Shetland Islands Council

Asbestos Management Plan

For

Domestic Council Properties

March 2022 Revision 4.1

Housing Services
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1. INTRODUCTION

This Management Plan details the approach that will be adopted by the Shetland Islands Council - Housing Service with regard to the day to day management of asbestos in the council housing stock, and any sites or operations which fall under the responsibility of the Housing Service of the Council.

Housing Services maintains and repairs the Council's domestic premises in accordance with current legislation, ensuring that the Council's statutory obligations and duties are met.

As part of these statutory requirements, an Asbestos Register has also been maintained for several years. In its present form, the register indicates where known or suspected asbestos containing materials have been located and their generic type. This Register will continue to be reviewed as a live document.

The Control of Asbestos at Works Regulations 2012 continues a specific duty to manage the risk from asbestos containing materials in non-domestic premises. These regulations can also be used as guidance for domestic premises where the landlord has a duty of care to staff working within the properties and the tenants living in these properties. (See Health & Safety at Work Act 1974, Section 2/3/4; and Management of Health & Safety at Work Regulations 1999. Any works being undertaken to properties which fall within the current Construction (Design & Management) Regulations must have arrangements in place to deal with asbestos where refurbishment or demolition works are taking place.

To comply with this legislation, Housing , acting as the duty holder, continues a pro-active approach to asbestos and its control in order to ensure the safety of Council staff, contractors, tenants and anyone else who may be affected by the Council's undertakings in this regard.

2. ROLES AND RESPONSIBILITIES

As directed by the Shetland Islands Council (SIC), Housing Service (HS), with input from Health and Safety (HS) as appropriate, is responsible for:

5.1.1 Implementation

The full implementation of the Asbestos Policy and the subsequent monitoring and auditing of the Domestic Asbestos Management Plan, ensuring that all departments and staff members are fully aware of the asbestos policy and its usage.

5.1.2 Updating

Reviewing and updating the Asbestos Policy and Asbestos Management Plan. A review of the policy and plan will be undertaken at yearly intervals to incorporate any changes in legislation and to look at implementing any amendments, recommendations or changes to working practices that may become necessary. The register must be a live document and therefore it will be amended whenever any new testing information becomes available under the instruction of the Team Leader – Asset Services.

5.1.3 Training

The aim of asbestos awareness training is to create an open and responsive culture where employees are not afraid of asbestos and know how the Council manage it in their place of work.

All technical and other staff employed by the Housing Service who are likely to come across asbestos in their normal work will be required to attend asbestos awareness training seminars. In addition, Contractors employed by the Council will also be required to evidence their attendance at asbestos awareness training seminars.

Staff who are likely to work with asbestos material of a non-licensed nature will be required to undertake training that allows them to do so. This would particularly apply to trades staff.

Staff who currently hold a BOHS P402 certificate in building surveying and bulk sampling for asbestos need to undertake an annual refresher.

Staff issued with RPE should have masks fit tested to each individual.

Key employees will be suitably trained in implementing this SIC policy and in dealing with asbestos related issues.

Shetland Islands Council training will include the following elements.

All Staff

a) that you can only be exposed to asbestos if you disturb the fibres into the air you breathe;

b) that asbestos in good condition should be left in place;

c) that any exposure to asbestos should be avoided and that the risk increases as the level, duration and frequency of exposure increases;

d) that the increased risk to health from a one-off accidental exposure is negligible and not a cause for concern;

e) what to do if they find asbestos or a damaged material, which they think could contain asbestos;

f) what to expect from maintenance employees and building operatives.

Contractors, Maintenance and Building Operatives

Maintenance and building operatives will be informed:

a) of the points listed above for 'all staff';

b) what asbestos products are and where you are likely to find them;

c) that they should never work on any building material without first knowing whether it contains asbestos;

d) of the procedure to follow before starting any work where building materials are to be disturbed;

e) of the safe working methods for working on ACMs;

f) what work they can and cannot do on ACMs.

3. RISK CONTROL MEASURES

Housing Services will ensure the safety of maintenance workers, employees, contractors and tenants by preventing work on premises that may disturb asbestos containing materials until measures to control the risk have been put in place.

5.1.4 Asbestos Incidents

Where accidental damage of suspected asbestos containing based materials takes place the following action must be taken immediately:

a) Ensure the area is evacuated immediately. Close all windows and doors (where possible) to minimise fibre release and spread.

b) Contact the Housing Repairs Helpdesk on 01595-744399 Out of hours 01595-693972

c) Do not enter the suspect area - it can only be entered by suitably trained personnel who are wearing appropriate personal protective equipment.

d) Samples will be taken by fully trained Asbestos Surveyors, and a UKAS accredited laboratory will carry out subsequent analysis for the Council. If necessary, an approved licensed contractor and environmental analyst will be appointed to make the area safe and undertake airborne monitoring to assess the extent of surface and airborne contamination.

e) Wait until the area is declared safe by the nominated Surveyor or Analyst.

5.1.5 Prior Works Notification / Permit to Work Scheme

To effectively manage the risks posed by asbestos containing materials in Council premises, a written Risk Assessment (RA) and Method statement (MS) for removal or other treatment should be prepared and a safe system of work described to control maintenance workers and contractors. This is completed and submitted by Housing Repairs (through mobile device) or an appointed contractor.

Prior to submitting the above documentation, Housing Services should refer to the asbestos register and any existing site surveys. Job tickets raised on the Capita system will automatically flag up asbestos within a property. It is the Council's intention that all domestic properties with actual or suspected ACM should eventually have a copy of the site asbestos survey linked to Capita. This survey, and the property specific management plan, both of which incorporate details of the location and risk assessment of asbestos containing materials, should be made available to relevant contractors, staff and tenants.

5.1.6 General Maintenance Works

Repairs ordered on the Housing Service system will generally be of a Responsive or Planned Maintenance nature. Individual properties and locations will have an alert on the job ticket to show where asbestos is confirmed or presumed. Housing Operatives who receive works orders must complete a risk assessment before commencing maintenance/refurbishment works involving ACM on Housing properties. This information will be populated from the Asbestos Register to the Capita management software.

Housing Services will provide details of any asbestos survey of the property, and will make tenants/building occupiers aware of the possible presence of asbestos materials. If this information is not available, an Asbestos survey should be commissioned as appropriate.

Restrictions on permissible maintenance by tenants or occupiers will be communicated.

5.1.7 Capital Works

For major refurbishment projects, in addition to the requirement for prior notification, it is the responsibility of the appointed Designer to liaise with Housing Services to provide and collate all necessary information.

Where the Construction (Design & Management) Regulations 2015 require the production of a Pre-Contract Information Document, relevant information on the presence of known asbestos containing materials must be included. If this information is not available, a Demolition/Refurbishment Survey should be commissioned as appropriate.

5.1.8 Who can work with Asbestos?

In the UK work on asbestos has by law to be carried out by a contractor who holds a licence under the Asbestos (Licensing) Regulations 1983 as amended ('the Licensing Regulations'), although there are exceptions. The Licensing Regulations apply to all work on asbestos, **with the exception of:**

a) articles made of rubber, plastic, resin or bitumen but which also contain asbestos (e.g. vinyl floor tiles, electric cables and roofing felts).

b) other asbestos products which may be used at high temperature but have no insulation purposes, such as gaskets, washers, ropes and seals.

The Licensing Regulations also do not apply to asbestos cement, defined as material which is mainly a mixture of cement and asbestos and which when in a dry state has a density greater than 1 tonne per cubic metre. This material is typically found as roofing sheets, gutters, cladding, drainpipes and flues.

Work on asbestos insulation, asbestos insulating board and asbestos coatings can only be carried out by licensed contractors. Lower risk work

such as that involving asbestos cement can be carried out by maintenance workers, providing they have attended an asbestos awareness course, follow good working practices and use controlled stripping techniques.

5.1.9 Non-Licensed Asbestos Works

The following occasions when you do not need a licence to work on asbestos coatings, asbestos insulation and asbestos insulating board (the main products covered by the Licensing Regulations).

These are:

a) for work of short duration;

b) removal of non-degraded materials in which the fibres are firmly linked

c) encapsulation or sealing of ACMs in good condition

d) for air monitoring or sample collection to identify asbestos.

Work of short duration does not require a licence, providing:

e) any one person does not carry out the work for longer than one hour in seven consecutive days;

f) the total time spent on the work by all workers is no more than two hours.

Note that these timings are from the start of the actual set up of the work, to the final clean up, not just the contact with asbestos.

These exclusions mean that maintenance workers do not need a licence to do minor work, for example installing a light fitting, providing the work is short duration. However, they must have attended an asbestos awareness course, and must follow good working practices[1].

Note[1]

The Health and Safety Executive has produced guidance for non-licensed work, 'Asbestos Essentials'. It is strongly recommended that all staff who may be involved in work with asbestos have access to copies of these documents for reference.

- *Introduction to asbestos essentials: Comprehensive guidance on working with asbestos in the building maintenance and allied trades - HSG213 ISBN 0 7176 1901 X*

- *Asbestos essentials task manual: Task guidance sheets for the building maintenance and allied trades H*SG210 ISBN 0 7176 1887 0

These documents are available for download in PDF format http://www.hse.gov.uk/ASBESTOS/essentials/index.htm.

In addition an HSE application is available to download offering operatives a step by step guide to work on asbestos at www.beware-asbestos.info.

4. COMPLIANCE STRATEGY

5.1.10 Asbestos Surveys

The aim of an asbestos survey is, as far as reasonably practicable, to locate and assess all the asbestos containing materials present in a building, and to present the information in a way which allows the Council to manage the risk. An asbestos survey has three main elements:

a) it must as far as reasonably practicable locate and record the location, extent and product type of any presumed or known ACMs;

b) it must inspect and record information on the accessibility, condition and surface treatment of any presumed or known ACMs;

c) it should determine and record the asbestos type, either by collecting representative samples of suspect materials for laboratory identification, or by making a presumption based on the product type and its appearance etc.

The survey report will contain material assessment algorithms as shown section 4.4. The surveyor will provide this assessment as part of the report. The use of a material assessment algorithm allows asbestos containing material or presumed asbestos containing material to be scored and ranked in order of their ability to release fibres.

