

Premises Address: Southcote Mill, Southcote Farm Lane Reading RG30 3DZ

Wire Mill music room: Noise Risk Assessment

Background

The proposed music room at the Wire Mill has a primary purpose of multimedia production. This is distinct from a standard rehearsal room or recording studio in that the majority of the work undertaken within the facility is less obtrusive, less anti-social, and—most importantly—not as loud.

The anticipated noise generated from this are from acoustic musical instruments (i.e. piano) and computer-based production. This is comparable to (and not expected to be louder than) general household noise such as an individual playing a piano or a standard domestic television set.

Significant ambient noise is present around the Southcote Mill site; the proposed project is within 350 metres of two major railway lines and is on the popular Kennet and Avon Canal. Both these generate significant noise, although it is not constant (railway noise occurs at all hours and includes engineering works, and waterways-related noise is closer thus louder but restricted hours of operation). However, the music room is approximately 30 metres from Southcote Sluice, a feature of the Kennet and Avon Canal that constantly (i.e. 24 hours per day) generates noise far greater than that which could be considered “ambient”.

It is important to clarify that the nearest sensitive facade is the residence at Southcote Mill, also approximately 30 meters from the music room. However, this is property owned by the client(s) of this proposal. With this in consideration, the next nearest sensitive facades are:

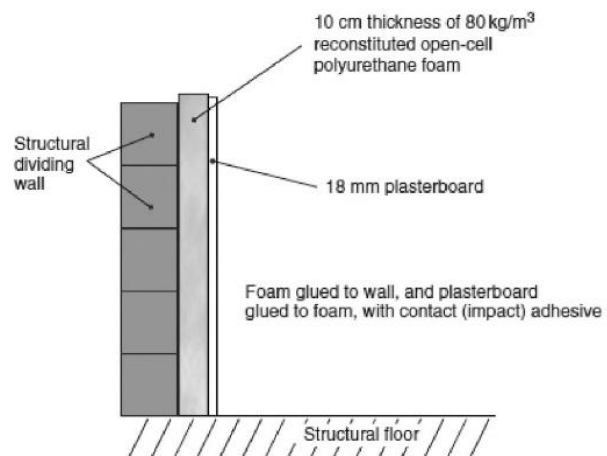
- Three properties on Hatford Road, Southcote, RG30 3HP (430 metres NW, separated by flood meadows, railway embankment and dense woodland)
- Permanent residential boat moorings on the Kennet and Avon Canal (500 metres WSW, separated by dense woodland)

Mitigation

There will, however, be times when louder noises might be generated—such as those from a drum kit and electronic instruments. In instances such as this, acoustic materials will be employed to control noise egress, and this will be integrated into the building design.

The architectural plans for the building include one window space on the northern exterior wall of the music room, aligning with the original window of the building. Windows are the biggest source of noise egress, so the avoidance of installing a window facing the sensitive façade would provide optimum sound containment. Although the effect of window will be retained (for exterior aesthetics), the internal aperture can be shuttered with high density solid materials, the void filled with acoustic absorption and the internal side of the window dressed with a BS 5867:2008-compliant wool serge acoustic absorbent curtain. It should be noted that a deliberate action to include no external door to the music room is in the plans, solely to reduce locations of noise egress.

It is fortunate that the plans for the Wire Mill require building a structure within the existing Bath stone walls. This means that a substantial cavity will be present between the existing masonry and the internal walls. The standard acoustic room design is known as a “room within a room”—which the Wire Mill project offers by its very nature. The diagram here, from *Recording Studio Design* by Philip Newell, shows the relative structural walls to the “false” interior wall. As an alternative to 100mm, 80kg/m³ foam, mineral fibre such as Rockwool (100mm, 100kg/m³) can be used. This would accompany the environmental ethos of the



build, as it has no known adverse environmental impact, and its resistance to moisture, vapour, fungi and mould will protect the inside of the existing Bath stone wall.

High density gypsum board can be used as the inner wall, which can then feature individual acoustic panels for sound diffusion. Gypsum boards are recommended in circumstances where greater levels of sound insulation are required. This system gives 50dB reduction at 2kHz, and 20dB reduction at 70Hz.

Increased noise containment can be achieved with localised decoupling. Isolation booths are readily available and designed for louder noise sources; these can effectively be decoupled from the music room itself by means of little physical contact with the building structure.