



**INLAND
WATERWAYS**
ASSOCIATION

GUIDANCE NOTE

Lead & Asbestos

CONTENTS

Introduction	
Lead ~~~~~	3
Legal Considerations ~~~~~	4
Control of Lead at Work Regulations (2002) ~~~~~	5
The Effect of Lead on Health ~~~~~	6
Controlling Exposure to Lead ~~~~~	7
Activities Liable in Result to Significant Exposure ~~~~~	9
Personal Protective Equipment ~~~~~	10
Welfare Arrangements ~~~~~	11
Asbestos ~~~~~	13
Control of Asbestos Regulations (2012) (CAR) ~~~~~	15
Types of Asbestos Survey ~~~~~	16
Working with Asbestos ~~~~~	17
Licensed & Non-licensed Work ~~~~~	18
Asbestos Waste ~~~~~	19
Training ~~~~~	20

First published as v.1 in 2022. This is a web-friendly document and will be reviewed and updated when the source legislation changes. Any printed version may not be the latest version and a check should be made on IWA website. IWA has interpreted the current legislation, as dated in the document, in good faith but the reader should check for themselves that it is the latest version and that they are acting within the legal framework.

INTRODUCTION

Lead and asbestos are relatively rare on restoration sites, but can still be harmful to the health of volunteers. Lead and asbestos are not in common use today due to their harmful effects. However they may be present if you are restoring existing structures and you will need to deal with them appropriately. They may also be present when clearing a site or when a canal channel has been filled in as a tip.

LEAD

Lead dust is likely to be found where old lead-based paints have been used and where there is a build-up of lead-contaminated dust in lofts and roof, ceiling and floor voids from vehicle emissions before 2000 when leaded petrol became illegal. Lead may be encountered in building materials during renovation or refurbishment, for example lead pipes and cables and roof flashing, upstands and gutters. Lead was used for fixings into stone (such as collar anchors at lock gates) and may be present in architectural metal work.

Exposure to lead, lead dust and fumes constitutes a hazard to health where volunteers are carrying out work that involves:

- ① Removal or reuse of lead joints in or between stones.
- ② Removal of lead-based paint.
- ③ Preparation of surfaces previously lead-painted.
- ④ Removal, repair or handling of lead products such as pipes, cables, lead work.



Exposure risks are most likely in pre-1970 buildings. HSE advises that, as a precaution, an assessment of volunteer's potential exposure to lead should be completed when preparing paintwork regardless of age of the building or structure.



Where a canal channel has been filled in with council and builders' rubbish, lead may be present in many forms, such as old pipes and cables, painted ironwork and lead flashing.

Lead is a cumulative poison and can get into the body through inhalation of lead dust and fumes and by ingestion of lead particles through hand to mouth contact. It collects in the kidneys and soft tissues and then accumulates in the bones. Children and pregnant women are particularly at risk from exposure. Families of volunteers are potentially at risk of exposure where lead remains on the work-clothes brought into the home.

LEGAL CONSIDERATIONS

The Construction (Design and Management) regulations (2015) (CDM) place a duty on the restoration group to identify and collect information on hazardous substances (such as lead-containing paint) likely to affect the project and to pass the information onto site leaders, volunteers and other contractors. Refer the the guidance note on CDM.

When lead poisoning is diagnosed by a medical practitioner it must be reported to the HSE under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations, RIDDOR. Refer to the guidance note on First Aid at Work and Reporting Accidents.



CONTROL OF LEAD AT WORK REGULATIONS (2002)

The regulations place a duty on restoration groups (in the role of employer), who are working with lead or a substance or material containing lead, to protect anyone from exposure. This includes not only volunteers but anybody else who might be at risk, including visitors, members of the public and occupants. The restoration group is required to make a suitable and sufficient assessment of the risk to health and safety, review that assessment when circumstances change and record the significant findings of that assessment. The purpose of the assessment is to allow a decision to be made about the level of exposure involved and to identify control measures that need to be put in place.

A programme of air monitoring must be established where volunteers are liable to have a significant exposure to lead and records of the findings must be kept. This is a specialist activity and if there is a potential for volunteers to be exposed to lead, further advice should be sought.