The survey report has been structured to form the basis for an updatable electronic register which will include all relevant details on ACMs present at each location. This log will be readily accessible so it can be consulted prior to the authorisation of maintenance or remedial work.

All relevant drawings, marked-up plans, photographs, videos and the like will be produced in electronic and paper format. All surveys will be stored by geographical area and location, with distinction made between different buildings, rooms and/or areas.

The following standard Shetland Islands Council data conventions will be applied:

a) Drawings and plans will be held as a .pdf format.

b) Photographs will be held as JPEG images.

c) Video clips will be stored as AVI or MPEG movie clips.

d) Survey reports will be held in .pdf format.

e) Documents will be held in .pdf format.

The standard Council specification for the method for recording and presenting data is shown in Section 4.3 and 4.4.

Electronic information will be held on the Capita Housing Management System. Property attributes will be tagged to highlight confirmed and presumed asbestos containing materials in individual properties. Housing Section of the Council's Intranet Service will also display an Asbestos Register. Paper copies of individual property surveys may be distributed to the Housing Management Section as required but electronic information will take precedence.

The survey data and reports can also be made available on CD for storage for distribution to Authorised Personnel, Contract Administrators, Project Manager, Designers and Contractors. Feedback and update forms will be included to facilitate the updating of the central register.

5.1.11 Survey Programme

Housing Services are progressing a rolling programme of asbestos surveys to comply with the requirements of legislation, best practice and Shetland Islands Council policy. 100% of communal areas and all non-domestic premises will have management surveys carried out immediately with opportunistic sampling where possible; then housing stock will be split into individual house types and ranked to give likelihood of asbestos containing materials being present by age; initially a minimum 10% of each house type across various locations will have management surveys with sampling where possible with a future management survey on the remainder. The planned programme of future maintenance works will guide the selection of properties for refurbishment and demolition surveys.

The resultant survey programme will be available via the Housing Services website as part of the Council's Intranet Service.

Properties that have not been surveyed will be matched to surveyed properties in order to identify likely asbestos containing materials prior to any responsive maintenance works.

Surveys will be carried out in accordance with HSE Guidance *'Asbestos: The Survey Guide HSG264',* and unless the pre-survey risk assessment stipulates otherwise, a management survey will be sufficient for the development of the premises management plan.

5.1.12 New Properties and Disposals

Newly acquired and leased properties will also fall under the scope of this policy.

Accordingly, the vendor or landlord must provide the Council with sufficient information i.e. drawings, surveys and the like, to establish whether asbestos containing materials are present.

If an Asbestos Survey has not been carried out, one should be arranged through Housing Services prior to acquisition or lease.

Asbestos survey information for any estate being disposed of will be provided to the purchaser as part of the sale.

5.1.13 Survey Report Layout

Client:	**SHETLAND ISLANDS COUNCIL**
Address	**XX ADDRESS, SHETLAND**
Date	**XXXXXXXXX**

SURVEY RESULTS MANAGEMENT TYPE

Location	Product Type	Extent	Accessibility	Condition	Surface Treatment	Asbestos Type	Sample No.	Sampled/ Presumed/ Strongly Presumed	Material Assessment Score	Priority Score Action
ROOF FELT ORIGINAL BUILDING	BITUMEN MINERAL SURFACED	100M2	DIFFICULT	POOR	NONE	CHRYSOTILE	MF/S/01	SAMPLED	4	8 SCHEDULE FOR REPLACEMENT
DPC DINING RM	BITUMEN	15M	DIFFICULT	REASONABLE	NONE	NONE	MF/S/02	SAMPLED	N/A	N/A
GENERATOR SHED	DIESEL GENERATOR GASKETS	1 NR	DIFFICULT	POOR	PAINTED	PRESUME CROCIDOLITE	MF/S/03	STRONGLY PRESUMED	6	GASKETS SHOULD BE TREATED AS ACM, CURRENTLY NO ACCESS.

4.5 Material Risk Assessment Report Layout

Sample Location				**Material Risk Assessment Report**								**Management Asbestos Sampling Report** **Date:**				
Location				**Product Type** ARC - Asbestos RF Composite (1) AIB - Asbestos Insulating Board (2) TI - Thermal Insulation (3)			**Deterioration** Very Low (0) Low (1) Medium (2) High (3)		**Surface Treatment** C - Composite (0) E - Enclosed (1) U - Unsealed AIB (2) UX - Unsealed Lagging/Spray(3)			**Asbestos Type** CH - Chrysotile (1) AM - Amphibole (2) CR - Crocidolite (3)			**Total Score**	Notes
Identifier	Floor	Room	Position	Type	Risk Factor	Score	Type	Score	Type	Risk Factor	Score	Type	Risk Factor	Score		
MF/S/01	ROOF	ROOF	ALL	ARC	LOW (1)	1	HIGH (3)	3	C	LOW (1)	1	CH	LOW (1)	1	6	LOW TO MEDIUM RISK DUE REPLACEMENT. LABEL.
MF/S/02	GROUND	DINING	FLOOR	NONE		0	NONE	0	NONE		0	NONE		0	0	NO RISK
MF/S/03	GROUND	GENERATOR SHED	ENGINE GASKET	AIB	MED(2)	2	MED (2)	2	U	MED (2)	2	CR	MED (2)	3	9	MEDIUM RISK. LABEL. MONITOR. PERMIT TO REMOVE.

5 PRIORITY RISK ASSESSMENTS AND MANAGEMENT PLAN

5.1.14 Priority Risk Assessments

The material assessment, which will form part of the asbestos survey report, identifies the high risk materials i.e. those which will most readily release airborne fibres if disturbed. It does not automatically follow that those materials assigned the highest score in the material assessment will be the materials that should be given priority for remedial action.

Management priority must be determined by carrying out a risk assessment which will take into account the following factors:

a) maintenance activity;

b) occupant activity;

c) likelihood of disturbance;

d) human exposure potential;

e) present and future usage of the area;

f) planned or proposed alteration and refurbishment works;

g) environmental conditions

5.1.15 Maintenance Activity

The first and most important factor which must be taken into consideration is the level of maintenance activity likely to be taking place in an area. Maintenance trades such as plumbers, joiners, painters and electricians are the group who the duty to manage is primarily trying to protect. There are two types of maintenance activity, planned and unplanned. Planned work can be assessed and carried out using procedures and controls to reduce exposure to asbestos. Unplanned work requires the situation to be dealt with as found and the controls that can be applied may be more limited. The frequency of maintenance activities also need to be taken into account in deciding what management action is appropriate.

5.1.16 Occupant Activity

The activities carried out in an area will have an impact on the risk assessment. When carrying out a risk assessment the main type of use of an area and the activities taking place within it should be taken into account. As well as the normal everyday activities taking place in an area, any secondary activities will need to be taken into account.

5.1.17 Likelihood of Disturbance

The two factors that will determine the likelihood of disturbance are the extent or amount of the ACM and its accessibility/vulnerability.

5.1.18 Human Exposure Potential

The human exposure potential depends on three factors: the number of occupants of an area, the frequency of use of the area, and the average time each area is in use.

5.1.19 Priority Assessment Algorithms

The factors noted above are taken into account in a logical, consistent manner by the use of assessment algorithms as shown in Sections 5.2.1 and 5.2.2 on pages 17 and 18. The number of factors relevant at any one site needs to be carefully considered; the more factors included in an algorithm, the lower the influence of the most important risk factor.

For this reason, the number of factors that are scored will be limited to four. No single set of factors will apply equally to all types of premises. Four general headings have been used, and one or more factors can be taken into account and averaged under each heading to suit the circumstances.

The scores from the material assessment (i.e. the condition of the ACM or presumed ACM) are added to the scores of the priority assessment (the likelihood of disturbance), to give the overall risk assessment. Risk assessment scores for different ACMs will then be compared to develop the action plan.

The risk assessment includes a material assessment and a priority assessment. The priority assessment looks at the likelihood of someone disturbing the ACM. The risk assessment can only be carried out with detailed knowledge of all the above, and under CAWR Housing Services, acting as Duty Holder, in consultation with Technical Officers and Managers will compile the risk assessment, which will then form the basis of the long term management plan.

5.1.20 Priority Assessment Algorithm - Factors

Assessment Factor	Score	Examples of Score Variables
Normal Occupant Activity		
Main type of activity in area	0	Rare disturbance activity (eg little used store room)
	1	Low disturbance activities (eg office type activity)
	2	Periodic disturbance (eg industrial or vehicular activity which may contact ACMs)
	3	High levels of disturbance, (eg fire door with asbestos insulating board sheet in constant use)
Likelihood of Disturbance		
Location	0	Outdoors
	1	Large rooms or well-ventilated
	2	Rooms up to 100m²
	3	Confined spaces
Accessibility	0	Usually inaccessible or unlikely to be disturbed
	1	Occasionally likely to be disturbed
	2	Easily disturbed
	3	Routinely disturbed
Extent/Amount	0	Small amounts or items (e.g. strings, gaskets)
	1	<10m² or <10m pipe run
	2	>l0m² to <50m² or >10m to <50m pipe run
	3	>50m² or >50m pipe run
Human Exposure Potential		
Number of occupants	0	None
	1	1 to 3
	2	4 to 10
	3	>10
Frequency of use of area	0	Infrequent
	1	Monthly
	2	Weekly
	3	Daily
Average time area is in use	0	<1 hour
	1	>1 to <3 hours
	2	>3 to <6 hours
	3	>6 hours
Maintenance Activity		
Type of maintenance activity	0	Minor disturbance (eg possibility of contact when gaining access)
	1	Low disturbance (eg changing light bulbs in asbestos insulating board ceiling)
	2	Medium disturbance (eg lifting one or two AIB ceiling tiles to access a valve)
	3	High levels of disturbance (eg removing a number of AIB ceiling tiles for services renewals)
Frequency of maintenance activity	0	ACM unlikely to be disturbed for maintenance
	1	<1 per year
	2	>1 per year
	3	>1 per month

