



2021 INTERNATIONAL RESIDENTIAL CODE Building Code Plan Review Checklist

CONSTRUCTION DOCUMENTS MINIMUM DESIGN GUIDELINES

IRC TABLE R301.2

CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA

GROUND SNOW LOAD	WIND DESIGN				SEISMIC DESIGN CATEGORY	SUBJECT TO DAMAGE FROM			ICE BARRIER UNDERLAYMENT	AIR FREEZING INDEX	MEAN ANNUAL TEMP
	Speed (mph).	Topographic effects	Special wind region	Windborne debris zone		Weathering	Frost line depth	Termite			
0	105	No	No	No	B	Negligible	Final Grade	Moderate	No	0	71.2° F

MANUAL J DESIGN CRITERIA

ELEVATION	ALTITUDE CORRECTION FACTOR	COINCIDENT WET BULB	INDOOR WINTER DESIGN DRY-BULB TEMPERATURE	OUTDOOR WINTER DESIGN DRY-BULB TEMPERATURE	HEATING TEMPERATURE DIFFERENCE
1,473 feet	0.97	70°F	Maximum of 72°F	37°F	20.6°F
LATITUDE	DAILY RANGE	INDOOR SUMMER DESIGN RELATIVE-HUMIDITY	INDOOR SUMMER DESIGN DRY-BULB TEMPERATURE	OUTDOOR SUMMER DESIGN DRY-BULB TEMPERATURE	COOLING TEMPERATURE DIFFERENCE
33.62 N	High (H)	45%	Minimum of 75°F	105°F	20.1°F

BUILDING CODE DESIGN DATA

All construction within Scottsdale shall comply with the following codes and amendments per their adopting ordinances:

- 2021 International Building Code (ord. # 4550, resolution #12498)
- 2021 International Residential Code (ord. # 4575, resolution #12499)
- 2021 International Fire Code (ord. # 4562, resolution #12583)

APPLICANT: Plan submittal shall include the following plans:

- Site Plan
- Floors
- Foundation and Roof Plans
- Elevations and Building Sections (minimum two building sections)
- Building Details

- Plumbing Plan (water supply line sizes, gas supply line sizes, water-heating equipment, hot water recirculation pump controls, fixture flow and flush rates)
- Mechanical Plan (equipment type/size, supply/return, outside air ventilation, exhaust fan systems)
- Electrical Plan (lighting, power, load calculation, single line diagram)
- Plans must include a plan index, be readable and to "scale".
- Place all required notes on the drawings.
- Specification books on Single Family Plan checks are not acceptable
- Provide a True North Arrow and an Orientation North Arrow on site plans and floor plans.

A. Standard Plans

1. Provide a soils report and a compaction test for the subdivision.
2. Per the soils report provide over-excavation and / or re-compaction for foundations and slabs on grade.
3. Note a provision for a continuous three-foot-wide path of travel from all bedroom egress windows to a public way.
4. Show minimum allowable dimensions from stem wall to property lines on foundation plan.
5. Remove all parcel/lot specific information from plan set. (i.e. site plan).
6. The cover sheet must have key plans drawn to scale indicating each possible combination of footprint options with corresponding building ridge lines to ensure conformance with varying lot configurations.

B. Add/ Alt/ Remodels

1. Provide scope of work. (IBC 107.2 amended)
2. Provide separate existing and demolition plans. (IBC 107.2 amended)
3. Clearly identify throughout, existing vs. new vs. remodeled area. (IBC 107.2 amended)
4. Complete and return fire sprinkler worksheet. (IFC 903)
5. Address smoke and CO detectors throughout house with additions/alterations/remodels. (R314-315)

C. Site Plan

1. Provide a complete site plan, grading and drainage where required. Show flow direction arrows, contour grades, and top of curb grades (107.5.1 amended)
2. Provide a complete project address. (R319.1)
3. Show location of structure(s) with setback dimensions on site plan. (IBC 107.2.5 & R302.1).
4. Show location of all site fences and retaining walls on site plan. Provide lineal footage of fences and retaining walls including wall grades. (IBC 107.2.5)
5. Reference on site plan, structural details for each site retaining wall and fence. (TF, T/RW, TW, TR) (IBC 107.2.6)