Where volunteers are exposed to a significant level of lead, the restoration group must provide health surveillance carried out by a medical advisor or doctor. Volunteers must make themselves available for testing. It is recommended that new volunteers who are likely to be exposed have an initial assessment, including blood-lead levels to establish a baseline.

Volunteers likely to be exposed to lead should be given suitable and sufficient information, instruction and training for them to know the health and safety risks and the precautions put in place. Much of the information is included in the Health and Safety Executive (HSE) leaflet *Lead and You*. The restoration group should identify the type of lead being worked and pass on information in any lead survey or register and the findings of the risk assessment. Training will include details of the occupational exposure limit, action level and suspension level and the controls that are in place and how to use them correctly.

The first aid assessment for the site should reflect the potential for exposure to lead and suitably emergency drills should be designed and tested. Where lead is present, you should inform the emergency services of the accident risk.



THE EFFECT OF LEAD ON HEALTH

A high level of lead in the body can cause headaches, tiredness, irritability, constipation, nausea, stomach pains and loss of weight. If uncontrolled, continued exposure could cause kidney, nerve and brain damage.

Current exposure is best measured by blood-lead level. Inhalation and ingestion can be reduced by preventing lead dust, fumes or vapour being released into the workplace.



CONTROLLING EXPOSURE TO LEAD

- ① **Risk assessment:** enables restoration groups to assess the likely exposure of volunteers and identify the controls that need to be put in place.
- ② **Control measures:** involves substituting lead with a less hazardous substance or methods (engineering or organisational) to control exposure. Controls are only considered adequate if they reduce the concentration to below the occupational exposure limit. If the limit is exceeded, the measures must result in steps being taken to reduce it.
- ③ **Air monitoring:** to establish the levels of lead in air. It cannot be done on most construction sites due to the open nature of the site, but may be required in enclosed spaces. The risk assessment will establish the requirements for air monitoring.
- ④ **Occupational exposure limit (OEL):** standard for inorganic lead in air is 0.15 milligrams (mg) of lead per cubic metre of air, determined on an eight-hour time-weighted concentration. A significant exposure is considered when a volunteer is exposed to half the OEL, i.e. 0.075 mg.
- ⑤ **Medical surveillance:** is a check on blood-lead levels carried out by a medical professional when the risk assessment identifies that a volunteer is likely to be exposed to significant levels of lead. Continued medical surveillance will be triggered when blood-lead concentrations are 20 micrograms of lead per decilitre of blood for women of reproductive capability or 35 micrograms of lead per decilitre of blood for all other volunteers.
- ⑥ **Action levels:**
 - ▶ 25 micrograms of lead per decilitre of blood for women of reproductive capacity.
 - ▶ 40 micrograms of lead per decilitre of blood for young persons (aged between 16-17).
 - ▶ 50 micrograms of lead per decilitre of blood for any other volunteer.
- ⑦ **Suspension levels:** for blood-lead levels above those shown below, a doctor must decide whether to temporarily suspend a volunteer from that work that exposes them to lead;
 - ▶ 30 micrograms of lead per decilitre of blood for women of reproductive capacity.
 - ▶ 50 micrograms of lead per decilitre of blood for young persons (aged between 16-17).
 - ▶ 60 micrograms of lead per decilitre of blood for any other volunteer.

When medical surveillance indicates blood-lead concentration above the action levels the restoration group must investigate the effectiveness of existing control measures and take action to reduce volunteers' blood-lead levels.

The restoration group must ensure the doctor makes a record in the affected volunteers health record, review the risk assessment, review actions and review the health of other volunteers similarly exposed to lead.

8 **Understanding lead levels:** very small amounts of lead can have a significant effect on a volunteers health. One grain of sugar = 1,000 micrograms and 1 decilitre = 100 ml about half a glass of wine. 36,100 micrograms of lead can be found in 1 cm² of old lead paint.

