

# Asbestos Awareness & Management Training

CHILDREN'S SERVICES

# Introduction

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# Objectives

By the end of the course you will:-

- Have an increased awareness of the nature and properties of asbestos and its effect on health.
- Be familiar with the types, uses and likely occurrences of asbestos in your type of building.
- Know how to avoid the risks from asbestos.
- Have an awareness of the key aspects of the asbestos regulations and how they fit into the broader context of H&S legislation.
- Procedures to be followed when coming into unintentional contact with ACM's and an understanding of emergency arrangements.
- Understand the school's role in managing asbestos including use of the asbestos register and school asbestos management plan

# Control of Asbestos Regulations 2012

- Bans the use of white, brown and blue asbestos and the second hand use of asbestos products (e.g. asbestos cement sheets)
- Aims to increase employer and employee awareness to the presence of asbestos and the risks from work with asbestos
- Requires duty holders to manage asbestos properly in non domestic properties
  - Asbestos management plan
  - Asbestos register for building

# The Control of Asbestos Regulations 2012

Regulation 10 requires every employer to ensure that adequate information, instruction and training is given to their employees who are or who are liable to be exposed to asbestos, or who supervise such employees;

or if that employee supervises such employees

# The Duty to Manage Asbestos

The duty to manage asbestos is contained in regulation 4 of the Control of Asbestos Regulations 2012. It requires the person who has the duty (ie the 'dutyholder') to:

# The Duty to Manage Asbestos

- take reasonable steps to find out if there are materials containing asbestos in non-domestic premises, and if so, its amount, where it is and what condition it is in
- presume materials contain asbestos unless there is strong evidence that they do not
- make, and keep up-to-date, a record of the location and condition of the asbestos- containing materials - or materials which are presumed to contain asbestos
- assess the risk of anyone being exposed to fibres from the materials identified
- prepare a plan that sets out in detail how the risks from these materials will be managed
- take the necessary steps to put the plan into action

# The Duty to Manage Asbestos

- periodically review and monitor the plan and the arrangements to act on it so that the plan remains relevant and up-to-date
- provide information on the location and condition of the materials to anyone who is liable to work on or disturb them



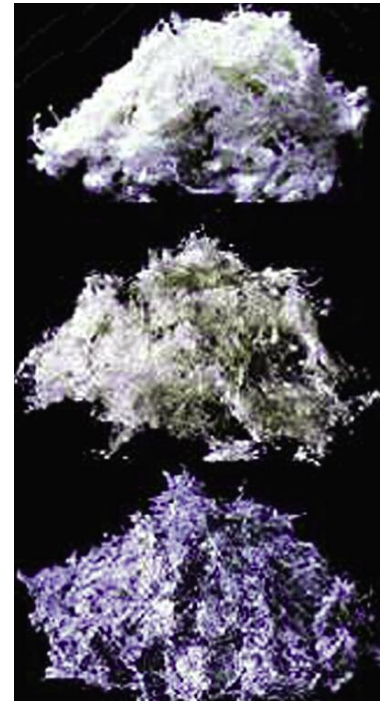
# The Duty to Manage Asbestos

Regulation 5 requires that an employer must not undertake work in demolition, maintenance or any other work which exposes or is liable to expose employees of that employer to asbestos in respect of any premises

# What is Asbestos?

Asbestos is composed of six different types of natural minerals:

- Chrysotile
  - Amosite
  - Crocidolite
  - Tremolite
  - Actinolite
  - Anthophyllite
- Most common types



# What is Asbestos?

- The word "asbestos" comes from the Greek meaning "inextinguishable."
- Asbestos is a serious health hazard commonly found in *our* environment today.
- Employees who may work in buildings that contain asbestos should know where it is found and how to avoid exposure.

# What is Asbestos?

- Properties
  - Versatile
  - Hardwearing
  - High tensile strength
  - Good chemical, electrical and heat resistance
  - Mostly resistant to acids

The general use of asbestos is now banned.

