



INSPECTION CHECKLIST
Residential Plumbing Rough-In
April 2011

2009 Codes

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 2009 International Residential Code (IRC) and the 2008 National Electrical Code (NEC).

Please verify the following before calling for the plumbing rough-in inspection.

Permits and Plans

- Job address is posted in a visible location. (R321)
- Permit and approved plans are on the site. (R106.3.1 and R105.7)
- Permit information is correct. (address, permit number, scope of work, etc).
- Confirm that all fixtures are included.

Underground Plumbing

- No pipes directly embedded in concrete. All pipes passing through concrete walls or floors are protected from breakage. Voids around piping passing through concrete floors on the ground are appropriately sealed.
- Sleeves are used for piping passing through concrete or masonry that are not bored or drilled.
- Vents are downstream of trap.
- Pipe trenches parallel to footings offset a minimum 45° from footing bearing line.
- Type L copper for water lines installed underground. Type M is allowed underground outside the building. Copper joints under a slab shall be brazed.
- Ferrous metals must be wrapped.
- Drains, waste and vents (DWV) water tested with a 10' head for 15 minutes or air tested at 5psi for 15 minutes. Plastic pipe not allowed to be tested with air.
- Water lines tested to working pressure or 50 psi for 15 minutes. Plastic water piping not allowed to be tested with air except PEX piping per manufacture shall be tested with air when subject to freezing.

Drains

- Drains, waste, and vents (DWV) water tested with a 10' head for 15 minutes or air tested at 5 psi for 15 minutes. Plastic DWV not allowed to be tested with air.
- Drains properly sized.
- Back to back fixtures require double fixture fitting.
- Change in direction from vertical to horizontal or horizontal to horizontal through wye branches or 45° wye branches or fittings of equal sweep.
- Tub waste openings into crawl spaces must be closed off with metal collars or metal screens fastened to structure with openings no greater than 1/2 inch.
- Double sanitary tees may be used when barrel of stack is 2 pipe sizes larger than inlets, for connecting with a vertical stack.
- Install 18 gauge nail plates when plastic or copper plumbing is within 1" of face of framing.
- Hangers and straps don.t compress, distort, cut or abrade the piping and allow free movement of pipe. Pipes exposed to damage by sharp surfaces are protected.
- Support plastic lines at every 4'. Support at each horizontal branch connection.

- Support vertical plastic lines at base and each floor. Provide mid-story guides.
- Support horizontal cast iron hubless at every other joint, unless over 4', then support each joint. Support adjacent to joint not to exceed 18". Support at each horizontal branch connection. Hangers not placed on the coupling.
- Support vertical cast iron hubless at base and each floor not to exceed 15".
- Waste pipes installed outside or in exterior walls are protected from freezing where necessary. P-traps for example.

Traps

- Each trap protected by a vent.
- The developed length of the trap arm not to exceed the following limits:

Pipe Size	Length of trap arm
1 ¼"	2' 6"
1 ½"	3' 6"
2"	5'
3"	6'
4" & larger	10'

- The development length between the trap of a water closet or similar fixture (measured from the top of the closet, flange to the inner edge of the vent) and its vent shall not exceed six (6) feet (1,829 mm).
- Trap arms less than 3" cannot change direction more than 90 degrees without the use of a cleanout.
- Trap arms 3" and larger cannot change direction more than 135 degrees without the use of a cleanout.
- Vertical distance between fixture outlet and the trap as short as practicable and not over 24" in length except for clothes washer which can have maximum 30" standpipe.

Cleanouts

- Each horizontal drainage pipe provided with a cleanout at its upper terminal and each run of piping which is more than 100' in total developed length, provided with a cleanout for each 100', or fraction thereof, in length of such piping. See exceptions.
- Cleanouts not required at horizontal runs <5' except sinks.
- Cleanouts may be omitted on any horizontal drainage pipe installed on a slope of 72° or less from the vertical angle.
- Cleanouts not required above the lowest level of the gravity drain.
- An approve (2) way cleanout fitting, installed inside the building wall near the connection between the building drain and building sewer or installed outside of a building at the lower end of a building drain and extended to grade, may be substituted for an upper terminal cleanout.
- Required at each aggregate horizontal change of direction exceeding 135 degrees.
- Each cleanout installed so that it opens to allow cleaning in the direction of flow of the soil or waste or at right angles thereto and, except in the case of wye branch and end-of-line cleanouts, installed vertically above the flow line of the pipe.
- Underfloor cleanout not more than 20' from access door with an unobstructed 30" wide x 18" high pathway.
- Cleanouts are accessible. 12" clearance required at lines less than or equal to 2", 18" clearance at lines greater than 2".
- Extend above floor or outdoors if access limited.

Island-Sink Venting

- Drain loop method requires fittings be of drainage type only.
- Drain serving the island serves no other fixtures upstream from return vent.
- Island sink cleanout in vertical section of foot vent.

Vents

- Unless prevented by structure the vent must rise vertically 6" above the floor level rim before continuing to horizontal.
- Horizontal vent above fixture flood rim except island sink, where structurally impossible or when allowed by the local jurisdiction.
- Vent pipe fittings located below flood level of rim must be drainage pattern, and pipe must have drainage slope.
- Takeoffs for vents must be above the trap weir.
- No flat venting. Vent pipe inverts are taken off above the center line of horizontal drainage pipe.
- Aggregate vent areas must be > to the building drain.
- Vents terminate a minimum 6" above roof line (10" in high snow load areas).
- Vent clearance to building openings are 3' above or 10' horizontal.

Air-Admittance Valves

- Minimum 4" above drain.
- Minimum 6" above insulation in attic.
- Must be accessible and open to air flow.
- Limited use, install in vertical position as high as possible.