- 9 **Significant levels** of exposure to lead can occur:
- ▶ Where volunteers are exposed to a concentration of lead exceeding half the OEL.
 - ▶ Where there is a substantial chance of ingesting lead.
 - ▶ Where there is a risk of skin absorption through the skin of lead alkyls (additive to petrol and lead naphthenate, used as a drier in oil paints and varnishes to speed the polymerization and oxidation processes).



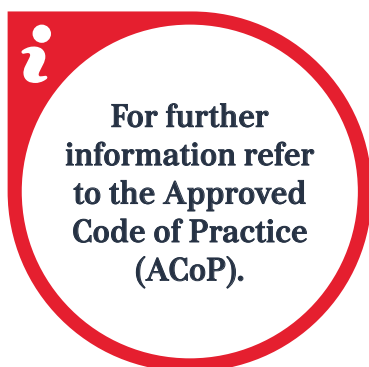
ACTIVITIES LIABLE TO RESULT IN SIGNIFICANT EXPOSURE

Some type of activities that restoration groups are likely to be carrying out have the potential to generate significant exposure to lead and must be controlled:

- ① Dry-sanding old lead paint.
- ② Burning off old lead paint.
- ③ Disc abrasion of lead surfaces or cutting lead with abrasive wheels.
- ④ Removing or disturbing old lead sheet.
- ⑤ Recovering lead from scrap and waste.
- ⑥ Disturbance of lofts and roof, ceiling and floor voids where contaminated dust from pre-2000 car exhaust emissions has accumulated, including moving loft insulation.
- ⑦ Flame-cutting steelwork painted with lead-based paints.

Ways of testing for the presence of lead:

- ① Destructive tests for paint sampling (will damage painted surfaces in order to take the samples).
- ② Test kits; on-site lead/no lead result. These provide an indication only.
- ③ Paint sampling kits for submitting samples for chemical analysis off-site.
- ④ Dust-wipe kits for submitting samples for chemical analysis.
- ⑤ Professional sampling for laboratory analysis.
- ⑥ Portable devices that use x-ray technology.



PERSONAL PROTECTIVE EQUIPMENT

Where the risk of exposure to lead cannot be adequately controlled by other methods the restoration group must provide appropriate personal protective equipment and volunteers must be trained in its use and care.

Respiratory protective equipment of a type suited to the hazard must be provided when control measures cannot reduce the lead in air below the OEL. Face masks to a standard FFP3 are suitable for toxic dusts, but must be fitted correctly. Airborne lead dust can be ingested at levels below the OEL and dust masks will minimise ingestion and hand to mouth contact.

Where exposure is significant, suitable protective clothing must be provided which resists permeation of lead dust and does not collect or harbour dust (no external pockets). Contaminated clothing should remain on site.



WELFARE ARRANGEMENTS

Adequate welfare facilities must be provided for volunteers exposed to lead-contaminated materials. The facilities should include:

- ① Suitable and sufficient washing facilities (this may include showers) with hot (or warm) and cold running water, soap or cleanser and towels or other means of drying.
- ② Suitable and sufficient changing rooms with space to store contaminated clothing.
- ③ Suitable rest facilities that are not, or likely to become, contaminated and that are cleaned regularly.



Anyone working with lead or lead-containing materials will need to wash thoroughly and be careful in removing clothing to prevent inhaling or ingesting lead during or after work.



GUIDANCE NOTE

USEFUL RESOURCES

(in respect of lead at work):

[HSE guidance working safely with lead](#)

[HSE, Control of lead at work, ACoP](#)

[HSE, Lead and you \(a guide for volunteers working with lead\)](#)

[Control of Lead at Work Regulations, 2002](#)

[Construction \(Design and Management\) Regulations](#)

[Hazardous Waste Regulations](#)

[Reporting of Incidents, Diseases and Dangerous Occurrences Regulations](#)

Sign up to read the full Practical Restoration Handbook and supporting resources here:
waterways.org.uk/practicalrestorationhandbook



