DISTRICT-WIDE MATTERS

NOISE – Noise

Introduction

Noise can create issues and may impact people's health and their enjoyment of the District. Noise can vary in its source, character, duration and time of occurrence creating a range of adverse environmental *effects*.

Noise provisions in this section provide certainty to the community around what levels of noise are acceptable when taking account of the noise producer and the receiving *environment*.

Rural production activities are the predominant activities in the rural area of the District. There is pressure for increased rural lifestyle living which can seek different expectations for the rural area. This can lead to complaints about the noise generated by rural production activities as part of day to day activities.

Residential amenity is especially sensitive to adverse noise *effects*. Noise provisions have been established to protect residential communities from such adverse *effects*, especially during night-time hours.

Specific noise limits are covered in Manfeild Park *Zone* and the Special Development *Zone*. Those provisions appear in the respective chapters, and are not reproduced below.

Objectives

NOISE-O1	To ensure noise generated from activities is appropriate to the character and level of amenity anticipated in the surrounding <i>environment</i> and human health and safety.
NOISE-O2	To avoid, remedy or mitigate the adverse <i>effects</i> of noise upon people's health and amenities (GEN-O2).

Policies

NOISE-P1	To ensure noise level standards protect <i>residential units</i> and other noise <i>sensitive activities</i> from unreasonable noise levels.
NOISE-P2	To ensure noise levels within the Town Centre and Mixed Use <i>Zones</i> and the General Industrial <i>Zone</i> enable the functioning of these activities without resulting in significant adverse environmental <i>effects</i> on adjacent <i>residential activities</i> .
NOISE-P3	To consider appropriate mitigation measures where noise levels exceed the <i>zone</i> or <i>zone</i> interface noise limits.
NOISE-P4	To provide for noise associated with rural production activities in the General Rural <i>zone</i> .
NOISE-P5	To apply the concepts of the NZ Standard for Airport Noise (NZS 6805:1992) to airports in the District, and to the land in the immediate vicinity of airports.
NOISE-P6	To exclude any new school, place of assembly, hospital, <i>residential unit</i> or other accommodation from the Air Noise Area around Palmerston North Airport.
NOISE-P7	To mitigate the adverse <i>effects</i> of aircraft noise on any new school, place of assembly, hospital, <i>residential unit</i> or other accommodation in the Inner and Outer Control Areas around Palmerston North Airport.

Rules

Rules in this chapter apply district-wide and the chapter needs to be read in conjunction with the District Plan maps, relevant appendices and provisions of the applicable *zone*.

Permitted Activities (PER)

NOISE-R1 All activities are permitted provided they comply with the performance standards NOISE-ST1 to NOISE-ST4.

Standards for Permitted Activities

For all *zones*, the *permitted activities* specified in NOISE-R1 must comply with the following standards:

NOISE-ST1	Noise levels shall be measured in accordance with NZS 6801:2008 Measurement of Environmental Sound and assessed in accordance with NZS 6802:2008 Acoustics – Environmental Noise unless otherwise specified.		
NOISE-ST2	All activities must comply with the following noise levels for the <i>zone</i> the activity is located in. Refer to Table 5 – Noise Levels.		
NOISE-ST3	Sounds generated by construction, maintenance and demolition activities will be assessed, predicted, measured, managed and controlled by reference to NZS6803:1999 Acoustics – Construction Noise.		
NOISE-ST4	Noise from the following activities are not controlled by NOISE-ST2 in this Plan:		
	NOISE-ST4.1	Aircraft being operated during or immediately before or after flight.	
	NOISE-ST4.2	Vehicles being driven on a <i>road</i> , excluding the use of airbrakes on trucks.	
	NOISE-ST4.3	Trains other than when being tested (when stationary), maintained, loaded or unloaded.	
	NOISE-ST4.4	Rural production activities, except for intensive farming.	
	NOISE-ST4.5	Crowd noise at any area zoned Open Space.	
	NOISE-ST4.6	Emergency Services Sirens.	
	NOISE-ST4.7	Military Training Activities covered by GEN-R1 to GEN-R3.	

Guidance Notes:

 Sound from commercial renewable energy generation will be assessed, predicted, measured and controlled by reference to the NZS6808:1998 Acoustics – The Assessment and Measurement of Sound from Wind Turbine Generators.