6. Provide structural calculations for retaining walls. City of Scottsdale, Administrative Policy 13-3.
7. Show sewer tap and water meter locations at street with sizes indicated. (P3008.1)
8. Include lowest floor elevation of livable space. Show and identify next upstream manhole rim location and elevation, address backwater valve. (P3008.1).
9. If septic system, provide copy of septic system permit application from Maricopa County. (P2602.1)
10. When enclosing pool, provide minimum 3-foot wide, minimum 60-inch high, out-swinging, self-closing gate. (AG105.2 amended)

D. GREEN BUILDING

1. Provide a separate plan sheet listing the baseline 13 "green" building measures and the rating options selected from rating checklist. Include the points permitted for each selection and a total summary (mandatory measures for baseline level and 20 points for advanced level).
2. Incorporate the "green" building requirements with-in the plan design, including notes and details, (i.e. - readily accessible return air filter grille; kitchen pull-out bins for collection of trash and recycles; etc.).
3. Provide REScheck, REM/Rate or HERS report for each house.
4. Place the following note in large text on the Floor, Foundation, Roof Framing plan sheets:

NOTE: Separate "Green Building" Compliance Certificate required prior to Final Inspection.

E. Floor plans

a) Doors and Windows

1. Provide a 1-3/8" solid wood / solid or honeycomb-core steel / 20-minute fire-rated self-closing doors between residence and garage. (R302.5.1)
2. Provide permanent landing at exterior doors. (R311.3)
3. Doors shall not open directly between a sleeping room and a garage. (R302.5.1)

4. Shower doors shall have safety glazing; hinged shower doors shall open outward. (R308.4.5 & P2708.1)
5. Provide and identify all required safety glazing. (R308)
6. Indicate emergency escape and rescue openings in basements and bedrooms. (R310.1)
7. Show direction of door swing. (R311.3)
8. Show size of each window and type of operation. (R303.1 & 310.2)
9. Site built windows shall comply with section 2404 of the IBC. (R308.5)
10. Glazing maximum U-factor 0.40, Solar Heat Gain Coefficient (SHGC) maximum 0.25 (Table N1102.1.3)
11. Skylight - maximum U-factor 0.65, SHGC maximum 0.30. Provide manufacture and ICC-ES number. (Table N1102.1.3)

b) Light and Ventilation

1. Provide required natural light and ventilation for habitable rooms- Light: 8%, ventilation: 4%. (R303.1)
2. Provide attic ventilation per (R806.1 amended) unless insulation is applied on the under-side of roof sheathing. or (R806.5)
3. Enclosed attic or rafter space is not required to be ventilated where there is 24 inches or less between the bottom of roof sheathing and the ceiling. (R806.1 amended exception).

c) Stairways, handrails, guardrails

1. Show handrail, notes, and dimensions. (R311.7.8)
2. Show guardrails where required. (R312.1)
3. Provide a floor or landing at the top and bottom of each stairway. (R311.7.6)
4. Provide code complying stairways. Address tread and riser dimensions per type of stairway. (R311.7)
5. Provide stairway illumination per (R303.7 & R303.8)
6. Stairway maximum 12'-3" vertical rise between floor/landing (R311.7.3)

d) Fireplaces and Gas Appliances

1. Provide manufacturer, model number and ICC report or equal for each fireplace. (R1002, R1004 & R1005)
2. Provide a permanently installed approved decorative appliance/gas log set. (R1004.4)
3. Fireplace dampers: Where a listed decorative appliance is installed, the fireplace damper opening shall comply with listed decorative appliance manufacture's installation instructions. (G2453.1)
4. Decorative shrouds shall not be installed at the termination of chimneys of factory-built fireplaces except where listed and labeled for such use. (R1004.3)
5. Provide outside combustion air for interior fireplaces. (R1006.2).

