

# A PRACTICAL GUIDE TO MANAGING ASBESTOS IN THE WORKPLACE



## Introduction

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If you own, occupy, manage or have responsibilities for non-domestic premises you have a legal duty of care to protect the people that work there. If the premises contain asbestos, you are required by law to manage the risk from this material or you have a duty to co-operate with whoever does.

If your business premises was built before 2000 it may well contain asbestos. Since 1999 it has been illegal to use asbestos containing materials (ACMs) in construction or refurbishment. However asbestos was used extensively as a building material in Great Britain from the 1950s through to the mid-1980s and much of it is still in place.

Exposure to asbestos fibres can cause fatal diseases – more than three thousand people die each year in the UK as a direct result of having inhaled asbestos fibres. New regulations came into force in 2002 (which were re-enacted in 2006) which place greater legal responsibilities on duty holders to identify, locate and manage the risk from ACMs in the workplace. The penalties for non-compliance can be severe.

This document explains what your responsibilities are, where asbestos containing material is typically located, how to identify it and what you should do to in the event that you discover it on your premises.

**Paul Clarke-Scholes**  
Health, Safety, Quality and Environment Manager,  
Clifford Devlin Ltd



## What is asbestos?

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Asbestos is an Ancient Greek word which means inextinguishable. It is a term used for a group of six naturally occurring fibrous minerals whose natural properties include the ability to withstand high temperatures, chemical attack and electrical currents.

These characteristics made asbestos very good for protecting buildings and equipment from heat/fire. It was added to other materials such as cement, textiles and insulating board making its protective properties were more widely available.

Its properties of fireproofing, insulation and weather resistance meant asbestos was widely used as a material in a number of applications such as gaskets, fire blankets, ropes, asbestos insulation board (AIB), pipes, tanks, floor tiles, textured coatings ('Artex') and resin composites.

### History of its use

3000 BC	First recorded use in Cyprus
2000 BC -	Widely used in Ancient Greece
100 AD	Pliny the Elder notes that slaves working in asbestos mines die young of lung disease
1800s	Start of modern day usage in building material
1930s	The Asbestos Industry Regulations 1931
1940s	Extensive use during war years
1940s-1980s	Used extensively in building construction
1969	The Asbestos Regulations 1969 (came into force in May 1970)
1977	World production peaks (6 million tonnes mined)
1985	Use, supply & importation of blue & brown asbestos banned
1987	Introduction of Control of Asbestos at Work Regulations
1983	Removal Work requires a licence issued by HSE
1997	4820 tonnes imported into UK
1999	White asbestos banned
2002	Regulations revised to include duty to manage
2006	Revision of the 2002 regs to become the Control of Asbestos Regulations

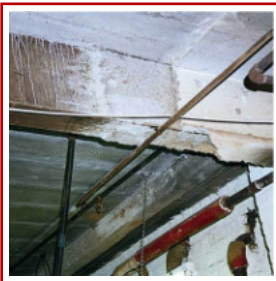
## Where is it used?

There are three main types of asbestos found in asbestos containing materials (ACMs).

- **Crocidolite** (blue asbestos)
- **Grunerite** (brown asbestos) (formerly known as Amosite – the name now dropped as it was a trade name originating in asbestos mines of South Africa)
- **Chrysotile** (white asbestos)

All of them are dangerous but blue and brown asbestos are more hazardous than white. You cannot identify them just by their colour. Sprayed coatings, lagging and insulating board are more likely to contain blue or brown asbestos. Asbestos insulation and lagging can contain up to 85% asbestos and are most likely to emit fibres (friable).

