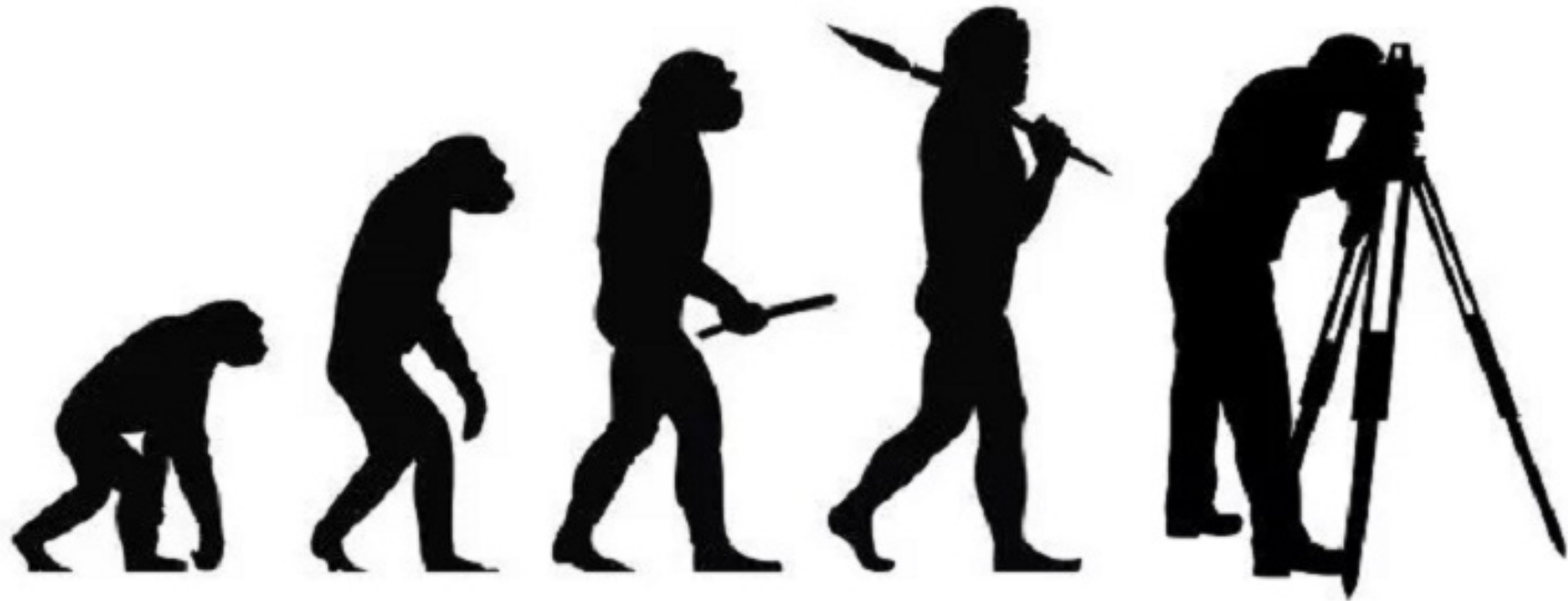


Lecture 4: Digital Surveying



<https://www.satpalda.com/blogs/evolution-in-surveying-techniques>



General: The Basics

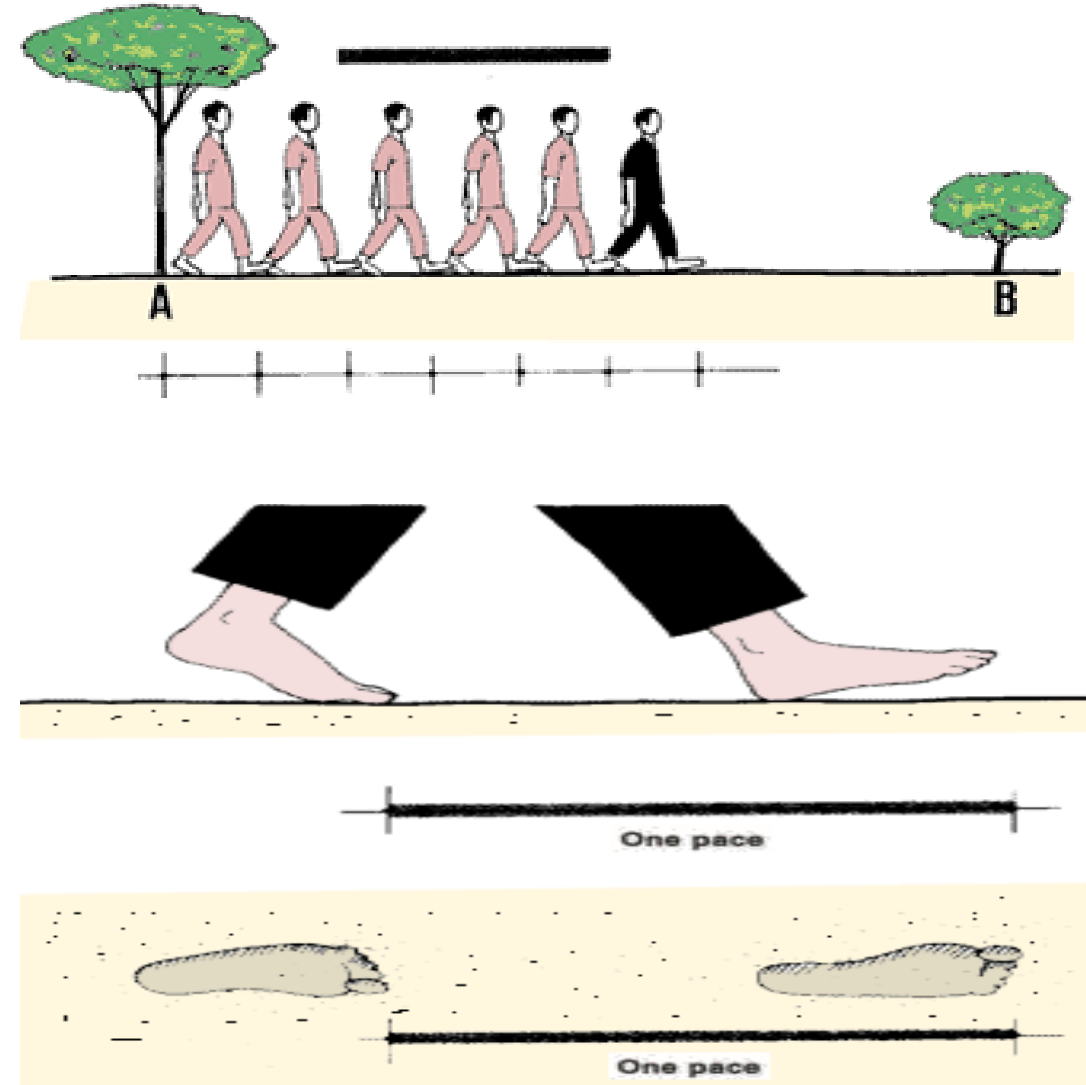


General: Pacing

Pacing: The ability to pace distance is very useful

A person can determine their pace by counting the number of paces necessary to walk a distance that has been previously measured. The natural pace of each individual normally varies from 700 – 950mm.

- A pace is defined as one step
- A stride is consider two steps



Building Surveying: Linear Measurement

Surveying tapes are available in lengths up to 100m, but a 30m tape is the most common length in use. Two types of tapes are commonly used:

Steel Tapes

- All steel tapes are manufactured so that they measure their normal length at a specific temperature and under a certain pull, which is generally 20°C and 50N.
- With care it is possible to take measurements using a steel tape with an accuracy of 1 in 10,000 (or 3mm for a 30m distance)

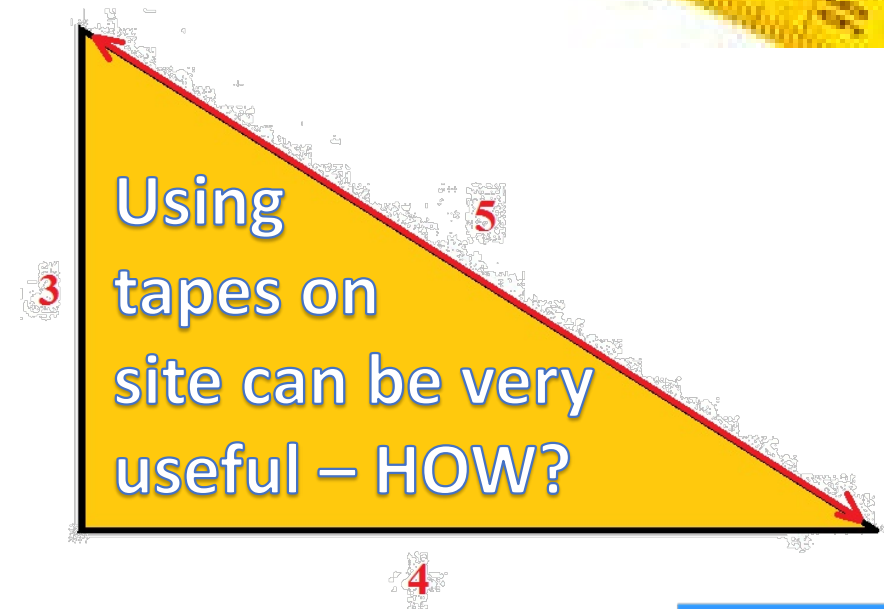
Fibreglass Tapes

- Fibreglass tapes are manufactured from fibreglass strands embedded in PVC.
- Compared to steel tapes they are lighter, more flexible and less likely to break.
- They are also rust free.
- They stretch more when pulled
- The accuracy of a fibreglass tape is lower at 1 in 1000 (i.e. a precision of 30mm in a 30m length).



