

Occupational Health and Safety in Construction Industry (Continued)

Health surveillance

Sometimes workers' health can be protected by checking for early signs of illness. Such surveillance is a legal duty in a restricted range of cases for work involving some health risks such as asbestos. Surveillance may be appropriate in other cases, eg for workers regularly engaged in blast-cleaning surfaces containing silica, or where workers are exposed to high levels of noise or hand-arm vibration, especially for long periods.

Where appropriate, arrangements should be made for workers to have regular examinations by an occupational health professional to detect early signs of skin complaints, such as dermatitis. In addition, workers should be encouraged to carry out 'self-checks' and report skin irritations to their supervisor at an early stage.

Asbestos

Asbestos-related diseases kill more people in the construction and asbestos manufacturing industries than any other single work-related cause. All types of asbestos can be dangerous if disturbed. The danger arises when asbestos fibres become airborne. They form a very fine dust which is often invisible. Breathing asbestos dust can cause serious damage to the lungs and cause cancer. There is no known cure for asbestos-related disease.

The more asbestos dust inhaled, the greater the risk to health. Until recently it was thought that those dying from asbestos-related diseases were regularly exposed to large amounts of asbestos. It is now thought that repeated low exposures or occasional high exposures to asbestos can lead to asbestos-induced cancers, although the exact scale of risk at lower levels of exposure is unknown. Therefore precautions should always be taken to prevent exposure, or where this is not practicable, to keep it to a minimum. Workers such as plumbers, electricians and heating engineers may not consider that they work with asbestos, but they might regularly drill, cut and handle materials containing asbestos and need to be protected.

Asbestos is a very durable fibre. It was widely used in materials where resistance to heat or chemical attack was important and to give strength to cement products such as insulation boards, corrugated roof sheets and cement guttering and pipe work. Sprayed asbestos coatings have also been used to reduce noise.

Almost all industrialized countries have promulgated regulations to control the risk from hazard due to handling of asbestos. Accordingly, anyone responsible for maintenance and repair of a commercial or industrial property has an explicit duty to identify asbestos in the premises and manage the risk. In summary, this means they must:

- check whether there is any asbestos present;
- check on its condition;
- assume the material contains asbestos unless there is strong evidence to the contrary;
- assess the risks from any asbestos-containing material;

- take action to manage the risk so that no one will unknowingly disturb asbestos; and
- provide information about the material to anyone likely to disturb it.

Building and maintenance contractors should no longer be unsure about when they will come across asbestos in commercial buildings as, under the duty to manage asbestos in non-domestic premises, the building owner/occupier is required to provide information about the presence of asbestos on their premises. Often the presence of asbestos will not be obvious and it is not always easy to identify asbestos from its appearance. Unless the building owner can produce clear records to show that the area where work is to be done is free from asbestos, it is sensible to assume that any buildings constructed or refurbished before the 1990s are likely to contain asbestos-based materials.

Do not carry out any work that is likely to expose employees to asbestos unless an adequate assessment of exposure has been made. This means that the building or area of the building where work is to be done should be checked to identify the location, type and condition of any asbestos that could be disturbed during the work.

Some of the most common materials containing asbestos are :

- boiler and pipe-work coatings and laggings;
- sprayed coatings providing fire or acoustic insulation;
- insulation board;
- cement-based sheets and formed products, such as facias, soffits, gutters and downpipes etc;
- ceiling (and some floor) tiles;
- gaskets and paper products used for thermal and electrical insulation;
- some textured surface coatings.

Further information can be found in *Working with asbestos in buildings*, which contains essential guidance for workers in the maintenance or building refurbishment trades.

In general, the softer the material, the more easily it is damaged and the more likely it is to release fibres when disturbed or worked on. The greater the fibre release, the greater the risk to health it will generate and the higher the standard of precautions required when working with that material. Many of the softer materials, eg boiler lagging, will be protected by a hard outer coating. If the protective outer coating could be inadvertently damaged during the work, take precautions either to protect it or to ensure that if it is damaged, the subsequent release of asbestos will not create a risk. Work in which asbestos insulation, asbestos coating or asbestos insulating board is removed, repaired or disturbed will normally have to be carried out by a specialist contractor licensed by the authorities.

If asbestos (or what is suspected to be asbestos) that was not identified during the initial assessment is discovered, stop work. Evacuate the area and protect the asbestos from further damage until it has been decided how work can proceed in safety. If there is doubt about the presence of asbestos, seek the advice of a specialist analyst.

