

PLAN REVIEW COMMENTS: The following items briefly summarize the minimum code requirements of the International Residential Code (IRC). For detailed requirements, and, in some cases, exceptions, to the code requirements listed below, please refer to the code sections that are cited in the right hand column.

No.	Sheet Number(s)	Description of Minimum Code Requirement	Code Reference
Administration & General Submittal Requirements			Chapter 1
1.		Project description. Identify and describe the work to be covered by the permit for which application is made.	R105.3 (1.)
2.		Separate permits. Fences, retaining walls, swimming pools and spas are to be by separate permit. Fountain Hills Fire Department approval is required for propane tank installations.	
3.		Address and legal description. Indicate on the drawings the correct and complete address and the legal description.	R105.3 (2.)
4.		Setbacks. Indicate the location of the proposed building on the lot, including dimensioned distances from property lines and any other building(s) on the lot.	R106.2
5.		Square footage summary. Provide a square footage summary for each of the following: livable, garage, and covered patios, porches, storage and mechanical.	R108.3
6.		Plans. Provide three engineered site plans and two sets of construction drawings, including one sheet dedicated to the required energy information, with a maximum sheet size of 24" x 36. The preferred scale is 1/4" = 1'-0," but a scale of 3/16" = 1'-0" may be accepted. Indicate the scale and provide a North arrow. Minimum of 30:1 scale on site plans.	R106.1.1
7.		Framing plans. Provide complete floor and roof framing and foundation plans. Specify size and spacing of all framing members. Indicate all post locations and sizes, holddowns, headers, beams, hangers and ties.	R106
8.		Details and notes. Delete or cross out details or notes that do not apply or are not used.	
9.		Engineering. Engineering, such as a lateral analysis for shear, retaining and gravity when required, shall be sealed, signed and dated by an architect or engineer registered in the state of Arizona in accordance with the applicable state statutes.	R106.1
10.		Special inspection. Special inspection is required for this project. Please complete the attached forms if applicable and return them to Building Safety with other re-submittal documents.	R106.1
11.		Manufacturer's installation instructions. Manufacturer's installation instructions, as required by this code for items such as gas fireplaces, gas logs and other listed appliances, components or specialized systems, shall be available on the job site at the time of inspection.	R106.1.2
12.		Energy conservation items. Please provide information regarding the "Energy Efficiency" items that are located on page 9 of this document. Be sure to include a window versus exterior wall area worksheet and resulting window percentage, note the R-values of insulation to be installed on the plans, and provide notes and/or details that indicate compliance with other energy conservation requirements.	R106.1.1
Building Planning			Chapter 3
13.		Minimum glazed openings areas. All habitable rooms shall be provided with aggregate glazing area of not less than 8 percent of the floor area of such rooms. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated. See Section R303 for details and exceptions.	R303.1
14.		Area and height. Label and dimension all rooms and spaces. Note ceiling height of all rooms and areas.	R304 R305

15.		Bathroom light and ventilation. Provide bathrooms or water closet compartments with 3 sq. ft. of window area, one-half of which must be openable, or provide artificial light and mechanical ventilation at a rate of at least 50 cfm intermittent or 20 cfm continuous.	R303.3
16.		Toilet, bath and shower spaces. Provide 15" clearance from centerline at sides and 21" in front of water closet and space other fixtures in accordance with Figure R307.2.	R307 Figure R307.2
