

noise control in practice

ADL fixes the plumbing

UK acoustics consultant, Acoustic Design Limited (ADL) has solved an annoying noise problem, caused by a faulty plumbing system, to halt the long-term water torture suffered by residents of a block of flats in Ipswich.

The residents of the top floor flat of the formerly council-owned block complained to Ipswich Borough Council about the noise of the building's water system which cycled on and off almost every minute, 24 hours a day. The troublesome noise was at a very low level – less than 35dBA – but was being radiated by all the pipework. Significantly, the same system had been installed in other nearby blocks, which produced exactly the same noise levels, but did not prompt complaints from any of the residents. Unable to establish the cause of the problem or offer a solution, the Council decided to seek expert help and contacted ADL.

Initially, ADL considered using damping or isolation techniques to control the noise. Following a visit to see the identical systems operating effectively in other blocks, however, ADL took a closer look at the problem system. The breakthrough came when the ADL investigators realised that, in the other blocks visited, the pumping systems operated at the same noise level but were triggered much less often. This indicated that the problem was not actually caused by the level of noise but its duration and frequency.

Consequently, ADL switched the water system to its back-up pump. Although still creating the same level of noise, the other pump was triggered far less frequently thereby matching the trouble-free performance of the other systems. ADL engineers then discovered that the original pumping

system had a tiny leak and, so, was constantly losing pressure. The pump had to cycle on and off almost continuously to retain the pressure at the necessary level thereby causing the noise problem. By replacing the seals on the faulty pumping system, it now operates normally and the noise problem has been eradicated.

Catherine Day, ADL's housing acoustics specialist, says "This was a slightly unusual project for us since it eventually relied less on our acoustic expertise than on our basic plumbing skills! However, although this was an unconventional project for ADL, the residents of the flats were extremely pleased that we finally managed to solve their noise problem.



ADL halts water torture for residents

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IAC metadyne anechoic test rooms give new capability in automotive noise assessment

Two special semi-anechoic test rooms form part of a brand new £5m technical centre at the Salisbury, UK, headquarters of automotive component manufacturer, Tennex Europe. The new test rooms were designed and built by Winchester-based IAC and provide Tennex with the means to measure,

A look at the noise expert's daily round – in Ipswich its noises in the plumbing; IAC have built anechoic test rooms for Tennex; Salex deal with greater reverberation time at the National Gallery; ATCO's R&D pays off again with a \$15 million noise control contract from Siemens-Westinghouse.



very accurately, the noise emissions of individual automotive components and complete vehicles. The company will use its smaller 'white noise' test room to measure the sound levels of its own products – such as air induction system – in order to develop quieter versions of these components. In the larger room it has the ability to assess the noise levels of components when installed in the vehicles of its major customers, which include Ford, Nissan, Rover and Honda.

Both of the new test rooms were built by IAC using its unique Metadyne sound-absorbing anechoic wedges. Unlike conventional wedges, made of fibreglass or foam, the metal-faced wedges are washable, paintable and highly resistant to damage and fire. More importantly, their acoustic performance is fully compliant with relevant international standards, such as ISO 3745.

The Tennex test rooms are among the quietest of their kind in the world. The vehicle test room has a cut-off frequency of below 100Hz and an ambient noise level of less than 35dB (LAeq 1 minute). The white noise test room has a cut-off frequency of below 125Hz and an ambient noise level of just NR20.

IAC offers a range of additional services to clients seeking turnkey

solutions for test facility projects, including cost/feasibility studies, acoustic site surveys and design schemes, civil engineering, building construction, landscaping etc.