All work with asbestos and the precautions needed are generally covered by relevant regulations of the country in which the work is being performed and the supporting *Approved*

Code of Practice and guidance. The Regulations, normally place a duty on an employer to prevent the exposure of employees to asbestos, or to reduce exposure to the lowest reasonably practicable level. So, if possible, a work method which avoids any disturbance of asbestos-containing materials should be chosen. If this is not possible, before carrying out any work that is liable to expose employees (or others) to asbestos, make an assessment of the likely exposure.

It is important to make this assessment even when exposure to asbestos is infrequent and only happens by chance, eg during building refurbishment or repair work such as gas fitting, plumbing or electrical work. The assessment will help in deciding what precautions need to be taken to protect people who may be affected by the work.

Apart from a few limited exemptions, the regulations prohibit contractors working on asbestos insulation, asbestos coating or asbestos insulating board unless they have a license issued by the relevant authorities. This is specialist work usually requiring the erection of enclosures around the work, filtered and powered ventilation for the enclosure, high-efficiency powered respirators and separate changing and showering facilities.

Essential points to remember when working with small quantities of hard asbestos-containing materials:

- There is no requirement for a license to work on asbestos-cement sheet, or with asbestos-cement products like ducts and pipe work, but the work must be done in compliance with the relevant regulations. Make sure the material comes within the definition of asbestos cement before starting work by having a density measurement taken. An assessment of exposure is always required. Avoid exposure to airborne dust and provide necessary protective equipment, including respirators. **Only use respirators to control exposure after all other steps to reduce exposure have been taken.**
- Apart from a few exemptions, work with asbestos coating, asbestos insulation, or asbestos insulating board requires a license. Before starting work, check whether a licensed contractor should be doing it.
- Where exposure is to low levels of fibre, eg when removing small numbers of good condition ceiling tiles or drilling a few holes as part of plumbing or electrical work, disposable respirators may give adequate protection. For more extensive work involving breaking boarding or handling damaged materials, more precautions will be necessary, such as full-face respirators, disposable overalls and ventilated enclosures, as required when working with lagging.
- Don't break asbestos board or sheeting; try to remove it as an undamaged piece. Where sheet has to be worked on, wet it first. Handle the material carefully – don't drop materials onto the floor or ground. Pick up loose pieces immediately. If working outdoors (eg taking down roof sheets) make sure vehicles don't run over sheets at ground level – this results in high dust levels.
- Use hand tools – drilling and cutting sheet with power tools produces a lot of dust. Use the working methods and precautions described in the asbestos guidance referred to in this section. Avoid blasting, sanding and grinding the material.

- If asbestos materials are removed, they must be disposed of safely. Board and sheet materials should usually be wrapped and sealed in polythene sheet and marked to indicate the presence of asbestos. Only specified tips accept asbestos-containing waste; check with the appropriate waste authority who will be able to provide information on the relevant hazardous waste legislation.

Noise

Regular exposure to high noise levels causes deafness or tinnitus (a permanent sensation of noise and ringing in the ears) – the longer the exposure and the higher the noise level, the greater the degree of hearing loss. It may only be when damage caused by exposure to noise over the years combines with normal hearing loss due to ageing that people realize how deaf they have become. This hearing loss is incurable and distressing.

Employers have duties to control this risk under the noise regulations which sets out levels at which action must be taken. The exposure of anyone to noise from work activities should be assessed and controlled. Where risks to hearing have been controlled to the lowest level practicable, hearing protection should be provided if risks remain.

Noise on construction sites usually comes from machinery used for demolition, excavation or piling and from compressors and concrete mixers etc. Other operations, such as hammering, riveting and the use of cartridge-operated fixing tools, may also be the source of excessive noise. Check which work will involve noisy equipment. Assess how much the noise from this work is going to affect people working at the site.

The manufacturers and suppliers of equipment have a legal duty to provide information on the noise their equipment produces. This information should give a good idea if there is likely to be a noise problem. Go back to the manufacturer or supplier if the information is not clear. Where possible, choose low-noise tools and equipment.

Poor maintenance of tools can lead to increased noise levels. You need to make sure that equipment is properly maintained and that any noise reduction measures, such as pneumatic silencers, are kept in place.