e) General Floor Plan

1. Show ceiling heights for all rooms, spaces and hallways. (R305)
2. Show thermal envelope (exterior insulated walls) that encloses interior conditioned space. (N1101.5.1)
3. Show minimum clearances from centerline of water closets to finished wall, cabinets, and other plumbing fixtures. (R307.1)
4. Gypsum Board applied to a ceiling shall be 1/2" when framing members are 16" o.c. or 5/8" when framing members are 24" o.c. or use labeled 1/2" sag-resistant gypsum ceiling board. (Table R702.3.5)

f) Manufacturers' Installation Instructions

1. Manufacture's installation instructions, as required by this code, shall be available on the job site at the time of inspection (R106.1.2)
2. RANGES AND COOKTOPS: Show note on plans. Provide a listed and approved range and/or cooktop unit installed in accordance with the listing and with the manufacturer's installation instructions. VERIFY AND MAINTAIN REQUIRED HORIZONTAL AND VERTICAL CLEARANCES ABOVE THE FINISHED COUNTERTOP SURFACE BEFORE ORDERING OR INSTALLING CABINETS.

F. Braced/Shear wall Plan

1. Provide a complete braced/shear wall plan and reference a braced /shear wall schedule at each braced/shear wall location. (R602.10)
2. Braced/Shear wall schedule to include anchor bolts, holdowns, studs and spacing, sheathing and nailing. (R602)
3. Address "alternate braced wall panels" per (R602.10.6)
4. Coordinate post locations with holdowns on foundation plan. (R602.11)
5. Show and identify each required holdown on foundation plan.
6. Provide Wood-Stud wall Engineering Analysis for bearing walls Over 10 Feet High (T. R602.3 (5))

G. Elevation Plan

1. Provide minimum of four elevation drawings of building: typical front, back, left and right.
2. Show building heights and dimensions.
3. Show and label all exterior surface building materials. (R703)
4. Show manufacturer, model number and ICC/NER Report Number for stucco, roof materials, stone veneer. (R703.7)
5. Provide weather flashing/proofing and exterior wall penetrations/openings. (R703.1& 703.2)

H. Sections

1. Provide minimum two building cross sections.
2. Cut cross-sections on foundation, floor and roof framing plans.
3. Show thermal envelope (insulated walls, floors, ceilings, roofs) with continuous air barrier around interior conditioned space. (N1101.5.1)
4. Foam plastics shall be separated from the interior of a building including attics and crawl spaces by an approved thermal barrier. (R316.4)
5. Show required fire blocking on each section. (R602.8)
6. Show height dimensions on each cross-section.
7. Label all rooms, spaces, and hallways on each section.
8. Provide and reference/key structural details for critical connections for cross-sections.

I. Wall Construction

1. Provide a cross section detail and wall legend for each type of wall.
2. Callout exterior materials, including, stucco system, lath, building paper, foam, and sheathing where required. (R703)
3. Specify on plans, interior wall materials. (R702)
4. Specify on plans, interior wall construction, coverings, and backings for tile and in wet locations. (R702.1)
5. Provide weepscreed and dimensions from soil and paved surfaces. (R703.7.2.1)
6. Provide nailing schedule. (R602.3)

J. Foundation Plan

1. For single-family custom submittal, provide a soils report or a soils waiver signed by owner.
2. Provide a complete fully dimensioned and detailed foundation plan.
3. Address foundation drainage per (R405.1)
4. Address foundation damp proofing (R406.1)
5. Show isolated footing dimensions and reinforcing. (R403.1 amended)
6. Show note: Exterior and interior footings shall bear minimum 18 inches below undisturbed soil or engineers certified compacted fill. (R403.1 amended)
7. Show required reinforcing steel for all footings and stem. (R 403.1.3.5)
8. Reference a complete set of structural details, footing, stem, turndown, pad footing, post at stem, etc.
9. Clearly show, dimension and detail interior bearing footings and shearwall footings.
10. Clearly show each required post location on foundation plan, coordinate with shearwall and roof framing plans.
11. Clearly show and label each required holdown on foundation plan. (R403.1.6)
12. Show and detail building retaining walls and basement and foundation walls, including drainage. (R 405.1)
13. Provide any/all slab elevations.

