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## Residential Construction Notes

### For the City of Holladay

This checklist is compiled for plan checking purposes for use by the Building Department. The information contained herein will also provide condensed construction information for design and job use. This checklist is not intended to indicate any change in any building code or ordinance by inference or omission. A circle around a check list number indicates an incorrect detail or insufficient information. **Please make the corrections on the drawings indicated by the number in the circle on the checklist.** Any indicated correction not made or construction detail not shown will be assumed to be installed in accordance with the applicable codes.

#### GENERAL

1. Place correct construction street address, project name, owner's name, designer's name, and architect and/or engineer's name and seal on the drawings.
2. Submit two (2) complete sets of drawings including: Site plan, Floor plan, Foundation plan, Elevations, Specifications, Building section(s), Construction details, Energy Code Analysis and Structural Calculations
3. Provide a grading plan showing the relative elevations of the foundation as it relates to the curb and gutter and the relationship of the home to the finished grade. Include a "datum" point or other benchmark that will remain available and accessible throughout the construction.
4. Label all existing and proposed streets, alleys and adjacent property lines on the site plan. Dimension the distances to front, side, and rear property lines.
5. Show size of lot on the site plan to conform to the legal description. IRC R106.1.1
6. Show the "Limits-of-Disturbance" on the site plan including all utility crossings, easements, material storage and stockpile areas, driveways, re-graded areas, proposed landscaped areas, and construction parking areas.
7. Drain surface water away from the house. Direct the drainage water to an approved location of discharge and not onto neighboring properties or across the city sidewalks. The grade shall fall a minimum of 6 inches within the first 10 feet. IRC R401.3.

8. Comply with IRC Chapter 4 for excavations, fill, cuts and grading. Pay special attention to “tall” cuts close to property lines.
9. Show the lower floor elevation for compliance to the flood plain map.
10. Show and identify all proposed and existing buildings on the site plan.

### **FOUNDATION PLAN**

11. Verify type of soil at the site. The classifications of soil at each building site shall be determined when required by the Building Official. The Building Official may require that this determination may be made by an engineer or architect licensed by the State of Utah. IRC R401.4
12. Provide a special study report for properties located in a surface fault-rupture and liquefaction potential area.
13. Show footings a minimum of 30 inches below finish grade, or below specified frost depth, whichever is deeper. IRC R403.1.4.
14. Specify concrete mix with a minimum compressive strength of 3,000 psi. IRC R402.2.
15. Show a minimum thickness of 3.5 inches for concrete floor slabs supported directly on the ground. IRC R506.1
16. Show the foundation walls a minimum six (6) inches above finish grade. IRC R404.1.6
17. Show minimum 5/8 inch anchor bolts with 7 inch minimum embedment in the concrete or masonry spaced no more than 32 inches o.c. A properly sized 3” square plate washer and nut shall be tightened on each bolt to the plate. Specify type, size and spacing of other bolts or alternate plate fastening methods. IRC R323
18. Show minimum 18” inch clearance for wood joists and 12” clearance for wood girders in the crawlspace unless proper redwood or preservative treated wood is specified. IRC R323
19. Under floor ventilation: Minimum 1 square foot for each 150 square foot of under floor area or 1:1,500 where soil is covered with visqueen. Vents to be arranged to provide cross-ventilation on at least two opposing sides. IRC R408 & R402.2 ex.2