Building Surveying: Linear Measurement

- The tape is not the standard length
- Poor alignment of the tape
- Tape not horizontal
- Tape twisted or not straight.
- Human error of observations
- Variations in temperature
- Variations in tension
- Tape Sag.



Building Surveying: Other Linear Measurement



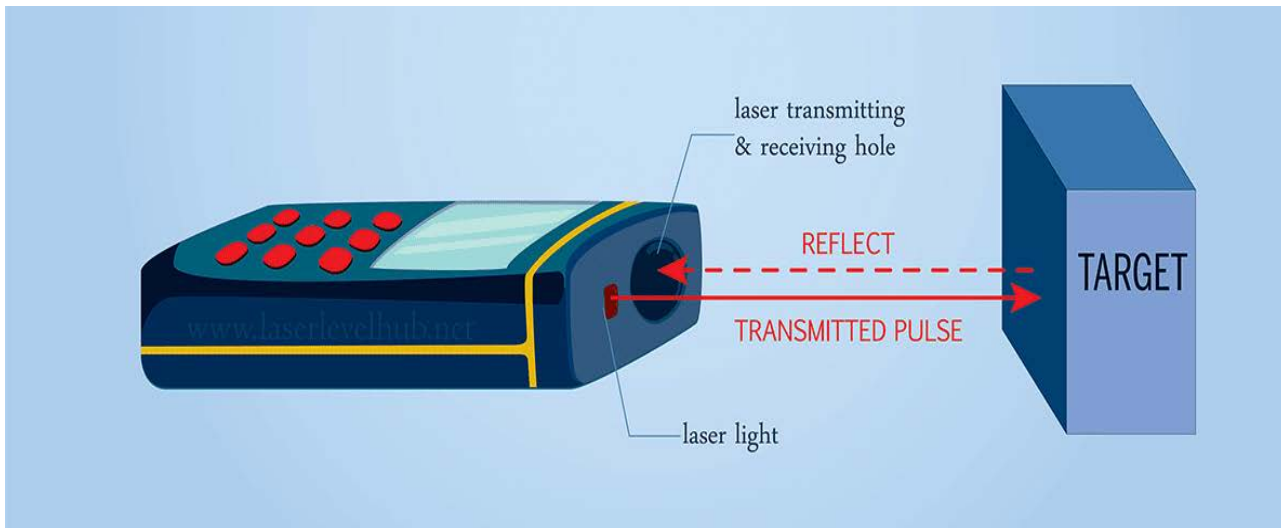
Measuring Wheels and Rods can be used to supplement other equipment.

Building Surveying: Linear Measurement

Disto / Laser measuring

Typically used in building surveys. Hand held disto equipment use laser beam. Modern versions can calculate room areas, volumes and angled slopes.

- Accuracy = $\pm 3\text{mm}$; Range = 200m; Single Operator; useful when
- not possible to use inaccessible heights/points etc
- Errors: requires baseline calibration; errors due to weather
- Safety: Lasers must NOT be pointed in the eye



Building Surveying: Other Measurement

In Building Surveying you will also be looking at other factors especially when assessing existing buildings.

Thermal Camera

Thermal bridging / heat loss detecting areas of poor detailing, damage or construction defects.

Moisture Meter / Protimeter

Areas of damp / water ingress detecting both moisture (damp) and humidity levels.



Surveying Today - What are the Five Main Areas on Surveyors Work?

- Research, analysis, and decision making.
- Field work {Data acquisition}.
- Computing {Data processing}.
- Mapping {Data representation}.
- Stake-out / Setting out

PLANNING

Research, analysis, and decision making.



[http://1.bp.blogspot.com/-dNI0LVAIWqU/VSOvUR-fvPI/AAAAAABaHM/rfcPg8J8cc/s1600/Constructing%2Bthe%2BEmpire%2BState%2BBuilding%2C%2B1930s%2B\(2\).jpg](http://1.bp.blogspot.com/-dNI0LVAIWqU/VSOvUR-fvPI/AAAAAABaHM/rfcPg8J8cc/s1600/Constructing%2Bthe%2BEmpire%2BState%2BBuilding%2C%2B1930s%2B(2).jpg)

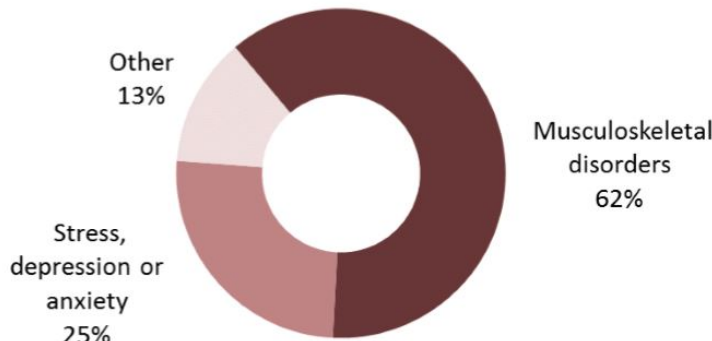




Key statistics in the Construction sector in Great Britain, 2018



82,000
workers suffering
from work-related
ill health (new or
long-standing).



The rate of total self-reported work-related ill health has been broadly flat in recent years.

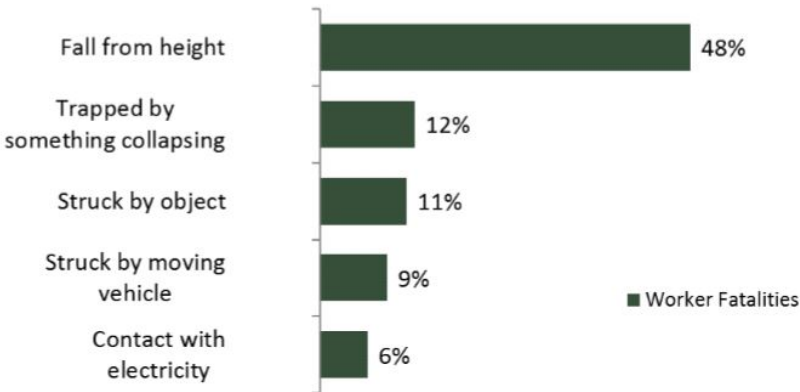
Source: LFS, 2017/18. Many of these illnesses were long-standing ill health conditions.



38 fatal injuries
to workers in
2017/18.

This is close to the
annual average
number of fatalities
(39) for
2013/14-2017/18.

Source:
RIDDOR, 2017/18



Source: RIDDOR, 2013/14-2017/18.
Accident kinds are shown for the top five causes of fatal injuries.

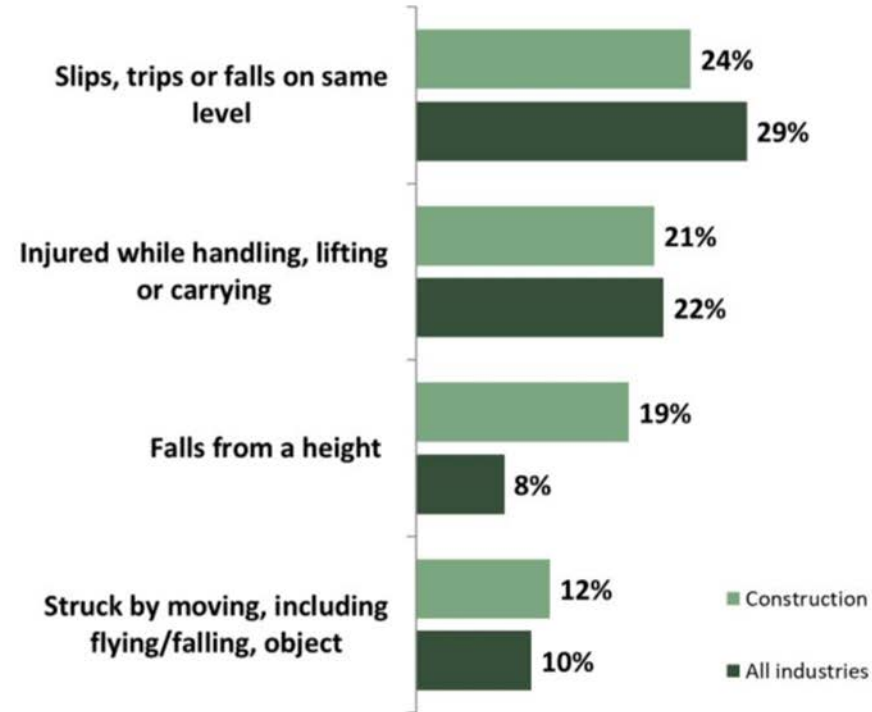


58,000

non-fatal injuries to
workers each year

The long-term
trend of the rate of
workplace injury is
downward.

