1 or 2 traps, with or without dishwasher & garbage grinder)	1.5 inches
Laundry tub	1.5 inches
Lavatory	1.25 inches
Shower (based on the total flow rate)	1.5 to 4 inches
Water closet (refer to manufacturer's requirement)	3 inches is most common

WASTE SYSTEMS:**CLEANOUTS: (P3005.2)**

- Cleanouts shall be installed not more than 100 feet apart in horizontal drainage lines.
- When installed underground, cleanouts shall be extended vertically to or above finished grade either inside or outside the building.
- Cleanouts shall be installed at each change of direction greater than 45 degrees, except not more than one cleanout shall be required in each 40 feet of run regardless of change in direction.
- Cleanouts shall be accessible. Minimum clearance in front of cleanouts shall be 18 inches for 3 inch and larger pipes and 12 inches for smaller pipes.
- Accessible cleanouts shall be provided near the base of each vertical waste or soil stack. Alternatively, such cleanouts may be installed outside the building within 3 feet of the building wall.
- There shall be a cleanout near the junction of the building drain and building sewer.

WATER HEATERS:

New or replacement water heater installations require a plumbing permit.

PROHIBITED LOCATIONS: (M2005.2, G2406.2)

- Fuel-fired water heaters shall not be installed in a room used as a storage closet.
- Water heaters located in a bedroom or bathroom shall be installed in a sealed enclosure so that combustion air will not be taken from the living space. Access to such enclosure shall be through a solid door, with self closing device and weather-stripped.
- Direct vent water heaters are not required to be installed within an enclosure.

Access to water heaters that are located in an attic or under floor crawl space is permitted to be through a closet located in sleeping room or bathroom where ventilation of those spaces is in accordance with the code. **(M2005.2.1)**

Where water heaters or hot water storage tanks are installed in locations where leakage of the tanks or connections will cause damage, the tank or water heater shall be installed in a galvanized steel pan having a minimum thickness of 24 gage or other pans for such use. The pan drain shall extend full-size and terminate over a suitably located indirect waste receptor or shall extend to the exterior of the building and terminate not less than 6 inches and not more than 24 inches above the adjacent ground surface. **(P2801.5)**

Water heaters having an ignition source (both electric and gas type) installed in garages shall be elevated such that the source of ignition is not less than 18 inches above the garage floor. **(P2801.6)**

RELIEF VALVES REQUIRED: (P2803)

- A separate pressure-relief valve and a separate temperature-relief valve; or a combination pressure and temperature-relief valve.
- Pressure relief valves shall be set to open at least 25 psi above the system pressure but not over 150 psi, or exceeding the tanks rated working pressure.
- Temperature relief valves shall be installed such that the temperature-sensing element monitors the water within the top 6 inches of the tank. The valve shall be set to open at a maximum temperature of 210 degrees.
- The outlet shall not be directly connected to the drainage system.
- The diameter of the discharge piping shall not be less than the diameter of the relief valve outlet.
- The discharge pipe shall be installed so as to drain by gravity flow and shall terminate atmospherically, outside of the building, not less than 6 inches nor more than 24 inches above finish floor or finish grade. **(P2803 Amended)**

WATER PIPE SIZING:

- The minimum size water-service pipe shall be ¾ inch. **(P2903.7)**
- The minimum size of individual distribution lines shall be 3/8 inch if the developed length of the line is 60 feet or less and that available pressure at the meter is not less than 40 psi unless a larger size is specified by the fixture manufacturer. **(P2903.8.2)**

WATER SUPPLY:

- The water line serving a building shall be located on the parcel of the building served unless a legal easement or shared well agreement exists.
- A means of protection against backflow shall be provided. **(P2902.3)**

- Alternative water source: If a well or water utility company service is not available an alternative water source system can be utilized. *See separate Gila County handout titled "Alternate Residential Water Supply System".*

MECHANICAL

APPLIANCE ACCESS: (M1305)

Appliances shall be accessible for inspection, service, repair and replacement without removing permanent construction.

- 30 inches deep by 30 inches wide working space shall be provided in front of the control side to service an appliance. Room heaters shall be permitted to be installed with at least an 18 inch working space.
- Appliances in Attics and under floors; Minimum 30 inches height x 22 inches wide unobstructed passageway, must allow for the removal of the largest appliance in the space, and not more than 20 feet from access opening.
- A lighting fixture controlled by a switch located at the required passageway opening and a receptacle outlet shall be provided at or near the appliance location.

DRYER EXHAUST: (M1502)

- Dryer exhaust systems shall be independent of all other systems, shall convey the moisture to the outdoors and shall terminate on the outside of the building.
- Flexible transition ducts used to connect the dryer to the exhaust duct system shall be limited to single lengths, not to exceed 8 feet in length and shall not be concealed within construction.
- The maximum length of duct shall not exceed 35 feet from the dryer location to the wall or roof termination or as determined by the dryer manufacturer's installation instructions.
- The maximum length of 4 inch diameter duct shall be reduced 2.5 feet for each 45 degree bend and 5 feet for each 90 degree bend.
- Where the exhaust duct is concealed within the building construction, the equivalent length of the exhaust duct shall be identified on a permanent label or tag to be located within 6 feet of the exhaust duct connection.

EXEMPT FROM PERMIT: (R105.2)

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

1. Portable heating appliance
2. Portable ventilation appliances
3. Portable cooling unit
4. Steam, hot or chilled water piping within any heating or cooling equipment regulated by this code.
5. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.
6. Portable evaporative cooler
7. Self-contained refrigeration systems containing 10 pounds or less of refrigerant or that are actuated by motors of 1 horsepower or less.
8. Portable fuel cell appliances that are not connected to a fixed piping system and are not interconnected to a power grid.

HEAT SOURCE: (R303.9)

All habitable rooms shall be provided with heating facilities capable of maintaining a minimum room temperature of 68 degrees at a point 3 feet above the floor and 2 feet from the exterior walls. The installation of one or more portable space heaters shall not be used to achieve compliance.