K. Floor and Roof Framing Plans

1. Provide a complete fully detailed floor and/or roof-framing plan. (R107.2 amended)
2. Clearly identify all framing members, including posts/columns, headers, beams, joists, and trusses. (R107.2 amended).
3. Clearly show each required post and size, coordinate with foundation plan.
4. Show and identify posts from above framing.
5. Show floor-to-floor tie, mechanical connectors.
6. Clearly show and identify all truss/joist hangers.
7. Clearly show and identify beam to post mechanical connectors.
8. Clearly show and key detail reference(s) for each beam to post, beam-to-beam, and girder to beam connections.
9. Detail typical truss/joist to wall, beam, and girder connections.
10. If pre-qualifying conditions are met, **deferred submittals** for truss design drawing may be allowed per (R802.10.1.1 amended)
11. Show lateral full height blocking at braced/shear wall line for joists, rafters and trusses.
12. Framing details shall reflect types of framing members, trusses flat and sloped, I-joists, dimension lumber rafters, etc.
13. Show stair mechanical attachment at top and bottom.
14. Framing members to accommodate masonry fireplace clearances to combustibles. (Table R1001.11)
15. Provide detail showing how lateral forces are transferred from roof diaphragm into shear wall.
16. Identify all trusses used as drag struts and show loads on framing plan.
17. Framing members to accommodate mechanical equipment requirements if installed in attic.

K. Structural Calculations

1. Provide the following structural engineering calculations:
 - a. Gravity loads analysis.
 - b. Lateral loads analysis.
 - c. Retaining wall calculations per policy #15-3.
 - d. Provide special inspections per (IBC Ch. 17).

M. Building Thermal Envelope

1. Energy compliance shall be demonstrated by prescriptive, UA trade-off (REScheck) or performance (REM/Rate, ERI, HERS) compliance path.

2. Mechanical closets requiring outside combustion air for gas furnace or water heater shall be thermally isolated from the building unless the equipment is direct-vent.
3. Recessed luminaires installed in the building thermal envelope shall be sealed to limit air leakage between conditioned and unconditioned spaces. All recessed luminaires shall be IC-rated and labeled as having an air leakage rate not more than 2.0 cfm. All recessed luminaires shall be sealed with a gasket or caulk between the housing and the interior wall or ceiling covering. (N1102.4.5).
4. The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding 5.0 air changes per hour for detached dwelling units. Testing shall be conducted with a blower door at a pressure of 0.2 inches w.g. (50 Pascal's). Testing shall be conducted by an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the building official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope. (N1102.4.1.2).

N. Mechanical Plan

1. Show mechanical equipment and water heaters on 18-inch platform if placed in garage or room with direct access to garage. (M1307.3).
2. Provide combustion air and show hi and low vent opening sizes for gas fuel appliances located in *confined* spaces. (G2407).
3. Provide and reference approved detail for gas piping to gas island cooktop. (G2415.14).
4. Provide kitchen exhaust fan vented direct to outside. (M1505.2 amended, Table M1505.4.4).
5. Show mechanical system design criteria, types, sizes, efficiencies and controls (N1101.5).
6. Provide HVAC equipment sizing calculations. Heating and cooling equipment shall be sized in accordance with ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other approved calculation methodologies (N1103.7).
7. Provide minimum 15 SEER (Seasonal Energy Efficiency Ratio) for air conditioning equipment.
8. Provide minimum 78% AFUE (Annual Fuel Utilization Efficiency) for weatherized gas heating equipment, non-weatherized equipment minimum 80% AFUE.
9. Each separate heating and cooling system shall be provided with at least one programmable thermostat (N1103.1).
10. Show how the building is provided with outside air ventilation in accordance with Section M1505. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not operating. (N1103.6).

