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Residential Final Inspection

This checklist reflects code requirements of the 2018 International Residential Code (IRC), 2018 Uniform Plumbing Code (UPC), 2018 International Fire Code (IFC), 2020 National Electrical Code (NEC), Washington State Amendments as adopted by the State Building Code Council (SBCC), Washington State Energy Code (WSEC), and Title 14 of the Kitsap County Code. It incorporates most inspected items for the inspection type, but it does not include every possible condition or code requirement. The intended users of this checklist are Kitsap County Building Inspectors, but it may also serve as a guide to contractors and permit holders.

References to the IRC are indicated by: R = Residential; M = Mechanical; G = Gas

Permits and Plans

- Permit and approved plans are on site and accessible to the inspector. All documentation must be legible. (R105.7, R106.1.1, R106.3.1)
- The final letter from the special inspection agency (if applicable) has been submitted.
- Note corrections left from current or prior inspections which need to be addressed at this time. Ensure all previously required inspections are approved. (R109.4)
- FEMA elevation certificate by licensed surveyor for construction in flood hazard areas is complete and submitted (see jurisdiction for details.) (R106.1.4)
- When an irrigation system is installed check to see that a backflow prevention device has been properly installed and approved.
- Obtain third party approved test reports for backflow devices at required locations, such as irrigation systems, non-flow through fire sprinklers, boilers. (UPC 603.2)
- When a separate sewer or septic permit is required, confirm that it has been signed off by the authority having jurisdiction.
- Confirm that all plumbing fixtures are included in over the counter (OTC) and electronic permits.
- The duct test report required by the 2018 WSEC must be on site and completed by a qualified technician. (R104.4) (R403.3.3) (WSU RS-33)

Exterior

House numbers are plainly visible legible from the street or road fronting the property. Each character is minimum 4 inches in height and of contrasting color. (R319.1)

- All exterior windows, penetrations, and openings caulked. (WSEC R402.4.1.2; R703.1.1)
- Masonry chimney terminations are 2 feet above any roof/structure within 10 feet and not less than 3 feet above the highest point where the chimney passes through the roof. (R1003.9)
- Spark arresters installed on top of chimney. (R1003.9.2)



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- Wood siding has a minimum clearance of 6 inches from the ground and not less than 2 inches from concrete and similar horizontal surfaces (R317.1, Item 5). All other siding, reference the manufacturer's installation instructions or applicable code section.
- The grade at the foundation falls away from the building a minimum of 6 inches within the first 10 feet. A minimum slope of 5% is required where less than 6 inches fall in 10 feet. If using swales maintain a minimum 2% slope. (R401.3)
- Insulation applied to the exterior of basement walls, crawlspace walls and the perimeter of slab-on-grade floors shall have a rigid, opaque and weather-resistant protective covering to prevent the degradation of the insulation's thermal performance. The protective covering shall cover the exposed exterior insulation and extend a minimum of 6 inches below grade. (WSEC 303.2.1)
- Carports that are not open on at least two sides will be inspected as garages and all fire separation requirements will apply. (R309.2)
- For exterior stairs and handrails, see the Stairs and Handrails section.

Decks and Walkways

- Verify that deck placement, setback, size and materials are per approved plans. (R507.1)
- Deck is positively attached and supports both lateral and live loads (60 pounds per square foot minimum) (R301.5, R507.8)
- All deck material treated or naturally resistant to decay. Cuts, notches, and holes are treated with preservative. (R317.1, R317.1.1, R317.1.2, R317.1.5, R317. 2)
- Fasteners and hardware for pressure preservative and fire-retardant-treated wood shall be of hot-dipped galvanized steel, stainless steel, silicon bronze or copper. (R317.3, R317.3.1, Manufacturer's Installation Instructions)
- Joists can be untreated if approved weatherproof decking membrane is used. Note: soffits allowed when ventilated. (R317.1.3, R507.2.2, R507.2.4)
- Ledger for decks bolted/lagged to structure in accordance with IRC Table 507.2.3 or per approved plan. (R507.2.3).
- Deck lateral connections require a minimum (2) 1,500 pounds hold-down tension devices, installed in not less than two locations (ends) per deck, installed and connected to interior parallel joists per IRC Figure 507.9.2(1). Alternatively, not less than (4) 750 pounds hold-down tension devices shall be installed per deck as depicted in IRC Figure 507.9.2(1) and IRC Figure 507.9.2(2). Exception: Decks less than 30 inches above grade. (R507.9.2)
- Cantilevered joists supporting exterior balconies shall be blocked at the supported end. (IRC Table R502.3.3(2), Note 'e')
- Bottom of footings are minimum 12 inches below grade for freeze protection. (R301.2, R403.1.4)
- Where a deck is more than 30 inches measured vertically to the floor or grade below at any point within 36 inches horizontally to the edge of the open side, a guard is installed. (R312.1.1)



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- For deck stairs and handrails, see the Stairs and Handrails section.