- Noise from Helicopters using separate helicopter landing areas that are not part of an airport will be assessed according to NZS 6807:1994 Noise Management and Land Use Planning for Helicopter Landing Areas.
- Noise associated with aircraft operations will be assessed by NZS 6805:1992 Airport Noise Management and Land Use Planning.
- 4. Unreasonable or excessive noise can be controlled by reference to the specific provisions of the Resource Management Act (1991), specifically sections 16 and 327.

Discretionary Activities (DIS)

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NOISE-R2 Any activity that does not meet the noise standards for a *Permitted Activity* specified in NOISE-ST1 to NOISE-ST4, or is not specifically provided for in this plan, shall be a *Discretionary Activity*.

Table 5 – Noise Levels

ZONE the activity is	Time Period	Potentially Affected Zone		
located in		(measured at any poin site in the <i>zone</i>)	nt within the bound	dary of any other
		General Residential/Settleme nt	General Rural	Town Centre & Mixed Use
General	7am - 10pm	45db L _{Aeq (15 mins)}	-	
Residential/Settlem	10pm – 7am	35db L _{Aeq} (15 mins)	-	
(these apply only to home occupations and non-residential activities)	10pm-7am	55db L _{Amax}		
Open Space	7am - 7pm	55db LAeq (15 mins)		
	7pm - 10pm	50db L _{Aeq (15 mins)}		
	10pm - 7am	40db LAeq (15 mins)		
	10pm - 7am	70db L _{Amax}		
General Rural	7am - 7pm	55db LAeq (15 mins)	55db LAeq (15 mins)	_
	7pm - 10pm	50db L _{Aeq (15 mins)}	50db L _{Aeq (15 mins)}	_
	10pm - 7am	40db LAeq (15 mins)	40db LAeq (15 mins)	_
	10pm - 7am	70db L _{Amax}	70db L _{Amax}	
General Industrial	7am - 7pm	55db L _{Aeq (15 mins)}	55db L _{Aeq (15 mins)}	_
	7pm - 10pm	50db L _{Aeq (15 mins)}	50db LAeq (15 mins)	_
	10pm - 7am	45db LAeq (15 mins)	45db LAeq (15 mins)	_
	10pm - 7am	75db L _{Amax}	75db L _{Amax}	
Town Centre and	7am - 7pm	55db L _{Aeq} (15 mins)		
Mixed Use	7pm - 10pm	50db L _{Aeq} (15 mins)		
	10pm - 7am	45db LAeq (15 mins)		
	10pm - 7am	75db L _{Amax}		
	At any time			65db LAeq (15 mins)

10pm - 7am	85db L _{Amax}
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Guidance Note: The noise provisions for Stadium *Zone* and the Special Development *Zone* are contained in the specific *zone* chapters.

NOISE-SCHED1 – *Schedule P* 20dB Noise Insulation

Refer Rules: GRUZ-MD3, NH-MD4, GEN-AC1 to GEN-AC25, GRUZ-ST12

Roof/Upper floor ceiling

OPTIONS	DESCRIPTION OF CONSTRUCTION
1	ROOF
	Pitched roof clad with tiles, or not less than 0.5mm roofing iron, or 6mm corrugated cellulose-cement.
	CEILING
	12.5mm plasterboard fixed to underside of horizontal ceiling joist or ceiling battens.
	INSULATION
	Fibre insulation batt or blanket with a thickness of not less than 94mm and density of not less than 12 kg/m3 (such as ceiling Pink Batts R2.2 or equivalent), laid between ceiling joists.
2	ROOF
	Steel trough roof or other roofing iron, not less than 0.5mm thick.
	CEILING
	One layer of 12.5mm plasterboard fixed to the same timber framework as the roof but with a separation of not less than 150mm between the roofing and the plasterboard.
	INSULATION
	Fibre insulation batt or blanket with a thickness of not less than 94mm and density of not less than 12 kg/m3 (such as ceiling Pink Batts R2.2 or equivalent), laid between ceiling joists or compresses over purlins (can be combined with integral waterproof membrane).