11. Provide mechanical exhaust ventilation for bathrooms, water closet rooms, laundry room, and kitchen, ducted direct to outside. Bathrooms, water closet compartments and other similar rooms shall be provided with a mechanical ventilation system, with a minimum ventilation rate of 50 cfm (23.6 L/s) for intermittent ventilation, or 20 cfm (9.4 L/s) for continuous ventilation Except where functioning as a component of a whole house ventilation system, exhaust fans in bathrooms with a shower or tub shall be provided with a delay timer or humidity/condensation control sensor. Exhaust fans shall be switched separately from lighting systems. (Amended R303.3 1 and M1505.)
12. Duct systems serving heating, cooling and ventilation equipment shall be installed in accordance with the provisions of this section and ACCA Manual D or other approved methods. (M1601.1)
13. Show supply and return air ducts and registers.
14. Supply and return ducts in attics shall be insulated to a minimum **R-8** where 3 inches in diameter or greater. Ducts in other portions of the building shall be insulated to minimum R-6 where 3 inches in diameter or greater. (N1103.3.1)
15. Ducts, air handlers, and filter boxes shall be sealed in accordance with Sections N1103.3.4 and M1601.4.1. Ducts shall be pressure tested to determine air leakage by one of the following methods (N1103.3.5):
 - a) Rough-in test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure if installed at the time of the test. All registers shall be taped or otherwise sealed during the test.
 - b) Post construction test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. Registers shall be taped or otherwise sealed during the test.

A written report of results shall be signed by the party conducting the test and provided to the code official.
16. Building framing cavities shall not be used as ducts or plenums (N1103.3.7).
17. Dwelling units shall be provided with mechanical ventilation airflow rates in accordance with Section M1505 (N1103.6).
18. Mechanical ventilation systems shall be tested and verified to provide the minimum ventilation flow rates required by Section N1103.6. A written report of results shall be signed by the party conducting the test and provided to the code official (N1103.6.3).

O. Electrical Plan and Lighting

1. Provide a complete Electrical Plan

2. Provide fully noted plan showing, all required receptacles, light fixtures, switches, exhaust fans, smoke detectors, service panels and sub-panels. (E3703 & E3901)
3. Provide notes and symbols legend.
4. Show and label all required **GFCI** and **WP/GFCI** receptacles. (E3902)
5. Show and label all required **AFCI** circuits. (E3902.16)
6. In areas specified in Section E3901.1, 125-volt, 15- and 20-ampere receptacles shall be listed tamper-resistant receptacles. (E4002.14)
7. Show that all permanently installed lighting fixtures contain only high-efficacy lamps (N1104.1)
8. Show that permanently installed interior lighting fixtures are controlled with either a dimmer, an occupant sensor control or other control such as an automatic timer shut-off switch. Exceptions include bathrooms and hallways. (N1104.2)
9. Show that exterior lighting over 30 watts include automatic shut-off. (N1104.3)
10. Show and label all **WP/DP** lighting fixtures as **SUITABLE FOR WET OR DAMP LOCATIONS** accordingly. (E4001.7)
11. Show and label all **smoke alarms**. Smoke alarms shall be installed in the following locations:
 - 1) In each sleeping room.
 - 2) Outside each separate sleeping area in the immediate vicinity of the bedrooms.
 - 3) On each additional story of the dwelling, including basements and habitable attics but not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.
 - 4) Smoke alarms shall be installed not less than 3 feet horizontally from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by Section R314.3.
 - 5) In dwelling units where the ceiling height of a room open to the hallway serving the bedrooms exceeds that of the hallway by 24 inches or more, smoke alarms shall be installed in the hallway and in the adjacent room. (R314.3 amended).
 - 6) smoke alarms devices shall be interconnected unless listed wireless alarms are installed (R314.4) and shall receive their primary power from the building wiring (R314.6).

Show and label all **carbon monoxide alarms**, an approved carbon monoxide alarm shall 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. (R315),

carbon alarms devices shall be interconnected unless unless listed wireless alarms are installed (R315.5) and shall receive their primary power from the building wiring (R315.6).

