



# Building Department 2018 IRC Plan Review Check Sheet

Revised 7/14/20

Date: \_\_\_\_\_

Job Address: \_\_\_\_\_

## **SITE PLAN:**

1. Dimension required minimum setbacks as well as actual
2. Dimension Building Footprint
3. Dimension of Property w/property lines.
4. Distance to all buildings on property.
5. Show Easements
6. Provide nearest fire hydrant location, if a property established after 10/2015
7. List driveway type and width
8. Show property topography and planned drainage
9. Provide Address on all pages of plans.

## **MISSCELLANEOUS:**

1. List currently adopted codes on cover page of plans: **2018 IRC** per IRC106.1.1
2. In accordance with the tables at the end of this document, minimum insulation values must be listed on plans.
3. Address of project must be clearly placed on each page of prints –IRC106.1.1
4. List area of house, garages and decks, or covered porches on plans –IRC106.1.1
5. Additional plan review charges required by changes, additions, or revisions to reviewed plans will be charged at \$70.00 per hour with a minimum 1/2 hour charge.
6. Install all listed appliances per manufacturer's listings & installation requirements

## **FOUNDATIONS:**

1. Provide Address numbers that are readable from the street, prior to first inspection R319.1
2. Min. 18" below grade. Table R301.2(1)
3. Soil compaction tests are required for non-structural slabs on grade that are 4', or more above natural grade. R401.4
4. **Footing widths shall be as required by Table 403.1(1) &(2) and be called out on the plans.**
5. Stepped foundations are required when grade exceeds 1'/10' ratio –R403.1.5
6. Anchor bolts min. 7" in masonry or concrete, min. 2 per board 6' max. apart within 12" of ends **and installed within middle 3<sup>rd</sup> of plate.** –R403.1.6
7. Footings adjacent to slopes. (R403.1.7)
8. Isolated Masonry piers height shall not exceed 4 times the width (hollow) or 10 times the width (fully grouted)R404.1.9
9. Foundation drainage provisions must be made in accordance with R405
10. Under-floor ventilation must be installed at a rate of 1sq. ft. for every 150sq. ft. of area, unless exception or, un-vented. –R408

11. Minimum crawl hole size in floors is 18"x24", in exterior walls is 16"x24" with a light required –R408.4
12. Concrete floors shall have a vapor retarder installed between concrete and base course. **Unless a free draining soil is used in base preparation** R506.2.2 and .3
13. Bond beams are required at structurally connected walls and floors and at top of walls – R606.11 – Figures 606.11 (1-3)
14. Masonry bed joints are not to exceed 3/8" except starter course that may be 1/4"-3/4" – R606.3.1
15. Terminate grout lifts min. 1" below top of block except at top of wall. R606.3.5.1
16. Cleanouts are required for reinforced hollow unit masonry walls to be grouted at intervals exceeding 64" with special inspection required for grout pours exceeding 64". Grout may not be pumped in greater than 8' lifts even with special inspection. –R606.3.5.1
17. UFER ground wire is to be installed in footing and will be inspected at footing inspection – E3603.1
18. Stem walls shall have at least one #4 rebar within 6" of top of wall, with #4 rebar as vertical and horizontal reinforcement at 4' O.C. – Town of Payson Amendment.