Blue and Brown asbestos banned in 1985, white in 1999

# The History of Asbestos

- Many people believed asbestos a "miracle" product of the 20th century.... **That couldn't be further from the truth.**
- **1st Century AD** Pliny the Elder notes that slaves working in asbestos mines die young of lung disease.
- The Ancient Greeks used asbestos for wicks in lamps (they never burnt away) – the name means *inextinguishable*
- The Romans used asbestos cloth napkins, which were cleaned by throwing them into the fire.

# The History of Asbestos

- Deposits of asbestos are found throughout the world. Russia (largest producer), Canada, South Africa, Australia
- Asbestos is extracted by open cast mining. It is crushed, processed and refined into a wool like fibrous mass
- During the 1950s – 1980s, hundreds of building products contained asbestos
- Asbestos cement products were still in use until 1999
- Use of asbestos products peaked in the Sixties and early Seventies

# Effects of Asbestos on Health

- All types of asbestos are classed as carcinogens.
- Inhalation of fibres causes the most problems
  - As the material breaks down the fibres split lengthways, creating thinner fibrils of the same length
  - The sharp fibres become lodged in lung tissue and can never be removed
- Asbestos fibres cannot be absorbed through the skin
- If swallowed asbestos can cause cancer in bowels
- The risk of adverse effects is much higher for smokers
- Asbestos related diseases can take 15 – 60 years to develop following exposure to fibres

# Effects of Asbestos on Health

- Currently over 5000 deaths per year caused from asbestos-related diseases
- Compare this to just over 3000 killed on the roads each year and consider the differing levels of publicity and media attention!
- Around 20 tradesmen die each week as a result of past exposure
- Asbestos-related diseases are forecast to kill 10,000 people annually by 2020
- Many who die have never directly worked with asbestos or in the building or related trades



# Asbestos Related Diseases

- There are two groups – malignant and non-malignant.
- Non malignant diseases
  - very high exposure
  - Include Asbestosis and Pleural Plaques
- Malignant diseases
  - Indeterminate exposure
  - Include Lung cancer and Mesothelioma

# Remember:

- Asbestos is a naturally occurring substance and everyone is exposed to very small numbers of fibres all the time.
  - Background levels are 0.000001 – 0.0001 fibres/ml. That means 1 fibre or less in 10l of air
- People can only be exposed to fibres if:
  - The material is disturbed / damaged
  - Quantities of fibres are made airborne
  - They breathe the fibres in
- The risk of ill health / death is determined by:
  - Concentration of respirable fibres in the air
  - Duration of exposure to the fibres
  - Level of respiratory protection
  - Number of exposure events, over how long a period of time
  - Type of fibres exposed to

# Uses of Asbestos

- Insulating Board
  - Structural fire protection – on steel work, behind radiators and boilers, inside doors,
  - Also used for acoustic insulation, lining, ceiling tiles, general building board (resists moisture ingress)
  - Up to 85% asbestos, semi compressed so very likely to give off fibres if broken, drilled or sawn
  - Only to be removed by a licensed contractor



# Uses of Asbestos

- Lagging
  - Thermal insulation for pipes/boilers
  - Common lagging up to 15% asbestos
  - Quilts/blankets up to 100% asbestos
  - Often has protective foil, paper or wire covering
  - Only to be removed by a licensed contractor



# Uses of Asbestos

- Asbestos Cement Products
  - Roof sheets, flue pipes, guttering, down comers, roof tiles, permanent shuttering
  - Only 10-15% asbestos (usually white asbestos)
  - Fibres are tightly bound with portland cement so unlikely to give off fibres unless badly damaged
  - Sheets should be removed whole and kept wet



# Uses of Asbestos

- Asbestos Containing Plastics
  - Floor tiles, stair nosings, sink pads, toilet seats and cisterns
  - Can also find asbestos in the adhesive used with floor tiles
  - Up to 25% asbestos
  - Fibre release unlikely under normal use





# Uses of Asbestos

- Asbestos Rope and Cloth
  - Fire blankets, gaskets, cable insulation, flash guards
  - Up to 100% asbestos
  - Release of fibres depends on material
  - Blue asbestos was used in rope and cloth pre 1970



# Uses of Asbestos

- Sprayed Coatings
  - Used as fire protection and acoustic control for structural steelwork.
  - Up to 85% asbestos
  - Fibre release likely if disturbed. Can also degrade as it ages.