### Sprays



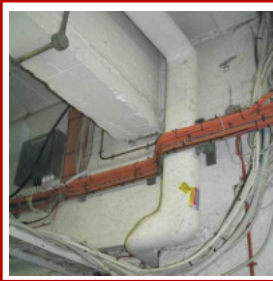
Generally used as fire protection in ducts, firebreaks, panels, partitions, soffit boards, ceiling panels and around structural steel work

**Type:** blue/brown

**% asbestos:** up to 85%

**Danger:** High releases fibre very easily (friable)

### Lagging



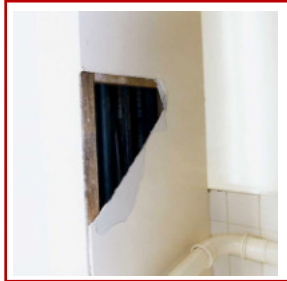
Moulded or preformed lagging used as thermal insulation of pipes and tanks/boilers

**Type:** blue/brown/white

**% asbestos:** up to 80%

**Danger:** High

### Insulating boards (AIB)



All purpose material used much as plasterboard is today

**Type:** brown/white

**% asbestos:** 20-40%

**Danger:** High, will release significant fibre if broken

### Ceiling tiles



Usually a form of Asbestos Insulating Board, may be flat bevelled edge tiles rather than as shown

**Type:** Brown/white  
**% asbestos:** 20-40%  
**Danger:** High

### Floor tiles



Vinyl or thermoplastic, note that the bitumen adhesive commonly used contains similar levels of asbestos.

**Type:** White  
**% asbestos:** 2-4%  
**Danger:** Low

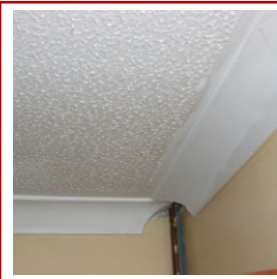
### Cement



Fully or semi-compressed into flat or corrugated sheets used as roofing and wall cladding. Other asbestos cement products include gutters, rainwater pipes and water tanks

**Type:** White / Blue  
**% asbestos:** 10-15%  
**Danger:** Medium

### Coatings



Most common coating is Artex

**Type:** White  
**% asbestos:** 2%  
**Danger:** Low

### Bitumen



Used in roofing materials, damp proof courses, also adhesives

**Type:** White  
**% asbestos:** 2-4%  
**Danger:** Low

### Millboard/Paper



Used for insulation of electrical equipment and as a fire-proof facing on wood fibreboard.

**Type:** Chrysotile (unless v old)  
**% asbestos:** up to 100%  
**Danger:** High (friable material)

## Where is it found?

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### ROOF AND EXTERIOR WALLS

- Roof sheets, slates and tiles
- Guttering and drainpipe
- Wall cladding
- Soffit boards
- Panel beneath window
- Roofing felt and coating to metal wall cladding

### BOILER, VESSELS AND PIPEWORK

- Lagging on boiler, pipework, calorifier etc.
- Damaged lagging and associated debris
- Paper lining under non-asbestos pipe lagging
- Gasket in pipe and vessel joints
- Rope seal on boiler access hatch and between cast iron boiler sections
- Paper lining inside steel boiler casing
- Boiler flue

### CEILINGS

- Spray coating to ceiling, walls, beams/columns
- Loose asbestos in ceiling/floor cavity
- Tiles, slats, canopies and firebreaks above ceilings
- Textured coatings and paints

### **INTERIOR WALLS/PANELS**

- Loose asbestos inside partition walls
- Partition walls
- Panel beneath window
- Panel lining to lift shaft
- Panelling to vertical and horizontal beams
- Panel behind electrical equipment
- Panel on access hatch to service riser
- Panel lining service riser and floor
- Heater cupboard around domestic boiler
- Panel behind/under heater
- Panel on, or inside, fire door
- Bath panel

### **FLOORING MATERIALS**

- Floor tiles, linoleum and paper backing, lining to suspended floor

### **AIR HANDLING SYSTEMS**

- Lagging
- Gaskets
- Anti-vibration gaiter



To view a diagram visit:  
<http://www.hse.gov.uk/asbestos/essentials/building.htm>

## The risks

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According to the Health & Safety Executive (HSE) asbestos is the greatest single cause of work-related deaths in the UK and currently accounts for over 3,000 workplace-related fatalities each year. Given the long delay between first exposure and the onset of disease (15-60 years) and its widespread use after the war this number is expected to go on rising for the next ten years.

