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sustainable solutions

Dear Christo,

**Re: Sydney Modern Project design change from a 'passive' to an 'active' building pressurisation system.**

The principal's design philosophy for building pressure control was to be via the toilet and general exhaust systems, as well as via 'passive' pressure relief through glass louvres within the Entry Pavilion (directly above the Gallery 1 entry).

Control of the building pressure via 'passive' means is highly dependant on the external weather effects such as variable wind directions and velocities, which are very unpredictable. This in turn would make controlling the temperature and humidity conditions within all the critically conditioned spaces (mostly Galleries) very difficult in a slightly positive pressurised building.

The design change requested by D&E, is to utilise an 'active' building pressurisation system. This system will comprise of the following:

- Two (2) extraction fans to control the building's positive pressurisation set point by relieving air from the building via variable speed control.
- The two (2) extraction fans, along with associated ductwork and dampers will be placed directly outside of the Entry Pavilion, on the roof of Gallery 1.
- Inlet Attenuators and ductwork will be mounted on top of the Gallery 1 roof, but within the Entry Pavilion. It is recommended that 90% free area screening be used to conceal the mechanical system from viewing within the Entry Pavilion.
- The fans will have one layer of acoustic wrap to minimise case noise breakout.
- The fans and associated ductwork/dampers, on the roof of Gallery 1, external to the Entry Pavilion, will require a curved acoustic one (1) metre high wall with access doors to maintain the fans and dampers.

Regards,

Shrivatsa Rao  
(Mechanical Engineer)

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