Interior

- Verify the LNI electrical permit is approved and Finalled. Confirm LNI sticker on electrical panel.
- Single family garages are separated from the residence and its attic area by not less than 1/2-inch gypsum board applied to the garage side. Garages beneath habitable rooms shall be separated from all habitable rooms above by not less than 5/8-inch Type X gypsum board or equivalent. Structures supporting a floor/ceiling assembly are protected by minimum 1/2-inch gypsum board or equal. (IRC Table R302.6)
- Garage door to house is weather-stripped. (WSEC R402.2.4)
- The primary heat source shall not be a woodstove. Any woodstove or pellet stove must be EPA certified. (R303.10.2, R303.10.3, WA Amendment)
- Ducts in garages which penetrate the walls or ceilings separating the dwelling from the garage shall be constructed of a minimum No. 26 gage sheet metal and can have no openings into the garage. (R302.5.2)
- Other penetrations through garage walls and ceilings are filled with approved material to resist free passage of flame and smoke. (R302.5.3, R302.11, Item 4)
- Solid wood doors not less than 1-3/8 inches in thickness, solid or honeycomb-core steel doors not less than 1-3/8 inches thick door, or 20-minute fire-rated doors, equipped with a self-closing device or automatic-closing device is installed between house and garage. (R302.5.1)
- A permanent certificate shall be completed by the builder or other approved party and posted on a wall in the space where the furnace is located, a utility room, or an approved location inside the building. The certificate shall list the predominant R-values of insulation installed in or on ceiling/roof, walls, foundation (slab, below-grade wall, and/or floor) and ducts outside conditioned spaces; U-factors for fenestration and the solar heat gain coefficient (SHGC) of fenestration; the results from any required duct system and building envelope air leakage testing done on the building; and the results from the whole-house mechanical ventilation system flow rate test. (WSEC R401.3)
- The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding 5 air changes per hour. Testing shall be conducted with a blower door at a pressure of 0.2 inches w.g. (50 Pascals). 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 code official. (WSEC R402.4.1.2)
- Verify how the dwelling complied with the options from WSEC Table R406.2 to achieve the following minimum number of credits:
 1. Small Dwelling Unit: 3.0 credits - Dwelling units less than 1500 square feet in conditioned floor area with less than 300 square feet of fenestration area. Additions to existing building greater than 500 square feet of heated floor area but less than 1500 square feet.
 2. Medium Dwelling Unit: 6.0 credits - All dwelling units that are not included in 1, 3, or 4.
 3. Large Dwelling Unit: 7.0 credits - Dwelling units exceeding 5000 square feet of conditioned floor area.



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- 4. Dwelling units serving R-2 occupancies: 4.5 credits
- 5. Additions less than or equal to 500 square feet: 1.5 credits

Attics

- Attic access required to areas exceeding 30 square feet and which have a vertical height of 30 inches or greater. (R807.1)
- Accesses shall be in hallways or other readily accessible location. (R807.1)
- Attic access has an unobstructed opening not less than 22 inches by 30 inches or large enough to remove the largest piece of mechanical equipment intact. (R807.1, M1305.1.3)
- Access door insulated and gasketed at insulated ceilings and surrounding curb is minimum 12 inches in height. (WSEC R402.2.1.1, WSEC R402.2.4)
- The thickness of blown-in or sprayed roof/ceiling insulation (fiberglass or cellulose) shall be written in inches on markers that are installed at least one for every 300 square feet throughout the attic space. The markers shall be affixed to the trusses or joists and marked with the minimum initial installed thickness with numbers a minimum of 1-inch in height. Each marker shall face the attic access opening. Spray polyurethane foam thickness and installed R-value shall be listed on certification provided by the insulation installer. (WSEC R303.1.1.1)
- Blow-in insulation has not filled/blocked baffles. Maintain a minimum 1-inch clearance between the roof sheathing and insulation. (R806.3, WSEC R402.2.1.1)
- Blow in insulation must have a 1-inch clearance to gas fired exhaust vents or as required by the manufacturer's installation instructions.

