

## Residential Building Final

This tip sheet reflects code requirements of the 2021 International Residential Code (IRC), the 2021 edition of the Washington State Energy Code-Residential (WSEC-R), and all with Washington State Amendments

Please verify the following before calling for a Building Final inspection.

### Permits and Plans

- Permit and approved plans are on site and accessible to the inspector. (R105.7, R106.1.1, R106.3.1)
- All the permit information is correct (e.g., address, permit number, etc.). (R106.1.1)
- All other finals are approved, and all previous inspections were signed off on the permit card and in the system. (Check with the local jurisdiction for required finals.) (R104.4, R109.4)
- If applicable, the final letter from the special inspection agency summarizing the work inspected has been submitted and a copy of this letter is on site for the inspector.
- If applicable, a FEMA elevation certificate by a licensed surveyor for construction in flood hazard areas is complete and submitted (see jurisdiction for details.) (R106.1.4)

### 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 are caulked. (WSEC R402.4.1.2; R703.1.1)
- Chimney terminations are 2 feet above any roof or 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)
- 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)
- 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 there is less than 6 inches of fall within 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)
- Garage doors shall be labeled with a permanent label provided by the garage door manufacturer. The label shall identify the garage door manufacturer, the garage door model/series number, the positive and negative design wind pressure rating, the installation instruction drawing reference number, and the applicable test standard. (R609.4.1)
- A minimum of one 40-ampere dedicated 208/240-volt branch circuit shall be installed in the electrical panel for each dwelling unit. The branch circuit shall terminate at a junction box, receptacle outlet, or electric vehicle charging equipment. (R309.6.2)

### Decks, Exterior Stairs, and Walkways

- See Tip Sheets 1, 2, 3, and 5 for details. These tip sheets may be found in MyBuildingPermit.com under the “Resources” tab.
- 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 (40 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, R317.3.3, and the manufacturer’s installation instructions).
- Joists can be untreated if approved weatherproof decking membrane is used. Note: Soffits are allowed when ventilated. (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 (e.g., 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)
- Refer to the [Stairs and Handrails](#) section that follows for more information.

## Interior

- 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. See Tip Sheet 6. (IRC Table R302.6)
- Garage door to house is weatherstripped. (WSEC R402.2.4)
- Primary heat source cannot be woodstove. Any woodstove or pellet stove must be EPA certified. (R303.10.2, R303.10.3 as amended by WA)
- 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) Also see Tip Sheet 6, which may be found in MyBuildingPermit.com under the “Resources” tab.
- 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)
- Openings between the garage and residence shall be equipped with 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. Doors shall be self-latching and equipped with a self-closing or automatic-closing device. (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. When located on an electrical panel, the certificate shall not cover or obstruct the visibility of the circuit directory label, service disconnect label, or other required labels. The certificate shall indicate the following:
  1. 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.
  2. U-factors for fenestration and the solar heat gain coefficient (SHGC) of fenestration. Where there is more than one value for each component, the certificate shall indicate the area weighted average value.
  3. The results from any required duct system and building envelope air leakage testing done on the building.
  4. The results from the whole-house mechanical ventilation system flow rate test.

5. The types, sizes, and efficiencies of heating, cooling, whole-house mechanical ventilation, and service water heating appliances. Where a gas-fired unvented room heater, electric furnace, or baseboard electric heater is installed in the residence, the certificate shall list "gas-fired unvented room heater," "electric furnace" or "baseboard electric heater," as appropriate. An efficiency shall not be listed for gas-fired unvented room heaters, electric furnaces or electric baseboard heaters.
6. Where on-site photovoltaic panel systems have been installed, the array capacity, inverter efficiency, panel tilt, orientation and estimated annual electrical generation shall be noted on the certificate.
7. The code edition under which the structure was permitted, and the compliance path used.

The code official may require that documentation for any required test results include an electronic record of the time, date, and location of the test. A date-stamped smart phone photo or air leakage testing software may be used to satisfy this requirement. (WSEC R401.3)

- The building or dwelling unit shall be tested for air leakage. Testing shall be conducted in accordance with RESNET/ICC 380, ASTM E779 or ASTM E1827. Test pressure and leakage rate shall comply with Section R402.1.3. A written report of the test results, including verified location and time stamp of the date of the test, shall be signed by the testing agency and provided to the building owner and code official. (WSEC R402.4.1.2)
- The maximum air leakage rate for any dwelling unit under any compliance path shall not exceed **4.0 air changes per hour**. Testing shall be conducted with a blower door test at a test pressure of 0.2 inches w.g. (50 Pa). (R402.4.1.3.1)  
Exception: Additions tested with the existing home having a combined maximum air leakage rate of 7 air changes per hour. To qualify for this exception, the date of construction of the existing dwelling must be prior to the 2009 Washington State Energy Code.
- Each dwelling unit in a residential building shall comply with sufficient options from Table R406.2 so as to achieve the following minimum number of credits (WSEC R406.3):
  1. Small Dwelling Unit: **5.0 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: **8.0 credits**  
*All dwelling units that are not included in 1, 3, or 4.*
  3. Large Dwelling Unit: **9.0 credits**  
*Dwelling units exceeding 5000 square feet of conditioned floor area.*
  4. Dwelling units serving R-2 occupancies: **6.5 credits**
  5. Additions less than or equal to 500 square feet: **2.0 credits**