Although asbestos is a hazardous material, it only poses a risk to health if its fibres become airborne and are then inhaled. As long as it is in good condition and is not disturbed or damaged there is no risk.

The fact that ACMs were used extensively in the construction and refurbishment of buildings in the last Century means many people still have the potential to be exposed – particularly building and maintenance workers. There are four main diseases associated with inhalation of asbestos fibres.

### Mesothelioma

Mesothelioma is a cancer of the pleural and peritoneal lining. Most of the people who develop mesothelioma have worked on jobs where they inhaled asbestos fibres and it is considered to be almost exclusively related to asbestos exposure. By the time it is diagnosed, it is almost always fatal. Mesothelioma has a long latency period (time between exposure and onset of disease) of at least 15 and sometimes as long as 60 years. The annual number deaths from Mesothelioma has increased from 153 in 1968 to 2037 in 2005 and are estimated to peak at 2500 in 2011.

### Lung Cancer

Asbestos has been recognised as an important risk factor for lung cancer for many years. Lung cancer is a malignant tumour of the bronchi – the tubes carrying air to and from the lungs. The tumour grows through surrounding tissue, invading and often obstructing air passages. Again, the disease has a long latency period – typically at least 20 years. While the number of deaths attributable to asbestos cannot be determined directly the HSE estimates that death rates are on a par with those for Mesothelioma.

### Asbestosis

Asbestosis is defined as lung fibrosis (scarring of the lung tissue) and is caused by heavy and regular inhalation of asbestos fibres. This scarring impairs the elasticity



of the lung, restricting their expansion and hampering their ability to exchange gases. This leads to inadequate oxygen intake to the blood. It is a slowly progressive disease with a latency period of 15 to 30 years. There were 134 deaths due to the disease in 2005.

### **Diffuse pleural thickening**

This is a non-malignant disease in which the lining of the lung (pleura) becomes scarred. This can extend over a large area and may restrict expansion of the lungs, leading to breathlessness. Although not fatal, the disease is a chronic condition with no cure and has been cited as the cause of 375 new cases of disablement in 2006.

### **Most at risk occupations**



- Building surveyors
- Cable layers
- Carpenters and joiners
- Computer installers
- Construction workers
- Demolition workers
- Electricians
- Fire and burglar alarm installers
- Gas fitters
- General maintenance staff e.g. caretakers
- Heating and ventilation engineers
- Painters and decorators
- Plasterers
- Plumbers
- Roofing contractors
- Shop fitters
- Telecommunications engineers

## Asbestos - the law

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A number of Acts and Regulations apply to the management of asbestos in the workplace:

### **Health and Safety at Work Act (1974)**

This requires employers to conduct their work in such a way that employees will not be exposed to health and safety risks, and to provide information to other people about their workplace which might affect their health and safety.

### **Workplace (Health, Safety and Welfare) Regulations (1992)**

Sets out duties to maintain workplace buildings/premises to protect occupants and workers.

### **Management of Health and Safety at Work Regulations (1999)**

Requires employers and self-employed people to assess the risk to the health and safety of employees and visitors to their premises and identify and implement appropriate measures to protect them.

### **The Control of Asbestos Regulations (2006)**

These Regulations came into force in November 2006 and consolidate three previous sets of Regulations covering the prohibition, control and licensing of asbestos. They require employers to prevent the exposure of their employees to asbestos, or where this is not practicable, to reduce the exposure to the lowest possible level.

The Regulations require mandatory training for anyone liable to be exposed to asbestos fibres at work which includes maintenance workers and others who may come into contact with or who may disturb asbestos. The regulations also specify the work methods and controls that should be used to prevent exposure and spread, and establishes airborne exposure limits.

