

Asbestos Standard Operating Procedures For Urban Regen Ltd

T/A

Standard Operating Procedures

Company Proprietary Information

The electronic version of this document is the latest revision. It is the responsibility of the individual to ensure that any paper material is the current revision. The printed version of this manual is uncontrolled, except when provided with a document number in the field below:

Document No	URAS/AD 003				Rev	001
Uncontrolled Copy	✓		Controlled Copy		Date	24/01/25

Approvals

The signatures below certify that this document has been reviewed and accepted, and demonstrates that the signatories are aware of all the requirements contained herein and are committed to ensuring their provision.

	Name	Signature	Position	Date
Prepared by	Terry Barker		Asbestos Consultant	24/01/25
Revised by	Terry Barker		Asbestos Consultant	28/02/25
Reviewed by	Matthew Ramsden		Asbestos Operations Manager	04/03/25
Approved by	Ian Rajch		Asbestos Contracts Director	06/03/25

Amendment Record

This document is reviewed to ensure its continuing relevance to the arrangements that it describes. A record of contextual additions or omissions is given below:

Page No.	Context	Revision	Date

Contents

1.0 INTRODUCTION	8
2.0 POLICY	8
3.0 ORGANISATION	9
4.0 RESPONSIBILITIES	11
5.0 WORK WITH ASBESTOS	11
5.1 DEFINITION OF WORK WITH ASBESTOS	11
5.2 CLASSIFICATION OF WORK WITH ASBESTOS	11
5.3 LICENSABLE WORK WITH ASBESTOS	11
5.4 NON-LICENSABLE WORK	12
5.5>NNLW – NOTIFIABLE NON-LICENSABLE WORK	12
5.5.1 <i>Examples of non-licensable work that will normally be>NNLW:</i>	13
5.5.2 <i>Examples of non-licensable work that will not normally be>NNLW:</i>	13
5.5.3 <i>Work Category Flow Chart Guide</i>	15
5.6 NOTIFICATIONS TO HSE	16
5.6.1 <i>Licensable Works (LW)</i>	16
5.6.2 <i>Waiver of 14 Day Notification Period</i>	16
5.6.3 <i>NNLW – Notifiable Non Licensed Work Notification</i>	16
5.6.4 <i>HSE Notification Guidance Notes</i>	17
5.7 RISK ASSESSMENT	18
5.7.1 <i>Asbestos Risk Assessment</i>	18
5.7.2 <i>Blasting Techniques in Asbestos Removal Works</i>	20
5.7.3 <i>Designated Areas</i>	21
5.7.4 <i>Welfare Facilities for Asbestos Work</i>	23
6.0 PLAN OF WORK	23
6.1 PURPOSE & SCOPE OF THE PLAN OF WORK	23
6.2 PLAN OF WORK – REQUIRED FORMAT & CONTENTS	25
6.4 AMENDMENTS TO PLAN OF WORK (POW)	32
6.5 TYPICAL SEQUENCE OF WORKS ON SITE	33
7.0 SITE DOCUMENTATION	34
7.1 URAS SITE FILE	34
7.2 TRAINING FILE(S)	36
7.3 DATA CROSS-CHECKS	36
7.4 AGENCY WORKERS	36
7.5 PLANT & EQUIPMENT	36
7.6 OTHER SITE FILE FORMS	37
8.0 SITE SET UP & ENCLOSURE CONSTRUCTION	38
8.1 RESOURCES	38
8.2 INSTRUCTION TO ALLOCATED SUPERVISOR & OPERATIVES	38
8.3 SITE MOBILISATION	38
8.4 HOUSEKEEPING	39
8.5 SITE STORAGE	40
8.6 ISOLATIONS	40
8.7 PRE-CLEAN	41
8.8 CONSTRUCTION OF ENCLOSURE	42
8.9 THREE STAGE AIRLOCK – ENTRY / EXIT SYSTEM & BAGLOCK SYSTEM	44

8.10	AIR MANAGEMENT	47
8.11	TESTING OF ENCLOSURE(S).....	50
9.0	CONTROLLED DUST SUPPRESSION TECHNIQUES	52
10.0	REMOVAL OF EXTERNAL AIB SOFFITS	53
11.0	ASBESTOS REMOVAL – CONFINED SPACES.....	54
12.0	ASBESTOS REMOVAL – WORKING IN A HOT ENVIRONMENT.....	55
13.0	URAS SUPERVISOR VISUAL INSPECTION PROCEDURE	58
14.0	APPOINTED ANALYST – 4 STAGE CLEARANCE PROCEDURE.....	59
14.1	STAGE 1: PRELIMINARY CHECK OF SITE CONDITION AND JOB COMPLETENESS.....	59
14.2	STAGE 2: THOROUGH VISUAL INSPECTION INSIDE THE ENCLOSURE / WORK AREA.	61
14.3	STAGE 3: CLEARANCE INDICATOR AIR SAMPLING FOR THE CERTIFICATE FOR REOCCUPATION.....	63
14.4	STAGE 4: FINAL ASSESSMENT POST ENCLOSURE / WORK AREA DISMANTLING	64
14.5	THE CERTIFICATE FOR REOCCUPATION (CfR)	64
14.6	INSPECTION CERTIFICATE FOR THE DECONTAMINATION UNIT.....	64
14.7	SITE AUDITING PROTOCOL FOR 4-STAGE CLEARANCES.....	65
15.0	DECONTAMINATION UNIT	67
15.1	GENERAL.....	67
15.2	TOWING PROCEDURES.....	68
15.2.1	<i>Driving</i>	<i>68</i>
15.2.2	<i>Maximum Speed Limits Whilst Towing:</i>	<i>68</i>
15.2.3	<i>Hitching the DCU (trailer) to a vehicle.....</i>	<i>69</i>
15.2.4	<i>Unhitching a trailer from a vehicle.....</i>	<i>69</i>
15.3	PROCEDURES FOR WINTER	70
15.4	SET-UP OF DCU	70
15.5	DE-MOBILISATION OF DCU	71
16.0	DECONTAMINATION ENTRY/EXIT ARRANGEMENTS	72
16.1	HYGIENE FACILITY CONNECTED TO THE WORK AREA – ENCLOSURE WORKS.....	72
16.1.1	<i>Going to Work</i>	<i>72</i>
16.1.2	<i>Returning From Work.....</i>	<i>72</i>
16.2	HYGIENE FACILITY NOT CONNECTED TO THE WORK AREA – ENCLOSURE WORKS (TRANSIT RPOECDURE) .	77
16.2.1	<i>Going to Work</i>	<i>77</i>
16.2.2	<i>Returning From Work.....</i>	<i>77</i>
16.3	DECONTAMINATION ARRANGEMENTS FOR NON-ENCLOSURE WORKS	82
17.0	ASBESTOS WASTE	83
17.1	ENVIRONMENT AGENCY.....	83
17.2	REGISTERING OF SITES FOR HAZARDOUS WASTE	83
17.3	TRANSFER & DISPOSAL OF ASBESTOS HAZARDOUS WASTE BY REGISTERED CARRIERS	83
17.4	CARRIAGE OF ASBESTOS WASTE	83
17.5	ASBESTOS WASTE SKIPS.....	84
17.6	MOVEMENT OF ASBESTOS WASTE IN VEHICLES.....	84
17.7	BAGGING OF ASBESTOS WASTE & WASTE TRANSIT PROCEDURE	84
18.0	RESPIRATORY PROTECTIVE EQUIPMENT (RPE)	86
18.1	FACE FIT TESTING	86
18.2	POWERED RESPIRATORS	87

18.3	HALF MASK RESPIRATOR.....	88
18.4	CLEANING OF RPE	88
18.5	RESPIRATOR TESTING	89
18.6	INSPECTION, MAINTANCE AND TESTING OF RPE	89
18.6.1	<i>Non-disposable RPE.....</i>	<i>89</i>
19.0	PERSONAL PROTECTIVE EQUIPMENT (PROTECTIVE CLOTHING).....	92
20.0	PLANT & EQUIPMENT – SELECTION & USE	95
20.1	CONTROLLED WETTING EQUIPMENT	96
20.2	NEGATIVE PRESSURE UNITS (NPU's)	97
20.3	CLASS 'H' FILTERED VACUUM CLEANERS.....	100
21.0	HEALTH RECORDS, EXPOSURE & PERSONAL MONITORING	104
21.1	HEALTH RECORDS	104
21.2	DAILY EXPOSURE RECORDS.....	105
21.3	PERSONAL MONITORING	105
22.0	HEALTH SURVEILLANCE FOR THOSE ENGAGED IN ASBESTOS WORK	107
23.0	ASBESTOS TRAINING	108
23.1	ASBESTOS SUPERVISOR & OPERATIVE TRAINING	108
23.2	MANAGEMENT ASBESTOS TRAINING	108
23.3	ASBESTOS REFRESHER TRAINING	108
23.4	ASBESTOS AWARENESS TRAINING.....	108
23.5	NON-LICENSABLE WORK WITH ASBESTOS – NNLW.....	108
23.6	AUDITOR TRAINING.....	108
23.7	TRADES ENTERING AN ENCLOSURE (AREA)	109
23.8	TRAINING NEEDS ANALYSIS	109
24.0	EMERGENCY PROCEDURES & ARRANGEMENTS.....	110
24.1	INJURY OR ILLNESS IN THE ENCLOSURE.....	110
24.2	FIRE	111
24.3	BOMBS / EXPLOSIONS	112
24.4	GAS LEAKS	112
24.5	POWER FAILURE OF POWER ASSISTED RPE	112
24.6	FAILURE OF NEGATIVE PRESSURE UNIT	113
24.6.1	<i>NPU - Loss of Air Movement – Due to Blocked Pre-filter.....</i>	<i>113</i>
24.6.2	<i>NPU - Power Failure</i>	<i>113</i>
24.6.7	<i>NPU - Failure of a Motor Unit.....</i>	<i>113</i>
24.6.8	<i>NPU- Failure of the Filtration System</i>	<i>114</i>
24.7	TOTAL LOSS OF ELECTRICAL POWER	114
24.8	FAILURE OF LIGHTING WITHIN ENCLOSURE.....	115
24.9	WATER WITHIN THE ENCLOSURE.....	116
24.10	FAILURE OF SERVICES TO A DECONTAMINATION UNIT	116
24.11	UNCONTROLLED RELEASE OF ASBESTOS MATERIALS INTO WORKPLACE	116
24.12	SPILLAGE OF WASTE DURING TRANSIT.....	116
24.13	ACCIDENTS & EMERGENCIES DURING TRANSPORTATION	119
24.14	HIGH READINGS – AIR MONITORING RESULTS DURING WORK ACTIVITY	119
24.14.1	<i>Personal Monitoring.....</i>	<i>119</i>
24.14.2	<i>Leak Monitoring</i>	<i>120</i>
25.0	AUDITING AND REVIEW ARRANGEMENTS	121

25.1	INTERNAL AUDITING.....	121
25.2	EXTERNAL AUDITING	121
25.3	CLIENT AUDITING	121
25.4	SENIOR MANAGEMENT TOURS.....	121
25.5	REVIEW AND ACTION.....	122

Appendices

APPENDIX 1 Controlled Dust Suppression Techniques

APPENDIX 2 Asbestos and Health Risks

APPENDIX 3 URAS Coring Procedures

1.0 INTRODUCTION

This procedure is issued in addition to our full Health & Safety Policy and pertains specifically to asbestos works carried out by the company.

2.0 POLICY

The Health & Safety at Work etc. Act 1974 requires the health, safety and welfare of persons at work to be protected, but also others who may be affected must be protected from risks to health and safety arising from the activities of those at work.

The Company will provide, so far as is reasonably practicable, safe places and systems of work, safe plant and machinery, safe handling of materials and substances, the provision of adequate PPE/RPE and other safety equipment and ensure that appropriate information, instruction, training and supervision is given.

The Company regards all Health and Safety Legislation as the minimum standard and expects management to achieve their managerial targets without compromising Health and Safety in any respect. The Company strives for good practice, since LARCs are expected to be exemplars of health and safety.

This policy sets out the company's policy regarding asbestos works.

The following (but not limited to) health, safety and environmental legislation, approved codes of practice (ACOP's) and guidance pertaining to asbestos shall apply (non-exhaustive): -

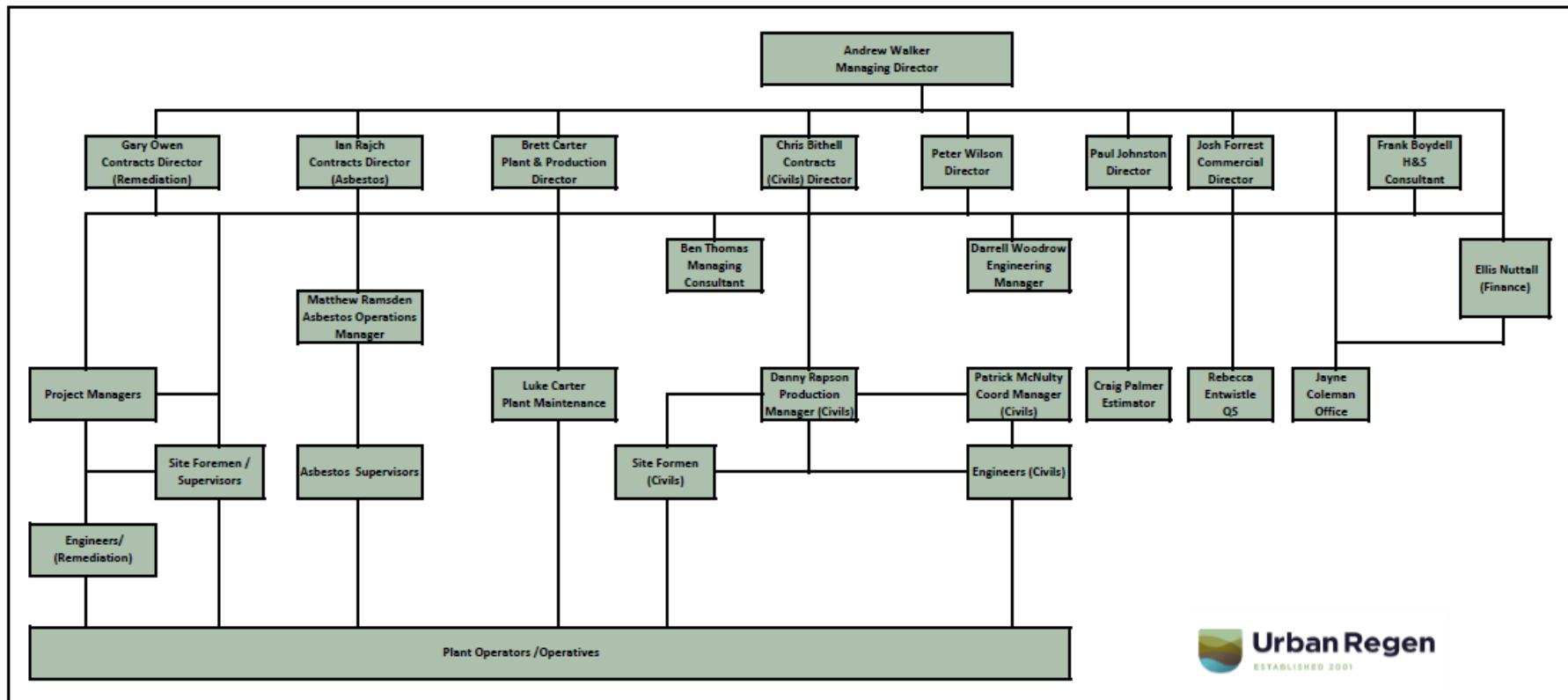
Health & Safety at Work Act 1974 & All Relevant Sub-ordinate Regulations., in particular pertinent to asbestos are:

- Management of Health and Safety at Work Regulations 1999.
- The Control of Asbestos Regulations 2012.
- The Hazardous Waste Regulations 2005 (as amended)
- The Hazardous Waste (England and Wales) (Amendment) Regulations 2016
- The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009.
- L143, Managing and Working with Asbestos (ACoP) (2nd Edition, 2013)
- HSG 247 – Asbestos: The Licensed Contractors Guide. (1st Ed. 2006 - 2012 Reprint)
- HSG 248 – Asbestos: The Analysts Guide. (2nd Edition, 2021)
- HSG 264 – Asbestos: The Survey Guide. (2nd Edition, 2012)
- HSG53 – Respiratory Protective Equipment at Work. (4th Edition, 2013)
- HSG65 – Successful Health & Safety Management. (3rd Edition, 2013)
- HSG210 – Asbestos Essentials Task Manual. See current version online: <http://www.hse.gov.uk/asbestos/essentials>
- HSG 227 - A Comprehensive guide to managing asbestos in premises.
- Various ALG memos and Appendices of the Asbestos Network Technical Working Group (ANTWG). Such guidance is aimed at licensed asbestos removal contractors (LARCs) and a summary may be found on the Construction Industry Advisory Committee (CONIAC) Website here: <https://www.coniac.org.uk/resources/asbestos-appendices>

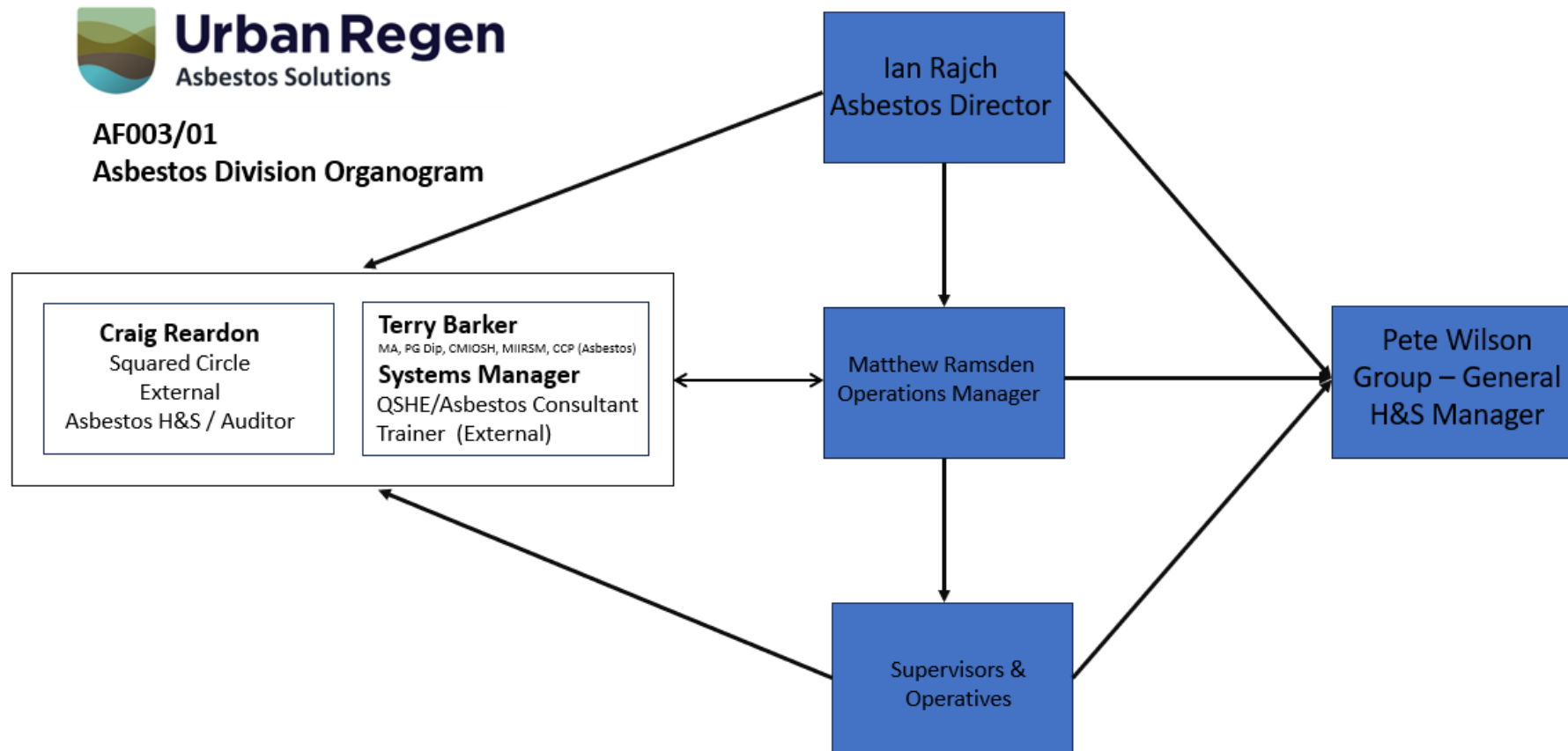
•

3.0 ORGANISATION

The organisational structure for the full company is presented in Section 2 of the main company Health & Safety Manual, but is reproduced here for ease of reference:



The organisational structure for Urban Regen Asbestos Solutions and the carrying out of all asbestos contracts is detailed below:



4.0 RESPONSIBILITIES

The full lists of general responsibilities for personnel are detailed in the UR Health & Safety Manual.