# Uses of Asbestos

- Textured Coatings
  - Commonly referred to as ‘artex’.
  - Low percentage of asbestos
  - Fibres may be released if the material is drilled or sanded.



# Uses of Asbestos

- Asbestos Paper Products
  - Backing on fibre boards, floor tiles
  - Covering on electrical equipment insulation, pipe insulation
  - Damp proof course
  
- External Building Panels
  - Asbestos boarding can be used for external cladding



# Asbestos insulating board (AIB)

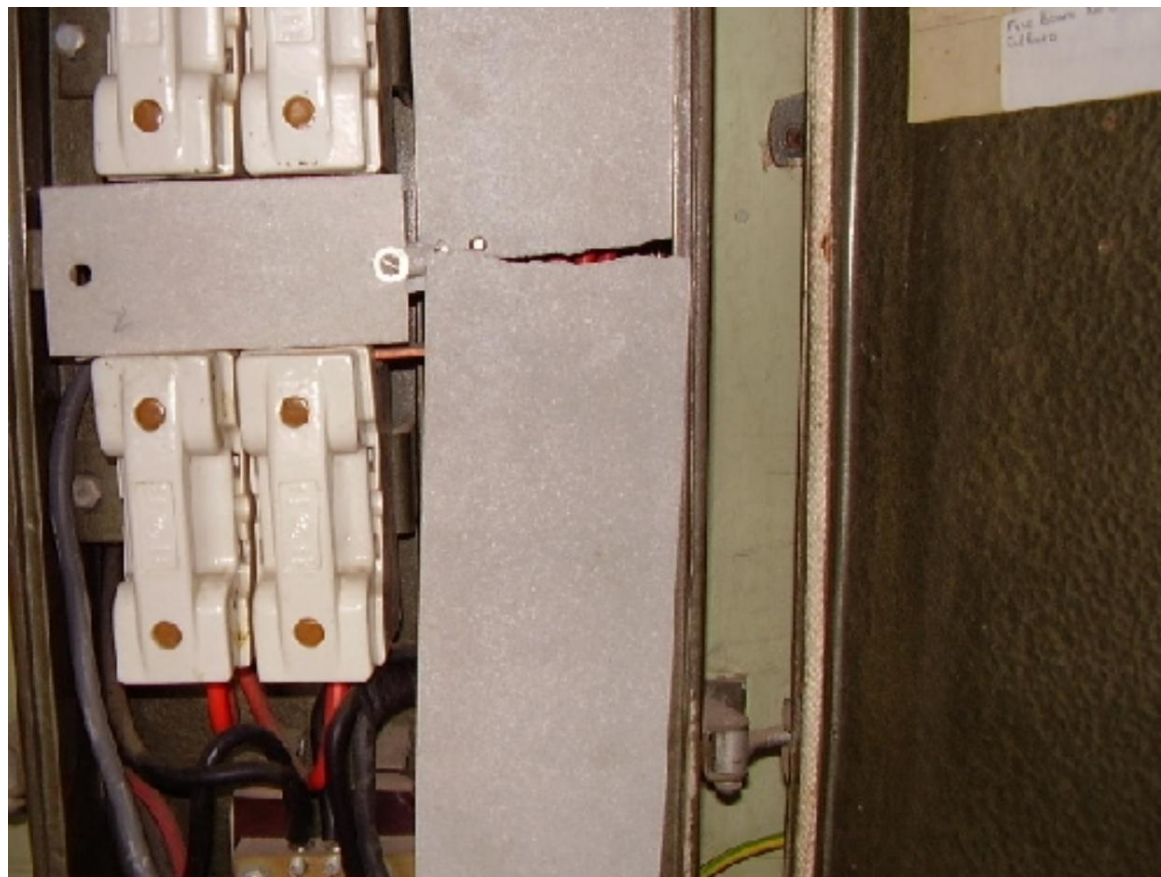


# Asbestos insulating board (AIB)





# Asbestos insulating board (AIB)



# Textiles



# Case Study



# Case Study





# Case Study



# Case Study



# Case Study



# Case Study



# Managing and Working with Asbestos

- Identify whether asbestos is present and determine its type and condition
- Carry out a risk assessment
- Decide if the works need to be carried out by a licenced contractor
- If the work is not licensable, decide if the work needs to be notified
- Ensure those carrying out the work are suitably trained