## ARCHITECTURAL

20. Dimension the overall length width, and height of the building.
21. Dimension all rooms
22. State the use of all rooms on the floor plan(s)
23. One room in each dwelling must be a minimum of 120 square feet. IRC R304.
24. All habitable rooms, except kitchens are to have an area of not less than 70 square feet with a minimum of 7 feet in any dimension. IRC R304.
25. Habitable rooms, hallways, corridors, bathrooms, laundry rooms and basements shall have a ceiling height of not less than 7 feet measured from finished floor to finished ceiling. Not more than 50% of the required floor area is permitted to have a sloped ceiling less than 7 feet with no portion of the required floor area less than 5 feet in height. IRC R305.
26. Dimension all windows and show how windows open, i.e. sliders, single hung, casement or fixed. Also show what area of the window opens.
27. Minimum window area shall equal not less than 8% of the floor area of the habitable room. IRC R303.
28. Natural ventilation equaling 4% of the floor area shall be through windows, doors, louvers or other approved openings to the outdoors. IRC R303.
29. Basements with habitable space and each sleeping room shall have an exterior door or a window that meets the following: finished sill height within 44 inches of the floor, minimum net clear openable area of 5.7 square feet, minimum openable width of 20 inches and minimum net clear openable height on 24 inches. Grade floor openings may have a minimum net clean opening on 5 square feet. IRC R310
30. The openable window area in bathrooms, water closets compartments, laundry rooms and other similar rooms shall not be less than 1.5 square foot unless a mechanical ventilation system capable of producing 50 cfm for intermittent operation or 20 cfm for continuous operation is provided. Ventilation air shall be exhausted directly to the outside. IRC R303.3
31. Required windows shall open directly onto a street, public alley or through an open porch with a minimum of 7 foot ceiling height. IRC R 303.5
32. All hinged shower doors shall swing outward. IRC P2708.1

33. Glazing used in windows, doors and panels of showers and bathtub enclosures and walls enclosing these compartments. Frameless glass doors, glass in doors, glass within a 24" inch arc of doors, glazing less than 60 inches around a walking surface that is within 5 feet of stairs, and glazing within 5 feet of spas or pools, certain sized glass panels, and similar glazed openings subject to human impact shall be safety glazing or tempered or laminated glass. IRC R308.4
34. Show not less than ½ inch type X gypsum board on the garage side of the wall and ceiling separating a garage and a dwelling. Where the separation is a floor-ceiling assembly, the structure supporting the separation shall also be protected by not less than 1 layer of 5/8" inch type X gypsum board or equivalent. IRC R309 and State Amendment.
35. Doors leading from dwellings to the garage shall be 1 3/8 inch thick solid core or 20 minute rated. Doors shall not open into a sleeping room. Electrical panels shall not penetrate the garage side of gypsum board membrane. IRC R309 and State Amendment.
36. Garage attic access doors shall be latched to prevent uplift in the event of fire.
37. Floors of carports and garages shall be sloped to a drain or the garage door to facilitate drainage. IRC R309.3.
38. All unenclosed floor and roof openings, open and glazed sides of landings and stairs, balconies and porches more than 30 inches above grade, and roofs used for other than service of the building shall be protected by a guard. Guards shall not be less than 36" inches in height. Open guards shall have intermediate rails or an ornamental pattern such that no sphere 4 inches in diameter or larger can pass through. Required guards shall not be constructed in horizontal rails or other ornamental patterns that result in a ladder effect. IRC R316.
39. Stairways shall not be less than 36 inches in clear width at all points above the permitted handrail height. Handrails shall not project more than 4.5 inches on either side. IRC R314.1
40. The tops of handrails shall be placed not less than 34 inches and not more than 38 inches above the nosing of the treads. They shall be continuous the full length of the stairs. Ends shall be returned or shall terminate in newel posts or safety terminals. The handgrip portion of handrails shall not be less than 1 ¼ inches no more than 2 5/8 inches in cross-sectional dimension or the shape shall provide an equivalent gripping surface. Handrail projection from a wall shall have a space of not less than 1 1/2 inches between the wall and the handrail. IRC R315.
41. The minimum headroom in all parts of a stairway shall not be less than 6'-8" measured vertically from the sloped plane adjoining the tread nosing or from the floor surface of the landing or platform. IRC R314.3.