Crawl Space

- Floor crawl access 18 inches by 24 inches minimum. (R408.4)
- Openings through a perimeter wall to crawl shall be 16 inches by 24 inches minimum. (R408.4)
- Ventilation at crawl space unobstructed by insulation. (WSEC R402.2.7)
- Venting at crawl as shown on plan minimum 1 square foot for every 300 square feet of floor area. (R408.1, R408.2)
- Vapor barrier (black 6 mil. plastic or approved equal) covers the crawl completely, wall-to-wall, with all seams lapped 6 inches and extended to the foundation wall. (R408.1)
- R-30 insulation is installed against bottom of floor and secured in place. (WSEC Table R402.1.1, WSEC R402.2.7)
- Pressure treated wood posts installed at basements or cellars or supported by piers or metal pedestals projecting 1 inch above floor or finished grade and 6 inches above exposed earth and separated by an approved impervious moisture barrier. (R317.1.4, Exception 1)



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□ Pressure treated wood posts installed in crawlspaces or unexcavated areas, supported by a concrete pier or metal pedestal 8 inches above exposed earth and separated by an approved impervious moisture barrier. (R317.1.4, Exception 2)

□ Remove all debris from the crawl space. (R408.5)

□ Floors constructed of lumber less than 2 by 10-dimensional lumber to be fire protected on the underside where a crawl space is used is for storage or contains fuel burning appliances or equipment. (R302.13)

□ Where required, flood resistant construction in flood hazard areas (e.g., treated/water resistant materials, flood vents, etc.) shall be used. (R322)

Stairs and Handrails

□ Stair riser/tread maximum dimension does not exceed the smallest by more than 3/8 inch. (R311.7.5.2)

□ Not less than 6-foot 8-inch clearance for headroom is maintained at stairs, measured vertically from the sloped line adjoining the tread nosing or from the floor surface of the landing or platform on that portion of the stairway. (R311.7.2)

□ All stairs are provided with illumination, and light switch at each floor level of 6 or more risers. Exterior stairway lighting is to be controlled from within the building. (R303.7, R303.8)

□ Nosing's at treads have projections between 3/4-inch and 1-1/4 inches are required when solid risers are installed, except when the tread depth is 11" minimum. (R311.7.5.3)

□ Open risers do not allow passage of a 4-inch sphere, except stairs with a rise of 30 inches or less. (R311.7.5.1)

□ Radius of curvature at the leading edge of the tread is not over 9/16-inch. (R311.7.5.3)

□ The greatest nosing projection does not exceed the smallest by more than 3/8-inch. (R311.7.5.3)

□ Stair risers are maximum 7-3/4 inches, treads are minimum 10 inches. (R311.7.5)

□ Stair riser/tread maximum dimension does not exceed the smallest by more than 3/8-inch. (R311.7.5.1)

□ Guards do not allow passage of a 4-inch sphere. (R312.1.3)

□ Guards installed at the sides of stairs do not allow the passage of a 4-3/8-inch sphere. (R312.1.3, Exception 2)

□ Guards adjacent to floor surfaces over 30 inches from adjacent floor or grade are a minimum 36 inches height measured from floor/grade to the top of the guard. (R312.1.2)

□ Triangle formed by riser, tread, and bottom element of guardrail does not allow passage of a 6-inch sphere. (R312.1.3, Exception1)

□ Open sides of stairs with a total rise of 30 inches above the floor or grade below have guards a minimum 36 inches in height when measured vertically from the stair nosing to the top of the guard. (R312.1.2)

□ Handrails and guards are capable of withstanding 200 pounds applied in any direction at any point on the rail. (IRC Table 301.5)

□ Handrails are installed on stairs with 4 or more risers. (R311.7.8)



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□ Handrails are installed 34 inches minimum and 38 inches maximum, measured vertically from the sloped plane adjoining the tread nosing or finish surface of ramp slope. (R311.7.8.1)

□ Type I handrails.

1. With circular cross sections 1-1/4 inches to 2 inches diameter. (R311.7.8.5, Item 1)

2. With noncircular cross sections have a perimeter dimension of 4 inches to 6-1/4 inches with a maximum cross section of 2-1/4 inches. (R311.7.8.5, Item 1)

□ Type II handrails.

1. With perimeters greater than 6-1/4 inches require a graspable finger recess area on both sides of the profile. The minimum and maximum width above the recess is 1-1/4 inches to 2-3/4 inches. (See applicable section for details.) (R311.7.8.5, Item 2)

□ Handrail returns to wall or newel post/safety terminals maximum 4-1/2 inches off wall with minimum 1-1/2 inches clear space from inside of rail to wall. (R311.7.8.3.2, R311.7.8.3, R311.7.8.3.4)

Smoke Alarms/Automatic Sprinkler Systems

□ Smoke alarms are required as for new dwellings when interior alterations, repairs or additions requiring a building permit occur. See applicable exceptions. (R314.2.2)

□ Alarms are interconnected and hard wired unless the area of work does not result in the removal of interior wall or ceiling finishes exposing the structure unless there is an attic, crawl space, or basement available which could provide access for the hard wiring. Physical interconnection of smoke alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm. (R314.4)

□ Smoke alarms at every floor level, in each bedroom, and in hallways serving bedrooms. (R314.3, NFPA 72)

□ Smoke alarms shall be listed and installed in accordance with the provisions of this code and the household fire warning equipment provisions of NFPA 72. (R314.1)

□ Carbon monoxide detectors shall be installed at every floor level and adjacent to sleeping areas. (R315.3)

□ Final inspection for automatic sprinkler system (where required) approved prior to building final.