5.1.21 Example Priority Assessment

PRIORITY RISK ASSESSMENT

Location: Sample Location	Date of Assessme: 10 November 2003
	Assessor(s): A. Surveyor A.N. Occupier
Position: Wall lining around doorway, located on the outer face of the kitchen wall	Floor: Ground
	Room: Kitchen

Assessment Factor	Score Variable	Comments	Score	Overall Score
Normal Occupant Activity				
Main type of activity in area	*High Disturbance*	Catering; high traffic; wall area subject to impact damage from trays and trolleys	3	**3**
Likelihood of Disturbance				
Location	*Rooms < 100m²*	Room 6.25 x 9.70m	2	
Accessibility	*Routinely disturbed*	Easily accessible to catering staff, wall subject to impact damage from trays	3	
Extent/Amount	*>10m² to <50m² or >10m to <50m pipe*	42m² area of asbestos cement sheet	2	**2**
Human Exposure Potential				
Number of occupants	*4 to 10*	Variable during day; intensive use at meal times	2	
Frequency of use of area	*Daily*	Constant flow of catering traffic	3	
Average time area is in use	*>6 hours*		3	**3**
Maintenance Activity				
Type of maintenance activity	*Low disturbance*	General redecoration works and light cleaning to meet hygiene requirements	1	
Frequency of maintenance activity	*>1 per year*		2	**2**
		Total Priority Assessment Score		**10**

Material Assessment Score (From HSG264 Survey)	**4**
Total of Material and Priority Assessment Scores	**14**

Recommended Management Options:

Long Term Strategy and replacement specification:	*Removal of ACM*	*Controlled removal of asbestos cement sheet linings with melamine faced plywood linings suitable for kitchen use.*	
Interim Measure(s):	*Periodic Monitoring until works are carried out*	**Monitoring Freqency:**	*4 Month Intervals*
	Label ACM	**Prior Notification Request for Site?**	*Yes*

5.1.22 Management Options

Subsequent to the successful completion of the surveying and priority risk assessment processes noted above, the long term management plan will then be formulated.

This plan will set out the measures and controls that are necessary to effectively manage the risks from asbestos containing materials located within Council housing premises. This process will use the management flow charts given in Section 5.4 on page 23 to help evaluate which option is most suitable in any given circumstance.

In all cases, where Asbestos Containing Materials are present within a property, the management team must communicate the facts to employees, contractors, tenants and other relevant people. Care will be taken when communicating with employees and others about the presence of asbestos.

It is important that employees and tenants receive positive and reassuring messages about the asbestos located within their premises, which highlight the advantages of managing it, with emphasis on the fact that these steps will reduce the risk of exposure and ill health. Additionally, staff and tenants should be made aware of the location of asbestos containing materials, and encouraged to report any damage to the areas involved.

The condition of any asbestos containing materials left in-situ will be monitored as part of the annual defect and condition surveys cyclically carried out by Housing Services. This process will include photographic and video records, which will be used to measure whether or not the materials are degrading in-situ.

In all cases, one (or more) of the following options will be selected for managing the condition of asbestos containing materials:

a) Label the ACM

b) Colour code the ACM

c) Protect and enclose the ACM

d) Seal and encapsulate the ACM

e) Repair the ACM

f) Remove the ACM

5.1.23 Protection/Enclosure of Asbestos Containing Materials

Protecting Asbestos Containing Materials (ACMs) means the construction or placing of a physical barrier to prevent accidental disturbance of the ACM. This

may mean placing a bollard in front of a wall panel of asbestos insulating board to prevent accidental damage by fork lift truck movements.

Enclosing the ACM involves the erection of a barrier around it, which should be as airtight as possible to prevent the migration of asbestos fibres from the original material. This will involve sealing the edges and corners of the barrier.

Enclosing the ACM is a good option if it is in reasonable condition, but it may still be vulnerable to damage. Potential problems for the future should be borne in mind when selecting this option.

If, for example, the ACM may be subject to water damage or if access is likely to be required to the enclosure for maintenance or repairs, the removal option may be more sensible and less costly in the longer term.

If enclosure is chosen as the desired management option it is important that the existence of the ACM behind the enclosure is noted in the asbestos record and that the condition of the enclosure is monitored and the results of the inspection recorded.

It is essential that hidden ACMs are clearly labelled to indicate their presence behind the enclosing structure – many asbestos incidents could have been avoided had clear labelling systems been in place.

If the ACM was designed to provide fire resistance to the fabric, structure and associated components, the material and the design of the enclosure should not compromise any such resistance. In these circumstances, the Fire Officer and Building Standards should be consulted to establish what the current regulatory standards require, and also to ascertain whether statutory consents (i.e. a building warrant) must be in place before works can commence.

If the ACMs to be enclosed fall within the scope of the Control of Asbestos Regulations 2012 and construction of the enclosure is liable to disturb the ACM, then this work can only be done by a licensed asbestos removal contractor. See Section 8 on page 35 for current further legislative references and guidance.

5.1.24 Seal or Encapsulate the Asbestos Containing Material

There are two types of encapsulants: bridging encapsulants which form a durable layer adhering to the surface of the ACM; and penetrating encapsulants which are designed to penetrate into the ACM before hardening and locking the material together to give the ACM additional strength.

Bridging encapsulants include high build elastomers, cementatious coatings and polyvinyl acetate (PVA). The different types of encapsulants available will suit different circumstances and ACMs. High build elastomers can provide substantial impact resistance as well as elasticity, especially when they incorporate a reinforcing membrane.

Cementatious coatings are generally spray-applied and are compatible with most asbestos applications. They provide a hard-set finish, but may crack over time.

PVA is used for sealing of asbestos insulating board and may be spray or brush applied. It is not suitable for use on friable ACMs such as insulation or sprayed coatings. PVA will only provide a very thin coating and may not be suitable as a long-term encapsulant.

Penetrative encapsulants are spray-applied and will penetrate friable asbestos materials, strengthening them as well as providing an outer seal. The fire-resistant properties of the encapsulant will be an important consideration if the function of the ACM was to provide fire resistance. Encapsulation of an ACM is only suitable if the ACM is in sound condition and can take the additional weight of the encapsulant without delamination.

The preparation and application of encapsulants requires a certain amount of skill and must, in virtually all cases, be carried out by asbestos removal contractors licensed by HSE under the Control of Asbestos Regulations 2012. See Section 8 on page 35 for current further legislative references and guidance.

5.1.25 Repair the Asbestos Containing Material

To be readily repairable, the damage must be very minor in nature. Repair should be restricted to patching/sealing small areas and making good slight damage to enclosures that are protecting ACMs.

If the ACM is to be repaired, there are a number of methods that can be employed depending upon the type of material. Small areas of damaged pipe or boiler lagging can be filled with non-asbestos plaster and if necessary wrapped with calico (cotton cloth).

Small areas of damaged sprayed asbestos can be treated with encapsulant and, if necessary, an open mesh scrim of glass fibre or calico reinforcement used. Damaged asbestos panelling or tiles can be sprayed with PVA sealant or a similar type of sealant such as an elastomeric paint. PVA will only provide a very thin coating and may not be suitable as a long-term encapsulant, particularly where there is significant damage. A higher performance elastomeric coating may be needed.

ACMs that are unsealed, while not damaged, may be treated with a sealant to prevent deterioration of the exposed surface. Asbestos cement should be sealed using an alkali-resistant and water-permeable sealant. If impermeable paint is used on one side of a product without back painting, it can cause premature failure of the ACM. It is important to consider the fire protection afforded by any ACMs that are treated to ensure that the treatment does not adversely affect the fire-retardant properties. In these circumstances, the Fire Officer and Building Standards should be consulted to establish what the current regulatory

standards require, and also to ascertain whether statutory consents (i.e. a building warrant) must be in place before works can commence.

Unless the work is on ACMs not covered by the Licensing Regulations, or the work is very minor, repair work should be undertaken by a licensed asbestos removal contractor. See Section 8 on page 35 for current further legislative references and guidance.

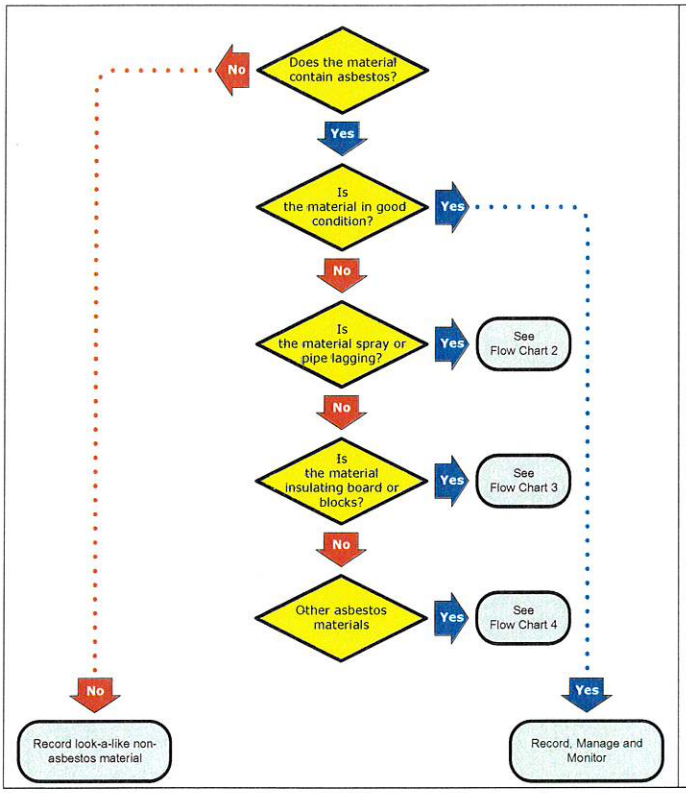
5.1.26 Remove the Asbestos Containing Material

Where ACMs have been identified and are not in good condition, or are in a vulnerable position and liable to damage, the options noted previously should be explored first. Where it is not practical to repair, enclose or encapsulate the ACMs, they will need to be removed.

ACMs will also need to be removed if the area is due to undergo refurbishment which will disturb the ACM, or where a building is going to be demolished.

This work will generally have to be undertaken by licensed asbestos removal contractors, unless of the ACM is asbestos cement or other highly bonded materials not covered by the scope of the Licensing Regulations. See Section 8 on page 35 for current further legislative references and guidance.