# Management of Asbestos in Schools - Avoiding the Risks

- Major refurbishment works must not start without a Refurbishment or Demolition (fully intrusive, 'R&D' type) survey to ascertain the presence of asbestos
- Any asbestos in the work area should be removed or protected
- Premises should have asbestos registers – look at them or ask the responsible person where the asbestos is before starting work

1



Item No	Building	Floor	Room/Area	Sub Location	Description
1	H Block	Basement	Boiler Room	Walls	Lagging Residue (small amounts)

Material Score

9

Priority Score



Total





2



Item No	Building	Floor	Room/Area	Sub Location	Description
2	Main building	2nd Floor	Classroom 7	All 4 Walls	Panels

5





## Material Assessment

Product Type	<p>1 - Asbestos reinforced composites (plastics, resins, mastics, roofing felts, thermoplastic floor tiles, semi-rigid paints, decorative coatings, asbestos cement etc)</p> <p>2 - Asbestos insulating board, millboard, other low density boards, textiles, gaskets, rope, woven textiles, asbestos paper and felt.</p> <p>3 - Thermal insulation (e.g. pipe and boiler lagging), sprayed asbestos, loose asbestos, asbestos mattresses or packing.</p>
<b>Extent of Damage</b>	<p>0 - Good condition, no visible damage</p> <p>1 - Low damage: a few scratches or surface marks; broken edges on boards, tiles etc.</p> <p>2 - Medium damage: significant breakage of materials or several small areas where material has been damaged revealing loose asbestos fibres.</p> <p>3 - High damage or delamination of materials, sprays and thermal insulation. Visible asbestos debris.</p>
Surface Treatment	<p>0 - Composite materials containing asbestos: reinforced plastics, resins, vinyl tiles</p> <p>1 - Enclosed sprays and lagging, asbestos insulating board (with exposed face painted or encapsulated), asbestos cement sheets etc</p> <p>2 - Unsealed asbestos insulating board, or encapsulated laggings and sprays</p> <p>3 - Unsealed lagging and sprays</p>
Asbestos Type	<p>1 - Chrysotile</p> <p>2 - All amphibole asbestos including amosite but excluding crocidolite</p> <p>3 - Crocidolite</p>

A total between 2 and 12 points is established for each asbestos containing material.

**The Priority Assessment Algorithm recommended by the HSE.**

**Occupant Activity**

- 0 - Rare disturbance activity (e.g. little used store room)
  - 1 - Low disturbance activities (e.g. office type activity.
  - 2 - Periodic disturbance (e.g. industrial or vehicular activity which may contact asbestos containing material.
  - 3 - High levels of disturbance (e.g. fire door with asbestos insulating board sheet in constant use.
- Secondary activities for area - As above - Use higher number*

**Likelihood of Disturbance**

*Average score from 3 parameters. e.g 1 + 2 + 2 = 5, average = 1.66, round up = 2*

**Location**

- 0 - Outdoors
- 1 - Large rooms or well-ventilated areas
- 2 - Rooms up to 100m<sup>2</sup>
- 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 amount or items (e.g. strings, gaskets)
- 1 - Less than 10m<sup>2</sup> or less than 10m pipe run
- 2 - 10m<sup>2</sup> to 50m<sup>2</sup> or 10m to 5m pipe run.
- 3 - Greater than 50m<sup>2</sup> or greater than 50m pipe run