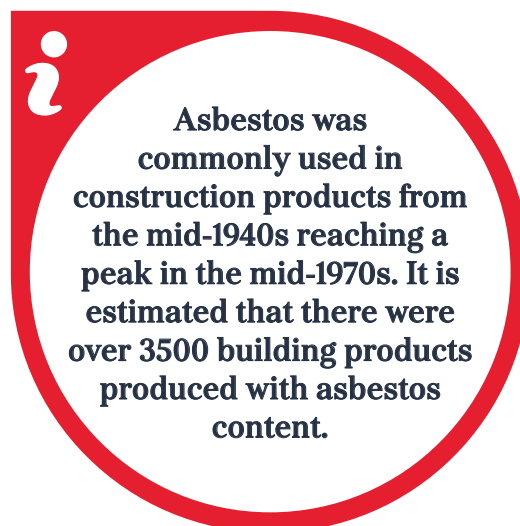
ASBESTOS

Asbestos is a hazard to health when airborne fibres are breathed in, because the human lung is unable to expel or break the fibres down (known as biopersistent). Asbestos was used in building products and may be present in many buildings (the use of asbestos was banned in the UK in 1999). If the material is in good condition and fibres are not likely to be released, the products are safe to handle. However, any work with asbestos must comply with the requirements of the Control of Asbestos Regulations (2012) (CAR). The nature of work with asbestos and the associated risk is classified by the friability of the material. Materials that are capable of releasing high levels of fibre will require the use of a licensed contractor. Work with undamaged asbestos cement products and materials where the asbestos is tightly bound is non-licensed, but may require notification to the Health and Safety Executive (HSE).

Products that asbestos can be found in:

- ① **Insulation and sprayed coating using moulded or pre-formed lagging:** such as boilers, plant and pipework, fire protection to steelwork, thermal and acoustic insulation to buildings.
- ② **Insulation board:** such as fire protection to doors, cladding on walls and ceilings, partitioning, ceiling tiles; fire breaks in ceiling voids, electrical equipment and service risers and general building board.
- ③ **Asbestos cement:** such as corrugated roof sheets, flat sheets for cladding and partitions, roof and rainwater drainage goods, underground pipes, bath panels, artificial roof slates, flue pipes and general building board.
- ④ **Other materials:** such as vinyl or thermoplastic floor tiles, insulation of electrical equipment, some textured coating (eg Artex), bitumen, Bakelite sanitary ware and other products.

The HSE has published images of asbestos. A link is provided in useful resources.



Locating asbestos is usually a job for an asbestos surveyor.

Restoration groups are most likely to come across asbestos in sheet building materials and a variety of other building products used in buildings. In any refurbishment to a building built before 2000 there is a chance of asbestos being present.

Where canals have been filled in following abandonment, tipped material may contain asbestos. Fly-tipping of asbestos-containing materials along canal banks is also a problem.

Asbestos related diseases are:

- 1 Asbestos-related lung cancer, caused by exposure to asbestos fibres.
- 2 Asbestosis, scarring of the lung tissue from exposure to asbestos, causes progressive shortness of breath and can be fatal.
- 3 Mesothelioma, cancer of the pleura (the thin, protective membrane surrounding the lungs, heart and abdominal cavity) caused by exposure to asbestos and can take up to 50 years before symptoms develop. It is fatal in all cases.
- 4 Pleural thickening, the lining of the lung thickens and swells after heavy exposure to asbestos and causes discomfort in the lungs and shortness of breath.



CONTROL OF ASBESTOS REGULATIONS (2012) (CAR)

The regulations identify duty holders as any person who owns, occupies, manages or has responsibility for all or part of a non-domestic property. In order to manage the risk from asbestos and asbestos-containing materials (ACMs), the duty holder must carry out a suitable and sufficient assessment of whether asbestos is or is liable to be present and its condition. The assessment should take account of building plans or other relevant information and the age of the building and should include an inspection of accessible parts of the building.

The assessment must be reviewed when it is considered no longer valid or there has been significant change in the premises. The significant conclusions of the assessment must be recorded in an asbestos register.