Source: LFS, annual
average
2015/16-2017/18.



Source: Non-fatal injuries reported under RIDDOR 2015/16-2017/18. RIDDOR is used here as the LFS is not able to provide a breakdown to this level of detail.
Accident kinds are shown that account for 10% or more of injuries.

Assess the Risk

Research, analysis, and decision making.

WHY?

Health and safety at work: criminal and civil law

1. Overview
2. [Health and Safety at Work Act](#)
3. [Criminal and civil law](#)

1. Overview

There are 2 parts to the law – civil and criminal. They're not the same.

As an employer, you must protect your workers and others from getting hurt or ill through work.

If you don't:

- a regulator such as the Health and Safety Executive or local authority may take action against you under [criminal law](#)
- the person affected may make a claim for compensation against you under [civil law](#)

Neither the Health and Safety Executive nor local authorities enforce civil law or set the rules for the conduct of civil cases.

<http://www.hse.gov.uk>

2. The Health and Safety at Work Act

The Health and Safety at Work etc Act 1974 is the main legislation covering occupational health and safety in Great Britain.

It's sometimes called HSWA, the HSW Act, the 1974 Act or HASAWA.

You can read the act in full on the legislation.gov.uk website

The objectives of the act include:

- securing the health, safety and welfare of people at work
- protecting others against risks to health or safety relating to the activities of people at work
- controlling the keeping and use of dangerous substances

Other acts cover specific industries and activities.

Regulations

Regulations are law, approved by Parliament which are made under an act.

Certain industries and work have specific regulations, such as:

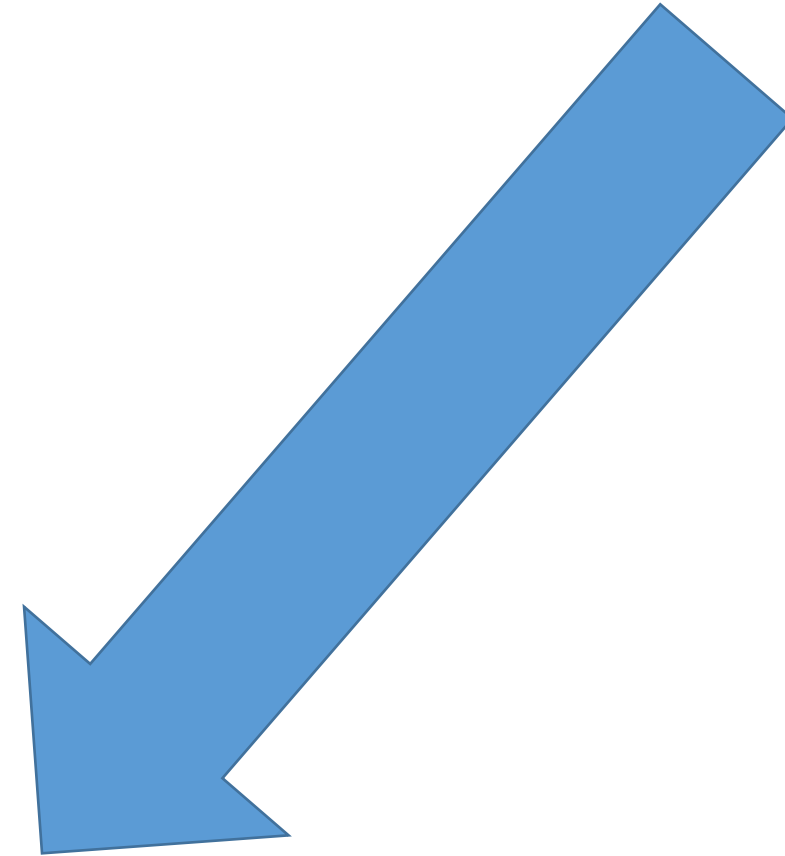
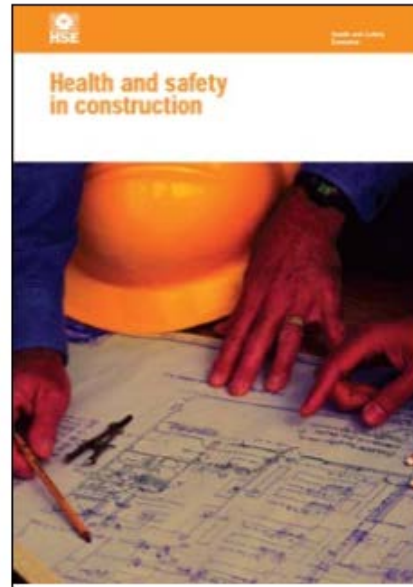
- managing health and safety in construction
- manual handling
- managing and working with asbestos

In practice, to comply with the act and regulations, you must control the risks in your workplace and keep on top of how you do it. For basic information on how to do this, go to [Health and safety made simple](#).

The Construction (Design and Management) Regulations 2015 (CDM 2015) came into force on 6 April 2015, replacing CDM 2007



L153
Published 2015



<http://www.hse.gov.uk/construction/index.htm>

HEALTH AND SAFETY

Workplace Location(s)
**Building Sites, Premises and
 Potential development sites**
 Task/Activity **Use of ladders**

Date 2/1/19
 Signed: Gavin Traylor
 Review Date: February 2020

List hazards here:	List groups of people who are especially at risk from the significant hazards which you have identified:	Risk	List existing controls here – or note where the information may be found:	Describe the action needed to improve matters where it is reasonably practicable to do more to control risks. <u>Specify also the target date for action and the person to action.</u>	Residual Risk
Use of ladders - Falls	Office staff	Med	Staff required to observe corporate policy on use of ladders. Code of Guidance on use of Ladders Existing rules to be observed when using ladders for surveys:- - Ladders to be used in low risk situations for a short duration of time ie not exceeding 30mins and for access only. - Avoid use if practicable, consider use of alternatives e.g towers, scaffolding, Mobile elevating work platforms (MEWPs). - Ladders to be prevented from use by unauthorised people e.g in particular care should be taken when using ladders in school environments. - Minimum of two people to undertake survey that involves use of ladder. - Ladders to be lashed whenever possible, if not, then ladder to be footed / restrained at all times. - Ladders not to be used in windy, icy or inclement weather. - Ensure surfaces are level and non slip. - Do not impose any side loading on ladder. - Ladder should be erected at an angle of 1: 4. - Ladder shall extend 1.075m above the exit level. - Use rucksack/shoulder bag, <u>Do</u> not carry anything in hands when climbing ladder. - Staff attention drawn to HSE guidance available at: http://www.hse.gov.uk/pubns/indg455.pdf	Staff awareness training required. Action by management team by May 2019 In house ladders maintained by the structural section to be periodically checked by structural section. Record findings of inspection. May 2019	low
Use of ladders by young or inexperienced staff	Young or inexperienced staff/students and school work experience pupils	High	Work experience school pupils are not permitted to use ladders. Inexperienced staff to be supervised by responsible person at all times.	Responsible person in charge of supervising young or inexperienced staff shall ensure that they are aware of the requirements in the code of guidance and Work Instruction 3.PDD.DC.03	low

HEALTH AND SAFETY RISK ASSESSMENT

Workplace Location(s) – **Various Public
and Private Premises, Development and
Construction Sites**

Task/Activity - **Lone Working**

Date - 2 Jan
2019

List hazards here:	List groups of people who are especially at risk from the significant hazards which you have identified:	Risk	List existing controls here - or note where the information may be found:	Describe the action needed to improve matters where it is reasonably practicable to do more to control risks. <u>Specify also the target date for action and the person to action.</u>	Residual Risk
Violence Accidents Parking on Site (isolated areas) Becoming injured or unwell	Lone working staff	Med	Staff required to minimise lone working where possible, where necessary lone working is only permissible in low risk situations. I.e. - Visual inspections only, no intrusive investigations are being undertaken - Where there is no reasonably foreseeable risk of violence or aggression. - Safe access and egress is available - No working at height or confined space working is involved. This risk assessment to be read in conjunction with the general construction site risk assessment Staff required to complete Virtual Whiteboard before leaving the office detailing site to be visited and what time they are expected back or no return. Requirement for staff to notify another responsible member of staff if going straight home from site when lone working. Designated member of staff to check and raise alarm if no contact is made by an agreed time. Staff required to carry mobile phone and make sure that the designated person has number. Emergency contact details issued to all staff Personal Attack Alarms are available to staff working away from the office.	Remind Staff of existing controls. Action by management team by May 2019	Low