**Human Exposure Potential**

*Average score from 3 parameters. e.g 1 + 2 + 2 = 5, round up = 2*

**Number of Occupants**

- 0 - None
- 1 - 1 to 3
- 2 - 4 to 10
- 3 - Greater than 10

**Average time area is in use**

- 0 - Less than 1 hour
- 1 - Greater than 1 hour and less than 3
- 2 - Greater than 3 and less than 6
- 3 - Greater than 6

**Frequency of use or area**

- 0 - Infrequent
- 1 - Monthly
- 2 - Weekly
- 3 - Daily

**Maintenance Activity**

*Average score from 2 parameters. e.g 1 + 2 = 3, average = 1.5, round up = 2*

**Type of maintenance activity**

- 0 - Minor disturbance (e.g. possibility of contact when gaining access)
- 1 - Low disturbance (e.g. changing light bulbs in asbestos insulating board ceiling)
- 2 - Medium disturbance (e.g. lift one of two asbestos insulating board ceiling tiles to access a valve)
- 3 - High levels of disturbance (e.g. removing a number of asbestos insulating board ceiling tiles to replace a valve or for re-cabling)

**Frequency of maintenance activity**

- 0 - Asbestos containing material unlikely to be disturbed for maintenance
- 1 - Less or equal to 1 per year
- 2 - Greater than 1 per year
- 3 - More than 1 per month

1



Item No	Building	Floor	Room/Area	Sub Location	Description	Material Score	Priority Score	Total
1	H Block	Basement	Boiler Room	Walls	Lagging Residue (small amounts)	9	4	13

2



Item No	Building	Floor	Room/Area	Sub Location	Description	Material Score	Priority Score	Total
2	Main building	2nd Floor	Classroom 7	All 4 Walls	Panels	5	6	11

# Priorities for Action

## High Risk - Assessment score equal to or greater than 15

Situations in this category warrant urgent consideration. Exposure will vary according to local conditions – for example, the intensity of use of the room or the nature of airflow and movement around a damaged ACM. In most circumstances immediate plans for removal of the asbestos concerned should be implemented, or at least the rapid sealing of the affected area.

## Medium Risk - Assessment score 10 – 14 inclusive

Situations within this category do not pose an imminent risk and likelihood of fibre release is low under existing conditions. It would be most appropriate to monitor the situation, as deterioration may occur over time. In these situations, it may be necessary for the asbestos to be removed on a programmed basis; emergency repair and sealing operations should be undertaken where any deterioration or damage occurs.

Materials within this category should be inspected on an annual basis to ascertain any change in circumstances, which could require reassessment of priority rating.

## Low Risk - Assessment score 0 – 9 inclusive

Situations within this category are low priority. Materials within this category should be inspected on an annual inspection cycle to ascertain any change in category.

# Contractor Procurement

- Risk from maintenance contractors
- Procurement of a competent contractor
- Completion of Hazard ID
- Follow procedures in accordance with Asbestos Management Plan
- Method Statement & Risk Assessment

# When should asbestos be removed?

- It has been damaged
- It is starting to deteriorate
- Is interfering with other proposed works

# Related Legislation and Guidance

- **Asbestos – legislation and guidance**
- *Work with materials containing asbestos. Control of Asbestos Regulations 2012. Approved Code of Practice and guidance L143*
- *Managing health and safety in construction. Construction (Design and Management) Regulations 2015.*
- A comprehensive guide to managing asbestos in premises HSG227
- *A short guide to managing asbestos in premises Leaflet INDG223(rev4)*
- *Asbestos: The licensed contractors' guide HSG247*
- *The management of asbestos in non-domestic premises. Regulation 4 of the Control of Asbestos Regulations 2012. Approved Code of Practice and guidance L127 (Second edition)*
- *Health and Safety at Work etc Act 1974 (c.37) The Stationery Office 1974*
- *Management of health and safety at work. Management of Health and Safety at Work Regulations 1999. Approved Code of Practice and guidance L21 (Second edition)*



