

# Vinyl Loaded Noise Enclosure

## Noise mitigation measure for PME's at Construction Site

Noise enclosure can provide significant amount of noise reduction when it is properly designed, particularly tackling powered mechanical equipments in dense-populated areas.

### Plywood Enclosure with Loaded Vinyl

Based on good engineering practices at a local construction site, a partial enclosure(i) using 3/4" plywood coupled with 5kg/m<sup>2</sup> loaded vinyl(ii) was constructed, with a relatively small opening (R<sub>open</sub>(iii)<0.07) facing opposite to the potential noise sensitive receivers.

### Measured Value: Noise Reduction of 19.6dBA

Noise measurements were conducted at 1m at the front (facing the opening) and 1m at the back (orientation towards the sensitive receiver) from the operating machine. The field data indicates that the partial noise enclosure provides an overall noise reduction of 19.6dBA. Measured values and the overall noise reduction value are tabulated.



Exterior



Interior

Centre Frequency (Hz)	Measured SPL at 1m from the front (dB)	Measured SPL at 1m from the back (dB)	A-weighting dB	SPL at 1m from the front (dBA)	SPL at 1m from the back (dBA)
63	85.7	75.4	-26.2	59.5	49.2
125	82.0	69.6	-16.1	65.9	53.5
250	81.4	67.3	-8.6	72.8	58.7
500	81.4	64.2	-3.2	78.2	61.0
1000	82.3	58.8	0	82.3	58.8
2000	75.5	53.2	1.2	76.7	54.4
4000	67.4	49.5	1	68.4	50.5
8000	62.5	45.5	-1.1	61.4	44.4
Overall SPL	90.1dB	77.2dB		85.0dBA	65.4dBA
				<b>Noise Reduction:</b>	<b>19.4dBA</b>

Notes:

- (i) **Partial enclosure** was designed by Consultants of *Enpro Environmental Technologies Co. Ltd.*
- (ii) **The Load Vinyl** was supplied by *Mason Acoustics Limited*.
- (iii) R<sub>open</sub> is open to enclosed area ratio– a function affecting the directionality adjustment.

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