

**INTERPRETATION IC 90.1-2010-22 OF
ANSI/ASHRAE/IES STANDARD 90.1-2010
Energy Standard for Buildings Except Low-Rise Residential Buildings**

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Request from: Bassam Sabeeh Al. (bsabeeh@itecsys.com), 4-20092-93A Avenue, Langley, BC V1M 3Y4.

Reference: This request for interpretation refers to the requirements presented in ANSI/ASHRAE/IES Standard 90.1-2010, Table 6.8.3A, relating to pipe insulation for PEX domestic hot water piping.

Background: Insulating ½” PEX domestic hot water piping running in the concrete floor for a 4-story apartment building can be difficult. The concrete floor topping is normally around 2” thick. Insulating the domestic water piping running in the concrete floor will be impossible without increasing the floor concrete topping thickness to an unnecessarily level. This will create a high building cost. We think that ½” short branch domestic hot water PEX piping running between the manifold and the plumbing fixtures is not necessarily to be insulated if the building is located in a long winter climate zones because their small pipe heat loss could be used as a heating gain to offset the building heating requirement. (Domestic hot water temperature range from 105°F-140°F)

Interpretation: The intent of Table 6.8.3A of ASHRAE/IES Standard 90.1-2010 is to insulate all domestic hot water piping including the ½” PEX branch pipe up to the plumbing fixture connection regardless of their location and climate zone.

Question: Is this interpretation correct?

Answer: No, your interpretation is not correct.

Comments: Please note that this interpretation is provided based on the information provided in the request.

We note that Chapter 7 of ASHRAE/IES Standard 90.1-2010 specifies service hot-water piping insulation requirements in Section 7.4.3 which states:

7.4.3 Service Hot-Water Piping Insulation. The following piping shall be insulated to levels shown in Section 6, Table 6.8.3:

- a. recirculating system piping, including the supply and return piping of a circulating tank type water heater
- b. the first 8 ft of outlet piping for a constant temperature nonrecirculating storage *system*
- c. the inlet pipe between the storage tank and a heat trap in a nonrecirculating storage *system*
- d. pipes that are externally heated (such as heat trace or impedance heating)

If your proposed service hot-water heating system includes the type of piping specified in Section 7.4.3, then you would refer to Table 6.8.3A for the specific insulation values required, and any allowable adjustments that are allowed under footnotes “a” through “e.”

Service hot-water heating system piping elements not specified in Section 7.4.3 do not require insulation as per Table 6.8.3A.

Your request did not provide enough detail to determine if Section 7.4.3 would apply to your specific circumstances. For example, we do not know if your proposed system is recirculating. We recommend that you evaluate your piping design to see if these requirements apply.

Thank you for your interest in ASHRAE/IES Standard 90.1.