HEALTH AND SAFETY

Workplace Location(s) Various site

Task/Activity - Lifting Manhole covers

Date 2/1/19

Signed Gavin Traylor
Review Date February 2020

List hazards here:	List groups of people who are especially at risk from the significant hazards which you have identified:	Risk	List existing controls here – or note where the information may be found:	Describe the action needed to improve matters where it is reasonably practicable to do more to control risks. <u>Specify also the target date for action and the person to action.</u>	Residual
Lifting manhole covers Back strain Many manholes are stuck with key holes blocked. Possibly causing excessive strain or staggering forwards or back if it suddenly released. Danger of lowering cover onto operatives feet. Falling down open manholes Toxic fumes Vermin Confined space	Staff, Public	Med	Majority of staff have attended manual handling course in May 2013. Staff advised to avoid lifting heavy duty manhole covers where possible. Where a significant number of covers need to be lifted then contact the council's drainage team or external contactors. For occasional lifting of heavy duty manhole covers, remove or reduce risk of injury by use of mechanical lifting device for held in Survey Store room. Information pack available from structures section on use of device. Note manhole lifting device required to be transported by two people. For light duty manhole covers use appropriate manhole keys. Use suitable appropriate PPE. ie Steel toe cap boots, Gloves etc Replace cover as soon as survey has been completed (preferable). Protect hole with Physical barrier if to be left open. Manholes not to be left uncovered overnight. Do not enter manhole under any circumstances. Obtain specialist advice. Carry washing materials e.g. antiseptic wet wipes (structural section has a supply) If manhole is in footway/highway determine need for road closure or installation of appropriate traffic management.	Staff to be reminded of controls May 2019 Management team to ensure that all appropriate staff who have not attended Manual Handling course do so as soon as practical.	low



Why is asbestos dangerous?

- Asbestos still kills around 5000 workers each year, this is more than the number of people killed on the road.
- Around 20 tradesman die each week as a result of past exposure
- However, asbestos is not just a problem of the past. It can be present today in any building built or refurbished before the year 2000.

When materials that contain asbestos are disturbed or damaged, fibres are released into the air. When these fibres are inhaled they can cause serious diseases. These diseases will not affect you immediately; they often take a long time to develop, but once diagnosed, it is often too late to do anything. This is why it is important that you protect yourself now.

Mesothelioma

Mesothelioma is a cancer which affects the lining of the lungs (pleura) and the lining surrounding the lower digestive tract (peritoneum). It is almost exclusively related to asbestos exposure and by the time it is diagnosed, it is almost always fatal.



Asbestos-related lung cancer

Asbestos-related lung cancer is the same as (looks the same as) lung cancer caused by smoking and other causes. It is estimated that there is around one lung cancer for every mesothelioma death.



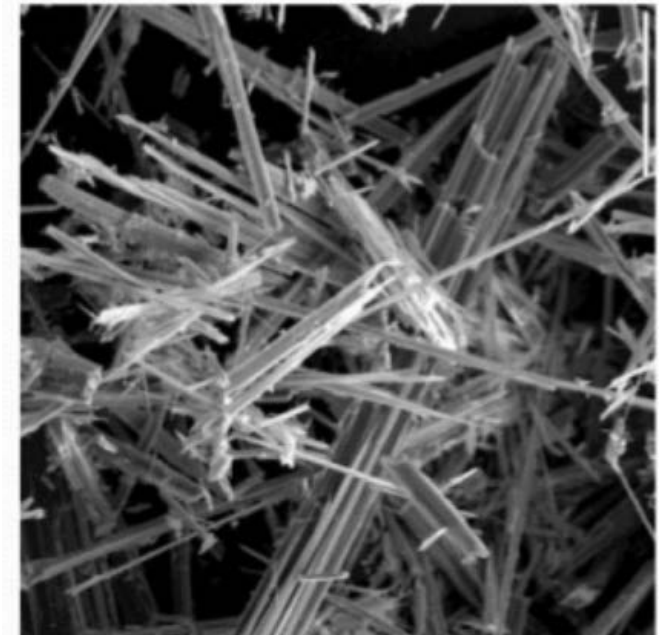
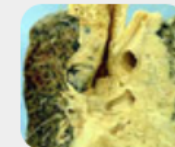
Asbestosis

Asbestosis is a serious scarring condition of the lung that normally occurs after heavy exposure to asbestos over many years. This condition can cause progressive shortness of breath, and in severe cases can be fatal.



Pleural thickening

Pleural thickening is generally a problem that happens after heavy asbestos exposure. The lining of the lung (pleura) thickens and swells. If this gets worse, the lung itself can be squeezed, and can cause shortness of breath and discomfort in the chest.



Asbestos is a hidden killer.
 So now's the time to get clued up on the facts, so that you, your workmates, your friends and family are protected.

**WARNING
CONTAINS
ASBESTOS**

Breathing asbestos dust is dangerous to health

Follow safety instructions

HSE

Every week 20 tradesmen die from this hidden killer.

Any building built or refurbished before the year 2000 could contain asbestos, which is one of the most lethal dangers in the workplace.
 Every year there are still 4,000 deaths from asbestos related diseases.
 You could be working where asbestos is present right now.
 Don't you owe it to your workmates, your family and yourself to find out more?

Call **0845 345 0055** now for your **FREE Asbestos Information Pack.**

Health and Safety Executive www.hse.gov.uk/asbestos

Don't chance it
CHANGE IT

HSE

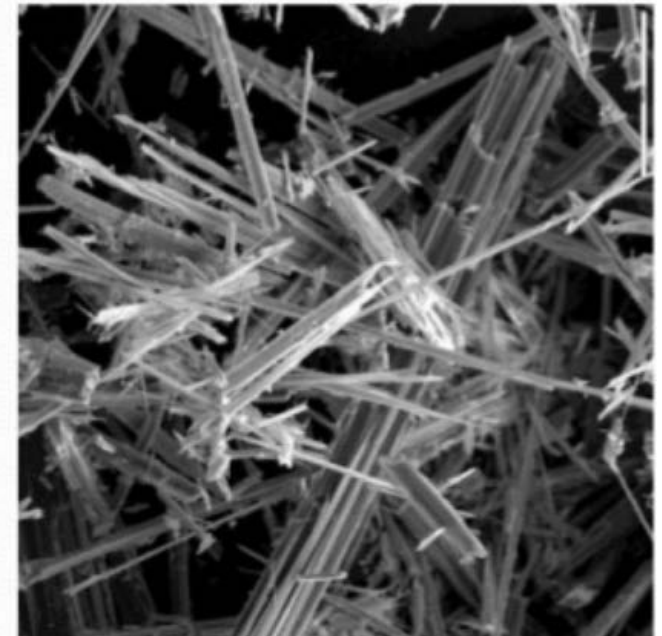
Every week on average 6 electricians die from this hidden killer

- Asbestos is responsible for over 4000 deaths every year, and it could still be hiding in anything built or refurbished before the year 2000.
- Don't you owe it to your workmates and your family to protect yourself?

Visit www.hse.gov.uk/hiddenkiller or call 0045 345 0055 for more information

Asbestos Materials

- Generic term given to several silicate materials which occur in a fibrous form.
- They are naturally occurring minerals found throughout the world
- Distinct chemical Structure contributing to their mechanical and physical properties.



Asbestos Materials

- Large quantities were used in building construction in the 20thC
- Peak use 1960 – 1970's
- Phased out from around 1972
- Formal Prohibition Regulations in 1985, 1992 and 1999
- Prohibition and Licensing Regulations included in 'The Control of Asbestos Regulations' CAR 2006 and CAR 2012.

Asbestos Materials

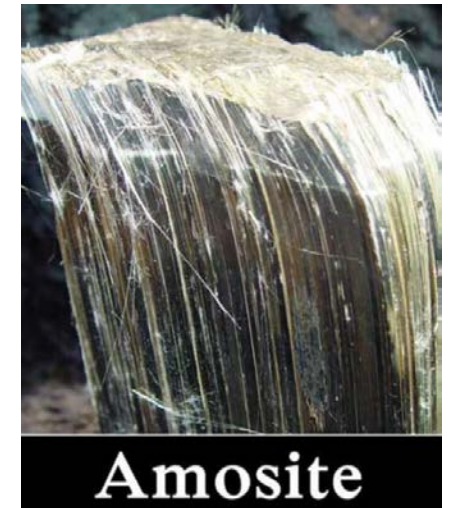
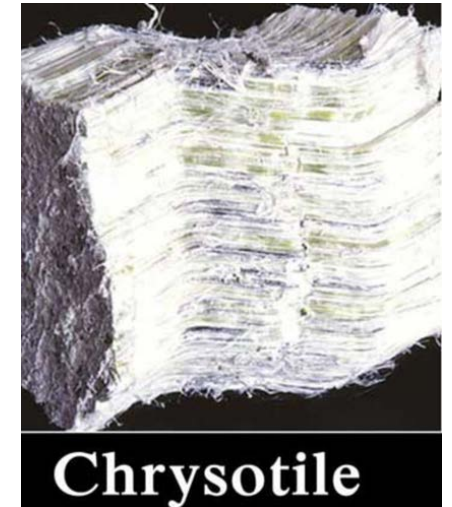
There are two main types of Asbestos

Serpentines

- Chrysotile (white)

Amphiboles

- Crocidolite (blue)
- Amosite (brown)
- Anthophyllite, Actinolite, Tremolite



Asbestos Materials

Types of ACMs

- Spray Insulation
- Lagging
- Insulation Board
- Textured Coatings & Paints
- Cement
- Textiles
- Friction Products
- Plastic & Vinyl
- Acoustics
- Gaskets

Asbestos Materials

The degree of risk associated with an ACM is dependant on the ease in which the fibres are released into the air.

