

DOCKETED

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- ~~AB-~~ Unfired hot water tanks, such as storage tanks and backup storage tanks for solar water-heating systems, shall be externally wrapped with insulation having an installed thermal resistance of R-12 or greater or have internal insulation of at least R-16 and a label on the exterior of the tank showing the insulation R-value.
2. **Water piping and cooling system line insulation thickness and conductivity.** Piping shall be insulated to the thicknesses as follows:
- A. All domestic hot water system piping conditions listed below, whether buried or unburied, must be insulated and the insulation thickness shall be selected based on the conductivity range in TABLE 120.3-A and the insulation level shall be selected from the fluid temperature range based on the thickness requirements in TABLE 120.3-A:
 - i. The first 5 feet (1.5 meters) of hot and cold water pipes from the storage tank.
 - ii. All piping with a nominal diameter of 3/4 inch (19 millimeter) or larger.
 - iii. All piping associated with a domestic hot water recirculation system regardless of the pipe diameter.
 - iv. Piping from the heating source to storage tank or between tanks.
 - v. Piping buried below grade.
 - vi. All hot water pipes from the heating source to the kitchen fixtures.
 - B. In addition to insulation requirements, all domestic hot water pipes that are buried below grade must be installed in a water proof and non-crushable casing or sleeve ~~that allows for installation, removal, and replacement of the enclosed pipe and insulation.~~
 - C. Pipe for cooling system lines shall be insulated as specified in Subsection A. ~~Piping~~ Distribution piping for steam and hydronic heating systems, ~~or hot water systems with pressure above 15 psig (103 kPa)~~ shall meet the requirements in TABLE 120.3-A.

EXCEPTION 1 to Section 150.0(j)2: Factory-installed piping within space-conditioning equipment certified under Section 110.1 or 110.2.

EXCEPTION 2 to Section 150.0(j)2: Piping that serves process loads, gas piping, cold domestic water piping, condensate drains, roof drains, vents, or waste piping.

EXCEPTION 3 to Section 150.0(j)2: Piping that penetrates framing members shall not be required to have pipe insulation for the distance of the framing penetration. Metal piping that penetrates metal framing shall use grommets, plugs, wrapping or other insulating material to assure that no contact is made with the metal framing. Insulation shall butt securely against all framing members.

EXCEPTION 4 to Section 150.0(j)2: Piping installed in interior or exterior walls shall not be required to have pipe insulation if all of the requirements are met for compliance with Quality Insulation Installation (QII) as specified in the Reference Residential Appendix RA3.5.

EXCEPTION 5 to Section 150.0(j)2: Piping installed in attics with a minimum of 4 inches (10 cm) of attic insulation on top of the piping shall not be required to have pipe insulation.

NOTE: Where the Executive Director approves a water heater calculation method for particular water heating recirculation systems, piping insulation requirements are those specified in the approved calculation method.

3. **Insulation Protection.** Insulation outside conditioned space shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Protection includes but is not limited to the following:
- A. Insulation exposed to weather shall ~~either be rated for outdoor use or be~~ installed with a cover suitable for outdoor service, ~~e.g., including but not limited to protected by~~ aluminum, sheet metal, painted canvas, or plastic cover. ~~Cellular foam insulation shall be protected as above or painted with a coating that is~~ The cover shall be water retardant and provides shielding from solar radiation that can cause degradation of the material.