5.1.27 Management Flowchart



Management Options for Asbestos Containing Materials Flowchart 1

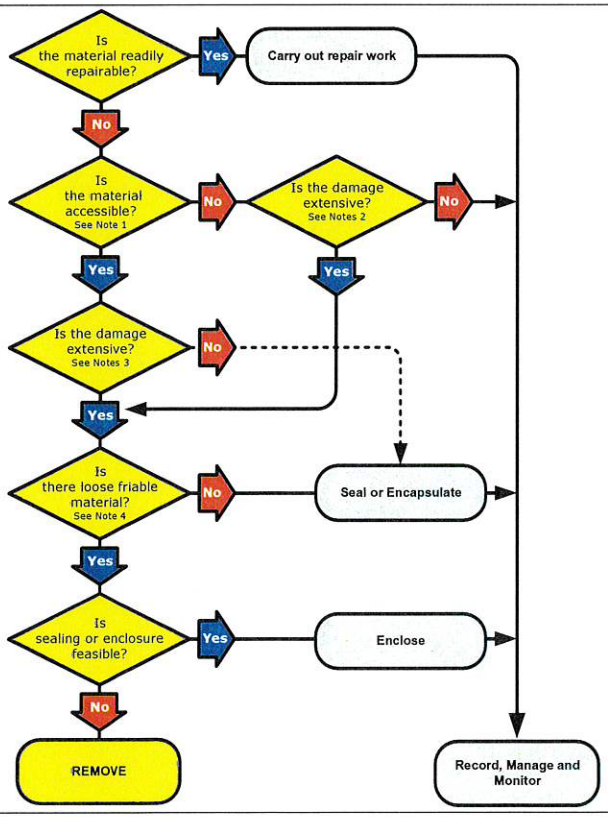
Bearing in mind the previously noted procedures, the assessment methodology that will be used to create the long term management plans are illustrated in flowcharts 1 to 5. These charts are based upon previous Government advice.

Chart 1, shown left, summarises the decisions to be made when asbestos materials are identified.

The final outcome will be either a decision to record, manage and monitor the materials in place or one of the options given in flow charts 2 to 4, which indicate how to deal with different types of asbestos containing material.

Diamond-shaped boxes represent questions which must be answered 'yes' or 'no' and rectangles represent the recommended remedial action.

5.1.28 Flowchart 2 - Sprayed Asbestos Coatings and Pipe and Vessel Insulation



Sprayed Asbestos Coatings and Pipe and Vessel Insulation - Flowchart 2

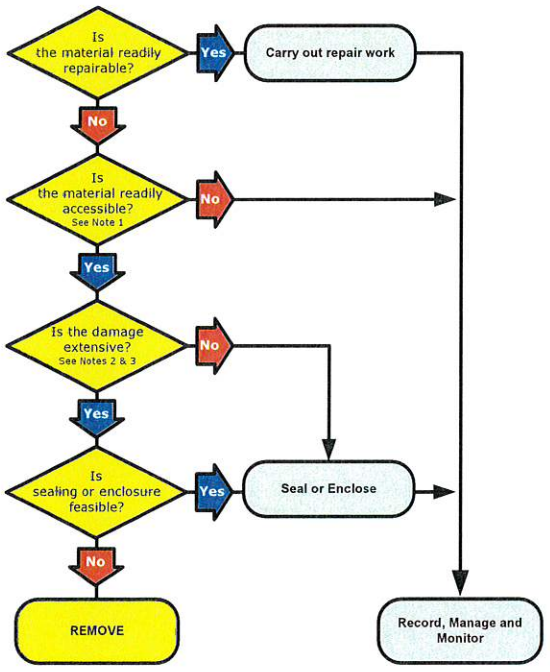
1. Is the material accessible and vulnerable to further accidental or deliberate damage from adjacent repair or maintenance, impact by people, vehicles, objects or vandalism?

2. If the damage is slight and the ACM is not easily accessible, remedial work is unlikely to be necessary. The damage should be monitored and your decision reviewed if circumstances change.

3. If the damage is superficial, e.g. slight cracking to pipe insulation or deteriorated surface finish, then answer 'no' to this question. If, for example, the insulation is starting to come away from the pipe or the spray coating appears to be loose in places, then answer 'yes' to this question. If there is debris on the floor or other surfaces then this will need removing following appropriate precautions.

4. The damage may be extensive, but if the material is generally sound without friable material or loose pieces, then sealing/encapsulation may be possible.

5.1.29 Flowchart 3 - Asbestos Insulation Board and Insulating Blocks



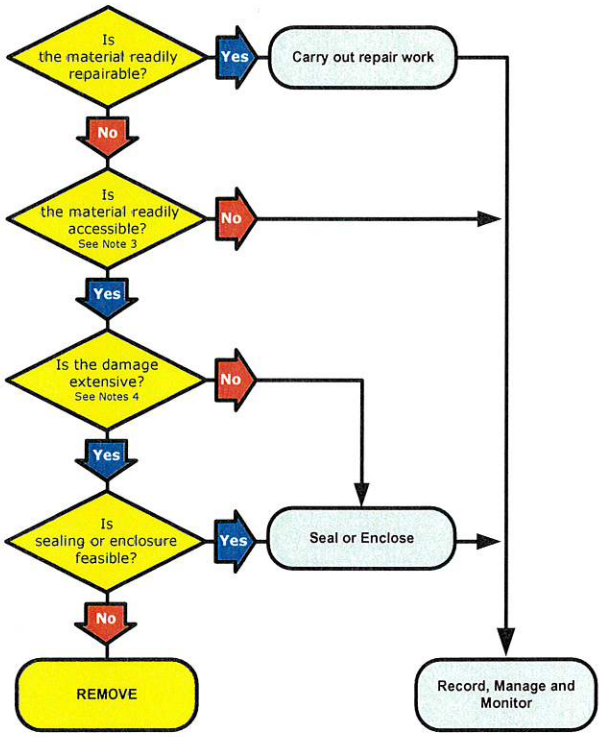
Asbestos Insulation Board and Insulating Blocks Flowchart 3

1. Is the material accessible and vulnerable to further accidental or deliberate damage from adjacent repair or maintenance, impact by people, vehicles, objects or vandalism? If the damage is not easily accessible, remedial work may not be necessary. The damage will be monitored and the situation will be reviewed if circumstances change.

2. If the damage is superficial, e.g. slight cracking to pipe insulation or deteriorated surface finish, then answer 'no' to this question. If, for example, the insulation is starting to come away from the pipe or the spray coating appears to be loose in places, then answer 'yes' to this question.

3. If there is debris on the floor or other surfaces then this will need removing following appropriate precautions.

5.1.30 Flowchart 4 - Other Asbestos Containing Materials



Other Asbestos Containing Materials - Flowchart 4

1. This chart covers products not included in Flow Charts 2 and 3, such as asbestos cement, textiles, gaskets, ropes and encapsulated products such as vinyl and thermoplastic tiles, roofing felts etc. Materials which are encapsulated in a resilient matrix will have limited ability to release fibres unless the matrix is removed (e.g. degraded, dissolved or burnt) or subject to high levels of abrasion (e.g. use of power tools).

2. Sealing may be considered if there is evidence of routine wear and abrasion. Unless the damage is significant or they are in a vulnerable position, urgent remedial action is unlikely to be necessary and you should simply remove these products, following the correct precautions (see Section 3.5 and 8), when they come to the end of their useful life, or before refurbishment or demolition.

3. Products which are less well encapsulated (e.g. asbestos textiles and gaskets), will release fibres more readily and the use of controlled work methods by maintenance workers and enclosure or sealing to prevent damage may be necessary.

4. Is the material accessible and vulnerable to further accidental or deliberate damage from adjacent repair or maintenance, impact by people, vehicles, objects or vandalism?

6 MONITORING AND CONTROL

6.1.1 Management Plan Implementation

It must not be forgotten that the objective of the management plan is to reduce the risk of exposure and the consequential potential ill-health. If it can be demonstrated that exposure is under control, the management plan will be doing its intended job.

To achieve this, following the adoption of the management plan, the ongoing development and implementation of the plan needs to be monitored.

Housing Services, in consultation with other key stakeholders, will be responsible for:

a) The ongoing development of the Council's Domestic asbestos policy, and ensuring the free flow of asbestos survey information to workers, tenants, other employees and members of the public as appropriate.

b) Monitoring property actions plan to make sure that remedial works have been adequately carried out and that any control measures specified are being adhered to.

c) Monitoring the condition of any in-situ asbestos containing materials as part of the annual defect and condition survey process, or to the frequency specified by the priority risk assessments.

d) Ensuring adequate asbestos survey information is available prior to maintenance, refurbishment and demolition works.

e) Monitoring the implementation process and updating the cyclical survey timetable.

f) Ensuring that when asbestos surveys are undertaken all survey information is captured and the asbestos database is managed and updated. That Repairs Orders highlight ACM's and operatives know how to safely work with them. The information contained in this database will be made available via the Housing Services website as part of the Council's Intranet Service.

g) Ensuring continued awareness amongst all employees.

h) Ensuring ongoing communication and training of maintenance workers and contractors.

i) Updating procedures and policies in light of lessons learned following incidents and accidents involving Asbestos Containing Materials.

j) Identifying budgets that can be used for emergency, revenue and capital works relating to asbestos containing materials.

k) Procurement and appointment of approved licensed asbestos removal contractors and ensuring that asbestos works are carried out in a safe and controlled manner.

l) Carrying out procedural audits as appropriate.

m) Procurement and appointment of UKAS accredited environmental analysts to carry out air monitoring and bulk sample identification.

n) Monitoring and auditing the activities of the Environmental Consultants and Asbestos Removal Contractors to ensure they comply with legislation, HSE guidance and SIC asbestos policy.

o) The provision of specialist advice to the Project Manager, Contract Administrator or Project Co-ordinator (CDM) in relation to asbestos works being carried out as part of Capital Projects.

p) Management of planned asbestos removal, remedial and encapsulation works.

6.1.2 Management Plan Review Process

The management plan will be subject to an initial six monthly review with annual review thereafter. This will critically review all the management processes, their effectiveness, and progress made against the implementation timetable.