This is know as:

FRIABILITY



Asbestos Materials - Spray Insulation

Unsealed

- Very high friability
- Amosite, Chrysotile, or Crocidolite
- Greater than 70%



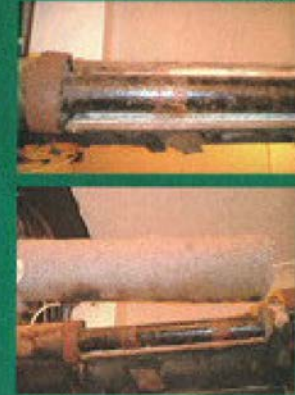
Asbestos Materials - Lagging (Boilers)

- Friability depends on condition
- Normally Chrysotile, but Amosite & Crocidolite also used
- 5 - 90%



Asbestos Materials - Lagging (Pipe Insulation)

- Paper lining



Asbestos Materials - Spray Insulation

Encapsulated

- Friability greatly reduced
- Commonly called flock
- Used for thermal & acoustic insulation / fire protection



Asbestos Materials - Lagging (Pipe Insulation)

- Corrugated cardboard



Asbestos Materials - Lagging (Pipe Insulation)

- Hard set



Asbestos Materials - Insulation Board

- Amosite or mixture of Amosite & Chrysotile 15 - 40%
- Prior to 1965 may also contain Crocidolite



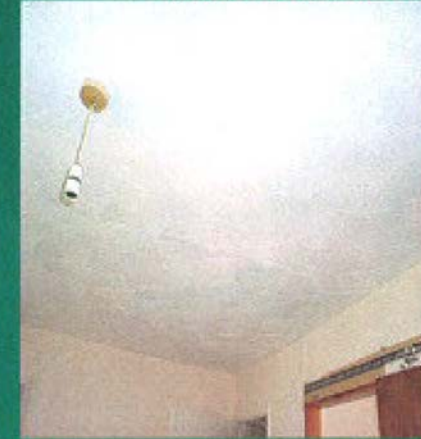
Asbestos Materials - Insulation Board

- Fire barrier lining under stairs



Asbestos Materials - Textured Coating & Paints

- Textured Coating on Ceiling (Artex)



Asbestos Materials - Insulation Board

- Fire-proofing on structural steel work (boxing)
- On walls & ceiling



Asbestos Materials - Textured Coating & Paints

- Usually containing 3 - 5% Chrysotile
- Used up to prohibition



Asbestos Materials - Textured Coating & Paints

- Bitumen coating to corrugated sheets
- Known by the trade name 'Galbestos'



Asbestos Materials - Cement

- Mainly chrysotile
- May have small quantities of Crocidolite & Amosite
- Normally less than 15%



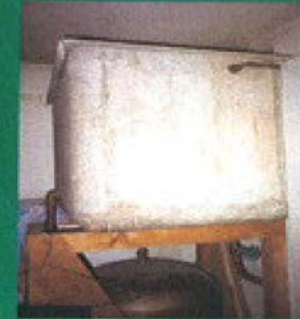
Asbestos Materials - Cement

- Composite roof tiles



Asbestos Materials - Cement

- Water tank (cement)
- Window sill (cement)



Asbestos Materials - Cement

- Used as cladding



Asbestos Materials - Cement

- Corrugated roof sheets & wall cladding
- Rainwater goods (Guttering & Down pipe)



Asbestos Materials - Textiles



Flash Guard



Fabrics

Asbestos Materials - Textiles



Packing to window frame

Flexible joint

Asbestos Materials - Plastic & Vinyl

- Toilet cisterns, all types of asbestos
- Floor tiles mainly chrysotile

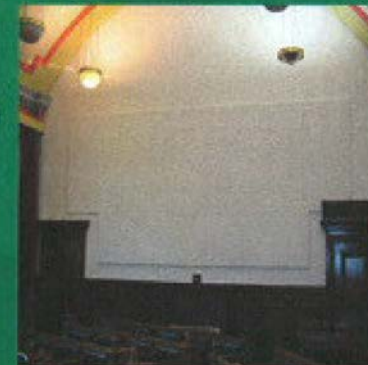


Asbestos Materials - Acoustics

Perforated tiles

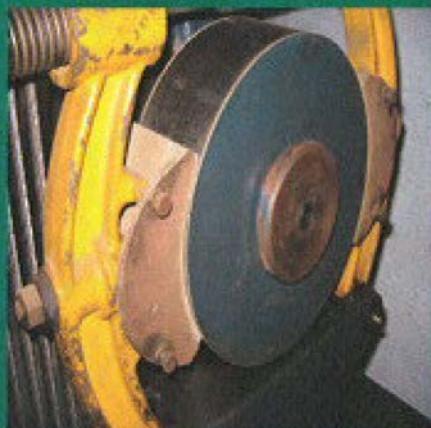
May be :

- Fibre board with paper lining
- or AIB



Asbestos Materials - Friction Products

- Chrysotile / resin composite
- 25 - 70 %



Asbestos Materials - Plastic & Vinyl



- Vinyl floor covering with chrysotile paper backing

Asbestos Materials - Acoustics

Sink pad

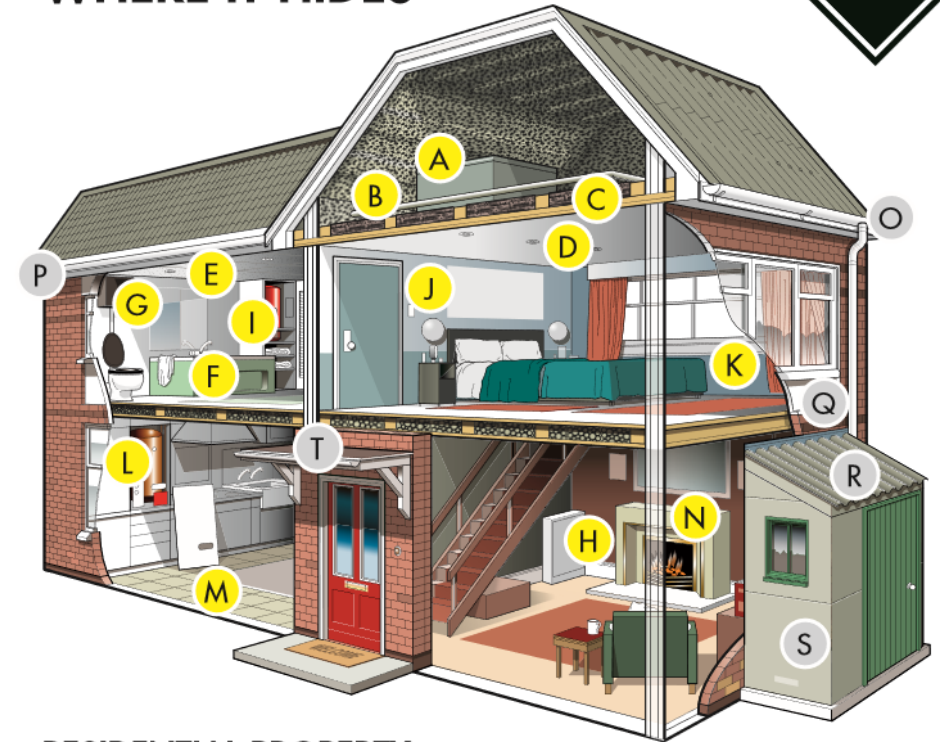
- Bitumen pad stuck to underside of metal sink, to reduce resonance



Where ACM's may be found?