## Attics

- Attic accesses 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 1-inch clearance between roof sheeting and insulation. (R806.3, WSEC R402.2.1.1)
- Blow in insulation must have a 1-inch clearance to gas fired exhaust vents. Also refer to the “Mechanical Final” inspection checklist, which may be found in MyBuildingPermit.com under the “Resources” tab.

## 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 spaces shall be 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. (R408.2)
- Vapor barrier (black 10 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)
- Insulation with a U-factor of 0.029 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 9)

- 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

- See Tip Sheet 1 and 2 for different stair types and requirements. This tip sheet may be found in MyBuildingPermit.com under the “Resources” tab.
- 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)
- Stair risers and treads maximum dimensions shall not exceed the smallest by more than 3/8 inch. (R311.7.5.1, 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)
- Nosings 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)
- Guards do not allow passage of a 4-inch sphere. Guards installed at the sides of stairs do not allow the passage of a 4-3/8-inch sphere. (R312.1.3, 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. (R312.1.1)

- 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 are installed on stairs with 4 or more risers. (R311.7.8)
- 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)
- Handrails shall not project more than 4-1/2 inches from the wall and shall have a minimum 1-1/2 inches clear space from inside of rail to wall. (R311.7.8.3.2, R311.7.8.3)
- Handrails shall be continuous for the full length of the flight, from a point directly above the top riser of the flight to a point directly above the lowest riser of the flight. Handrail ends shall be returned toward a wall, guard walking surface continuous to itself, or terminate to a post. (R311.7.8.4) Exceptions:
  1. Handrail continuity shall be permitted to be interrupted by a newel post at a turn in a flight with winders, at a landing, or over the lowest tread.
  2. A volute, turnout or starting easing shall be allowed to terminate over the lowest tread and over the top landing.
- Handrails and guards are capable of withstanding 200 pounds applied in any direction at any point on the rail. (IRC Table 301.5)

## Smoke Alarms, CO Detectors, and Heat Alarms

- Smoke alarms are required as for new dwellings when interior alterations, repairs or additions requiring a building permit occur. (R314.2) See Tip Sheet 4 for all requirements. This tip sheet may be found in MyBuildingPermit.com under the “Resources” tab.
- 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)
- A heat detector or heat alarm rated for the ambient outdoor temperatures and humidity shall be installed in new garages that are attached to or located under new and existing dwellings. Heat detectors and heat alarms shall be installed in a central location and in accordance with the manufacturer's instructions. (R314.2.3) Exception: Heat detectors and heat alarms shall not be required in dwellings without commercial power (off grid backup systems).
- Heat detectors and heat alarms shall be connected to an alarm or a smoke alarm that is installed in the dwelling. Alarms and smoke alarms that are installed for this purpose shall be located in a hallway, room, or other location that will provide occupant notification. (R314.4.1)

### Automatic Sprinkler Systems

- Final inspection for automatic sprinkler system (where required) approved prior to building final. See jurisdiction for details.

### Windows

- Emergency escape and rescue openings shall have the bottom of the clear opening not greater than 44 inches above the floor. 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, R310.2.3)
- Emergency escape and rescue openings must be operational from the inside without the use of keys, tools, or special knowledge. (R310.1.1)
- In dwelling units, where the bottom of the clear opening of an operable window opening is located less than 24 inches above the finished floor and greater than 72-inches above the finished grade or other surface below on the exterior of the building, the operable window shall comply with one of the following (R312.2.1):
  1. Operable window openings will not allow a 4-inch-diameter sphere to pass through where the openings are in their largest opened position.



2. Operable windows are provided with opening control devices or window fall prevention devices that comply with ASTM F2090.
- Where an operable window serves as an emergency escape and rescue opening, a window control device or fall prevention device, after operation to release the control device or fall prevention device allowing the window to fully open, shall not reduce the net clear opening area of the window unit to less than the area required by Section R310.2.1 and R310.2.2. (R312.2.2)

## Glazing

- 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):
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 or adjacent to 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)

See Tip Sheet 19.