Outer Walls

OPTIONS	DESCRIPTION OF CONSTRUCTION
1	CONSTRUCTION
	Conventional timber stud-framed walls.
	EXTERNAL CLADDING
	1. Not less than 18mm thick timber weather board; or
	2. Not less than 9mm thick compressed fibre cement sheets; or
	3. Not less than 18mm thick solid plaster.
	INTERNAL LINING
	Not less than 9.5mm thick plasterboard.
	CAVITY INSULATION
	Fibre insulation batt or blanket with a thickness of not less than 94mm and
	density of not less than 12 kg/m3 (such as Wall Pink Batts R2.2 or equivalent).
2	CONSTRUCTION
	Conventional brick veneer installed in accordance with clearly presented and
	adequate technical information on installation supplied by the manufacturer.
	INTERNAL LINING
	Not less than 9.5mm thick plasterboard.

Outer Windows

OPTIONS	DESCRIPTION OF CONSTRUCTION
1	CONSTRUCTION
	Single glass windows in an aluminium, steel, timber or PVC frame with a positive sealing arrangement.
	AREA
	Up to 50% of the total exterior wall area.
	GLAZING

	Not less than 6mm thick monolithic or laminated glass.
2	CONSTRUCTION
	Double glazed or double windows in an aluminium, timber or PVC frame with a positive sealing arrangement.
	AREA
	Up to 50% of the total exterior wall area.
	GLAZING
	Two panes each of a minimum thickness of 4mm with an airspace of not less than 6mm.

Outer Doors

OPTIONS	DESCRIPTION OF CONSTRUCTION
1	Solid core door of a thickness not less than 35mm and a superficial density of not less than 20 kg/m2 complete with soft gasket around sides and top and drop seal at base.

Notes: The required degree of insulation will only be provided if the specified level of integrity is maintained throughout the envelope of the *building* in respect to areas in which sound insulation requirements apply. If a *sound transmission path* is provided from outside the *building* to inside the insulated room in question via a path that is not fully and appropriately insulated against, then the design of the *building* shall not comply with the permitted activity performance standard. In determining the insulating performance of roof/ceiling arrangements, roof spaces are assumed to have no more than the casual ventilation typical of the jointing capping and guttering details used in normal construction.

Mechanical Ventilation of spaces with non-opening windows or with sound-insulated windows shall be provided in accordance with provisions of the New Zealand Building Code G4 in a manner which does not compromise sound insulation.

In all cases opening windows are permissible. Where non-opening windows are used, an early warning smoke detection system should be installed and maintained within the premises (particularly in sleeping rooms and exit ways) in accordance with an approved New Zealand

Code or Standard or AS3786:1993. Where mechanical ventilation is provided devices should be installed to shut down or close off the system to prevent the travel of fire and smoke products.

NOISE-SCHED2 – *Schedule Q* 25dB Noise Insulation

Refer Rules: GRUZ-MD3, NH-MD4, GEN-AC1 to GEN-AC25, GRUZ-ST12

Roof / Upper Floor Ceiling

OPTIONS	DESCRIPTION OF CONSTRUCTION
1	ROOF
	Pitched roof clad with tiles, or greater than 0.5mm roofing iron, or 6mm corrugated cellulose-cement.
	CEILING
	12.5mm plasterboard fixed to underside of horizontal ceiling joist or ceiling battens.
	INSULATION
	Fibre insulation batt or blanket with a thickness of not less than 94mm and density of not less than 12 kg/m3 (such as Ceiling Pink Batts R2.2 or equivalent), laid between ceiling joists.
2	ROOF
	Steel trough roofing or other roofing iron, not less than 0.5mm thick.
	CEILING
	Two layers of 9.5mm thick plasterboard fixed to the same timber framework as the roof but with a separation of not less than 150mm between the roofing and the plasterboard.
	INSULATION
	Fibre insulation batt or blanket with a thickness of not less than 94mm and density of not less than 12 kg/m3 (such as Ceiling Pink Batts R2.2 or equivalent), laid between ceiling joists or compressed over purlins (can be combined with integral waterproof membrane).

Outer Walls

OPTIONS	DESCRIPTION OF CONSTRUCTION
1	CONSTRUCTION
	Conventional timber stud-framed walls.
	EXTERNAL CLADDING
	Not less than 18mm thick timber weather board; or
	Not less than 9mm thick compressed fibre cement sheets; or
	Not less than 18mm thick solid plaster.
	INTERNAL LINING
	Not less than 12.5mm thick plasterboard.
	CAVITY INSULATION
	Fibre insulation batt or blanket with a thickness of not less than 94mm and density of not less than 12 kg/m ³ (such as Wall Pink Batts R2.2 or equivalent).
2	CONSTRUCTION
	Conventional brick veneer installed in accordance with clearly presented and adequate technical information on installation supplied by the manufacturer. INTERNAL LINING
	Not less than 12.5mm thick plasterboard.