#### **FLOOR CONSTRUCTION:**

1. A sub floor inspection is required for slabs on grade and wood floor crawl space if less than 4' from bottom of floor joists –R104.10
2. Minimum under-floor insulation (other than slab) R-19 Town of Payson Amendment.
3. The use of engineered floor trusses will require that an engineered floor truss plan depicting layout be submitted –R106.1.1
4. Garages shall slope to door, or have drains. (R309.1)
5. Automatic garage door openers shall be listed in accordance with UL 325. (R309.4)
6. Landings are required at the one required main entry door within 1-1/2" of top of threshold. Other doors may have up to an 8" step down to exterior landing, or to stairs with no more than two risers provided the door does not swing over the exterior stairs, or landing that is more than 8" below the threshold. –R311.3
7. Decks and porches shall be positively attached. No nails subject to withdrawal. (R311.5)
8. **Ledger attachment shall be in compliance with R 507. Lateral connections shall be installed per Figure R507.9.2(1) or (2)**
9. **Deck design criteria per R507**
10. Ledgers attached to masonry walls shall be a minimum of 3" thick. Figure 606.11(1)
11. Floors above adjacent levels, more than 30" difference in height require installation of a 36" guardrail with no space that a 4" ball can pass through –R312
12. Foam plastic insulation must have a thermal barrier. R316.4
13. Under-floor minimum clearances 18" to underside of joists, 12" minimum to underside of beams –R317.1
14. Treated plate is required on masonry interior and exterior walls if no vapor barrier, exterior only if V.B installed –R317.1
15. Protection against termites shall be chemical soil treatment and/or pressure preservative treatment and naturally resistive wood –R318
16. Type B dwelling units for Townhouses. (R320.1)
17. Fire protection of underside of floors is required unless crawl space is not intended for storage and has no equipment, area of up to 80 sq. ft can be blocked and separated, or conventional 2x10's or deeper are used. R302.13
18. Stairway min. width 36" Maximum stair height 8" **Minimum tread run 10"** with no variation more than 3/8" widest to narrowest or shortest to tallest. Minimum 6' 8" headroom height, Max. 12'7" vertical height between landings, four or more risers require a handrail 34"-38" vertically above stair nosing –R311.7 as amended by Town of Payson
19. **Alternating Tread Devices can be installed for lofts and mezzanines 200 sq. ft or less per R311.7.11**
20. Dimensional lumber floor joist spans –Table R502.3.1 (1) Table R502.3.1 (2)
21. Double floor joists are required under parallel bearing walls –R502.4
22. Floor beam spans –Table R502.5 (1&2)

23. Solid blocking required within a joist depth laterally at beams and girders (conventional floor framing) –R502.7
24. Floor joist exceeding 2x12 need solid blocking at intervals not exceeding 8' O.C. R502.7.1
25. Provide proper post to beam connections –R502.9
26. Provide floor sheathing sizes –R503.1
27. Floor insulation shall be installed in permanent contact with the subfloor decking.  
N1102.2.7

#### **WALL CONSTRUCTION:**

1. Provide structural elevation showing footing through to roof typical framing –R106.1
2. Braced Wall Lines and Panels must be identified on plans R106.1.3
3. Garage cannot open to bedroom –R302.5.1
4. Fire-blocking is required in accordance with section -R302.11.
5. Penetration sealing is required –R302.11 (4.)
6. Fire rated construction required on garage side of wall between house and attached garage up to roof sheathing, or ceiling and walls supporting ceiling must be rated. No unprotected opening permitted. Doors shall be 1-3/8" solid core, or have 20 minute rating label attached with minimum 2 self-closing hinges –R302.6 as amended by Town of Payson
7. Walls and soffits under stairs are required to be fire rated –R302.7 as amended by the T.O.P
8. Habitable rooms must have 8% of floor area for light and 4% of floor area for ventilation – R303.1
9. Bathrooms require mechanical ventilation if no exterior openings 50 CFM intermittently – R303.3
10. All interior and exterior stairways shall be illuminated with light activation for interior stairs available at top and bottom of stairway. Exterior stairways shall be controlled from inside of dwelling unit –R303.7
11. Every dwelling unit shall have at least one room 120 s.f. other habitable rooms 70 sq. ft. Except kitchens–R304.
12. Safety glazing is required to be permanently labeled into glass –R308.1
13. Safety glass hazardous locations R308.4 including wet areas. R308.4.2 Glazing adjacent to doors. R308.4.5 and Adjacent to stairs 308.4.6 & 308.4.7
14. All required egress windows shall have a minimum of 5.7sq. ft. of openable area. Min. 24" clear height, Minimum 20" clear width installed so that the bottom of the window opening is not more than 44" above finished floor elevation –R310.1 and as amended by T.O.P.
15. Basements in homes that are equipped with an automatic sprinkler system installed per Section P2904 shall not be required to have emergency egress openings provided that the basement has either one means of egress complying with R311 and one emergency escape and rescue opening, or two means of egress complying with R311.
16. Habitable attics require egress window. R310.1 and smoke detectors R314.3
17. Minimum one exit door required 3' X 6'8" -R311
18. Hallway width, min. 36" (R311.6)
19. Window fall protection shall be provided where window openings are 72" or more above finished grade, or surface below and the lowest opening of the window is 24" or less above the floor, operable mechanisms shall not permit the window to open more than 4". R312.2
20. 313.1 An automatic residential fire sprinkler system shall be installed in townhouses. (R313.1)
21. Habitable Attics shall not be considered a story when all four provisions of R325.6 are complied with.
22. Studs supporting two floors and a ceiling must be 2 x 6- 16" O.C. –Table R602.3
23. Stud height is limited to 12' max Table 602.3(6) As modified by TOP amendment.
24. 6d common Minimum shear nailing for shear panels –Table R602.3 (1) (30)
25. Header sizes must be called out on plans including garage doors. Single headers are recognized –R602.7 King Studs shall be doubled at 10' and greater.R602.7.5
26. Diagonal bracing and shear requirements per Sec. R602.10
27. Garage front returns require 4', or at least 16" up to 10'with hold downs fully sheared on one side – 24" for 2-story with hold downs sheared on one side. R602.10