Wet Vents

- Vertical wet vent not greater than 6' developed length, all fixtures on the same story.
- Minimum one pipe size larger than the required waste (upper fixture), and one size larger than the minimum vent size for fixture units (lower fixture), and minimum 2".
- Limited to traps of one and two fixture units.
- Not to serve as vent to more than four fixtures.
- Horizontal wet venting is allowed for one or two private use bathroom groups located on the same floor when installed in compliance with the IRC.

Water Service

- Minimum service ¾".
- Maximum unregulated pressure 80 psi.
- Main valve on discharge side of the meter is full way type.
- Dielectric fittings or other approved fittings used between galvanized and copper piping.
- Replacement of metal pipe water service with plastic pipe water service has not affected the building grounding system.
- Backflow prevention for protection from fire-sprinkler, irrigation systems, or other cross connection/contaminations.
- Water service buried deep enough to protect from freezing. Minimum is 12" below frost level.
- Materials all installed per manufacture's installation requirements.
- 50 lbs. minimum water test required or working pressure for 15 minutes. Plastic water piping not allowed to be tested with air except PEX which manufacture requires it to be tested with air during periods subject to freezing. CPVC water supplies under a slab require a pressure test of 150 psi for two hours.
- Inside the building, barbed insert fittings with hose clamps on plastic water pipe are prohibited. A ford fitting or equal must be installed.
- If you can verify water pressure and if it exceeds 80lbs, a pressure reducing valve is required. Plastic water piping cannot be air tested (except PEX).
- Water pipes not in same trench as building sewer or drainage piping constructed of clay or materials which are not approved for use within a building unless both of the following conditions are met. The bottom of the water pipe, at all points, is at least twelve inches above the top of the sewer or drain line and the water pipe is placed on solid shelf excavated at one side of the common trench with a minimum clear horizontal distance of at least 12" from the sewer or drain line.

- Water pipes crossing sewer or drainage piping constructed of clay or materials which are not approved for use within a building are laid a minimum of 12" above the sewer or drain pipe.
- Water piping installed within a building and in or under a concrete floor or slab resting on the ground installed per section.
- Ferrous piping has a protective coating of an approved type, machine applied and conforming to recognized standards. Field wrapping to provide equivalent protection and is restricted to those short sections and fittings necessarily stripped for threading. Galvanized coating is not deemed adequate protection for piping or fittings. Approved non-ferrous piping not required to be wrapped.
- Underground copper tubing installed without joints where possible. Where joints are permitted, they are brazed and fittings are of wrought copper. (Within the fixed limits of the building foundation).
- Valves, including pressure reducing valves, if installed in the ground require access boxes.
- For the replacement of metallic water services metallic water pipe must be replaced with metallic pipe or an approved grounding system installed when installing plastic water pipe. Per the electrical code, a minimum of 10' of copper piping is installed in the ground on the house side to maintain the existing electrical grounding system. (NEC 250-81) If 10' of metallic piping cannot be installed consult the building official for a viable option. Blue 18 gauge tracer wire required from meter to foundation.
- Unsuitable bedding and backfill such as rocks larger than ¾", asphalt and debris cannot be installed below or above the water service. If backfill material looks bad you should require select fill minimum 6" below and 12" above the water service. Inspection of the fill prior to covering. Water service may be sleeved with SCH 40 sleeve 2 pipe sizes larger than pipe in lieu of select fill.
- Building shutoff valve required to be full way type.

Water Lines

- It is required to have adequate backflow prevention when the building has a fire sprinkler system. A RPBP (reduced pressure backflow preventer) is required when there is a water supply to a hydronic heat boiler. If a backflow device such as an RPBP or DCVA is within the building, verify that it has been tested and signed off.
- Water hammer arrestors installed. Devices are installed per manufacturer's specifications for location and installation.
- Hot and cold water lines installed outside the building or conditioned space insulated with minimum R-3.
- Water lines tested to working pressure or 50 psi for 15 minutes. Plastic water piping not allowed to be tested with air except PEX may be tested with air per manufacture.

Laundry

- Standpipe receptor >18 in. & < 30 in. above trap.
- No trap for clothes washer stand pipe installed below the floor.
- Trap arm roughed in minimum 6", maximum 18" above the floor.
- Water hammer arrestors installed. Devices are installed per manufacturer's specifications for location and installation.

Kitchen

- Dishwasher drain requires air gap.
- Water hammer arrestors installed. Devices are installed per manufacturer's specifications for location and installation.

Bathroom

- Rigidly support faucet and shower head fittings.
- Minimum shower area 900 sq. in. with a 30" clear diameter to 70" from the floor of the shower.
- Minimum shower rough pan 30" x 30".

- Listed anti-scald/pressure balance valve required. (120° F. maximum)
- Water closet set a minimum of 15" to center from side wall with a total clear width of 30" and 21" at the front.
- Flange secured with corrosion resistant fasteners.
- Closet ring to vent is maximum distance of 6'.
- Slip joints used at tub drain are accessible. Access door a minimum of 12" x 12".
- Over rim tub faucets set with a minimum 1" air gap to tub rim.

Shower Subpans

- See section above for minimum dimensions.
- Dam > 2" and < 9". Exception: ADA ½" maximum dam. (ANSI A117.1-03) The dam is measured from the top of the drain to the top of the dam.
- Approved listed pan liner, 3 layers hot mop type 15 lb. felt or other approved membrane.
- Liner minimum 3" above the finished dam.
- Slope/pitch of lining minimum ¼" per foot.
- No fasteners less than 1" above finished dam.
- Weep holes at drain are clear.
- Doorway minimum finished opening of 22" wide.
- Shower head cannot discharge directly at entrance.
- Permanent seats in shower require ¼" per foot pitch.