NORTHWEST CODE
PROFESSIONALS

OREGON RESIDENTIAL CONSTRUCTION REQUIREMENTS

(Revised November 2017)

These regulations shall be incorporated into this project in addition to any requirements appearing on the construction plans. Circled regulations are of significant importance. The approval of plans and specifications does not permit the violation of any section of the building code or other city ordinance or state law. It shall be the duty of every person who performs work to comply with the applicable codes. References are to the **2017 Oregon Residential Specialty Code which is based on the 2015 IRC** as adopted & effective October 1, 2017, unless noted otherwise. The code can be found on the internet at: http://www.oregon.gov/bcd/codes

BUILDING PLANNING

1. **R106.3.1** Construction documents shall be approved in writing or by stamp, as "Reviewed for Code Compliance". (2014 ORSC). Approved plans, calculations, and other paper work shall be kept on the job-site at all times.
2. **R109.1.6 - R110.1** A final inspection shall be requested by permit holder after all work required by the building permit is completed - prior to use or occupancy.
3. **R105.1** & **R105.2** Electrical Permits for all electrical work shall be obtained at city, county, or state unless otherwise exempted.
4. **DOC-PS-20** All framing lumber is assumed #2 grade Douglas Fir or equivalent unless otherwise noted (except studs and plates). All siding and other manufactured wood products shall comply with the manufacturer's installation requirements and must be used only according to their listing. Inspector must be provided with installation instructions at time of framing and final inspection.
5. **R303.1** Provide glazed area not less than 8% of the floor area of habitable rooms; 4% must be openable to outdoors.
6. **R303.3.1, R303.3.2, M1507 and Table M1507.4** Toilet rooms and similar rooms without bathing facilities shall have minimum glazed area of 3 sq. ft. ½ of which shall be openable to outside or an exhaust fan with min 50 cfm. Those with bathing facilities shall have exhaust fan with min. 80 cfm controlled by a dehumidistat or timer. Duct sizing shall be according to Table 1507.4, vented to the outside. The maximum sound rating shall be 3 zones.
7. **R304** Minimum room areas: Habitable rooms except kitchens shall have a gross floor area of at least 70 sq. ft. and a horizontal dimension of at least 7'.
8. **R305** Habitable spaces, hallways, bathrooms, laundry, and basements shall have a ceiling height of not less than 7'.
9. **R307.1** Bathroom fixtures shall have the following clearances: **Water Closet** - 21" in front and 30" wide with a minimum 15" from center of water closet to sidewall or tub; **Lavatory** - 4" clear at side and 21" at front; **Showers** shall be a minimum of 30" x 30" with 24" minimum clearance in front; **Tubs** - minimum 21" clear at open side.
10. **R308.4** Provide safety, tempered, or shatterproof glazing in specified hazardous locations. - (Consult inspector)
11. **R302.5.1** Openings from a garage directly into a room used for sleeping purposes shall not be permitted.
12. **R302.6** The garage shall be separated from the residence and its attic area by not less than ½-inch gypsum board applied to the garage side. Garages beneath habitable rooms shall be separated from such rooms above by not less than 5/8-inch Type X gypsum board or equivalent**.** Where the separation is a floor-ceiling assembly, the structure supporting the separation shall also be protected by not less than ½ inch gypsum board or equivalent. Door between garage & residence shall be solid wood or honeycomb steel 1 3/8" thick or 20-min. fire-rated.
13. **R309.2** Carports shall be open on at least two sides - otherwise it shall be considered a garage.

14. **R310** Sleeping rooms and basements with habitable space shall have at least one openable emergency escape and rescue opening. Egress windows shall have a maximum sill height of 44" above the floor; have a minimum net clear opening of 5.7 sq. ft. (5 sq. ft. at grade level); a minimum clear height of 24" and a minimum clear width of 20". - (Consult inspector for window well and below grade/basement situations.)