The general duties of employees (& self-employed persons) are further supplemented by this URAS procedural document in relation to all work that the company does with asbestos:

URAS/AD 004/01- URAS Roles & Responsibilities

5.0 WORK WITH ASBESTOS

5.1 Definition of Work with Asbestos

Work with asbestos includes: -

- Work which removes, repairs or disturbs asbestos;
- Work which is ancillary to such work (*Ancillary Work*);
- Supervising the work referred to in the two bullet points above (*Supervisory Work*).

5.2 Classification of Work with Asbestos

Asbestos works can be split into three categories:

- Notifiable Licensable Asbestos Works (LW)
- Notifiable Non-Licensable Asbestos Work (NNLW)
- Non-Licensable Asbestos Works (NLW)

5.3 Licensable Work with Asbestos

Certain types of work with asbestos and asbestos containing materials (ACM's) can only be done by those who have been issued with a licence by The Health & Safety Executive. This is work which meets the definition of 'licensable work with asbestos' as detailed in The Control of Asbestos Regulations 2012 – regulation 2(1) – that is work:

- Where the worker exposure to asbestos is not 'sporadic and of low intensity' (see below); or
- Where the risk assessment cannot clearly demonstrate that the control limit (0.1f/cm³ airborne fibres averaged over a four-hour period) will not be exceeded; or
- On asbestos coating (surface coatings which contain asbestos for fire protection, heat insulation or sound insulation but does not include textured decorative coatings); or
- On asbestos insulation or AIB where the risk assessment demonstrates that the work is not 'sporadic and of low intensity', the control limit will be exceeded and it's not short duration work.

Definition of Sporadic and of Low Intensity: For exposure to be 'sporadic and of low intensity' the concentration of asbestos in the atmosphere should not exceed or be liable to exceed the concentration approved in relation to a specified reference period by The Health & Safety Executive. This is currently

(CAR 2012) 0.6 fibres per cubic centimetre (f/cm³) in the air measured over any 10-minute period. **Any exposure which exceeds or is liable to exceed this is not sporadic and low intensity.** This '10-minute threshold' is sometimes called the short-term exposure limit or STEL. It refers to the highest level of concentration for any 10-minute period of duration of the work. **NB:** The unit f/cm³ is the same unit as f/ml.

5.4 Non-Licensable Work

Although non-licensable work does not require a licence issued by the HSE, all the other requirements relating to work with asbestos contained in The Control of Asbestos Regulations 2012 will still apply (subject to the exemptions from Regulations 9, 18(1)(a) and 22, contained in regulation 3(2)). In particular the work must be done by trained and competent workers in accordance with the Plan of Work and using proper control measures to prevent exposure and the spread of asbestos.

To determine if all the exemptions in regulations 3(2) apply to non-licensable work then it is necessary to assess the work and decide if it meets the following conditions:

1. The exposure to asbestos of employees is 'sporadic and of low intensity': and
2. It is clear from the risk assessment that the exposure to asbestos of any employee will not exceed the control limit: and
3. The work involves one or more of the following: -
4. *Short, non-continuous maintenance activities in which only non-friable materials are handled;*
5. *Removal without deterioration of non-degraded materials in which the asbestos fibres are firmly linked in a matrix;*
6. *Encapsulation or sealing of asbestos –containing materials in good condition;*
7. *Air monitoring and control, and collecting, analysing samples to establish whether a specific material contains asbestos.*

Important Note: In order for the works to be deemed non-licensable the work should **FIRST** meet the first two conditions above. If it does not, the work is licensable and the exemption contained in regulation 3(2) will not apply.

5.5>NNLW – Notifiable Non-licensable Work

If after assessment the work does not meet one of the conditions in regulation 3(2)(c) the (exemptions within The Control of Asbestos Regulations 2012) then it becomes Notifiable Non-Licensable Work (NNLW) and regulation 9, regulation 18(1) and regulation 22 will apply. The additional duties under Regulation 9, Regulation 18(1)(a) and regulation 22 respectively are to:

- Notify work with asbestos to the relevant enforcing authority (before that work starts);
- Designate the area where work with asbestos is being done;
- Ensure medical examinations are carried out;
- Maintain health records.

5.5.1 Examples of non-licensable work that will normally be>NNLW:

- work involving asbestos cement which is substantially fire or flood damaged or is broken up, creating significant dust and debris;
- work involving ropes or yarns or woven cloth which are broken or cut up so that fibres may be released;
- work involving paper, felt, cardboard which is in poor condition, or unsealed (not encapsulated), or not bound into another material;
- large-scale removal of textured decorative coatings using steaming or gelling methods;
- removal of ACMs as part of a much larger refurbishment.

5.5.2 Examples of non-licensable work that will not normally be>NNLW:

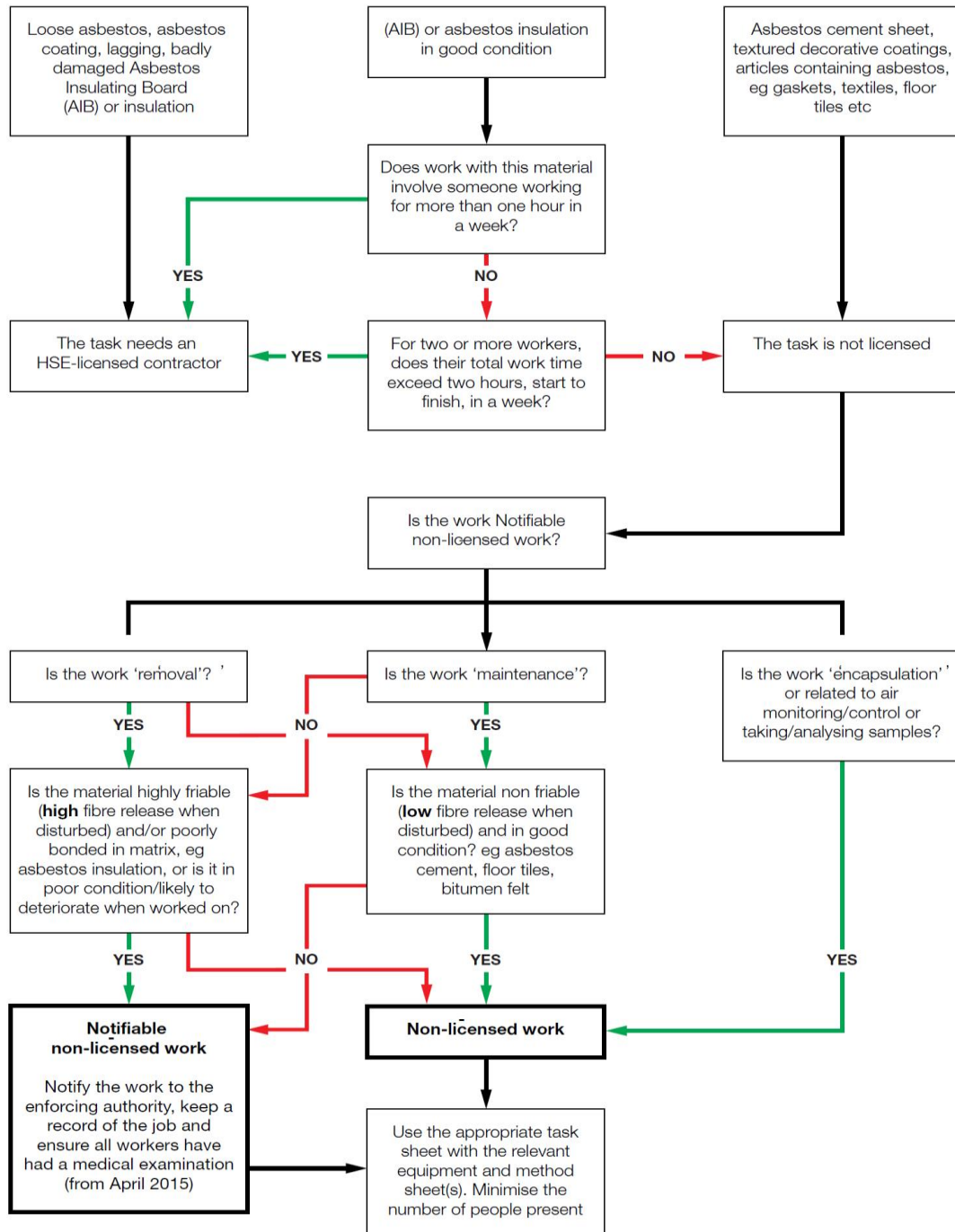
- work involving asbestos cement products, e.g. roof sheeting and rainwater goods (if carefully handled, removed or repaired without power tools, or sawing); this includes work on asbestos cement which is weathered but not substantially damaged;
- work involving strings containing asbestos that are kept virtually intact, removed whole or coated with tacky residues;
- work involving asbestos in ropes, yarns, woven cloth in reasonable condition (not broken or cut up) and handled carefully;
- work involving asbestos-containing paper, felt and cardboard which is in good condition and likely to retain most fibres.
- removal of very small areas of textured decorative coatings using gel/steam, such as during installation/replacement of smoke alarms and light fittings
- small scale removal of textured decorative coatings (e.g. if the backing board is carefully cut around to achieve virtually intact removal);
- isolated/limited drilling of textured decorative coatings for fixtures/fittings;
- encapsulation and sealing in work on ACMs in good condition, e.g. repairing damaged sealing material;
- removal and re-fix of loosely fixed (screwed) AIB panels (that are in good condition) to gain access for maintenance activities (such as under a bath to carry out pipework maintenance);
- painting AIB in good condition;
- short, non-continuous work involving repair of minor damage to AIB;
- short, non-continuous work involving drilling holes in AIB while, e.g. installing shelving);
- work involving asbestos containing thermoplastic and vinyl floor tiles, bitumen roof felt; shingles, asbestos paper, damp-proofing coatings, mastics;
- work involving PVC floors, panels and sealing compounds;
- work involving asbestos conveyor belts/drive belts, bonded rubber, electric cable;
- work on resin-based materials, e.g. friction products, (provided power tools are not applied);

- work involving plastic paint coatings;
- air and bulk sampling for asbestos fibres.

5.5.3 Work Category Flow Chart Guide¹

Decision flow chart

Use this simple flow chart to help you decide who needs to do the work:



¹ See HSE Guidance A0 "Advice to managers and sole traders Introduction to task sheets for non-licensed work" 7 of 7 pages, available at www.hse.gov.uk/asbestos/essentials/index.htm, first published 2012, HSE 04/12.

5.6 Notifications to HSE

5.6.1 Licensable Works (LW)

Regulation 9 of The Control of Asbestos Regulations 2012 requires license holders to notify in writing the appropriate enforcing authority (EA) before undertaking licensable work with asbestos. This notification must be made at least 14 days before licensable works commences using an ASB5 notification form. **The online ASB5 shall not be submitted until such time as the full and thorough planning for the job is completed AND a 'suitable and sufficient' risk assessment & plan of work has been completed (written & peer-reviewed) for the works.**

The ASB5 form should be submitted via the HSE online platform found here: <https://extranet.hse.gov.uk/lfserver/external/asb5>

All information should be completed thoroughly and carefully as the provision of the required information in a clear and accurate manner is a licence condition.

Additionally, it is fully understood by URAS that 14 days' notice means a full 14 x 24-hour periods (336 hours). Therefore, to help ensure that URAS never inadvertently arrive on site early, when job and labour planning, we will check the time and date of the notification to ensure that our job start date/time, is always at least 336 hours after the notification.

5.6.2 Waiver of 14 Day Notification Period

In some exceptional circumstances, the Enforcing Authority may permit the work to be started within a shorter period than 14 days, this is known as a 'waiver'. In order to apply for a waiver the client must send a letter to the Enforcing Authority detailing the reasons why a waiver is required, written permission must be obtained from the Enforcing Authority before the work commences.

It is the HSE's policy that waiver requests will be granted only when there is a genuine emergency or equally pressing reason.

Waivers are unlikely to be granted where there has been a failure to manage asbestos or to accommodate lack of foresight and planning by client or contractor, unless an immediate risk of significant exposure has been created and the area concerned cannot be sealed off to prevent that exposure.

5.6.3>NNLW – Notifiable Non Licensed Work Notification

Works which are deemed>NNLW will require notification to the HSE, the notification will be made online by visiting

<https://extranet.hse.gov.uk/lfserver/external/asbnnlw1>

the form is referred to as an ASB>NNLW1. There is not a pre-defined notification period or-lead in period associated with this type of work. Work should however be notified before works start.

5.6.4 HSE Notification Guidance Notes²

Query	Paperwork to HSE/LA Enforcing Authority (EA)	Comments
1. Same ACM as previously notified - but a different method used from original plan of work.	Amendment to the PoW is required. If PoW is requested by Enforcement Agency (EA) an email update will suffice.	
2. More asbestos uncovered (same type of material) adjacent or in close proximity to original work	Contact the EA to discuss, and PoW required when requested	Consider as extension to the original work - but may require new ASB5 depending on size/complexity of additional work
3. More asbestos uncovered (different type of material) adjacent or in close proximity to original work	A new on-line ASB5 required. Updated PoW to EA if it has been requested for the original work	Outwith scope of original work. If properly planned, could have formed part of original notification
4. More asbestos uncovered elsewhere on site (but not in close proximity to original work)	A new on-line ASB5. Updated PoW to EA if it has been requested for the original work	Outwith scope of original work. If properly planned, could have formed part of original notification
5. Work completed, cleared up. Contractor still on site and required to undertake more work	A new on-line ASB5. Updated PoW to EA if it has been requested for the original work	New work - possible waiver situation but unlikely
6. Asbestos removal from each floor of e.g. 20 storey building	Single notification (not 20) required. PoW prepared for all of the work notified	Contractor will require a programme/overall plan of work for the project
7. Repetitive asbestos removal from several buildings on large scale in agreement with local EA	Single notification acceptable. A phased submission of PoWs to be agreed with EA when requested; submission 14 days prior to commencement of each phase. EA to be regularly updated.	Contractor will require a programme/overall plan of work for the project.
8. Change of start date - new date known	Amendment to the submitted on-line ASB5 required	As per licence condition 2
9. Change of start date - new start date NOT known	A new on-line ASB5 is required. PoW required if requested when new start date has been established.	

² Per the latest Asbestos Liaison Group (ALG) Memo 06/12 entitled "Notification of licensed asbestos work (including HSE Policy on requests to waive the 14 day notification period" ALG, 1st October 2014.

10. Weekend/night work	This information should be recorded in the PoW and the on-line ASB5 facility.	ASB5 states duration – no indication of working pattern. Unhelpful when inspectors visit and find work being done out of hours.
11. Some licence conditions place ongoing obligations on the licensee e.g. to name the site supervisor. Changes need to be notified to the enforcing authority	If a matter is changed that is covered by a licence condition then an amendment to the on-line ASB5 is required. If the PoW has been requested an update should be sent.	

5.7 Risk Assessment

URAS must make sure that whoever carries out the risk assessment and provides advice on the prevention and control of exposure is competent to do this. Whoever carries out the risk assessment will:

- Have adequate knowledge, information, instruction, training and expertise in understanding the risks from asbestos and be able to make informed decisions about the risks and precautions needed;
- Know how the work activity may disturb asbestos;
- Be familiar with and understand the requirements of the regulations;
- Have the ability and authority to collate all the necessary and relevant information;
- To be able to assess other non-asbestos risks on site;
- Be able to estimate the expected level of exposure to decide whether or not the control limit is likely to be exceeded.

5.7.1 Asbestos Risk Assessment

Prior to commencing any works and initiated as part of the job pricing process a suitable and sufficient risk assessment must be compiled, such an assessment must include the following:

- For non-licensable work, a statement of why the work meets the criteria for non-licensable work, and whether it is NNLW;
- A description of the work being carried out and the expected scale and duration;
- A description of the type(s) of asbestos and results of any survey or analysis or a statement that the asbestos is not chrysotile alone;
- A description of the quantity, form, size, means of attachment, extent and condition of the ACM's present.

Details of expected exposures will be recorded and will include:

- Data on the concentration of asbestos fibres likely to be present, including the source of this information;
- Whether they are liable to exceed the control limit and the number of people likely to be affected;

- The level of expected exposure, so that suitable personal protective equipment (PPE) and respiratory protective equipment (RPE) can be selected;
- Whether anyone other than employees may be exposed and their expected exposures.
- Whether intermittent higher exposures may arise and their expected frequency and duration;
- Any results already available from air monitoring in similar circumstances.

The steps to take to control exposure to the lowest level reasonably practicable should also be recorded, for example:

- The type of controlled wetting and method of application;
- Using local exhaust ventilation (LEV);
- Wrap and cut;
- The use of low dust methods;
- Shadow vacuuming.

The risk assessment should also include:

- The steps taken to control the release of asbestos into the environment, e.g. enclosures with negative pressure and entry and exit procedures. Where it is not considered **practicable** to use an enclosure, a full justification is required, and clear advice on what action to take if there is accidental release;
- Details of the decontamination procedures, including using hygiene units where appropriate, and for transferring and removing waste, including contaminated tools and equipment;
- Procedures for selection, provision, use and decontamination or disposal of PPE / RPE;
- Procedures for dealing with emergencies;
- Any other information relevant to safe working practices, such as other significant non-asbestos hazards like working at height or in confined spaces;
- Management arrangements for ensuring that the risks are adequately controlled during the work (if they cannot be removed or avoided).

NB: All the findings of the risk assessment detailed above (at 6.6.2) are deemed significant (in compliance with CAR 2012, ACoP L143 2nd Edition, Paragraph 161).

Additionally for licensable work (in compliance with CAR 2012, ACoP L143 2nd Edition, Paragraph 165), the risk assessment should state the reasons for the chosen work method and arrangements required to ensure that the premises or part of the premises where work has taken place are left clean for reoccupation and include:

- Detail of the areas which need a formal certificate for reoccupation.
- Consideration of potential problems for a certificate for reoccupation **AND** how they can be avoided or dealt with

BEFORE work starts, e.g. earth floors, limpet spray ingrained into concrete or tar-like layers, wet areas which cannot be dried out and the presence of ACMs which will remain in areas after work is complete.

- Consideration of the need for any pre-cleaning, including control measures to prevent release of asbestos fibres.

The findings of this risk assessment will form the foundation for the development of the site-specific plan of work as detailed in Section 7.0.

5.7.2 Blasting Techniques in Asbestos Removal Works

Asbestos containing materials (ACMs) are typically removed using low dust emission methods such as wet injection and spraying techniques along with manual removal using hand tools. These methods are required to minimise worker exposure and to prevent the spread of dust. However, in some exceptional circumstances it may also be necessary to adopt more abrasive methods when removing ACMs. There are a variety of commercially available abrasive blasting systems such as; Torbo, Quill Falcon, Blast and Vac, which all use blasting media such as garnite. In addition there are other “wet” type systems which use ice for blasting and also dry ice systems.

Application and Assessment

Abrasive blasting methods **should not be the first choice of removal method**. This method of removal should only be considered as a secondary technique where stubborn/residual asbestos materials are involved and the time, effort and risks of using other methods are not reasonably practicable.

The use of any abrasive blasting system **must be fully justified** by the URAS risk assessment and all the associated risks addressed. Besides the increased risks of exposure, other health and safety risks include manual handling, noise, vibration and possibly work at height.

If, client needs and a full assessment justifies the use of abrasive blasting systems, URAS will specify exactly where this type of method will be used. A robust system will be put in place to guard against misuse. Supervisors and especially Operatives will need to be **fully trained and competent** to use the equipment.