Outer Windows

OPTIONS	DESCRIPTION OF CONSTRUCTION
1	CONSTRUCTION
	Single glass windows in an aluminium, steel, timber or PVC frame with a positive sealing arrangement. No through-frame ventilation.

	AREA
	Up to 50% of the total exterior wall area.
	GLAZING
	Not less than 7mm thick Hush Glass.
2	CONSTRUCTION
	Double glazed or double windows in an aluminium, steel, timber or PVC frame with not less than a 13mm air space between panes, and a positive sealing arrangement. No through-frame ventilation.
	AREA
	Up to 50% of the total exterior wall area.
	GLAZING
	One pane not less than 7.5mm and the other not less than 6mm thick with the panes being of dissimilar thickness.
3	CONSTRUCTION
	Double glass windows in separate timber frames with not less than a 70mm air space between panes, and a positive sealing arrangement. No through-frame ventilation.
	AREA
	Up to 50% of the total exterior wall area.
	GLAZING
	One pane not less than 6mm and the other not less than 5mm thick with the panes being of dissimilar thickness.
4	CONSTRUCTION
	Completely sealed double glass windows in separate timber frames with not less than a 50mm air space between panes, and a positive sealing arrangement. No through-frame ventilation.
	AREA
	Up to 20% of the total exterior wall area.
	GLAZING

Each pane of dissimilar thickness but neither being less than 5mm thick.
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Outer Doors

OPTIONS	DESCRIPTION OF CONSTRUCTION
1	Solid core door of a thickness not less than 42mm and a superficial density of not less than 24 kg/m ² complete with soft gasket around sides and top and drop seal at base.

Flooring (exposed to outside noise via under-floor)

OPTIONS	DESCRIPTION OF CONSTRUCTION
1	CONSTRUCTION
	Conventional timber joist floor and thermal insulation.
	UPPER BOARDS (floor base inside room)
	Not less than two sheets of 18mm particle board.
2	CONSTRUCTION
	Conventional timber joist floor and thermal insulation.
	UPPER BOARDS (floor base inside room)
	Not less than one sheet of 18mm particle board.
	UNDER JOISTS (sub floor)
	Not less than one sheet of 6mm thick compressed fibre cement sheets.

Notes: The required degree of insulation will only be provided if the specified level of integrity is maintained throughout the envelope of the *building* in respect to areas in which sound insulation requirements apply. If a *sound transmission path* is provided from outside the *building* to inside the insulated room in question via a path that is not fully and appropriately insulated against, then the design of the *building* shall not comply with the permitted activity performance standard. In determining the insulating performance of roof/ceiling arrangements,

roof spaces are assumed to have no more than the casual ventilation typical of the jointing capping and guttering details used in normal construction.

Mechanical Ventilation of spaces with non-opening windows or with sound-insulated windows shall be provided in accordance with provisions of the New Zealand Building Code G4 in a manner which does not compromise sound insulation.

In all cases opening windows are permissible. Where non-opening windows are used, an early warning smoke detection system should be installed and maintained within the premises (particularly in sleeping rooms and exit ways) in accordance with an approved New Zealand Code or Standard or AS3786:1993. Where mechanical ventilation is provided devices should be installed to shut down or close off the system to prevent the travel of fire and smoke products.

NOISE-SCHED3 – *Schedule R* 30dB Noise Insulation

Refer Rules: GRUZ-MD3, NH-MD4, GEN-AC1 to GEN-AC25, GRUZ-ST12

Roof / Upper Floor Ceiling

OPTIONS	DESCRIPTION OF CONSTRUCTION
1	ROOF
	Pitched roof clad with tiles, or greater than 0.5mm roofing iron, or 6mm corrugated cellulose-cement.
	CEILING
	Two layers of 12.5mm plasterboard fixed to underside of horizontal ceiling joist or ceiling battens.
	INSULATION
	Fibre insulation batt or blanket with a thickness of not less than 94mm and density of not less than 12 kg/m ³ (such as Ceiling Pink Batts R2.2 or equivalent), laid between ceiling joists.
2	ROOF
	Steel trough roofing not less than 0.6mm thick.
	CEILING
	Two layers of 12.5mm thick plasterboard fixed to the same timber framework as the roof but with a separation of not less than 150mm between the roofing and the plasterboard.
	INSULATION
	Fibre insulation batt or blanket with a thickness of not less than 94mm and density of not less than 12 kg/m ³ (such as Ceiling Pink Batts R2.2 or equivalent), laid between ceiling joists or compressed over purlins (can be combined with integral waterproof membrane).