12. Provide a UFER ground encased in concrete footing. (E3608.1.2)
13. The main electrical service panel shall have a reserved space to allow installation of a dual pole circuit breaker for "future solar electric" installation and shall be labeled as such (U103.7).
14. For Electrical Services greater than 400 amps, **PROVIDE ELECTRICAL LOAD CALCULATIONS.**
15. Provide an **ELECTRICAL SINGLE LINE DIAGRAM** for Services 200 amps and larger.

P. Plumbing Plan

1. Provide a single line gas-piping diagram; include all gas burning appliances and BTUs of each appliance, show pipe *lengths* and *sizes* from gas meter to each branch line and to each appliance. (G2413)
2. Show type of gas piping. (G2414)
3. Do not place gas piping under slab. (G2415.14)
4. Provide approved detail for gas piping to kitchen island gas cook top. (G2415.14)
5. Show all drainage/sewer piping materials. (Tables P3002.1, P3002.2)
6. Show high efficiency plumbing fixtures that meet the following maximum flow and flush rates: Lavatory faucets: 1.5 gal/minute; Shower heads: 2.0 gal/minute; Kitchen faucet: 1.8 gal/minute; water closets: 1.28 gal/flush. (Table P2903.2. amended).
7. Provide roof drains and over-flow/scuppers. (R903.4).
8. Show mechanical and service water heating system types, sizes, efficiencies, and controls (N1101.5).
9. Storage-tank type water heaters shall be installed with a drain pan and drain line. (P2801.6)
10. WH-pan drain-line shall terminate per (P2801.6.2)
11. Show minimum R-3 insulation for hot water pipes. (N1103.5.2).
12. A hot water circulation system shall be provided when the length of hot water piping or tubing from the source of hot water to the furthest fixture exceeds: 21 feet for a 3/4-inch line, 32 feet for a 5/8 inch line, 43 feet for a 1/2 inch line and 50 feet for a 3/8 inch line or less (N1103.5.1.1.1 amended).
 - a) Where the water piping or tubing length contains more than one size of pipe, the largest size shall be used for determining the maximum allowable length of pipe before a circulating hot water system is required. For the purposes of this section, the source of hot water shall be a water heater, boiler, circulation loop piping, distribution manifold, or heat-traced piping.
 - b) The hot water circulation system shall use a dedicated return line or the cold-water supply line

as the return at the most remote fixture. Gravity and thermo-syphon circulation systems shall be prohibited. Controls shall start the pump upon receiving a signal from the action of a user of a fixture or appliance or sensing the flow of hot or tempered water to a fixture, fitting or appliance. The controls shall automatically turn off the pump when the water in the circulation loop is at the desired temperature and when there is no demand for hot water.

Q. Fire Sprinklers

1. Provide fire sprinklers per (IFC 903.).

R. Additional Energy Requirements

1. For low-slope roofs (less than 2 in 12 slope), provide a light-colored roof surface with a minimum solar reflectance index (SRI) of 64. (New N1102.6)

2. Reserve electrical service panel space for full-size 2-pole circuit breaker labeled "Future EV Charging" with electrical raceway installed from panel to a junction box in the garage labeled "Future EV Charging". (New N1104.4)
3. Identify a solar-ready zone not less than 10% of the total roof area over conditioned space but not less than 300 square feet exclusive of access and set back areas as required by the International Fire Code. The zone shall be free from obstructions, including but not limited to vents, chimneys, and roof-mounted equipment. Provide electrical pathway for conduit run from electrical service panel with reserved space for 2-pole circuit breaker. (Appendix AT103 amended)
4. A permanent energy certificate shall be completed by the builder or other approved party and posted in accordance with N1101.14 and AT103.10.

PLACE THE FOLLOWING NOTES ON DRAWINGS

If these notes are reproduced on the plans as a block, it will facilitate the review of the project. The notes are available and can be downloaded from: [City of Scottsdale - Building Review Detail Drawings \(scottsdaleaz.gov\)](http://scottsdaleaz.gov) Notes 1-13 reflect 2021 code updates.