For more information: IAC, IAC House, Moorside Road, Winchester, Hants, SO23 7US, UK. Tel: +44(0)1962 873000, fax: +44(0)1962 873111

Salex panels hung in National Gallery

Acoustic specialist Salex Interiors Limited (SIL) has recently helped to upgrade the conference facilities in the National Gallery's Sainsbury Wing. The Wing features both a large and a small conference room, adjoining a corridor, with kitchens on the far side of the corridor. Both kitchen and corridor could potentially give rise to a degree of noise nuisance, especially from catering trolleys. Originally carpeting had been laid in the conference rooms and corridor but over the years it had become worn and unsightly. The National Gallery decided to replace the carpets with hard flooring. Vinyl planks with a timber appearance were selected, but the reverberation time increased dramatically.

Consultants Arup Acoustics advised that the best solution would be to install acoustic panelling in both conference rooms and in the corridor. They suggested approaching Salex Interiors Limited, who had provided the original wall panelling in the larger of the two conference rooms; this had proved effective over the seven years since the Sainsbury Wing had opened.

SIL carried out a site survey and, after further consultation, confirmed the recommendation to install acoustic wall panelling in both conference rooms and the corridor.





Acoustic specialist Salex Interiors Limited (SIL) has recently helped to upgrade the conference facilities in the National Gallery

Salex 16mm DS90 Acoustic Wall Panelling was used on the interior wall of both conference rooms and given an attractive finish by the use of Glenside fabric finishes. Existing Salex panels were refabricated to match the new design style.

In the corridor, 16mm DS90 panelling was installed above the skirting board and below the dado rail. A permeable vinyl fabric was used as a finish, so that any spillage from the kitchen trolleys could be wiped clean. The site survey conducted by SIL showed that only 20% of the corridor needed to be treated in this way to achieve the desired result.

For more information: Salex Interiors Limited, Newcomen Way, Severalls Industrial Park, Colchester, Essex. CO4 4YR, UK. Tel: +44(0)1206 508111. Fax: +44(0)1206 852795.

Atco controls noise for Siemens-Westinghouse

Calgary-based ATCO Noise Management announced a new \$15 million contract award from Siemens-Westinghouse Power Corporation. Over the past year, ATCO Noise Management worked closely with Siemens-Westinghouse to design an innovative acoustic enclosure for the company's Aeropac generator for power plants.

"Noise is increasing everywhere, and companies like Siemens-Westinghouse are taking active measures to stop noise at its source," said John Barrett, President, ATCO Noise Management. "We are delighted to work with Siemens-Westinghouse to develop an enclosure that meets their needs for a quiet environment."

ATCO Noise Management's proprietary acoustic assemblies formed the basis for the new Aeropac acoustic enclosure. The assemblies represent the culmination of an intensive research and development program begun in 1991 by the company. "Our unique line of assemblies were developed to outperform acoustic panels," says Mr. Barrett. "With these assemblies we have constructed some of North America's most acoustic metal buildings."

The ATCO acoustic generator enclosure also provides a highly sealed environment that prohibits dust and moisture from entering the generator area. And, the enclosure is adaptable to any power plant configuration and environment, ranging from desert to marine.

Because ATCO Noise Management offers turnkey acoustical solutions right from engineering design through to construction, Siemens-Westinghouse also hired the company to erect a number of the enclosures. Two acoustic enclosures are now being installed by ATCO Noise Management in Alberta, Canada where Siemens-Westinghouse is supplying the turbogenerator package for a new cogeneration plant. Other power plant sites confirmed to receive ATCO Noise Management's acoustic enclosures are located in Mississippi, Massachusetts, Louisiana, North Carolina and Colombia.

For more information: ATCO Noise Management (UK). Tel: +44(0)1283 553068.

office noise poses environmental hazard

Low-level noise in open-style offices results in higher levels of stress and lower task motivation, according to a study by a Cornell University environmental psychologist. Experienced workers in these mildly noisy offices make fewer ergonomic adjustments to their work stations than do workers in quiet offices. These findings suggest that even moderately noisy open offices might contribute significantly to health problems such as heart disease (due to elevated levels of epinephrine, a stress hormone) and musculoskeletal problems.

noise notes