2021 IRC Inspection Checklist

Final Inspection

This checklist is intended for use to prepare for an inspection. This is only a general list and is not intended to address all possible conditions. References are to the 2021 International Residential Code (IRC). Note: references to the (AHJ) means the Authority Having Jurisdiction.

Exterior

- ❑ House numbers plainly visible legible from the street or road fronting the property minimum 4” high, ½” stroke, and of contrasting color. (R319)
- ❑ All exterior windows, penetrations and openings caulked. (R703.1.1)
- ❑ Chimney terminations are 2' above any roof/structure within 10' and not less than 3’ above the highest point where the chimney passes through the roof. (R1003.9)
- ❑ Spark arresters installed on top of chimney. (R1003.9.2)
- ❑ 6" distance from soil to wood siding/trim. (R317.1, #5)
- ❑ The grade at the foundation falls away from the building a minimum of 6” within the first 10’. Minimum slope 5% where less than 6” fall in 10’. Swales (if using) minimum 2% slope. (R401.3 & exception)
- ❑ Carports not open on at least two sides will be inspected as garages and all fire separation requirements will apply. (R309.2)

Decks, stairs and walkways

- ❑ Verify that deck placement, setback, size and materials are per approved plans.
- ❑ Deck is positively attached and supports both lateral and live loads (40lb/sq.ft. minimum) R301.5, R502.2.
- ❑ All deck material treated or naturally resistant to decay. Cuts, notches, and holes are treated with preservative. (R317.1, R317.1.1, 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 and manufacturer’s requirements)
- ❑ Joists can be untreated if approved weatherproof decking membrane is used. Note: soffits allowed when ventilated.

- ❑ Ledger for decks bolted/lagged to structure in accordance with table 507.2.1 or per approved plan. (R507.2).
  Deck lateral connections require a minimum (2) 1,500 lb. hold-down tension devices, installed in not less than two locations (ends) per deck, installed and connected to interior parallel joists per IRC figure 507.2.3 (exception decks < 30" above grade).
- ❑ Cantilevers blocked at bearing line if >12". (Table R502.3.3(2), note 'e')
- ❑ Bottom of footings are minimum 12" below grade for freeze protection. (Table R301.2.(1) – local jurisdiction, R403.1.4)
- ❑ Where deck is >30" vertical above the grade plane, within 3' horizontal, a guard is installed. (R312.1.1)
- ❑ 6'8" minimum headroom at stairways measured vertically from the nose of the treads, landings or platforms. (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, R303.7.1)
- ❑ Stair nosing ¾" – 1 ¼" required when solid risers are installed except when the tread depth is 11" minimum. (R311.7.5.3)
- ❑ Open risers don't allow passage of 4" sphere, except stairs with a rise of 30" or less. (R311.7.5.1)
- ❑ Radius of curvature at the leading edge of the tread is not over 9/16". (R311.7.5.3)
- ❑ The greatest nosing projection doesn't exceed the smallest by >3/8". (R311.7.5.3)
- ❑ Stair riser maximum 7 3/4", treads minimum 10". (R311.7.5.1)
- ❑ Stair riser/tread maximum dimension doesn't exceed smallest by >3/8". (R311.7.5.1)
- ❑ Guards don't allow passage of 4" sphere. (R312.1.3)
- ❑ Guards installed at the sides of stairs don't allow the passage of 4 3/8" sphere. (R312.1.3 Exception 2)
- ❑ Triangle formed by riser, tread and bottom element of guardrail doesn't allow passage of 6" sphere. (R312.1.3 Exception1)
- ❑ Guards adjacent to floor surfaces over 30" from adjacent floor or grade are a minimum 36" height to the top of the guard. (R312.1.2)
- ❑ Open sides of stairs with a total rise of 30" above the floor or grade below have guards a minimum 34" in height when measured vertically from the stair nosing to the top of the guard. (R312.1.2 exceptions 1 & 2)
- ❑ Handrails and guards capable of withstanding 200 lbs. applied in any direction at any point on the rail. (IBC 1607.8.1.1)
- ❑ Handrail at stairs with 4 or more risers. (R311.7.8)
- ❑ Handrail minimum 34" to maximum 38" above nose of tread to top of handrail. (R311.7.8.1)
- ❑ Type I handrails with circular cross sections 1 1/4" - 2" diameter. (R311.7.8.3) See Tip Sheet 2.
- ❑ Type I handrails with noncircular cross sections have a perimeter dimension of 4" – 6 ¼" with a maximum cross section of 2 ¼". (R311.7.8.3)
- ❑ Type II handrails with perimeters greater than 6 ¼" require a graspable finger recess area on both sides of the profile. The minimum & maximum width above the recess is 1 ¼" – 2 ¾". (R311.7.8.3)
- ❑ Handrail returns to wall, maximum 4 1/2" off wall with minimum 1 1/2" clear space from inside of rail to wall. (R311.7.1, R311.7.8.2)