28. Weep screeds are required for stucco systems –R703.6.2.1
29. Stone and Masonry (not adhered) veneer is limited to 30' above grade and must be flashed at the base and have weep holes in the first course. (R703.7)/Table R703.7(1)
30. Adhered Masonry veneer must be installed min. 4" above earth, Min. 2" above paved areas, or Min. ½" above exterior walks supported by same foundation that supports exterior wall. 3-1/2" corrosion resistant screed or flashing; 26 gauge plastic or galvanized, shall be installed to extend a min. of 1" below the foundation plate line. The water resistive barrier shall overlap the attachment flange. R703.12
31. Exterior grade plywood is required on overhangs, or Exposure 1 approved structural panel may be used. –R803.2.1.1
32. Specify Manufacturer model and approved testing number for factory built fireplaces, or woodstoves –R1004.1
33. Fireplace & chimney details, with hearth minimum 16" out and 8" to each side of opening, minimum 2" clearance to combustibles unless 12" or more away from flue lining, then no clearance is required. Also, if an approved fire chimney liner is used, no separation from the chimney is required for masonry built fireplaces. Install 20" minimum hearth if fireplace opening is 6sq. ft. or larger –R1001.10 –1001.11
34. Sunrooms with thermal isolation and enclosing conditioned spaces shall have fenestration with a maximum U-factor of 0.45 and a maximum skylight U-factor of 0.70. N1102.3.5

### **ROOF CONSTRUCTION:**

1. Roof framing plan is required showing layout and connections –R106.1.1
2. Minimum ceiling height in hallways, kitchens and habitable spaces is 7'. **Bathrooms toilet rooms and laundry rooms 6'8"** –R305.1 **See Exceptions:**
3. Foam plastic insulation shall be separated from the interior of the building by a thermal barrier. R316
4. Prior to the placement of roofing paper a roof nailing inspection is required. The roof should be nailed with 8d commons Table R602.3. (1) -6"@ edges and 12" in field
5. Minimum sheathing spaces and sizes –Table R602.3 (1)
6. Rafter/Ceiling joists spans are required to be shown –R106.1.1 - Table R802.4.
7. Truss specifications including layout engineered connections are required to be shown – R802.10
8. Laterally block rafters and trusses at bearing –R802.10.3
9. Provide calculations for roof ventilation at 1 sq. ft. for every 150 sq. ft. of area –R806.2
10. Flashings shall be installed at wall and roof intersections; if metal shall be min. 26 gauge. R903.2. Step or continuous flashing required for side wall, min. 4" in height. R905.2.8
11. Parapet walls shall be properly coped with noncombustible, weather proof material of a width equal to wall thickness. R606.4
12. Asphalt shingles installed on pitches 2/12 and over. R905.2.2
13. Minimum 4/12 roof pitch for shingles, except that 2-1/2:12 to 3-1/2:12 require 50% paper lap –R905.2.2
14. Added roof weight must be considered on roof calculations (tile roofs) –R905.3.7
15. The thickness of blown in, or sprayed roof/ceiling insulation (fiberglass or cellulose) shall be verified with installed markers. N1101.12.1.1
16. Ceilings with attic spaces and when Sec. N1102.1.1 would require R-38 in ceiling, R-30 shall be deemed to satisfy the requirements for R-38 wherever the full height of uncompressed R-30 extends over the wall top plate at the eaves. N1102.2.1.
17. Ceilings without attics and where Sec. N1102.1.1 would require insulation levels above R-30 and the design of the roof/ceiling assembly does not allow sufficient space for the required insulation, the minimum required insulation shall be R-30.
18. Air baffles shall be installed for air permeable insulation adjacent to soffits and eave vents N1102.3
19. Access doors (attics and crawl spaces) from conditioned to unconditioned spaces, shall be weather stripped and insulation shall be installed to the same level as surrounding surfaces. N1102. 2.4