15. **R311.7.6** There shall be a floor or landing at the top and bottom of each stairway. The required landing on the interior side of exterior doors shall not be more than 1½" below the threshold. The exterior landing at required exits shall be less than 8" below the threshold with a landing the width of the door or stairway and 36" in the travel direction. If the door swings out, the landing shall not be lower than 1½" below the threshold.

16. **R311.7** Stairways shall be a minimum of 36" in width above the handrail and have a clear width of 31½" at and below the handrail. Handrails shall not project more than 4½" into the required width; headroom shall not be less than 6'-8"; max. Riser height is 8" and the min. tread depth is 9"; the greatest riser height or tread depth shall not exceed the smallest by more than 3/8"; the greatest nosing projection shall not exceed the smallest by more than 3/8" including floors and landings; risers/steps shall not be less than 4". Enclosed useable space under stairs shall be sheathed with minimum ½" sheetrock.

17. **R311.7.10** Winders, spirals and circular stairs have very specific requirements. - (Consult Inspector.)

18. **R311.7.8** Handrails shall be mounted between 30" and 38" above the nosing of the treads on at least one side of all stairways with four or more risers. Handrails shall have a cross section not less than 1¼" nor more than 2 3/4" and shall be continuous the full length of stairways from a point directly above the top riser to a point directly above the lowest riser. Handrails shall have eased edges.

19. **R312** Porches, balconies, ramps, or raised floors more than 30" above the floor or grade below shall have "guards" not less than 36" high. Open sides of stairs shall have a guard of not less than 34" high. Any ornamental pattern of guards shall not allow a sphere greater than 4" to pass - except on stairways, which may pass an object not greater than 5". Guards and handrails shall withstand a 200-pound load in any direction at any point per table 301.

20. **R314** Smoke alarms shall be installed; in each sleeping room; immediately outside of each sleeping "area"; and on each floor, or basement. Multiple alarms shall be interconnected within individual units. Required smoke alarms shall not be installed in garage, kitchen, or area below 40° F. Ionization type alarms shall not be horizontally closer than 3' to a kitchen door, bathroom door containing a tub or shower, or the supply register of an HVAC system. - (Consult inspector regarding alterations, repairs, and additions per 313.1.1). Bedrooms on separate floor levels in a structure consisting of two or more stories shall have separate carbon monoxide alarms serving each story.

    R315 Carbon Monoxide Alarms shall be installed in each bedroom or within 15 feet of each bedroom door.

21. **R302.3** Two-family dwelling units shall be completely separated by wall/floor assemblies of 1-hour fire-resistive construction including supporting construction. Fire-walls shall extend to the underside of roof sheathing. Sound transmission control shall be per appendix K. - (See attached details.)

22. **R302.2** "Townhouses" shall be considered separate buildings and shall be separated by two 1-hour fire-rated wall assemblies (see Section 302) extending from the foundation to the underside of the roof sheathing. A common 2-hour fire-rated wall is permitted if it does not contain plumbing or mechanical equipment, ducts, or vents.

    (Consult inspector for other options and/or see attachments.)

23. **R302.4.2 Membrane** penetrations of maximum 2-hour fire-walls shall be protected by an approved fire stop system. Steel electrical boxes not exceeding 16 sq. inches or 100 sq. inches in any 100 sq. ft. of wall shall be separated by a horizontal distance of not less than 24"; a distance not less than the depth of the wall cavity when filled with insulation; or molded fire blocking. 2-hour rated electrical boxes shall be installed per listing.

24. **R317** Protection against decay shall be as follows: (A) Ensure minimum 18" and 12" to bottom of wood joists and girders respectfully; (B) Provide pressure treated wood at any areas or points of contact between wood and concrete or masonry where separated by approved impervious moisture barrier; (C) Sills and sleepers on concrete or masonry slabs in direct contact with the ground shall be pressure treated unless separate from slab by an approved impervious moisture barrier; (D) Ensure a minimum of ½" airspace at tops, sides, and ends of girders entering concrete or masonry walls; (E) Maintain a minimum of 6" clearance to grade for untreated siding, sheathing, or wall framing; (F) Wood structural members supporting concrete garage slabs shall be pressure treated unless separated with an impervious membrane.