Where the assessment identifies that asbestos or ACMs are present or are liable to be present, the duty holder must ensure that:

- ① A determination of the risk from that asbestos or ACM is made.
- ② A written plan identifying those parts of the building is prepared. The plan must be regularly reviewed and revised if it is no longer valid, there has been significant change in the premises or the measures specified in the plan have been implemented and recorded.
- ③ The measures required to manage that risk are specified in the written plan. It must be adequate for monitoring the condition of asbestos, properly maintaining or, if necessary, removing asbestos or ACM and that information is passed to anyone liable to disturb it and the emergency services.



Restoration groups are most likely to come across asbestos when clearing sites.

No work must be undertaken to a property that exposes volunteers, or others, to asbestos unless a suitable and sufficient assessment of whether asbestos or ACM is or is liable to be present, its type and its condition. If there is any doubt, the restoration group must assume that asbestos is present.

In the event of incident, accident or emergency related to an unplanned release of asbestos the restoration group must take steps to:

- ① Mitigate the effects of the event.
- ② Restore the situation to normal.
- ③ Inform any person who may be affected.

As part of the risk assessment the restoration group must prepare emergency procedures, provide information on emergency arrangements and set up suitable warning systems. These must be made available to the relevant emergency services and displayed at the workplace.



The spread of asbestos must be controlled with plant and premises being kept clean. It may be necessary to set up designated areas where work involving asbestos is being carried out.

The regulations prohibit the importation, use, and reuse of all types of asbestos. Any products that contain asbestos should be properly disposed of.

TYPES OF ASBESTOS SURVEY

There are two types of survey that can be carried out:



Management survey

It is carried out to locate, so far as is reasonably practicable, the presence and extent of any suspected asbestos or asbestos-containing materials (ACMs) which could be disturbed by daily occupancy of the building. It will involve minor intrusive work and may involve sampling of materials.



Refurbishment or demolition survey

It must be carried out before any refurbishment or demolition work. It will locate and describe, as far so is reasonably practicable, all ACMs in the area to be refurbished or the whole structure if it is to be demolished. It is fully intrusive and involves destructive inspection and access to all areas. The scope of the survey will be determined by the work that is proposed and may be restricted to the area to be refurbished only. The survey should be reviewed if the scope of work changes. Refer to HSE guidance HSG264.