There are several issues which arise from use of abrasive blasting systems which should be fully assessed, these include:

- Elevated noise levels, in excess of 85dB(A).
- Potential for elevated airborne asbestos fibre levels,
- Difficulties with personal exposure monitoring when using phase contrast microscopy techniques. Dust loading on filters can lead to occluded filters plus blasting technique can produce very fine fibres.

- Breaches of the enclosure sheeting due to the blasting action. These breaches may be virtually invisible to the eye but are sufficient to allow the very fine blasting media and fibres to penetrate outside of the enclosure.
- Blockage of filters within negative pressure units and respirators from moisture generated by abrasive blasting systems leading to reduced extraction performance and reduced protection respectively.
- High levels of carbon dioxide produced by dry ice blasting systems.

Use

The most likely uses of abrasive blasting systems are as follows:

- (i) The removal of asbestos residues left over from previous poor asbestos removal works or in cases where aged pipework is extensively pitted and/or corroded.
- (ii) The removal of a thin coating of insulation/fireproofing attached to a concrete ceiling or brick walls where complete removal using hand tools/manual methods is virtually impossible (e.g. due to residues trapped in pitted/imperfect surfaces).

In all situations, however, **the bulk of the ACM should be removed by conventional manual methods** (e.g. use of hand tools and low-pressure spraying) as far as is reasonably practicable before attempting to use abrasive blasting techniques. There will clearly be a judgement call on when to stop the conventional method and move to the abrasive blasting technique.

This is a PRIMARY CONTROL and should be a clear STOP and HOLD point in the PoW.

Unless further development work and suitable efficient arrangements are established, dry ice systems **ARE NOT** to be used under any circumstances.

5.7.3 Designated Areas

All areas where there is asbestos work should be segregated and marked with suitable warning notices as asbestos areas. For licensable work, the work will most likely take place in an enclosure. However, where an enclosure is not used, URAS shall consider, and will implement effective controls to prevent unauthorised and unprotected people from approaching the work area. The work area will be designated as asbestos area and as a minimum temporary barriers / isolation of works will be required.

Any area where an employee may be exposed to asbestos to a level which may exceed the control limit must be designated as a respirator zone. Respirator zones, whether enclosed, or not, must be segregated and marked up with suitable warning notices, including notices that suitable RPE must be worn.

All licensable work with asbestos should be carried out in an area designated as a respirator zone and an asbestos area.

In cases where the work area is to be in an enclosure, place warning notices on the airlock and enclosure walls. In the absence of an enclosure, establish the work area using barriers as at a suitable distance. Place warning notices at suitable locations around the work area and at each possible point of access and egress, e.g. the entrance. As a rule of thumb, a notice should be visible to the eye on approaching the area from any direction.

In many situations, the asbestos area and respirator zones will be the same, e.g. for licensable work carried out in an enclosure. However, in certain circumstances, where work is being carried out in a respirator zone, it may be necessary to mark out a larger asbestos area (or buffer zone) outside the respirator zone to keep people away from the area.

For work in an asbestos area or respirator zone URAS shall ensure that:

- Employees shall only enter and remain in an asbestos area or respirator zone in order to carry out their work;
- Employees must have received adequate information, instruction and training so that they are competent to enter a respirator zone and to supervise any employees who enter a respirator zone;
- People undergoing training may enter a respirator zone, provided they are under direct supervision of a competent person (and they are under appropriate asbestos Medical surveillance and a health record is maintained in accordance with the requirements of CAR Regulation 22;
- Employees entering a respirator zone must wear suitable RPE and PPE and be fit tested for the RPE being used;

Other essential personnel such as analysts, trades persons and the emergency services may enter a respirator zone under supervision by URAS provided they have received adequate information, instruction and training and are wearing adequate RPE and PPE. Generally, in either planned situations (such as during 4 stage clearance) or in emergencies, all asbestos work will cease to permit other authorised parties to enter. In this case, no significant asbestos exposure is expected and there is therefore no requirement for health or medical surveillance. Fit tested for the RPE being used should be undertaken unless it is a one-off emergency situation. In such cases, if at all possible, adequate RPE will be provided which does not rely on a face seal e.g. blouson hood. In all cases analysts, trades persons and the emergency services will be under the direct Supervision of URAS.

URAS shall not permit the consumption of food or drink in an asbestos area or respirator zone. URAS shall provide an area to eat and drink (for licensable work this should be located as close as is reasonably practicable to the hygiene facility).

UNDER NO CIRCUMSTANCES will MOBILE phones be permitted to be carried and/or used by personnel **in an asbestos area or respirator zone**. URAS shall provide a **"Phone Zone"** area which is the **only location where use of a mobile phone is permitted**. (Ordinarily, this should be located as close as is reasonably practicable to the welfare facilities). NB: Supervisors will be permitted to carry and use a Company mobile in an asbestos area **BUT NOT a RESPIRATOR ZONE** for communication and emergency requirements.

5.7.4 Welfare Facilities for Asbestos Work

URAS will ensure that everyone who works on any of our sites will have:

- access to adequate toilet and washing facilities;
- a place for preparing and consuming refreshments; and
- somewhere for storing and drying clothing and personal protective equipment.

The nature and scale of facilities required will depend on the size, location and type of project. Facilities to be considered during planning and risk assessment include:

- Toilets
- Washing facilities
- Drinking water
- Changing rooms and lockers
- Facilities for rest

Generally, as a minimum, URAS will seek to provide welfare in accordance with published guidance on the Construction (Design and Management) Regulations 2015 (CDM 2015), L153 (2015) - in particular as detailed within "Schedule 2 Minimum welfare facilities required for construction sites" of that document.

These considerations will be assessed during job planning and specified in the PoW.

6.0 PLAN OF WORK

6.1 Purpose & Scope of the Plan of Work

Suitable and sufficient plans of work (PoW) are a licence condition and legal requirement. The plan should be a practical and useful document, describing a safe working method for site staff to follow.

The plan shall be created using the information gained during the risk assessment process detailed above (Asbestos Considerations) and also in URAS's Risk Assessment Arrangements detailed in the UR H&S Manual.

The Plan will clearly set out how URAS wish the job to be done. Its main purpose is to guide site work and an up-to-date copy shall always be available on site.

Access to (these) general procedures and other Policies, procedures and guidance will also be available at site level. The PoW should be kept updated to reflect any subsequent changes to work or site conditions.

The Contracts Manager (CM) will consider significant site risks (asbestos and otherwise) and produce a site-specific PoW which contains an overall (bird's eye view of the site) along with area(s) (enclosure(s)) drawings. Scope & specific detailed work method, risk assessment and sketch plan. In entirety these form the RAMS for the work. It will be detailed enough for managers (or clients / auditors, etc.) to use when measuring the performance of the site teams.

The URAS CMs are competent in licensed asbestos work and job-specific requirements. Where possible, planning will involve input from site teams who carry out and supervise the works. Where this is not possible arrangements shall be made to make sure there is good communication between the author of the plan and the site team before the job starts. This is done by a handover briefing between the CM and site Supervisor. It is a fundamental policy of URAS that the CM will always attend site on the initial mobilisation day to verify the site conditions remain as assessed, and to ensure that the Supervisor and Site Team are fully conversant with the RAMS and what is required.

The plan shall be produced and peer reviewed & authorised prior to notification where applicable.

In addition to non-asbestos risk management, the plan will clearly describe how exposure, if unavoidable, is to be minimised (reduced following ALARP principles, before considering the use of RPE). It will also demonstrate how spread will be prevented. The plan will be in a standard format which has been developed to ensure that it is easy for site teams to follow and use.

The PoW is made up of fifteen (15 No.) Core Sections.

In summary, the plan of work shall:

- a) use diagrams / sketch plans and photographs wherever possible (for ease of reference),
- b) be laid out clearly,
- c) avoid generic information,
- d) be drawn up by a suitably competent person,
- e) be suitable for the scale and type of work to be carried out,
- f) be a practical and useful document, describing a safe working method for site staff to follow and
- g) be of a style, language and format that is easy for employees to use.

Generic information / frequently used company procedures will not be detailed in the plan and will instead be held in this document or in other supporting documents or arrangements for reference as and when required.

The plan of work will be present on site throughout the works and will be a 'live' document.

Each member of the site team will sign a declaration to confirm that they have read, understood and will comply with the relevant parts of the PoW. Moreover, for each enclosure, the designated work team will also sign a declaration to confirm that they have read, understood and will comply with the specific work method for each Area where they are working.

In addition to the usual responsibilities of the site Supervisor, URAS's Management Team will undertake visits to the site, particularly on day 1, and ensure that regular audits of site work are carried out to ensure that the overall PoW being complied with and that it remains suitable and sufficient for the works being undertaken.

6.2 Plan of Work – Required Format & Contents

6.2.1. The PoW shall include the following core sections:

1. Document History
2. Site Team Declaration
3. Project & Client Details
4. Asbestos Information & Significant Risks
5. Scope, Methodology & Sequence of Works
6. Control Measures Applied to Contract
7. Air Monitoring Arrangements
8. Materials Handling & Storage
9. Waste Management & Environmental Considerations
10. Work at Height / Noise / Vibration / COSHH
11. PPE
12. Plant & Equipment Schedule
13. Welfare Facilities
14. Emergency Preparedness
15. Site Plan and Enclosure Drawing

Put simply, the PoW, complemented by the Risk Assessment and Supervisors Site File, which contains the various necessary standard Forms & Templates for day to day management of the job, will provide suitable and sufficient RAMS for the Project.

6.2.2. The Risk Assessment

Risk assessment starts with the careful examination of what, at work, could cause harm to people, property, plant and the environment (known as Hazards) and the likelihood and severity of the hazard being realised (known as Risk). This 'Risk Assessment' in essence allows the company to determine whether it has taken adequate precautions to reduce risk so far as is reasonably practicable, or whether it should do more.

The purpose of a risk assessment is to identify and document all significant Health and Safety risks, and then put in place all reasonably practicable measures to reduce those risks to an acceptable level.

Only by examining activities can the company be fully aware of hazards and risks, and develop safe systems of work that fully integrate personnel, plant, equipment and substances in a suitable environment and workplace to produce and maintain acceptable standards of safety.

The site-specific risk assessment will detail all significant hazards relating to the site, our activities, our people and the tasks and work equipment being used. The CM will follow our Risk Assessment Procedures set out at above (Asbestos Considerations) and also in UR's Risk Assessment Arrangements, when completing the risk assessment.

6.2.3. The Site-Specific PoW shall include the following detailed within the 15 numbered sections:

1. Document History
 - 1) Revision Status
 - 2) Revision History
 - 3) Production and Approval
2. Site Team Declaration
 - 1) Assigned Team
3. Project & Client Details
 - 1) Client and Site
 - 2) Working Dates/Times
 - 3) Programme / Key Stages
 - 4) Appointed UKAS Analyst
 - 5) Team Briefing / Inductions / Toolbox Talks
 - 6) CDM Regulations
 - 7) Other Licence Holders
 - 8) Others
4. Asbestos Information & Significant Risks
 - 1) Survey Information
 - 2) Isolations
 - 3) Permit Requirements
5. Scope, Methodology & Sequence of Works
 - 1) Overall Site Access
 - 2) Scope of Works
 - 3) Sequence of Works
 - 4) Work Method

6. Control Measures Applied to Contract
 - 1) Anticipated exposure(s) after applied control measures
 - 2) Description of control measures applied
 - 3) Sketch Plan of Removal Area
 - 4) Enclosure Construction Information
 - 5) Air Management
 - 6) RPE Requirements
 - 7) Decontamination Unit
 - 8) Sketch Plan
7. Air Monitoring Arrangements
 - 1) Air Monitoring Arrangements
 - 2) Static Air Monitoring Strategy
 - 3) Personal Air Monitoring Strategy
8. Materials Handling & Storage
9. Waste Management & Environmental Considerations
 - 1) Waste Management
 - 2) Hazardous Waste
 - 3) Environmental Controls
 - 4) Impact of Weather
 - 5) Description/frequency of waste clearance
10. Work at Height / Noise / Vibration / COSH
 - 1) Work at Height
 - 2) Noise Assessments
 - 3) Vibrations Assessments (HAVS)
 - 4) COSHH
11. PPE
 - 1) PPE Assessment
 - 2)
12. Plant & Equipment Schedule
 - 1) Plant & Equipment
13. Welfare Facilities
 - 1) Welfare Information
14. Emergency Preparedness
 - 1) Emergency Arrangements
 - 2) Emergency Services

3) Basic Emergency Action Steps

1.5. Site Plan and Enclosure Drawing

Overall the PoW, with suitable and sufficient detail in each part, will aim to set out:

- **Details of Contract & Scope of the Work** - The address and location where the work is to be carried out; the attendance times/dates, contact details, the number of people involved in the work - supervisor, client, analyst, survey details, principal contractor/co-ordinator (where relevant), senior manager responsible for the contract, etc. The scope of the work will state what the team have to do and what the constraints of the site are. It will always clearly explain what asbestos is to be removed and how. The plan will state the nature and probable duration of the work.

Equipment, Materials & Controls:

- a) Precise location and dimension of the enclosure(s), airlock and bag lock. Details of how air is to be managed within it.
- b) Details include any lengths of exhaust / inlet ducting to be used with NPU(s) including any 90-degree bends on ducting and what impact their use will have on the airflow rate achieved with the associated NPU.
- c) Arrangements for smoke testing and witnessing.
- d) Location of transit routes and any other relevant exclusion areas.
- e) Specification and location of equipment used to prevent exposure and spread (where applicable): DCUs, H-Vacs, NPUs, CCTV/viewing panels, wet-strip equipment, hand tools, sprays, gels, fencing/barriers and signage, etc.
- f) The type of equipment, including PPE and RPE used for protecting and decontaminating those carrying out the work and protecting other people present at or near the worksite.
- g) Location and access arrangements for water and power supplies and DCU drainage.
- h) Expected quantities of waste and methods of wrapping or bagging/storage/transport.
- i) Location and access to welfare facilities.

Other Relevant Site-Specific Information:

Clear responsibilities and lines of communication with relevant third parties (tenants, office staff, other contractors, other licence holders, etc.). Adequate pre-planning will ensure that others will not have a negative impact on the licence holder's plans.

Emergency arrangements and procedures.

Any other significant risks (including how they will be controlled).

Section 5 Scope of Work will specify the Sequence and specific work method – One for each enclosure (The Work Method)

This will be the focal part of the plan for the Site Team explaining exactly how the work in a given enclosure should be done. It will explain the site-specific sequence of work for each distinct enclosure (or work areas if minor

works) and describe in sufficient detail the actual methods to be used for reducing exposure and preventing spread.

The method will be detailed enough for visiting managers (and others) to measure compliance and performance.

It will also reflect relevant non-asbestos factors (such as working at height, working in confined spaces, live electrical installations).

Management Arrangements

The overall plan is a management tool as well as a guide for site teams, so it will be clear URAS expects supervisors / managers to ensure that the working methods are followed. By way of example, the plan shall specify 'hold points' during the notified work and the Supervisor will demonstrate that these have been achieved by completing and signing the relevant sections of the Site Pack. Other 'management' issues will include:

- Air monitoring/background reassurance monitoring/personal monitoring (and relevant information about expected exposures).
- Arrangements for providing independent 4-stage clearance.
- Arrangements for handling unavoidable changes to the original plan.

6.2.4 Sketch Plan Requirements

As a minimum the sketch plans must illustrate the following:

- Positions from which the water and electrical supplies (to the DCU etc. are to be fed);
- Location of Wastewater outlets
- Size of enclosure(s);
- Location of viewing panels, and / or CCTV;
- Location of Negative pressure units;
- Location of Class H vacuum cleaners;
- Location of DCU
- Transit routes (if applicable - include explanation why direct connection between DCU and air lock is not being used);
- Location of Airlocks & Baglocks;
- Waste routes;
- Skip (or vehicle) Locations;
- Illustrate Designated Areas - Asbestos Zones & Respirator Zones
- Location of Site Welfare

When planning the job, due consideration will be given to the various factors assessed and the site layout. The Contracts Manager will determine the most appropriate and effective way of setting out the enclosure design and site layout required. This may be by the use of 2D elevation plans or occasional if it is specifically required and beneficial by the use of 3D sketch plans or a combination of both. The aim is to ensure that accurate and

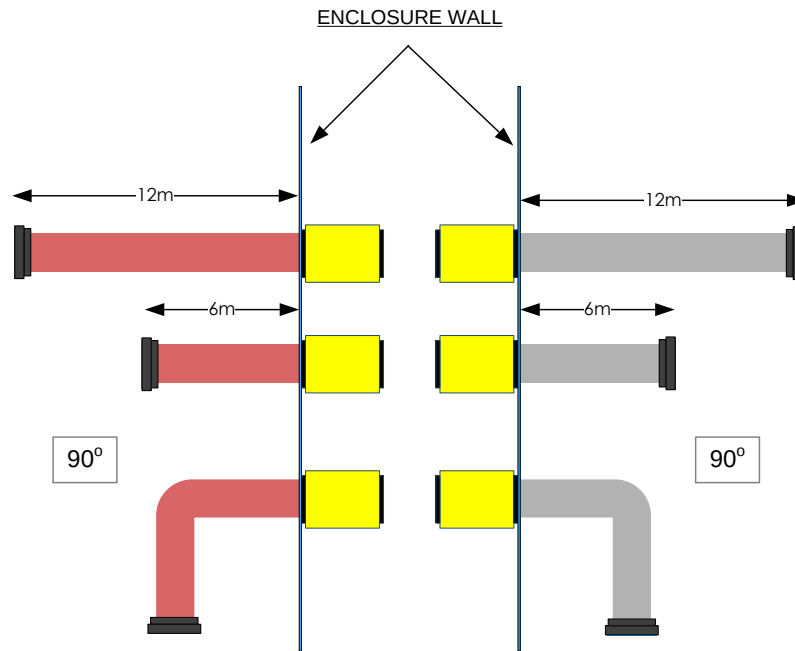
complete information is provided and that it helps the Supervisor and site team to understand the site layout and enclosure design that is required for the job.

Sketch plans will also detail the dimensions of any trunking to be used with the negative pressure units either exhaust and inlet and the calculations of the reduction of airflow as a result of this.

NB: It should be noted that flexible ducting reduces airflow rate by 1% per metre and 2% per 90-degree bend, this will be taken into account when calculating the size of negative pressure(s) required for a particular enclosure. The table reproduced below illustrates the findings of the HSE report³:

NPU Arrangement	Volume Flow Rate M ³ /Hour	Reduction in Flow Rate %
No ducting attached to NPU	1565	0
6m added to NPU exhaust	1472	6
12m added to NPU exhaust	1384	12
12m with 90° bend added to NPU exhaust	1340	14
12m with 2 x 90° bend added to NPU exhaust	1293	16
6m added to NPU exhaust and 6m added to NPU inlet	1411	12
6m added to NPU inlet	1500	6
12m added to NPU inlet	1433	12
12m with a 90° bend added to NPU inlet	1410	14
12m with 2 x 90° bend added to NPU inlet	1383	16

³ See further the Health & Safety Executive Research Report entitled " Ventilation of enclosures for removal of asbestos containing materials" Health and Safety Laboratory, 2013, Reference RR988, especially at 4.3.6, Table 4.15, page 27.



A clear Key will be utilised on URAS Sketch Plans to designate specific elements of the enclosure design.;

Sketch Plan

Please confirm that the site-specific sketch plan details the following key points: -

Description of Items	Drawing Image	Yes	No	N/A
Enclosure Layout:				
CCTV Location:				
CCTV Camera:				
Viewing Panels:				
NPU Location:				
Roving Filter Box:				
Baglock Location:				
Airlock Location:				
H Class Vacuum				
Skip Location:				
DCU Location:				
Asbestos Zones:				
Respirator Zones:				
Transit Route:				
Waste Route:				
Power Supply Location				
Water Supply Location:				
Welfare Locations:				
Foul Drain:				
Mobile Phone Zone:				
Welfare Van				
URAS Van				

6.4 Amendments to Plan of Work (POW)

Once on site, upon setting up the enclosure etc. some slight changes may be necessary to the plan of work for example, skip cannot be located where first anticipated or the negative pressure unit needs relocating. The URAS Site Supervisor may make these changes; however, any such changes must be recorded by the Supervisor onto the site copy of the plan of work and then initialled. Any such changes should be notified to the office immediately for recording into the contract file and for approval by the relevant Contracts Manager, revised hard copies containing amendments would be issued to site as speedily as possible.