- ❑ Exterior doors have landings, minimum 36"x 36", or per size of door opening. The floor or landing at the exit door shall not be more than 1.5” lower than the top of the threshold. Floors or landing at doors other than the exit door don’t have to meet this requirement. May step down 7 3/4" below door opening unless the door swings over the landing. Where a stairway of two of fewer risers is located on the exterior side of a door, other than the required exit door, a landing is not required for the exterior side of the door. (R311.3)

Interior

- ❑ Single family garages separated from the residence and its attic area by not less than ½” 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” type x gypsum board or equivalent. Structures supporting a floor/ceiling assembly are protected by minimum ½” gypsum board or equal. (Table R302.6)
- ❑ Garage door to house is weather-stripped. (R402.2.4)

  Primary heat source cannot be woodstove. Any woodstove or pellet stove must be EPA certified. (R303.9.2, R303.9.3)

  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 #4)
- ❑ 1 3/8" solid door or 20-minute fire-rated door equipped with a self-closing device between house and garage. (R302.5.1)

Attics

- ❑ Attic accesses required to areas exceeding 30 square feet and which have a vertical height of 30” or greater. (R807.1)
- ❑ Accesses located in hallways or other readily accessible location. (R807.1)
- ❑ Attic access unobstructed 22"x30" or large enough to remove the largest piece of mechanical equipment intact. (R302.5.1, R807.1, M1305.1.3)
- ❑ Access door insulated and gasketed at insulated ceilings and surrounding curb is minimum 12" height. (WSEC R402.1.2.4)
- ❑ Proper insulation and thickness is installed.
- ❑ Blow-in insulation has not filled/blocked baffles. Maintain 1” clearance between roof sheeting and insulation. (R806.3)
- ❑ Blow in insulation must have 1” clearance to gas fired exhaust vents. (See mechanical final checklist)

Crawl Space

- ❑ Floor crawl access 18” x 24”. (R408.4)
- ❑ Openings through a perimeter wall to crawl 16” x 24”. (R408.4)
- ❑ Ventilation at crawl space unobstructed by insulation.
- ❑ Venting at crawl as shown on plan, with on opening within 3’ of each corner and minimum 1sq.ft. / 150sq.ft. (R408.1, R408.2)
- ❑ Vapor barrier is black 6 mil. plastic, covering crawl completely, wall to wall, with all seams lapped 12".
- ❑ R-30 insulation is installed against bottom of floor and secured in place. (WSEC Table R402.1.1/R402.2.7)
- ❑ Pressure treated wood posting installed at basements or cellars or supported by piers or metal pedestals projecting 1” above floor or finished grade and 6” above exposed earth and separated by an approved impervious moisture barrier. (R317.1.4)
- ❑ Pressure treated wood posting installed in crawlspaces or unexcavated areas, supported by a concrete pier or metal pedestal 8" above exposed earth and separated by an approved impervious moisture barrier. (R317.1.4)
- ❑ Remove all debris from the crawl space. (R408.5)
- ❑ Floors constructed of lumber less than 2”x10” dimensional lumber to be fire protected on the underside where a crawl space is for storage or houses fuel burning equipment. (R501.3)
- ❑ Where required, flood resistant construction in flood hazard areas (treated/water resistant materials, flood vents, etc., R322).