25. **317.1.2** Posts and columns embedded in concrete or in contact with the ground shall be pressure treated and labeled for ground contact. Structural building supports, balconies, decks, and porches not adequately protected from the weather shall be pressure treated or wood naturally resistant to decay.

26. **R317.3.1** All fasteners into pressure preservative and fire-retardant-treated wood shall be of hot-dipped galvanized steel, stainless steel, silicon bronze or copper and comply with ASTM A-153. Exception: One-half inch diameter or greater steel bolts.

27. **R322** Comply with all flood resistant construction requirements. (Consult Inspector, FEMA & City Planner.)

FOUNDATIONS

28. **R401.3** Slope grade away from the foundation a minimum of 6" within the 1st 10' - or other approved methods

29. **R401.4** Areas likely to have expansive, compressible, shifting, or other questionable soil characteristics may require a soils test by an approved agency. Recording and documenting shall be per ORS 455.440.

30. **R403.1.1, Table R403.1 & R405.1** Footings, and stem walls with a soil bearing value of 1500 psf, shall be as follows: 1-story = 12" wide 6" thick (6" thick foundation wall); 2-story = 15" wide 7" thick (8" thick foundation wall); 3-story = 18" wide 8" thick (10" thick foundation wall). The base of all continuous and isolated pad footings located outside the foundation wall shall be at or below the frost line (12" minimum). Drains shall be provided around concrete and masonry foundations that retain earth and enclosed habitable or usable space just below grade.

31. **R403.1.8** Provide an uncoated #4 reinforcing bar not less than 3" from the bottom of footing and not less than 20' in length encased with a minimum of 2" of concrete and at least 12" above the floor plate line (UFER Ground).

32. **R403.1.6 & R602.11** Install ½" diameter anchor bolts embedded a minimum of 7" into concrete or masonry at 6' on center maximum including interior braced wall lines. Two bolts are required for each plate and must be located between 3½"-12" from ends. 3' x 3' sq. x .229 thick plate washers are required. Anchor bolt spacing for 2-story structures in D_2 shall be at maximum 4' on center.

33. **R405** Drains shall be provided around concrete or masonry foundations retaining earth and enclosing habitable or useable space.

34. **R406** Foundations enclosing habitable or useable space shall be damp-proofed in an approved manner. Areas with a high water table or severe soil-water conditions shall be water-proofed.

35. **R408** Provide underfloor ventilation at 1 sq. ft./ 150 sq. ft. of underfloor space. Minimum openings shall be within 3' of each corner and shall provide cross ventilation.

36. **R408.4** Access to all underfloor spaces shall be provided by either a minimum 18" x 24" unobstructed access opening through the floor or 16" x 24" unobstructed perimeter foundation wall opening.

FLOORS

37. **R502.4** Joists parallel and under bearing partitions shall be doubled - or provide a beam/girder of adequate size.

38. **R502.6** Ends of joists, beams and girders shall have not less than 1½" bearing on wood or 3" bearing on concrete/masonry. Joists meeting over a bearing support shall lap 3" min. and be nailed together with three 10d nails.

39. **R502.8** Drilling and notching of joists and beams shall not exceed code specifications. If questions arise, contact inspector. Engineered products shall not exceed manufacturer's limitations.

40. **R506** Concrete slab-on-grade floors in conditioned areas shall be a min of 3½" thick, over 6 mil polyethylene or approved vapor retarder, lapped 12" at joints (or an approved equal), placed on a min. 4" base course of sand or gravel. Insulation required. See Table 1101.1(1) & N1104.7. Consult inspector for exceptions.