20. Minimum attic access is 22" x 30" with switched light & minimum 30" headroom –R807.1 - M1305.1.3

### **ELECTRICAL:**

1. Smoke detectors 120/V W/battery backup interconnected in bedrooms, halls, vaulted ceilings and habitable attics installed per NFPA 72, manufacturer's installation instructions. (R314) **Must be installed not less than 3' horizontally from door or opening of a bathroom that contains a tub or shower. When more than one CO detector is required, they must be interconnected. CO alarms must be hard wired.**
2. Carbon Monoxide Alarms-Outside sleeping area where fuel fired equipment is used, or where there is an attached garage. R315 **Must be hard wired and interconnected.**
3. **See section R324 for rooftop mounted photovoltaic system requirements.**
4. Electrical in party walls to be installed per –E3402.2 or UL-263
5. Metallic water and interior gas piping is required to be bonded to electrical services – E3609.6 – 3609.7
6. Size electrical service 100 amp minimum, permanently identify breakers E3602.1
7. If a ground rod is the grounding means, two are required spaced at least 6' apart. E3608.4
8. A minimum of 2 separate 20 Amp circuits are required to be installed in kitchens –E3703.2
9. A 20 Amp dedicated circuit is required for bathroom receptacles –E3703.4
10. Panel boards shall be readily accessible, not be exposed to physical damage, not be located where easily ignitable material is present, such as in clothes closets, in bathrooms, over steps in a stairway, more than 6' 7" to highest disconnect –E3705.7
11. Receptacles that are controlled by a wall switch are no longer counted as contributing to the required receptacle spacing unless the outlet is split and only one of the duplex receptacles is switched.(1/2 hot) E3903
12. Receptacles shall be installed so that no point measured horizontally along the floor line of any wall space is more than 6 feet, from a receptacle outlet.–E3901.2.1
13. **Specific appliances on kitchen counters can be served by a 15amp circuit. E3901.3**
14. **Garage receptacles required for each bay, minimum. E3901.9 In addition at least one 120v-volt, 20 amp circuit shall be dedicated to the garage. This circuit may have no other outlets, except for readily accessible outdoor receptacle outlets.**
15. **GFCI protection required for crawl space lighting outlets and in unfinished portions, or areas of a basement not intended as habitable rooms. E3902.4**
16. GFCI receptacles are required in kitchen, counters require a receptacle if at least 12" wide and shall be spaced so that no counter space is more than 24" from one. E3901.4.1 – E3902.6
17. Minimum one exterior outlet in front and one in rear maximum 6'6" above grade, also all decks and porches, over 20 s.f., that have access to the home are required to have one. E3901.7
18. Foyers are no longer treated as a hallway. If over 60 sq.ft. an additional outlet is required at any wall that is at least 3' long. E3901.11
19. GFCI protection is required for all unfinished basements, spa areas, all outlets in garages, bathrooms unfinished accessory buildings and exterior locations, laundry rooms, for automatic dishwashers, in crawl spaces, in unfinished basements–E3902
20. GFCI controlling outlets may not be behind appliances and must be accessible. E3902.14
21. Combination, Arc Fault protection is required for branch circuits that supply outlets installed in **kitchens**, dining rooms, family rooms, living rooms, parlors, libraries, dens, bedrooms, **laundry rooms**, sunrooms, recreation rooms, closets, hallways and for electrically heated floor equipment -E3902. (Branch circuit allowed, provided conduit is run from panel to first outlet. AFCI is not required where the circuit only serves a fire alarm system.
22. Install wall switched controlled lighting to habitable rooms, baths, outside, halls, stairs, garages –E3903.2
23. Box wire fill shall be in accordance with E3905.12
24. Fixtures in damp or wet location shall have a weatherproof box and shall be listed for such use –E4002.8, E4002.9 & 4002.10