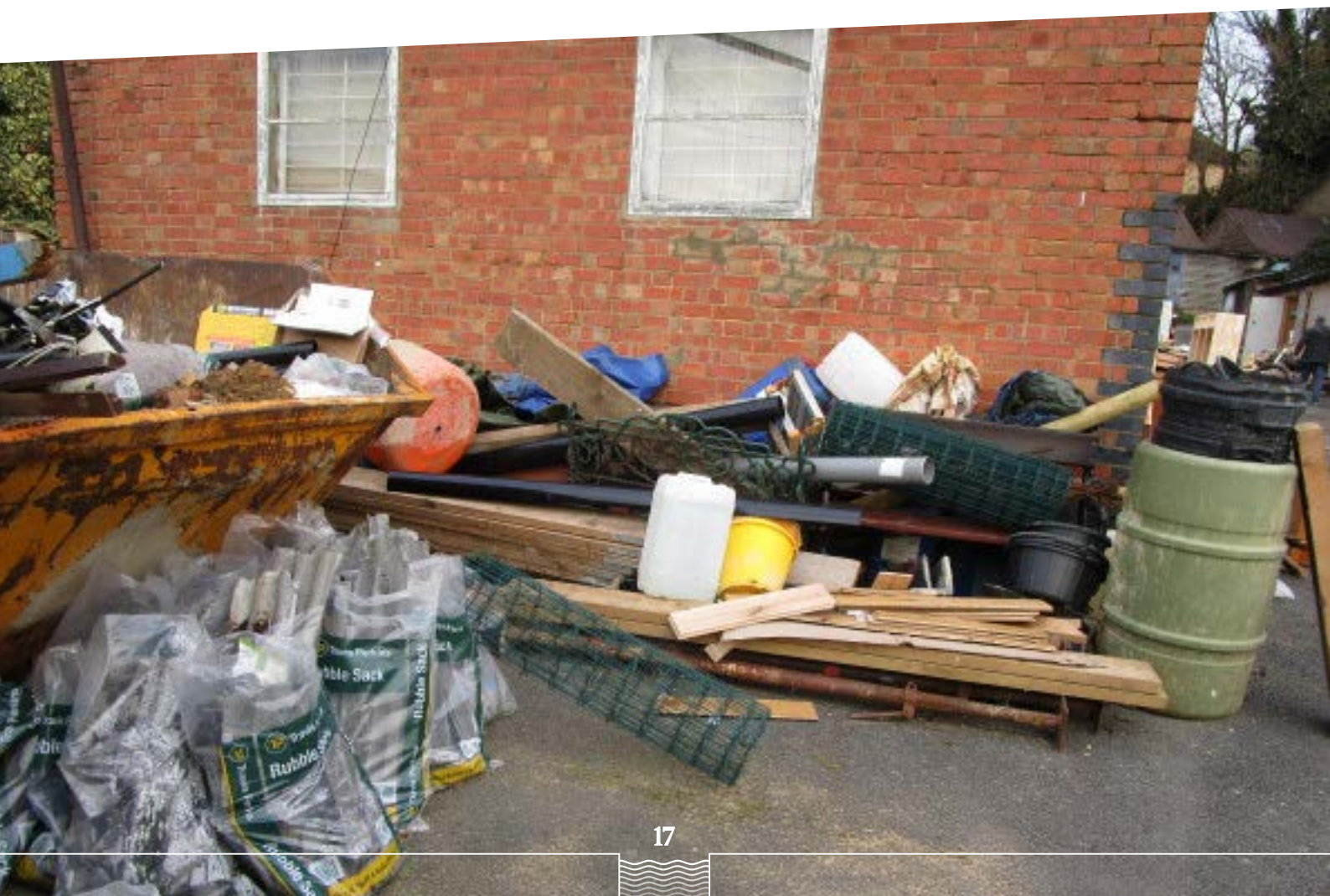
WORKING WITH ASBESTOS

Where work is to be carried out to premises where the work is liable to expose volunteers to asbestos a suitable assessment of risk and the steps required to control the risk must be carried out. The significant findings of the assessment must be recorded and the steps implemented. The assessment must be reviewed and revised regularly and when circumstances change. A suitable written plan of any work with asbestos must be prepared detailing how that work will be carried out. The restoration group must ensure that the work is carried out in accordance with the plan.

Volunteers must be given adequate information, instruction and training. Even if work is not to be carried out, if there is a risk of exposure in the premises, volunteers must be made aware of the health risks.



Control measures must be properly used or applied and volunteers must make full and proper use of anything supplied and report any defect immediately.



LICENSED & NON-LICENSED WORK

LICENSED WORK

Licensed work applies to the highest risk work and is carried out by companies issued with a license by the HSE.

There are three types of license:

- 1 Full removal license: held by licensed contractor.
- 2 Supervisory license: required where a third party actively supervises the work. This type of license is gradually being phased out.
- 3 Ancillary license: needed to carry out work that is associated with asbestos removal, such as scaffolding companies who erect enclosing scaffolding around premises.

NOTIFICATION OF WORK WITH ASBESTOS

Licensed work needs to be notified to the HSE or Local Authority 14 days in advance using the ASB5 form. Unlicensed removal of asbestos is an offence under CAR and potentially subject to a prison sentence. It can also expose people to high levels of airborne asbestos fibres.

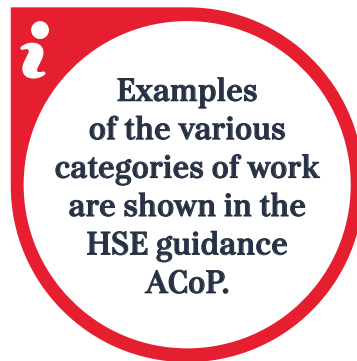
NOTIFIABLE NON-LICENSED WORK (NNLW)

Work that falls into this category is minor work on low risk ACMs that are already in a poor condition or where materials are likely to deteriorate during work. The restoration group does not need to hold a licence but volunteers will need to have had a medical examination. Notice should be given before the work starts, but there is no minimum notice period. Notice has to be given online. Where this work is done by licensed contractors it must still be notified.