# Related Legislation and Guidance

- BS EN ISO/IEC 17020:2004 *General criteria for the operation of various types of bodies performing inspection* British Standards Institution
- BS EN ISO/IEC 17024:2003 *Conformity Assessment. General requirements for bodies operating certification of persons* British Standards Institution
- BS EN ISO 9001:2008 *Quality management systems. Requirements* British Standards Institution
- BS 6002-4:2006 ISO 3951-5:2006 *Sampling procedures for inspection by variables. Sequential sampling plans indexed by acceptance quality limit (AQL) for inspection by variables (known standard deviation)* British Standards Institution
- BS EN ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories* British Standards Institution
- *Asbestos in system buildings: Control of Asbestos Regulations 2006. Guidance for duty holders* HSE 2008
- *Asbestos: The analysts' guide for sampling, analysis and clearance procedures*
- HSG248

# Related Legislation and Guidance

- *Asbestos: The analysts' guide for sampling, analysis and clearance procedures* HSG248
- *BS EN 60335 Specification for safety of household and similar electrical appliances* British Standards Institution
- *Asbestos essentials: A task manual for building, maintenance and allied trades on non-licensed asbestos work* HSG210 (Second edition)
- *Accreditation of bodies surveying for asbestos in premises* Edition 2 RG8 8/8
- UKAS 2008 (for the application of ISO/IEC 17020)
- *Working with asbestos cement* HSG189/2
- *Health and safety in roof work* HSG33 (Second edition)
- *Control of substances hazardous to health (Fifth edition). The Control of Substances Hazardous to Health Regulations 2002 (as amended). Approved Code of Practice and guidance* L5 (Fifth edition)

# Related Legislation and Guidance

- PAS 60-1: 2004 *Equipment used in the controlled removal of asbestos containing*

*materials. Controlled wetting of asbestos-containing materials.*

- *Specification* British Standards Institution

- *Fit testing of respiratory protective equipment face pieces* OC 282/28

PAS 60-3: 2004 *Equipment used in the controlled removal of asbestos containing materials. Operation, cleaning and maintenance of class H vacuum cleaners. Code of practice* British Standards Institution

PAS 60-2: 2004 *Equipment used in the controlled removal of asbestos containing materials. Negative Pressure Units. Specification* British Standards Institution

- BS EN ISO 13982-1: 2004 *Protective clothing for use against solid particulates. Performance requirements for chemical protective clothing providing protection to the full body against airborne solid particulates (type 5 clothing)*

British Standards Institution

# Who should remove asbestos?

- A licensed asbestos removal contractor  
For many types of asbestos, legislation requires this
- Even when not required, a licensed contractor is recommended.

# Why use a Licensed Contractor?

- Ealing's Code of Practice stipulates it
- The relative cost of limiting risk
- Better training
- More experience
- Better equipment
- Better techniques
- Insurances and indemnities
- Licensed to carry waste

# When may an 'unlicensed' contractor remove asbestos in Ealing's schools

- A mechanical contractor removing a pipe flange gasket
- A demolition contractor removing an old DPC
- An electrician removing a fuse carrier
- All the above tasks should be carefully planned and executed using techniques and equipment suggested by the HSE
- All waste properly disposed of
- 'Unlicensed' does not mean 'untrained'

# When should removal take place?

- Generally 'out of school hours'
- Small scale removals or remediations at the weekend or evening
- Larger more complex removals during school holiday periods
- Air monitoring often performed outside the enclosures to demonstrate the effectiveness of control measures in place



# What should be available at the completion of the task?

- A clean, tidy, safe area
- Certificates of 'Re-occupation' from an independent air testing laboratory
- Waste transfer certificates
- All appended to the site's 'Asbestos Management Plan'
- The 'Plan' to be duly amended

## If instructed, the PSDU will;


- Determine if asbestos requires removal
- Specify the scope and extent of the asbestos removal
- Procure licensed removal contractor(s)
- Specify and procure remedial/ reinstatement works
- Ensure necessary notifications and consents are provided or sought
- Inspect method statements and risk assessments prior to the removal exercise
- Inspect and monitor the works whilst in progress
- If required update the school's AMP

# Emergency Procedures

- If you discover or disturb asbestos
  - Stop work immediately
  - Prevent access to the area
  - Ensure material is not disturbed
  - Report to your asbestos advisor (LBE or PSDU in most cases).