Download from <http://www.opsi.gov.uk/si/si2006/20062739.htm>

### **Construction (Design and Management) Regulations (2007)**

These regulations require the client to pass on information about the condition of any premises (including the presence of hazardous materials such as asbestos) to the CDM Coordinator before any work begins and to ensure that the health and safety file is available for inspection by any person who needs the information.

#### **Enforcement**

The HSE works alongside Local Authorities to enforce these laws and Regulations. The work is carried out by the Field Operations Directorate (FOD), Hazardous Installations Directorate (HID) and also Offshore Division (OSD).

Each office comprises operational inspectors for inspection and enforcement, specialist inspectors such as medical and occupational hygiene inspectors and administrative staff who deal with complaints and undertake promotional work.



Until recently inspectors carried out visits to advise and assist dutyholders and to put management systems in place. However increasingly enforcement action is now being taken if inspectors find that maintenance workers or others are at serious risk of being exposed to asbestos fibres.

The penalties can be severe and involve personal fines of up to £20,000, Disqualification from Directorship, closure of the premises and even a custodial sentence.

## RECENT CASE STUDIES

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**Organisation:** Arrowpak

**Date:** Jul 2002

**Location:** Warehousing

**Summary:** Failed to prevent exposure and spread of asbestos and provide their managers with training information and supervision.

**Penalty:** Fine £5k, costs £4.3k

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**Organisation:** Kings College

**Date:** Nov 2006

**Location:** Keynes Hall

**Summary:** The HSE carried out a preventative inspection at the college and instructed the clerk of works to ensure workers were given asbestos awareness training. Several painter decorators undertook the programme of work (painting) on asbestos culminating in the attempted encapsulation of a sprayed insulating coating under the balcony of Keynes hall Theatre. This incident resulted in exposures of a number of the colleges employees.

**Penalty:** fine £16k, costs £14.5k (Personal fine for former clerk of works £1000 with £500 costs)

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**Organisation:** South Gloucestershire Council

**Date:** Aug 2004

**Location:** Hanham High School (Bristol)

**Summary:** Brown asbestos insulating boards found in kitchens inside the humanities block were disturbed and mistakenly broken-up during refurbishment of the premises. The removal was undertaken by non licensed contractor and contaminated the school and exposed staff to asbestos. The remedial work resulted in an estimate £100k overspend for structural works to make good the facilities, clear up and temporary accommodation costs, cost of replacing internal assets that may have been contaminated (e.g. school books).

**Penalty:** fines £25k

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**Organisation:** In The Pink Leisure Ltd

**Date:** Apr 2005

**Location:** Nightclub

**Summary:** Following a complaint, the HSE inspected the premises operated by In The Pink Leisure Ltd. A substantial amount of asbestos insulating board and flock asbestos was found to have been disturbed while refurbishment was being carried out. As a result the site was shut while a licensed asbestos contractor carried out an environmental clean and the removal of the remaining asbestos.

**Penalty:** Fine £10k, costs £4.7k

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**Organisation:** Endemol Entertainment

**Date:** Feb 2003

**Location:** Stately home (for filming of Fame Academy)

**Summary:** Whilst installing equipment in the basement of the building, contractors used to provide the sound engineering, cables, and lighting equipment disturbed asbestos lagging on a pipe. HSE analysis concluded that persons working in the area "may have been exposed to Grunerite (Amosite) (brown asbestos) and Chrysotile (white asbestos)". The story was widely reported in the national press.

**Penalty:** fine £10k costs £3.6k

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**Organisation:** Dalebrick Ltd

**Date:** Aug 2004

**Location:** Factory

**Summary:** Dalebrick Ltd were contracted to remove asbestos from a factory in Birmingham and hired a team of temporary workers to carry out work on site but did not warn them of the risk of asbestos exposure. HSE were alerted by a member of the team of workers and ordered work to stop.

**Penalty:** total fines £245k; Two directors were personally respectively fined £40k and £5k and disqualified from holding any directorship for two and one years.