Key areas for the review process will be ascertaining:

a) If the plan is referred to in safe systems of work procedures;

b) How the plan is communicated to maintenance workers and others working in the vicinity of asbestos containing materials, and external contractors;

c) If the plan is referred to in specifications for tenders, where appropriate;

d) If emergency plans/contingency procedures refer to the management plan;

e) If local emergency services are aware of the presence of asbestos in the buildings.

6.1.3 Measuring the Effectiveness of the Management Plan

In line with the best value principles, the review process will also establish the effectiveness of the current management plan with regard to:

a) Preventing exposure;

b) Controlling maintenance workers/contractors;

c) Highlighting the need for action to repair or remove Asbestos Containing Materials.

The review will also take account of Council wide operational factors such as:

d) Raising awareness among all employees;

e) Changes to the Council's organisational structure and/or staff;

f) Resourcing the management plan and identifying difficulties or shortfalls encountered;

g) Changes to other Shetland Islands Council policies and procedures that may impact upon the management plan;

h) Changes due to long term refurbishment plans and capital projects.

The review process will also take account of instances of failure of the procedures, such as:

i) Where procedures have not been followed and why not;

j) Where procedures have been inadequate and why;

k) Where exposure to airborne asbestos fibres has occurred.

7 ASBESTOS REMOVAL/REPAIR

7.1.1 Technical Supervision and Works Monitoring

Prior to the commencement of removal operations, Housing Services and Project Co-ordinator (if applicable) should appoint both the Environmental Analyst and Asbestos Removal Contractor.

These appointments must be independent of each other, and under NO circumstances should the Asbestos Removal Contractor be allowed to nominate or appoint an Environmental Analyst.

The Housing Services and Environmental Analyst will technically supervise all asbestos removal works. This supervision will be in accordance with relevant legislation, HSE guidance and the SIC Asbestos Policy and this Management Plan (See Section 8 for further legislative guidance).

Clear communications systems must be in place between the Environmental Analyst, the Housing Services Team, the appointed asbestos removal contractor, and any other contractors on site as directed by the Contract Administrator and Housing Services.

The Environmental Analyst must liaise with the Principle Contractor and Project Co-ordinator where a project falls under the requirements of the CDM Regulations, and provide any relevant documentation as required under these regulations.

The Environmental Analyst must ensure the current copies of all relevant documentation, including UKAS accreditations, agreed generic methods etc are provided to the Shetland Islands Council.

The environmental analyst will normally be required to undertake full technical supervision and monitoring of asbestos removal works. In this case the analyst must hold the relevant HSE license for management of asbestos removal works, and should be included in the design and specification of the proposed removal works. The analyst will then be responsible to ensure that the removal contractor adheres to all relevant legislation, guidance and SIC procedure. The analyst will liaise with the contract administrator and all other contractors on site as instructed.

All air sampling and analysis will be undertaken in strict accordance with HSE Guidance Note EH10 Asbestos – Exposure Limits and Measurements of Airborne Dust Concentrations and MDHS 39/4 (or current edition) Asbestos fibres in Air. See Section 8 for further guidance.

The Environmental analyst on site will be responsible for witnessing all smoke tests to working enclosures.

Air monitoring will be dependent on the scope of works, and may include the following:

a) Background air monitoring

b) Leakage air monitoring

c) Clearance air monitoring

d) Reassurance air monitoring

e) Personal air monitoring

Where asbestos removal is taking place and an enclosure is 'live', leak air tests must be undertaken each day during works until the Environmental Analyst has carried out all final clearance functions.

On completion of all asbestos works or when requested, the Environmental Analyst will provide certification detailing the works undertaken, all air monitoring results and clearance certification confirming the suitability of an area for re-occupation.

The Environmental Analyst must adopt a pro-active attitude to safety at all times while engaged on SIC sites.

An area will not be considered suitable for re-occupation or normal until the environmental analyst has given assurance that all necessary clearance procedures have been satisfactorily completed.

7.1.2 Asbestos Removal Contractor

The asbestos removal contractor, their staff and their sub-contractors must comply with all relevant legislation, HSE guidance and the SIC Asbestos Policy and Asbestos Management Plan. They must also:

a) Provide site-specific method statements, risk assessment and plan of works. Generic documents can only be used where they have been agreed with the Asbestos Team and Environmental Consultant.

b) Liaise with the Housing Services Team or Consultant, the appointed environmental analyst, and any other contractors on site as directed by the Contract Administrator.

c) Liaise with the Principle Contractor and Project Co-ordinator where a project falls under the requirements of the CDM Regulations, and provide any relevant documentation as required under these regulations.

d) Adopt a pro-active attitude to safety at all times while engaged on Shetland Islands Council sites.

e) Ensure the current copies of all relevant documentation, including HSE license, insurance, agreed working methods, risk assessments etc are provided to the Shetland Islands Council.

7.1.3 Asbestos Removal Works

Asbestos removal works may result from an asbestos incident or to enable responsive repairs or planned maintenance works.

All asbestos removal work and repair of asbestos containing materials will be under taken by contractors who possess a current and relevant license issued by the HSE. Works will strictly comply with all relevant legislation and HSE guidance.

It will not always be necessary to erect an enclosure for asbestos works, for example when removing materials such as asbestos cement products under conditions of low fibre release.

The decision not to erect an enclosure must be fully justified in the plan of work and the risk assessment for the works.

Where an enclosure is necessary, the area in which asbestos is to be removed or repaired must be segregated from the surrounding area in accordance with the details outlined in *EH51 – Enclosures provided for work with asbestos insulation, coatings and insulation board*. See Section 8 for further guidance.

A fully functioning decontamination facility must be provided on site in compliance with *EH47 – Provision, use and maintenance of hygiene facilities for work with asbestos insulation, asbestos coating and asbestos insulation board*. The unit must be placed as close to the asbestos works as possible to minimise the amount of transiting. Transit routes must be carefully planned with building users in order to ensure that they are adequately segregated from normal work activities on the site.

Negative air pressure must be maintained within the working enclosure using a negative air pressure unit in accordance with EH51, which should ideally vent to atmosphere.

The enclosure must be maintained at negative pressure until the independent Environmental Analyst has given permission following clearance testing to dismantle.

Appropriate asbestos hazard warning signs must be posted on the airlocks leading to the enclosed area.

In the event of a high reading for a leak air test while asbestos removal is in progress, all works inside the enclosure must stop. The Housing Team must be informed.

An area where the leak test was undertaken shall be sealed off and air sample tests taken outside of this area to establish the extent of the contamination. The

environmental analyst will be responsible for determining if non-asbestos fibres may have caused the high reading.

The cause of the leak shall be investigated and sealed. The contaminated areas shall be cleaned and re-tested. When the air test results are below 0.010 f/ml, work can be re-started in the enclosure.

All asbestos waste must be double bagged and suitably labelled in accordance with relevant waste and special waste regulations.

Air locks and polythene sheeting used for the enclosures must be treated as contaminated waste.

All asbestos waste, not stored in a lockable skip, must be removed from site at the end of each working day or shift.

Copies of the waste consignment notes/transfer notes must be provided to Housing Services Asbestos team for inclusion in the house file.

The following documentation must be readily available on site during the asbestos removal process:

a) A current and appropriate HSE License for asbestos removal as under Control of Asbestos Regulations (CAR) 2012.

b) Medical certificates for the operatives on site where appropriate.

c) Training certificates for the onsite operatives.

d) The company health and safety policy

e) Records of inspections and tests carried out on plant and equipment.

f) Face fit test results for respiratory protective equipment.

g) A detailed plan of work and risk assessment for works being carried out.

h) Appropriate insurances as required by legislation and the Shetland Islands Council.

i) Evidence, where appropriate, that the HSE have been given 14 days notification of the project as required.

j) Evidence that SEPA has been notified of the transfer or disposal of asbestos waste.

On completion of work the contractor shall be responsible for the clearing and cleaning of all areas, plant and equipment on the approval of the Environmental Analyst by means of an appropriate clearance test.

The asbestos removal contractor, their employees and sub-contractors shall abide by the code of conduct issued by the Shetland Islands Council for contractors on site. In addition they shall adhere to any site-specific security, health and safety or code of conduct requirements.

8 LEGISLATION AND GUIDANCE

All asbestos related works must as a minimum comply with all relevant legislation and HSE guidance.

Any work carried out in properties owned or controlled by the Shetland Islands Council should also comply with any additional requirements within the Domestic Asbestos Management Plan. Where current industry best practice suggests an alternative method of work, this should be agreed with the Housing Services Team.

8.1.1 Health and Safety

8.1.2 The Health and Safety at Work etc. Act 1974

8.1.3 The Management of Health and Safety at Work Regulations 1999

8.1.4 Workplace (Health, Safety and Welfare) Regulations 1992

8.1.5 The Construction (Design and Management) Regulations 2015

8.1.6 The Environmental Protection Act

8.1.7 Medical Guidance Note MS 13 Asbestos medical surveillance

8.1.8 Asbestos Removal

8.1.9 The Control of Asbestos Regulations 2012

8.1.10 Special Waste (Amendment) Scotland Regulations 2004

8.1.11 Guidance Note EH47 - The provision, use and maintenance of hygiene facilities for work with asbestos insulation and coatings

8.1.12 Guidance Note EH50 - Training operatives and supervisors for work with asbestos insulation and coating

8.1.13 Guidance Note EH51 - Enclosures provided for work with asbestos insulation, asbestos coatings and asbestos insulation board

8.1.14 Guidance Note EH57 - The problems of asbestos removal at high temperatures

8.1.15 Guidance HSG 53 - The selection, use and maintenance of respiratory protective equipment

8.1.16 Guidance HSG 189/1 - Controlled asbestos stripping techniques

8.1.17 Guidance HSG 189/2 - Working with asbestos cement

8.1.18 Guidance HSG 173 - Monitoring strategies for toxic substances

8.1.19 Guidance INDG 255 & 288 - Selection of suitable respiratory protective equipment for work with asbestos

8.1.20 Guidance L101 - Safe work in confined spaces

8.1.21 Technical Supervision and Air Monitoring

8.1.22 Asbestos: The Surveying Guide HSG264

8.1.23 Asbestos: The Analysts Guide

8.1.24 Guidance Note EH40/2005 Occupational workplace limits.

9 ASBESTOS PROCEDURES

9.1.1 Procedure for an Asbestos Incident

This procedure is illustrated on Flowchart 5 – Asbestos Incidents in section 9.1.1.

a) If material, suspected of containing asbestos, is damaged then the area must be immediately vacated. The windows should be closed and the door locked where possible. The Housing Repairs Helpdesk must be contacted on 01595 744399. (Out of Hours -01595-693972)

b) The asbestos database will be checked to identify the material. Where asbestos is identified or the information is inadequate, Housing Services, in consultation with the appointed Environmental Analyst, will undertake a risk assessment of the area which will include bulk sampling and reassurance air tests.

c) If the material is found to be non-asbestos, the area will be reopened.

d) Should the material be found to contain asbestos, a scope of work must be agreed with the Environmental Analyst, asbestos removal contractor and contract administrator to repair or remove the material as soon as possible.