In each such case the relevant Contracts Manager must consider whether the changes made amount to a "material change", which might affect the particulars notified in accordance with CAR Regulation 9(1)(a). These particulars are specified in Schedule 1 of CAR and are reproduced here:

The following particulars are to be included in a notification made in accordance with regulation 9, namely (SCHEDULE 1 – Particulars to be included in a notification)—

- (a) the name of the notifier and the address and telephone number of that notifier's usual place of business;
- (b) a brief description of:
 - (i) the location of the work site,
 - (ii) the type and quantities of asbestos to be used or handled,
 - (iii) the activities and processes involved,
 - (iv) the number of workers involved, and
 - (v) the measures taken to limit the exposure of employees to asbestos, and

- (c) the date of the commencement of the work and its expected duration.

(CAR R9(1)(b): Any "material change" which might affect the particulars notified in accordance with (1)(a) (including the cessation of the work) must be notified to the relevant enforcing authority, **in writing and without delay**. Further guidance as to appropriate notification actions are provided in the current revision of ALG Memo 06/12 (1st October 2014), entitled "Notification of licensed asbestos work (including HSE Policy on requests to waive the 14-day notification period)".

NB: Appendices and ALG memos are attached to Asbestos Network Working Group minutes when the nature of discussions (or the complexity of the subject) warrants further explanation and clarification. This guidance is aimed at licensed asbestos removal contractors (LARCs); however, it applies equally to others involved in asbestos work. The guidance

summarises conclusions on the topics and should be read in conjunction with authoritative guidance provided by L143, HS247 and HSG248.

A summary of Asbestos Network (AN) guidance publications including, AN minutes, Working Group minutes, Appendices and ALG memos may be found on these industry resource sites:

<https://www.coniac.org.uk/resources/asbestos-appendices>

<https://www.ukata.org.uk/library/asbestos-network/>

URAS operates the following procedure in response to the situation where the Supervisor contacts the Office or Contracts Manager (if the CM is not on site) to notify **the needs for a significant (material) change in relation to the work**. URAS will ensure that:

- All work should immediately cease on site other than any client/site liaison & visits and investigation associated with assessment and planning. Cessation of works should be notified and if the new start date is NOT known this will require a new on-line ASB5.
- If any doubt, consult competent advice.
- If any doubt (uncertainty remains such as in an unusual case), the CM will contact the relevant EA to discuss and proceed as agreed with the EA otherwise, re-plan and re-notify.
- **NOTE: No work to start on site until the notified start date/time and with a copy of a suitable & sufficient written PoW on site.**

6.5 Typical Sequence of Works on Site

1. Contracts Manager to complete job load list.
2. Collect allocated DCU and complete inspections and document.
3. Contract Manager and Supervisor to fully review all documentation and key elements of the project – this briefing will occur on site during the first morning mobilising the job.
4. Contact client / client representative and undergo client induction.
5. Contracts Manager will walk and talk the job with the Site Supervisor.
6. Set-up DCU, establish welfare arrangements as per PoW.
7. Supervisor to evaluate the works on site against the PoW to ensure that the plan is accurate and no amendments are required.
8. Supervisor to give Pre-start Supervisor Team Briefing (Induction) to team on the requirements of the project which will include a full briefing on the relevant parts of the PoW, allocating specific tasks to members of the team. In relation to specific work areas, the Supervisor will instruct the enclosure team working in that enclosure/area.
9. The Supervisor will conduct further team briefings daily, incorporating any relevant toolbox talks and this shall be recorded. In relation to each area:
10. Supervisor must ensure any prescribed isolation works have been completed and proof is available on site.

11. Establish and confirm suitability of any access arrangements / requirements
12. Establish and confirm suitability of Asbestos Area and Respirator Zones for each enclosure / work area.
13. Carry out necessary pre-cleaning works as stipulated in the PoW.
14. Enclosure construction.
15. Independently witness smoke test, record details. **If no independent witness**, senior operative to counter sign the Supervisors signature.
16. Supervisor to complete and sign the Setup Checklist to confirm adequacy of the setup.
17. Supervisor to continue to carry out periodic checks and inspections and record.
18. Commence controlled dust suppression.
19. Controlled removal techniques.
20. Bag and remove waste at regular intervals.
21. Environmental clean / final clean and decontaminate plant and equipment.
22. Supervisor visual inspection and record.
23. Analyst to carry out four stage clearance.
24. Analyst to issue Certificate of Reoccupation and DCU certificate if relevant.
25. On completion of the entire scope of work, Supervisor to complete all final checks.
26. Clear site / leave clean and tidy.

7.0 SITE DOCUMENTATION

The following documents shall be available on site throughout the duration of works. Any missing documents are to be reported by the Site Supervisor to the office; **Work will not commence on site until copies of all documents detailed below are available**; replacement copies are to be issued by the Contracts Manager and/or their Administrators. **NB:** Copies should be available on site as certified hard copies OR via tablet. In practice "live" documents which need to be read and actioned on site such as the PoW, risk assessments, daily records, etc. will always be available in hard copy as part of a site specific "Site Pack".

7.1 URAS Site File

Each Supervisor is issued with Site Documentation and/or holds a tablet computer which will contain the following current Site Documentation:

Mandatory Site Documentation:

- Current Asbestos Licence
- Plan of Work (including sketch plans), including a record of any amendments
- ASB5 and/or>NNLW1 Notification, and waiver (where appropriate), including any email amendments
- Site Specific Risk Assessment and any other relevant Risk Assessments, e.g. COSHH
- Company Insurance Confirmation **including** ELCI Certificate
- Standard Operating Procedures (the company's current Standard Procedures)
- Project Site File
- Training records & certificates for all personnel working with asbestos
- Medical surveillance certificates for all personnel on site working with asbestos
- Current face fit certificates for all personnel on site working with asbestos
- Personal Monitoring Certificates (where relevant)
- Thorough examination and test certificates for DCUs, NPU's, VACs and any other plant in use (as appropriate) including Clearance certificates for DCUs – see Section 7.4 below for specific details
- Inspection reports for RPE – see Section 7.5 below for specific details
- Daily records of checks on the enclosure (**including smoke test certificates where enclosure are used**), DCU, Vacuums and air extraction – see relevant Sections below for specific details

Others:

- UR H&S Manual
- Company Asbestos (Health & Safety) Policy
- Fault Report Forms
- Near Miss Report Forms
- Accident/incident Report Forms
- ACOP's & Guidance
- Manufacturers instruction manuals and guidance
- Waste Carriers Licence
- Consignment Note(s) for asbestos waste
- Site Instruction Form
- Isolation Form
- Tower Inspection Forms
- MEWP and telehandler Inspection Forms
- Harness Inspection Forms

The Contracts Manager or Admin (if so requested) will issue new updated information for the Site File/Tablet as required. It will be the responsibility of the Admin Department to ensure that any electronic copies of documentation is issued to site in a timely manner.

Contracts Managers will ensure any hard copy updates of PoWs, site plans, etc., are taken to site or part of handover in the office in a timely manner.

The Site file and tablet-based information will be checked during internal audits for any omissions or out of date information.

The Supervisor should also regularly check the file/tablet to ensure that it is up to date taking immediate action to remedy any identified deficiencies.

7.2 Training File(s)

Each site operative and supervisor is issued with a training file which contains verified copies of all training, face fit and medical certificates. A provision is made within each file to house training records.

The Contracts Manager or Admin Department will issue new updated information for the Tablet information system in a timely manner as required.

Where hard copies are in use the following will apply:

The Admin Department will issue new updated information for the Site File in a timely manner.

Each operative / supervisor must ensure that updated certification is filed speedily into the site file.

On arrival on site operatives shall submit their training files to the Supervisor who will hold them for the duration of their time on site. The Supervisor should review these files to ensure that they are up to date.

7.3 Data Cross-Checks

IMPORTANT: Cross-checks are vital to ensure Site Specific information and any revisions have reached their target. Supervisors have been briefed in this regard and should carry out site checks and remain vigilant to check the receipt of documentation when they are anticipating any changes to site file information.

7.4 Agency Workers

In the case of agency labour being provided, Managers will ensure that checks are made to verify competence and that the intended labour supply has all necessary and authenticated documental proof of training records and certifications such as face-fit records. The relevant Site Supervisor will then ensure that he has received the relevant paperwork on site and added it the site file, prior to allowing the operative to commence work. These certificates will be verified, stamped and signed by the agency supplying the labour. If this documentation is to be held electronically on the URAS Tablet system, it will first be verified and then uploaded to the system before the start of work on site. The Site Supervisor must verify that all information is available on the tablet before any agency labour start work on an URAS site.

7.5 Plant & Equipment

Valid DOP and electrical test certificates must be available for inspection on site for all equipment such as: -

- Decontamination Units*
- Negative Pressure Units
- Class 'H' Filtered Vacuum Cleaners

* A valid electrical, gas test certificate must also be available for DCU's. Further the latest air clearance certificate for the DCU should be available on site.

If plant cannot be accessed once works are live then copies of certification must be available on site.

All other portable electrical equipment should display a valid PAT test certificate.

Thorough examination and test certificates for other plant and equipment must be available where relevant e.g. Wet injection equipment

Where plant is hired, the Site Supervisor is to ensure that it is provided with current and valid certification prior to accepting and/or using the equipment on site.

7.6 Other Site File Forms

The Site Team shall maintain the following daily records on site: -

1. Record of Inspection of Site Team's Certificates
2. Daily Site Diary & Incident Report
3. Enforcing Authority Visit Record
4. Daily Mask Inspection Form
5. Daily Exposure Record
6. Personal Monitoring Record
7. Decontamination Unit Daily Inspection Record
8. Enclosure Inspection Record
9. NPU Inspection Record
10. Class H Vacuum Inspection Record
11. Smoke Test Certificate
12. Supervisor Visual Inspection & Handover to Analyst Record
13. Job Completion Sign-off
14. Completion Certificate
15. Harness Inspection Checklist
16. MEWP – Inspection Form
17. Mobile Tower Inspection Record
18. Telehandler – Forklift Inspection Checklist

Additionally, the Site Supervisor shall maintain the following records on site (as appropriate to project), which are incorporated into the site file:

19. Job Load List
20. Daily Activity Briefing (Toolbox Talks)
21. Toolbox Talk Records (At Least 1 per Week)
22. Client Feedback Form
23. Accident & Incident Record

- 24. Near Miss Report Card
- 25. Faulty Equipment Report
- 26. Confined Space - Top Person Record Form
- 27. Confined Space - Equipment Checklist
- 28. Welfare Inspection Checklist
- 29. Noise and Vibration Exposure Record
- 30. Site Audit Form
- 31. Monthly Mask Inspection Form

8.0 SITE SET UP & ENCLOSURE CONSTRUCTION

8.1 Resources

Prior to commencement of the contract, the Contracts Manager in liaison with the Site Supervisor must ensure that any plant and equipment required such as negative pressure units, vacuum cleaners and the decontamination unit extractor all have current DOP certification and have been fully maintained and inspected in line with manufacturer's instructions and regulations.

8.2 Instruction to Allocated Supervisor & Operatives

The full comprehensive Plan of Works document would be issued to the site as part of a site specific "RAMS Pack" for information, instruction and reference throughout the contract. This will include the scope of works, materials and resources required and site contact details. This information may also be available electronically via the Tablet system

Contracts Manager is to ensure the appointed Site Supervisor is fully briefed on the project and has read and understood the Plan of Works, risk assessment and any other associated documentation. This will also involve a site visit at the commencement of the project.

Daily toolbox talks (briefing) will be recorded. **STOP AND HOLD POINT**. This will be conducted by the Supervisor or the Supervisor and Contracts Manager (on days when the CM is on site.) All operatives on the team will sign the briefing form stating that they have been issued with all relevant documentation and have received adequate information and instruction.

8.3 Site Mobilisation

Once on site and when any necessary inductions etc. have been carried out then the decontamination unit (DCU) is ready to be sited; site the DCU as close to the work location as possible, ideally directly connected to the Enclosure, as detailed in the PoW. (The contracts manager will have assessed the availability of services, and agreed the DCU location with the client. **NB:** In all cases the aim will be to directly connect the DCU to the working area via an intervening tunnel and airlock system **(unless this is not reasonably practicable)**. If the DCU cannot be directly connected, it should be as close as is practicable and transit procedures **MUST** be followed. The DCU must be fully operational before any works can commence on site. A

copy of the air clearance test certificate taken in the dirty end and showers of the DCU at the completion of the previous contract must be on site. Works must not commence until the DCU is fully operational and checked to be working on site.

Supervisor to establish and appropriately sign the 'Asbestos Zone(s)' and 'Respirator Zone(s)'.

Before any works commence the scope of works and the extent of the 'immediate surrounding area' including transit routes and route for transferring bags of waste to lockable and lidded skip (or designated Waste compartment of van) should have been agreed with the client. Transit and waste routes should be clearly signed, inspected regularly and kept clean.

Where reasonably practicable, the 'transit route' should avoid occupied areas or, if that is not possible, the work should be carried out when the required transit areas are not occupied. If this cannot be done, then more rigorous decontamination of personnel will be required prior to transiting and more stringent arrangements may be required to deal with any incidents which may expose persons to asbestos.

Prior to starting works, the status (i.e. are they potentially contaminated with asbestos?) of any items wrapped in polythene or sheeted out to exclude them from the enclosure should be agreed. For example, if it is not possible to decontaminate a cable tray or a bundle of cables it should be stated that these will not be asbestos free so that the client can consider isolating and removing them as asbestos contaminated waste. If rough brickwork or concrete form the perimeter of the enclosure these walls, floors, or ceilings should be covered in polythene to exclude them from the enclosure. However, they may be already contaminated with asbestos fibres. Inspection of the work area (with testing as required) will establish this and agreement with the client must be obtained as to the course of action before any work is commenced.

The site MUST BE fully established before any physical works commence. This should be recorded. **STOP AND HOLD POINT**

8.4 Housekeeping

It is of paramount importance to URAS that sites are maintained in a clean and tidy condition to prevent accidents as well as providing satisfactory working conditions:

The following housekeeping procedures apply:

- Keep work areas clean, neat and orderly.
- Keep all aisles, stairways, passageways, exits and access ways to buildings free from obstructions at all times.
- Ensure appropriate barriers and signage at all times
- It is everyone's responsibility to pick up and clean up.
- Do not let materials and supplies that are no longer needed accumulate. IF IT IS NOT NEEDED, GET RID OF IT!

All operatives, regardless of status, are required to keep their own work areas tidy and must regularly remove debris and rubbish in a systematic manner. **No operative should leave rubbish for someone else to clear up!**

8.5 Site Storage

URAS shall ensure that all equipment, materials and sundry items required to execute the work shall be stored safely and securely on site.

Storage shall be planned effectively in order to reduce any manual handling risks to the lowest level reasonably practicable.

Items will be stored in accordance with manufacturer's storage advice.

8.6 Isolations

Before carrying out any asbestos work, the URAS Contracts Manager will ensure that all live plant or electrics which may impact upon our work are inspected, and where practicable, shut down and its energy sources isolated as part of an isolation procedure to ensure the safety of the site team in carrying out the proposed works.

Examples of energy sources include electricity, hydraulic pressure, compressed air or gas, gravity, kinetic spring tension and moving parts.

The basic aims of the isolation procedure is to:

- isolate all forms of potentially hazardous energy to ensure that an accidental release of hazardous energy does not occur
- control all other hazards to those doing the work
- ensure that entry to a restricted area is tightly controlled.

Risk control measures

The risks associated with any live electrics and/or other plant or equipment during asbestos removal works should be assessed and appropriate control measures put in place, starting with effective isolations.

Before work commences any live electrics and/or plant should be stopped, appropriately isolated/locked and tagged, along with any stored energy should be dissipated.

Separate controls away from the plant operator or immediate work area must also be isolated and locked off where relevant.

Isolation Procedures

The isolation procedure is a set of predetermined steps that should be followed when asbestos removal work is to be undertaken.

The following steps briefly describe the isolation procedure:

1. shut down any relevant machinery, plant and equipment
2. identify all energy sources and other hazards, e.g. Live electrics, heat sources, etc.
3. identify all isolation points
4. isolate all energy sources. In the case of electrical equipment, a competent electrician will carry out the necessary isolations. As a rule, 'whole current isolation', such as the main isolator, should be used instead of 'control isolation' by way of the individual controls or 'stop

buttons' on a control panel. Even better pull tails and confirm these 'hard isolations' where possible

5. control or de-energise all stored energy
6. lock-out all isolation points, using padlocks, multi- padlock hasps and tags or similar (to ensure the system cannot be re-energised inadvertently)

Cross Checks

Prior to commencement of works the Supervisor must liaise with the client or nominated agent to ensure that all isolations stipulated in the POW and risk assessment have been conducted by trained and competent personnel – proof of such isolations will be required. e.g. electrical isolations certificates.

If any doubt exists at all, this will be **a PRIMARY CONTROL and a clear STOP and HOLD point.** The Supervisor must inform the Contracts Manager and take advice as to the best course of action.

8.7 Pre-clean

Enclosures will normally be designed and constructed so that asbestos materials are not disturbed until the enclosure is complete and under negative pressure. Where this is not possible then a 'pre-clean' must be carried out – the asbestos debris must be cleaned up using methods to minimise fibre release before the enclosure is constructed, suitable RPE and PPE shall be worn during pre-cleaning and any work likely to disturb asbestos during the building of enclosures. Measures to prevent spread **MUST** be adequate. Additionally, a suitable exclusion zone must be maintained, this may require a 'Buffer' zone.

The POW will stipulate the PPE and RPE requirements for the pre-clean of the work area – this must be enforced on site by the appointed Supervisor.

The proposed work area should be inspected and checked to prepare for the removal work. The site pre-work inspection should be performed in areas where clearance will be required i.e. the planned enclosure area and also the relevant surrounding places such as transit and waste routes and the area immediately next to where the enclosure will be located.

The work area should be free from items of plant, equipment and furniture as far as possible. All mobile or portable items should be removed before the enclosure is constructed. Plan of work will detail any specific isolation requirements. Any items remaining should be pre-cleaned and then protected or covered with polythene sheeting. They must be securely taped to complete the seal and to prevent contamination. If there are boilers, or similar plant incorporating flues, inside the enclosure, the flues should be sealed to prevent the spread of asbestos.

The pre-clean must be undertaken using appropriate dust suppression and control measures, including vacuuming with a Class 'H' filtered vacuum cleaner, surface wiping, temporary encapsulation with polythene, tape or cling film, spray wetting and bagging.

All surfaces to which the enclosure is fixed will be cleaned to ensure maximum adhesion of the adhesive tape.

8.8 Construction of Enclosure

Work methods will always be selected with the overriding requirement to prevent the spread of asbestos.

Where it has been determined that there is a possibility of the spread of asbestos and where it is reasonably practicable to do so, an enclosure will be formed, either by the use of the structure of the building or by a temporary construction. The enclosure will be constructed using polythene sheeting of a minimum of a 1000-gauge (250 microns), supported as necessary by framework, polythene to be pulled taut and secured with adhesive tape, which will usually be a laminated polycloth (PCL) tape of 75mm width.

The supporting framework will be clean 50mm x 50mm timber as a minimum or by other structures, which may be present e.g. scaffolding. When using scaffolding to form the enclosure or if scaffolding boards are present in the work area the first choice will be plastic scaffold boards (e.g. Supadeck). If timber boards are used these will be covered in polythene to prevent exposure to fibres and a layer of Correx (or equivalent) laid to act as a work surface. All building windows (where relevant) will be sealed with polythene sheeting, tape and / or spray adhesive.

The enclosure will contain 600mm x 300mm clear plastic vision (minimum size) panel(s) situated in position(s) such that the operations inside the enclosure may be fully monitored from the outside. The panels should allow as much of the work area as possible to be viewed and should be kept clean / unobscured. Where viewing panels are impractical or if all areas cannot be readily viewed with vision panels then CCTV shall be used.

Irregular holes around pipes, ducts and conduits will be sealed with expanding foam, trimmed to size after setting. Ensure that where possible any voids are thoroughly sealed with tape, polythene and expanding foam. All enclosures will be given appropriate floor protection; this will be described in the plan of work.

