

## Appendix 13

### Acoustic Insulation and Ventilation Requirements – Queenstown Town Centre Zone

The following table sets out the ventilation requirements that apply to specific activities in the Queenstown Town Centre zone.

**Table 1: Ventilation Requirements for Critical Listening Environments**

Room Type	Outdoor Air Ventilation Rate (Air Changes per Hour, ac/hr)	
	Low Setting *	High Setting *
<b>Bedrooms</b>	1-2 ac/hr	Min. 5 ac/hr
<b>Other critical listening environments</b>	1-2 ac/hr	Min. 15 ac/hr
Noise from ventilation systems shall not exceed 35 dB LAeq(1 min), on High Setting and 30 dB LAeq(1 min), on Low Setting. Noise levels shall be measured at a distance of 1 m to 2 m from any diffuser.		
Each system must be able to be individually switched on and off and when on, be controlled across the range of ventilation rates by the occupant with a minimum of 3 stages.		
Each system providing the low setting flow rates is to be provided with a heating system which, at any time required by the occupant, is able to provide the incoming air with an 18 deg C heat rise when the airflow is set to the low setting. Each heating system is to have a minimum of 3 equal heating stages.		
If air conditioning is provided to any space then the high setting ventilation requirement for that space is not required.		

# ACOUSTIC INSULATION AND VENTILATION REQUIREMENTS **A13**

## Queenstown Airport Sound Insulation and Ventilation Requirements

The following table sets out the construction materials required to achieve appropriate sound insulation within the airport Air Noise Boundary (ANB).

**Table 2: Sound Insulation Requirements – Acceptable Construction materials**

Building Element	Minimum Construction	
External Walls	<b>Exterior Lining:</b>	Brick or concrete block or concrete, or 20mm timber or 6mm fibre cement
	<b>Insulation:</b>	Not required for acoustical purposes
	<b>Frame:</b>	One layer of 9mm gypsum or plasterboard (or an equivalent combination of exterior and interior wall mass)
Windows/Glazed Doors	4mm glazing with effective compression seals or for double glazing 6mm-6mm airgap-6mm	
Pitched Roof	<b>Cladding:</b>	0.5mm profiled steel or masonry tiles or 6mm corrugated fibre cement
	<b>Insulation:</b>	100mm thermal insulation blanket/batts
	<b>Ceiling:</b>	1 layer 9mm gypsum or plaster board
Skillion Roof	<b>Cladding:</b>	0.5mm profiled steel or 6mm fibre cement
	<b>Sarking:</b>	None Required
	<b>Insulation:</b>	100mm thermal insulation blanket/batts
	<b>Ceiling:</b>	1 layer 9mm gypsum or plasterboard
External Door	Solid core door (min 24kg/m <sup>2</sup> ) with weather seals	

Note: The specified construction materials in this table are the minimum required to meet the Indoor Design Sound Level. Alternatives with greater mass or larger thicknesses of insulation will be acceptable. Any additional construction requirements to meet other applicable standards not covered by this rule (eg fire, Building Code etc) would also need to be implemented.

# ACOUSTIC INSULATION AND VENTILATION REQUIREMENTS **A13**

The following table sets out the ventilation requirements within the airport Outer Control Boundary (OCB) and Air Noise Boundary (ANB).

**Table 3: Ventilation Requirements**

Room Type	Outdoor Air Ventilation Rate (Air Changes per Hour, ac/hr)	
	Low Setting	High Setting
Bedrooms	1-2 ac/hr	Min. 5 ac/hr
Other Critical Listening Environments	1-2 ac/hr	Min. 15 ac/hr
Noise from ventilation systems shall not exceed 35 dB $L_{Aeq(1 \text{ min})}$ , on High Setting and 30 dB $L_{Aeq(1 \text{ min})}$ , on Low Setting. Noise levels shall be measured at a distance of 1 m to 2 m from any diffuser.		
Each system must be able to be individually switched on and off and when on, be controlled across the range of ventilation rates by the occupant with a minimum of 3 stages.		
Each system providing the low setting flow rates is to be provided with a heating system which, at any time required by the occupant, is able to provide the incoming air with an 18 °C heat rise when the airflow is set to the low setting. Each heating system is to have a minimum of 3 equal heating stages.		
If air conditioning is provided to any space then the high setting ventilation requirement for that space is not required.		