



Sound proofing for live music rehearsal and recording - what has been achieved?

Our building now performs very well acoustically. The noise escape to the exterior is minimal. It is possible to have a quiet conversation immediately outside the windows while a drummer is playing at over 100Db (wearing earplugs!) just 3 metres away on the other side of the external window. The spill of noise between the adjoining rooms is OK - we were not able to change the existing lightweight concrete blocks and plaster in the old building, so were not expecting perfection! The soundproofing between any rooms that are not adjoining is so good that the slight sound of air through the ventilation system is louder than a rock band playing in the other room.

Practical and technical lessons – notes by Mark Bick, Project Leader

These comments based on my experience and what I have been told by our Sound Consultant. However sound proofing and acoustics can be complex and I am neither an architect nor sound consultant. These notes should not be relied upon as professional advice!

- a) Architects seem to be incapable of accurately assessing costs at the beginning of a project. I am not sure if this is misplaced optimism or fear that that clients will give up before starting if the true costs are known. If you are raising funding with grants this can be very difficult, as it is not generally possible to ask for more than the estimates and practically impossible to get more once contracts have been issued. The only option is then to wait while more funds are raised and costs inevitably go up in the mean time. Does anyone have any solutions!! I tried asking the Architects to overestimate and to include things that we could later cut, but this did not really work!
- b) It is important to be clear about what is needed with sound. Stopping noise to neighbours, getting the acoustics right for recording and limiting noise between rooms, all create different challenges with different solutions.
- c) Effective soundproofing is not cheap. The standards required to ensure there is no risk of legal action by neighbours are rising. Our local environmental health officer was very helpful with general advice. They have to deal with complaints about people playing loud music and were more than happy to help avoid problems developing.
- d) Architects generally do not seem to have much understanding of sound proofing for live music and recording applications. It is a highly specialist area.

A good Sound Consultant is essential; however we had significant difficulties in getting the Architects and Sound Consultants to collaborate effectively together. Professionals are afraid of being sued and therefore seem to resort to reams of expensive calculations.

- e) The sound spectrum curve that is used in assessing the performance of standard wall and floor constructions is designed to deal with speech and recorded sound from televisions etc. It tails off at the point where bass guitar, and bass drums kick in!
- f) Glass to stop sound (particularly bass) needs to be heavy (we have used two layers of 17mm laminate). This is more important than lots of layers, but it is heavy and can be expensive to get fitted.
- g) In conventional buildings most of the sound escapes through the roof. Solid concrete ceilings can solve this and are not necessarily extortionately expensive (ours cost about £5K per room).
- h) To stop sound escaping, windows and doors need to be kept shut (it is best to have non-opening windows with glass that is that heavy). You then need a ventilation system in order to breathe! These are not cheap and need to have attenuation between all rooms on in and out ducts. Attenuators only cost about £100 each and are not too expensive to fit if there is enough space. The acoustic performance of our air handling system is very good. Unfortunately the heating, chilling and air flow are not easily adjustable by the building user. We are finding that there is a big difference between what is needed for an individual working at a computer and 7 piece rock band rehearsing for 3 hours.
- i) The system we were recommended to use to stop reverberation in a room has worked well. It is 50mm of Rockwool with a 50mm air gap behind it, held in place by battens and covered with a metal mesh. Expensive commercial versions are available, but we managed to do it much more cheaply. However this is not a standard construction which makes it difficult to get contractors to do the work.
- j) A similar construction in panels across corners can be used to further reduce low frequency resonance.
- k) Our Architects specified quite expensive rubber seals on the doors, these create a vacuum which makes the doors quite hard to open, particularly for children. We understand that ordinary heavy section door stop and 3mm neoprene foam would have been very nearly as good, but by the time we were aware of the this the rubber seals had been ordered.

Our Acoustic Consultant was Paul Trew of Acoustics and Noise Partnership. Web: www.acoustics-and-noise.co.uk Tel: 01633 252 957