- Roof voids and eaves
- Heaters/ airing cupboards
- Bathroom / Toilets
- Electrical and Gas service cupboards
- Bedrooms, dining and living rooms
- Kitchen
- External Buildings (sheds, garages, outbuildings)

ASBESTOS WHERE IT HIDES



RESIDENTIAL PROPERTY

Inside

- A** Asbestos cement water tank
- B** Pipe lagging
- C** Loose fill insulation
- D** Textured decorative coating e.g. Artex
- E** AIB ceiling tiles
- F** AIB bath panel
- G** Toilet seat and cistern
- H** AIB behind fuse box
- I** AIB airing cupboard and/or sprayed insulation coating on boiler and hot water tank
- J** AIB partition wall
- K** AIB interior window panel
- L** AIB around boiler, storage heaters and warm air heating systems
- M** Vinyl floor tiles
- N** AIB behind fire

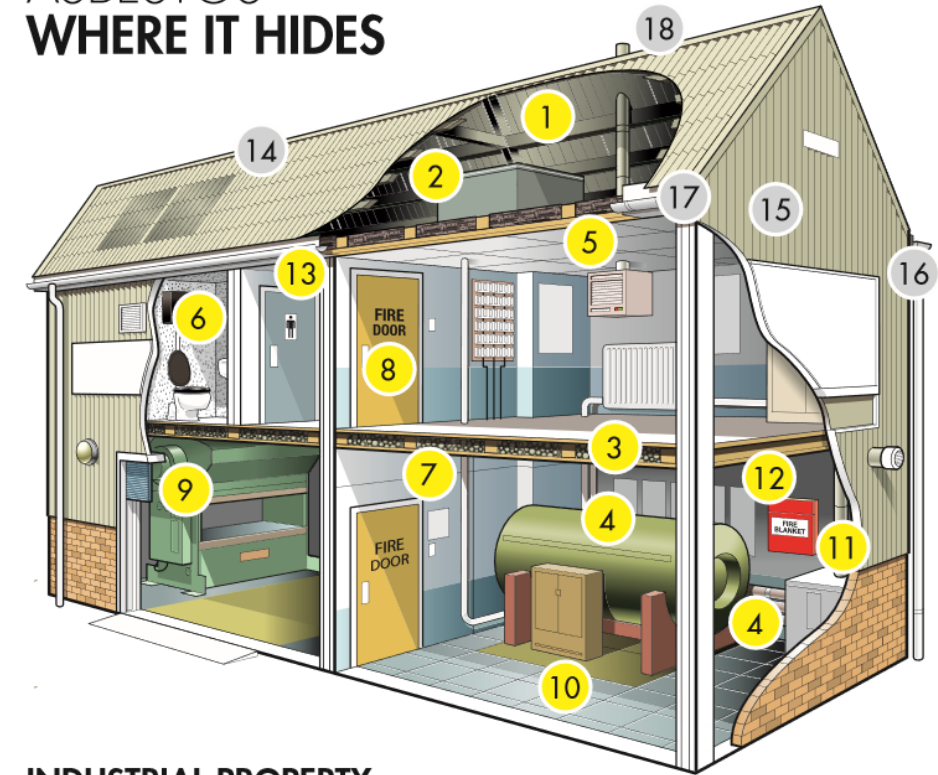
Outside

- O** Asbestos cement gutters and downpipes
- P** Soffits – AIB or asbestos cement
- Q** AIB exterior window panel
- R** Asbestos cement roof
- S** Asbestos cement panels
- T** Roofing felt

Where ACM's may be found?

- Artex / Textured coatings
- Bath panels
- Fascia boards / soffits
- Fire doors
- Floor tiles
- Flues
- Gas appliances
- Profiled cement sheet
- Insulation
- Panelling
- Rainwater goods
- Roof tiles
- Water tanks
- Debris / packing.

ASBESTOS WHERE IT HIDES



INDUSTRIAL PROPERTY

Inside

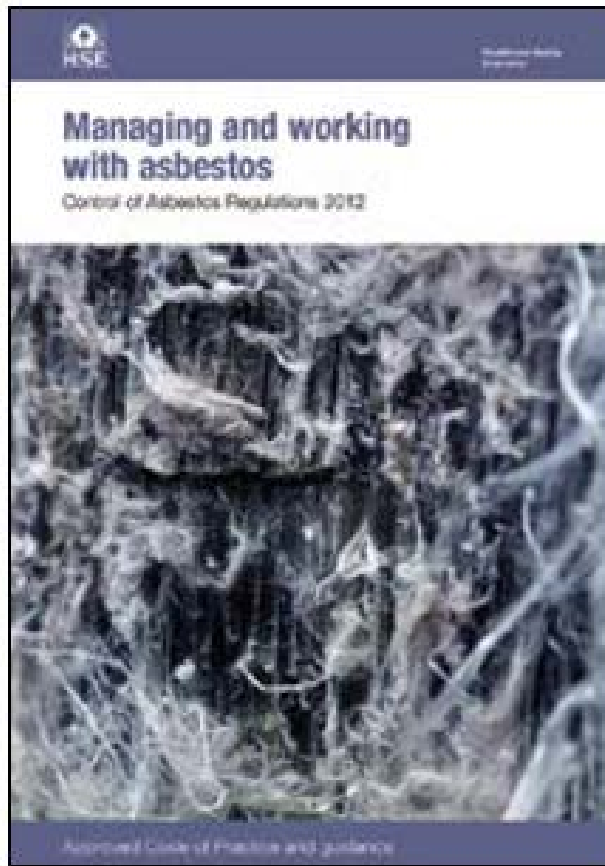
- 1 Sprayed coatings on ceilings, walls, beams and columns
- 2 Asbestos cement water tank
- 3 Loose fill insulation
- 4 Lagging on boilers and pipes
- 5 AIB ceiling tiles
- 6 Toilet seat and cistern
- 7 AIB partition walls
- 8 AIB panels in fire doors
- 9 Asbestos rope seals, gaskets and paper
- 10 Vinyl floor tiles
- 11 AIB around boilers, storage heaters and warm air heating systems
- 12 Textiles e.g. fire blankets
- 13 Textured decorative coating on walls and ceilings e.g. Artex

Outside

- 14 Asbestos cement roof
- 15 Asbestos cement panels
- 16 Asbestos cement gutters and downpipes
- 17 Soffits – AIB or asbestos cement
- 18 Asbestos cement flue

AIB = Asbestos insulating board





L143 (Second edition) Published 2013

Work which requires a licence from HSE	Work which does not usually require a licence from HSE
Removing sprayed coatings (limpet asbestos) Removal or other work which may disturb pipe lagging Any work involving loose fill insulation Work on millboard Cleaning up significant quantities of loose/fine debris containing ACM dust (where the work is not sporadic and of low intensity, the control limit will be exceeded or it is not short duration work) Work on AIB, where the risk assessment indicates that it will not be of short duration	Small, short duration maintenance tasks where the control limits will not be exceeded Removing textured decorative coatings by any suitable dust-reducing method Cleaning up small quantities of loose/fine debris containing ACM dust (where the work is sporadic and of low intensity, the control limit will not be exceeded and it is short duration work) Work on asbestos cement products or other materials containing asbestos (such as paints, bitumen, resins, rubber, etc) where the fibres are bound in a matrix which prevents most of them being released (this includes, typically, aged/weathered AC) Work associated with collecting and analysing samples to identify the presence of asbestos

Asbestos Management Plan and Register



Health and Safety
Executive

Checklist for 'Managing my asbestos'

The web pages to help you to carry out your 'duty to manage asbestos' can be found at <http://www.hse.gov.uk/asbestos/managing/index.htm>

Use this checklist to mark your progress

1. Introduction ☐
Overview of the scheme, Checklist
2. Are you responsible for maintenance or repair? ☐
Does the duty to manage apply to you and your premises?
3. When was it built? ☐
Was it built before 2000, are you on a brownfield site or do you use old equipment?
4. What information do you have already? ☐
Look at building plans, previous asbestos surveys and any other relevant documents.
5. Inspect your building ☐
Create an asbestos register to list where asbestos may be present.
6. Determining priorities for action ☐
Use a scoring tool to work out what needs doing first.
7. Decide how to deal with the different types of asbestos ☐
Use the online tool on how to treat the different types of asbestos, eg sprayed asbestos, asbestos cement.
8. Write your asbestos management plan ☐
The plan brings together your asbestos register, plans of work and schedule.
9. Testing for asbestos ☐
If work is required, you need to test for asbestos first.
10. Tell people what you're doing ☐
You need to tell employees, contractors and maintenance workers about your findings.
11. Getting work done ☐
Does the work need a licensed contractor?
12. Keep your records up to date ☐
If any work is done on asbestos, your records need updating, and you need regular checks on the state of the asbestos.



Health and Safety
Executive

Example asbestos register

Company name: LMN Engineering Ltd

Address: Unit 3A, Trading Estate West, Anytown XX9 9YY

Where	Product	How much?	Surface coating	Condition	How easy access?	Asbestos type	Comment	Material score	Priority score
<u>Outside</u>									
Roof	Asbestos cement	Whole roof	None	Fairly good	Difficult	White?	No sample	1	1
Down-pipe	Asbestos cement	4 x 4 metres	None	One broken	Medium	Don't know = presumed	No sample	5	6.2
<u>Inside</u>									
Plant room	Board panels	43 sq metres	Emulsion paint	Good	Easy	Presumed	No sample	1	1
Plant room	Pipe - insulation	15 metres	Gloss paint	Cracked	Medium	Brown	Bit that fell off analysed	8	12
Plant room	Gas boiler	Don't know	Metal case	Don't know	Difficult	Presumed	No sample	7	10.5
Plant room	Cement flue from boiler	5 metres	None	Good	Medium	White?	No sample	1	1
Plant room	Electrical switch-box	One item	None	Crumbling	Medium	White?	No sample	7	10.5
Store	Ceiling tiles	72 tiles, 50x50 cm	Emulsion on lower face	Medium	Medium	Presumed	No sample	5	9.3
Store	Cushion floor tiles	6 x 3 m	Vinyl over asbestos paper	Chipped tile by door	Easy	White?	No sample	5	11.3
Store	Above tiles	18 sq metres	Unknown	Unknown	Difficult	Presumed	No sample	1	1
Office 1 fire door	Door	4 sq m	None - board in the door	Good	Medium	Presumed	No sample	1	1
Office 2 fire door	Door - board screwed on	4 sq m	Gloss paint	Medium	Easy	Presumed	No sample	6	11.7
Anneal oven	Asbestos rope	3 m	None	Medium	Easy	White	No sample	7	14.8
Anneal oven	Asbestos gloves	1 pair	None	Poor	Easy	White	No sample	7	16.2
<u>Other</u>									
Delivery van	Brakes	4 sets	None	Fair	Difficult	White?	No sample	1	1