25. Tamper resistant receptacles shall be installed except for receptacles that are more than 5.5 ft. above the floor, or are part of a luminaire, or are part of equipment with dedicated space. E4002.14
26. All fixtures are required to be grounded –E4003.3
27. Closet lighting surface mounted, no closer to shelf than 12” for incandescent, or 6” for fluorescent/recessed with completely enclosed lamps E4003.12

**MECHANICAL:**

1. Location, type & size of HVAC equipment are required to be noted on plans. –R106.1  
Calculations shall be provided showing how the size of the unit and size of the ductwork were determined.
2. Every dwelling unit shall be provided with heating facilities capable of maintaining 68 degrees Fahrenheit at 3’ above the floor –R303.10
3. New wood burning appliances shall have tight fitting flue dampers and outdoor combustion air. N1102.4.2
4. At least one thermostat shall be provided for each separate HVAC System. N1103.1
5. Access to attic furnaces shall not exceed 20 ft. W/Minimum 22” wide, 30” high unobstructed passage to the unit and a minimum 30” x 30” working platform at the service side of the unit, with a 20 Amp outlet and switched light –M1305.
6. Mechanical equipment shall be installed on the ground shall be installed a min. 3” above grade. Suspended units shall be min. 6” above grade. M1305.1.3.1
7. Appliances shall not be installed in a location subject to vehicle damage except where protected by approved barriers. (No longer limited to just the garage) –M1307.3.1
8. Condensate lines are to be installed with uniform slope minimum secondary condensate is to be not less than ¾” pipe size –M1411
9. Condensate control is required –M1411.3
10. Cooling equipment installed in an attic or furred space requires a secondary drain pan – M1411.3.1
11. Outdoor refrigerant loops shall either be locked, or placed within approved locked enclosures. M1411.8
12. Joints seams and connections in ducts shall be sealed tight. M1601.4.1
13. Vent all moisture exhaust ducts to the exterior, fans, dryer, etc. –M1501.1
14. Makeup air is required for **Gas liquid or solid fuel range** supplied kitchen exhaust hood that exceed 400 CFM and must be interlocked to work at all times the exhaust fan is operating. M1503.6
15. **Where dryer duct exhaust exceeds 35’ a permanent label or tag is required. M1502.4.6**
16. Exhaust openings must terminate min. 3’ from property lines operable and non-operable openings, above air intakes, 10’ horizontal from air intakes if opening is above. M1504.3
17. Unconditioned attics and crawl spaces may not be used as a source for Outdoor and Return Air. M1602.2
18. Minimum 30” vertical clearance above range to unprotected combustible material above – M1901.1 May be reduced G2447.5 (1-3)
19. Fuel burning appliances are prohibited in a closet, bedroom, or bathrooms except direct vent appliances in bathrooms and bedrooms and for exceptions in section.– G2406.2
20. Combustion air is required within the upper 12” and lower 12” of an FAU enclosure –G2407.6.1
21. Raise HVAC equipment that rely on an ignition source for operation located in a hazardous location, or in a garage, so that equipment that generates a glow, spark or flame is at least 18” above the floor – Unless the equipment is listed as ignition resistant. G2408.2
22. Gas piping shall not penetrate building foundation walls at any point below grade and shall be sealed G2415.6
23. Gas piping installed under buildings shall be encased in a conduit of wrought iron, plastic pipe, or steel pipe. Such conduit shall extend not less than 4” outside the building, shall be vented above grade to the outdoors, and shall be installed so as to prevent the entrance of water and insects. G2415.8
24. Uncoated threaded or socket welded joints shall not be used in piping in contact with the soil, unless listed for such use. G2415.11.1

