

MMU - Righton Basement Asbestos removal project

To give context to the asbestos containing material (ACM) which has been identified within Righton basement - Thermal insulation which has been analysed and found to contain asbestos type Amosite (Brown asbestos). This material is a licensed material and was commercially used in the UK from the late 1800's with peak use between 1920 until 1985 when Amosite usage was banned in the UK. Asbestos insulation is a friable material, so it very easily loses its tensile strength and crumbles and at this point asbestos fibres become airborne and dispersed into the atmosphere.

This material would have been installed to the original boiler, heating system and associated services throughout the footprint of the basement and penetrating above to ground level. The method of installation was hand applied, carried out by an operative mixing a bag of loose asbestos fibres with paste and moulding these by hand around these services to provide thermal production to keep heat in and stop heat escaping.

An example of thermal insulation in good condition installed to M&E services



An example of thermal insulation in poor condition in situ



When this wet product was originally applied onto a hard surface such as boiler plates & pipework it would have splattered and migrated to all adjacent surface's. This is evident from the asbestos survey information that the University has on record which has identified asbestos debris to high level such as columns tops, timber beams, tops of perimeter walls and where accessible asbestos has been sampled above the original ceiling within the void. Some of these sample extracts taken from survey reports are below.

Sample Comments	
Insulation residue to column above plasterboard ceiling	
Material	
Insulation residue	
Extent	Material Location
Small amounts	To column above plasterboard ceiling
Analysis Results	Amosite



Main building - Basement - B02 - Debris to top of 6th column from goods lift on left hand side when facing goods lift.	
Laboratory sample no:	DH000974
Moderate	
Debris (3)	
less stated)	Small amounts
Chrysotile + Amosite (2)	
High damage (3)	Surface Treatment: Unsealed (3)



Sample Comments	
Insulation residue to column	
Material	
Insulation residue	
Extent	Material Location
Small amounts	To column
Analysis Results	Amosite & Chrysotile



Main building - Basement - B02 - Residual insulation to timber beam at ceiling level next to 5th column from goods lift on left hand side when facing goods lift.	
Laboratory sample no:	DH000973
Moderate	
Residual insulation (3)	
less stated)	Small amounts
Amosite (2)	
Medium damage (2)	Surface Treatment: Unsealed (3)



Sample Comments	
Insulation residue to top of the column	
Material	
Insulation residue	
Extent	Material Location
Small amounts	To top of the column
Analysis Results	Amosite



Sample Comments	
Insulation residue to top of the wall	
Material	
Insulation residue	
Extent	Material Location
Small amount	To top of the wall
Analysis Results	Amosite & Chrysotile



Upon removal of the underpinned modern board this uncovered historic penetrations for services and failed sections lath and plaster. Upon inspection above these (where possible without causing further damage to L&P) further asbestos contamination has been identified as shown below;

Insulation debris to lath, damaged encasement/moulding to steel work adjacent penetration, residual insulation to beam, general photo of void



As part of any licensed asbestos abatement project this is subject to a 4th stage clearance procedure and the work area inspected by a UKAS accredited asbestos consultant in line with Control of Asbestos regulation (CAR 2012) before an area is signed off for reoccupation.

The process consists of the following four stages:

- Stage 1: A preliminary check of site condition and job completeness
- Stage 2: A thorough visual inspection inside the enclosure/work area
- Stage 3: Air monitoring inside the enclosure with disturbance of surfaces
- Stage 4: Final visual assessment of the work area after dismantling the enclosure

All 4 stages are critical however the crucial points are stage 2 (through visual inspection) and stage 3 (Disturbance Air monitoring) as the work area cannot be signed off for reoccupation without these locations reaching standards required.

Stage Two: Thorough visual inspection

This is the stage at which the thorough visual inspection of the enclosure or work area takes place to make sure that as far as reasonably practicable all areas and surfaces within the enclosure are free of any debris, dust and fibrous materials. The removal process will have caused spread of asbestos dust and debris inside the enclosure, allowing possible deposits on any surfaces. Residual dust may still remain on any difficult to access locations.

Any remaining asbestos dust will present a risk when the enclosure is removed. It will present a persistent uncontrolled risk to any subsequent workers, maintenance staff, cleaners and occupants who may disturb the asbestos. Therefore a thorough visual examination of all surfaces is the most significant part of the clearance procedure. This also includes any areas that have been opened up or exposed during asbestos removal such as ceiling voids.

Stage 3: Clearance indicator air sampling for the Certificate for Reoccupation

Air sampling takes place after the thorough visual inspection (stage 2). The airborne fibre concentration is monitored during simulated worst-case disturbance of surfaces inside the enclosure. The resultant airborne fibre level must be below <0.010 f/ml. The purpose of the simulation is to ensure that the risk from any remaining non-visible residual surface dust will not give rise to airborne short-term peak fibre concentrations above 0.010 f/ml such as dismantling the enclosure and from future activities such as cleaning and maintenance work.

The monitoring is accompanied by activities which raise dust from the surfaces to a level consistent with normal ambient use of the area and possible future work activities. This activity during stage 3 involves a simulated brush disturbance to create this level of airborne particles. This involves all surfaces and services to be subjected to this type of disturbance. See figure adjacent as an example.

As asbestos materials have been identified within void area and to the surrounding high-level surfaces this would not have been the substrate for original installation and evidence of migration either at the point of installation or subsequent removal. Asbestos removal regulations did come into force until 1983 so any historic maintenance activity or M&E upgrade would very likely have not considered any asbestos control measures.

If lath and plaster ceiling is not granted consent to be removed in full this will have implications for sign off for at stage 2 (visual inspection) and stage 3 (disturbance air test) which will result in the University receiving a clearance certificate with caveats that states that contamination remains to high level. The area cannot be signed off until the air test is below the required limit of detection (0.01f/ml) with the known contamination present above the void and open penetrations in place these will require sealing to pass the required air test.

These penetrations and openings will require sealing with a suitable material for segregation, commonly across the industry when this situation occurs the materials utilised are a modern fibreboard or Rockwell fire batt. This will hinder any future maintenance activities just as the boiler replacement scheme which is currently been designed as any activities to high level will require a licensed asbestos contractor to complete these work and as thermal Insulation is a notifiable material this requires 14 days notification to the HSE before any works can take place. To prevent exposure to others during these maintenance tasks the future occupiers of the basement area will not be allowed to be present during the duration of these works.

The only option to remove all caveats and ensuring a satisfactory air test for future occupation is the full removal and decontamination of the existing Lath & Plaster ceiling and subsequent void, this will also prevent any legacy of risk for the university to manage and will not hinder or suppress any future projects when upgrading Righton and preserving this buildings longevity.