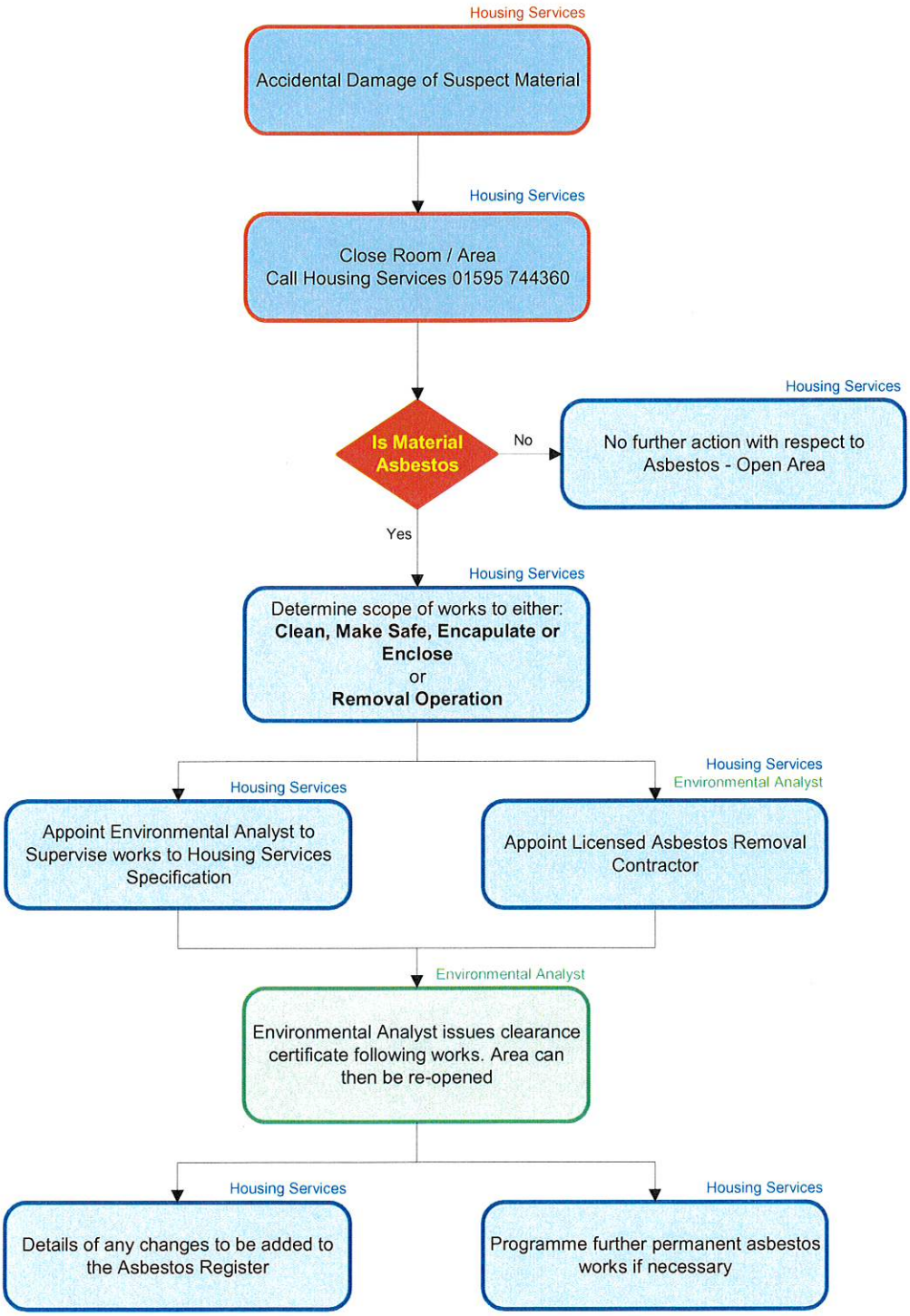
e) The asbestos removal contractor and environmental analyst should be appointed using normal SIC procedures if possible. The removal contractor will submit notification to the HSE where appropriate. The area should remain closed until the asbestos works are complete and the environmental analyst has issued the relevant clearance certificates.

f) It may be necessary to programme further asbestos removal works.

g) All details of an incident must be recorded on an asbestos incident report form which must be completed on site and returned to Housing Services.

h) This will also enable the asbestos records to be updated.

9.1.2 Flowchart 5 - Asbestos Incidents



9.1.3 Procedure for Responsive Maintenance Work

This procedure is illustrated on Flow Chart 6 – Responsive Maintenance Work in section 9.2.1.

a) All contractors and maintenance staff working on council sites must be informed of these procedures and provided with relevant contact details.

b) Should any suspect materials be identified during works, the contractor shall immediately stop work and contact the Housing Repairs Helpdesk 01595-744399. (Out of Hours 01595-693972)

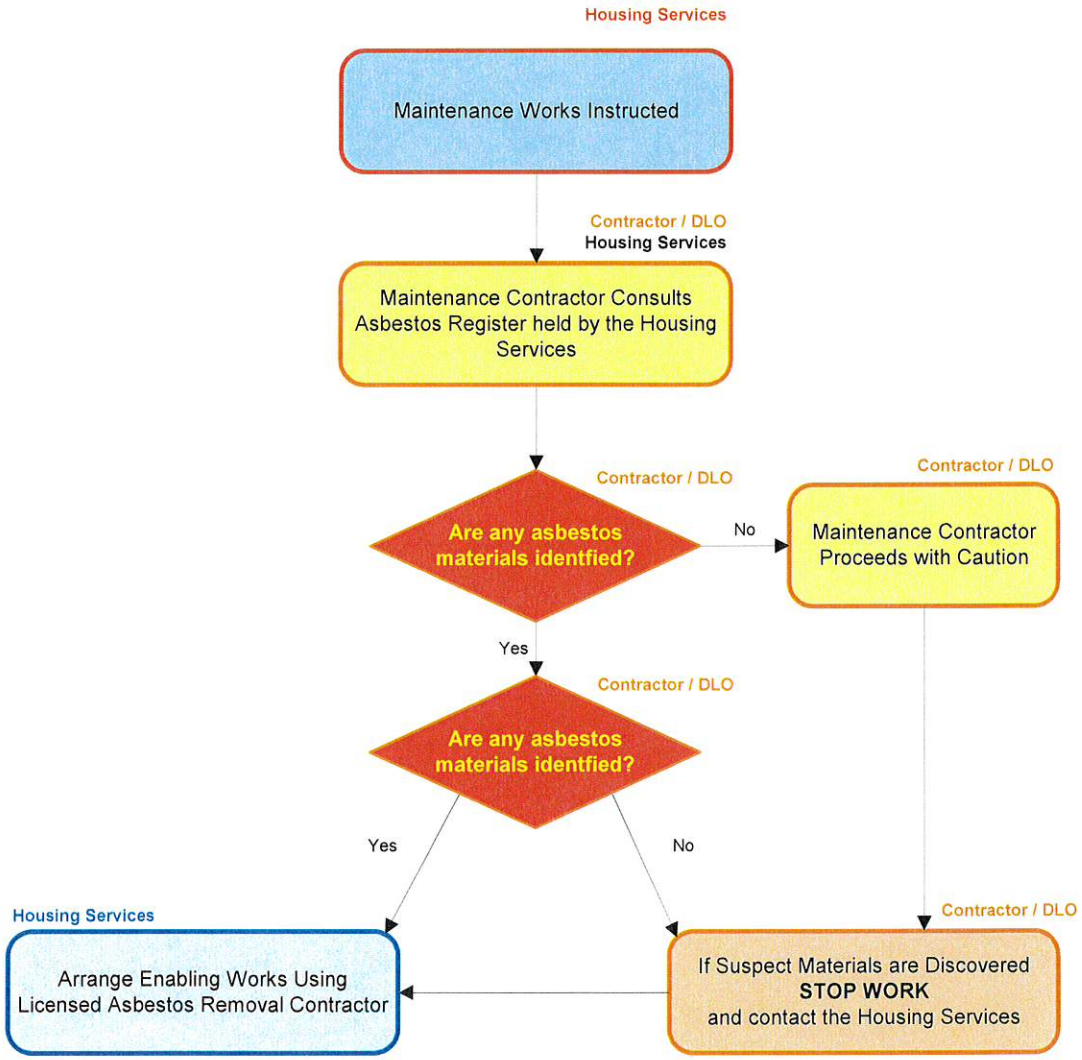
c) When responsive maintenance works are instructed via the Capita Housing Management software, Housing Repairs or Contractor will be advised whether there are any asbestos containing materials in close proximity to the maintenance works to be carried out. This will be flagged on the Job Order.

d) If there are no asbestos containing materials present and intrusive works are not taking place, then Housing Repairs or Maintenance Contractor must proceed with the works with caution.

e) If suspect materials are discovered then work must stop and the helpline will be called.

f) If the Job Order, the Asbestos Register or Refurbishment Survey identifies that there are asbestos containing materials that will interfere with the maintenance work then either the asbestos must be removed or an alternative course of action will be sought e.g. rerouting of cable runs to avoid the asbestos containing materials.

