

SANDY BROWN

Consultants in Acoustics, Noise & Vibration

Memo: M001-B

Date: 4 June 2021

Project: 21021

Pages: 2

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MOHO Manchester

External cladding assessment

This memo provides the results following a desktop assessment of the proposed alterations to the existing cladding system at MOHO, Manchester.

The minimum specifications for the new proposed cladding systems are recommended to match the performance of the existing systems.

Basis

This memo is based on the following information:

- Cladding constructions provided via email on 18 January 2021
- Cladding details provided via email on 18 January 2021
- Updates on the existing cladding received via email on 25 May 2021

Planning requirements

The Local Authority have requested the following:

The acoustic properties of the proposed cladding in comparison with the existing cladding need to be provided to show that the proposed cladding would provide at least the existing level of noise insulation (which should be that approved under the original planning permission for the building).

Existing cladding system and proposals

Cladding construction 1

The existing building is of a modular construction. The existing cladding construction on all elevations is set out below. There are two variants for this build-up, with different thicknesses of EPS Sto Therm Classic insulation as summarised below:

- 12 mm MDF (assumed surface mass of 8.4 kg/m²)
- 12.5 mm Fireline (assumed density 780 kg/m³)

- 9 mm Plywood (assumed surface mass of 6 kg/m²)
- 60 mm Polymer PIR insulation (assumed density of 45 kg/m³) between metal studs
- Steel (assumed 1 mm thick) outer skin
- EPS Sto Therm Classic insulation (assumed density of 20 kg/m³, 200 mm thick for walkways, 80 mm at all external elevations with dining pods / balconies)

The proposed alterations involve relacing the Sto Therm Classic insulation with a Sto Therm Mineral render system which incorporates Rockwool insulation within the same depths.

Cladding construction 2 – Existing and proposed

The second existing cladding construction is set out below:

- 12.5 mm Fermacell (assumed density of 1,150 kg/m³)
- 15 mm Foil backed Fireline (assumed density 780 kg/m³)
- 9 mm Plywood (assumed surface mass of 6 kg/m²)
- 65 mm Injected Polymer insulation (assumed density of 45 kg/m³) between metal studs
- Plastisol coated galvanised steel (assumed 1 mm thick) outer skin
- 100 mm timber sub-framing system forming a cavity
- Timber panelling (assumed thickness 20 mm)

The proposed alterations to the above system involve replacing the external timber panelling with 3 mm aluminium panelling on metal studs. In both cases, the cladding panels are aesthetic skins to conceal the dining pods and are not sealed around the perimeters.

Assessment

An assessment to estimate the expected performance of the existing facade construction has been undertaken in the numerical modelling software Insul.

Cladding construction 1

The existing cladding construction 1 is expected to achieve a sound insulation performance in the region of R_w 50 dB and R_w 49 dB with the 80 mm and 200 mm thick Sto Therm Classic insulation respectively.

To maintain the performance of the existing cladding, the Sto Therm Mineral render system in the proposed system shall be specified to achieve a density of at least 20 kg/m³.

Cladding construction 2

The existing timber cladding construction 2 is expected to achieve a sound insulation performance in the region of R_w 53 dB when considering calculation tolerances accounting for the gaps formed in the timber planks.

As the cladding panels are only aesthetic skins and provide minimal benefit to the overall sound insulation, the cladding sound insulation performance is expected to be suitably maintained with the replacement 3 mm aluminium cladding panels.