

HOT WATER DISTRIBUTION SYSTEMS

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Standard

(Trunk and Branch or Mini-manifold) May include one or more trunks that subdivide into smaller branches to serve specific rooms. These in turn may divide into “twigs” to serve individual fixtures. Does NOT have recirculation. Design should avoid serving first floor fixtures from second floor attic.

Central Parallel Piping

An insulated main trunk less than 15' long serves a manifold that feeds individual fixtures with 1/2" or smaller plastic pipes. Can have multiple manifolds as long as the total distance of the main trunks is less than 15'. All branch lines must be 1/2" or less.

Point of Use

Good architectural design will locate water heater(s) very close to all hot water fixtures. The distance from the water heater to any single fixture should not exceed 5' of 3/4", 10' of 1/2", and 15' of 3/8" pipe. Eligible for a compliance credit if HERS verified.

Compact Design

Similar to Point of Use, but less stringent. Maximum distance from water heater to any fixture is based on the square footage of the home. See Table 4.4.5 in RA 4.4.16. Eligible for a compliance credit if HERS verified.

Recirculating (Demand and Non-demand)

Recirculating systems incorporate a hot water loop from which branches serve individual rooms or fixtures. Demand systems only run when manually activated. Non-demand systems are controlled by timers or temperature sensors and generally result in an energy penalty.

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Hot Water Pipe Insulation

The first five feet of hot and cold water pipes from any storage tank or water heater must be insulated. [150.0(j)2]

- All piping with a nominal diameter of $\frac{3}{4}$ " or larger
- All recirculating loop piping. (not branches)
- HW piping from a heating source (e.g., boiler) to a storage tank and between storage tanks.
- HW piping buried below grade. Must also be installed in a non-crushable sleeve that allows for installation and removal of enclosed pipe and insulation.
- All HW pipes from the heating source to kitchen fixtures.

Code Reference: 2016 Title 24, Part 6 Standards §150.0(j)2



Related Insulation Requirements

- No insulation shall be installed closer than 6" from a flue pipe.
- All pipe insulation seams must be sealed.
- Insulation must be mitered and notched at corners and T's to avoid exposed, bare pipe.
- Installed piping may not pass through HVAC supply or return air plenums.
- Hot and cold water installed in parallel runs must be at least 2 inches apart.
- If a firewall interrupts the first 5' of insulation, the insulation may end there.
- Insulation exposed to weather must have suitable protection. E.g., aluminum, sheet metal, painted canvas, plastic cover, etc.

Code Reference: UMC Chapter 3