Windows and Glazing

□ Bedroom windowsills are not more than 44 inches from floor to bottom of window opening. Windows have a clear opening of 5.7 square feet minimum, 20 inches minimum in width, and 24 inches minimum in height. Grade floor openings may have a minimum 5 square feet clear opening. (R310.2.1, R310.2.2)

□ Emergency escape and rescue openings must be operational from the inside without the use of keys, tools, or special knowledge. (R310.1.1)

□ Safety glazing installed in hazardous locations is marked with type and thickness. Mark is acid etched, sandblasted, ceramic-fired, embossed or made by other permanent means. (R308.1)

□ Safety glazing is installed at hazardous locations (R308.4):



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1. Glazing in swinging doors except jalousies.
2. Glazing in fixed and sliding panels of sliding door assemblies and panels in sliding and bifold closet door assemblies.
3. Glazing in storm doors.
4. Glazing in all unframed swinging doors.
5. Glazing in doors and enclosures for hot tubs, whirlpools, saunas, steam rooms, bathtubs and showers. Glazing in any portion of a building wall enclosing these compartments where the bottom exposed edge of the glazing is less than 60 inches above any standing or walking surface.
6. Glazing in fixed or operable panels adjacent to a door where the nearest vertical edge is within a 24 inches arc of either vertical edge of the door in a closed position and where the bottom exposed edge of the glazing is less than 60 inches above the walking surface. Except where there is an intervening wall or partition between door and glazing or where the door accesses a closet 3 feet or less in depth.
7. Glazing in an individual fixed or operable panel, when **all** of the following apply:
 - 7.1 Exposed area of an individual pane greater than 9 square feet
 - 7.2 Bottom edge less than 18 inches above the floor.
 - 7.3 Top edge greater than 36 inches above the floor.
 - 7.4 One or more walking surfaces within 36 inches horizontally of the glazing.Exception: Where a protective 1-1/2 inches wide bar is installed on the accessible side of the glazing 34 inches to 38 inches above the floor and capable of withstanding a load of 50lbs per linear foot.
8. Glazing in railings regardless of area or height above a walking surface. Includes structural baluster panels and nonstructural in-fill panels. (R308.4.4)
9. Glazing in walls and fences enclosing indoor and outdoor swimming pools, hot tubs and spas where the bottom edge of the glazing is less than 60 inches above a walking surface and within 60 inches horizontally of the water's edge. (R308.4.5)
10. Glazing adjacent to stairways, landings and ramps within 36 inches horizontally of a walking surface when the exposed surface of the glass is less than 36 inches above the plane of the adjacent walking surface. (R308.4.6)
11. Glazing adjacent to stairways within a 60-inch arc horizontally of the bottom tread of a stairway less than 180 degrees from the bottom tread nosing, when the exposed surface of the glass is less than 36 inches above the nose of the tread. Exception: When the side of stair, landing or ramp has a guard or handrail with balusters or in-fill panels and the plane of the glass is more than 18 inches from the railing. (R308.4.7)