42. Stairway risers shall not exceed 8 inches and tread shall not be less than 9 inches IRC R314.2 and State Amendment.
43. Steps not provided with nosings shall have a minimum tread depth of 11 inches IRC.R314.2.1 ex.1
44. Stairs and ramps required to meet accessibility standards where four or more dwelling units are in a single structure. IRC R326
45. Landings shall have a minimum dimension measured in direction of travel of 36 inches. IRC R312.2.
46. Show ½ inch gypsum board on walls and soffits under a stairway with enclosed accessible space. IRC R314.8
47. Specify lumber grade and species in accordance with the IRC span tables for light framing where professional design is not provided.
48. Show size, spacing, spans, and directions of floor joists, beams, girders and posts.
49. Show size, spacing, and direction of ceiling joists in all rooms.
50. All lumber in contact with concrete or masonry including ledgers and furring walls must be preservative treated or foundation-grade redwood including all stair stringers. IRC R323
51. Provide ½ inch airspace at tops, sides, and ends of girders enter in exterior concrete or masonry walls unless woods resistant to decay are used. IRC R323
52. No wood shall be closer than 6 inches to earth unless separated by concrete and at least 3 inches in thickness with an impervious membrane installed between the earth and the concrete. This includes decks and siding. IRC R323
53. Roofing within 36 inches of the property line must comply with IRC Section 902-1 for fire-retardance.
54. Specify roofing material products. Show roof slope. IRC R904
55. Show 30lb. inerlayment between courses of shakes. Show roof valley flashing minimum 28 galvanized sheet gauge corrosion-resistant metal extending at least 11 inches from center line each way. Show ice shield extending from the eaves to a point at least 24 inches inside the exterior wall line. IRC R905.8

56. Composite shingles shall not be installed on roofs having a slope less than 4 to 12 unless double underlayment is installed in accordance with IRC Section 905.2.2.
57. Asphalt shingles, clay and concrete tile, metal shingle, mineral- surfaced roll roofing, slate and slate-type shingle, wood shingle and wood shake roof materials require an ice barrier that extends from the edge of the eaves to a point not less than 24 inches inside the exterior wall line of the building. IRC R905.2.7.1
58. Accessible below floor areas shall be provided with a minimum 18"x 24" access opening. IRC R408.3. For access to mechanical equipment in these areas, see IRC M1305.1.4
59. Enclosed attics and spaces between rafters shall have cross ventilation for each separate space by ventilating openings protected against the entrance of rain or snow. The total net free ventilating area shall not be less than 1 to 150 of the area of the space ventilated. The total ventilating area ratio may be reduced to not less than 1 to 300 if (1) openings are provided in the upper and lower portions of the ventilated space, OR (2) a 1 perm vapor barrier is installed on the warm side of the ceiling. IRC R806.
60. Show a minimum 22"x30" attic access in a hallway or other readily accessible location IRC R807. See M1305.1.3 for access to furnaces and other mechanical equipment in attics.
61. Provide listing (approval) number for fireplace stove, fireplace insert, or shower steamer appliances. IRC M1302.1
62. Include a cross-section of the firewall for townhouses on "Zero" lot lines. IRC R321.2
63. Show a minimum of 2 inch thick redwood planks for deck if deck joist spacing is 16 inches on center or greater. Nominal 1 inch thick planking shall not be used where deck joists are spaced greater than 12 inches on center.
64. Provide energy conservation analysis. Show all "R" or "U" values on the drawings. Specify the heating and cooling equipment efficiencies on the drawings. IECC 104.2
65. Show a minimum 4 mil. Polyethylene vapor retarder over insulation on exterior walls and roof ceilings. IRC R322, IECC5.0.1.1
66. Show the location of the clothes washer and dryer. Washer valves require water hammer arrestors. IRC R106

67. Show on the drawings that inspections are required for all stucco and EIFS systems. Provide product specifications and ICC evaluation report (or equal) for any stucco or EIFS system used. IRC R109.5
68. Window wells shall provide a minimum net clear opening on 9 square feet with a minimum dimension of 36 inches. Provide a permanent ladder if window well is more than 44 inches deep. IRC R310.2
69. Provide fire assembly construction details and approval listings for dwelling unit separations and exterior walls with a fire separation distance less than 3 feet. IRC R302.1 and R321
70. List on the cover sheet of the drawing each deferred submittal item i.e.; fire sprinkler submittal, truss details, radiant heat submittal, gas piping schematic, stucco/EIFS submittal, factory-built fireplace product information, and Planning Department items, etc. IRC R106

