

Erilyan
1/27 Hotham Parade
Artarmon NSW 2064

Attention: Ben Lynam

GenesisCare, Campbelltown

Preliminary Structural and Aero-acoustic Assessment of Proposed Louvres at GenesisCare

Dear Ben,

TTW has conducted a preliminary structural and wind-induced noise assessment of the proposed vertical louvres at the proposed GenesisCare building in Liverpool.

Structural Assessment

Based on the provided proprietary systems from Aambianz, Louvreclad and Sculptform, the proposed vertical louvre system will be sufficient based on the advice that the louvre system and geometry will be designed so that the Manufacturer's permissible spans are not exceeded.

Wind Induced Noise

Based on our preliminary assessment and research, the incidence of wind induced noise cannot be readily determined by numerical methods only but can only be determined by testing the completed façade. However, based on experience, studies and papers, and performed tests on comparable systems, the design incorporates multiple solutions to reduce the risk of wind induced noise.

The most common types of wind induced noise are as follows:

- **Aeolian tones** - high frequency vortex shedding such as in the wake of a cable, aerofoil or by flow separation off a sharp edge
- **Helmholtz Resonator** - a volume of air which periodically increases and decrease in pressure within a cavity, like air across the top of a bottle
- **Structural Vibration** - motion of various building components in the wind leading to friction between elements ie slotted connections
- **Shear Layers** - friction between air boundaries and/or increased velocity between buildings and/or narrow gaps can produce broad band noise akin to howling or whistling

How are these risks reduced for the Genesis Care Campbelltown project?

- The ellipsoid's curved edges of the proposed louvres reduce the risk of noise-producing vortex shedding
- Capping off the ends of the sunshades will reduce the risk of cavity noises
- Spacing between sunshades does not seem critical to the risk of howling or whistling between the fins. Most systems that have been tested for aero-acoustic phenomena have grille systems/bar networks, such as 10mm to 20mm bars in spacings up to 160mm.
- Structural vibration will be mitigated with specific fixings and connections determined in design

Additionally, rain drumming on these hollow sunshades present a low risk given its vertical orientation. A piece of plastic, tape or foam will be designed to the inside of these profiles to provide an additional dampening effect which may reduce the incidence of rain drumming.

Should you require anything further please contact the undersigned.

Yours faithfully,

TAYLOR THOMSON WHITTING (NSW) PTY LTD
in its capacity as trustee for the
TAYLOR THOMSON WHITTING NSW TRUST

DWAYNE VAN HALEWIJN

Associate Engineer (Facade)

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