Plumbing



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- Plumbing vents shall extend at least 6 inches above the roof and to be 10 feet away or 3 feet above windows that open. When doing a walk through, look down on the roof below and check for test plugs left in the vent pipes. (UPC 906)
- All hose bibs shall have non-removable vacuum breakers of a self-draining type. Exterior hose bibs to have integral vacuum breakers and to be frost proof and caulked and secured at exterior walls. (UPC 312.8, UPC 603.5.7)
- Check water pressure at any hose bib to verify that it is 80 psi or less. If it is greater than 80 psi, a pressure-reducing valve is required. (UPC 608.2)
- Hot water heaters shall meet first hour demand requirements. Non-storage water heaters shall meet those requirements and shall be capable of delivering hot water at the maximum system demand flow. (UPC Table 501.1(2)), as amended by Washington State)
- Temperature and pressure relief valve to be installed per manufacturer's instructions or listing. (UPC 505.2)
- The drain from the relief valve must be able to drain by gravity. No part of drain to be trapped. (UPC 608.5 as amended by Washington State)
- The pipe for the drain to be hard and full sized, no flex connectors or PEX piping. (UPC 608.5)
- The drain needs to terminate outside the building 6 inches to 24 inches above grade and shall have a soldered/glued on elbow as needed to direct the flow toward the ground or shall terminated at an approved drain. It may not be directly connected to a sanitary sewer. Retrofit water heaters may discharge 6 inches to 24 inches off the floor when a relief drain is not available. (UPC 608.5 as amended by WA State)
- Seismic strapping will be installed per Construction Tip Sheet 7, Water Heaters. Two straps, 1 in lower 1/3 and 1 in upper 1/3 and 3/4-inch wide. Straps to be 22-gauge metal with strap ends lag bolted onto two different studs. (UPC 507.2)
- A water heater when installed in the normal path of a vehicle requires protection in the form of a wheel stop, bollard or by elevating. (UPC) 507.13.1)
- Water heaters in attics, attic-ceiling assembly, floor-ceiling assembly, or floor-subfloor assembly where damage may result from a leaking water heater, a watertight pan of corrosion resistant material shall be installed with a 3/4-inch drain that is piped to an approved location. (UPC 507.5)
- Expansion tanks and combination temperature and pressure-relief valves. A water system provided with a check valve, backflow preventer or other normally closed device that prevents dissipation of building pressure back into the water main, independent of the type of water heater used, shall be provided with an approved, listed and adequately sized expansion tank. (UPC 608.3)
- When a mechanical room has a floor drain or a standpipe to receive discharge from a condensate drain or water heater relief drain, a trap primer is required. The trap primer valve is accessible. Check to see that it is working by verifying water is in the trap. (UPC 1007)
- Run water at all fixtures and check for leaks. (UPC 105.2) The water temperature shall be limited to 120 degrees Fahrenheit for showers and bathtubs (UPC 408.3, UPC 409.4) and 110 degrees Fahrenheit (UPC 410.3 for Bidets) by a device that complies with ASSE 1070/ASME A112.1070/CSA B125.70.



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- Fuel fired water heaters can't be installed in a room used as a storage closet. A water heater installed in a bedroom or bathroom needs to be installed in a sealed enclosure so that combustion air will not be taken from the living space. Direct-vent water heaters are not required to be installed within an enclosure. (G2406.2; UPC 504.1)
- Hot water at a temperature exceeding or equal 100-degree Fahrenheit. (Washington State UPC Amendment 210).
- Fixture hot water control located on the left-hand side of the fixture or per manufacturer's installation instructions. On soaking tubs, the hot water control is required on the left side as seen from inside of the tub. (UPC 417.5)
- Handheld sprayers at soaking tub valves shall default to the spout or be protected by an approved backflow device. (UPC 602.1 & 602.3)
- Motors on jetted tubs require access. (UPC 409.6)
- All fixtures caulked watertight. (UPC 402.2)
- Water closets require a minimum 21 inches clear space in front and 15 inches measured from the centerline of toilets to the finished wall on either side. (WA Amendment UPC 402.5)
- Shower door openings require a minimum 22 inches clear opening. (UPC 408.5)
- No underfloor cleanout to be located more than 20 feet from a crawl access door or trap door. (UPC 707.9 as amended by WA State Amendments)

Mechanical

Garages

- In garages, the source of ignition on gas appliances (water heaters, furnaces, and dryers) must be a minimum of 18 inches above the floor unless listed as flammable vapor ignition resistant (FVIR). (M1307.3) (G2408.2)
- In garages, exposed ducts to be a minimum of 26-gauge sheet metal or other approved material with no openings into garage. (R302.5.2)
- All ducts in attic, garage, crawl space, or other unconditioned spaces, insulated with minimum R-8. (WSEC R403.3.5)
- In garages, bollard or wheel stop required if equipment is subject to mechanical damage. This is commonly interpreted as equipment within the vehicle path, as determined by the garage door opening. (M1307.3.1)

Gas Piping

- Where wet gas exists, a drip shall be provided at any point in the line of pipe where condensation could collect. A *drip* shall be provided at the outlet of the *meter* and shall be installed so as to constitute a trap wherein an accumulation of *condensate* will shut off the flow of gas before the *condensate* will run back into the *meter*. (G2419.2)