## Your legal responsibilities

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### Who is responsible?

The duty to manage asbestos in non-domestic premises (such as industrial, commercial or public buildings factories, warehouses, offices, shops, hospitals schools etc.) falls upon those with responsibility for protecting others who work there i.e. the person or organisation that has clear responsibility for maintenance or repair.

This will typically include the landlord, leaseholder, facilities manager, employer and health and safety personnel.

The extent of the duty will vary depending on the nature of the tenancy or other agreements. The building owner may take-on the full duty or share it with the leaseholder. In a multi-occupied building, typically the owner will take responsibility for the common parts while the leaseholders take responsibility for the parts they occupy. There might be an agreement to pass the responsibilities to a managing agent.

Duties also cover 'common' areas of certain domestic premises e.g. foyers, corridors, lifts and lift-shafts, staircases, roof spaces, gardens, yards and garages.

### The duties

Regulation 4 of the Control of Asbestos Regulations 2006 requires the 'dutyholder' to:

- Take reasonable steps to find out if there are materials containing asbestos in non-domestic premises, and if so, its amount, location and condition
- Presume materials contain asbestos unless there is strong evidence otherwise
- Maintain a record of the location and condition of the asbestos containing materials – or materials which are presumed to contain asbestos
- Assess the risk of any one being exposed to fibres from the materials identified
- Prepare a plan that sets out in detail how the risks from these materials will be managed
- Take the necessary steps to put the plan into action

- Periodically review and monitor the plan and the arrangements to act on it so that the plan remains relevant and up-to-date
- Provide information on the location and condition of the materials to any one who is liable to work on or disturb them.

Remember that the duty to manage is about putting in place the *practical* steps necessary to protect occupiers and maintenance workers from the risk of exposure to asbestos fibres.

## What should dutyholders do?

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In order to comply with the law and execute your duty of care to the occupants of non domestic premises dutyholders should take the following steps:

### 1. Identify any ACMs

You should take reasonable steps to locate any asbestos containing materials in your premises and assess their condition. You can conduct the survey yourself or appoint suitable trained person/s to do it for you. If you choose to do it yourself there are a number of things you can do:

- look at building plans and any other relevant information (such as builders' invoices) which may tell you if and where asbestos was used in its construction or refurbishment
- carry out a thorough inspection of the premises both inside and out to identify materials that are or may be asbestos
- consult others, such as the architects, employees or safety representatives. Any one who has information on the whereabouts of asbestos in your premises is required to make this available to you as the duty holder.

### *How do you identify ACMs?*

Some material obviously does not contain asbestos such as glass, solid wooden doors, floorboards, bricks and stone. But other materials can only be identified by an experienced surveyor, who even then will want to take samples to confirm his opinion.

If you are in any doubt, it is safer to presume that a material contains asbestos, unless there is strong evidence that it does not. An insulating board marked "supalux" would be a good example, supalux post dates the use of asbestos in insulating boards.

If you are not confident you have the knowledge to carry out the survey yourself, are unsure whether materials contain asbestos or you are planning major maintenance or refurbishment work you may choose to commission a third party to perform a detailed survey of your premises. Such should be undertaken by competent people, for example laboratory analysts, suitably trained building



surveyors or specialist asbestos removal contractors with the appropriate accreditation.

The survey may involve visual inspection, non-intrusive sampling and destructive sampling depending on the circumstances:

**Type 1: Presumptive survey (inspection):** No actual sampling is carried out but presumed asbestos containing materials are located and their condition and circumstances assessed and data recorded.

**Type 2: Sampling survey:** Representative samples of suspected asbestos containing materials are collected on-site and analysed in a laboratory to verify the presence of asbestos.



**Type 3: Pre-demolition/ major refurbishment survey:** A full sampling programme is undertaken and will typically involve destructive inspection techniques.

