



INNER-CITY ACOUSTIC WALL PROTECTS NEIGHBOURS FROM HVAC NOISE

BACKGROUND

Neighbourhood noise including nearby air-conditioning units is an environmental issue that many residents in local communities face. Disturbance from unwanted sound can affect our concentration, wellbeing, sleep and daily lifestyle.

In New South Wales, over 20 per cent of calls to the Environment Protection Authority's (EPA) Environment Line are complaints about this issue alone. The Australian Institute of Refrigeration, Air-Conditioning and Heating (AIRAH), suggests that noise generated from HVAC systems should be no more than 5 dB(A) Sound Pressure Level (SPL), above the background noise, as measured at the boundary of neighbouring properties (more information can be found on the Protection of the Environment Operations (Noise Control) Regulation 2017).

When designing the state-of-the-art Newington College Early Learning Centre, noise suppression was a high priority. The potential problem with noise wasn't the sound of happy children but instead noise being emitted by the roof-top air-conditioning (HVAC) and vent units. The centre, designed by early childhood learning experts and a team of acoustic specialists, incorporates educational play areas, quiet zones and outdoor spaces to excite inquisitive minds. Not only did the centre need to contain excessive noise in order to provide a positive environment, it needed to develop a suitable solution to address noise to comply to neighbourhood noise levels requirements. The long hours operating in the high density inner city location in Sydney, with residential buildings close by, meant that the transfer of HVAC noise was to be addressed suitably.

DEVELOPING A SOLUTION

To minimise noise transfer to surrounding residents, an acoustic wall built from Viterolite 300 was mounted. The installation with air gap between the wall and noisy roof-top equipment provided maximum acoustic performance. Viterolite 300 porous tiles are made from recycled, expanded glass granules to absorb low frequency noise, outdoors. With good durability to overcome issues of weather aging and contamination damage, the high acoustic absorption properties of Viterolite 300 complied with the design requirements. The lightweight tiles were mechanically fixed to a C-channel frame to form an effective noise barrier wall suitable for low frequency noise. The self-supporting acoustic wall covered a surface area of just over 100 square metres.

Viterolite 300 tiles are fire resistant, tested to meet Australian standards and do not significantly retain or absorb moisture. Due to the availability of this product, the tiles were supplied to meet the deadline.



Rooftop HVAC noise containment with high performance wall

RESULTS

"We're right on the boundary and there have been no complaints about noise" said Mr Steve Bowden, the Early Learning Centre's Property Manager. He went on to say, "The wall is doing its job – you can not hear any noise transfer."

With the durability of Viterolite 300, that's a situation that should continue for many years. The results have met expectations.

To protect from transferred noise, the Centre installed a roof-mounted acoustic wall of lightweight, durable Viterolite 300 tiles



Lightweight Viterolite 300 tiles mechanically fixed to a C-channel frame