17.		<p>Safety glazing. Provide safety glazing at the following hazardous locations:</p> <ul style="list-style-type: none"> • In swinging doors except jalousies, storm doors and unframed swinging doors. • In fixed and sliding panels of sliding doors and panels in sliding and bi-fold closet doors. • In doors and enclosures for hot tubs, whirlpools, saunas, steam rooms, bathtubs and showers where the bottom edge of the glazing is less than 60" measured vertically • above any standing or walking surface. • Adjacent to a door where the nearest vertical edge is within a 24-inch arc of the door in a closed position and whose bottom edge is less than 60" above the floor. • When all of the following exist: area of a pane is greater than 9 sq. ft., bottom edge is less than 18" above the floor and top edge is greater than 36" above the floor and one or more walking surfaces are within 36" horizontal. • In railings. • In walls and fences enclosing indoor and outdoor swimming pools, hot tubs and spas where bottom edge is less than 60" above walking surface and within 60" horizontally of the water's edge. • Adjacent to stairways, landings and ramps within 36" horizontally of a walking surface and less than 60" above the walking surface. • Adjacent to stairways within 60" horizontally of the bottom tread and less than 60" above the nose of the tread. 	R308.4 (1)(3)(4) R308.4 (2) R308.4 (5) R308.4 (6) R308.4 (7) R308.4 (8) R308.4 (9) R308.4 (10) R308.4 (11)
18.		Site Built. Butt-glazed areas are considered to be "site built windows" (IRC 308.5) and windows with "...one or more sides...not firmly supported, or...subjected to unusual load conditions..." (IBC 2403 & 2404). Thus, butt glazing installations are required to be designed by an Arizona-licensed architect or engineer in accordance with IBC Sections 2403, 2404.1 and 1609. Please provide stamped structural engineering for the proposed butt-glazed window areas.	R308.5 IBC 2403, 2404.1 & 1609
19.		<p>Garage-dwelling opening protection:</p> <ul style="list-style-type: none"> • Doors. Must be at least 1-3/8"-thick solid wood or solid or honeycomb steel or 20-minute fire-rated doors. • Ducts. Minimum No. 26 gauge sheet steel or other approved material with no duct openings into the garage (or provide listed dampers). • Sleeping rooms. Openings from a private garage directly into a room used for sleeping are prohibited. 	R309.1 R309.1 R309.1.1 R309.1
20.		Garage-dwelling separation. Separate garage from residence and its attic by 1/2" gypsum board applied to the garage side. Garages beneath habitable rooms shall be separated from all habitable spaces by 5/8" Type 'X' gypsum board. Structural elements supporting such a floor-ceiling assembly shall be protected by 1/2" gypsum board.	R309.2
21.		Garage and carport floors. Garage floor surfaces must be approved noncombustible materials, with floors sloped to facilitate drainage to a floor drain or the main vehicle entry doorway.	R309.3 R309.4
22.		Emergency escape and rescue. Every sleeping room and basements with habitable space shall have a least one window with minimum 5.7 sq. ft. net clear opening (5.0 sq. ft. at grade floor), minimum opening width of 20", minimum opening height of 24" and a sill height not more than 44"; or provide an exterior door for emergency egress.	R310

23.		Window wells. Egress windows with finished sill heights located below the adjacent ground level must be equipped with approved window wells (9 sq. ft. and 36" minimum dimension) and, where wells have a vertical depth greater than 44," have an approved permanent ladders or steps.	R310.2 and R310.2.1
24.		Under stair protection. Enclosed accessible space under stairs shall have walls, under stair surface and any soffits protected on the enclosed side with ½" (12.7 mm) gypsum board.	R311.2.2
25.		Landings at doors. There shall be a floor or landing on each side of each exterior door. The width shall not be less than the door served with a minimum dimension of 36" measured in the direction of travel. See Section R311.4.3 for details and exceptions to this requirement. The floor or landing at the exterior door shall not be more than 1.5 inches (38mm) lower than the top of the threshold. The exterior landing at an exterior doorway shall not be more than 7¾ inches (196 mm) below the top of the threshold. See exceptions	R311.4.3 R311.4.3