Where tubular scaffolding has been erected for safe working access, and/or in order to form an enclosure, the scaffold contractor shall provide ranch boarding to aid in the fixing of the polythene in order to form the walls and ceiling of the enclosure. The scaffold deck shall be polythene sheeted, then layered with Correx (or equivalent), then layered with a further layer of polythene, all secured with PCL tape and spray adhesive.

Warning signs complying with CAR and/or the current Safety Signs and Signals Regulations will be fixed to the enclosure at appropriate points (every face of the enclosure) to prevent unauthorised access and indicating the nature of the hazard. All hazard pictograms will comply with the international Globally Harmonized System of Classification and Labelling of Chemicals. (GHS).

The enclosure shall incorporate air extraction with high efficiency particulate arrest (HEPA) filtration and sufficient capacity to maintain a reduced air pressure in the enclosure than that outside the enclosure

(negative pressure). The filtered air from the extraction unit should be discharged to the external atmosphere wherever reasonably practicable. Capacity of air extraction equipment (NPU's) will be such as to maintain an airflow of at least 10 air changes per hour for enclosures greater than 120m³ in size or a ventilation rate (airflow) of at least 1000 m³ per hour (SI unit = m³h⁻¹) for enclosures less than 120m³ in size. The enclosure size should consider and incorporate the airlock, baglock and additional areas introduced during the removal such as a ceiling void for example.

If heating, ventilation and air conditioning systems are present in the enclosure area, they should be turned off and sealed for the duration of the work activity. Any impact of heating, ventilation and air conditioning systems in close vicinity to the enclosure should be assessed and duly considered. Issues must be adequately resolved and this should be checked and confirmed by the smoke test, which might necessitate the use of Draeger tubes.

All leads should be fixed at high level or taped/adequately protected at the floor level to reduce the risk of tripping.

If a licensed scaffolding contractor is required as the scaffold forms part of the enclosure then the ends of any scaffold tubes in the enclosure or to access the asbestos work area must be appropriately sealed (end caps or minimum PCL taped).

NB: The Asbestos ACoP L143, 2nd edition L143 mentions scaffolding in the following numbered paragraphs:

38, 308, 391, 392, 437

Key Definitions are:

Para 38: (Ancillary [scaffolding] work)

“Ancillary work also includes putting up and taking down scaffolding, including any scaffolded frame, to provide access for licensable work, where it is foreseeable that the scaffolding activity is likely to disturb the asbestos. “

Para 391: (Licensable [scaffolding] work)

“Erecting scaffolding when it is foreseeable that the asbestos may be disturbed, and/or when the scaffold forms part of a live enclosure will be licensable work. “

Para 392: (Licensable [scaffolding] work) (ACoP to meet Reg. 16 – Control of Spread).

“The ends of any scaffold tubes used in the enclosure or to access the asbestos work area must be sealed.”

Where the structure of the building forms part of the enclosure, URAS shall ensure the effective sealing of areas such as:

- Windows, doors, vents, grilles and apertures through which pipes and other services / facilities may allow air to pass through;
- Surfaces which may not be easy to access or clean.

8.9 Three Stage Airlock – Entry / Exit System & Baglock System

A three-stage airlock entry / exit system will be used for equipment and personnel.

Baglocks are identical to the three stage airlocks but they are solely used for the removal of waste from the enclosure.

The airlock / baglock system will consist of three chambers constructed of 250-micron (1000 gauge) polythene sheet sealed onto a timber or metal framework by 75mm poly cloth adhesive tape.

Airlock/baglock(s) should either be constructed with a supporting framework of clean 50mm x 50mm timber as a minimum, or a bespoke metal 'Speedock' framework. On rare occasions, on short duration jobs e.g. single day social housing work, a "trantent" may be used for these purposes.

The size of the chambers will, wherever possible, be of a bespoke size and construction to meet the specific needs of the job, but with minimum dimensions of 1.0m x 1.0m and 2.0m metres in height. Actual size of construction on a given project will be detailed in the POW. This will give due consideration to the size and number of men and the size of any waste parcels or sections to be removed through the baglock. The chambers will inter-connect via a cut, oval opening / slit in the polythene sheet (reinforced with cloth tape) over which is hung a flap of polythene extending a minimum of 100mm beyond the opening. The flap(s) will be positioned on the enclosure side of the air lock chamber and will be suitably weighted at the bottom of each flap. This enables air to move inward but outward air movement is restricted. Smoke testing will demonstrate that this is effective.

On some occasions, e.g. Social Housing projects it is not practicable to form an enclosure with chambers of 1.0m x 1.0m. In these cases the maximum available space will be utilised and if width is compromised if at all possible the length of the chamber will be increased accordingly to compensate.

The outer compartment should be fitted with a further vertical sheet (a security sheet on the outside) which is used to cover the entrance at the end of a shift. It should be taped back on the roof area when airlock is being used.

Wherever possible, the airlock should be constructed directly on to the hygiene facility. Direct connection will be achieved by the use of a minimum two-stage airlock with an intervening tunnel. Specific details will be specified in the PoW. The construction must allow an adequate inflow of air to suit the air movement arrangements for the enclosure. The intervening tunnel should provide an appropriate degree of privacy as the men will be naked (apart from RPE) when progressing through the tunnel to the DCU. In practice this is usually achieved by the use of dark polythene (such as blue or orange) and/or the use of black Correx sheeting. Weather protection needs may also influence this.

Separate airlock and baglocks should be used where space allows.

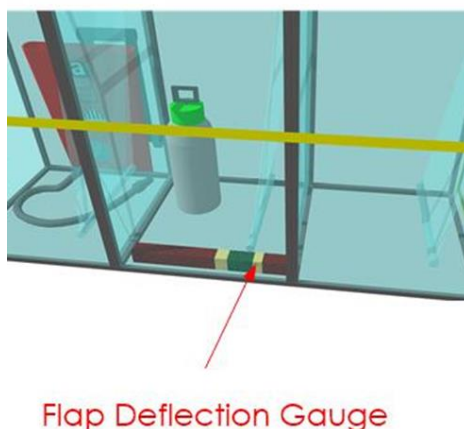
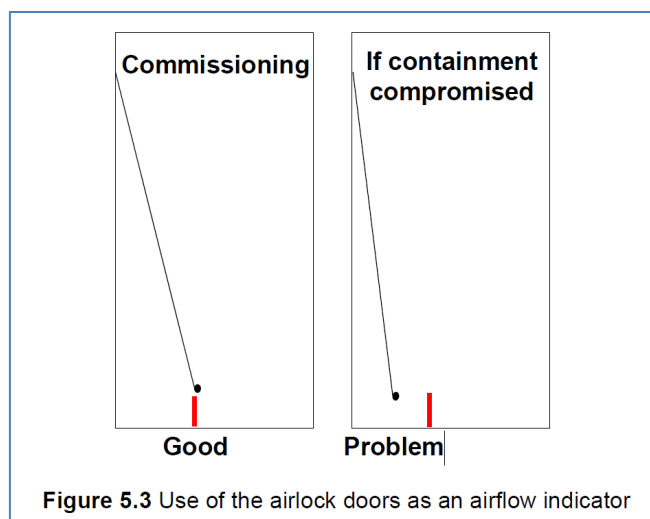
A vision panel must be placed in the inner and middle stages of the airlock / baglock; the vision panels must be 600mm x 300mm in size. Airlocks will

contain a "Discretion flap" which will be added **to the outside** of each viewing panel so that this can be dropped by the Supervisor or outside man when the operatives are carrying out decontamination. This will provide operatives a reasonable degree of privacy and prevent any unnecessary concern to other site users who may in some cases have a line of sight to the airlock. However, during normal operations the flaps will be in the open position to permit regular inspection of the airlock system by the Supervisor and any other relevant party e.g. management, auditor, enforcing authority, etc.

Warning signs complying with CAR and/or the current Safety Signs and Signals Regulations will be fixed to the enclosure at appropriate points to prevent unauthorised access and indicating the nature of the hazard (pictograms in accordance with GHS).

The middle stage of the 3-stage airlock will be equipped with a "flap deflection gauge" (See illustrations below) in order to provide an easy indication for the site supervisor of the ongoing adequacy of the ventilation rate / air changes per hour being achieved during the enclosure lifecycle.

During the enclosure construction the "flap deflection gauge" (see illustrations below) should be fitted in the middle stage of the airlock to indicate the deflection on the flap. See further Section 8.10 and Appendix 1 (at A1.26) as regards Air Management good practice.





8.10 Air Management

The techniques detailed in this section are general guidance for 'best practice' techniques for setup of air movement and management during the various asbestos removal / encapsulation activities. For each project the site-specific risk assessment and POW will determine and fully detail the required ventilation rates and the capacity of NPUs to be fitted to the enclosure(s). Removal works should never commence in an area until the air management setup has been completed and the smoke test / flap displacement satisfactorily completed. The Supervisor must ensure that all works are carried out in accordance with the POW.

The continued effectiveness of air management should be routinely monitored during the entire process until final de-tenting following 4SC.

Selection of Capacity of Equipment

Enclosure <120m³ in size.

Extract equipment should be rated to ensure a minimum airflow of 1000m³ per hour (CMH) for enclosures less than 120m³ in size. The capacity of the NPU should be based on the current (measured) performance of the NPU, rather than the original design specification.

Enclosure >120m³ in size.

Guidance indicates that extract equipment should be rated to ensure a minimum airflow of 8 changes per hour throughout the working enclosure (where the enclosure is greater than 120m³ in size.). However, to provide an increased safety margin, URAS always select extraction equipment to achieve at least 10 air changes per hour.

General

If the enclosure had no leakages, the entire volume of air extracted will be drawn in through the airlock system. An airlock system with a normal cross section of 2m x 750mm will only allow airflow of between 1000 and 1500 CFM (1700 to 2548 CMH) . Additional make up air will therefore be required at entry points convenient to manage airflow within the enclosure. For number of air changes per hour based on size of enclosure and capacity of air mover refer to diagram below: -

VENTILATION RATE / CAPACITY OF AIR MOVER /ACH FOR ENCLOSURE VOLUMES

NPU CMH (VENTILATION RATE)(VR)	Enclosure Volume 10 ACH	Enclosure Volume 8 ACH	Notes
1000	N/A 0-120m ³ (<120m ³)	N/A 0-120m ³ (<120m ³)	Min VR for enclosures < 120m ³
1500	150	187.5	
2000	200	250	
2500	250	312.5	
3000	300	375	
3500	350	437.5	
4000	400	500	
4500	450	562.5	
5000	500	625	
6000	600	750	
7000	700	875	
8000	800	1000	
9000	900	1125	
10000	1000	1250	

The extract system should provide both exhaust ventilation and air movement within the enclosure. Production of the correct level of negative pressure will result from the restriction of makeup air. Excessive negative pressure may cause damaged to the integrity of the enclosure.

NB – it is known that by adding intake or exhaust ducting, and also when introducing a 90-degree bend, these factors will reduce the actual flow rate achieved by the unit. Based on HSE guidance⁴, URAS will factor the following considerations into air change calculations during compilation of plan of work:

Calculate and allow for a loss of airflow rate of 1% per each metre of hose when adding flexible ducting to both the exhaust and/or inlet side of the NPU.

Calculate and allow for a loss of airflow rate of 2% per 90-degree bend, when adding flexible ducting to both the exhaust and/or inlet side of the NPU.

Both of these common factors will be considered in the PoW when designing the enclosure layout and calculating the size of negative pressure(s) required for a particular enclosure.

Correct Use of Equipment

Air extraction equipment must be sealed into the enclosure wall as far as possible from the airlock system.

It must be possible to change the pre-filter, from within the enclosure and there must never be any ducting between this and the HEPA filter which must remain outside the enclosure. In certain circumstances, it is permitted

⁴ See further the Health & Safety Executive Research Report entitled " Ventilation of enclosures for removal of asbestos containing materials" Health and Safety Laboratory, 2013, Reference RR988, especially at 4.3.6, Table 4.15, page 27.

to use a pre-filter extension box within the enclosure, however, this and its ducting must be regarded as contaminated and disposed of accordingly. If hoses are to be reused they must be sealed in bags and clearly identified as contaminated.

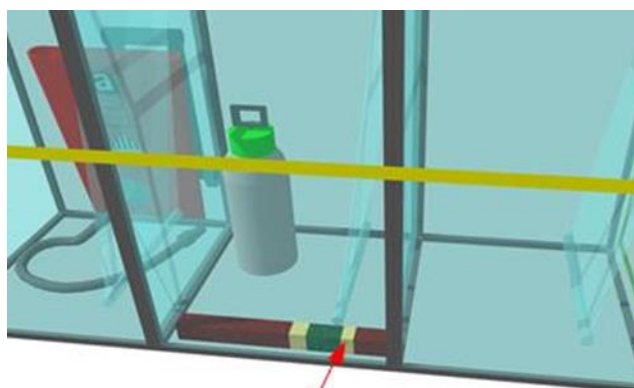
Where possible the exhaust air must be discharged to the outside of the building and consideration given to effect of wind pressure. Where it is not possible to duct exhaust air outside of the building, air monitoring at the exhaust should be considered. The air extraction system should be left running for at least 60 minutes after the end of each shift.

If it is necessary to switch off the air extraction plant overnight, it should be left running for a minimum of one hour after work in the enclosure ceases. The airlock system should then be sealed and work recommenced only after the equipment is restarted and working correctly. A notice should be attached to the electrical supply to ensure the plant is not restarted whilst the airlock system is sealed.

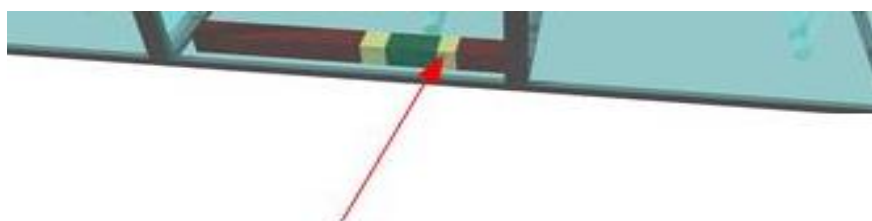
URAS procedures state grey ducting is to be used outside the enclosure and red ducting within the enclosure.

Utilising the degree of deflection (movement) of airlock doors (flaps) as a guide

During the enclosure construction the "flap deflection gauge" (see illustrations below) should be fitted in the middle stage of the airlock to indicate the deflection on the flap.



Flap Deflection Gauge



Flap Deflection Gauge

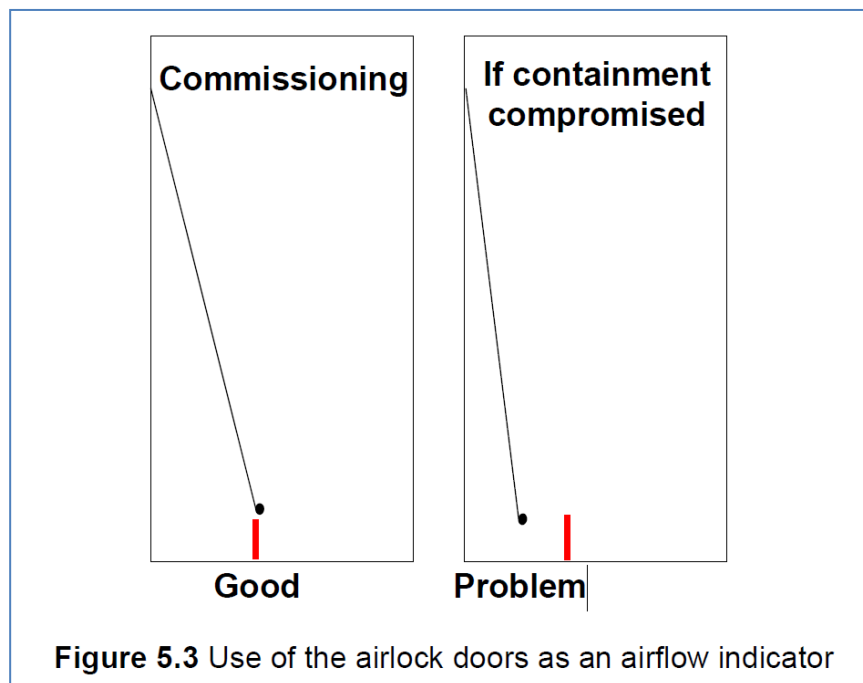
The **Green Zone** (range mm to mm) should be used as a benchmark for monitoring by the Supervisor.

NB: A rule of thumb, in typical setups, suggests the movement of the middle flap should be ~ 250mm from the vertical.

The Supervisor will use this as an additional indicator and regularly monitor this, recording it in the Site pack.

Should the airlock flap move from the **Green Zone**, it indicates some issue with air management (ventilation rates) e.g. pre-filters becoming blocked. If the flap strays into the **Yellow/Amber Zones** the Supervisor will take remedial action to return the deflection to the green zone, thus ensuring that the ventilation rates and air management remains satisfactory.

If the flap deflection reaches **the RED ZONES** this may indicate a significant breach of the enclosure walls or some other failing of the air movement and containment system. **In this scenario, WORK WILL BE STOPPED immediately and the cause investigated.**



8.11 Testing of Enclosure(s)

Option 1

Before work commences the enclosure will be thoroughly inspected, and this will be repeated with the air extraction equipment in operation to test the strength of the enclosure and detect breaches.

Smoke Test – This Smoke test will cover 3 key elements:

1. Enclosure Integrity
2. Confirm or deny absence of deadspaces
3. Record the time taken for the smoke to clear

Integrity - The enclosure will be checked by filling the enclosure with smoke produced by a smoke generator, whilst the extract equipment is switched off. All areas will be inspected using a high-power torch. If smoke is observed to leak from the enclosure, it will be further sealed as required and subjected to a further test. Care must be taken to ensure that the checks are thorough and consider the entire enclosure perimeter and above/below as relevant. Testing will continue until full integrity is achieved.

Deadspaces – once the integrity test is successful, NPUs will be turned on in order in order to extract the smoke from the enclosure. During the period of smoke removal it is important for the site team to observe the smoke patterns to ensure the absence of deadspaces and generally confirm that suitable mixing of the enclosure air is taking place. Common problems include sumps, top/head spaces, blind / isolated areas, etc. If deadspaces are indicated by the observation of smoke in an area which is slow to clear, this should be classed as a smoke test failure and the Supervisor should discuss this with the Contracts Manager to consider what measures are necessary to remove the deadspace(s) so far as is reasonably practicable.

Only upon a successful smoke test will the asbestos removal works commence. The smoke test will be recorded on the relevant URAS Smoke Test Form within the Site Pack.

Time for Smoke to clear – this will be recorded for information purposes only. When considering the clearance time of an enclosure both the degree of mixing and the ventilation rate need to be considered. Smoke visualisation is very informative. The 2013 ventilation study (RR988) prepared by HSL for HSE showed that the common belief that the number of air changes per hours (n ach) means that smoke will be cleared in $1/n$ hours is a fallacy, further demonstrating that it can take 4 – 5 air changes before the air is cleared. Fundamentally, good design leading to mixing with adequate ventilation rates is critical to effective air management in enclosure. **Thus the failure of all smoke to clear the area in 6 minutes (URAS procedures 10 ach) or 7.5 minutes (8 ach guidance) is not necessarily a smoke test failure.**

NB: Following any smoke test failure and subsequent air management re-design, etc. the Smoke test should be repeated in full.

Witness to Smoke Test – Ordinarily, **it is good practice to have an independent witness** to the smoke test conducted by URAS. Whenever possible URAS will ensure that this is the case and that the site contact, analyst, tenant, agent or other witness signs the smoke test certificate as a witness. However, in practice this is not always possible and as a minimum, if the smoke test is performed by the Supervisor and site team without an independent witness, the most senior operative on the job will counter sign to the Supervisors signature to provide a witness record. **In these situations the Supervisor should video the smoke test as a record.**

Option 2

An enclosure which is to be kept in place for more than one shift will be examined visually at least at the start and finish of each shift and when it is thought to have been subjected to damage. Records of the examination will be kept on site.

9.0 CONTROLLED DUST SUPPRESSION TECHNIQUES

The techniques detailed in Appendix 1 of this document are general guidelines for 'good practice' techniques for various different asbestos removal / encapsulation activities. For each project the site-specific risk assessment and POW will determine and fully detail the removal method / technique to be used on that particular project. Works should never commence on any project until an agreed POW is in place and all the work team have read and understood it. The Supervisor must ensure that all works are carried out in accordance with the POW.

