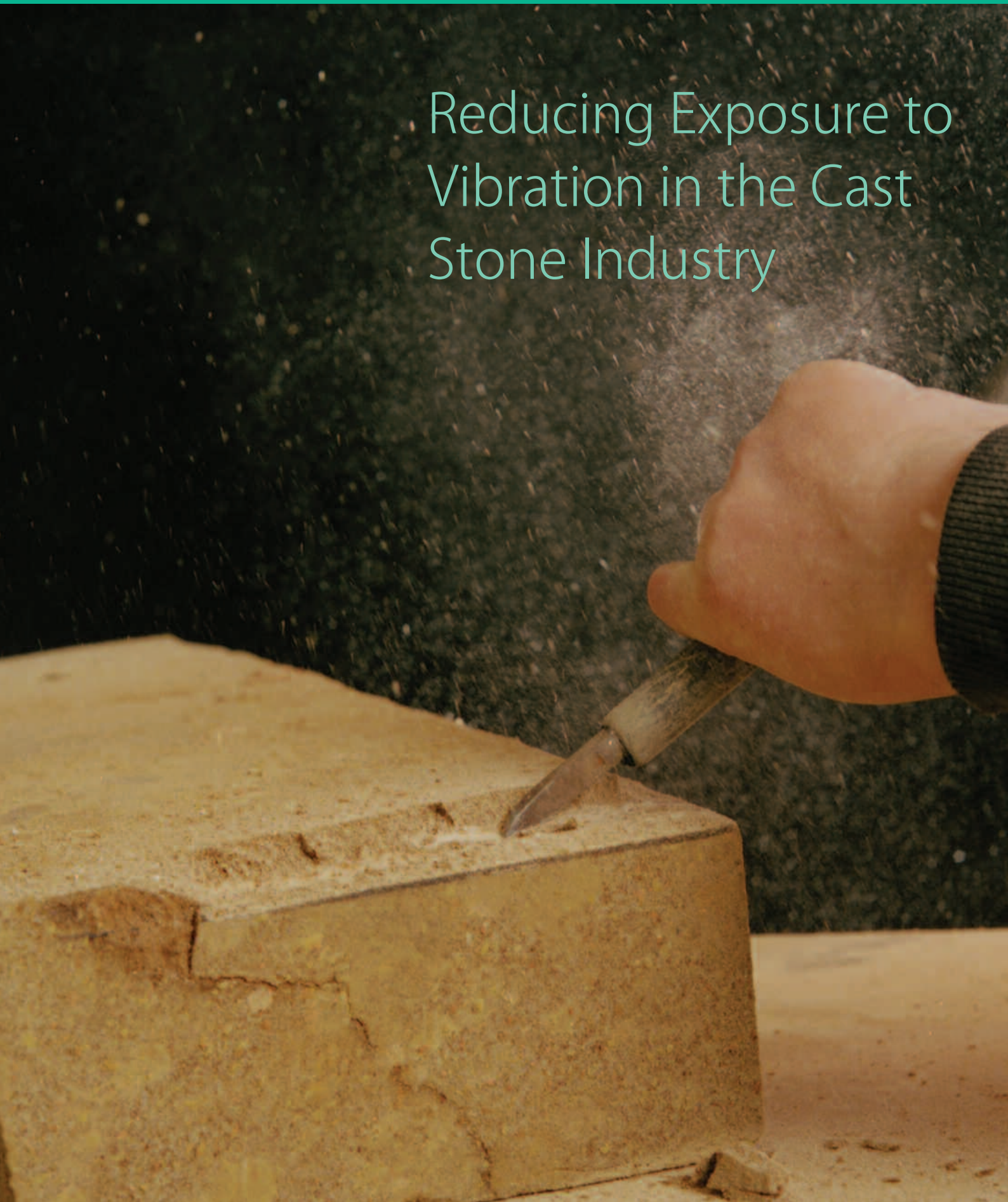


Using our brains to save and improve the lives of workers

Reducing Exposure to Vibration in the Cast Stone Industry



The Client

Health and Safety Executive

The Problem

Today's modern buildings often use cast stone as a cheap alternative to natural stone. There is also a large market for cast stone garden ornaments. Cast stone is manufactured by compressing a mix of sand, cement and aggregate material into a mould. Many of these products are manufactured using hand-held power tools that can produce high levels of hand-arm vibration. The tools are used by operators throughout the day, producing a risk of vibration injury or injury due to the poor ergonomic design of the workstation. In the absence of a commercially available solution to these problems, some cast stone manufacturers have developed their own systems to reduce the risks.



What we did

HSL and HSE, in association with the United Kingdom Cast Stone Association (UKCSA), conducted a series of visits to cast stone premises to gain a better understanding of the risks and to assess the effectiveness of potential solutions. Measurements of vibration exposure were made and discussions held with operatives and managers.

Two types of hand-held power tools are generally used in cast stone manufacture: pneumatic rammers and electric demolition hammers fitted with a tamping plate. The vibration from rammers is characterised by low frequency, high magnitude vibration which is difficult to reduce using conventional vibration isolation techniques. However, a potential solution, which effectively increases the mass of the tool body by suspending the tool in a counterbalance arm, reduces the vibration and the grip forces. Electric demolition hammers generally have lower vibration than the rammers but are heavier and therefore have greater potential for manual handling injury. Some manufacturers have successfully adopted rigs, which support the weight of the tool and also provide vibration isolation.

Outcome/Benefits

The findings of the project have been incorporated into industry-specific guidance that highlights ways of reducing the vibration and methods for the management of the risks from vibration exposure. With colleagues in HSE, HSL has visited a number of tool manufacturers to promote the findings of the project with the aim of persuading them to produce low risk tools suitable for this industry. HSE is now encouraging UKCSA and its members to liaise with tool manufacturers and use the information from HSL's work to specify low-vibration tools.