NON-LICENSED WORK

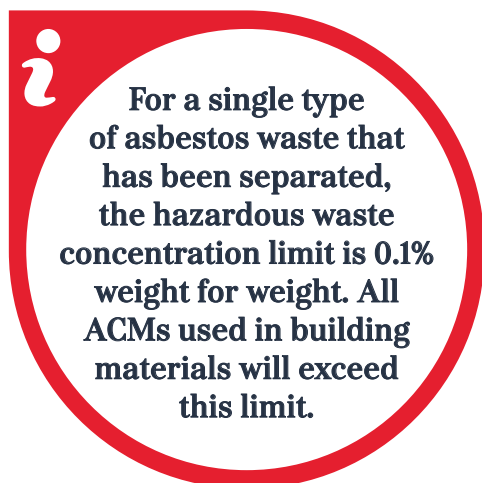
This work must meet the following conditions:

- 1 Short, non-continuous maintenance task with only non-friable materials.
- 2 A removal task where ACMs are in a reasonable condition and will remain in a firmly contained matrix.
- 3 A task where ACMs are in good condition and are being encapsulated or sealed.
- 4 An air monitoring or control task to gather samples for testing.



ASBESTOS WASTE

Asbestos waste encountered by restoration groups is most likely to be found in fly-tipped material and contaminated fill used to backfill a canal when it was abandoned. It is always classified as hazardous waste.



Examples of mixed asbestos waste are:

- ① Soil or mixed construction waste containing one or more pieces of asbestos visible to the naked eye.
- ② Mixed soil from a contaminated area containing more than 0.1% asbestos fibres and other soil from the same site.

Asbestos cement products should be bagged or wrapped if they are being taken directly to the tip. They can be stored in a skip if the skip is lined with polythene and the waste must be wrapped over and secured if left overnight. Not all tips will take asbestos and you may need to inform them in advance and prove you are not a contractor.

Fibrous asbestos should be double bagged or wrapped, the inner bag should be red and the outer bag clear. The waste should be correctly marked in indelible ink. The label should be firmly fixed to the packaging.

Any containers should be designed and constructed to avoid any spillage.



Anyone removing the asbestos waste from site must ensure the following:

- ① Properly documented from the place of origin using a hazardous consignment note.
- ② Transported by a registered carrier.
- ③ Taken directly from the place of production to a suitably authorised facility (should hold a relevant environmental permit or an exemption from a permit) within 24 hours.

TRAINING

CAR have cascading training requirements, based on the risk of exposure. Training needs to be appropriate for the work and the roles undertaken.

There are three types of training:

- ① **Awareness training:** for volunteers who are liable to disturb asbestos during their work. It can be delivered as a toolbox talk or e-learning and should be updated as regulations and requirements change.
- ② **Training for non-licensed asbestos work:** based on practical training on the tasks to be performed and should supplement awareness training. The training will include;
 - ▶ Making an assessment about the risk of exposure.
 - ▶ Safe working practices and control measures.
 - ▶ Selection and use of protective equipment.
 - ▶ Waste handling procedures.
 - ▶ Emergency procedures.
 - ▶ Relevant legal requirements.
- ③ **Training for licensed asbestos work:** specialist training for workers employed by licensed contractors. It will require refresher training annually.

USEFUL RESOURCES

(in respect of working with asbestos):

HSE guidance on asbestos

The Control of Asbestos Regulations

HSE guidance; Managing and working with asbestos L143, ACoP

HSE Notes; Working safely with asbestos

Images of asbestos

HSE guidance, Asbestos: The survey guide, HSG264

Sign up to read the full Practical Restoration Handbook and supporting resources here:
waterways.org.uk/practicalrestorationhandbook



Historic England

This project was partly funded by Historic England's National Capacity Building Programme.





The Inland Waterways Association is a non-profit distributing company limited by guarantee. Company registration number 612245. Charity registration number 212342. Registered office: Island House, Moor Road, Chesham HP5 1WA.