Very Important Note: Work methods will always be selected with due regard to the hierarchy of control. Aims will be to minimise the creation of fibrous dust with the overriding requirement to keep exposure to all persons to a minimum and prevent the spread of asbestos.

Important Note: Inside the work area, ACMs must **NEVER** be left loose or in a state where they can be trampled or spread. All asbestos waste should be bagged or wrapped immediately after removal and the waste should be removed from the work area regularly.

Appendix 1 – List of Contents

- A1.1 General – Controlled Wetting
- A1.2 Controlled Wetting by Injection of Asbestos Insulation Materials
- A1.3 Removal of Asbestos Insulating Board (AIB) or Tiles (Screw or Nail)
- A1.4 Removal of Asbestos Lift Out Tile
- A1.5 Shadow Vacuuming Removal of Asbestos Insulating Board or Tiles
- A1.6 Removal of ACM's Within Storage Heater
- A1.7 Encapsulation of Asbestos Containing Materials
- A1.8 Wrap & Cut Removal of Asbestos Containing Materials From Pipe Work
- A1.9 Procedure For Cleaning Of Equipment On Completion Of Injection Work
- A1.10 Use of Glovebag Systems
- A1.11 Removal of Asbestos Paper Beneath Fibreglass
- A1.12 Controlled Wetting by Spray Removal of Asbestos Cement Products
- A1.13 Removal of Asbestos Containing Textured Coating
- A1.14 Drilling of Textured Coatings
- A1.15 Removal of Asbestos Debris
- A1.16 Removal of Fuse Pads
- A1.17 Removal of Thermoplastic Floor Tiles
- A1.18 Use of Abrasive Blasting System(s)
- A1.19 Environmental Cleans / Final Clean
- A1.20 Decontamination of Equipment from Enclosure
- A1.21 Removal of Waste from Full Enclosures
- A1.22 - Capping Fire Detection
- A1.23 - Electrical Safety
- A1.24 - Use of Wrist Harness
- A1.25 - DCU Winter Care
- A1.26 - Air Management Facts

Note – the list of removal procedures/techniques detailed in Appendix 1 is generic, and not fully comprehensive. For all projects, a site-specific removal procedure would be compiled for each contract and would be fully detailed on the plan of work.

10.0 REMOVAL OF EXTERNAL AIB SOFFITS

Refer to Appendix 5

11.0 ASBESTOS REMOVAL – CONFINED SPACES

Work in confined spaces is subject to the Confined Spaces Regulations 1997.

Below is some general information on confined spaces.

A confined space is defined as any substantially enclosed space (though not always entirely), including any chamber, tank, vat, silo, pit, trench, sewer, flue, well or other similar space in which, there is a risk of death or serious injury from hazardous substances or dangerous conditions (e.g. lack of oxygen).

Following specific risk assessment, confined space working should be carried out using strict control measures; and in some cases it may also be necessary to work under the client's permit to work systems. Based on the assessment, the PoW will clearly state the control measures and safety management arrangements and measures to be taken, along with the precautions for entry/egress into the space, including working methods, emergency arrangements, etc.

Generally, the minimum size of opening to allow access with full rescue facilities including self-contained breathing apparatus, is 575mm diameter (although they may need to be larger in certain circumstances) – see further ACoP L101 (third edition December 2014). Further the ACoP provides that:

“Different criteria apply when the critical entry dimensions extend over a significant length or height, as in the case of sewers, pipes, culverts, small tunnels and shafts. For example:

(a) It is recommended that people should not normally enter sewers of dimensions smaller than 0.9 m high by 0.6 m wide. Even this ‘minimum size’ may in certain circumstances be too small for reliance on a safe system of work alone.

(b) Additional measures may be needed if there is a long distance between access points or the siting of the sewer invert. Structural alterations to improve access may be appropriate.

(c) In the case of a shaft containing a ladder or step irons, 900 mm clear space is recommended between the ladder/steps and the back of the shaft.

(d) The spacing of manholes on sewers or, in the case of large gas mains etc, the absence of such access over considerable lengths may affect both the degree of natural ventilation and the ease with which people can be rescued. “

Enclosures must be designed to ensure that there are adequate emergency exit points of sufficient size to allow an emergency evacuation of the enclosure. All exit points should be signed and lead as quickly as possible to open air.

Where necessary the enclosure wall can be marked as an emergency exit and suitable means of cutting the enclosure material provided.

Prior to commencement of work it must be determined whether the duct or chamber is a safe place to work, free from dangerous fumes, with an adequate proportion of the atmosphere being oxygen. If this cannot be achieved a safe system of work must include the appropriate breathing apparatus.

NB: ALL confined spaces are gas check areas.

A risk assessment must be carried out by a competent person experienced in all aspects of work. The client and any other contractor on site must provide details

of any substances or process used in or adjacent to the proposed enclosure which may affect the respirable air quality within the enclosure.

The risk assessment must specify the type of RPE that is suitable for the work to be undertaken. It must be emphasised that **powered respirators** used for asbestos removal only filter the existing air within the enclosure, they **DO NOT provide respirable air where none exists**.

Testing of the confined space must be carried out before it is certified as being safe to enter or before precautions to be taken on entry are specified. In any confined space the first check must be on the adequacy of the oxygen supply, tests must also be carried out to detect the presence of gas or fumes preferably using a suitably calibrated multi-function meter.

Initially tests must be carried out by remote means, if these are satisfactory further investigations by the competent person must be carried out using breathing apparatus.

The risk assessment and testing should identify whether purging or ventilation is required and if breathing apparatus will be necessary, it should also identify any further precautions which may be necessary.

Contractors using aerosol adhesives or foam during the construction of an enclosure must consider the effects of these products in a restricted space.

All operatives required to enter confined spaces must have received appropriate specific training in addition to their asbestos removal training.

12.0 ASBESTOS REMOVAL – WORKING IN A HOT ENVIRONMENT

The most likely source of heat will be from hot plant (e.g. boilers, calorifiers, pipe work etc.) either being worked on directly or located nearby. However, hot environments may arise from other sources, particularly due to weather conditions. High air temperatures and / or situations where there is direct sunlight (e.g. solar gain in exposed enclosures) can cause elevated thermal conditions.

Working in hot conditions can cause a number of ill health effects ranging in severity but including acute and potentially fatal conditions such as heat stroke and other conditions such as burns, swelling of feet and ankles, heat rash, fainting, muscle cramps, nausea, vomiting due to salt depletion, excessive sweating, fatigue, giddiness, headaches, breathing difficulties, extreme thirst.

Hot working and asbestos removal should be avoided wherever possible. In addition to the heat stress risks, hot work can lead to deterioration in asbestos control. Adequate wetting of ACM's particularly insulation on hot pipes is difficult to obtain. In addition, the integrity of the enclosure can be difficult to maintain as high temperatures and radiant heat soften polythene sheeting, weakening joints and seams. Moreover, in the event of a failure in the enclosure, strong convective currents can escape causing significant contamination of the surrounding area.

All avenues should be explored to remove the heat source. Wherever possible hot plant should be shut down or turned off and allowed to cool before asbestos removal begins. This may mean scheduling the works to be done during plant shutdown or annual holiday. When hot conditions are due to the climate, work

should be scheduled in the evening or overnight. When work comes up at short notice through incidents of emergency URAS will strive to take short term remedial action as far as possible with a view to incorporating the full works to be completed during any planned shutdowns when the plant is closed.

Hot work will only be permitted under exceptional circumstances, when these can be fully justified.

Where hot work is being considered then meticulous assessment will be undertaken and specialist advice will be sought as required.

Environmental Health series guidance note EH57 – The problems of asbestos removal at high temperatures, **whilst no longer a current document**, will however be used for reference and this and related more up to date guidance considered when forming an appropriate plan of work.

Where hot work is unavoidable then the thermal risk should be minimised through a well-planned and properly designed regime which should be based on the following:

- Minimising heat sources: stopping all boilers and other process plant or equipment operating as far as possible and operating others at minimum temperatures e.g. where there are two boilers, switch one off and operate the other at the lowest setting and then reverse the arrangement.
- Minimising heat spread: through the use of temporary insulation (sacrificial lagging) to cover hot surfaces as they are stripped of existing insulation and through shielding radiant surfaces with low emissivity material or erection of heat radiant barriers.
- Effective air management in the enclosure: employment of higher ventilation rates; removal of air at high level; location of the supply and extract vents to ensure a positive rate of air change at the working position.
- Positive cooling in the enclosure; by drawing make-up air from outside the heat affected area or by the use of an air conditioning unit.
- Localised cooling: the use of free-standing fans within the enclosure to provide local air movement at the working position (note – care must be taken to avoid excessive air currents in the enclosure as they could cause disturbance of dust and could adversely affect the integrity of the enclosure).
- Regulating the length of exposure through job rotation: it may be possible to rotate workers so that individual time spent in the hot area is minimised; implementing periodic rest breaks and rest facilities in cooler conditions (the work / rest ratio would depend on the conditions).
- Preventing dehydration: providing cool water in the rest facility and encouraging workers to drink it in small amounts before work, during breaks and after work.
- Providing training: covering the risks of heat stress associated with the work, symptoms to look out for, safe working practices and emergency procedures.
- Providing adequate supervision: particular attention should be paid to ensure that the control regime is implemented and that it continues to operate satisfactorily for the duration of the work. Work / rest regimes should be strictly enforced.
- Monitoring the thermal conditions and the health of the workers: advice should be sought from occupational health professionals on a health

regime. URAS have specialist digital thermometers combining wet bulb thermometers and globe thermometers in order to measure the index known as wet bulb globe temperature (WBGT) index. The WBGT will be measured within the work area, once the WGBTs have been taken (they must be taken at differing heights and points of the work area) this will determine the appropriate work / rest regimes required for the works.

- Special medicals for hot working may be required for the operatives involved.
- The selection of operatives for the work is crucial. It would normally be young fit healthy men, preferably non-smokers.

13.0 URAS SUPERVISOR VISUAL INSPECTION PROCEDURE

Once the final clean has been satisfactorily completed (refer to Appendix section A1.19 for methodology) then the Supervisor will carry out a thorough visual inspection of the work area prior to asking an analyst to conduct clearance testing. This visual inspection and handover will be recorded using the URAS Supervisor Visual Inspection & Handover to Analyst Record.

This inspection is to ensure that there has been complete removal of the ACM as planned and that the work area has been properly cleaned of all visible debris and fine settled dust.

Further, the inspection should confirm if there is anything likely to cause caveats/qualifications to the 4SC. In a scenario where there remains something in or associated with the enclosure which results in the analyst detailing caveats or qualifications on the 4SC certification and/or Certificate of Reoccupation the **Supervisor MUST immediately discuss and agree actions with the URAS Contracts Manager.**

All non-essential items should be removed from the work area. The only items remaining should be any wrapped waste that could not be removed through the baglock system (the baglocks shall be designed where practicable to permit the waste to be removed, only where this is not practicable will any waste remain within the enclosure) , a Class 'H' filtered vacuum cleaner and wipes and waste sacks which may be necessary for additional cleaning as directed by the analyst and any access equipment etc. which the analyst will require for the four stage clearance.

A Class 'H' filtered vacuum cleaner and buckets etc. for decontamination should also remain in the airlock.

Enough time should be left to allow the work area to completely dry out before the four-stage clearance procedure is carried out.

14.0 APPOINTED ANALYST – 4 STAGE CLEARANCE PROCEDURE

After a satisfactory thorough visual inspection has been carried out by the Site Supervisor the independent UKAS approved analyst would be instructed to attend site to carry out the clearance procedures in order to obtain the 'Certificate of Reoccupation'. There are four stages to the site clearance (certification for reoccupation) procedure: -

- Stage 1: Preliminary check of site condition and job completeness.
- Stage 2: A thorough visual inspection inside the enclosure.
- Stage 3: Air Monitoring.
- Stage 4: Final assessment post enclosure / work area dismantling.

Asbestos: The Analysts' Guide – HSG248 refers in full detail to the role of an analyst and the four-stage clearance procedure (4SC).

The visual inspection procedures should be undertaken by laboratories that can demonstrate compliance with ISO 17020. UKAS will assess compliance with ISO 17020 when assessing asbestos testing laboratories for accreditation to ISO17025 for the site clearance process but ISO 17025 remains the lead standard.

14.1 Stage 1: Preliminary check of site condition and job completeness.

Initially the analyst needs to establish with the URAS Site Supervisor the scope of the work which has been carried out. This must be done by examining the plan of work / method statement. It should be clear from the plan of work:

- Exactly what asbestos has been removed and from where
- If any asbestos materials are to remain in situ; and
- What type(s) of asbestos materials have been removed

If there is no POW on site or if the Supervisor refuses to make it available, the inspection should stop and a 'failed' certification of reoccupation issued with the reason for the failure noted.

The analyst should record the scope of the work on the site certificate for reoccupation. A diagram or photos should be appended so that the scope of the work is quite clear. A copy of the diagram from the POW should meet the requirement. If there is no diagram on site, the analyst should prepare a diagram. The diagram should show the main relevant features of the job on the site – enclosure boundaries, airlocks / baglocks, transit and waste route, DCU and skip. It should provide details of dimensions and sizes. The analyst and the supervisor should agree the content of the diagram and both should sign and date it.

The analyst must ensure that the hygiene facilities are still intact, fully operational and clean. The shower area and dirty end should be inspected by either external viewing from the clean end or by entering wearing the appropriate RPE and PPE. The areas should be clean and free from stored items and the NPU should be operating. The analyst should then check the surrounding areas to the enclosure, including the transit and waste routes and the areas immediately adjacent to the enclosure. The purpose of this

inspection is to check for obvious signs of contamination arising from the work.

The integrity of the enclosure should also be checked. If any asbestos debris is found in the surrounding areas it should be cleared up immediately by URAS. Any breach in the integrity of the enclosure should be repaired before Stage 2 is started. The analyst should ensure that NPU(s) are in situ and in operation. NPU(s) should be switched off just before starting the Stage 3 air monitoring (clearance air testing). The pre-filters should be replaced with new ones before the final clean by the work team.

Before entering the area, the analyst should examine the enclosure through viewing panels or using CCTV as appropriate in order to gain an initial impression of the job completeness **AND IMPORTANTLY TO COMPLETE THEIR OWN RISK ASSESSMENT** in relation to subsequent enclosure entry. This should be done in accordance with their own Company procedures. To aid the analyst the URAS Supervisor must bring to the attention any specific and unusual hazards within the enclosure.

Items to look out for include (but are not limited to):

- Waste remaining in the enclosure.
- Visible debris on the surfaces.
- Inadequate lighting to conduct a visual inspection.
- Essential equipment such as ladders or scaffolding are still present so it is possible to inspect all areas.
- Puddles of water, wet patches and leaking pipes.
- Evidence that sealant has been applied to exposed surfaces.
- Potential hazards inside the enclosure.

If any action is required in respect to any of the above listed items, they should be dealt with **BEFORE** the enclosure is entered.

Findings at Stage 1 should be recorded on the certificate for reoccupation and verified with URAS Site Supervisor before moving onto the second stage.

Only when the analyst is satisfied with the Stage 1 inspection should he / she enter the enclosure to carry out the Stage 2 inspection. It should be noted that the analyst should generally be entering an area that is free of all asbestos. However, the analysts will need to carry out their own risk assessment and determine the level of risk associated with the perceived level (or otherwise) of cleanliness. In all cases, the analyst should be prepared for the requirement for full (primary and secondary) decontamination as required by the situation, risk assessment or their own procedures. Furthermore, it will be for the analyst (a competent person) to determine whether half mask e.g. Sundstrom SR100 P3 or Full-face P3 (powered or otherwise) RPE is appropriate. In order to provide for full (primary and secondary) decontamination URAS will always ensure that a fully operational DCU is available for use by the analyst as required for the entry and exit from the enclosure. **NB:** URAS will be in control of the site and ultimately the Supervisor will have discretion as to who may enter an enclosure. The basic rule being that individuals **MUST** be competent, have evidence of valid training, have appropriate PPE and RPE and be fit tested

for any RPE which relies on a face-seal. They must also understand the Decontamination (and Transit where relevant) process.

IMPORTANT NOTE: Where RPE has to be worn continuously for long periods (e.g. more than 1-hour), then powered equipment will normally be necessary and/or the introduction of breaks/rest periods. The analyst should consider this when selecting their RPE.

In all cases where the enclosure is found to have significant debris and surface contamination remaining, it is important that the analyst terminates the stage 2 visual inspection and leaves the enclosure before any significant disturbance or clean up takes place. The analyst must in these cases follow full (primary and secondary) decontamination assisted as necessary by the URAS team. Further cleaning as necessary will be undertaken by the URAS team before re-entry by the analyst to commence the Stage 2 visual inspection.

14.2 Stage 2: Thorough visual inspection inside the enclosure / work area.

The Analyst must ensure that sufficient time is allowed for the process with particular time being allocated to the thorough visual inspection.

The Analyst should also ensure that visual evidence is provided to demonstrate that correct procedures have been followed for all stages of the clearance process and that the areas are visually clean.

To that end, the Analyst should estimate and record the expected time for the thorough visual inspection (i.e. Stage 2) of the 4-stage process (based on the guidance given in the Tables provided in the draft analyst guide and their own experience).

The time estimate should be inserted into the CfR at Stage 1 and the licensed contractor advised of the estimated time.

This is the stage at which the thorough visual inspection of the enclosure or work area takes place. It is the most important part of the clearance procedure. The analyst must check:

- The completeness of the removal of the ACM's from the underlying surfaces.
- For the presence of any visible asbestos debris left inside the enclosure and airlocks or work area.
- For the presence of fine settled dust.

The removal process will have given rise to the spread of asbestos dust inside the enclosure. Residual dust may still remain on any unprotected or inadequately cleaned surfaces. Such dust presents an ongoing risk to building occupants.

Therefore a thorough visual examination of all surfaces should be performed. It should involve a close and detailed inspection across all parts of the enclosure kneeling down or using ladders where appropriate. All items and surfaces should be checked. The inspection can be assisted using a dentist mirror, torch and by running a fingertip across the surfaces to check for the presence of fine dust. Awkward or difficult locations must not be excluded. Baglocks and airlocks should be included.

The analyst should be accompanied throughout the inspection by the URAS Site Supervisor who can provide any necessary support to the analyst, or rectify any problems found, such as:

- Holes in the enclosure not visible from the outside.
- Small amounts of dust / debris found during the inspection.

The analyst will have to make judgments on the extent and significance of dust and debris found during the inspection; whether it is minor and it can be cleaned up during the course of the inspection, or whether it is more substantial and is indicative that the final clean has not been undertaken thoroughly enough. If the analyst feels this is the case then he / she should withdraw by marking that the Stage 2 Visual inspection has failed on the Certificate of Reoccupation, citing what needs to be done before another inspection is undertaken.

Essential equipment for the analyst:

- A torch: the torch beam when shone along a surface at a shallow angle is useful in identifying fine settled dust on surfaces; it can also augment the lighting in the enclosure.
- A screwdriver: this is useful for poking behind pipes and into crevices to help inspect these difficult to see areas.
- A mirror (e.g. a dentist mirror): this can be useful in inspecting difficult to see areas.

Equipment which must remain in the enclosure to help inspection includes:

- Stepladders / scaffolding / access equipment
- Lighting
- Vacuum Cleaner (Class H Type)
- Buckets of Water, Sponges, Wipes etc. in the airlock to aid decontamination

The analyst must ensure that sufficient time is available for the site inspection. A detailed visual inspection can be time consuming, and the length of time needed will depend on the size and complexity of the job. For example, a small boiler house should take approximately 1.5 hours.

A large plant room, chemical plant or power station may take several days. During a large clearance, the analyst(s) should leave the enclosure, decontaminate and take a break every 2-3 hours. The time spent carrying out a visual inspection should be recorded.

There are several problems which may be encountered during visual inspections e.g. wet enclosures (an enclosure will fail a visual examination if it is wet and the cause is remediable), loose or naturally dusty surfaces, voids in ceilings which contain mineral wool, congested plant rooms which contain multiple pipes or equipment. These matters can normally be eliminated or resolved more easily before the work starts.

