

Submission on airport Noise mitigation conditions

Gillian Macleod is presenting this verbal submission on behalf of David Jerram, Registered Architect, Fellow of the New Zealand Institute of Architects. David is trustee for the owner of 96 McBride St Frankton.

This submission relates in particular to the Airport Noise Mitigation Conditions.

Airport Noise Mitigation Conditions within these Designations states that "Mechanical ventilation shall be in accordance with Table 2 of Appendix 13 to the District Plan."

However this table has no reference for the need for cooling, the only reference is a requirement for heating.

Therefore there is no requirement within the RMP for either new or existing houses within the Airport Noise Boundaries to be provided with cooling.

Cooling will be a necessity to allow houses to operate with windows and doors shut in the summer months within the Airport Noise Boundaries.

This is because Queenstown has high summer temperatures and in Frankton the majority of houses face directly west and have large windows for the views. This causes late afternoon overheating with the low summer sun coming through these windows.

Currently owners can make their houses liveable by opening windows.

Opening the windows has two significant effects.

- It allows a high volume of air through the house. This does not reduce the interior temperature relative to the outside air but does remove the additional heat load caused by the low afternoon sun. Therefore the interior temperature does not rise further.
- This large scale air movement also has the beneficial effect of cooling the body, like a wind chill effect.

Without the ability to open the windows, the temperature in the house will rise significantly and there will be insufficient air movement to provide any cooling effect on the body.

Blinds do not reduce this temperature rise because once the sun is through the glass it converts to long wave radiation and remains trapped inside.

Under such constraints a house will quickly become unliveable. An experiment in one McBride St house found the temperature rose to 39 degrees on a summer afternoon with doors and windows shut.

To have the same effect as being able to open windows cooling by way of a heatpump is required. A heatpump has to have the capacity to cool sufficiently to remove the heat gain from the sun through the windows and also to be able to replicate the cooling effect as a moderate breeze.

Since the airflow a heatpump produces is minor in comparison to a breeze from open windows it must cool the air to a much lower temperature to have a similar effect. The combination of these effects means that the cooling capacity required for a heatpump is quite large.

During the hearings and in the reports and submissions for Plan Change 35 it was clearly stated that houses within the Airport Noise Boundaries would need to operate with their windows and doors closed in order to mitigate the airport noise issues.

Unless houses can operate with windows and doors shut the noise from the airport cannot be controlled or mitigated.

As a means of mitigation proposed under Plan Change 35 Queenstown Airport Corporation (QAC) proposed to provide ventilation systems for existing houses within the Airport Noise Boundaries (either fully or at 75% subsidy depending on house location).

Plan Change 35 references Table 2 as means of compliance.

However because there is no requirement for cooling in any table, nor any performance requirements, QAC feel no obligation to provide systems that are designed to maintain houses at liveable temperatures (18-20 degrees) in summer. While some cooling is proposed it is inadequate to enable houses to operate without windows open.

QAC have stated that their only obligation is to comply with the requirements of Table 2 which, as stated, does not include a requirement for cooling.

This excerpt from an email to me dated 27th May 2016 illustrates this position.

This email is in response to my request that the ventilation system proposed for our house be upgraded sufficiently to cope with summer overheating.

“As per our discussions yesterday I confirm that QAC’s position is that the system designed by Wintech Mechanical and outlined in the attached documents meets the requirements as per Table 2 in appendix 13 of Plan Change 35 (also attached).

I understand your stance however ***QAC is obliged to provide a system as set out in Plan Change 35 and any improvement to specifications above and beyond these requirements are not QAC’s responsibility.*** As we have done in another property in the Mid-Noise Sector QAC are happy to arrange the installation of an upgraded system with the provision that the Homeowner pays for the difference between the system designed to the QAC specification and the increased specification. ***We have recently had numerous discussions with QAC’s Legal Team, Resource Management advisors and Mechanical Consultants to confirm this position and confirm that QAC is meeting its obligations.***”

Further, in response to the following direct question in an email from Scott Freeman (McBride St resident and Planning Consultant) to Kelly Campbell (PA to the QAC Chief Executive) (12th Sept 2016).

Scott asks ..”So, can you please confirm (via email) that in the interim, the QAC will be installing ventilation systems that meet the ‘legal’ requirements of PC35, but will most likely be ineffective in providing a liveable internal environment, unless the affected landowner(s) pay for an upgraded system.”

And Kelly replies “Hello Scott. Your email below is correct”

So it is clear that QAC will only provide mitigation measures to the extent they are legally required to do so by Table 2, irrespective of whether these measures provide a liveable environment.

If the ventilation system provided by QAC is inadequate to allow a house to be lived in without the windows being open then they have not fulfilled their obligation to mitigate the airport effects. Yet they claim to have fulfilled their ‘legal’ obligations.

Therefore the RMP has to ensure that there are clear provisions within it that produce the outcome that was anticipated in Plan Change 35, ie. That houses within the Airport Noise Boundaries be able to remain liveable with their doors and windows shut. Because if the RMP does not do this then it is clear that QAC believe they have no legal obligation to meet that outcome.

Once again, if owners have to open their houses because the cooling systems provided are inadequate then the noise caused by the airport has not been controlled or mitigated and the intent of the plan has not been fulfilled.

We request that;-

To ensure that houses remain liveable in summer with their doors and windows closed the relevant table within Appendix 13, (or some other specification within the Designations sections), must be specific in what should be provided by way of heating **AND** cooling systems.