26.		Stair requirements. Stairways shall meet the following requirements: <ul style="list-style-type: none"> • Width. 36" minimum with handrails allowed to project up to 4.5 inches into the minimum width on either side. • Headroom. Not less than 6 ft. 8 in. measured vertically from the plane across the tread nosings or from the floor surface of the landing or platform. • Treads and risers. Maximum riser height is 7-3/4 inches. Minimum tread depth is 10 inches. Variation may not exceed 3/8 inch. Nosing's of ¾" – 1¼" must be provided on solid stairs. See R311.5.3 for details & exceptions. • Winder treads. Winder treads shall have a minimum tread depth of 10 inches measured 12" from the side where the treads are narrowest, with a minimum tread depth of 6" at any point and no more than 3/8" variation. • Landings at stairways. Provide a floor or landing at the top and bottom of each stairway and so that vertical rise does not exceed 12 ft. between landings. Landings are not required at interior stairs, provided a door does not swing over the stairs. The width of the landing shall not be less than the door served, with a minimum dimension of 36" measured in the direction of travel. • Handrails. Handrails shall be provided on at least one side of each continuous run of treads or flight with four or more risers. Height shall be 34" - 38" above the nosings of the treads. Handrail grip shall be as per R311.5.6.3. • Spiral stairways. Spiral stairways shall have a minimum width of 26," 7.5" minimum tread depth at 12" in from the narrower edge, all treads identical, 9" maximum rise and 6'-6" minimum headroom. 	R311.5 R311.5.1 R311.5.2 R311.5.3.1 and R311.5.3.2 R311.5.3.2 R311.5.4 R311.5.6 R311.5.8.1
27.		Guards (guardrails). Where porches, balconies or raised floors are more than 30" above the floor or grade below, provide a guard that is: <ul style="list-style-type: none"> • 36" in height. • For open sides of stairs with more than 30" drop, guard height may be 34" above the nosings of the treads. • Porches & decks enclosed with insect screening with drop > 30" require guards. • Openings in guards may not allow the passage of a 4-inch-diameter sphere. • Triangular opening of stair riser, tread & guard may not allow 6-inch sphere. • Openings for required guards on sides of stair treads may not allow a 4-3/8"-diameter sphere to pass through. 	R312 R312.1 R312.2
28.		Smoke alarms. Provide interconnected smoke alarms in each sleeping room, outside each sleeping room in the immediate vicinity of the bedrooms and on each story. Smoke alarms shall receive primary power from building wiring (be "hard-wired") with battery backup. The actuation of one alarm will activate all of the alarms in the individual unit.	R313.1

29.		Alterations, repairs and additions. When interior alterations requiring a permit occur, or one or more sleeping rooms are added, the dwelling shall be provided with smoke alarms as for new dwellings. See Sections R313.1.1 and R313.2 for details and exceptions.	R313.1.1 and R313.2
30.		Dwelling unit separation. Dwelling units in Two-family dwellings shall be separated from each other by wall and/or floor assemblies having not less than a 1-hour fire-resistance rating. Fire-resistance-rated floor-ceiling and wall assemblies shall extend to and be tight against the exterior wall, and wall assemblies shall extend to the underside of the roof sheathing. Townhouses. Each townhouse shall be considered a separate building and shall be separated by fire-resistance-rated wall assemblies meeting the requirements of Section R302 for exterior walls. Exception Townhouses: A common 2-hour fire-resistance-rated wall is permitted for townhouses if such walls do not contain plumbing or mechanical equipment, ducts or vents in the cavity of the common wall.	R317.1 R317.2
31.		Back to back boxes. Outlet boxes on opposite sides of a fire-resistive wall must be separated by a distance of at least 24" or by other approved methods as noted in Exception 1 & 2. Recessed fixtures shall be so installed such that the required fire resistance will not be reduced.	R317.3.2
32.		Field treatment. Field cut ends, notches and drilled holes of pressure preservatively treated wood shall be retreated in the field in accordance with AWPA M4.	R320.3.1
33.		Premises identification. Approved numbers or addresses shall be provided so as to be readily visible from the street fronting the property.	R321