Name: T Smith, works engineer

Date: 12 December 2007

Check date: December 2008

<http://www.hse.gov.uk/asbestos/assets/docs/registercores.pdf>

Refurbishment and Demolition Survey (R&D)

Cardiff County Council (Strategic Estates, Fairwater Day Centre and Meals on Wheels, Plas-Economic Development)
Mawr Road, Cardiff CF5 3JU
UPRN No: SD11N

REFURBISHMENT SURVEY
REPORT, ASSESSMENT AND REGISTER
OF
ASBESTOS CONTAINING MATERIALS
AT
FAIRWATER DAY CENTRE AND MEALS ON
WHEELS, PLAS-MAWR ROAD, CARDIFF,
CF5 3JU
FOR
CARDIFF COUNTY COUNCIL (STRATEGIC
ESTATES, ECONOMIC DEVELOPMENT)



J016545

MARCH 2018

Enquin Environmental Limited
1 Ringside Business Centre
Heol-y-Rhosog
Wentloog
Cardiff
CF3 2EW

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Appendices

Appendix A – Certificates of Bulk Fibre Analysis

Appendix B – Photographs

Appendix C – Plans

1. EXECUTIVE SUMMARY

- 1.1 The following products containing, strongly presumed or presumed to contain asbestos were identified at the building which will require interim management and/or control actions applied.

(Further detailed information and recommendations on each product can be found within Section 5)

Products which are Licensable:

Product	Location
Insulating board	Ground Floor, G31 Store

Any removal or work that is likely to disturb the products above must be undertaken by a contractor licensed under the provision of The Control of Asbestos Regulations 2012.

Products which are Non Licensable:

Product	Location
Bitumen	Ground Floor, G02 Corridor; Ground Floor, G03 Disabled WC; Ground Floor, G04 Cloaks; Ground Floor, G05 Bathroom; Ground Floor, G06 Male Toilets; Ground Floor, G07 Female Toilets; Ground Floor, G08 Hairdresser; Ground Floor, G09 Office; Ground Floor, G11 Laundry; Ground Floor, G15 Kitchen; Ground Floor, G16 Food Store; Ground Floor, G17 Food Store; Ground Floor, G18 Food Store; Ground Floor, G19 Lounge / Dining Room; Ground Floor, G21 Store; Ground Floor, G22 Corridor; Ground Floor, G24 Staff WC
Textured Coating	Ground Floor, G02 Corridor; Ground Floor, G03 Disabled WC; Ground Floor, G04 Cloaks; Ground Floor, G05 Bathroom; Ground Floor, G06 Male Toilets; Ground Floor, G07 Female Toilets; Ground Floor, G08 Hairdresser; Ground Floor, G09 Office; Ground Floor, G11 Laundry; Ground Floor, G16 Food Store; Ground Floor, G17 Food Store; Ground Floor, G20 Lounge; Ground Floor, G22 Corridor; Ground Floor, G24 Staff WC; Ground Floor, G25 Store; Ground Floor, G27 Kitchen
Vinyl and bitumen	Ground Floor, G12 Staff Room; Ground Floor, G13 Store; Ground Floor, G20 Lounge

It is not a legal requirement that the removal or any work that is likely to disturb the products above be undertaken by a licensed contractor. However, it must be undertaken in accordance with The Control of Asbestos Regulations 2012. Please note that there may be a requirement to notify some works undertaken on these products as 'notifiable' non-licensed work.

1.2 Areas not accessed

Inspection Number	Location/Description	Comments	Recommendations
Inspection 41 Presumed	Ground Floor, G26 Office, No access	Key not provided for survey	Survey prior to works
Inspection 42 Presumed	Ground Floor, G28 Store, No access	Key not provided for survey	Survey prior to works
Inspection 45 Presumed	Ground Floor, G29 Cold Room, No access	Key not provided for survey	Survey prior to works

3. GENERAL SITE AND SURVEY INFORMATION

3.1 Limitations

All reasonably accessible areas of the building were surveyed. While our surveyors have endeavoured to inspect all elements, some materials may be present within the structure in locations where structural damage would be beyond reasonably practicable on the grounds of health and safety risk to the users of the building and survey staff and may only come to light during major refurbishment or demolition. Unless otherwise stated concrete floor slabs and foundations have not been intrusively accessed. It is recommended that an appropriately trained person is in attendance during any future activities that may disturb these areas to identify any suspect materials that may be uncovered.

The results of sample analysis refer specifically to the samples taken from the location defined on the Certificate of Analysis. Experience has shown that materials can vary greatly in relatively short distances from sample points.

At the time of the survey, access was not reasonably possible to certain areas:

These are listed in section 6, ACMs should be presumed to be present within these areas until they have been inspected.

3.2 Method and Results of Bulk Analysis

The bulk samples taken were analysed by Enquin Environmental Limited, UKAS accreditation number 2604 in accordance with HSG 248 Appendix 2 "Asbestos in Bulk Materials Sampling and Identification by Polarised Light Microscopy (PLM), published by the Health and Safety Executive. Bulk certificates are included in appendix A.

To minimise the risk of exposure to fibres and damage to decorations or fabric of the area surveyed, not all suspected ACMs may have been sampled. Some may have been strongly presumed or presumed to contain or not to contain asbestos.

Strongly presumed refers to where the Surveyor has good cause to suspect that a material is, or is not asbestos, but sampling and laboratory identification has not been undertaken to confirm this. Examples of this include the situation where similar material present within a building has been sampled and laboratory identification has confirmed that asbestos was or was not detected.

Presumed refers to where there is insufficient evidence to suggest a material / area does not contain asbestos. For example, where a sample has not or cannot be taken and there is no reasoned argument to suggest that the material does not contain asbestos.

No Asbestos Detected refers to where, upon analysis, the sample was found not to contain asbestos.

4. EXPLANATION OF RISK SCORES

The **material** risk ratings have been calculated using algorithms detailed in HSG264 Asbestos: The survey guide. The ratings are based on;

- Product type
- Damage/deterioration
- Surface treatment
- Asbestos type

High Risk	=≥10
Medium Risk	=7 - 9
Low Risk	=5 - 6
Very low Risk	=2 - 4

Priority risk ratings have been calculated using algorithms detailed in HSG 227 (A comprehensive guide to managing asbestos in buildings). The ratings are based on;

- Normal occupant activity
- Likelihood of disturbance
- Human exposure potential
- Maintenance activity

High Risk	=≥10
Medium Risk	=7 - 9
Low Risk	=5 - 6
Very low Risk	=2 - 4

A **total risk** rating is then calculated by adding together the material and priority ratings.

High Risk	=≥15
Medium Risk	=9 - 14
Low Risk	=5 - 8
Very low Risk	=≤4

Example of a section of the asbestos register (found in Section 5) showing how the above parameters are inserted into the table.

Extent, condition, surface treatment and other comments	Material Risk Rating		Priority Risk Rating		Total Risk Rating
	Product type		Normal occupant activity		
	Damage/deterioration		Likelihood of disturbance		
	Surface treatment		Human exposure potential		
	Asbestos type		Maintenance activity		

5. **MATERIALS CONTAINING / STRONGLY PRESUMED / PRESUMED TO CONTAIN ASBESTOS REQUIRING REMOVAL (if likely to be disturbed)**

Inspection Number	Location, position and description	Product	Extent, condition, surface treatment and other comments	Material Risk Rating		Priority Risk Rating		Total Risk Rating	Interim management recommendations prior to refurbishment / demolition
Inspection 3 AW001409	Ground Floor, G02 Corridor, Textured coating to plasterboard ceiling	Textured Coating	Approximately 98m ² Good Condition Reinforced composite material	1	2 Very Low	1	6 Low	8 Low	Manage asbestos containing material (ACM) in place
				0		2			
				0		2			
				1		1			
Inspection 4 AW001410	Ground Floor, G09 Office, Textured coating to plasterboard ceiling	Textured Coating	Approximately 20m ² Good Condition Reinforced composite material	1	2 Very Low	1	7 Medium	9 Medium	Manage asbestos containing material (ACM) in place
				0		2			
				0		3			
				1		1			
Inspection 5 AW001411	Ground Floor, G09 Office, Bitumen below carpet	Bitumen	Approximately 20m ² Good Condition Reinforced composite material	1	2 Very Low	0	3 Very Low	5 Low	Manage asbestos containing material (ACM) in place
				0		2			
				0		0			
				1		1			
Inspection 6 AW001412	Ground Floor, G08 Hairdresser, Textured coating to plasterboard ceiling	Textured Coating	Approximately 15m ² Good Condition Reinforced composite material	1	2 Very Low	1	6 Low	8 Low	Manage asbestos containing material (ACM) in place
				0		2			
				0		2			
				1		1			



1 Ringside Business Centre, Heol Y Rhosog, Wentloog, Cardiff, CF3 2EW
Telephone: 02920 535 090 Facsimile: 02920 778 633 E-mail: admin@enquin.co.uk

CERTIFICATE OF BULK FIBRE ANALYSIS



2604

Client Name & Address: Cardiff County Council (Strategic Estates, Economic Development),
County Hall, Atlantic Wharf, Cardiff,
CF10 4UW

Site Address: Fairwater Day Centre and Meals on Wheels, Plas-Mawr Road, Cardiff,
CF5 3JU

Reference: J016545. Inspection 1 AW001408 - Inspection 59
AW001436.

