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Nettletontribe
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Revision: 0

Dear Michael

BNE0536: 19-25 Campbell St, Bowen Hills –Consultant Advice Notice – Mechanical Rooftop Chiller Advice

The below advice is provided in response to the below query received from Brisbane Airport Corporation following their Development Assessment:

Plume sources (roof top plant and chillers)

Section 182 of the Commonwealth *Airports Act 1996* identifies activities that may constitute controlled activities in relation to prescribed airspace. Clause (f) describes activities that result in air turbulence. The relevant provisions state:

- (i) *The level of the turbulence exceeds the level ascertained in accordance with the regulations; and*
- (ii) *The turbulence is capable of affecting the normal flight of aircraft operating in the prescribed airspace*

Regulation 6A states:

For subparagraph 182(1)(f)(i) of the Act, the level of air turbulence for turbulence caused by an emission from a stack or vent is upward vertical velocity of 4.3 metres per second at the point of emission.

The architectural plans indicate that "chillers and plant" will be located on Level 34 of the proposed development. Level 34 has an RL128.3mAHD, the plan detail for Level 35 shows the area above the chillers and plant to be "open air". This places a plume source within 10.7m of a prescribed surface.

The plans and supporting information do not provide detail of the exit velocity of emissions from the roof top plant. This information should be sought from the proponent.

If the emissions have a vertical velocity at or exceeding 4.3m/s, the proponent should submit a 1247 "plume assessment" form to the Civil Aviation Safety Authority (CASA) to confirm that the plume source will not generate turbulence capable of affecting normal flight of aircraft.

ADP Response:

As the design has not been progressed far enough for a specific Chiller Model to be selected, the simplest solution here would be to specify a Chiller within the limits of the above mentioned requirements. This could be achieved by oversizing the condenser EC fans and limiting their operation to remain within the 4.3m/s velocity limits. The chiller length may increase to accommodate this nonstandard requirement.

There are additional options should the above not be desirable/feasible, including introducing a plenum box above the chillers to slow the air down within the required limits should we have the available height.

Yours sincerely



Sebastian Hoyland
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