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- Drips shall be provided with ready access to permit cleaning or emptying. A drip shall not be located where the condensate is subject to freezing. (G2419.3)
- Where a sediment trap is not incorporated as part of the appliance, a sediment trap shall be installed downstream of the appliance shutoff valve as close to the inlet of the appliance as practical. The sediment trap shall be either a tee fitting having a capped nipple of any length installed vertically in the bottommost opening of the tee or other device approved as an effective sediment trap. Illuminating appliances, ranges, clothes dryers, decorative vented appliances for installation in vented fireplaces, gas fireplaces and outdoor grills need not be so equipped. (G2419.4)
- Unions or flex connectors are installed between shut-off valve and appliance. (G2422.1.4) (G2422.1)
- Unions or flex connectors shall not be concealed within or extend through a wall, floor, partition or appliance housing. (G2422.1.2.3)
- One flex connector up to 6' long is allowed on each appliance. (G2422.1.2.1)
- A shut-off valve is required in for each appliance, upstream of union and accessible. (G2420.5)
- Steel Pipe Support: (Table G2424.1) o 1/2-inch pipe supported every 6 feet
 - o 3/4 inch – 1 inch support every 8 feet
 - o 1-1/4 inch or larger support every 10 feet
 - o 1-1/4 inch or larger (vertical) support at every floor level. CSST per manufacturer.
- Piping shall not be installed in or through a ducted supply, return, supply or exhaust, or clothes chute, chimney or gas vent, ventilating duct, dumbwaiter or elevator shaft. Piping installed downstream of the point of delivery shall not extend through any townhouse unit other than the unit served by such piping. (G2415.3)
- Vent piping for relief vents and breather vents must be vented directly, and independently to the outdoors. Vent piping for breather vents only can be connected to manifold arrangement where sized in accordance with an approved design (manufacturer installation instructions. The vent must be designed to prevent the entry of insects, water and foreign objects). (G2421.3.1.)

Appliance Vents

- Gravity venting system of equivalent area to the vent collar on the appliance. Performance standards can reduce the vent size. (G2428.2.2)
- Single wall vents or B vents connecting to flue collars or draft hoods shall be connected by screws or secured as recommended by the manufacturer. (M2427.10.6)
- Vents connected to common vent system within the same story require inlets to be at the highest level consistent with headroom and clearance to combustibles. Vent system area cannot be less than the area of the largest vent plus 50% of the smaller flue collar added. (G2427.10.3.4)



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- Offsets in gravity vents installed with as many offsets as required that do not exceed 45 degrees from vertical, except no more than one of 60 degrees is allowed and horizontal runs don't exceed 75% of the vertical height of the venting system. (G2427.6.9.2)
- Vent connectors serving Category 1 appliances are not connected to any portion of a mechanical draft system operating under positive pressure. (G2427.10.4)
- Gas vents less than 12 inches in diameter in roofs with pitches less than or equal to 6/12 can terminate a minimum of 12 inches above the roof if such vents are at least 8 feet from a vertical wall or similar obstruction. See Figure G2427.6.4 for distances from vertical objects including roof pitch. (G2427.6.4)
- Vent clearances to combustibles per manufacturer's listing or performance standards. (M1803.3.4) (M1306.2) (G2427.7.8)
- Single wall vents shall not penetrate a wall, floor or ceiling without a thimble and piping limited to the space the equipment is located to the roof or exterior wall. (M1803.3.1) (G2427.7.7)
- Vent terminations installed per the manufacturer's listing. (M1804.2) (G2427.6.2)
- Mechanical draft venting systems shall be installed in accordance with their listing, and: terminate not less than 4 feet below or 4 feet horizontally from, and not less than 1 foot above a door, an operable window or a gravity air inlet into a building, nor within 10 feet of a forced air intake nor within 12 inches above grade. (M1804.2.6)
- Where vents extending into an attic pass through insulated assemblies, an insulation shield of 26 gage sleeve not less than 2 inches above the insulation to be secured in place and maintain required clearances to combustibles. (G2426.4)
- Direct vent terminations. See manufacturer's installation instructions (M1804.2.5)
- Vent connector clearance to combustibles installed per Table G2427.10.5.
- Single wall connectors do not originate in an attic or concealed space or pass through an attic, inside a wall or concealed space. (G2427.7.6)
- When a vent connector of a gas appliance with a draft hood is located within or passes through a cold area, that portion of the connector is a type B or type L vent. (G2427.10.2.2)
- Type B vent chimneys supported above the roof per manufacturer's requirements. (G2427.6.9)
- Type B or L vents terminate at least 5 feet in vertical height above the highest connected equipment draft hood or flue collar. (G2427.6.5)

Furnace

- Furnace and Air Handler minimum working space is 30 inches wide and 30 inches deep on the control side of an appliance, except replacement appliances. (M1305.1)
- Maintain required clearances to combustible construction as specified in the listing. (M1402.2) (M1306.1)



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- Clearance from grade: Equipment supported on concrete pad or approved material extending a minimum 3 inches above the adjoining ground. (M1305.1.1)
- Condensate lines are required to drain by gravity to an approved drain or condensate pump. (G2427.9; M1411.3). Secondary condensate disposal provided per M1411.3.1.
- Condensing Appliances: Vent per installer’s instruction. (G2427.8, Item 4)
- Seal ducts to prevent leaks (WSEC R403.3.2) and test per RS-33 (WSEC R403.3.3) unless located entirely within the conditioned space of the building.

