- *Building Acoustics*
- *Measurement & Analysis*
- *Sound Insulation*
- *Speech Intelligibility*
- *Acoustic Design & Simulation*
- *Schools BB93*
- *Health and Safety*
- *Noise at Work Regulations*
- *Pre-Completion Testing*
- *Environmental Noise*
- *BS4142*
- *PPG 24*

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The Institute of Sound and Communications Engineers

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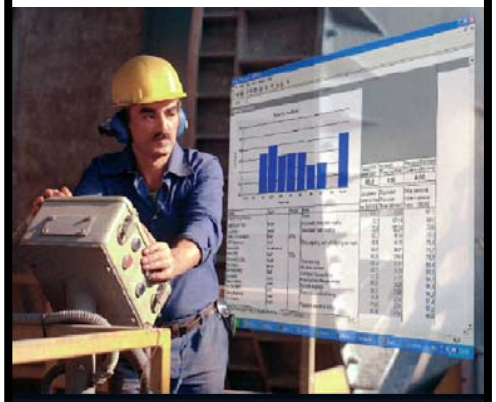


ACOUSTIC SERVICES

INFORMATION

ENVIRONMENTAL NOISE

Environmental Noise can be loosely defined as any unwanted sound in the vicinity of the home or its locality, and can embrace industrial noise, noise from transport, as well as noise from domestic premises. Recent surveys show that noise is the most widespread of environmental pollutants, and is the greatest source of complaints to Environmental Health Officers.

In order to assess environmental noise, suitable and accurate noise monitoring is essential. Grainger Communication's engineers use the latest, high specification instrumentation in order to accurately determine noise levels.

Applications

- To assess noise nuisance in mixed industrial and residential areas in accordance with **BS 4142** 'Method for Rating Industrial Noise Affecting Mixed Residential & Industrial Areas.
- To determine noise levels generated by construction sites and to advise on control measures in accordance with **BS 5228** 'Noise Control on Construction & Open Sites'.
- For assisting land developers with planning applications, following guidance in Department of Environment Publication **PPS 24** 'Planning & Noise'.
- To carry out noise assessments in accordance with Building Bulletin 93.

Industrial Noise Assessment

Building a new industrial unit or extending existing premises will frequently require a noise assessment. If the proposed building is close to residential properties BS4142 is used to assess the likelihood of complaints. BS4142 examines the noise from the industrial premises (either measured or calculated) and compares it to the background noise at the nearest noise sensitive receiver. A penalty of + 5dB is often added to the value of the industrial noise to obtain a rating value. The penalty applies where the noise comprises bangs, thumps, whistles, tones or other intermittent noise.) Where noises are impulsive or intermittent it is possible that the equivalent noise level over the reference period of 1 hour (daytime) will lower the rating value. A similar procedure is used for night time assessment with a reference time interval of 5 minutes.

INDUSTRIAL NOISE AND NOISE NUISANCE

At the end of the procedure the result or rated value is compared to the background noise. Where the rated value is 10 dB or more above the background level the likelihood of complaints is high. Where the rated noise level is no more than 5 dB above the background level the likelihood of complaints is marginal. Where the rated noise level is 10 dB or more below the background level the likelihood of complaints is regarded as low.

If the result was a high likelihood of complaints then mitigation measures to reduce the noise level can be examined and the procedure re-run.

In practical terms noise level measurements are required in the immediate area of the nearest noise sensitive receptors to determine the average and background noise levels. Sample measurements are carried out covering the entire period of operation during the day and night.

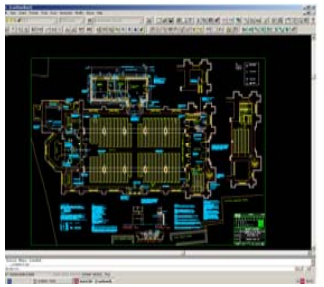
Noise Nuisance (Music Noise)

In Northern Ireland the requirement for music noise impacting on nearby residents is that the music noise should not exceed the NR15 reference curve at any frequency in a bedroom at night. The NR15 standard is very quiet. Most problems arise at low frequencies. The insulation value of a wall is much lower at low frequencies than it is at high frequencies. The same principle applies to the roof, doors, windows etc. This means that low frequency noise leaks out more easily, affecting nearby residents.

If you are a venue owner:
The simplest and most effective method of reducing music noise is to turn down the volume. Less volume inside, means less volume outside and this normally will achieve the required result. In cases where music volume has already been turned down then you will need to look at the fabric of the building and how noise can be more effectively contained within the building envelope. It is possible to link noise controllers and pre-amplifiers in the sound system signal chain to doors, windows etc. When a door is opened the system automatically turns down the sound level. Sound limiters can be attached ensuring that sound levels cannot exceed pre-determined values. There are a variety of solutions and we can help you understand which would be the best solution for your venue.

If you are affected by music noise:
We can help you understand what is happening and how you might deal with the problem. This may mean putting noise monitoring equipment in your home and preparing a report which will establish the actual value of noise you are subjected to. This can then be offered to Environmental Health or the Courts as part of your complaint.

ELECTRO-ACOUSTICS



Design and Prediction

Many venues require a sound source to be reproduced accurately to an audience who would not normally hear the original sound without the introduction of a sound reenforcement system. The proper installation of these systems is a combination of theoretical knowledge, accurate design, product knowledge and appropriate installation skills. Using state of the art modelling, prediction and analysis software we can provide our clients with reliable systems relevant to their needs.

Buildings with long reverberation times, hard surfaces, variable uses, differing audience sizes and layouts present particular difficulties for good sound reproduction.

Installation

Grainger Communication Ltd specialise in the design and installation of very high quality audio systems in a variety of locations including, Churches, Concert / Music venues, Conference Venues, Sports Stadia and Multipurpose Community Halls.

We have installed audiovisual systems in hundreds of venues and are able to provide new clients with a list of reference locations similar in specification to their design. Systems range from basic standalone analogue reproduction systems to sophisticated IP based digital audio, distributed over networks.

Understanding the clients requirements and proper design are the keys to a successful installation. Grainger Communication have many years of experience in the procurement of products suited to clients needs. We have our own in house Acoustic Consultants responsible for design and through the combination of knowledge and experience have the capacity to offer consultancy services that are relevant, up to date and continually reassessed in terms of product and technique development.