2021 International Building Code	(ord. # 4550, resolution #12498)
2021 International Residential Code	(ord. # 4575, resolution #12499)
2021 International Fire Code	(ord. # 4562, resolution #12583)

1. Doors and windows that provide access to the swimming pool/spa, shall be separated by an approved barrier.
2. ***Plumbing fixtures** shall comply with the following conservation requirements: Lavatory faucets: 1.5 gal/minute; Shower heads: 2.0 gal/minute; **Kitchen faucet: 1.8 gal/minute**; water closets: 1.28 gal/flush. (Table P2903.2. amended).
3. ***A demand-controlled hot water circulation system** shall be provided in accordance with amended Section N1103.5.1.1 amended.
4. ***Cool/light reflective coated roofs.** Roof solar reflectance and thermal emittance for roof slopes less than 2:12. Three-year-aged solar reflectance index (SRI) of 64, Three-year-aged solar reflectance of 0.55 and a three-year aged thermal emittance of 0.75 over conditioned and non-conditioned spaces. N1102.6 amended.
5. ***The building thermal envelope shall comply with climate zone 2. Energy compliance shall be demonstrated by UA trade-off (REScheck) OR performance (REM/Rate, ERI, HERS) compliance path OR by the following prescriptive values (Table N1102.1.3): Prescriptive minimum R-values: (*Ceiling=R-49) / (Walls=R-13).**
6. **Prescriptive maximum Window Fenestration values: (U-Factor=0.40) / (SHGC=0.25).**
7. ***Exterior lighting** over 30 watts shall include an automatic shut-off. (N1104.3).
8. ***All permanently installed lighting fixtures shall contain only high-efficacy lamps.** (N1104.1).
9. ***All permanently installed interior lighting fixtures shall be controlled with either a dimmer, an occupant sensor control or other control such as an automatic timer shut-off switch. Exceptions include bathrooms and hallways.** (N1104.2).
10. ***E3606.5 Surge protection.** All electrical services supplying one- and two-family dwelling units shall be provided with a surge protective device (SPD) installed in accordance with Sections E3606.5.1 through E3606.5.3.
11. ***Electric Vehicle Charging Capacity.** Reserve electrical service panel space for a full size 2-pole circuit breaker labeled "Future EV Charging". A raceway shall be installed from the electrical service panel to a location within the garage, where it shall terminate in a junction box or outlet and be labeled "Future EV Charging".
12. ***Solar-Ready Zones – RB103.** Minimum 10% of roof area but not less than 300 sq. ft. free and clear of obstructions including mechanical equipment and vents. Provide electrical pathway for conduit run from solar-ready zone to electrical service panel with reserved space for 2-pole circuit breaker. Capped roof penetration sleeve shall be provided on roofs with a low-slope of 1 in 12 or less.
13. ***The following three notes are applicable to New Construction only** (BPI certified professionals are approved for testing air leakage in existing buildings, otherwise RESNET professionals are approved for new and existing):
 - a. ***The building shall be provided with a whole-house mechanical ventilation system that meets the requirements of Section M1505. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not operating.** (N1103.6).
 - b. ***The building or dwelling unit shall be tested and verified as having an air leakage rate not exceeding five air changes per hour for detached dwelling units and seven air changes per hour for attached dwelling units. Testing shall be conducted in accordance with ASTM E 779 or ASTM E 1827 and reported at a pressure of 0.2 inch w.g. (50 Pascals). Testing shall be conducted by an approved third party (RESNET certified). A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope.** (N1102.4.1.2).

- c. *Ducts, air handlers, and filter boxes shall be sealed in accordance with N1103.3.4. Joints and seams shall comply with Section M1601.4.1. Ducts shall be pressure tested to determine leakage by one of the following methods (N1103.3.5):
1. Rough-in test: Total leakage shall be measured with a pressure differential of 0.1 inches w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure if installed at the time of the test. All registers shall be taped or otherwise sealed during the test.
 2. Post-construction test: Total leakage shall be measured with a pressure differential of 0.1 inches w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure. Registers shall be taped or otherwise sealed during the test.

A written report of the results shall be signed by the party conducting the test and provided to the code official prior to the Final Building Inspection.

