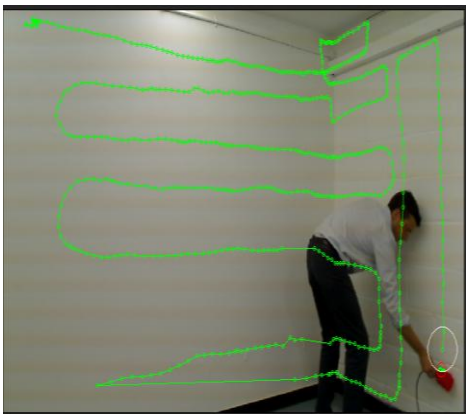
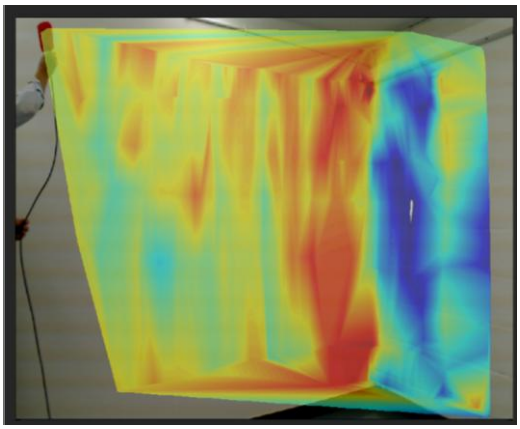
Dealing with Sound Insulation Test Failures

At Miller Goodall we understand the importance of sharing our knowledge and progress with you every step of the way, working in partnership to ensure your project progresses as smoothly and successfully as possible. To this end, we have produced a series of downloads which we hope you will find helpful.

Since the last significant update to the Building Regulations Approved Document E in 2000, it has been necessary to demonstrate compliance of all new residential dwellings (and those formed by material change of use) with the performance requirements detailed within it. The most common way of demonstrating compliance is via a programme of sound insulation testing of separating walls and floors. Where the minimum performance requirements are not met, it is essential that remedial work is undertaken to put right the constructions and subsequently re-test them to facilitate Building Control sign-off. Although it is sometimes relatively straight forward to identify the reasons for test failure, it can often be less obvious and further investigative work is required.

As part of the company's commitment to keeping its staff up to date with the most advanced developments in the field, Miller Goodall's Acoustic Consultant, Simon Faircloth, recently attended a seminar on Sound Insulation held at the University of Salford. The seminar introduced a number of new investigative and diagnostic tools that could prove invaluable in detecting the reasons for sound insulation test failures. These are all non-destructive methods which can help to pinpoint with a high degree of precision specific areas of a construction where sound may be leaking and that may be difficult to assess by listening alone.





Two of these tools, the "Scan-and-Listen" and "Scan-and-Paint" systems from Microflown Technologies, utilise particle velocity meters which measure directly the particle velocity of a wave front concurrently with sound pressure. Acoustic particle velocity is a useful metric as it is a vector quantity (unlike sound pressure) and can be used to locate discreet sources of noise in situations where traditional sound pressure measurements cannot, e.g. in reverberant sound fields with multiple reflections or in locations with high background noise levels.

The "Scan-and-Listen" system allows the consultant to literally hear acoustic weak points in constructions.

The "Scan-and-Paint" system is used in conjunction with a webcam to simultaneously record video and audio whilst scanning the element under assessment. This allows a 'noise map' of a construction to be produced which can quickly identify the source of the leak.

Miller Goodall Environmental Services Ltd
214 Turton Road · Bradshaw · Bolton · Lancashire · BL2 3EE
Tel: 01204 596166 · Fax 01204 596283 · E-mail:info@millergoodall.co.uk
Company Registration No. 5201673
www.millergoodall.co.uk


A third investigative tool demonstrated at the seminar was the acoustic camera from Norsonic. This utilises an array of 225 tiny microphones in a dish with a wide angle camera at its centre, allowing the spatial distribution of a sound source to be accurately assessed and measured. The potential uses of this device are numerous, from the identification of industrial noise sources in the wider environment to the detection of leaks in acoustic partitions. Full spectral analysis functions allow the frequency content of the noise source to be accurately determined.

These systems represent the cutting edge of acoustic technology and enable us to investigate noise and sound insulation problems to a degree of accuracy never before seen. This benefits the client as it means that potential weaknesses in a construction may be determined without having to drill holes, uplift floors or dismantle partitions. It could also prevent unnecessary remedial works on otherwise sound constructions where it had previously been impossible to tell if these were at fault or not.

Miller Goodall Environmental Services Ltd is a team of acoustic specialists. We have a wide range of experience, a highly qualified and skilled team, and a commitment to bringing you a cost effective, efficient and personalised service.

Our consultants can provide specialist advice in the following areas:

- **Noise impact assessments for planning purposes**
- **Acoustic design of schools, offices and healthcare buildings**
- **Noise assessments for Code for Sustainable Homes and BREEAM**
- **Noise at work assessments**
- **Construction noise assessments**

If you would like to discuss how these new tools can help your project, please contact Miller Goodall on 01204 596166 or email info@millergoodall.co.uk

constructionline

ANC THE ASSOCIATION OF NOISE CONSULTANTS

Greater Manchester Chamber of Commerce Member