34.		Automatic fire sprinkler system. All new dwelling units as well as additions exceeding 50% of the gross area of the existing structure are to be protected by an automatic fire sprinkler system installed throughout the structure. Please contact the Fountain Hills Fire Department for details, exceptions and additional requirements.	IFC 903.2.7 IFC 903.3.7.2 (as amended)
Foundations			Chapter 4
35.		Compaction testing reports required. Where footings will bear on compacted fill material, the compacted fill shall comply with the provisions of an approved report prepared by a soils engineer or civil engineer.	R401.2 & R403.1
36.		Level footings. Provide note: "Top of footings shall be level. Bottom of footings are permitted to be sloped not to exceed 10%. Footings shall be stepped where ground slopes more than 10%."	R403.1.5
37.		Retaining walls. All walls retaining over 2ft. shall be an engineered design per town of Fountain Hills amendment. Indicate location and height of all retaining walls and provide engineering.	R404.1.3
38.		Drainage. Surface drainage shall be diverted so as to not cause a hazard. Lots shall be graded so as to drain surface water away from foundation walls a minimum of six (6) inches within the first ten (10) feet.	R401.3
39.		Concrete strength. Specify concrete strength on plans. Minimum 2500 psi	R402.2 Table R402.2
40.		Soil bearing pressure. Note type of soil and soil bearing pressure used in design of footings. Design criteria for non-engineered soil bearing shall be 1500 psi	R401.4.1 Table R401.4.1
41.		Footing dimensions. Dimension footing width, thickness, and depth into undisturbed soil.	Table R403.3
42.		Stem wall dimensions. Dimension stem wall thickness.	R404.1, Table 404.1(1)

43.		Anchor bolts. Foundation plates and sills shall be attached to the foundation, at a minimum, with ½” bolts spaced not more than six (6’) feet apart and embedded at least seven (7”) inches into concrete or masonry. Minimum of two bolts per plate section with one bolt located not more than 12 inches(305 mm) or less than seven bolt diameters from each end. Engineering for alternate anchor bolt sizes and spacing may also be provided.	R403.1.6
44.		Treated wood. Specify foundation grade redwood or approved pressure treated foundation plates and sills for all plates in contact with concrete.	R319.1
45.		Spot Footing or piers. Specify footing or pier sizes and provide foundation sections.	R403.1.1
46.		Horizontal reinforcement. Detail at least one (1) No. 4 bar within 12 inches (305 mm) of the top of the wall and one No. 4 bar located 3 inches (76 mm) to 4 inches (102 mm) from the bottom of the footing. Vertical reinforcement. Provide #4 dowels at minimum of 48” o.c. from footing to stem. Indicate finished floor elevation on the foundation plan.	R403.1.3.1 Table R404.1.1(2)
47.		Openings for under-floor ventilation. The minimum net area of ventilation openings shall not be less than 1 square foot (0.0929m ²) for each 150 square feet (14m ²) of under-floor area. One ventilating opening shall be within 3 feet (914 mm) of each corner of the building.	R408.1
48.		Treated columns. Columns and posts subject to water splash require 6” above earth or 1” above concrete or installation of pressure treated wood or wood of natural resistance to decay.	R319.1.3 R319.1.4
49.		Holdowns. Required holdowns, or tie-down devices, at exterior posts, columns, and braced walls, as specified on the lateral design or as required for all alternate braced wall panels, shall be shown on the foundation plan.	
50.		Structural engineering. Basement walls, stem walls over 4 feet high and stem walls restraining more than 2 feet of earth are required to be designed and stamped by a qualified, Arizona-licensed architect or engineer.	TOFH Ordinance 03-12
Floors			Chapter 5
51.		Allowable joist spans. Specify floor joist species, grade, size, spacing and spans to conform with Tables R502.3.1(1), R502..3.1(2), R502.3.3(1) and R502.3.3(2).	R502.3
52.		Joists under bearing partitions. Joists under parallel bearing partitions shall be of adequate size to support the load. Double joists that are separated to permit installation of piping or vents shall be full depth solid blocked by 2 X lumber spaced not more than 4 ft. apart. Bearing partitions perpendicular to floor joists shall not be offset from supporting girders or walls by more than the joist depth unless joists are sized to carry the additional load.	R502.4