## 2. Assess their condition

As part of the survey you should assess the condition of any ACMs or presumed ACMs and the likelihood they will be disturbed. When evaluating their condition you should take the following factors into account:



- Is the surface of the material damaged, frayed or scratched?
- Are the surface sealants peeling or breaking off?

- Is the material becoming detached from its base? (this is a particular problem with pipe and boiler lagging and sprayed coatings)
- Are protective coverings designed to protect the material, missing or damaged?
- Is there asbestos dust or debris from damage near the material?

The probability that the ACMs will be disturbed will depend upon the number of people who frequent the area in question, their activities and the accessibility of the material.

### 3. Record the results

All this information should be recorded in the form of an Asbestos Management Plan, comprising results of the survey and assessments with recorded decisions as to what to do and when by. Short term actions may include actions to improve the condition or reduce the risks, longer term actions will be to monitor condition and reassess the risks at regular intervals.



Duty holders must arrange for the results of the survey to be documented and made available to any one who occupies or visits the premises. This may involve a schematic drawing or other record which shows where the asbestos or presumed asbestos is, its type if known, its form, its amount and what condition it is in.

If it is stored electronically via the Internet or on a PC database, it can be easier to update.

Make sure that employees, anyone involved in building or maintenance work and any contractors working on the premises know where it can be found and consult it before carrying out work.

**Note:** There may be some areas of the premises which you cannot look at, such as in roofs and heating ducts and behind ceiling tiles and wall partitions. You should note these on your drawing. These areas should then be presumed to contain asbestos until they can be inspected.

#### 4. Carry out any remedial work

If the asbestos is in good condition, unlikely to be damaged, worked on or disturbed it is usually safer to leave it in place and manage the risk.



Make a note of where they are on your drawing or other records and keep this information up to date.

You may wish to label it with an appropriate sticker.

If the asbestos is in poor condition or is likely to be damaged or disturbed you will need to decide whether it should be repaired, sealed, enclosed or removed.

#### Repair

Where ACMs are not damaged and are unlikely to be disturbed, repair by either sealing or enclosing it can be seen as the preferable course of action to removal. "Enclosure" is typically carried out by erecting boxing around a lagged pipe for example so that there is greatly reduced risk of the pipe insulation becoming accidentally damaged.

Sealing involves ensuring that the material in question has a good coating such as paint so that fibres cannot be released from the surface. This would typically be the treatment of choice for Asbestos Insulating Board products.

Encapsulation involves the application of a seamless protective coating which is impact resistant, flexible and is impervious to water, oil and grease.



There are a number of methods including filling, wrapping and isolated encapsulation. Naturally all repairs should be carried out using non-asbestos containing materials.

## Removal



If the ACM cannot be easily repaired or protected it will have to be removed by trained and competent person/s i.e. a contractor licensed by HSE. This is carried out by trained operatives in a controlled area and in accordance with current legislation.

Negative pressure enclosures are set-up to seal and contain the contaminated area and prevent the spread of fibres. Specialist vacuuming equipment controls asbestos fibres at source.

Asbestos is removed using wet techniques, by spraying or injecting water which contains a wetting agent into the material.

Material that has been removed is placed in sealed containers for disposal. On completion, the area should be thoroughly cleaned and decontaminated and then inspected visually and tested by an Environmental Analyst using the 4 stage clearance protocol before being authorised and certificated for re-occupation.

## Disposal

Asbestos waste should be sealed in heavy duty red polythene sacks and clearly labelled. As these sacks are removed from the enclosure, they are double-bagged in clear polythene sacks before it is transported to a disposal site. The waste can only be disposed of at a site licensed to receive it. The disposal of ACMs is regulated by the Hazardous Waste Regulations 2005.



## 5. Monitor

You should make arrangements to regularly monitor your plan. This will include inspecting ACMs left in place, including those you have sealed or enclosed, to make sure that their condition has not changed.

The frequency of inspection will depend on the type of material, where it is and its condition, but it should be at least every six months for high risk materials to twelve or 24 months for low risk materials.