Assessment

Look at how equipment will actually be used on site. Can the person using the equipment talk to someone 2 m away without having to shout to be understood? If they have to shout, the noise from the equipment is probably loud enough to damage their hearing, so action will have to be taken.

Get the noise levels assessed by someone with the skill and experience to measure noise and who can identify what needs to be done. In the meantime, offer workers ear defenders (earmuffs or earplugs) to wear.

Tell all workers exposed above the action levels that there is a risk to their hearing, what is being done about it and what they are expected to do to minimize the risk.

Prevention

Can the job be done in another way that does not involve using noisy equipment? If not, can a quieter item of equipment be used? When buying or hiring equipment, choose the quietest model. Try and carry out the noisy job well away from where other people are working. Move

workers who are not involved out of the noisy area. Erect signs to keep people out of the noisy area.

Control

Try and reduce the noise at source, eg fit mufflers to breakers, drills etc. Keep the covers closed on compressors. Most modern compressors are designed to run with all covers closed, even in hot weather. Make sure the silencers on mobile plant are in good condition. Maintain equipment regularly to prevent noise from loose bearings and leaky compressed-air hoses and joints.

Noise levels can be reduced by making sure the exhausts of compressors, generators and other plant are directed away from work areas. Screens faced with sound-absorbent materials can be placed around plant.

If it is not possible to eliminate the noise source or reduce the noise, provide workers with ear defenders (muffs or plugs). Providing hearing protection is **not** a substitute for noise elimination and control at source.

Carefully select ear defenders, keep them in good condition and train workers in their use. Ensure that they fit well and are kept in good condition. Make sure that where defenders are needed they are actually used. Check that the hearing protection does not interfere with other safety equipment, eg if ear defenders are difficult to wear with a hard hat, get defenders that fit onto the hat.

Vibration

Many jobs in construction involve the use of hand-held power tools. The vibration from such equipment can cause hand-arm vibration syndrome (HAVS). This condition affects the fingers, hands and arms and, in the long term, causes permanent damage. Eventually parts of the fingers go white and numb and there is a loss of touch. This condition is often called 'vibration white finger'.

Vibration damage to the fingers, hands or body is very much dose-related. The greater the exposure to vibration, the more likely there is to be damage. Other factors that can influence the degree of severity of hand-arm vibration syndrome include:

- the grip, push and other forces used to guide and apply the vibrating equipment. The tighter the grip, the more vibration energy is transferred to the hands;
- the exposure pattern, length and frequency of work and subsequent rest periods;
- the hardness of the material being worked upon; and
- factors that can affect blood circulation, such as workplace temperature,
- smoking and individual susceptibility.

While all vibration can be damaging, it is perhaps logical to assume that the faster a machine vibrates, the more dangerous it is, whereas in fact it is lower- speed vibrations (those between about 2 and 64 vibrations per second) that cause the most damage. Some of the tools used in construction that are likely to result in high levels of exposure to vibration are:

- road and concrete breaking drills;
- concrete vibro thickeners and concrete pokers;
- plate vibrators;
- chisels (air or electric);
- compressor guns;
- pneumatic and percussive drills;
- angle grinders;
- sanders and other similar 'rotary' tools;
- abrasive wheels;
- cutting-off wheels and discs;
- power hammers and chisels.

The regulations generally give employers responsibilities to control the risk of vibration. They set out specific requirements relating to assessment, control and action levels.

If anyone uses hand-held power tools, they should identify, assess and prevent or control the risk from vibration.

The manufacturer or supplier's information should indicate if there is a vibration problem. Go back to the manufacturer or supplier if the information is not clear. Where possible, choose low-vibration tools.

Assessment

The information from the manufacturer or supplier, the amount of time the tools are used and discussions with the people using the tools should reveal the tools most likely to present a risk.

Make sure workers using vibrating tools know about the hazards and what they need to do to minimize the risk.

Prevention

Can the job be done in another way that does not involve using hand-held power tools (eg by using a hydraulic breaker to break a concrete beam rather than spending long periods using hand-held breakers or using a chemical method for pile capping or surface preparation)?

Control

Maintain equipment so that it is properly balanced, has no loose or worn out parts and blades/cutters are sharp etc. Use the power tool and attachment which will do the job properly in the shortest time.

It is good practice for workers to keep their hands warm to get a good flow of blood into the fingers by:

- wearing gloves;
- having hot food or drinks;
- massaging the fingers;
- not smoking (as this can cause narrowing of the blood vessels).

To be continued in next issue.

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