53.		Floor systems. Joists framing from opposite sides over a bearing support to lap a min. of 3” and be nailed with min. of three (3) 10d nails or equivalent wood or metal splice.	R502.6.1
54.		Lateral restraint at supports. Joists shall be supported laterally at the ends by full depth solid blocking, by attachment to a header or rim joist, or by other approved means. I-joists shall be supported laterally as required in the manufacturer’s installation instructions.	R502.7
55.		Drilling and notching. Drilling and notching of joists shall not exceed the limits specified in R502.8, Figure R502.8, or, in the case of engineered wood products, such as I-joists, the limits specified in the applicable engineering and/or manufacturer’s instructions.	R502.8 R502.8.2

Wall Covering			Chapter 7
62.		Gypsum backer. Water-resistant gypsum backer board at showers or tubs may be used on ceilings only if framing spacing does not exceed 12" o.c. for 1/2"-thick board or 16" o.c. for 5/8"-thick board. Water-resistant gypsum board shall not be installed over a vapor retarder in shower or tub compartments.	R702.3.8
63.		Weather-resistant sheathing paper. Asphalt-saturated felt, free from holes and breaks, weighing not less than 14 lbs./100 sq. ft., shall be applied over studs or sheathing of exterior walls as per Table R703.4. Apply horizontally and overlap at least 2" (6" at vertical joints).	R703.2 Table R703.4
64.		Flashing. Approved corrosion-resistant flashing shall be provided at all of the following locations: <ul style="list-style-type: none"> • At top of all exterior window and door openings; • At the intersection of chimneys or other masonry construction with frame or stucco walls; • Under and at the ends of masonry, wood or metal copings and sills; • Continuously above all projecting wood trim; • Where exterior porches, decks or stairs, attach to a wood frame wall or floor assembly; • At wall and roof intersections; • At built-in gutters. 	R703.8
65.		Weep screed. Detail a corrosion-resistant weep screed at or below the plate line and at least 4" above finish grade and 2" above paved areas.	R703.6.2.1
66.		Exterior insulation finish systems (EIFS). All EIFS shall be installed in accordance with the applicable evaluation report, MAG One-Coat specifications and the manufacturer's installation instructions. EIFS shall terminate at least 6" above finish grade.	R703.9
67.		Weather-resistive barrier. All EIFS installations shall have a weather-resistive barrier between water-sensitive building components and the exterior insulation and a means of draining water to the exterior of the veneer. See sheathing paper and weep screed items above.	R703.2 R703.9.1
68.		Stone and masonry veneer. Install stone and masonry veneer over wood or steel framing in accordance with items at right. Veneer may not exceed 30 ft. in height, with an additional 8 ft. allowed on ends, and thickness may not exceed 5 inches. For veneers with current evaluation report approvals, provide 2 copies and install in accordance with evaluation report.	R703.7 Table R703.4 Figure R703.7
Roof-Ceiling Construction			Chapter 8
69.		Ceiling joist and rafter spans. Ceiling joist spans shall be in accordance with Tables R802.4(1) and R802.4(2). Rafter spans to be in accordance with Tables R802.5(1) thru R802.5(8). Truss to wall connection. Trusses shall be connected to wall plates by the use of approved connectors having a resistance to uplift of not less than 175 pounds. Uplift resistance. Roof assemblies which are subject to wind uplift pressures of 20 pounds per square foot (960 Pa) or greater shall have roof rafters or trusses attached to their supporting wall assemblies by connections capable of providing the resistance required in Table R802.11.	R802.4 R802.5 R802.10.5 R802.11.1
70.		Attic ventilation. Provide calculations for attic ventilation. Use 1:150 ratio if using only lower or upper ventilation and 1:300 when at least 50% (but not more than 80%) of the ventilation is provided in the upper portion of the roof (at least 3 ft. above eave or cornice vents). Note and detail the type, location and size of attic vents.	R806 R806.4

		Conditioned attic assemblies. Unvented conditioned attic assemblies (spaces between the ceiling joists of the top story and the roof rafters) are permitted with conditions:R806.4 items 1 thru 4.	
