

Vibration Monitoring During the Demolition of Old School Buildings

RVT Group provides effective vibration monitoring equipment to ensure the protection of pupils, staff, local residents and site operatives.

May 2021



Client:



Location:

Inverurie, Aberdeenshire

Featured Product Range:



Monitex
Monitoring
Solutions

Academy Upgrade

Inverurie Academy is a secondary school based in Aberdeenshire, which facilitates the education of over 1,000 students. The school is currently undergoing a huge improvement project led by Robertson, one of the largest family-owned construction, infrastructure and support services businesses in the UK. Robertson have already completed the construction of the brand-new campus which includes, science, technology and SEN facilities, and the next phase of the project is to demolish the former community centre, swimming pool, and school building to make way for a full-size all-weather sports pitch, a seven-a-side sports pitch, a multi-use games area, and additional parking. Once demolition is complete, groundworks and layered construction will begin.

The Challenge

The school is located in a residential area and concerns had previously been raised regarding vibration levels. Vibration pollution would not only be a nuisance to those living and working nearby, but might also cause disruption to pupils and teachers at Inverurie Academy. Furthermore, excessive vibration

Key Case Study Facts:

- Inverurie Academy, a large secondary school with over 1,000 pupils, is undergoing improvements. These include the building of a new school block and demolition of old buildings.
- The school is located in a residential area. Vibration pollution had previously caused complaints from surrounding residents in the early stages of the project.
- The contractor therefore wanted monitoring in place on site before demolition works began.
- RVT installed 5 Monitex Vibration Monitors at points where the perimeter of the site came within 20 metres of any residential properties.
- These Vibration Monitors provide automatic, real-time alerts via text and email, so those on site know if vibration levels are close to or exceeding the agreed threshold.

could have the ability to interfere with sensitive equipment, damage buildings and generally present a safety risk. Vibrations depend on many factors, including the type of equipment, the soil, proximity to the construction and the building response, so it was important for Robertson to start monitoring vibrations from an early point in the project and continue to do so throughout every stage. The HSE guidance states that vibrations should not exceed 1mm/s Peak Particle Velocity (PPV) for occupied residential and educational buildings to ensure the safety of pupils, staff, surrounding residents and construction workers. It was therefore especially important for the Project Manager to have instant access to the data and real-time alerts, so that he could identify and react to any readings that might raise cause for concern.

The Solution

The Project Manager engaged with RVT Group during the early stages of the project and explained the challenge regarding residential buildings which are situated within close proximity to the site. The RVT consultant recommended the installation of 5 Monitex Vibration Monitors, which were positioned around the perimeter of the site, at points where residential properties were situated within 20m proximity. These Vibration Monitors provide automatic, real-time alerts via text and email, allowing those on site to know if vibration levels are close to or exceeding the agreed threshold. The cloud-based system also allows remote access to an online portal at any time should anyone require real-time or historic data. Historic records are ideal in situations where complaints are received and contractors need to prove to authorities that they have not exceeded PPV.

The Project Manager was very happy with the solution and said;

“RVT Group are our preferred suppliers for engineering controls and environmental monitoring solutions, due to the great service they provide. Cameron and the team were easy to work with and are able to provide us with ongoing support and expert advice. We are confident that the Monitex solution will provide the information we require to keep students, staff and neighbours safe.”

- Project Manager, Robertson Construction Major Projects

Monitex Vibration Monitor Key Features:

- An industry leading 5 month battery life - less site visits
- GPRS modem enables remote control of monitors
- Online access and analysis
- Automatic alerts via text & email
- Web based application - no software
- Samples vibration data according to a variety of standards.
- Easy to use – one button to start/ stop measuring
- Up to 160 seconds continuous waveform length with 10 seconds pre-trigger
- Share data and reports with your stakeholder



RVT's Monitex® Vibration Monitor On Site.

Monitor, Manage, Mitigate



Monitor - Identify the activities being undertaken and whether noise, dust or vibration could pose a risk to the individual or the wider environment.

Manage - The HSE define maximum exposure limits over 8 hours, therefore handheld spot checks are not always suitable. Implement a continuous monitoring system and receive instant message alerts if pre-set parameters are exceeded.

Mitigate - If readings are outside the upper limits, you need to install adequate control equipment, such as noise barriers or dust extraction units. RVT are always on hand to advise you which hazard control equipment will be most effective.