Stairs and Handrails

- ❑ For differing stair types and requirements see R311.7, R311.7.9 & Construction Tip Sheet 1 found on the MyBuildingPermit.com site.
- ❑ Stair riser maximum 7 3/4", treads minimum 10". (R311.7.4)
- ❑ Stair riser/tread maximum dimension doesn’t exceed smallest by >3/8". (R311.7.4)
- ❑ 6'8" minimum headroom at stairways measured vertically from the nose of the treads, landings or platforms. (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, R303.7.1)
- ❑ Stair nosing ¾” – 1 ¼” required when solid risers are installed except when the tread depth is 11” minimum. (R311.7.5.3)
- ❑ Open risers don’t allow passage of 4” sphere, except stairs with a rise of 30” or less. (R311.7.5.1)
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- ❑ Triangle formed by riser, tread and bottom element of guardrail doesn't allow passage of 6" sphere. (R312.1.3 Exception1)
- ❑ Guards adjacent to floor surfaces over 30" from adjacent floor or grade are a minimum 36" height to the top of the guard. (R312.1.2)
- ❑ Open sides of stairs with a total rise of 30" above the floor or grade below have guards minimum 34" in height when measured vertically from the stair nosing to the top of the guard. (R312.1.2 exceptions 1 & 2)
- ❑ Handrails and guards capable of withstanding 200 lbs. applied in any direction at any point on the rail. (IBC 1607.8.1.1)
- ❑ Handrail at stairs with 4 or more risers. (R311.7.8)
- ❑ Handrail minimum 34" to maximum 38" above nose of tread to top of handrail. (R311.7.8.1)
- ❑ Type I handrails with circular cross sections 1 1/4" - 2" diameter. (R311.7.8.3) See Tip Sheet 2.
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- ❑ Type II handrails with perimeters greater than 6 ¼" require a graspable finger recess area on both sides of the profile. The minimum & maximum width above the recess is 1 ¼" – 2 ¾". (R311.7.8.3)
- ❑ Handrail returns to wall, maximum 4 1/2" off wall with minimum 1 1/2" clear space from inside of rail to wall. (R311.7.1, R311.7.8.2)

Smoke Alarms / Automatic Sprinkler Systems

- ❑ Smoke alarms required when interior alterations, repairs or additions requiring a building permit occur. (R314.3.1)
- ❑ 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. (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 sleeping areas. (R315.1)
- ❑ Final inspection for automatic sprinkler system (where required) approved prior to building final.

Windows and Glazing

- ❑ Bedroom window sill not more than 44" from floor to bottom of window opening. Minimum 5.7sq.ft. clear opening, 20" minimum width, and 24" minimum height. Grade floor openings may have a minimum 5 sqft. clear opening. (R310)
- ❑ Emergency escape and rescue openings must be operational from the inside without the use of keys, tools, or special knowledge.
- ❑ 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 then 60" 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" 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" 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' or less in depth.
  7. Glazing in a individual fixed or operable panel, when <u>all</u> of the following apply:
     7.1. Expose area of an individual pane greater then 9 sq.ft.
     7.2. Bottom edge less than 18" above the floor.
     7.3. Top edge greater than 36" above the floor.
     7.4. One or more walking surfaces within 36" horizontally of the glazing.
     Exception: Where a protective 1 ½" wide bar is installed on the accessible side of the glazing 34"- 38" 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.
  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" above a walking surface and within 60 " horizontally of the water's edge.
  10. Glazing adjacent to stairways, landings and ramps within 36" horizontally of a walking surface when the exposed surface of the glass is less than 36" above the plane of the adjacent walking surface. Except where a handrail or guard is installed per IBC Sections 1013 & 1607.7.
  11. Glazing adjacent to stairways within 60" horizontally of the bottom tread of a stairway in any direction when the exposed surface of the glass is less than 36" above the nose of the tread. Exception: When the side of stair, landing or ramp has a guard or handrail with balusters or infill panels and the plane of the glass is more than 18" from the railing. (R308.4)