25. Gas piping shall be pressure tested before final inspection with a minimum of 10 PSI for 15 minutes G2417
26. Above ground piping outdoors must be installed with Min. 3-1/2" clearance above ground or above roofs G2419.4
27. Maximum length of appliance connectors is 6'. G2422.1.2.1

**PLUMBING:**

1. Location and type of water heater is required on plans –R106.1.1
2. When circulating hot water systems are installed, a readily accessible manual switch that will turn off the hot-water circulating pump when not in use, or during prolonged periods of no use. A timer may be used to satisfy this requirement. N1103.4.1
3. The building shall be provided with ventilation that meets the requirements of M1507.
4. Fuel fired water heaters prohibited in storage closets. Water heaters installed in bedrooms or bathrooms shall be in a sealed enclosure, so that combustion air will not be taken from the living space. –M2005.2
5. An accessible shut off valve is required at all gas appliances –G2420.5
6. Pressure testing of plumbing required at Frame Inspection –P2503
7. Plumbing pipes shall not be directly embedded into concrete and shall be sleeved –P2603.3 & 2603.4
8. Access panels required for plumbing fixtures with concealed slip-joint connections and circulation pumps. –P2704.1 & P2720.1
9. Water closets shall be located in a 30" wide clear area, with 21" clear in front –Figure P2705.1 (5)
10. Washing machine standpipe 18" to 42" above trap weir, –P2706.1.2
11. Laundry tray standpipes shall be max. 30" above or horizontal to traps that serve them. P2706.1.2.1
12. Plumbing fixtures that are used for washing or bathing shall not be used to receive discharge of indirect waste piping. P2706.3
13. Pipe water heater T&P line **though an air-gap**, to the outside with grade not reduced, terminate not more than 6" and not less than two pipe diameters above the floor or waste receptor flood level rim –P2804.6.1. Cannot drain into pan, as amended by the TOP.
14. Full open private water valve required near entrance of water service and ahead of all fixtures – P2903.9.1 & P2903.9.3
15. ABS/DWV not approved for the discharge side of sumps and ejectors. Minimum 10 pipe diameters from stack to discharge point. P3007.3.5
16. Gray Water Systems. P3009
17. Vent Clearances 3' above or 10' away from any window or other openings, or 4' below–P3103.5
18. Trap arm length maximums: 1-1/2"= 6'-- 2" = 8'-- 3" = 12'-- 4" = 16' –Table P3105.1
19. Each fixture must connect independently to the horizontal wet vent. P3108.1
20. Total vent size shall not be less than ½ the required diameter of the drain served –P3113.1
21. Paint all sunlight exposed plastic plumbing pipes with latex paint –Per Manufacturer

**Town of Payson Insulation and Fenestration Requirements by component**

Fenestration U-Factor (b)	Skylight U-Factor (b)	Ceiling R-Value	Wood Frame Wall R-Value	Mass Wall R-Value (a)	Floor R-value	Basement (c) Wall R-Value
0.35	0.55	36	19	8/13	19	13

(a) The second R-value applies when more than half the insulation is on the interior of the mass wall.

**Town of Payson Equivalent U-Factors (a) (Applicable sections of Table N1102.1.3)**

Fenestration U-Factor	Skylight U-Factor	Ceiling U-Factor	Frame Wall U-Factor	Mass Wall U-Factor (b)	Floor U-Factor	Basement Wall U-Factor	Crawl Space Wall U-Factor
0.35	0.55	0.026	0.057	0.098	0.047	0.059	0.065

- (a) Non-fenestration U-factors shall be obtained from a measurement, calculation or an approved source.
- (b) When more than half the insulation is on the interior, the mass wall U-factors shall be a maximum of 0.087.