

ADVISORY NOTICE BUILDING

05/10

Advisory Notices are issued to assist in the interpretation of the Development Act 1993

August 2010

TECHNICAL:

Insulation of Internal Ductwork

This Notice provides information about the requirement for insulation of heating and cooling ductwork and fittings in Class 1 buildings.

DISCUSSION

The Building Code of Australia (BCA) Part 2.6 and the South Australian Housing Code (SAHC) Appendix H contain requirements for energy efficiency in Class 1 buildings.

The BCA, part 3.12.5 and the SAHC, Appendix H, part H8.2 require that ducting for heating and cooling services not located within the insulated building envelope or in a conditioned space are to be insulated to achieve minimum R-values.

Ductwork left uninsulated loses heat in winter and gains heat in summer through the duct walls, thereby reducing the effectiveness of the heating or cooling system. An uninsulated roof space is particularly hot in summer and will significantly reduce the effectiveness of air-conditioning and uninsulated ductwork located within it.

Tables 3.12.5.2 in the BCA and H.17 of the SAHC (reproduced below) provide the minimum R-Values for ductwork and fittings.

TABLE H.17 Minimum *material R-Value* for heating and cooling ductwork and fittings

Ductwork element	Heating only system or cooling only system including an evaporative cooling system	Combined heating and refrigerated cooling system	
	<i>Climate Zones 4, 5 and 6</i>	<i>Climate Zones 4 and 6</i>	<i>Climate Zone 5</i>
Ductwork	1.0	1.5	1.0
Fittings	0.4		

Insulation material may be incorporated into the walls of the ductwork at the time of its manufacture or fitted as the ductwork is being installed, in the Class 1 building.

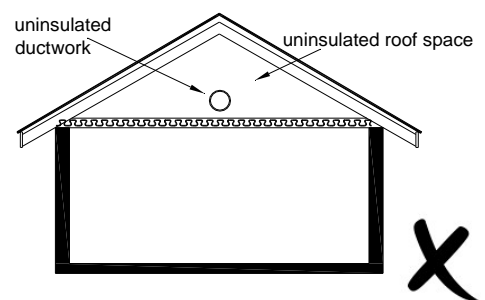
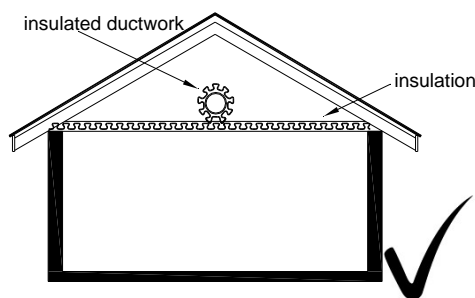
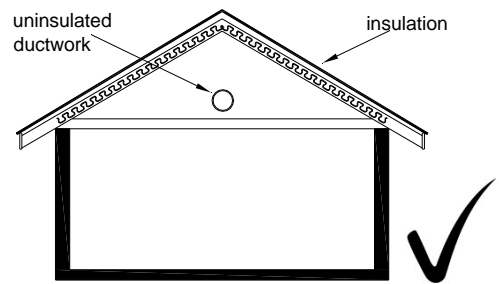
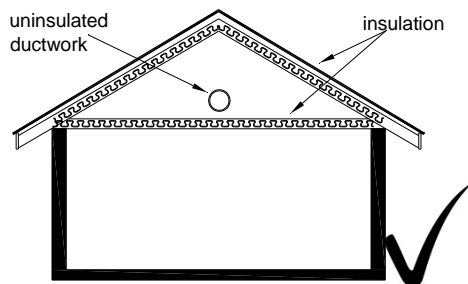
Any inspections of newly completed houses should include verification that all the required insulation is in place and properly installed. It is not uncommon for ceiling insulation to be properly fitted in the first instance but subsequently moved by later trades and not properly replaced.

The explanatory information in the BCA and Table H.18 of the SAHC (reproduced below) provides materials which may be used to achieve the desired R-Value.



TABLE H.18 Material R-Values of heating and cooling ductwork and fitting insulation

Insulation	R-Value
Fittings	
11mm polyurethane	0.4
Flexible ductwork	
45 mm glasswool (11 kg/m ³)	1.0
70 mm polyester fibre insulation (6.4kg/m ³)	1.0
63 mm glasswool (11 kg/m ³)	1.5
90 mm polyester (8.9 kg/m ³)	1.5
85 mm glasswool (11 kg/m ³)	2.0
Sheetmetal ductwork – external insulation	
38 mm glasswool (22kg/m ³)	1.0
50 mm polyester (20kg/m ³)	1.1
50 mm glasswool (22kg/m ³)	1.5
75 mm polyester (20 kg/m ³)	1.7
Sheetmetal ductwork – internal insulation	
38 mm glasswool (32kg/m ³)	1.0
50 mm polyester (32kg/m ³)	1.3
50 mm glasswool (32kg/m ³)	1.5



Further information

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