# Schools Asbestos Management Plans

- Duty Holder/Responsible Person
- Inspections and Updating of the Plan
- Managing Contractors
- Arranging R&D surveys

Sample	Building	Floor	Room	Position	Item Description	Conclusion	Condition	Assessment Scores			Risk Code	
								Material	Priority	Total		
B023 / BAB1 / 3 /057	Reception Block	Ground	G/002	Door	Cement	Amosite	Good Condition	4	5	9		
						Low Risk						
Recommendations						Details of Action			Action Timescale	Date Action Completed	Routine Inspection Due	
Label with warning signs as designated in the LBE Asbestos Code of Practice.									Immediate		22/12/10	
Low Risk ACM (Bound in Matrix). Undertake routine inspections for damage, deterioration and labelling.									Immediate		22/12/10	
Where damaged, remove or repair in accordance with CAR2006. Reg 3(2) and LBE Asbestos Code of Practice.												

**MATERIAL ASSESSMENT SHEET**

**SITE / AREA / INSPECTION DETAILS**

<b>Client:</b>	London Borough of Ealing	<b>Area No:</b>	010
		<b>Floor:</b>	Ground
<b>Site Address:</b>	Castlebar, Hathaway Gardens, Ealing, W13 0DH	<b>Area Description:</b>	WC
<b>Building:</b>	07	<b>Material Description:</b>	Cement ceiling panel
<b>Building Address:</b>		<b>Survey Report Reference:</b>	ASO1149-007-001



**ASSESSMENT**

**Material Risk:** 0  
**Asbestos Type:** 0 - No asbestos detected

**Product Type:**

**Extent of Damage:** Not asbestos

**Surface Treatment:**

**Priority Risk:** 0

**Normal Occupant Activity:**

**Likelihood of Disturbance:**

**Human Exposure Potential:**

**Maintenance Activity :**

**Sample Reference No:** 003  
**Position:** Internal  
**Approx Size of Item:** 6 m<sup>2</sup>

**COMMENTS AND RECOMMENDATIONS:**

**Timescale for Recommendation :** No action

**Recommendation:** No further action required

**Comments:** No further action required

**Total Risk Score:** 0

## Asbestos Log Sheet and Inspection Record.

For all asbestos related actions, incidents and inspections.

Date	Description of Action or Inspection	Action by	Issues Found	Further Actions Taken
01/07/15	Asbestos inspection of items in the North Block	Peter Andrews	None	Photos taken and added to folder.
02/07/15	Inspections of 14 items in the South Block	John Smith	Cracked panel (Item 112)	Updated assessment, informed Dave Morgan. Applied tape to seal. Added photo to folder. Inspection frequency for similar items reduced to monthly.
14/07/16	Inspected condition of highest priority items throughout the school. 8 Items.	A. Jones	Pins in board (item 87) below window in classroom C2.	Referred to HSE guidance A6. Wetted area and carefully removed pins and later sealed with paint. Advised head to inform teachers of the issue.
15/08/16	Inspection of sub window panels	J Smith	None.	
16/09/16	Inspection of sub window panels	J Smith	None.	
12/10/16	Inspection of sub window panels	J Smith	None.	
15/11/16	Inspection of sub window panels	J Smith	None.	
21/01/17	Inspection of sub window panels	J Smith	None.	
24/01/17	Obtaining quotes for removal of 6 panels.	J Smith	None.	
29/01/17	Updated asbestos management plan.	A Jones	None. No significant changes.	
12/04/17	Removal of asbestos floor tiles in the kitchen. (item 23 in the management plan).	Slightly Dodgy Asbestos Ltd		Requested removal paperwork and updated management plan.
12/04/17	Removal of window panels	Slightly dodgy Asbestos Ltd		As above.

# SUMMARY & DISCUSSION

- Duty Holder
- Uses of Asbestos
- Managing the Risks
- Emergency Procedures



For further information contact

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