71.		Attic access. Provide minimum 22" X 30" attic access if attic exceeds 30 sq. ft. in area and 30" in height. Provide 30" of unobstructed headroom above the opening.	R807.1
Roof Assemblies			Chapter 9
72.		Roof drains and scuppers. Specify size, location and termination points. Use maximum rainfall rate of 3" per hour for sizing roof drains and scuppers. See International Plumbing Code (IPC) for additional requirements.	R903.4 IPC 1105, 1106
73.		Roof covering type. Indicate the type of roof covering material(s) and their weight in lbs./sq. ft. Provide evaluation report information where applicable.	R904
74.		Application and attachment. Roof covering materials shall be attached in accordance with applicable provisions of Section R905, the manufacturer's installation instructions or the requirements of applicable evaluation reports, including underlayment and flashing.	R905
Chimneys and Fireplaces			Chapter 10
75.		Pollution reduction. All fireplaces must be either gas-fired (gas fireplace unit or permanently installed gas log) or wood-burning units that have been certified or tested and listed as meeting U.S. Environmental Protection Agency (EPA) air quality standards (40 CFR Part 60, Sub-part AAA). Please refer to Town of Fountain Hills Code, Article 7-3, for details.	TOFH Code, Article 7-3
76.		Masonry fireplaces. Detail masonry fireplaces, including supporting foundation, anchorage ties, reinforcement, flue size, flashing, hearth width and 2" clearance to combustible construction.	R1001.1 R1003
77.		Factory-built fireplaces. All factory-built fireplaces shall be tested in accordance with UL 127. Provide the evaluation report number and 2 copies. Install in accordance with its listing, including clearances to combustible construction and required hearth dimensions. Decorative shrouds. Decorative shrouds shall not be installed at the termination of factory-built chimneys except where the shrouds are listed and labeled for use.	R1004 R1005.2
78.		Gas logs. Show gas to fireplace, including piping material, size, length and Btuh input. Provide note stating that fireplace will have a permanent gas log set Flame safeguard the device shall automatically shut off the fuel supply to a main burner or group of burners when the means of ignition of such burners becomes inoperative.	TOFH Code, Article 7-3-1 G2432.2
79.		Exterior air supply. Factory-built or masonry fireplaces shall be equipped with an exterior air supply to assure proper fuel combustion, including 1/4" mesh screen at termination.	R1006
80.		Gas fireplaces in bedrooms. Gas fireplaces, gas logs or other gas-fired appliances may not be installed in sleeping rooms or other locations unless they are specifically listed for such installations, or they are: <ul style="list-style-type: none"> • Direct-vent appliances that obtain all combustion air directly from the outdoors. • Gas fireplaces or gas logs for installation in wood-burning fireplaces where the room meets the minimum volume requirements of Section G2407.5. 	G2406.2 G2407.5
Energy Efficiency			Chapter 11

81.		IECC. Compliance. Compliance shall be demonstrated by either meeting the requirements of the <i>International Energy Conservation Code</i> , meeting the requirements of chapter 11 of the 2006 IRC or completing the most current version of REScheck found at: www.energycodes.gov/rescheck .	N1101.2
Mechanical			Chapters 13-23
82.		Locations of equipment. Show location and size of air conditioning and heating equipment and whether they are electric or gas-fired. And type of fuel (natural or propane)	R106 M1304
83.		Condensate lines. Condensate drain lines shall be a minimum size of 3/4" i.d. Where damage to building components will occur due to condensate overflow from drain pans or stoppage in condensate piping, an <u>auxiliary</u> or <u>secondary</u> drain system must be provided in accordance with M1411.3.1. Show locations of termination points for drain lines. Water level monitoring devices. On down-flow units and all other coils that have no secondary drain and no means to install an auxiliary drain pan, a water-level monitoring device shall be installed inside the primary drain pan. This device shall shut off the equipment served.	M1411.3 M1411.3.1 M1411.3.1.1
84.		Attic equipment access. Equipment located in attics shall be provided with an access opening at least 22" X 30," a passageway 24" wide and no more than 20' long, a 30" X 30" minimum working platform, 30" minimum clear headroom and a receptacle and light. Trusses shall be designed to account for the additional load of attic-mounted equipment.	M1305.1.3
