

**Kincardine Court,
Kincardine Road,
Manchester**

Technical Review Report

On behalf of



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For and on behalf of Noise Solutions Ltd				

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1.0 Introduction

- 1.1. Noise Solutions Ltd (NSL) has been commissioned to provide guidance on the acoustic impact of replacing the cladding on Kincardine Court, Kincardine Road, Manchester, M13 9JA.
- 1.2. This report contains recommendations based on project information available at the time of writing.
- 1.3. To assist with the understanding of this report a glossary of acoustic terms can be found in [Appendix A](#). An in-depth glossary of acoustic terms can be viewed online at www.acoustic-glossary.co.uk.

2.0 Site details

- 2.1. Kincardine Court is a residential building on Kincardine Road, Manchester, M13 9JA. It is assumed the work scope is limited to replacing the existing cladding . All existing brickwork will remain unchanged.

3.0 Wall construction

- 3.1. The cladding changes are limited to the outer sandwich panel, breather membrane and substrate board.
- 3.2. The 140 x 38mm timber frame with two layers of internal plasterboard will be retained.
- 3.3. Sections including glasswool insulation will be retained.
- 3.4. Drawings comparing both existing and proposed wall sections can be viewed in [Appendix B](#).

4.0 Discussion

- 4.1. With the proposed changes limited to the sandwich panels, breather membrane and substrate a comparison of the material properties of these elements will allow a rudimentary assessment of the acoustic performance of the proposed wall.
- 4.2. Assuming the sandwich panels are of a similar construction and material type the 10mm thicker proposed Europanel will have slightly better acoustic performance.
- 4.3. It is assumed the acoustic effect of changing the breather membrane will be negligible.

- 4.4. Replacing the existing 9mm OSB substrate with a the 12mm thick calcium silicate Y-Wall board will increase the mass of the wall as Y-wall is double the density of OSB and 3mm thicker. Typically increasing the wall mass will reduce the sound transmission, offering a potential benefit over the existing wall. It should be noted that the wall stiffness will also change, and this will affect the sound transmission at the resonant frequency of the wall. Insufficient data is available to assess this effect, but generally the heavier the wall the less sound will be transmitted.
- 4.5. The most common sound paths in buildings are not directly through the walls but from flanking paths and air gaps. A high standard of installation will be key to maintaining the acoustic performance of the building.

5.0 Summary

- 5.1. Noise Solutions Ltd (NSL) has been commissioned to provide guidance on the acoustic impact of replacing the cladding on Kincardine Court, Kincardine Road, Manchester, M13 9JA.
- 5.2. Based on the information available it is reasonable to conclude that the proposed new cladding will not degrade the acoustic performance of the building.
- 5.3. The quality of the cladding installation is critical to ensure the acoustic integrity of the building is maintained.

