

Before the Queenstown Lakes District Council

In the Matter of the Resource Management Act 1991

And

In the Matter of the Queenstown Lakes Proposed District Plan

Chapter 36 (Noise)

**Summary Evidence of Scott Roberts
(Submitter 433 and Further Submitter
1340)**

Dated: 13 September 2016

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INTRODUCTION

1. My name is Sheridan Scott Roberts. I am a Senior Building Services Engineer and Director of Jackson Engineering Advisers Ltd.
2. I confirm that I have read the Environment Court's Code of Conduct for Expert Witnesses and have prepared my evidence in accordance with it. Specifically, I confirm that the issues addressed are within my area of expertise. I have not omitted to consider any material facts known to me that might alter or detract from the opinions I express.

SUMMARY OF EVIDENCE

3. The Queenstown Airport Corporation (QAC) has lodged submissions on Chapter 36. My evidence is in connection with Proposed Rule 36.6.3, Table 5.
4. The submissions seek amendment to Proposed Rule 36.6.3, Table 5) because it is unsatisfactory in its notified form.
5. As notified, Proposed Rule 36.6.3, Table 5 is the same as Appendix 13, Table 2, of the Operative District Plan (**ODP**).
6. From my review work of the requirements of Appendix 13, Table 2 of the ODP it has become apparent that there are a number of practical difficulties with implementing, and financial implications with using, a mechanical ventilation system in accordance with the operative (and hence notified) rule.
7. More particularly, it has become apparent that in a climate such as Queenstown, strict compliance with the rule may result in the need for large ventilation systems with multiple fans and heating systems, and it does not satisfactorily address thermal comfort in summer.
8. There is general agreement between QAC and QLDC as to how Proposed Rule 36.6.3, Table 5 should be redrafted, subject to matters of detail.
9. I generally support the recommendations of Dr Chiles, including his re-formatting of the Proposed Rule, as set out in his evidence and Appendix 1 of the Section 42A Report, but consider some additional refinements are

required, to ensure the Rule is clear, unambiguous, and practical to implement.

10. The further refinements I consider are required relate to:
 - (a) the minimum and maximum air change requirements;
 - (b) ensuring the ventilation system heats as well as cools;
 - (c) ensuring the ventilation system includes an air relief path;
 - (d) ensuring the Rule clarifies that existing plant may be used to achieve compliance; and
 - (e) other minor matters of clarification

11. Proposed Rule 36.6.3 as set out in Appendix 1 of the Section 42A Report is not dissimilar to Option 2 in Annexure D of QAC's submission, and with the further amendments summarised above, and detailed more fully in my primary evidence¹, would be a preferable alternative, in my opinion. Provided all of my recommended amendments are made, Option 2 in Annexure D of QAC's submission could then be deleted.

12. I consider my recommended amendments to the Rule will address the difficulties encountered with operative mechanical ventilation requirements (and hence the notified Rule), whilst at the same time providing residents with an appropriate level of indoor comfort and amenity.

13. I consider the alternative options (being either the notified Rule or the Section 42A revision of it) will likely be more costly to implement, with no real additional benefit, and will be less efficient and effective.

14. I have read the evidence summaries of Ruth Evans (the Section 42A Report Writer) and Dr Chiles and briefly comment as follows:
 - (a) I agree with Dr Chiles' recommendation for a low setting airflow of 0.5 air changes per hour, and note it is consistent with my original recommendation, as per Annexure D of QAC's submission. However, I do not agree that 0.5 air changes per hour should be

¹ Dated 2 September 2016.

stated as a minimum requirement (as suggested by Mr Chiles' words "at least 0.5 air changes...") because the high setting of 5 air changes per hour would achieve that. The point of the low setting is to enable the building occupier to turn the ventilation down.

- (b) In respect of Ms Evans' point at paragraph 8(b) of her summary, I note the purpose of my recommendation for a heating function is to address the circumstance where a homeowner uses ventilation in an otherwise unheated space, thus driving the indoor space temperature downwards below recommended minimums (particularly an issue in the winter). To address this, the recommendation in my evidence is that the system be required to maintain the temperature of the ventilated room at 18°C, as distinct from heating the room or entire building to a higher temperature. I maintain this is appropriate, particularly in a climate such as Queenstown.
- (c) In his point 8(d) Dr Chiles appears to have misunderstood the point of my recommendation. To clarify, I have stated in my evidence that in the event that summer cooling is provided by the ventilation system, (which would most likely be a heat pump), then a higher ventilation rate is not desirable because it is the heat pump which is providing the cooling function. Whenever the outdoor temperature is greater than the indoor temperature, the incoming hot outdoor air will be working against the heat pump cooling and reducing its effect. To avoid this situation from arising I have recommended the rule clarify that where a heat pump is provided, the required ventilation rate remains at the low ventilation rate of 0.5 air changes per hour. This does not avoid ventilation requirements but limits the rate of ventilation as it is not necessary.

S Roberts