

Code of practice for air-conditioning and mechanical ventilation in buildings

AMENDMENT NO. 1

August 2017

1. Page 25, Table 4

Replace Table 4 with the following:

Table 4 – Recommended ambient sound level

Area	Low dBA	Average dBA	High dBA
Cinemas, theatres	–	30	35
Private executive type offices, conference rooms	30	35	40
General offices, other private or semi-private offices*	40	45	50
Air-conditioned classrooms	35	40	45
Hotel bedrooms	30	35	40
Places of public resort e.g. shops	40	50	55
Circulation spaces in common areas e.g. staircases, lift lobbies	45	50	55
Car parks	50	55	60

*Includes circulation spaces within office areas

2. Page 38, 17.1

(a) Replace item a) as follows:

a) Insulation exposed to weather shall be suitable for outdoor service, e.g., protected by aluminium, sheet metal or plastic cover. Cellular foam, where permitted under Code of Practice for Fire Precautions in Buildings, shall be protected as above or painted with a coating that is water retardant and provides shielding from solar radiation that can cause degradation of the material; and

(b) Insert new item c) as follows:

c) Insulation material should be protected by a continuous vapour retarder with a minimum water vapour diffusion resistance factor, μ , of 5000, either integral to the insulation or as a vapour retarder material applied to the exterior surface of the insulation.

3. Page 39, Table 10

Replace Table 10 with the following:

Table 10 – Minimum duct insulation R-values for cooling only supply ducts and return ducts

Duct location	Cooling only supply ducts	Return ducts
	R-value (m ² K/W)	R-value (m ² K/W)
Exterior	1.06	0.62
Ventilated attic	1.06	0.62
Unvented attic above insulated ceiling	1.41	0.62
Unvented attic with roof insulation	0.62	None
Unconditioned space	0.62	None
Buried	0.62	None
Indirectly conditioned space	None	None

NOTE:

- 1) Insulation R-values (m²K/W) are for insulation installed and do not include film resistance.
- 2) The required minimum thickness does not consider water vapour transmission.
- 3) Insulation resistance measured on horizontal plane at a mean temperature of 24°C at installed thickness.
- 4) Minimum thickness should also consider condensation control or heat gain of maximum 25 W/m² at design condition, whichever is higher.

4. Page 40, Table 11

Replace Table 11 with the following:

Table 11 – Minimum pipe insulation thickness for heating and cooling systems

Fluid design operating temp. range (°C)	Insulation conductivity		Nominal pipe or tube size (mm)				
	Conductivity [W/(m.K)]	Mean rating temp. (°C)	< 25	25 to <40	40 to <100	100 to <200	≥200
Heating systems (steam, steam condensate and hot water)							
>177	0.046 to 0.049	121	115	125	125	125	125
122 to 177	0.042 to 0.046	93	80	100	115	115	115
94 to 121	0.039 to 0.043	66	65	65	80	80	80
61 to 93	0.036 to 0.042	52	40	40	50	50	50
41 to 60	0.032 to 0.040	38	25	25	40	40	40
Cooling systems (chilled water, brine and refrigerant)							
4 to 16	0.030 to 0.039	24	13	13	25	25	25
<4	0.029 to 0.037	10	13	25	25	25	40

Singapore Standard SS 553 : 2016
Amendment No. 1

NOTE:

- 1) These thicknesses are based on energy efficiency consideration only and does not consider issues such as water vapour permeability.
- 2) The table is based on steel pipe. Non-metallic pipes schedule 80 thickness or less shall use the table values. For other non-metallic pipes having thermal resistance greater than that of steel pipe, reduced insulation thickness are permitted if documentation is provided showing that the pipe with the proposed insulation has no more heat transfer per meter than a steel pipe of the same size with the insulation thickness shown in the table.
- 3) Minimum thickness should also consider condensation control or heat gain/loss of maximum 25 W/m^2 at design condition or relative to safety issues/surface temperature, whichever is higher.