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**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** Les Quennevais School - Classroom ventilation  
**Date:** 02 July 2021 16:04:32  
**Attachments:** [BB101\\_Guidelines\\_on\\_ventilation\\_thermal\\_comfort\\_and\\_indoor\\_air\\_quality\\_in\\_schools\\_2018.docx](#)  
[DfES\\_Building\\_Bulletin\\_101\\_2006.pdf](#)

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Dear [REDACTED]

Further to our recent meeting and discussions regarding the classroom ventilation at LQS I have provided the narrative below as requested to provide information on the history and guidance behind the classroom ventilation design at LQS.

The original concept report (RIBA Stage B) produced by Hoare Lea sets out the concept designs for the new School, this report details the classrooms as being naturally ventilated and sets out the Summer time thermal comfort criteria as required by DFES BB101 2006.

The acoustic assessment conducted in RIBA Stage C concluded that the classrooms could not have openable windows due to the adjacent noise generators, road and airport.

The loss of the ability to have openable windows forced us into considering the alternatives, these were :

1. Acoustically treated façade and attenuated air paths
2. Local Mechanical ventilation with Heat recovery
3. Central Mechanical ventilation with Heat recovery
4. Local natural ventilation with Heat recovery

The above options were considered and a short summary of findings is as below:

1. Acoustically treated façade and attenuated passive air paths – **Hard to design and control to be effective, relies on passive air flow and would require a redesign of the building**
2. Local Mechanical ventilation with Heat recovery (MVHR) – **Allows individual room control, increased capital costs over natural ventilation**
3. Centre Mechanical ventilation with Heat recovery – **Extensive ductwork distribution and risers, increased building size, capital costs over natural ventilation**
4. Local natural ventilation with Heat recovery (NVHR)– **Allows individual room control, less capital cost than MVHR (2)**

Based on the above assessment the NVHR option was explored with Breathing Buildings (BB) (NVHR manufacturer) as to its suitability for this particular building and Jersey. The proposals were modelled by BB in respect of thermal performance against BB101 (2006) and TM52 and the rooms pass the comfort criteria set out, namely:

1. There should be no more than 120 hours when the air temperature within the classrooms rises above 28°C
2. The average internal temperature should not be more than 5°C above the external temperature on average
3. The internal air temperature of the space that is occupied should not exceed 32°C

It is important to note that BB101 was updated in 2018, the updates do not vary the summer overheating criteria as above, however the revised document does provide additional information in maintaining comfortable environments including a set of temperature bands for "free-running schools" and some winter and summer advice for Students with thermal

sensitivities:

1. The acceptable temperature range for 'free-running buildings' (naturally ventilated) , the maximum summer temperature is 26°C, with a range of +2/-3°C, allowing the building to react to the outdoor conditions and clothing levels of the occupants.
2. Local portable heating and cooling may need to be provided for SEN students with temperature sensitivities who are educated in mainstream accommodation.

Although the classrooms have all passed assessment against the recommended comfort criteria, we are well aware there have been complaints of temperature during periods of warm weather and on investigation some systems have not been functioning as required. These systems have been adjusted and the following additional measures have been implemented:

- continued monitoring of the temperatures within the effected rooms
- adjustment of the night time purge setting (providing cool air into the space overnight)
- re-demonstration of the summer boost mode option to increase air movement.

We believe the collaboration of these measures will ensure the temperatures remain comfortable and within guidelines but there are further items that are to be investigated:

1. Introduction of zonal BMS control of NVHR systems in order to allow classrooms/areas to be forced into night purge separately to avoid the over cooling rooms.
2. Review of internal blinds colour (black) and its current use. Black absorbs all wavelengths of light and converts them to heat, this is not helping the conditions within certain rooms and the blinds should be changed to white of a light colour
3. Portable cooling for sensitive student should be reviewed as BB101 suggests to allow localised conditioning.

Obviously this is the first year of proper use of the school following handover last summer and we expect adjustments of the systems as things bed in.

I appreciate that when we do have hot spells the internal conditions of free running buildings do become hot, however in order to provide energy efficient sustainable buildings the relevant criteria have been designed.

I hope this all makes sense, but should you have any issues don't hesitate to get in touch.

Thanks

**Managing Director**  
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