Mechanical Final

Garage

- ❑ Source of ignition on gas appliances (water heaters, furnaces, & dryers) must be a minimum of 18" above the floor unless listed as flammable vapor ignition resistant. (M1307.3, G2408.2)

- ❑ Exposed ducts to be a minimum of 26 gauge sheet metal with no openings into garage. (R302.5.2)
- ❑ All ducts in attic, garage, crawl space, or other unconditioned spaces, insulated with minimum R-8.
- ❑ Bollard or wheel stop required if equipment is subject to mechanical damage. (M1307.3.1)

Gas Piping

- ❑ Drip legs installed at each appliance or where condensation could collect. (G2419.2)
- ❑ Sediment trap shall be installed downstream of the appliance shutoff valve as close to the inlet of the appliance as practical. (Except for illuminating appliances, ranges, clothes dryers, and outdoor grills, G2419.4)
- ❑ Unions or flex connectors are installed between shut-off valve and appliance. (G2422.1.4, G2422.1)
- ❑ Unions or flex connectors cannot 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)

  ½" pipe supported every 6ft.

  ¾" – 1" support every 8ft.

  1 ¼" or larger support every 10ft.

  1 ¼" or larger (vertical) support at every floor level.
- ❑ Piping cannot 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 can be screwed or riveted for securement 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)
- ❑ 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. (G2427.6.8.2)

- ❑ 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“ in diameter in roofs with pitches less than or equal to 6/12 can terminate a minimum of 12“ above the roof as long as such vents are at least 8‘ from a vertical wall or similar obstruction. See Figure G2427.6.3 for distances from vertical objects including roof pitch. (G2427.6.3)
- ❑ Vent clearances to combustibles per manufacturer’s listing or performance standards. (M1803.3.4, M1306.2, G2427.7.7)
- ❑ Single wall vents cannot 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, G2427.6.3)
- ❑ Mechanical draft venting systems shall be installed in accordance with their listing, and: terminate not less than 4’ below or 4’ horizontally from, and not less than 1’ above a door, an operable window or a gravity air inlet into a building, nor within 10’ of a forced air intake nor within 12” 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 don’t 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)
- ❑ B vent chimneys supported above the roof per manufacturer’s requirements. (G2427.6.9)
- ❑ Type B or L vents terminate at least 5’ in vertical height above the highest connected equipment draft hood or flue collar. (G2427.6.4)

Gas Water Heaters

- ❑ See the Water Heater Tip Sheet 7 for additional information.
- ❑ If a gas water heater has been installed it is a mechanical inspection but may include plumbing if piping was moved. If an electric water heater is installed, it is a plumbing inspection and will be covered on the Residential Plumbing Final Checklist.
- ❑ Temperature and pressure relief valve required on water heaters (UPC 504.6). The drain from the relief valve must be able to drain by gravity. (UPC 608.5)
- ❑ The pipe for the drain to be hard and full sized, no flex connectors or pex piping. (UPC 608.5)
- ❑ The drain terminates outside the building 6” - 24” above grade and has a soldered/glued (copper/plastic) on elbow as needed to direct the flow toward the ground or terminates at an approved drain. It may not be directly connected to a sanitary sewer. (UPC 608.5 / UPC 805.1 as amended by WA State)

- ❑ Water heaters located in a garage to be raised so that the source of ignition is at least 18" above the floor unless listed as flammable vapor ignition resistant. (M1307.3)
- ❑ A water heater when installed in the normal path of a vehicle requires protection. (M1307.3.1, G2408.3)
- ❑ 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 is installed with a ¾" drain that is piped to an approved location.
- ❑ Any water system provided with a check valve, backflow prevention or a pressure regulating device which does not have a bypass feature at its source is provided with an approved, listed, adequately sized expansion tank or other approved device having a similar function to control thermal expansion. Install per specifications.
- ❑ Mechanical rooms with a floor drain or a standpipe and subject to infrequent use require trap primers or other approved automatic means of maintaining their water seals. The trap primer valve is accessible. Check to see that it is working by verifying water is in the trap.
- ❑ Combustion Air: See **GENERAL** for details.
- ❑ 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. (M2005.2, G2406.2)