14. All products listed by an Evaluation Service Report (ESR) shall be installed per the report and the manufactures written instructions. Product substitutions shall also be listed by an ESR.
15. Provide Fire Sprinkler System per Scottsdale Fire Code (IRC R313 amended).
16. Separate permits required: pools, spas, fences, site walls, retaining walls, and gas storage tanks.
17. Foundation & Footing depth shall be a minimum of 18 inches **below grade** (or per property soil report), provide a minimum of 3-inch clearance between Rebar and soil. (R403.1 amended).
18. Doors between the garage and residence shall be self-closing minimum 1 3/8" thick solid core or 20-minute fire rated. (R302.5.1).
19. Wood sill plates shall be pressure treated or decay resistant. Exterior sill plates shall bear a minimum of 6 inches above finish grade. (R317.1).
20. Gypsum board applied to a ceiling shall be 1/2" when framing members are 16" o.c. or 5/8" when framing members are 24" o.c. or use labeled **1/2" sag-resistant gypsum ceiling board**. (Table R702.3.5 (d)).
21. Showers and tub-shower combinations shall be provided with individual control valves of the pressure balance or thermostatic mixing valve type. (P2708.4).
22. Shower area walls shall be finished with a smooth, hard non-absorbent surface, such as ceramic tile, to a height of not less than 72 inches above the drain inlet. Cement, fiber-cement or glass mat gypsum backers installed in accordance with manufacturers' recommendations shall be used as backers for wall tile in tub and shower areas and wall panels in shower areas. (R702.4.2).
23. Storage-tank type water heaters shall be installed with a drain pan and drain line. (P2801.6).
24. Provide roof/attic ventilation unless insulation is applied directly to underside of the roof-sheathing, or the depth is 24 inches or less between the ceiling and bottom of roof sheathing. (R806.1 Amended).
25. Provide Minimum R-3 insulation on hot water pipes. (N1103.5.2).
26. Supply and return ducts located outside conditioned space shall be insulated to a minimum **R-8**. Ducts and air handlers located completely within the continuous air barrier and within the building thermal envelope are exempt from insulation. (N1103.3.1 and N1103.3.2).
27. Exhaust air from kitchens, bathrooms and toilet rooms shall be exhausted directly to the outdoors, not recirculated, or discharged indoors. (M1505.4.4 amended).
28. Exhaust fans in bathrooms with a shower or tub shall be provided with a delay timer or humidity/condensation control sensor. Exhaust fans shall be switched separately from lighting systems. (R303.3).
29. Provide a wall mounted GFCI protected receptacle outlet within 36" of a bathroom or powder room lavatory. (E3901.6).
30. Receptacles serving kitchen countertops installed in bathrooms, garages, unfinished accessory buildings, outdoors and located within 6 feet of sinks shall have **GFCI** protection for personnel. (E3902).
31. All branch circuits that supply 15- and 20-ampere outlets installed in kitchens, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreations rooms, closets, hallways, laundry areas and similar rooms or areas shall be protected by a combination type arc-fault circuit interrupter (**AFCI**) installed to provide protection of the branch circuit. (E3902.12).
32. General purpose 15- and 20-ampere receptacles shall be listed **tamper-resistant**. (E4002.14).

33. Provide interconnected and hardwired **Smoke Alarms** in new and existing areas of home. (R314).
34. Approved **Carbon Monoxide Alarms**, hardwired and interconnected, shall 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. (R315).
35. Recessed luminaires installed in the building thermal envelope shall be IC-rated and labeled as having an air leakage rate not more than 2.0 cfm. All recessed luminaires shall be sealed with a gasket or caulk between the housing and the interior wall or ceiling covering. (N1102.4.5).
36. Provide illumination with wall switches for stairways when there are 6 or more risers. (R303.7).
37. Receptacle outlets 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, including any wall space 2 feet or more in width. (E3901.2).
38. Provide a minimum of two 20-amp small appliance branch circuits for the kitchen/dining/breakfast. (E3703.2).
39. Provide outside combustion air to all indoor fireplaces per manufactures specifications. (R1006.1).
40. At least one thermostat shall be provided for each separate heating and cooling system. (N1103.1).