WALL CONSTRUCTION

41. **R602.3.2 Table 602.3(1) & 602.11.2** Double top plates shall be offset at splices a minimum of 24" and nailed with eight 16d nails (4 per side) for braced wall lines <25' and twelve 16d nails (6 per side) for braced wall lines >25'.

42 **R602.6** Notching of exterior or bearing walls shall not exceed 25% of its width and drilled or bored holes shall not exceed 40% of its width; non-bearing walls may be notched a maximum of 40% and drilled or bored holes shall not be more than 60% of its width. The hole shall not be closer than 5/8" to edges. See Fig R602.2 (1) & Fig R602.2 (2)

43. **R602.6.1** Notching of top plates in exterior or bearing walls greater than 50% requires a minimum 1½" wide 16 gauge steel splice across notch opening with eight 10d nails, minimum 1½" long, on each side of notch. See Fig R602.6.1

44. **R602.8 & R302.11.1** Provide fire blocking as required. Materials may be 2" nominal solid wood; ¾" sheathing with joints backed with ¾" material or two thicknesses of 1" lumber with broken lap joints; 1/2" sheetrock; ¼" cement based millboard; or unfaced, securely packed insulation extending 8" above and below obstruction.

45. **R602.9** Foundation cripple walls shall be framed of studs not smaller than the studding above. Cripple walls greater than 4' high shall have studs sized to support the additional story. Cripple walls less than 14" at exterior walls or interior braced wall lines shall be sheathed on one side from top plate to bottom plate.

46. **R602.10** Buildings shall be braced in accordance with Sec R602.10 or when applicable R602.12. When a building or portion thereof does not meet the requirements of these sections those portions shall be designed and constructed in accordance with section R301.1

WALL COVERING

47. **R703.1** General. Exterior walls shall provide the building with a weather-resistant exterior wall envelope and a means of draining water that enters the assembly to the exterior. Protection against condensation in the exterior wall assembly shall be provided in accordance with Chapter 11 of this code.

R703.1.1 Exterior wall envelope. The exterior wall envelope shall be installed in a manner that water that enters the assembly can drain to the exterior. The envelope shall consist of an exterior veneer, a water-resistive barrier as required in Section R703.2, a minimum 1/8 inch (3 mm) space between the water- resistive barrier and the exterior veneer, and integrated flashings as required in SectionR703.8. The required space shall be formed by the use of any non-corrodible furring strip, drainage mat or drainage board. The envelope shall provide proper integration of flashings with the water-resistive barrier, the space provided and the exterior veneer. These components, in conjunction, shall provide a means of draining water that enters the assembly to the exterior. (See Exceptions for additional options.)

48. **R703.8.4.1 and R703.8.4.1.1** Masonry veneer ties, if strand wire, shall be not less in thickness than #9-gauge wire and shall have a hook embedded in the mortar joint, or if sheet metal, shall be not less than No. 22 U.S. gage by 7/8" corrugated. Ties shall be spaced at maximum 32" on center horizontally and 24" on center vertically. Additional ties shall be provided around openings greater than 16" in either dimension and be spaced not more than 3' on center and placed within 12" of the wall opening. Inspections are required for installations over 4' in height**.**

49. **R703.4** Provide flashing above window & door openings, at horizontal to vertical intersections, and in compliance with manufacturer installation instructions.

ROOF-CEILING CONSTRUCTION

50. **R802.10** Wood trusses shall be designed, manufactured, and installed, to comply with approved standards. Truss design drawings shall include the information required by R802.10.1 and be supplied to the building official and approved prior to installation. Complete truss specifications shall be provided at time of delivery and remain on the job-site with the approved plan until final inspection. Trusses shall be braced according to R802.10.3. Approved truss tie-down devices shall be installed as required in Section R802.11.

51. **R806.2** Enclosed attics, to include rafter spaces at vaulted ceilings, shall have cross ventilation of a minimum of 1 sq. ft./150 sq. ft. of attic area. 1 sq. ft./300 sq. ft. is permitted if certain conditions are met. Consult with your building inspector.

