

1323.0680 SECTION 6.8, MINIMUM EQUIPMENT EFFICIENCY TABLES.

Subpart 1. **Table 6.8.2 Minimum duct insulation R-Value.** ASHRAE 90.1 Table 6.8.2 is deleted and replaced with the following:

TABLE 6.8.2**Minimum Required Duct and Plenum Insulation**

Ducts for Other Than Dwelling Units^{a,b}	Supply Duct Requirements^{c,d}	Return Duct Requirements^{c,d}	Exhaust Duct and Relief Duct Requirements^{c,d,e,g}
Exterior of building	R-12, V and W	R-12, V and W	R-12, V and W
Attics, garages, and ventilated crawl spaces	R-12 and V	R-12 and V	R-6 and V
TD greater than 40°F	R-5 and V	None	R-5 and V
TD greater than 15°F and less than or equal to 40°F	R-3.3 and V	None	R-3.3 and V
Within concrete slab or within ground	R-3.5 and V	R-3.5 and V	None
Within conditioned spaces	None ^f	None	None
TD less than or equal to 15°F	None	None	None
Ducts for Dwelling Units^a	Requirements^{c,d}		
Exterior of building	R-12, V and W		
Attics, garages, and ventilated crawl spaces (except exhaust ducts)	R-12 and V		
Exhaust ducts in attics, garages, and ventilated crawl spaces	R-3.3 and V		
Outdoor air intakes within conditioned spaces	R-3.3 and V		
Exhaust ducts within conditioned spaces ^e	R-3.3 and V		
Within concrete slab or within ground	R-3.5 and V		
Within conditioned spaces	None		

$$^{\circ}\text{C} = [(^{\circ}\text{F}) - 32]/1.8$$

- a. Ducts located within the building thermal envelope shall be located completely on the conditioned side of the air barrier.
- b. TD = Design temperature difference between the air in the duct and the ambient temperature outside of the duct, unless the duct type and location are specifically identified above.
- c. V = Vapor retarder required in accordance with Minnesota Rules, chapter 1346. When a vapor retarder is required, duct insulation required by this section shall be installed without respect to other building envelope insulation.
- d. W = Approved weatherproof barrier.
- e. Insulation is only required in the conditioned space for a distance of three feet (914 mm) from the exterior or unconditioned space.
- f. If the temperature rise is greater than 3°F from the supply air connection of the air handling unit to the furthest outlet, duct insulation shall be required for the entire length or for sufficient length to limit the temperature rise to 3°F.
- g. Insulation is not required on the exterior if low leak dampers are installed at roof or wall line or the exhaust is designed to be operated continuously.

Subp. 2. **ASHRAE 90.1 Table 6.8.3-1 Minimum piping insulation thickness heating and hot-water systems.** ASHRAE 90.1 Table 6.8.3-1 is amended to add footnote "f" to read as follows:

- f. Insulation requirements do not apply to those sections of piping used as the radiant heat source for radiant heating systems.

Statutory Authority: *MS s 326B.02; 326B.101; 326B.106*

History: *47 SR 983*

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