DAY DESIGN PTY LTD

Consulting Acoustical Engineers

ENJOY THE QUIET LIFE

"Greenwood" Residential Apartments, Botany, NSW

Tranquil scenes like that above are the result of good design and planning, not accident. The community is becoming less tolerant of noise and more willing to buy quiet.

Noise reduction through building structures, over noise barriers and/or significant distances can be accurately predicted with the assistance of custom-designed computer software. Day Design has developed a comprehensive suite of acoustical software to assist our engineers with their acoustical design work.

Cost effectiveness is a major objective in our selection of materials and/or design of acoustic structures.

Road Traffic Noise

Road traffic noise is the most common environmental problem facing our communities. More roads are being upgraded to accommodate a greater traffic flow and new motorways are being constructed through densely populated residential areas. Building developments are being located nearer to main roads and the 'set-back' distance from the front boundary is often minimal.

As sleeping areas in many residences are situated near the front, increased traffic noise results in interrupted sleep patterns with the resultant ill health effects.

Roadside noise barriers have in the last fifteen years become a feature of all our new motorways. Day Design has assisted both government and private industry in the design and development of suitable noise barriers. Noise reductions of 10 to 15 dBA are normally achieved. This represents a most worthwhile 50-65% reduction in the loudness of road traffic noise.

Train Noise & Vibration

It was once accepted that living near a rail line meant tolerating train noise. However, railway traffic noise is no longer considered unavoidable. Building construction methods are available to produce an acceptable environment within buildings adjacent to railway lines. Ground vibration from passing freight trains can affect community health and wellbeing.

The Rail Infrastructure Corporation has set noise and vibration limits near railways. Recording studios, theatres and concert halls are particularly susceptible to noise from nearby or underground trains. Careful measurement and analysis prior to construction will determine whether or not any special foundation treatment is required. If required, a building can be isolated from ground vibration and structure-borne noise by seating the building on long-life anti-vibration rubber mountings, as was done at the Sydney Conservatorium of Music and a number of high-rise residential buildings in Alexandria over the Airport underground railway.

High Rise Residential Buildings

Housing demands have increased the number of multi-storey residential apartments. The noise from loud music, footsteps, water piping, toilets being flushed and raucous parties are the cause of many neighbourhood disputes.

The Home Units Association of NSW lists "noise" as their worst problem. The Association of Australian Acoustical Consultants (AAAC) has approached the Building Code of Australia Board with a view to improving the minimum acoustical standards required for high rise residential buildings.

"Greenwood" Residential Apartments, Botany, NSW comprises 195 residential units in 7 separate double-brick buildings. Day Design Pty Ltd, acoustical consultants for this project achieved a reduction in freight-train noise from 82 dBA outside to less than 50 dBA inside. This represents a 90% reduction in loudness.

Good Acoustics By Design

Aircraft Noise

In most large cities around the world, there has been a dramatic increase in aircraft traffic. The noise of aircraft taking off and landing near major airports has become intolerable and even aircraft at the smaller local airports can generate an unacceptable level of noise.

New residential developments near airports are required by Council to be designed to reduce aircraft noise within the dwelling. The acceptable indoor noise levels are 50 dBA within bedrooms, 55 dBA within other habitable rooms and 60 dBA in other rooms.

Depending on the location of the development relative to the airport, heavier building materials may need to be used, for example double glazing, roof insulation and door seals.

The sound insulation isolation included the placing of a loaded-vinyl noise barrier and insulation above ceilings, double glazing of windows, heavy timber doors with acoustic seals, new electrical wiring and air conditioning. Dozens of schools, churches and hospitals were also noise insulated costing many millions of dollars.

Day Design is often engaged to carry out the measurement, assessment and design of aircraft noise insulation for residences, churches and schools near commercial and military airports.

Quality Certification

A quality assurance system has been in place from the formation of the company in 1982 and has been extended and improved each year. Day Design Pty Ltd is quality audited and certified by SGS International Certification Services Pty Ltd to conform to AS/NZS ISO 9001:2008.

Industrial Noise

The demand for housing close to industrial areas (to reduce travel time) has resulted in serious encroachment by urban areas. In the past, noise generated by manufacturing processes was considered unavoidable and was generally accepted. These days, people complain to Council and the Environment Protection Authority.

Fortunately there are many proven methods by which factory noise can be reduced to within acceptable limits. “Build-first-and-fix-it-later” methods can be expensive. We always advise land and property developers to have a noise impact study carried out prior to construction.

Significant savings may be gained by the pre-selection of building materials and methods that can eliminate noise at little extra cost.

Acoustical Tools

The combination of professionally qualified personnel with years of experience, the use of modern sound measurement instrumentation and the development and use of computerised design techniques are keys to our success.

Day Design acoustical engineers have a wide range of precision sound and vibration instrumentation to quantify problems. These include sound level meters, octave and third octave filters, narrow band filters, real-time sound analysers, FFT spectrum analyser, noise level recorders, digital and analogue tape recorders, statistical analysers, noise and weather loggers.

Calibration testing of all instrumentation is carried out biennially as recommended and is traceable to National Standards. Calibration records are available for inspection on request by clients. This is important for disputes that require hard evidence for resolution in Court.

Professional Staff

Day Design has the necessary experience, expertise and tools to ensure viable and cost-effective solutions for environmental or occupational noise problems. All of our engineers are professionally qualified, some with up to 35 years experience in acoustics and experienced in providing expert witnesses in NSW Courts.

DAY DESIGN PTY LTD consulting acoustical engineers provide quality acoustical advice to architects, planners, engineers, managers, solicitors, insurance companies, councils, government and the general community. Our staff of professional engineers are ready to resolve your acoustical problems.

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