The table should include specific performance requirements for ventilation systems to ensure the physical outcomes (such as temperature range expectations within houses) are quite clear. As well as the specification of fresh air input the table should specify that a cooling system be provided sufficient to maintain the Critical Listening Environments within each house at a temperature of 18-20 degrees in summer months with windows and doors shut.

I request the following amendments in yellow and underlined

Page 37-95 paragraph 16.

Mechanical ventilation for heating and cooling with the provisions contained within Chapter 36.6.3 of the district Plan

and in 36.6.3 Table page 36-11
the additional words

Each house is to be provided with a cooling system which ,at any time required by the occupant is able to maintain the air temperature at 18-20 degrees in Critical Listening Environments.

This would satisfy my concerns about allaying the effects of the fierce low summer western sun that afflicts much of Frankton. If one cannot open a window, let us at least sit comfortably in our houses while planes fly overhead at increasing frequency. The airport has created this situation and must accept responsibility for its remedy.

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east and south of the airport with the exact positions to be determined by the QALC under the NMP.

- Each year the Compliance and Projected AANC (required under conditions 7 and 8 respectively) shall be reported to the QALC. Compliance AANC produced for years when noise measurements have not been undertaken shall be prepared using the same corrections determined from the most recently measured aircraft noise levels undertaken for Condition 8.

Other Noise

- Sound from activities which are outside the scope of NZS 6805:1992, shall comply with the District Plan noise limits set in the zone standards for each zone in which the sound is received. This requirement includes engine testing other than for essential unplanned engine testing of aircraft for scheduled passenger services.
- No noise limits shall apply to essential unplanned engine testing of aircraft for scheduled passenger services. The NMP shall detail noise management practices for unplanned engine testing including preferred locations and times. Following each unplanned engine test the QAC shall report to the next meeting of the QALC why the testing was required and what noise management practices were followed.

Airport Noise Mitigation

- Queenstown Airport Corporation Limited (QAC), shall provide the Queenstown Lakes District Council (QLDC) with the 2037 Noise Contours in 1 dB increments from 70 dB Ldn to 55 dB Ldn inclusive. The methodology used to calculate these 2037 Noise Contours shall be the same as that used to calculate the ANB and the OCB. These contours shall be provided in an electronic format and shall also be appended to the NMP.
- Each year QAC shall produce 55 dB, 60 dB and 65 dB Projected AANCs for the purpose of determining when mitigation shall be offered under Conditions 14 and 15 using the same aircraft noise prediction software as used for the Compliance AANC required under Condition 8, adjusted for annual growth estimated for the following year based on trends derived from historical aircraft movement data.
- Each year the QAC shall offer to provide 100% funding of noise mitigation for Critical Listening Environments of buildings that existed on *[insert date designation confirmed]* containing an ASAN that are within the 65 dB Projected AANC. This offer may be earlier at QAC's discretion. The mitigation shall be designed to achieve an Indoor Design Sound Level of 40 dB Ldn or less, based on the 2037 Noise Contours contained in the NMP.
- QAC shall offer to part fund retrofitting, over time, of mechanical ventilation of any Critical Listening Environment within existing buildings containing an ASAN located between the Air Noise Boundary and the 2037 60 dB Noise Contour. In particular, each year the QAC shall offer to provide 75% funding of mechanical ventilation for Critical Listening Environments of buildings that existed on *[insert date designation confirmed]* containing an ASAN that are within the 60 dB Projected AANC. This offer may be earlier at QAC's discretion. Where a building owner accepts this offer they shall not be eligible for further funding of mechanical ventilation if the building later becomes within the 65 dB Projected AANC, but they shall become eligible for 100% funding of any sound insulation required.
- Mechanical ventilation shall be in accordance with ^{for heating + cooling} the provisions contained within Chapter 36.6.3 of ~~Table 2 of Appendix 13~~ the District Plan.
- Noise mitigation funding offered by the QAC shall only be required where the benefitting building owner agrees to the methods offered and agrees to enter into a binding property agreement or covenant to the effect that the owners or occupiers of the property:
 - are aware that the property may be subject to increased levels of aircraft noise, and
 - agree that any complaint arising from noise related activities shall be dealt with in accordance with the complaints procedures set out in the NMP, and

Comment [RH166]: #79 (D Jerram)
23.9.16

Comment [RH167]: #433 (QAC)
23.9.16

additional
words
requested

Building Element	Minimum Construction
Pitched Roof	Cladding: 0.5mm profiled steel or masonry tiles or 6mm corrugated fibre cement
	Insulation: 100mm thermal insulation blanket/batts
	Ceiling: 1 layer 9mm gypsum or plaster board
Skillion Roof	Cladding: 0.5mm profiled steel or 6mm fibre cement
	Sarking: None Required
	Insulation: 100mm thermal insulation blanket/batts
	Ceiling: 1 layer 1mm gypsum or plasterboard
External Door	Solid core door (min 24kg/m ²) 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.

36.6.3 Ventilation Requirements for the Queenstown and Wanaka Airport (Table 5)

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

Room Type	Outdoor Air Ventilation Rate (Air Changes Room Type 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 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 °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.

Requested addition

Each system must have a cooling system which, at any time required by the occupant, is able to maintain the air at and time required by the occupant is able to maintain the air

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