Date received or date of sampling: 12th March 2018

Date Analysed: 4th April 2018 - 5th April 2018

Sample taken by: Jon Trimble

Analyst: Michael Clubb

Laboratory or Site Sample number	Origin of sample/ Location/Client reference/Description	*Type of product	Content
Inspection 1 AW001408	Ground Floor, G10 Lobby, Bitumen debris on top of timber ceiling within ceiling void	Bitumen	No Asbestos Detected
Inspection 3 AW001409	Ground Floor, G02 Corridor, Textured coating to plasterboard ceiling	Textured Coating	Chrysotile
Inspection 4 AW001410	Ground Floor, G09 Office, Textured coating to plasterboard ceiling	Textured Coating	Chrysotile
Inspection 5 AW001411	Ground Floor, G09 Office, Bitumen below carpet	Bitumen	Chrysotile
Inspection 6 AW001412	Ground Floor, G08 Hairdresser, Textured coating to plasterboard ceiling	Textured Coating	Chrysotile

Signed (Analyst):

Date: 9 April 2018

Signed (approved):

Date: 9 April 2018

Print: Natalia Ortiz

Senior Analyst

Comments/Details of Sample Preparation: Final Certificate

ALL ANALYSIS IN ACCORDANCE WITH HSG 248 APPENDIX 2 ASBESTOS IN BULK MATERIALS SAMPLING AND IDENTIFICATION BY POLARISED LIGHT MICROSCOPY (PLM) 2005 AND DOCUMENTED IN-HOUSE PROCEDURE DETAILED IN ASBESTOS PROCEDURES MANUAL, SECTION 3
ENQUIN ENVIRONMENTAL ACCEPT NO RESPONSIBILITY FOR SAMPLES TAKEN BY 3rd PARTIES

*OPINIONS AND INTERPRETATIONS EXPRESSED HEREIN ARE OUTSIDE THE SCOPE OF UKAS ACCREDITATION

Form EQ25T

Revision 1

Date: 13/02/2013

**Photo
Reference:**

Inspection 5 AW001411

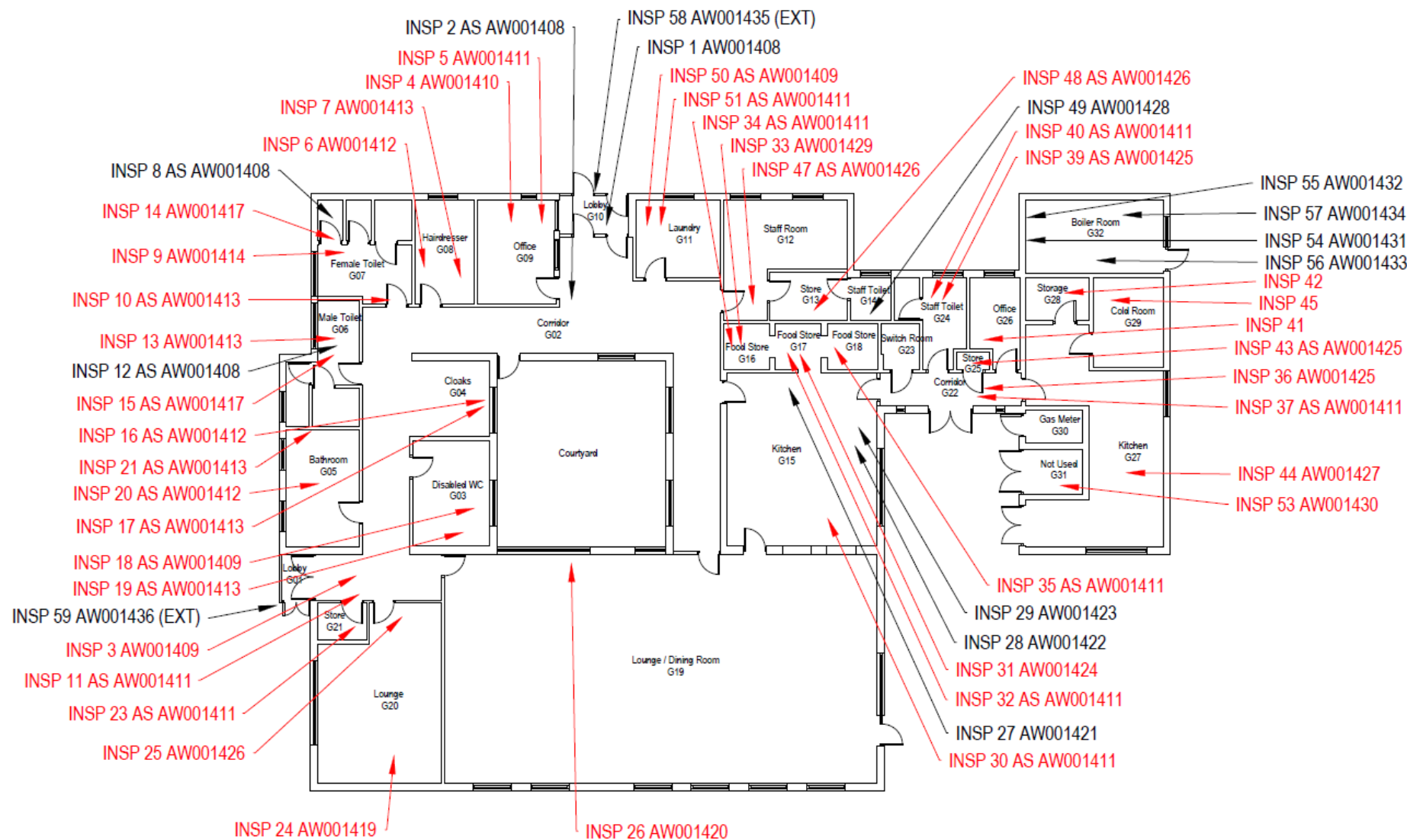


**Photo
Description:**

Ground Floor, G09 Office - Bitumen below carpet - asbestos detected

Photo Reference:	Inspection 6 AW001412
	
Photo Description:	Ground Floor, G08 Hairdresser - Textured coating to plasterboard ceiling - asbestos detected

Key: ● or —

ASBESTOSSEE REPORT FOR DETAILS &
COUNCIL POLICY FOR GUIDANCE**CAUTION**IT MUST BE ASSUMED THAT
PLASTIC FLOOR TILES & ARTED
FINISHES CONTAIN ASBESTOS

GROUND FLOOR PLAN



PLANNING

Research, analysis,
and decision making.

List groups or people especially at risk from the significant hazards which you have identified:	RISK	List existing controls here – or note where the information may be found:	Describe the action needed to improve matters where it is reasonably practicable to do more to control risks. Specify also the target date for action and the person to action.	Residual risk
Office staff	Med	Staff required to observe corporate policy on use of ladders. Code of Guidance on use of Ladders Existing rules to be observed when using ladders for surveys:- - Ladders to be used in low risk situations for a short duration of time ~~is~~ not exceeding 30mins and for access only - Avoid use if practicable, consider use of alternatives e.g towers, scaffolding, Mobile elevating work platforms (MEWPs). - Ladders to be prevented from use by unauthorised people e.g in particular care should be taken when using ladders in school environments. - Minimum of two people to undertake survey that involves use of ladder. - Ladders to be lashed whenever possible, if not, then ladder to be footed / restrained at all times. - Ladders not to be used in windy, icy or inclement weather. - Ensure surfaces are level and non slip. - Do not impose any side loading on ladder. - Ladder should be erected at an angle of 1 : 4. - Ladder shall extend 1.075m above the exit level. - Use rucksack/shoulder bag. Do not carry anything in hands when climbing ladder. - Staff attention drawn to HSE guidance available at: http://www.hse.gov.uk/pubns/indg455.pdf	Staff awareness training required. Action by management team by May 2019 In house ladders maintained by the structural section to be periodically checked by structural section. Record findings of inspection. May 2019	low
Use of ladders by young or inexperienced staff	High	Work experience school pupils are not permitted to use ladders. Inexperienced staff to be supervised by responsible person at all times.	Responsible person in charge of supervising young or inexperienced staff shall ensure that they are aware of the requirements in the code of guidance and Work Instruction 3.PDD.DC.03	low

Next Week...

**What do you need to capture
as part of a survey?**