## **STRUCTURAL**

71. Justify shear value of walls with large openings or “soft stories”. IRC R602.10.10
72. Beams or girders supporting the floor are over-spanned at \_\_\_\_\_
73. Rafters are over-spanned over \_\_\_\_\_
74. Ceiling joists are over-spanned in \_\_\_\_\_ IRC Table R802.4(2)
75. Beams or purlins supporting the roof are over-spanned.
76. Floor joists are over-spanned in \_\_\_\_\_
77. Deck joists are over-spanned at \_\_\_\_\_
78. Show double joists under bearing partitions which are parallel to floor joists. IRC R502.4
79. Show solid blocking at bearing points on floor joists or rafters. IRC R502.7.
80. Justify size and spacing of floor joists carrying additional loads from partitions and roof loads. IRC R501.2
81. Show T&G underlay-grade plywood C-C or T.R.S. plywood for subfloor if there is not additional particleboard. IRC R503.2
82. Show orientation/direction of subflooring material and show nailing schedule.

83. Show bracing methods of all exterior and interior braced wall lines. Show nailing schedules. IRC R602.10.11 and Table R602.10.3
84. Show material and orientation/direction of roof sheathing. Provide edge blocking as required by IBC Table 2304.7(4). Show nailing schedule as per engineering design or IBC Table 2304.9.1. if no professional design is provided.
85. Show grade, species, size and spacing of wall studs. Specify types of interior and exterior wall surfaces.
86. 2"x4" studs not more than 10 feet in length may be spaced not more than 24 inches on center when supporting only a ceiling and roof. Stud spacing for non-bearing walls shall not exceed 24 inches.
87. Interior bearing wall headers must comply with IRC Table R502.5 (2). All other headers must be designed to carry the imposed loads and have a minimum 1 ½ inch solid bearing at each end. All openings in non-bearing walls over 8 feet require headers. IRC R602.
88. Fireblock stud spaces at soffits, floor and ceiling joist lines at 10 feet vertically and horizontally and at openings between attic spaces and chimney spaces for factory-built chimneys and at any other locations not specifically mentioned which could afford passage for flames. IRC R602.8
89. Show size, slope, spacing and span of rafters. Where the slope of the roof is less than 3 inches in 12 inches members supporting rafters and ceiling joists such as ridge boards, hips and valleys shall be designed as beams. IRC R802.3
90. Show rafter ties immediately above ceiling joists at four feet on center where ceiling joists are not parallel to rafters. IRC R802.3.1
91. Show hurricane ties at a maximum of 4 feet on center on all rafters and trusses. IRC R802.3.1.
92. At all valleys and hips show valley or hip rafters not less than 2 inches thick and not less in depth than the cut end of the rafter. IRC R802.3.
93. All structural masonry walls are to be professionally designed in accordance with accepted engineering practice. IRC R301.2.3. Masonry walls not requiring professional design shall be detailed and specified in accordance with IRC R606.11.4 for Seismic Design Category E.

## **MASONRY FIREPLACES**

94. Combustible material shall not be placed within 2 inches of fireplace smoke chamber or chimney walls. Combustible material shall not be placed within 6 inches of the fireplace opening. No such combustible material within 12 inches of the fireplace opening shall project more than 1/8 inch for each 1 inch distance from such an opening. IRC R1003.12
95. Show fireplace plan and section views. Show vertical and horizontal reinforcing steel. IRC R1003.
96. All masonry and concrete chimneys shall be anchored at each floor, veiling line, or roof line more than 6 feet above grade, EXCEPT where chimney is constructed completely within the exterior walls for the building. Anchorage shall consist of two 3/16 inch x 1 inch steel straps embedded a minimum of 12 inches into the chimney. Straps shall be hooked around the outer bars and extend 6 inches beyond the bend. Each strap shall be fastened to a minimum of four floor ceiling or floor joists or rafters with 2- 1/2 inch bolts. IRC R 1003.4.1
97. Chimneys shall extend at least 2 feet higher than any portion of the building within 10 feet, but shall not be less than 3 feet above the point where the chimney passes through the roof. IRC R1001.6
98. Provide a cross-section of the masonry veneer that includes the thickness of total masonry attachment methods, nailing schedules, ledge sizes and attachment methods, furring details weather-barrier membrane, etc. IRC R703.7 and State Amendment.