9.1.4 Flowchart 6 - Responsive Maintenance Work



9.1.5 Procedure for Capital/Refurbishment & Maintenance Work Flowchart

This procedure is illustrated on Flowchart 7 – Capital/Refurbishment & Maintenance Work in section 9.3.1.

a) When any planned maintenance works are instructed, the Contract Administrator/Designer must review all available asbestos information for the area of works. Where any intrusive work will be undertaken which breaches areas outside the scope of survey information, a Refurbishment/Demolition intrusive survey should be undertaken in accordance with HSG264 (See Section 8).

b) If there are no asbestos containing materials identified then the planned works can proceed with caution. If suspect materials are identified at any stage of the works then work must stop and the Team Leader – Asset Services 01595-744336 informed.

c) When the full extent of accessible asbestos containing materials is known then a risk assessment must be carried out to determine whether asbestos removal or enabling works are required.

d) A scope of work must be agreed between the removal contractor, the environmental analyst and Housing Services / Contract Administrator. Once the full extent of the work has been identified, the environmental analyst will prepare a specification and scope of works.

e) The asbestos removal contractor will prepare a method statement and will notify the works, where applicable, to the HSE.

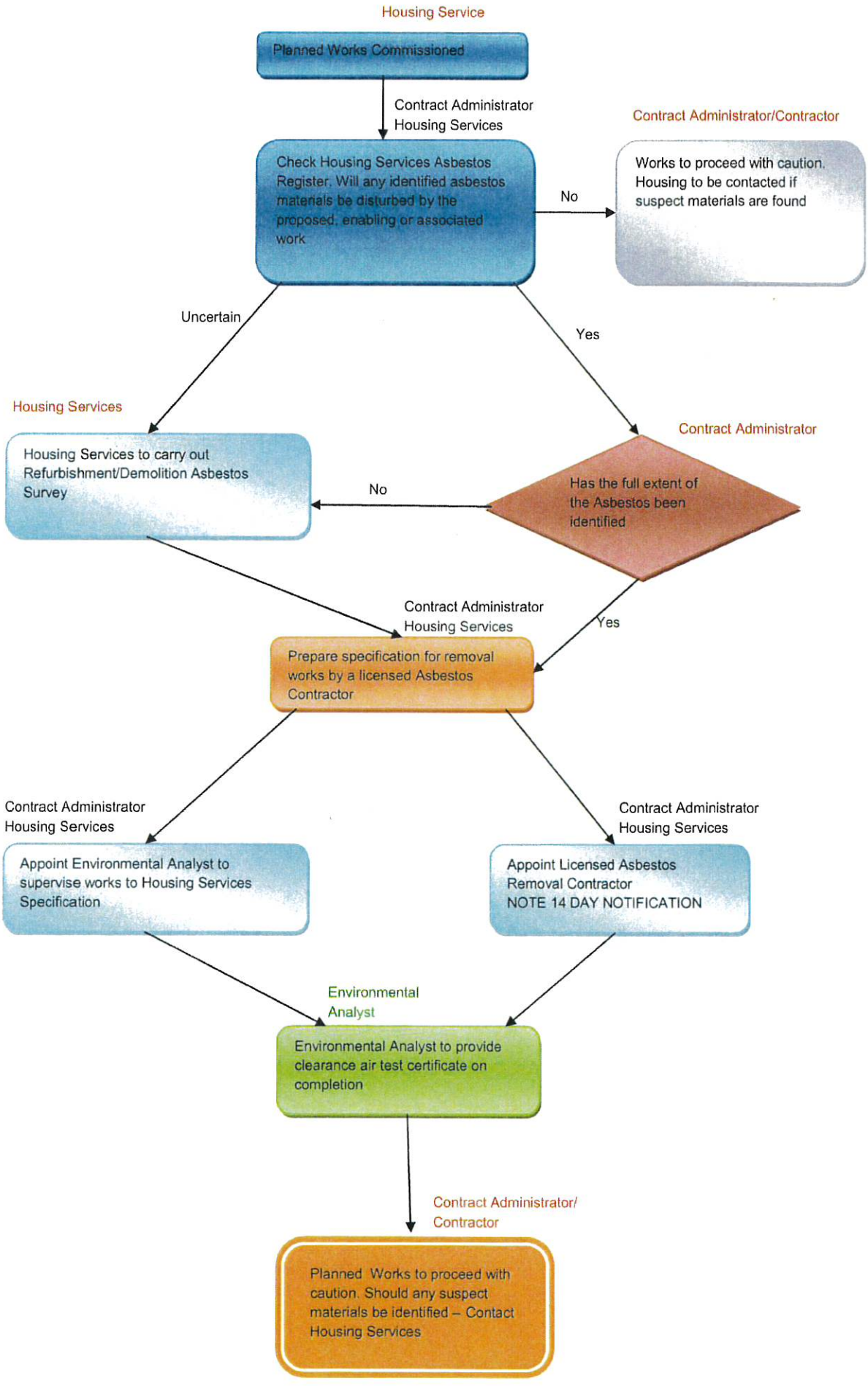
f) On completion of the works, a Clearance certificate must be provided by the Environmental Analyst confirming that the area is suitable for re- occupation.

g) Works may then proceed with caution. Should any further suspect asbestos materials be identified, works should cease and the helpline should be contacted.

h) At the conclusion of the works, the asbestos records should be updated to reflect changes.

9.1.6 Flowchart 7 – Procedure for Capital/Refurbishment & Maintenance Work

9.3.1 Flowchart 7 - Procedure for Capital/Refurbishment & Maintenance Work



10 ASBESTOS IDENTIFICATION

10.1.1 Loose Insulation

Bulk loose fill, bulk fibre-filled mattresses, quilts and blankets, and "jiffy bag" type products used for sound insulation.

Location and Use	Asbestos content and type/date last used	Ease of fibre release and product names	Licensed Removal?
Bulk loose fill insulation is now rarely found but may be encountered unexpectedly, e.g. DIY loft insulation and fire-stop packing around cables between floors. Mattresses and quilts used for thermal insulation of industrial boilers were filled with loose asbestos. Paper bags/sacks were also loose-filled and used for sound insulation under floors and in walls.	Usually pure asbestos except for lining/bag. Mattresses and quilts were usually filled crocidolite or chrysotile. Acoustic insulation may contain crocidolite or chrysotile.	Loose asbestos may readily become airborne if disturbed. If dry, these materials can give rise to high exposures. Covers may deteriorate or be easily damaged by repair work or accidental contact.	Yes

10.1.2 Sprayed Coatings

Dry applied, wet applied and trowelled finish

Location and Use	Asbestos content and type/date last used	Ease of fibre release and product names	Licensed Removal?
Thermal and anti-condensation insulation on underside of roofs and sometimes sides of industrial buildings and warehouses. Acoustic insulation in theatres, halls etc. Fire protection on steel and reinforced concrete beams/columns and on underside of floors. Over-spray of target areas is common.	Sprayed coatings usually 55%-85% asbestos with a Portland cement binder. Crocidolite was the major type until 1962. Mixture of types including crocidolite until mid-1971. Asbestos spray applications were used up to 1974.	The surface hardness, texture and ease of fibre release will vary significantly depending on a number of factors. Sprays have a high potential for fibre release if unsealed, particularly if knocked or the surface is abraded or delaminates from the underlying surface. Dust released may then accumulate on false ceilings, wiring and ventilation systems. 'Limpet'(also used for non-asbestos sprays).	Yes

10.1.3 Thermal Insulation

Hand-applied thermal lagging, pipe and boiler lagging, pre-formed pipe sections, slabs, blocks. Also tape, rope, corrugated paper, quilts, felts and blankets

Location and Use	Asbestos content and type/date last used	Ease of fibre release and product names	Licensed Removal?
Thermal insulation of pipes, boilers, pressure vessels, calorifiers etc.	All types of asbestos have been used. Crocidolite used in lagging until 1970. Amosite was phased out by the manufacturers during the 1970s. Content varies 6-85%. Various ad hoc mixtures were hand-applied on joints and bends and pipe runs. Pre-formed sections were widely used, e.g. "85% magnesia" contained 15% amosite, Caposil calcium silicate slabs and blocks contained 8-30% amosite while Caposite sections contained 85% amosite. Blankets, felts, papers, tapes and ropes were usually	The ease of fibre release often depends on the type of lagging used and the surface treatment. Often will be encapsulated with calico and painted (e.g. PVA, EVA, Latex, bitumen or propriety polymer emulsions or PVC, Neoprene solutions), e.g. 'Decadex' finish is a propriety polymer emulsion. A harder chemical-/weather-resistant finish is known as 'Bulldog'.	Yes

	100% chrysotile.		