Furnace

- ❑ Furnace and Air Handler minimum working space clearance – sides min. 3"; total min. 12" bigger than appliance, except replacement appliances. (M1305.1.1)
- ❑ Maintain required clearances to combustible construction as specified in the listing. (M1402.2, M1306.1)
- ❑ Clearance from grade: Equipment supported on concrete pad or approved material extending above the adjoining ground. (M1305.1.4.1)
- ❑ Condensate lines are required to drain by gravity to an approved drain or condensate pump. (G2427.9, , M1411.3). Secondary condensate disposal provided per R14.11.3.1.
- ❑ Condensing Appliances: Vent per installer's instruction. (G2427.8)
- ❑ Seal ducts to prevent leaks, and test per RS-33, unless located entirely within the conditioned space of the building. (WSEC 403.2.2 / 101.4.3.1)

Whole house ventilation systems options

The attached checklist is not a comprehensive or exhaustive code comparison. (Section M1507)

Intermittent Whole House ventilation using Exhaust Fans (M1507.3.2 #5)

- ❑ Whole house fan located ≤ 4' from the interior grille have a sone rating on fan 1.0 or less per HVI 915. Remotely mounted fans are to be acoustically isolated from structural elements and solid duct work. (M1507.3.4.2)

- ❑ A readily accessible 24 hour timer, set to operate per Table 1507.3.3(1) to exhaust fan. (M1507.3.2 / 3)
- ❑ Label affixed to controls: “Whole House Ventilation. (See operating instructions)”. (M1507.3.2 #5.8)
- ❑ Outdoor air inlets not less than 4 sq.in. in each habitable room. (1507.3.4.4)
- ❑ Doors undercut minimum 1/2” where separated from exhaust source. (1507.3.4.4)

Continuously Operating Exhaust Ventilation Systems (M1508.2)

❑ Continuously Operating Exhaust Ventilation Systems shall provide flow rates (CFM) per Table 1507.3.3(1) (based on square foot of floor area, and number of bedrooms).

Whole House Ventilation Integrated with Forced Air System (M1507.3.5)

- ❑ Screened outdoor air inlet to return air plenum with motorized damper. (M1507.3.5.1)
- ❑ Outdoor air inlet duct connection to the return air stream located within 4’ upstream of the forced-air blower. (M1507.3.5.1)
- ❑ A readily accessible 24 hour timer, set to operate per Table 1507.3.3(1) and tied in to furnace blower and motorized damper. (M1507.3.5.1 / M1507.3.2)
  Label affixed to control: “Whole House Ventilation (See operating instructions)”. (M1507.3.2 #5.8)
- ❑ Flow rate must be verified and field tested per M1507.3.5.1

Intermittent Whole House Ventilation Using Supply Fan (M1508.6)

- ❑ Uses inline supply fan. (M1507.3.6)
- ❑ Outdoor air must be filtered before it is delivered to habitable rooms. (M1507.3.6.1)
- ❑ Outdoor inlet located downstream of blower when connected to the supply side. (M1507.3.6.2)
- ❑ Outdoor inlet minimum 4’ upstream when connected to the return side. (M1507.3.6.2)
- ❑ A readily a readily a readily accessible 24 hour timer, set to operated 8 hours /day and tied in to the inline supply fan. (M1507.3.3(1), M1507.3.5.1)
- ❑ Label affixed to control: “Whole House Ventilation (See operating instructions)”. (M1507.3.2 #5.8)
- ❑ Supply ducts in conditioned space insulated to R-4 per M1507.3.5.2.

Whole House Ventilation Using a Heat Recovery Ventilation System

- ❑ All ducts must be sized per manufacturer. Also, heat recovery ventilation systems shall have a filter on the upstream side of the heat exchanger in both the intake and exhaust – efficiency min. value MERV of 6. (M1508.3.7.1)

Outdoor Air Inlets (1507.3.4.4 / 1507.3.5.3 / 1507.3.6.5 / 1507.3.7.3)

❑ Inlets are screened.