85.		Dryer vent. Clothes dryers are to be provided with an exhaust duct not to exceed 25 ft. in length. The maximum length allowed is reduced by 2.5 ft. for each 45-degree bend and 5 ft. for each 90-degree bend. See M1501 for details and M1501.1 and M1501.3 for exceptions. See also G2439 for gas-fired clothes dryers.	M1502.6 G2439
86.		Exhaust fans. Where toilet rooms and bathrooms are mechanically ventilated, the exhaust capacity shall be 50 cfm intermittent or 20 cfm continuous. Where domestic kitchen cooking appliances are equipped with ducted range hoods or down-draft exhaust systems, fans shall be sized to provide 100 cfm intermittent or 25 cfm continuous ventilation rates.	M1506 Table 1506.3
87.		Combustion air. In buildings of unusually tight construction, combustion air shall be obtained from outside the sealed thermal envelope. Size of openings. Where directly communicating with the outdoors, or where communicating with the outdoors by means of vertical ducts, each opening shall have a free area of at least 1 square inch per 4,000 Btu/per hour of total input rating of all appliances in the space. Where horizontal ducts are used, each opening shall have a free area of at least 1 square inch per 2,000 Btu/per hour of total input of all appliances in the space.	M1701.1.1
Fuel Gas			Chapter 24
88.		Prohibited locations. Gas-fired appliances shall not be located in, or obtain combustion air from, sleeping rooms, bathrooms, toilet rooms or storage closets. See exceptions for direct vent appliances that obtain all combustion air directly from the outdoors or other situations. Prohibited locations. Piping shall not be installed in or through a circulating air duct, clothes chute, chimney or gas vent, ventilating duct, dumbwaiter or elevator shaft. Piping installed downstream of the point of delivery shall not extend through any <u>townhouse unit</u> other than the unit served by such piping.	G2406.2 303.3 G2415.1 (404.1)
89.		Combustion air. Provide adequate combustion air for gas-fired appliances.	G2407

		See M1701.1.1 above.	M1701.1.1
90.		Elevation of ignition source. Gas appliances and equipment having an ignition source shall be elevated such that the source of ignition is 18" above the floor in hazardous locations or private garages. See exception for specifically listed equipment.	G2408.2
91.		Equipment protection. Appliances located in private garages shall be installed with a minimum clearance of 6 ft. above the floor OR be protected from motor vehicle impact and installed in accordance with G2408.2, the item immediately above.	G2408.3
92.		Gas pipe sizing. Provide a gas piping schematic for all gas appliances, including piping type, size, length and Btu hr/ cubic foot rating of all gas-fired equipment.	G2413
93.		Gas piping underground beneath buildings. If fuel gas piping must be installed underneath a building or slab, it must be within a sealed sleeve and vented to the exterior as described in the referenced code sections. See separate handout with full codes text & diagram.	G2415.11 IFGC 404.11
94.		Makeup air. When a gas-fired clothes dryer is located in a closet, a minimum opening of 100 square inches shall be provided in the door or makeup air shall be provided by other approved means.	G2439.4
Plumbing			Chapters 25-32
95.		Appliance and fixture locations. Designate the location of the water heater, furnace, kitchen and laundry appliances and other fixtures. Provide access for service and removal.	R106
96.		Bathtub and shower valves. The hot water supplied to bathtubs and showers shall be limited to a maximum temperature of 120°F (49°C) by a water temperature-limiting device that conforms to ASSE 1070, except where such protection is otherwise provided by a combination tub/shower valve in accordance with Section P2708.3.	P2713.3
97.		Pressure-Temperature relief valve lines. Water heaters or other appliances or equipment used for heating water or storing hot water shall be protected by relief valves as required by IRC Section 2803.1. Relief valve lines shall not be directly connected to the drainage system, but shall be piped full size to the floor, to the outside of the building or to an indirect waste receptor inside the building. See IRC Section P2803.6.1 for details.	P2803.6.1
98.		Hose bibbs. Hose bibbs are to be equipped with integral backflow preventers.	P2902.4.3
99.		Sumps and ejectors. Provide an engineered sump pump and ejector system if elevation of street is 6' or higher than finished floor elevation. Provide installation specifications from the manufacturer.	P3007
100.		Backwater valves. Fixtures with flood level rims located below the elevation of the next upstream manhole cover shall be protected from backflow of sewage by installing an approved backwater valve.	P3008
Electrical			Chapters 33-42