## **ELECTRICAL**

99. All receptacles serving kitchen countertops, in garages, baths, unfinished basements and outside receptacles shall be GFCI protected. IRC RE3802
100. Lights in closets must comply with the minimum clearance dimensions of IRC E3903.11.
101. Electrical panels must comply with IRC E3305 for 30"x 36" working space and 6'6" headroom. Show locations.
102. Show smoke detectors conforming to IRC Section R317. All levels, all bedrooms, access to all bedrooms and in all rooms with sloped ceilings next to halls serving bedrooms. All detectors shall be hard-wired and have battery backup. IRC R317

103. Show at least two outside grade level receptacles- one in front yard and one in the rear yard. IRC E3801.7

## **PLUMBING**

104. Show tank type water closets with a slow rate of not more that 1.6 gallons per flush. IRC P2903.2
105. Show shower heads with a flow rate of not more that 2.5 gpm. IRC P2903.2
106. Show non-freeze type backflow prevent house bibs. IRC P2902.3.3.P2603.6
107. Show location of expansion tank on the culinary water system. IRC P2903.4.
108. Show location of access for whirlpool type tubs. IRC P2720, E4109.3
109. Show 21 inch clearance in front of water closet. Show a full 30 inch wide finished space for water closet. IRC R307.1.
110. Showers shall be finished to a height of not less than 72 inches above the floor. Material shall be non-absorbent, as well and a 22 inch minimum egress opening shall be provided. IRC R307.2
111. Show location of water heater and heating equipment. IRC G2406
112. Show a floor drain by the water heater and a metal pan under the water heater or steam shower equipment if located on a wood floor. IRC P2801.5 Note: PRV's shall drain into an indirect waste, not into pan. P2803.6.1 #5

## **MECHANICAL**

113. Provide a comfort heating system capable of maintaining 68° F at a point 36 inches above the floor in all rooms. Generally equipment cannot be installed in sleeping rooms or bathrooms. IRC R303.3 & G2406
114. Show combustion air for all fuel-burning appliances at a minimum rate of 1 square inch per 3000 BTU per hour input. The one opening must be in the top 12 inches of the room. Show minimum 3 inch clearance around equipment at sides and rear of the appliance with a total width of the enclosing space being not less than 12 inches wider than the furnace. Show minimum 6 inch clearance in front of the appliance. IRC M1703
115. Show gas logs and each gas appliance with a shut-off valve within 6 feet of the appliance. IRC G2420.5

116. Fuel-burning appliances, including fireplace, are not permitted to be installed in sleeping rooms, bathrooms, or toilet rooms unless the appliances are direct vent appliances. See IRC Section G2406 for more information and the list of exceptions.
117. Fuel-fired water heater shall not be installed in a room used as a storage closet. Non-direct vent water heaters located in a bedroom or bathroom shall be installed in a sealed enclosure so that combustion air will not be taken from the living space. IRC M2005.2
118. Appliances having an ignition source shall be elevated such that the source of ignition is not less than 18 inches above the floor in garages. Rooms or spaces that are not part of the living space of a dwelling unit and that communicate with a private garage through openings shall be considered to be part of the garage. IRC M1307.3
119. Appliances located in a garage or carport shall be protected from impact by automobiles. IRC M1307.3.1
120. Insulate heating trunks and branch supply ducts in unfinished areas, crawl spaces, attics, unheated garages, etc. IECC 503.3.3.3
121. Vent the dryer to the outside. Maximum length of the duct with two 90-degree elbows is 15 feet. IRC G2439.5.1
122. If gas pipe system is over 4 ounces pressure, provide a gas piping schematic for the system. Clearly identify the operating pressure, type of piping material, size of the gas pipe, lengths of the piping runs, capacity of each appliance in BTUs/ hour or cubic feet of gas per hour, identify the brand and location of each regulator, and venting of each regulator. IRC R106.1.1
123. State on the cover sheet of the drawings, the number of backflow preventers to be installed in the work. Remember to include the lawn sprinkler system, fire sprinkler system, number of boilers, etc. IRC P2902.