Whole House Ventilation

- Each dwelling unit shall be equipped with a ventilation system. The whole-house mechanical ventilation systems shall be designed in accordance with Sections M1505.4.1 through M1505.4.4. The whole-house ventilation system shall operate continuously at the minimum ventilation rate determined per Section M1505.4.2 unless configured with intermittent off controls per Section M1505.4.3.2.

Range Cooktop

- Distance above top of cook top to unprotected combustible material not less than 30 inches and 24 inches if exceptions are met. (M1901.1, G2447.5)
- Clearance to adjacent combustibles surfaces per the manufacturer’s installation instructions. (M1901.2, G2447.1)

Fireplace

- Factory built fireplaces certified, listed and labeled. Tested and certified to WA. St. Bldg. Code standard 31-2. Testing performed by WA ST. DOE, and US. EPA accredited laboratory. (R1004.1.1, WA State Amendment)
- Certified Masonry and Concrete fireplaces, and heaters - tested and certified to WA. St. Bldg. Code standard 31-2. Testing performed by WA ST. DOE, and US. EPA accredited laboratory. (R1004.1.2, WA State Amendment)
- Solid Fuel burning appliances and fireplaces – tight fitting metal / ceramic doors, and certified to test No. 11-Negative pressure test, Section 12.3, of ULCS627-M1984 for outside combustion air–duct 4 inches min., and 20 feet max. length. (R1006.6, WA State Amendment)
- Hearth extensions are to be readily distinguishable from the surrounding floor and in accordance with the fireplace listing. (R1004.2)
- Installed per manufacturer’s installation instructions when installed in a solid fuel burning fireplace. (Decorative Gas Fireplace) (G2432.1)
- Appliance shutoff valves shall be located in the same room, and within 6 feet of the appliance. Appliance shutoff valves located in fireplace firebox shall be installed per the appliance manufacturer’s instructions. Shutoff valves for vented decorative appliances and room heaters shall be permitted to be installed in a remote area from the appliance where such valves are provided with ready access, permanent identification, and serve no other appliance. Shutoff valve installed at a manifold–within 5 feet of appliance, but other requirements apply, as above. (G2420.5.1; G2420.5.3)



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- Decorative shrouds used at chimney terminations are to be listed and labeled for use with specific chimney system. (R1004.3; R1005.2)
- Gas logs in solid fuel burning fireplace are installed per manufacturer's instructions. (G2432.1)
- Gas logs, when equipped with a pilot, have a listed safety shutoff valve. (G2432.2)

Laundry Room

- A 4-inch metal dryer exhaust duct is installed with smooth interior. Install per the manufacturer's instructions. (G2439.7.1; M1502.4.1)
- Approved flexible listed metal duct connector up to 8 feet long, may connect the dryer to the vent, but may not extend into wall, floor or ceiling. (G2439.7.3; M1502.4.3)
- Minimum 100 square inches of makeup air for closets designed for the installation of clothes dryers that exhaust more than 200 CFM. (G2439.5)
- Two methods for determining dryer duct length:
 - 1) Exhaust duct does not exceed 35 feet. Deduct 2.5 feet for each 45-degree elbow and 5 feet for each 90-degree bend. This does not include the transition duct from the dryer to the outlet terminal.
 - 2) Max. length determined by the manufacturer's installation instructions when make and model of dryer are provided to the code official at rough in. (M1502.4.5; G2439.7.4, Exception.)

Crawlspace and Attic

With limited exceptions all new duct work that is subject to installation under the 2018 WSEC is required to be installed within the conditioned space. Verify on the permit what code cycle will be used for the inspection.