Outer Walls

OPTIONS	DESCRIPTION OF CONSTRUCTION
1	CONSTRUCTION
	Conventional timber stud-framed walls.
	EXTERNAL CLADDING
	Not less than 18mm thick timber weather board; or
	Not less than 9mm thick compressed fibre cement sheets; or
	Not less than 18mm thick solid plaster.
	INTERNAL LINING
	Not less than two 12.5mm thick plasterboard sheets as internal lining to external walls.
	CAVITY INSULATION
	Fibre insulation batt or blanket with a thickness of not less than 94mm and density of not less than 12 kg/m ³ (such as Wall Pink Batts R2.2 or equivalent).
2	CONSTRUCTION
	Conventional brick veneer in which the wall space is ventilated by connection with subfloor vents; upper part of the internal wall sheeting is exposed to, and penetrated by, upper wall vents leading to the eaves space. INTERNAL LINING
	Not less than 12.5mm thick plasterboard.

Outer Windows

OPTIONS	DESCRIPTION OF CONSTRUCTION
1	CONSTRUCTION

	Completely sealed double glass windows in separate timber frames with not
	completely scaled double glass windows in separate timber names with not
	less than a 100mm air space between panes, and a positive sealing
	arrangement. No through-frame ventilation.
	AREA
	Up to 20% of the total exterior wall area.
	GLAZING
	Each sheet of dissimilar thickness but neither being less than 5mm thick.
2	CONSTRUCTION
	Completely sealed double glass windows in separate timber frames with not less than a 50mm air space between panes, and a positive sealing arrangement. No through-frame ventilation.
	AREA
	Up to 20% of the total exterior wall area.
	GLAZING
	One sheet 7 mm Hush Glass and one sheet 6mm thick.

Outer Doors

No "single" door or ranch-slider located directly between the *Schedule R* sound-insulated room and outside area is deemed to provide 30 decibels sound reduction of outside aircraft noise.

Flooring (exposed to outside noise via under-floor)

OPTIONS	DESCRIPTION OF CONSTRUCTION
1	CONSTRUCTION
	Conventional timber joist floor.
	UPPER BOARDS (floor base inside room)
	Not less than two sheets of 18mm particle board.
	UNDER JOISTS (sub floor)

Not less than one sheet of 6mm thick compressed fibre cement sheets.
FLOOR CAVITY INSULATION
Fibre insulation batt or blanket with a thickness of not less than 94mm and density of not less than 12 kg/m ³ (such as Ceiling Pink Batts R2.2 or equivalent).

Notes:

The required degree of insulation will only be provided if the specified level of integrity is maintained throughout the envelope of the *building* in respect to areas in which sound insulation requirements apply. If a *sound transmission path* is provided from outside the *building* to inside the insulated room in question via a path that is not fully and appropriately insulated against, then the design of the *building* shall not comply with the permitted activity performance standard. In determining the insulating performance of roof/ceiling arrangements, roof spaces are assumed to have no more than the casual ventilation typical of the jointing capping and guttering details used in normal construction.

Mechanical Ventilation of spaces with non-opening windows or with sound-insulated windows shall be provided in accordance with provisions of the New Zealand Building Code G4 in a manner which does not compromise sound insulation.

In all cases opening windows are permissible. Where non-opening windows are used, an early warning smoke detection system should be installed and maintained within the premises (particularly in sleeping rooms and exit ways) in accordance with an approved New Zealand Code or Standard or AS3786:1993. Where mechanical ventilation is provided devices should be installed to shut down or close off the system to prevent the travel of fire and smoke products.

NOISE-APP1 – Air Noise Control Areas: Palmerston North Airport

Refer Rules: GRUZ-MD3, NH-MD4, GEN-AC1 to GEN-AC25, NH-R21, GRUZ-ST12, SUB-ST17-SUB-ST27