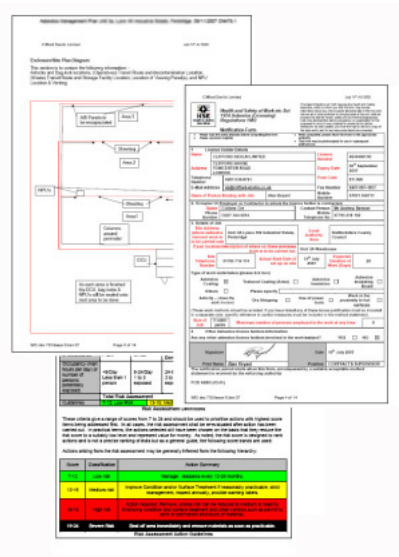
## Asbestos management

For organisations situated in large, complex or multi-site premises in which ACMs are present a comprehensive asbestos management plan should be designed and implemented.

This will involve the appointment of a person responsible for the asbestos management and the preparation and implementation of an asbestos policy, procedures, register, training plan and review.

Documentation to support the Asbestos Management Plan should include:

- Asbestos Policy Statement
- Asbestos Register
- Management Plan
- Responsibilities and duties (include a Management structure flow chart)
- Procedures
- Training Arrangements
- Implementation and Review of the Policy /plan (including time-scale for monitoring and re-inspection of sealed or undisturbed ACMs)



## About Clifford Devlin

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Established in 1962, Clifford Devlin specialises in providing consultancy and services to help clients manage asbestos. We can provide discrete services to support your asbestos management plan or provide end-to-end solutions:

Our services include:

### Surveys



We can arrange for a survey to be conducted of your premises in which experts will identify any ACMs present, assess their condition and risk and recommend the most appropriate course of action. Depending on the circumstances the survey may entail visual inspection, non-intrusive sampling, destructive sampling and laboratory analysis.

### Repair



Our fully trained asbestos experts can carry out the necessary enclosure or encapsulation work on asbestos containing materials in your premises where these techniques have been identified as the most suitable course of action.

### Removal



We are licensed by the Health & Safety Executive to remove and dispose of ACM. All our operatives are trained to the highest industry standard and receive regular refresher training to keep them abreast of legislative changes and advances in removal techniques. Clifford Devlin is a corporate member of the Asbestos Removal Contractors Association (ARCA).

## Disposal



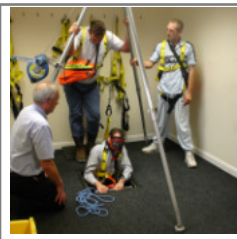
We operate a full asbestos disposal service. We provide sealed skip containers and vehicles to transport ACMs off-site to our Waste Transfer Station (which is licensed by the Environment Agency) where waste materials are stored prior to their ultimate disposal at approved and licensed landfill sites.

## Management



We can offer advice and consultancy in managing asbestos or manage the whole process for you from surveying our premises to conducting remedial action, preparation of a management plan and associated documentation and ongoing inspection and monitoring.

## Training



We offer a range of training courses and seminars to educate clients and operatives in asbestos awareness and remediation. Our asbestos awareness ½ day seminars are suitable for maintenance staff, H&S professionals or other persons responsible for H&S. We also run advanced training courses in repair, removal and disposal techniques.

For more information please contact our Asbestos Management Team on Tel +44 (0) 20 7538 8721 or email [asbestos@clifford-devlin.co.uk](mailto:asbestos@clifford-devlin.co.uk).



Clifford Devlin Limited  
Clifford House  
Towcester Road  
**London E3 3ND**  
United Kingdom

Tel: +44 (0) 20 7538 8721  
Tel : +44 (0) 20 7987 1857  
Email: [info@clifford-devlin.co.uk](mailto:info@clifford-devlin.co.uk)  
Web: [www.clifford-devlin.co.uk](http://www.clifford-devlin.co.uk)