52. **R807** For attic spaces more than 30 sq ft and 30" in height provide a minimum 22" x 30" attic access opening in a readily accessible location such as hallway. A minimum of 30" headroom is required at access opening.

53. **R905.2** Install asphalt shingles in accordance with manufacturer's instructions and this section. ASTM D3462

54. **R905.3** Install clay, concrete, or listed roofing products per manufacturer's instructions and this section.

55. **R905.7 &905.8** Wood shingles/shakes shall be installed according to these sections. #1 grade shakes are required except when taper sawn.

CHIMNEY/FIREPLACE

56. The owner/general contractor shall coordinate a pre-construction planning meeting with the mason and building inspector for the construction of new masonry fireplaces - see attached details and code references.

57. **R1003.11** Existing masonry fireplaces fitted with a listed/approved fuel-burning insert shall have the masonry chimney relined with materials compatible with the type of fuel utilized per manufacturer's instructions.

58. **R1004.1 & R1005.1** Factory built chimneys and fireplaces shall be listed/approved and installed per manufactures instructions. Installation instructions shall be on job site.

59. **R1006** Provide sufficient exterior air supply to ensure proper fuel combustion.

ENERGY

60. **N1104** Exterior envelopes shall comply with Table N1101.1 (1), N1104.1(1) & Table N1101.1(2).

61. **N1104.2.1 & R806.3** Provide/install insulation baffles at eaves to maintain min. 1" clearance to vents and roof sheathing.

62. **N1104.2.8** Recessed light fixtures installed in cavities within the building envelope shall be IC rated. The trim piece shall be sealed to prevent air leakage. The fixture shall also be rated "for no more than two cubic feet air movement per minute" or be installed within an airtight box.

63. **N1104.7** Slab-on-grade floors shall be provided with rigid R-15 insulation down to a minimum of 24” or to bottom of slab then horizontally 24” under slab. - (See attached details.)

64. **N1104.8.2** Seal all joints and penetrations in the exterior envelope in a manner approved by the building official.

65. **N1104.9.1** Approved vapor barriers shall be installed on the warm side of insulation as required.

66. **N1104.9.2 & R408.1** Provide 6 mil black polyethylene ground cover lapped 12" at joints and extending 12" up foundation wall. Conditioned slabs shall have the same or equal.

67. **N1105.2, M1601.1.1 & M1601.4.1** Heating ducts outside of the bldg. envelope, including HVAC register boots, shall have min. R-8 insulation. All ducts shall be sealed with a UL listed 181 sealant as required for type of material.

MECHANICAL

68. **M1305.1, M1305.1.3 & M1305.1.4** Appliances shall be accessible for inspection, service, and replacement without altering permanent construction. A 30" x 30" working space shall be provided at all sides of the equipment that require service. Attic or crawlspace installations shall be within 20' of access opening. Said opening shall be 22” x 30” or large enough to allow removal of the largest appliance component. A 24" wide passageway shall be provided to the appliance as needed.

69. **M1305.1.3.1** A light & electrical outlet shall be provided at each appliance with switch located at access opening.

70. **M1307.1** Appliances shall be listed/labeled and installed per manufacturer’s instructions, which shall remain attached to the appliance.

71. **M1307.3** Appliances located in garages having an ignition source shall have all sources of ignition located not less than 18" above the floor.

72. **M1307.3.1** Appliances shall not be installed in a location subject to vehicular damage unless protected by approved barriers. See Fig. M1307.3.1

73. **M1401.4** HVAC equipment installed outdoors shall be listed for exterior applications and installed on an approved platform that conforms to manufacturer’s installation instructions. (“See OAR 340 Div. 262”)

74. **M1411.3** Condensate from all cooling coils or evaporators shall be conveyed from the drain pan outlet to an approved place of disposal. Condensate shall not discharge into a street, alley or other areas so as to cause a nuisance.

