

Construction and Demolition

Noise and vibration assessment, control & training



Noise and vibration services for construction and demolition

... conventional best practice - and something more....

The INVC provides a complete range of conventional services covering all aspects of environmental and occupational noise and vibration for the construction and demolition industries - plus additional innovations based on unique engineering expertise in mitigation. These re-define best practice and can dramatically reduce costs and delays. Our reputation is based on the results we have achieved from introducing new procedures and modern techniques into a largely traditional service industry.

Innovations - more options....

- **Vibration testing - party walls, slab short-circuits**
rapid evaluation of vibration transfer paths, reduces costs and guesswork
- **Noise and vibration monitoring - real-time feedback (SMS) cuts costs and complaints**
eliminate exceedence notification time lag - real-time site activity control and reduced costs
- **Psychological silencing**
sculpted sound signatures that can hide site noise cheaply and simply
- **Noise and vibration scheduling / prediction tools**
activity scheduling for prediction and management of activity noise and vibration levels v targets
- **Scaffold based noise screening**
novel temporary acoustic screening - higher performance and lower cost

Sample Case Studies

Heathrow Piling Noise and Vibration

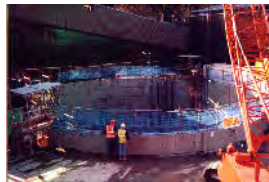


Building the new terminal 3 multi-storey car park above the busy Heathrow Express underground station was a major technical challenge. Piles had to be bored 40m into the ground very close to access

and train tunnels - without disturbing structures or personnel. BAA selected INVC to carry out an extensive vibration / noise monitoring programme over several months. The turn-key project involved installing an array of transducers in the tunnels plus developing an analysis and continuous remote monitoring system for the piling vibration via GSM. The INVC designed system also included a facility to alert key personnel automatically via SMS text message if the vibration exceeded threshold trigger values.

Tunnel Boring

Local residents complained about low frequency noise and vibration from an extensive tunnelling operation that exceeded the planning consent noise levels. The low frequency vibration / noise was caused by a pair of large vibratory sieves used to process the spoil. The proposed remedial measures included a very high cost barrier and a deep ditch.



Our diagnosis pinpointed the problem as wall and roof panel resonances in the steel building round the sieves. The solution was to design a de-tuning and damping treatment for the panels. This cut the 15Hz vibration by over 10dB and the overall noise level by 8dB - sufficient to prevent any further complaints at a fraction of the cost and without delaying the project.

Psychological Silencing...

This high rise office block was fitted with an INVC designed psychological silencer sound generating system during demolition. This was set up to buffer the concrete breaker noise as the building height reduced and the noise level outside the adjacent offices correspondingly increased. The system was designed to make the site noise less disturbing, reducing the likelihood of complaints and the high additional cost implications of reduced working hours.



Building Vibration Management - Best Practice

Vibration from the demolition process was causing problems in the adjacent office block. A very extensive and costly array of conventional vibration monitoring systems was in use as part of a time consuming and unsuccessful management process leading to potentially very costly delays to the project.



As a result of our detailed vibration analyses, we proved that the cost and hassle of the extensive vibration monitoring could be eliminated and that introducing a number of counter-intuitive vibration management procedures would significantly reduce the problem. Coupled with developing a purpose designed project vibration management software tool, the "best practice" noise and vibration management process for the project was simplified and re-defined, minimising the likelihood of further costly delays.

More information - staff / services overleaf ...

construction - demolition noise and vibration

The Services

The Industrial Noise and Vibration Centre provides a complete range of services for environmental noise and vibration coupled with unique engineering expertise in monitoring, control and mitigation. Our reputation is based not only on providing clients with thorough, accurate and reliable assessments and predictions, but also innovative, low cost control methods as illustrated by the case studies. This allows us to provide a highly integrated service from measurement right through to detailed engineering solutions.

Environmental

surveys - monitoring - prediction - impact assessments - section 61 etc - BS4142 - planning - PPG24 - IPPC - expert witness - mitigation and control - bespoke monitoring systems

Occupational

noise and vibration risk assessment - HAV management (measurement and database) - noise control - vibration control - Whole Body Vibration (WBV)

The Training

The INVC is the major provider of noise and vibration competency training in the UK and Ireland. We developed and run the IOSH certified competency courses, both public and in-house.

Courses and Workshops

construction and demolition noise and vibration workshops - occupational noise and HAV competency - environmental noise competency - noise control - noise measurement

The Clients

Our client base in the construction and demolition industries includes a cross section of the major companies in both fields. More information is available on our web site.

INVC Personnel - Brief CVs

Peter Wilson: BSc MSc MIOA: Director

Mechanical engineer: nearly 30 years experience in noise and vibration assessment and control across a wide range of industries with many innovative noise / vibration control technologies on his CV. He also developed the IOSH noise and vibration competency training courses.

Stephen May: BSc CEng MIOA: Director

Mechanical engineer: over 30 years experience in noise and vibration across a very wide range of applications. Has been particularly involved in developing bespoke noise and vibration monitoring systems.

Terry Barham: BSc MIOA: Senior Consultant Engineer

Mechanical engineer with nearly 30 years of practical experience in occupational and environmental noise and vibration assessments, instrumentation and control. Also developed "HAV-Base", the largest database of field HAV measurements in Europe.

David James: BSc CEng MIOA: Senior Consultant Engineer

Mechanical engineer with an aerospace background and extensive experience of a wide range of noise problems across a broad spectrum of industry. Heavily involved in the development and provision of practical training courses on noise and vibration.

Stephen Ellis: HNC MIOA: Senior Consultant Engineer

An ex Local Government with over 30 years of extensive environmental noise and vibration experience, including responsibility for noise and vibration assessment of many large civil engineering projects (including the Cardiff Bay barrage) and providing evidence at Public Inquiries and Planning Appeals.

John Hustwick: HND MSc CEng MIOA MIDGTE: Senior Consultant Engineer

Mechanical engineer with decades of experience in industrial and marine noise and vibration problems plus offshore, environmental and expert witness work. He also has a background that includes the Lloyds Register of Shipping and Pratt & Whitney.

Steve Wray: MSc MIOA: Senior Consultant Engineer

Extensive experience of a wide variety of environmental, industrial and architectural noise and vibration projects including planning appeals, sound insulation testing, new building acoustic design, hand-arm vibration assessments, sound intensity measurements, noise control and training.

Toby Turander: MSc AMIOA: Senior Consultant Engineer

An engineer with 5 years of practical experience in noise and vibration projects across a wide range of industries, including the provision of training in occupational and environmental noise and vibration.

Tim French: BEng

Mechanical engineer with 16 years experience, particularly in the field of noise and vibration control during product development.