- Flex duct is supported per manufacturer's installation instructions (a maximum of every 4 feet) and is installed without kinks or tight bends. (M1601.4.4; SMACNA Standards)
- Ducts in crawl spaces are supported at least 4 inches above the ground. (M1601.4.8) or conform to (M1601.1.2)
- Ducts, boots, and connectors used for heating or cooling insulated to R-8 (WSEC R403.3.1).
- Insulate all exhaust ducts in unconditioned spaces with R-8 (bathroom, range, etc.) (WSEC R403.3.1)
- When equipment is installed in a crawl or attic space, a light switch and outlet is required at or near appliance (M1305.1.4.3; M1305.1.2.1)
- Verify that the passageway of continuous solid flooring not less than 24 inches wide from attic access to 30 inches wide work platform in front of furnace has been installed. (M1305.1.3; M1305.1.2)
- Access opening large enough to remove largest piece of equipment, but not less than 30 inches by 22 inches. (M1305.1.3; M1305.1.2)
- Access opening not more than 20 feet from equipment. (M1305.1.3, M1305.1.2)



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General

- Protect exterior gas piping from corrosion. (G2415.9) (G2415.11)
- Appliances installed in outdoor locations—listed or protected from outdoor environmental factors. G2406.3 and M1401.4)
- Louvers and grills are to be sized to account for the net free area of the grill. Wood louvers will be assumed to have 25% free areas and metal louvers and grills will have a 75% free area. Screens are not to have a mesh size smaller than 1/4-inch. (G2407.10)
- Combustion air ducts from outside of the building. **GENERAL RULES FOR SUPPLYING COMBUSTION AIR ARE BELOW.** For specific application verify with the manufacturer's installation instructions and confirm approval on the approved plans:
 - 1) For vertical ducts: (2) openings, each having 1 square inch per 4000 Btu/h of total input of all appliances in the space. (M2407.6.1)
 - 2) For horizontal ducts: (2) openings each having 1 square inch per 2000 Btu/h of total input of all appliances in the space. (M2407.6.1)
 - 3) One opening in the upper 12 inches and one opening in the lower 12 inches of the room. (M2407.6.1)
 - 4) When the one opening method is used, locate the opening within 12 inches from top of enclosure and provide 1 square inch per 3000 Btu/h or total input rating of all appliances in the space. (G2407.6.2)
 - 5) The minimum cross-sectional area of each vent opening is 3 inches. (M2407.6)
- Combustion air obtained from outside of the building, when the building is of ordinary construction (homes built prior to 1986) and the area of the room is less than 50 cubic feet per 1000 Btu/h of aggregate input rating of appliances. (G2407))
 - 1) The minimum cross-sectional area of each vent opening is 3 inches.
 - 2) One opening in upper 12 inches and one opening in lower 12 inches of room.
 - 3) Where vertical ducts are used each opening requires 1 square inch per 4,000 Btu/h of total input rating of all appliances in the space. (G2407.6.1)
 - 4) Where horizontal ducts are used each opening requires 1 square inch per 2,000 Btu/h or total input rating of all appliances in the space. (G2407.6.1)
 - 5) When the one opening method is used, locate the opening 12 inches from top of enclosure and provide 1 square inch per 3000 Btu/h or total input rating of all appliances in the space. (G2407.6.2)
- When the building is of ordinary construction and the area of a confined space is less than 50 cubic feet per 1000 Btu/h of aggregate input rating of appliances, combustion air can be taken from an adjacent space when installed as follows: (G2407.5. thru G2407.5.3.2)
 - 1) Minimum of 100 square inches of combustion air is required. (G2407.5.3.1)



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2) One opening in upper 12 inches and one opening in lower 12 inches of room. (2407.5.3.1)

- All appliances secured in place per manufacturer's listing. (M1307.2) (M1401.1)
- Confirm that there is a heat source in each habitable room (R303.9)

Energy Code Requirements

- Verify on approved plans specific types of heating and cooling including efficiency requirements for any equipment and any energy credits required.
- Ducts located in conditioned space. For ducts to be considered as inside a conditioned space, such ducts shall comply with either of the following: (WSEC 403.3.7)
 1. All duct systems shall be located completely within the continuous air barrier and within the building thermal envelope.
 2. All heating, cooling and ventilation system components shall be installed inside the conditioned space including, but not limited to, forced air ducts, hydronic piping, hydronic loops, convectors and radiators. Combustion equipment shall be direct vent or sealed combustion.
 3. For forced air ducts, a maximum of 10 linear feet of return duct and 5 linear feet of supply duct is allowed to be located outside the conditioned space, provided they are insulated to a minimum of R-8.
- Ducts outside the building thermal envelope shall be insulated to a minimum of R-8. Ducts within a concrete slab or in the ground shall be insulated to R-10 with insulation designed to be used below grade. (WSEC R403.3)
- HVAC supply and return register boots shall be sealed to the sub floor, wall covering, or ceiling penetrated by the boot. (WSEC Table R402.4.1)
- All detached one- and two-family dwellings and multiple single-family dwellings (townhouses) up to three stories in height above grade plane using electric zonal heating as the primary source shall install an inverter-driven ductless mini-split heat pump in the largest zone in the dwelling. (WSEC 403.7.1)