Where asbestos has been sprayed onto porous surfaces (e.g. breeze blocks) or onto tar, it is almost impossible to remove all the asbestos, sufficient to pass a visual inspection. In these cases the analysts, having satisfied themselves that further removal is not reasonably practicable should advise to seal the residual asbestos with a permanent proprietary sealant. The visual inspection can then begin again once the sealant has

been applied and dried. Encapsulation of the asbestos must not take place before the analyst has seen the residual asbestos. Clear and detailed records should be kept should any sealed or encapsulated asbestos remain in an enclosure.

The findings of the stage 2 inspection should be recorded on the certificate for reoccupation.

14.3 Stage 3: Clearance indicator air sampling for the certificate for reoccupation

Disturbed air sampling takes place once a thorough visual inspection has been carried out and the analyst is satisfied that all the asbestos as detailed in the POW has been removed, and there is no visible debris or layers of settled dust. The lowest airborne respirable asbestos concentration is 0.01 fibres / ml, for a sample volume of at least 480 litres passed through a filter with an effective diameter greater than 20mm. In most cases it is reasonably practicable to clean the working area thoroughly enough for the respirable airborne fibre concentration after final cleaning to be below that limit.

The value of 0.01 fibres / ml is taken as the clearance indicator threshold and a site should not normally be regarded as fit for reoccupation until the asbestos in air measurements are below this level.

Air sampling should be accompanied by sweeping the floor with a broom and brushing the surface from which the asbestos would be removed and any other higher level horizontal surfaces. Brushing should also take place on horizontal surfaces where the dust may have settled or collected or where there is suspicion of surface contamination and on surfaces in close proximity to the sampling equipment.

The dust raising activities and their duration should be recorded on the certificate of occupation.

All brushes used for raising dust should be considered as being contaminated and should generally be disposed of as asbestos waste.

There may be occasions when the surface in the work area is a source of non-asbestos dust that would generate unreadable filters. The presence of non-asbestos dust would be noted at the thorough visual inspection. The analyst has to be satisfied that the dust is non-asbestos. However, the analyst should proceed with air sampling as normal. If this produces unreadable filters, the analyst should consider sampling for shorter periods with paired samplers, so that the dust loading on each filter is reduced. If the samples fail again because of the dust loading, then the spraying of surfaces with a sealant should be considered. If a sealant is used, the air test should not be carried out until the sealant is dry.

After air sampling the analyst will check the final flow rate and collect samples for phase contrast microscopy analysis. The analyst will count the fibres in a minimum of 200 graticule areas and report the calculated fibre concentrations for each sample. The analyst will also produce a clear statement whether the enclosure has passed or failed, relative to the clearance indicator value (0.01 f/ml).

Under normal circumstances the air extraction equipment should be turned off and capped during the air test. However, the analyst may deem it necessary to leave the air extraction on in circumstances where switching it off may compromise the integrity of the enclosure, and there are people near the enclosure who may be exposed to airborne asbestos fibres above the clearance indicator as a consequence. Any decision to leave the equipment switched on should be noted on the certificate for reoccupation.

14.4 Stage 4: Final assessment post enclosure / work area dismantling

Once the enclosure has passed the visual inspection and air monitoring the enclosure can be dismantled. Under normal circumstances the analyst will probably remain on site during dismantling (unless the deconstruction is not to take place for some time). If the analyst is close to the dismantling work, appropriate PPE and RPE should be worn as trapped pockets of asbestos could be released during the physical disturbance. Reassurance sampling may be carried out during the dismantling procedure to check for any release of airborne asbestos fibres. The URAS Site Supervisor will inform the analyst if based on the PoW reassurance monitoring is required. After the enclosure has been removed, the analyst should visually inspect the area to ensure it is clean. At this stage the analyst is looking for obvious asbestos debris such as from the sheeting of the enclosure as it was dismantled or from debris which has been missed during cleaning. The analyst should also re-inspect the waste route and transit route for debris.

Where there is some debris this can be cleaned by URAS operatives, wearing appropriate PPE and RPE, immediately using a Class H type vacuum and wiped with a wet disposable cloth. In this situation reassurance sampling should be undertaken to confirm that airborne fibre levels are acceptable (<0.01 f/ml).

If the area is too contaminated to allow immediate cleaning without the prospect of spreading contamination, the 4th Stage should be failed, and the area re-enclosed, re-cleaned and the 4-stage clearance test repeated.

The analyst should record what has been inspected, what was found and the outcome on the certificate for reoccupation.

14.5 The Certificate for Reoccupation (CfR)

Once all four stages of the clearance procedure have been completed satisfactorily, the analyst should issue a certificate for reoccupation. Each stage of the certification should have been completed in sequence, to ensure that the information included is as complete as possible. The information should be clear and unambiguous so all parties know the scope and extent of clearance and any particular matters which have been dealt with. Each stage of the process should be signed-off complete with timings recorded.

14.6 Inspection Certificate for the Decontamination Unit

Once the certificate for reoccupation has been issued the analyst can begin the clearance of the DCU. This should be thoroughly inspected and

air tested. The air test should be accompanied by disturbance of the surfaces in the dirty and the shower areas.

The DCU should be clean and dry before the inspection takes place and potentially asbestos contaminated materials removed (e.g. bags containing used coveralls, used / discarded respirator filters, transit clothing etc.). It is recommended that the unit be entered from the clean end to check that this area is clean and free of bagged materials, before carrying out a detailed clearance in the shower area and dirty end.

Initially the DCU will be subject to a thorough visual inspection followed by air monitoring the showers and dirty end. The analyst should review with the contractor whether or not the DCU is to remain on site following the issue of the inspection certificate and a note of this made on the certificate.

Where, for security reasons the DCU facilities are not left on site overnight, inspection certificate is not required until the end of the contract. In these situations, information on where the DCU is to be stored overnight and other arrangements should be included in the POW.

14.7 Site Auditing Protocol for 4-Stage Clearances

To assist our Supervisors and URAS Auditors (when on site during the 4SC), the following provides a brief note of the key stages and expectations:

- Paperwork available (POW etc)
- Correct PPE and RPE worn
- Correct decontamination procedures followed
- Correct items checked by Analyst in Stage 1
- Thorough check made of transit and waste routes and correct conclusion (i.e. free from debris)
- Sufficient time spent on Stage 2 (in-line with Analyst Guide – see further draft guidance Table reproduced in this Section below)
- Visual inspection was thorough
- Any Stage 2 issues dealt with appropriately
- Correct equipment used for thorough visual inspection (e.g. access equipment, mirrors, torches etc)
- Correct sampling locations and times and disturbance periods for Stage 3.
- Analysis time was sufficient and in-line with Analyst Guide
- Stage 4 visual inspection was thorough
- Sufficient photographic evidence to meet (proposed) guidance and support conclusions.

Guidance Table of the expected/likely time it will take to carry out the thorough visually inspection in various types of asbestos removal scenarios:⁵

ACM	Location	Size of area or volume	Complexity/difficulty	Estimated time required
AIB				
AIB	Ceiling tiles plus void	500-600m ²	Very difficult	8 hrs
AIB	Selective ceiling tile removal	200-300m ²	Not very complex but time-consuming	3-4 hrs
AIB single panel	Domestic Cupboard, Small enclosure	6-10m ³	Not very complex. Some pipes, shelf, skirting etc	15-30mins but up to 1hr
AIB Soffit	External	20-40linear metres	Not complex but high level with mobile platform	1-4 hrs
AIB	Panel(s) below window	20-30m ³	Not complex	0.5-2 hrs
AIB	Ceiling tiles plus void	25-50m ²	Quite difficult Services, cable trays	1-4 hrs
AIB	Ceiling tiles plus void	100-150m ²	Quite difficult Services, cable trays	2-6 hrs
AIB	Ceiling tiles plus void	200-300m ²	Quite difficult Services, cable trays. Time consuming	4-8 hrs
Lagging/Insulation				
Pipe Insulation/lagging	Boiler Room	50-100m ² (150-300m ³)	Complex Various vessels, pipes, ledges	Range: 2-4 hrs to 1-2 days
Pipe insulation/lagging remnants from previous removal	Boiler Room	50-100m ² (150-300m ³)	Complex Various vessels, pipes, ledges	Range: 2-4 hrs to 1-2 days
Asbestos Debris (Lagging/AIB)	Ceiling Void	25-50m ²	Quite difficult Services, cable trays. Time consuming	Range: 1-6 hrs

Notes

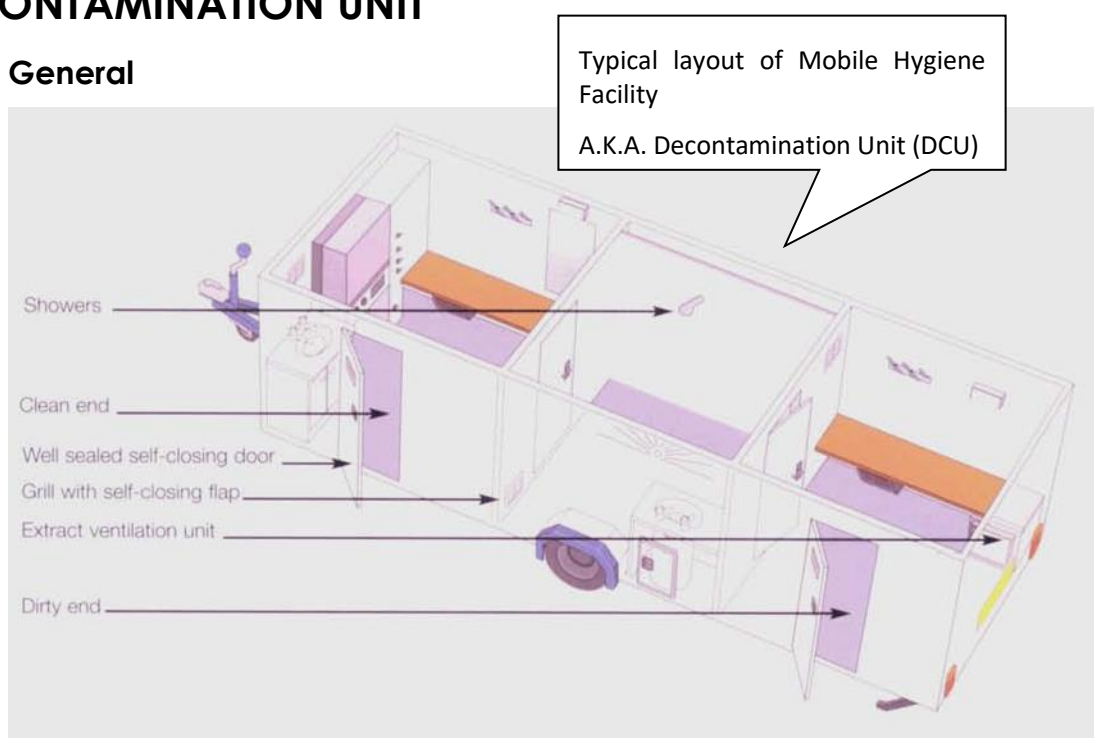
1 The degree of 'sheeting out' by the licensed contractor will greatly affect the time needed to conduct a visual inspection on similar removal works.

2 Ceiling voids may be devoid of fixtures/fittings or full of them; this will also affect the time required.

⁵ Reproduced from Table A5.4, Appendix 5, p180, of the *Asbestos: The Analysts' Guide*, HSG248, (Second Edition, 2021) Published by the Health and Safety Executive. It contains guidance for analysts involved in asbestos work and is the authoritative source of asbestos analytical procedures within Great Britain.

15.0 DECONTAMINATION UNIT

15.1 General



All company decontamination units (DCUs), also known as the "Hygiene Facility" comply with HSG247 – Asbestos: The Licensed Contractors Guide Chapter 8 – Appendix 8.1. NB: Current guidance in relation to the gas and electrical safety aspects when setting up and using DCUs on site is provided within industry guidance document entitled “ **Decontamination Unit (DCU) Services (Gas and Electrical)**”⁶.

Wherever possible the DCU should be attached to the work area, where this is not possible then a transit route must be agreed with the client and appropriately marked. It is preferable to restrict access to the transit route to authorised personnel only, but if this is not possible other measures should be implemented to obviate risk. The decontamination unit should be placed as close as possible to the working area, as the provision of electricity, water, surface and foul drains will allow.

Where reasonably practicable, the 'transit route' should avoid occupied areas or, if that is not possible, the work should be carried out when the required transit areas are not occupied. If this cannot be done, then more rigorous decontamination of personnel will be required prior to transiting and more stringent arrangements may be required to deal with any incidents which may expose persons to asbestos. A site-specific safe system of work will be stipulated in the PoW.

⁶ See further Appendix 01/22 Minutes of the 35th meeting of the Asbestos Network Technical Working Group (ANTWG), 12th July 2022.

At the end of each shift (decontamination cycle) the Supervisor will ensure that a 'last man out' routine is followed and that the nominated last man out' is provided sufficient additional time to ensure that the Airlock, Transit route and DCU is maintained 'in a clean condition'.

DCU's will be kept clean at all times and must be adequately heated within (heaters to be 'easy clean' type, e.g. tube heaters or oil filled radiators).

There will be an adequate supply of hot and cold water, soap / shower gel (shower gel is preferable as less likely to block drains), shampoo, nailbrushes, towels, (to be disposable).

The Site Supervisor responsible for the site must ensure that all services are connected to the decontamination unit and are tested and confirmed to be in full working order.

When all works are completed and prior to the removal of the units from site, each unit will be inspected and air fibre clearance tested in the dirty end and shower area.

On longer-term contracts, where the unit is permanently on site, the decontamination unit should be inspected and air clearance tested at the end of every job phase.

15.2 Towing Procedures

Ensure that the Waste Trailer, the DCU (trailer) or any other URAS authorised trailer is handled by sufficient numbers of competent persons.

The towing vehicle needs to be fitted with a standard 50mm tow ball and electrics.

Any damage to the trailer or other matters of concern must be reported to the office.

Whilst the Trailer or DCU is in your possession you are responsible for its security. This is an expensive and very desirable piece of equipment. Do not be complacent about security.

15.2.1 Driving

Only persons who have been vetted and recorded on the URAS drivers log with towing permissions, will be permitted to tow a trailer.

Company DCUs are twin braked for extra stability and include a jockey wheel, fully fitted lights, and grab handles.

15.2.2 Maximum Speed Limits Whilst Towing:

- 30 miles per hour (mph) on all roads with street lighting (unless a sign shows otherwise)
- 50 mph on a single carriageway (unless a sign shows otherwise)
- 60 mph on dual carriageways and motorways.
- You are NOT allowed into the third lane of a three-lane motorway.

15.2.3 Hitching the DCU (trailer) to a vehicle.

1. NEVER carry any person in the trailer.
2. Number Plate must clearly show the number of the towing vehicle.
3. **BEFORE hitching and connecting the electrics ensure** that the engine has been turned off and the vehicle is locked in order to isolate the lights circuit.
4. Hitch the trailer and connect electrics.
5. Check all the lights once the cable has been connected (side, brake and indicators).
6. Use the jockey wheel to set the correct height to marry up to the towing vehicle. The tow hitch should just clear the tow ball on the vehicle.
7. Open the towing hitch latch mechanism and lower the trailer onto the tow ball and ensure that the hitch is connected correctly onto the ball.
8. Wind up the jockey wheel to the top and then undo the locking arm and raise the whole jockey wheel up inside the A-frame so that it is tucked away as high as it will go and tighten the locking arm.
9. Slip the wire safety loop over the tow ball before hitching the trailer on Connect the electric socket ensuring it connects correctly - Don't force it. Check all the lights are working.
10. The wire safety loop and electric cable should be long enough to allow the tow vehicle and trailer to turn on full lock, but not so long that they can drag along the ground.
11. Ensure all doors and cupboards are fully closed and secure.

Any equipment or load placed in the trailer should be securely fastened.

STOP regularly to check any load and fastenings, jockey wheel, hitch, ramp, road wheels etc.

15.2.4 Unhitching a trailer from a vehicle.

1. Make sure the trailer is as level from side to side as you can get it by placing boards or blocks under all of the tires on the low side.
2. Apply the brake.
3. Chock the trailer tyres so they won't roll.
4. Disconnect the electrical cable from the tow vehicle.
5. Disconnect the breakaway loop.
6. Drop the jockey wheel, if soft/loose ground, ensure that the jockey wheel is placed on a 300mm x 300mm marine plywood board or similar.
7. Open the towing hitch latch mechanism and raise the trailer until it clears the tow ball.
8. Move the tow vehicle forward away from the trailer hitch.
9. Secure the trailer in an appropriate manner relevant to the trailer type.

15.3 Procedures for Winter

In order to keep the DCU in working order you may be required to drain the unit during cold (freezing) temperatures. If possible keep warmth within the unit and park in a sheltered area in close proximity to a building.

Take the following steps in order to prevent the DCU from freezing:

1. Open the shower mixers or taps fully
2. Unscrew the shower hose of the mixer taps
3. Hold the shower head up to drain the hose
4. Open the drain taps fully; ensuring you know where they are running to
5. Drain the water storage tank
6. Let the waste pump completely empty the shower tray, filters, pipework and pump
7. Make sure the shower supply pump runs empty before switching it off
8. Dry everything off
9. Put everything back how it was originally

When ready to use the DCU again; re-fill with water, warm if possible; ensuring the DCU is ready for use.

15.4 Set-up of DCU

- Realise DCU location as per the site-specific Plan of Work.
- Once sited, apply the handbrake, wind down the stabilising legs, and level the unit
- Check all certification is in place and current (gas, electrical, air clearance and DOP certificate).
- Check external and internal safety signage is in place and in good condition. Ensure mirror in the clean end is present and undamaged.
- Visually inspect for cleanliness. Check all doors are self-closing.
- Based on current guidance earth the unit if necessary using an earthing rod.
- Ensure wastewater filters are clean, replace as necessary.
- Connect wastewater supplies as per the Plan of Work.
- Visually inspect the gas system (connections, hoses etc.) to ensure that it is good condition. (The gas pipework connections and boiler may have been damaged during transportation and use).
- Connect unit to electrical services, utilise an additional RCD at source.
- Test RCD within unit and source end and check daily.
- Ensure new pre-filter is fitted to NPU and the unit is functioning and record the manometer reading.
- Test carbon monoxide detector sited in clean end to ensure it is functioning.
- Check internal heater is functioning (if necessary).
- Ensure the bottle is adequately full. Connect propane bottle.
- Ignite the boiler unit using only the built-in ignition switch (DO NOT USE LIGHTERS OR MATCHES).
- Ensure showers are working and running warm.

- Ensure a supply of shower gel, nail brushes etc.
- Ensure adequate supplies of coveralls etc. are in the clean end lockers.
- Do not stockpile items in the clean end.

15.5 De-mobilisation of DCU

Before de-mob and clearing site the following measures **MUST** be taken to ensure that DCU's are returned to stores in an efficient state, in efficient working order, in good repair and in a clean condition:

- DCU undergoes DU Clearance. The Certificates should be retained in their nominated space in the Clean end.
- The NPU with a clean filter installed (installed prior to the DCU Clearance) should be capped with the cover
- Dirty Water Filters should be removed on site and replaced with a new clean filter.
- Confirm adequacy of cleanliness otherwise clean inside thoroughly
- Place all water containers, steps, cables, hoses, associated with that DCU etc. securely so that will not move around in the clean end
- Empty the DCU water storage tank fully, especially during winter or in cold weather
- No other materials to be left or stowed in the DCU

16.0 DECONTAMINATION ENTRY/EXIT ARRANGEMENTS

The following procedures for transiting and decontamination depart from those specified within the HSE ACoP L143, 2nd edition. ACoPs describe preferred or recommended methods that may be used to comply with regulations and such methods are generally considered good practice. However, in this regard, these Company procedures are deemed best practice and are considered to go further than those stipulated in the ACoP. The desired outcome is that the best possible primary and secondary decontamination of asbestos removal workers is achieved.

16.1 Hygiene Facility Connected to The Work Area – Enclosure Works

16.1.1 Going to Work

Within the clean end of the decontamination unit switch on heating, lighting and extractor fan. Remove all street clothing. Put on disposable underclothes as necessary. Put on clean red type 5 disposable working overall. Check, flow test, switch on and put on cleaned RPE (Respiratory Protective Equipment), using the mirror in the DCU to check the fit. Carry out basic fit test, and then ensure that zip and overall hood is fully up, with nothing trapped.

