

BCA 2010 Specification J5.2

Ductwork Insulation and Sealing

Applies to Class 2 to 9 buildings

1. Scope

This Specification contains the requirements for the sealing and the insulating of supply and return ductwork used in a system that heats or cools a building.

2. Ductwork sealing

- (a) Heating or cooling ductwork and fittings must be sealed against air loss—
 - (i) by closing all openings in the surface, joints and seams of ductwork with adhesives, mastics, sealants or gaskets in accordance with the duct sealing requirements of AS 4254 for the static pressure in the system; or
 - (ii) for flexible ductwork at an operating static pressure of less than 500 Pa, with a draw band in conjunction with a sealant or adhesive tape.
- (b) The requirements of [\(a\)](#) do not apply to ductwork and fittings located within the only or last room that is served by the system.

3. Ductwork insulation

- (a) Insulation must be provided on ductwork and fittings, used for heating or cooling, including evaporative cooling, with insulation complying with AS/NZS 4859.1 and—
 - (i) achieve the material *R-Value* specified in [Table 3](#); or
 - (ii) for flexible ductwork of no more than 3 m in length to an outlet or from an inlet, achieve a minimum material *R-Value* of 1.0.
- (b) Insulation on ductwork conveying cold air must be protected by—
 - (i) a vapour barrier on the outside of the insulation; and
 - (ii) where the vapour barrier is a membrane, overlapping adjoining sheets of the membrane by 50 mm and bonding or taping the sheets together.
- (c) Ductwork insulation must—
 - (i) be protected against the effects of weather and sunlight; and
 - (ii) abut adjoining insulation to form a continuous barrier; and
 - (iii) be installed so that it maintains its position and thickness, other than at flanges and supports.
- (d) The requirements of [\(a\)](#) do not apply to—
 - (i) heating and cooling ductwork and fittings located within the only or last room that is served by the system; and
 - (ii) air registers, diffusers, outlets, grilles and flexible fan connections; and

- (iii) return air ductwork in, or passing through, a *conditioned space*; and
- (iv) ductwork for outside air and exhaust air associated with a heating or cooling system; and
- (v) the floor of an in-situ air-handling unit; and
- (vi) packaged air-conditioning equipment complying with Minimum Energy Performance Standard (MEPS).

Table 3 DUCTWORK AND FITTINGS - MINIMUM MATERIAL R-VALUE

Location of ductwork and fittings	Minimum material <i>R-Value</i> for ductwork and fittings in each <i>climate zone</i>		
	1, 2, 3 and 5	4, 6 and 7	8
Within a <i>conditioned space</i>	1.2	1.0	1.6
Where exposed to direct sunlight	3.0	3.0	3.4
All other locations	2.0	2.0	2.4

ADMA note: material R-Value means the insulation blanket R-Value - a R1.0 duct requires R1.0 insulation blanket. This has been changed from the 2009 BCA which required a "Total R-Value"