75. **M1502 Clothes** dryer ducts shall vent to the outdoors through min 4” rigid, smooth metal ducts with joints running in the direction of flow. Ducts shall be provided with a back draft damper. Maximum duct length shall be 35'. Note: Subtract 2.5’ for each 45° and 5’ for each 90° elbow with 4” radius bend. Exhaust duct shall terminate not less than 3’ in any direction from openings into building. Flex transition ducts shall not exceed 8’.

76. **M1503.1 & G2448.2** Range/exhaust hoods shall vent to the outdoors through a single wall, airtight duct installed with a backdraft damper.

77. **Chapter 17** Provide adequate combustion air for fuel burning equipment while maintaining the building envelope.

PLUMBING

78. **OPSC 411.2, 412.1, 420.2 & 408.2** The maximum water consumption used for new plumbing fixtures shall not exceed: Toilets - 1.6 gal./flush; Urinals - 1.0 gal./flush; Interior Faucets - 2.2 gal./min.; Showers - 2.5 gal./min.

79. **OPSC 406.1 & 402.7 Ponds**, aquaria, fountains, and similar constructions with water and/or waste connections shall be submitted for approval prior to installation and protected from backflow.

80. **OPSC 402.2 Fixtures** in contact with walls or floors, shall have joint(s) made watertight.

81. **OPSC 408.6 and 408.7** Shower stalls of any shape shall have a minimum finished interior of 1024 sq. in. and shall also be capable of encompassing a 30 inch circle. Consult the building/plumbing inspector for requirements regarding site-built shower compartments.

82. **OPSC 409.6 Whirlpool** bathtubs shall have a removable panel to access the pump. The pump shall be located above the crown weir of the trap and the pump & circulation piping shall be self-draining.

83. **OPSC 408.3 All** shower heads/control valves shall be equipped with a pressure balance or thermostatic mixing control valve set or adjusted per the manufacturer's instructions for a maximum mixed water setting of 120 degrees.

84. **OPSC 608.3 &608.5** Water heaters shall be provided with a combination pressure/temperature relief valve. The discharge pipe shall not be smaller than the outlet, shall not be trapped or threaded, and shall terminate in an approved location.

85. **OPSC 507.2 & 505.1** Water heaters installed in seismic design category C,D,E and F shall be strapped to resist horizontal displacement. Straps shall be at 1/3 points with the lower strap a minimum of 4" above the controls. Fuel burning water heaters shall not be installed in sleeping rooms, bathrooms, closets or rooms opening into these areas unless listed & labeled as direct vent appliances.

86. **OPSC 507.4** Water heaters located in attics or other location where damage may result from a leak, shall have a corrosion-resistant watertight pan installed beneath it with a minimum ¾" drain to an approved location.

87. **OPSC 603.5.7** Hose bibs shall be protected with a listed non-removable frost-proof backflow preventer.

88. **OPSC 608.1 & 608.2** The minimum water pressure after allowing for friction and other pressure losses is 15 psi. Approved pressure regulators shall be installed, with strainers, when the water pressure could exceed 80 psi.

89. **OPSC 707 & 719** Cleanouts shall be installed as required. - (Consult inspector.)

90. **OPSC 908 Vertical** wet venting is allowed under certain circumstances. - (Consult inspector.)

91. **OPSC 909 Island** venting shall be installed as required. - (Consult inspector.)

92. **OPSC 1101.3 – 1101.6.2 Storm**/rain drains shall be ABS Schedule 40, Schedule 40 PVC DWV, or other approved materials. They shall not interconnect with subsurface sewage systems, foundation drains, or footing drains. If rain drains are interconnected with underfloor drainage pipe, an accessible backwater valve shall be installed. The connection shall be located at midpoint of driveway or other pre-approved location. Pipe shall be properly bedded or supported, sloped a minimum ¼" per foot, and be installed with an 18-gauge continuous tracer wire.