101.		Electrical plan. Provide an electrical plan indicating the receptacles, switches, lights, meter box and size, smoke detectors, exhaust fans, GFCI-protected receptacles, etc.	R106.1
102.		Load calculation. Provide electrical load calculation for all dwelling units over 3000 square feet (with a 200-amp service) or as deemed necessary by the Building Safety Department.	E3502.2

103.		Service panel. Indicate the size (rating) and location of the service entrance and any sub panels. Provide a minimum 30W” X 36D” working clearance at all panels and disconnects.	E3305 E3301.6.2.2
104.		Location of overcurrent devices. Sub-panels may not be located in bathrooms, clothes closets, or where they are exposed to physical damage or located higher than 6’ft. 7” inches above the floor.	E3605.7
105.		Grounding. A grounding electrode system shall be provided in accordance with NEC 250.50 or IRC E3508.	E3508
106.		Bonding. Provide bonding for water piping, gas and metal building systems (NEC 250.104).	E3509
107.		Ranges. Ranges (with a rating of 8.75 kVA or more) require a minimum 40-amp branch circuit (NEC 210.19(A)(3)).	E3602.9.1
108.		Kitchen and dining and breakfast area receptacles. Two (2) or more 20-amp small appliance circuits are required in kitchens (NEC 210.11(C)(1)).	E3603.2
109.		Laundry circuit. A minimum of one 20-amp branch circuit is required to serve a laundry room or area and shall serve only outlets in that room or area (NEC 210.11(C)(2)).	E3603.3
110.		Bathroom circuit. A minimum of one 20-amp branch circuit is required to supply the bathroom receptacle outlets and shall have no other outlets. See exception (NEC 210.11(C)(3)).	E3603.4
111.		Wall receptacles. Provide receptacles along walls (two or more feet in length) so that no point along the wall is more than 6 feet from an outlet (NEC 210.52(A)(1)).	E3801.2.1
112.		Counter receptacles. Receptacle outlets shall be installed at each counter space wider than twelve (12) inches so that no point along the counter space is further than 24” from an outlet (NEC 210.52(C)(1)).	E3801.4.1
113.		Island and peninsula counter spaces. Provide at least one receptacle outlet at all island and peninsula counter spaces with long dimensions greater than 24” and short dimensions greater than 12 inches. And one on each side of island counters which have sinks or cook tops installed.	E3801.4.2 E3801.4.3
114.		Outdoor outlets. At least one moisture-resistant GFCI-protected receptacle outlet accessible at grade level (within 6’- 6” of finished grade)shall be installed on the exterior at both the front and back of each dwelling unit (NEC 210.52(E)).	E3801.7
115.		Hallways. Provide a receptacle in hallways greater than 10 ft. in length (NEC 210.52(H)).	E3801.10
116.		HVAC outlet. Provide a receptacle for the servicing of heating, air-conditioning and refrigeration equipment on the same level and within 25’ of the equipment (NEC 210.63).	E3801.11
117.		GFCI protection. Identify on plans that all receptacle outlets in bathrooms (one adjacent to each basin), garages, at kitchen countertop surfaces, outdoors, and within six (6) feet of bar and laundry sinks must be GFCI protected (NEC 210.8). See E3802 for additional details and exceptions.	E3802
118.		Arc-fault circuit interrupters, bedroom outlets. Provide arc-fault circuit	E3802.12

		interrupter protection for all branch circuits that supply 125-volt, single-phase, 15- and 20-ampere outlets in bedrooms. Such arc-fault circuit interrupter devices shall be <u>combination type</u> .	
119.		Lighting outlets. Designate the location of all required light fixtures (NEC 210.70), including at least one switch-controlled light fixture in every habitable room and bathroom. In other than kitchens and bathrooms, one or more receptacle outlets controlled by a wall switch may be used.	E3803.2
120.		Additional locations. Show at least one wall switch-controlled lighting outlet in hallways, stairways and attached garages; and to provide illumination on the exterior side of each outdoor egress door having grade level access (NEC 210.70(A)(2)). At interior stairways with 6 or more risers, there shall be a wall switch at each level.	E3803.3
121.		Disconnecting means. Provide a disconnect near and in sight of mechanical equipment, including air conditioning condensing units and heat pump units (NEC 422, 424, 440.14). FLEXIBLE CORDS. Where permitted. Flexible cords shall be used only for the connection of appliances where the fastening means and mechanical connections of such appliances are designed to permit ready removal for maintenance, repair or frequent interchange and the appliance is listed for flexible cord connection. Flexible cords shall not be installed as a substitute for the fixed wiring of a structure;	E4001.5 Table E4001.5 E3809.1