- ❑ Inlets located so as not to draw air from any of the following locations:
  a) Within 10’ of an appliance vent outlet, unless such vent outlet is 3’ above the outdoor air inlet.
  b) Where it will pick up objectionable odors, fumes or flammable vapors.
  c) A hazardous or unsanitary location.

d) A room or space having any fuel burning appliances therein.
e) Within 10' of a vent opening for a plumbing drainage system unless the vent opening is at least 3' above the air inlet.
f) Attic, crawl spaces or garages.

Range Cooktop

- ❑ Combustibles installed not less than 24" from open top broilers. See manufacturer's installation instructions. (M1505.1, G2447.5)
- ❑ Distance above top of cook top to unprotected combustible material not less than 30". (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.
- ❑ Certified Masonry and Concrete fireplaces, and heaters - tested and certified to DOE, and US. EPA accredited laboratory standards. (R1001.7.1, R1004.1.2, R1002.2)
- ❑ Solid Fuel burning appliances and fireplaces – tight fitting metal / ceramic doors, and certified to test No. 11Negative pressure test, Section 12.3, of ULCS627-M1984 for outside combustion air – duct 4" min., and 20' max. length. (R1006.2)
- ❑ 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)
- ❑ Penetrations sealed with listed materials per manufacturer's installation instructions. (G2432.1)
- ❑ Appliance shutoff valves shall be located in the same room, and within 6' 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 50' of appliance, but other req's apply, as above. (G2420.5.2, and 3.)
- ❑ 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)
- ❑ When retrofitting gas log units in masonry fireplaces, dampers must be blocked open per manufacturer's installation instructions.

Laundry Room

- ❑ A 4" metal dryer exhaust duct is installed with smooth interior. Install per the manufacturer's instructions. (G2439.5.1, M1502.4.1)
- ❑ Approved flexible listed metal duct connector up to 8' long, may connect the dryer to the vent, but may not extend into wall, floor or ceiling. (G2439.5.4, M1502.4.3)
- ❑ Minimum 100 square inches of make-up air for closets designed for the installation of gas clothes dryers or other approved means. (G2439.4)
- ❑ 2 Methods for determining dryer duct length:
  1) Exhaust duct doesn't exceed 25' for electric dryers, and 35' for natural gas dryers. Deduct 2.5' for each 45-degree elbow and 5' for each 90-degree bend;
  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. (M1502.4.4 & exception & G2439.5.5)

Crawl Space and Attic

- ❑ Flex duct is supported per manufacturer's installation instructions (a maximum of every 4') and is installed without kinks or tight bends. (M1601..2 & SMACNA Standards)
- ❑ Ducts in crawl spaces are supported at least 4" above the ground.(1601.4.7 or conform to M1601.1.2)
- ❑ Ducts, boots and connectors used for heating or cooling insulated to R-8 (R403.2.1).
- ❑ Insulate all exhaust ducts in unconditioned spaces with R-8 (bathroom, range, etc.) (403.2.1)
- ❑ 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, M1305.1.3.1)
- ❑ Verify that the passageway of continuous solid flooring not less than 24" wide from attic access to 30" wide work platform in front of furnace has been installed. (M1305.1.3, M1305.1.4)
- ❑ Access opening large enough to remove largest piece of equipment, but not less than 30" x 22". (M1305.1.3, M1305.1.4)
- ❑ Access opening not more than 20 feet from equipment. (M1305.1.3, M1305.1.4)

General

- ❑ Weather protect exterior gas line. (G2415.9, and 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 ¼". (G2407.10)
- ❑ Combustion air ducts from outside of the building. . GENERAL RULES FOR SUPPLING COMBUSTION AIR ARE BELOW. For specific application contact the local jurisdiction

    1. For vertical ducts: (2) openings, each having 1square 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" and one opening in the lower 12" of the room. (M2407.6.1)
4. When the one opening method is used, locate the opening within 12" 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".(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)) See also Construction Tip Sheet 7, Water Heaters.
    1. The minimum cross sectional area of each vent opening is 3 inches.
    2. One opening in upper 12" and one opening in lower 12" 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" 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 sq.in. of combustion air is required. (G2407.5.3.1)
    2. One opening in upper 12" and one opening in lower 12" 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)