10.1.4 Asbestos Boards (AIB)

Millboard

Location and Use	Asbestos content and type/date last used	Ease of fibre release and product names	Licensed Removal?
'Millboard' was used for general heat insulation and fire protection. Also used for insulation of electrical equipment and plant.	Crocidolite was used in some millboard manufacture between 1896 and 1965; usually chrysotile. Millboards may contain 37-97%asbestos, with a matrix of clay and starch.	Asbestos 'Millboard' has a high asbestos content and low density so is quite easy to break and the surface is subject to abrasion and wear. 'Millboard'.	Yes

Insulating board

Location and Use	Asbestos content and type/date last used	Ease of fibre release and product names	Licensed Removal?
Used for fire protection, thermal and acoustic insulation, resistance to moisture movement and general building board. Found in service ducts, firebreaks, infill panels, partitions and ceilings (including ceiling tiles), roof underlay, wall linings, external canopies and porch linings.	Crocidolite used for some boards up to 1965, amosite up to 1980, when manufacture ceased. Usually 15-25% amosite or a mixture of amosite and chrysotile in calcium silicate. Older boards and some marine boards contain up to 40% asbestos.	AIB can be readily broken, giving significant fibre release. Also significant surface release is possible by abrasion, but surface is usually painted or plastered. Sawing and drilling will also give significant releases. 'Asbestolux', Turnasbestos', 'LDR', 'asbestos wallboard', 'insulation board'. Marine boards known as 'Marinite' or 'Shipboard'.	Yes

Insulating board in cores and linings of composite products

Location and Use	Asbestos content and type/date last used	Ease of fibre release and product names	Licensed Removal?
Found in fire doors, cladding infill panels, domestic boiler casings, partition and ceiling panels, oven linings and suspended floor systems. Used as thermal insulation and sometimes as acoustic attenuators.	Crocidolite used for some boards up to 1965, amosite up to 1980, when manufacture ceased. 16-40% amosite or a mixture of amosite and chrysotile.	Can be broken by impact; significant surface release possible by abrasion, but usually painted or plastered. Sawing and drilling will also give significant releases. 'Asbestolux'.	Yes

Paper, felt and cardboard

Location and Use	Asbestos content and type/date last used	Ease of fibre release and product names	Licensed Removal?
Used for electrical/heat insulation of electrical equipment, wiring and plant. Also used in some air conditioning systems as insulation and acoustic lining. Asbestos paper has also been used to reinforce bitumen and other products and as a facing/lining to flooring products, combustible boards, flame-resistant laminate. Corrugated cardboard has been used for duct and pipe insulation.	Asbestos paper can contain upto 100% chrysotile asbestos but may be incorporated as a lining, facing or reinforcement for other products, e.g. roofing felt and damp-proof courses, steel composite wall cladding and roofing (see asbestos bitumen products below), vinyl flooring. Asbestos paper is also sometimes found under MMMF insulation on steam pipes.	Paper materials, if not encapsulated/combined within vinyl, bitumen, or bonded in some way, can easily be damaged and release fibres when subject to abrasion or wear (e.g. worn flooring surface with paper backing). Asbestos paper, asbestos felt, 'Novilon' flooring, Durasteel laminates, vinyl asbestos tile, roofing felt and damp-proof course etc. 'Pax felt'. 'Viceroy'(foil-coated paper). 'Serval'.	Depends upon Condition

10.1.5 Textiles

Ropes and Yarns

Location and Use	Asbestos content and type/date last used	Ease of fibre release and product names	Licensed Removal?
Used as lagging on pipes (see above), jointing and packing materials and as heat-/fire- resistant boiler, oven and flue sealing. Caulking in brickwork. Plaited asbestos tubing in electric cable.	Crocidolite and chrysotile were widely used due to length and flexibility of fibres. Other types of asbestos have occasionally been used in the past. Chrysotile alone since at least 1970. Asbestos content approaching 100% unless combined with other fibres.	Weaving reduces fibre release from products, but abrading or cutting the materials will release fibres, likely to degrade if exposed, becoming more friable with age. If used with caulking, fibres will be encapsulated and less likely to be released.	Depends upon Condition

Cloth

Location and Use	Asbestos content and type/date last used	Ease of fibre release and product names	Licensed Removal?
Thermal insulation and lagging (see above), including fire-resisting blankets, mattresses, and protective curtains, gloves, aprons, overalls and the like. Curtains, gloves, etc were sometimes aluminised to reflect heat.	All types of asbestos have been used in the past. Since the mid-1960s the vast majority has been chrysotile. Asbestos content approaching 100%.	Fibres may be released if material is abraded.	Depends upon Condition

Gaskets and Washers

Location and Use	Asbestos content and type/date last used	Ease of fibre release and product names	Licensed Removal?
Used in domestic hot water boilers to industrial power and chemical plants.	Variable but usually around 90% asbestos, crocidolite used for acid resistance and chrysotile for chlor-alkali. Some gasket materials will continue to be used after asbestos prohibition takes effect.	May be dry and damage easily when removed. Mainly a problem for maintenance workers. 'Klingerit', 'Lion jointing', 'Permanite', 'CAP' compressed asbestos fibre or 'It' in German gaskets.	Depends upon Condition

Strings

Location and Use	Asbestos content and type/date last used	Ease of fibre release and product names	Licensed Removal?
Used for sealing hot water radiators.	Strings have asbestos contents approaching 100%.		Depends upon Condition

10.1.6 Friction Products

Resin-based materials

Location and Use	Asbestos content and type/date last used	Ease of fibre release and product names	Licensed Removal?
Transport, machinery and lifts, used for brakes and clutch plates.	30-70% chrysotile asbestos bound in phenolic resins. Used up to November 1999.	Low friability, dust may build up with friction debris.	Depends upon Condition

Drive belts/conveyer belts

Location and Use	Asbestos content and type/date last used	Ease of fibre release and product names	Licensed Removal?
Engines, conveyors.	Chrysotile textiles encapsulated in rubber.	Low friability, except when worn to expose textile.	Depends upon Condition

10.1.7 Cement Products

Profiled Sheets

Location and Use	Asbestos content and type/date last used	Ease of fibre release and product names	Licensed Removal?
Roofing, wall cladding. Permanent shuttering, cooling tower elements.	10-15% asbestos (some flexible sheets contain a proportion of cellulose). Crocidolite (1950-1969) and amosite (1945-1980) have been used in the manufacture of asbestos cement, although chrysotile (used until November 1999) is by far the most common type found.	Likely to release increasing levels of fibres if abraded, hand sawn or worked on with power tools. Exposed surfaces and acid conditions will remove cement matrix and concentrate unbound fibres on surface and sheet laps. Cleaning asbestos-containing roofs may also release fibres. Asbestos cement, Trafford tile, 'Big six', 'Doublesix', 'Supersix', Twin twelve', 'Combined sheet', 'Glen six', '3"&6" corrugated', 'Fort', 'Monad', 'Troughsec', 'Major tile and Canada tile', 'Panel sheet', 'Cavity decking'.	No

Semi-compressed flat sheet and partition board

Location and Use	Asbestos content and type/date last used	Ease of fibre release and product names	Licensed Removal?
Partitioning in farm buildings and infill panels for housing, shuttering in industrial buildings, decorative panels for facings, bath panels, soffits, linings to walls and ceilings, portable buildings, propagation beds in horticulture, domestic structural uses, fire surrounds, composite panels for fire protection, weather boarding.	As for profiled sheets. Also 10-25% chrysotile and some amosite for asbestos wood used for firedoors etc. Composite panels contained ~4% chrysotile or crocidolite.	Release as for profiled sheets. Flat building sheets, partition board, 'Poilite'.	No

Fully compressed flat sheet used for tiles, slates, board

Location and Use	Asbestos content and type/date last used	Ease of fibre release and product names	Licensed Removal?
As above but where stronger materials are required and as cladding, decking and roof slates (e.g. roller-skating rinks, laboratory worktops).	As for profiled sheets.	Release as for profiled sheets. Asbestos-containing roofing slate (e.g. 'Eternit', Turners', 'Speakers'), 'Everite', Turnall', 'Diamond AC', 'JM slate', 'Glasal AC', 'Emalie, Eflex', 'Colourglaze', Thrutone', 'Weatherail'.	No

Pre-formed moulded products and extruded products

Location and Use	Asbestos content and type/date last used	Ease of fibre release and product names	Licensed Removal?
Cable troughs and conduits. Cisterns and tanks. Drains and sewer pressure pipes. Fencing. Flue pipes. Rainwater goods. Roofing components (fascias, soffits, etc). Ventilators and ducts. Weather boarding. Windowsills and boxes, bath panels, draining boards, extraction hoods, copings, promenade tiles etc.	As for profiled sheets.	Release as for profiled sheets. 'Everite',Turnall', 'Promenade tiles'.	No

10.1.8 Other Encapsulated Materials

Textured coatings

Location and Use	Asbestos content and type/date last used	Ease of fibre release and product names	Licensed Removal?
Decorative/flexible coatings on walls and ceilings.	3-5% chrysotile asbestos. Chrysotile added up to 1984 but non-asbestos versions were available from the mid-1970s.	Generally fibres are well contained in the matrix but may be released when old coating is sanded down or scraped off. 'Artex', 'Wondertex', 'Suretex', 'Newtex', 'Pebblecoaf, 'Marblecoat'.	No

Bitumen products

Location and Use	Asbestos content and type/date last used	Ease of fibre release and product names	Licensed Removal?
Roofing felts and shingles, semi-rigid asbestos bitumen roofing. Gutter linings and flashings. Bitumen damp-proof courses (DPC). Asbestos/bitumen coatings on metals i.e. car body underseals. Bitumen mastics and adhesives (used for floor tiles and wall coverings).	Chrysotile fibre or asbestos paper (approximately 100% asbestos) in bitumen matrix, usually 8% chrysotile. Used up to 1992. Adhesives may contain up to a few per cent chrysotile asbestos. Used up to 1992.	Fibre release unlikely during normal use. Roofing felts, DPC and bitumen-based sealants must not be burnt after removal. See felts and papers.	No

Flooring

Location and Use	Asbestos content and type/date last used	Ease of fibre release and product names	Licensed Removal?
Thermoplastic floor tiles. PVC vinyl floor tiles and unbacked PVC flooring. Asbestos paper-backed PVC floors. Magnesium oxychloride flooring used in WCs, staircases and industrial flooring.	Up to 25% asbestos. Normally 7% chrysotile. Paper backing approximately 100% chrysotile asbestos. Used up to 1992. About 2%asbestos.	Fibre release is unlikely to be a hazard under normal service conditions. Fibre may be released when material is cut, and there may be substantial release where flooring residue, particularly paper backing, is power-sanded. 'Novilon', 'Serval asbestos'. Very hard, fibre release unlikely.	No

Reinforced PVC

Location and Use	Asbestos content and type/date last used	Ease of fibre release and product names	Licensed Removal?
Panels and cladding.	1-10%chrysotile asbestos.	Fibre release is unlikely.	No

Reinforced plastic and resin composites

Location and Use	Asbestos content and type/date last used	Ease of fibre release and product names	Licensed Removal?
Used for toilet cisterns, seats, banisters, window seals, lab bench tops. Brakes and clutches in machines.	Plastics usually contain 1-10%chrysotiie asbestos. Some amphiboles were used to give improved acid resistance, e.g. car batteries. Resins were reinforced with woven chrysotile cloth, usually contain 20-50% asbestos.	Fibres unlikely to be released, limited emissions during cutting. 'Sindanyo', 'Siluminite', 'Feroasbestos'. Minor emissions when braking, most asbestos degrades with frictional heat.	No

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