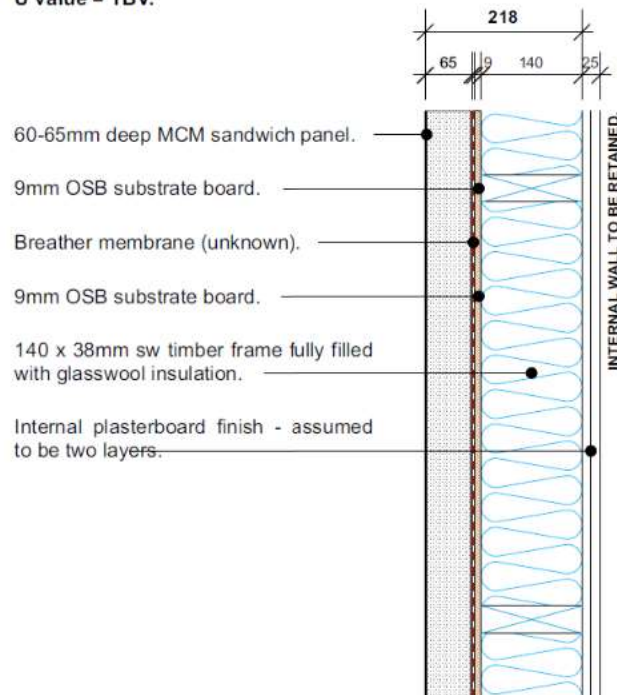
Appendix A Acoustic terminology

Parameter	Description
Ambient Noise Level	The totally encompassing sound in a given situation at a given time, usually composed of a sound from many sources both distant and near ($L_{Aeq,T}$).
Decibel (dB)	A scale for comparing the ratios of two quantities, including sound pressure and sound power. The difference in level between two sounds s_1 and s_2 is given by $20 \log_{10} (s_1/s_2)$. The decibel can also be used to measure absolute quantities by specifying a reference value that fixes one point on the scale. For sound pressure, the reference value is $20\mu\text{Pa}$. The threshold of normal hearing is in the region of 0 dB and 140 dB is the threshold of pain. A change of 1 dB is only perceptible under controlled conditions.
dB(A), L_{Ax}	Decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB(A) broadly agree with people's assessment of loudness. A change of 3 dB(A) is the minimum perceptible under normal conditions, and a change of 10 dB(A) corresponds roughly to halving or doubling the loudness of a sound. The background noise in a living room may be about 30 dB(A); normal conversation about 60 dB(A) at 1 metre; heavy road traffic about 80 dB(A) at 10 metres; the level near a pneumatic drill about 100 dB(A).
Fast Time Weighting	Setting on sound level meter, denoted by a subscript F, that determines the speed at which the instrument responds to changes in the amplitude of any measured signal. The fast time weighting can lead to higher values than the slow time weighting when rapidly changing signals are measured. The average time constant for the fast response setting is 0.125 (1/8) seconds.
Free field	Sound pressure level measured outside, far away from reflecting surfaces (except the ground), usually taken to mean at least 3.5 metres
Façade	Sound pressure level measured at a distance of 1 metre in front of a large sound reflecting object such as a building façade.
$L_{Aeq,T}$	A noise level index called the equivalent continuous noise level over the time period T. This is the level of a notional steady sound that would contain the same amount of sound energy as the actual, possibly fluctuating, sound that was recorded.
$L_{max,T}$	A noise level index defined as the maximum noise level recorded during a noise event with a period T. L_{max} is sometimes used for the assessment of occasional loud noises, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.
$L_{10,T}$	A noise level index. The noise level exceeded for 10% of the time over the period T. L_{10} can be considered to be the "average maximum" noise level. Generally used to describe road traffic noise. $L_{A10,18h}$ is the A-weighted arithmetic average of the 18 hourly $L_{A10,1h}$ values from 06:00-24:00.
$L_{90,T}$	A noise level index. The noise level that is exceeded for 90% of the measurement time interval, T. It gives an indication of the lower levels of fluctuating noise. It is often used to describe the background noise level and can be considered to be the "average minimum" noise level and is a term used to describe the level to which non-specific noise falls during quiet spells, when there is lull in passing traffic for example.

Appendix B Comparison of Wall Construction. Ref Drawings 6234-sk1a & 6234-sk2.

Existing MCM PANEL

REFERENCE - WALL TYPE EW02a.
U value = TBV.

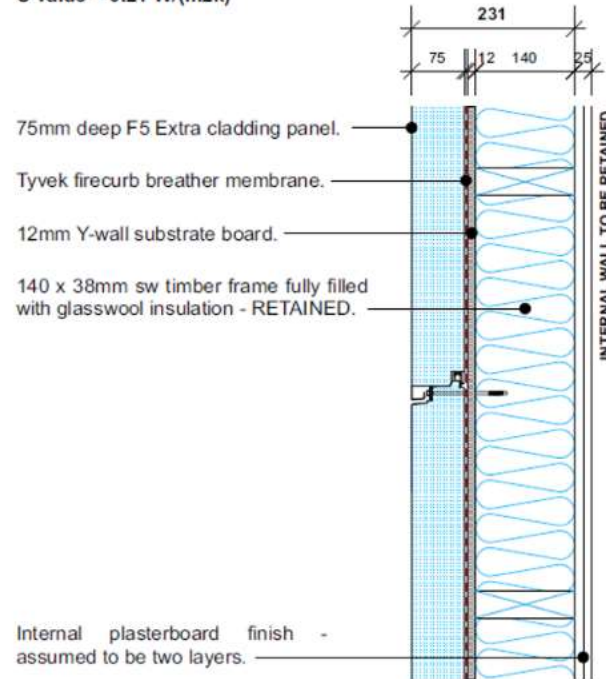


EXISTING WALL BUILD-UP: EW02.

60-65mm deep Insulated sandwich panel.
Breather membrane (unknown).
9mm OSB substrate board.
140 x 38mm sw timber frame fully filled with glasswool insulation.

Proposed EUROPANEL

REFERENCE - WALL TYPE EW03a.
U value = 0.21 W/(m²k)



PROPOSED WALL BUILD-UP: EW03a.

75mm deep F5 Extra Europanel cladding.
Tyvek firecurb breather membrane.
12mm Y-wall substrate board.
140 x 38mm sw timber frame, glasswool insulation - RETAINED.
Internal plasterboard, assumed to be two layers.

Appendix C Material Properties Comparison

Component	Existing	Proposed	Comments
Sandwich Panel Thickness	65mm	75mm	Small acoustic benefit.
Breather Membrane	unknown	Tyvek Firecurb	No effect
Substrate Board	9mm OSB	12mm Y-wall	Small acoustic benefit through mass addition.
Insulation	retained	retained	No change
Plasterboard	Two layers	retained	No change

Appendix D **Table of Reference Drawings**

Drawing Number	Contents
6234-P100	Existing Elevations Sheet 1
6234-P101	Existing Elevations Sheet 2
6234-P102	Existing Elevations Sheet 3
6234-P104	Proposed Elevations Sheet 1
6234-P105	Proposed Elevations Sheet 2
6234-P106	Proposed Elevations Sheet 3
6234-sk1a	Existing Wall Details
6234-sk2	Proposed Wall Details