Place disposable towels to the floor area of the clean end to absorb moisture when exiting shower on return from work.

Pass through the shower, Pass through the dirty end (depositing a red asbestos waste sack(s) for the later disposal of overalls and filters), passing into the intervening tunnel.

Pass through airlock, always carefully replacing the flaps in to functioning position. Put on working footwear at the entrance to the working area by stepping directly into boots and not touching the floor of the work area as far as is reasonably practicable.

16.1.2 Returning From Work

Prior to exit, within the enclosure a 'buddy check' system will be operated – each operative should assist each other in initial thorough vacuuming down and cleaning of self, RPE and PPE. The vac will be fitted with a brush attachment for this task. Leave work boots directly at the entrance to the airlock and step immediately into the inner stage.

Within inner stage of the airlock, remove overalls and underwear and socks and place into red bag. Do not switch off RPE. (Remove the pre-filter in the respirator without disturbing the main filter seal, dispose of this here into the Red bag (as contaminated waste) and fix the louvered cap over the main filter).

Before leaving the inner stage, thoroughly vacuum off hair, body, feet and mask (RPE) using the airlock Class H vacuum cleaner fitted with a brush attachment.

Enter the central section of the airlock, clean feet, clean mask, hands etc. using water and sponge / baby wipes / sprayer.

Pass through to outer section and the intervening tunnel and enter the dirty end of the DCU.

Enter the shower cubicle. **NB: A minimum shower time of 5 minutes is required to ensure thorough decontamination.** Then:

- Wet RPE face/head piece and head/hair
- Initially wet body and wet mask / motor unit / hose/ power cable, etc. (depends on exact type of mask in use). Ensure body and hair are sufficiently wetted prior to removing RPE
- Hold the motor unit out of the shower stream during the initial removal of contamination from the facemask and wearer's person.
- Wash contamination off the outer surface of the remaining hose and motor unit without directing the shower stream into the inlet(S) of the filter.
- Take off RPE facepiece once sufficiently cleaned/wetted, keeping it in a horizontal position until it is clear of the shower jet. **NB:** Care must be taken to avoid water entering inside the facepiece in particular as this may run down the hose and enter the motor unit causing damage to the RPE
- The facemask can now be detached from the motor unit ensuring that the hose or hose connection to the motor unit is capped as soon as possible, using the correct cap provided in your pack and be thoroughly washed inside and out.
- Hang the facepiece out of the way to start to drip dry,
- **Filters being re-used** - keep water from directly entering filters as much as possible, turn-off, then IMMEDIATELY cap filter(s) and shower and use sponge to clean RPE
- **Filters being disposed** - heavily wet filters, remove and place in red asbestos waste sack, IMMEDIATELY cap the filter aperture with the correct caps provided in your pack to avoid water ingress. **NB:** Care must be taken to avoid water entering inside
- Thoroughly clean mask inside and out and all other components (motor unit / hose/ / battery / power cable, etc.)
- Thoroughly shower off the body and hair etc. particularly the hair, fingernails and toenails. Remove all excess moisture by hand and when finished proceed to the clean end of the DCU

A disposable towel will be placed on the floor in the clean end to absorb some of the additional moisture.

- Proceed to fully dry down person with a disposable towel.

- Proceed to dry RPE as much as possible removing excess water with the disposable towel.
- Place disposable towel into a non-printed clear waste sack and disposed of as general waste.
- Put on street clothes.
- Put RPE on charge ensuring it is left to dry out thoroughly and naturally (not wrapped up in a towel and placed in the RPE box).

NB: It should be noted that in relation to a directly connected setup, once the enclosure has been smoke tested and prior to the start of work, a set of transit boots for each operative along with clean white coveralls will be placed into the intervening tunnel. These will be left in situ during the job only to be utilised as necessary in the case of an emergency.

DIAGRAM 1 – PLAN VIEW - HYGIENE FACILITY CONNECTED TO THE WORK AREA (BAGLOCK NOT SHOWN)

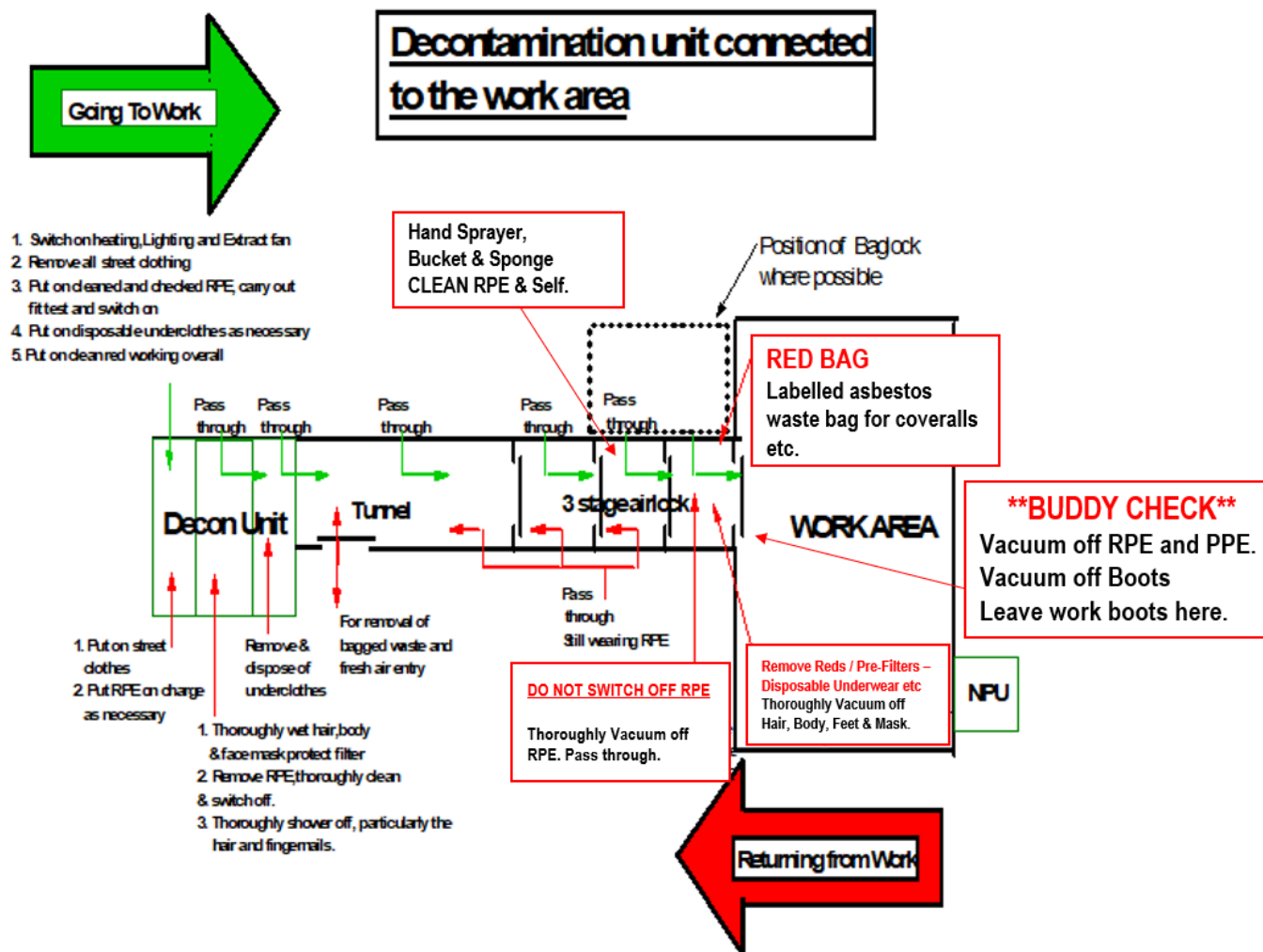
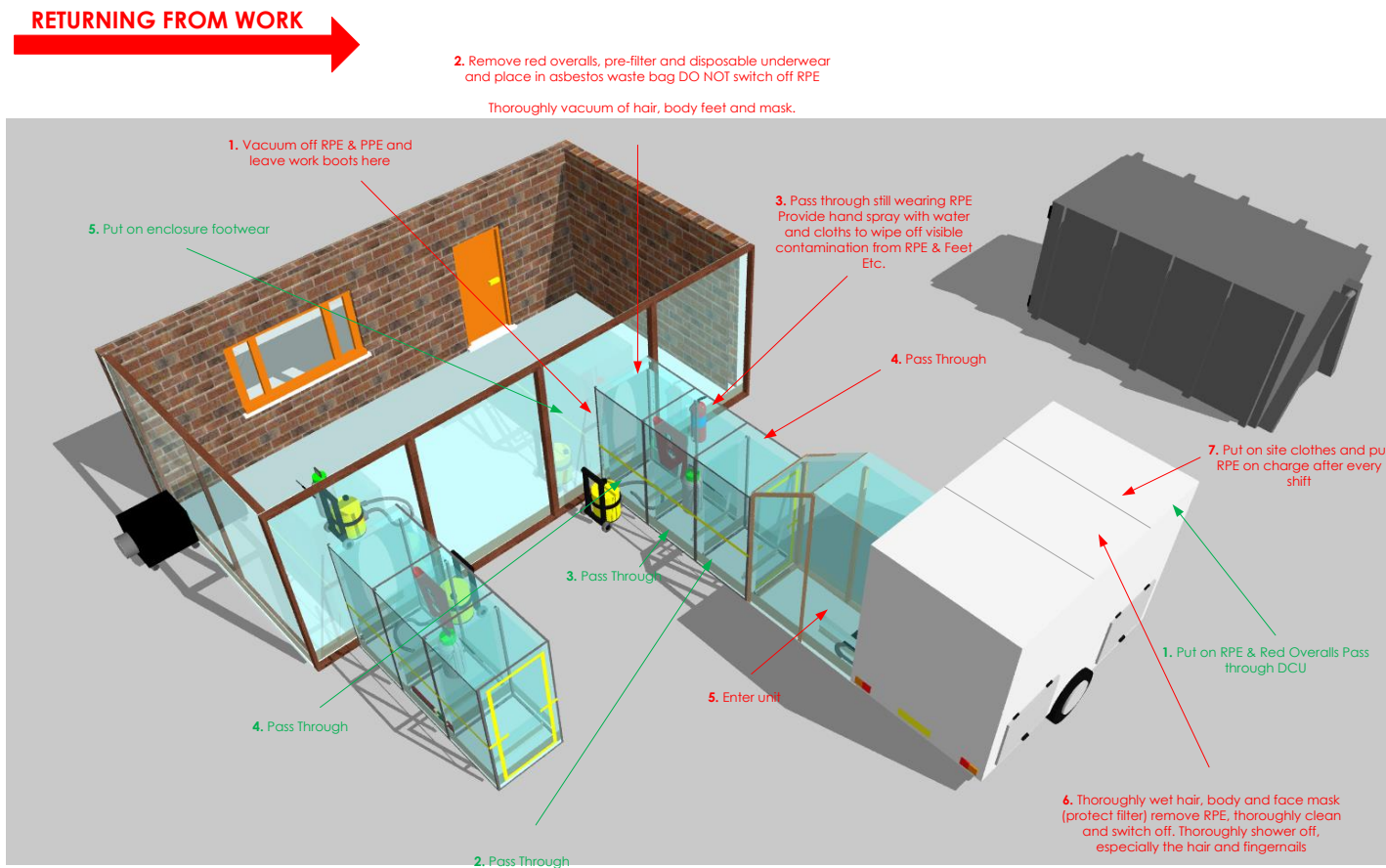


DIAGRAM 1(A) – HYGIENE FACILITY CONNECTED TO THE WORK AREA WITH SEPERATE BAGLOCK

RETURNING FROM WORK



GOING TO WORK

16.2 Hygiene Facility Not Connected to The Work Area – Enclosure Works (TRANSIT RPOECDURE)

16.2.1 Going to Work

Within the clean end of the decontamination unit switch on heating, lighting and extractor fan. Remove all street clothing. Put on disposable underclothes as necessary. Put on clean red type 5 disposable working overall and a clean white type 5 disposable overall. Check, flow test, switch on and put on cleaned RPE (Respiratory Protective Equipment), using the mirror in the DCU. Carry out basic fit test, and then ensure that zips and overall hoods are fully up, with nothing trapped.

Pass through the shower, pass through the dirty end (depositing a red asbestos waste sack(s) to for the disposal of overalls and filters) of the decontamination unit (DCU), put on transit footwear in readiness to enter the enclosure via the three-stage airlock entry / exit system. Transit to the 3-stage airlock. Follow the designated transit route precisely, do not deviate, dally, or stop to talk to anyone.

Enter the three-stage airlock entry / exit system and remove transit footwear and transit overall (white) in outer stage. Pass through central stage and inner stage of airlock, always carefully replacing the flaps in to functioning position. Put on working footwear at the entrance to the working area by stepping directly into boots and not touching the floor of the work area as far as is reasonably practicable.

16.2.2 Returning From Work

Prior to exit, within the enclosure a 'buddy check' system will be operated – each operative assists each other in initial thorough vacuuming down and cleaning of self, RPE and PPE. The vac will be fitted with a brush attachment for this task. Leave work boots directly at the entrance to the airlock and step immediately into the inner stage.

Within inner stage of the airlock, remove overalls and underwear and socks and place into red bag. Do not switch off RPE. (Remove the pre-filter in the respirator without disturbing the main filter seal, dispose of this here into the Red bag (as contaminated waste) and fix the louvered cap over the main filter).

Before leaving the inner stage, thoroughly vacuum off hair, body, feet and mask (RPE) using the airlock Class H vacuum cleaner fitted with a brush attachment.

Enter the central section of the airlock, clean feet, clean mask, hands etc. using water and sponge / baby wipes / sprayer.

Pass through to outer section, put on transit (white overalls) coverall zipped up with hood up, and transit boots.

Follow the designated transit route precisely back to the DCU using the agreed transit route, do not deviate, dally, or stop to talk to anyone. At the DCU step inside and if returning for another shift leave transit footwear in the dirty end of the DCU (dirty end). **NB:** If this is the final shift of the job, transit footwear will be taken into the shower area and fully washed and decontaminated. In 'dirty' end of the DCU dispose of white transit overalls in red bag.

Enter the shower cubicle. **NB: A minimum shower time of 5 minutes is required to ensure thorough decontamination.** Then:

- Wet RPE face/head piece and head/hair
- Initially wet body and wet mask / motor unit / hose/ power cable, etc. (depends on exact type of mask in use). Ensure body and hair are sufficiently wetted prior to removing RPE
- Hold the motor unit out of the shower stream during the initial removal of contamination from the facemask and wearer's person.
- Wash contamination off the outer surface of the remaining hose and motor unit without directing the shower stream into the inlet(S) of the filter.
- Take off RPE facepiece once sufficiently cleaned/wetted, keeping it in a horizontal position until it is clear of the shower jet. **NB:** Care must be taken to avoid water entering inside the facepiece in particular as this may run down the hose and enter the motor unit causing damage to the RPE
- The facemask can now be detached from the motor unit ensuring that the hose or hose connection to the motor unit is capped as soon as possible, using the correct cap provided in your pack and be thoroughly washed inside and out.
- Hang the facepiece out of the way to start to drip dry,
- **Filters being re-used** - keep water from directly entering filters as much as possible, turn-off, then IMMEDIATELY cap filter(s) and shower and use sponge to clean RPE
- **Filters being disposed** - heavily wet filters, remove and place in red asbestos waste sack, IMMEDIATELY cap the filter aperture with the correct caps provided in your pack to avoid water ingress. **NB:** Care must be taken to avoid water entering inside
- Thoroughly clean mask inside and out and all other components (motor unit / hose/ / battery / power cable, etc.)
- Thoroughly shower off the body and hair etc. particularly the hair, fingernails and toenails. Remove all excess moisture by hand and when finished proceed to the clean end of the DCU

A disposable towel will be placed on the floor in the clean end to absorb some of the additional moisture.

- Proceed to fully dry down person with a disposable towel.
- Proceed to dry RPE as much as possible removing excess water with the disposable towel.
- Place disposable towel into a non-printed clear waste sack and disposed of as general waste.
- Put on street clothes.
- Put RPE on charge ensuring it is left to dry out thoroughly and naturally (not wrapped up in a towel and placed in the RPE box).

DIAGRAM 2 – PLAN VIEW - HYGIENE FACILITY NOT CONNECTED TO THE WORK AREA BAGLOCK NOT SHOWN - (TRANSIT PROCEDURE)

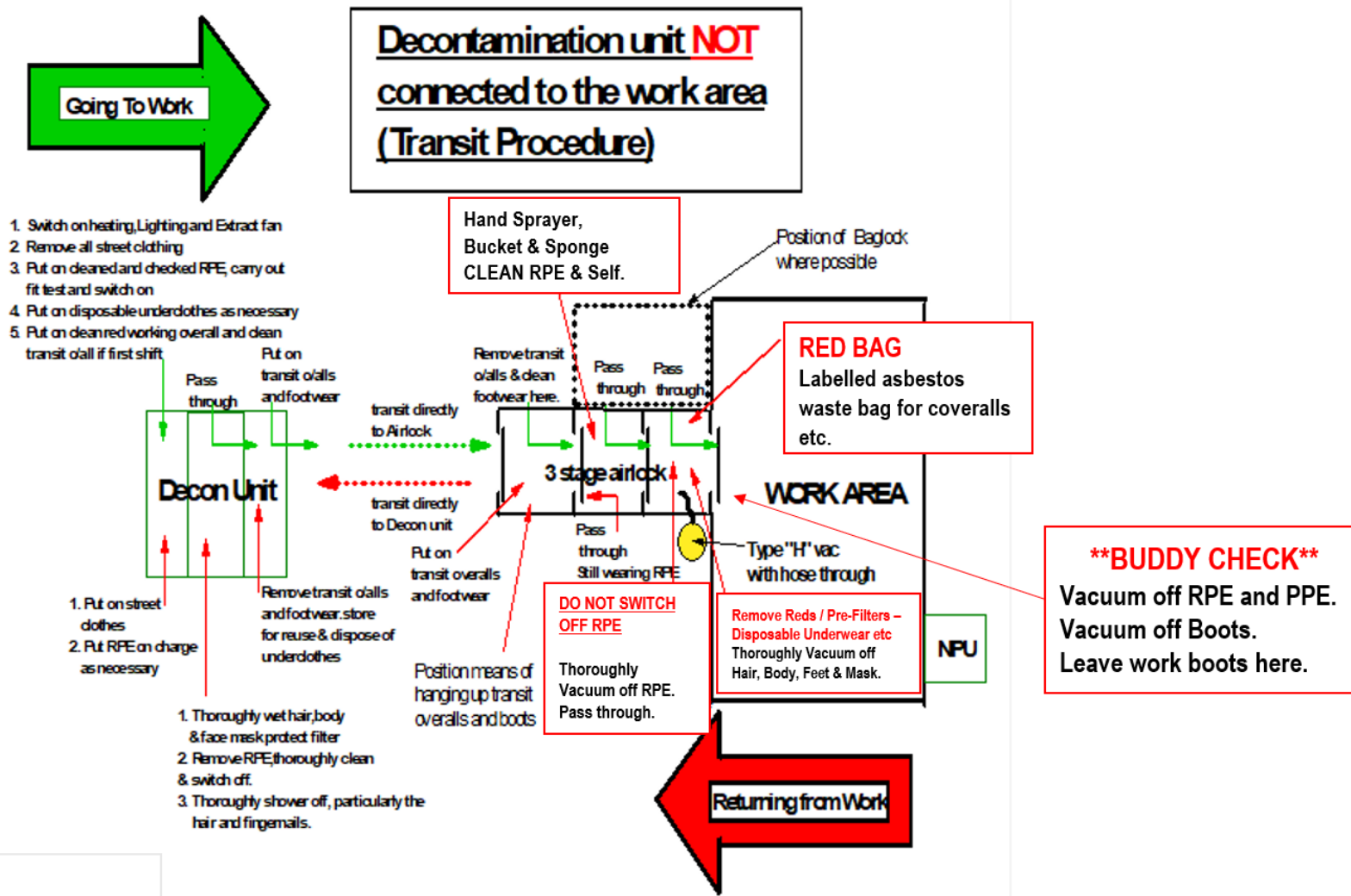
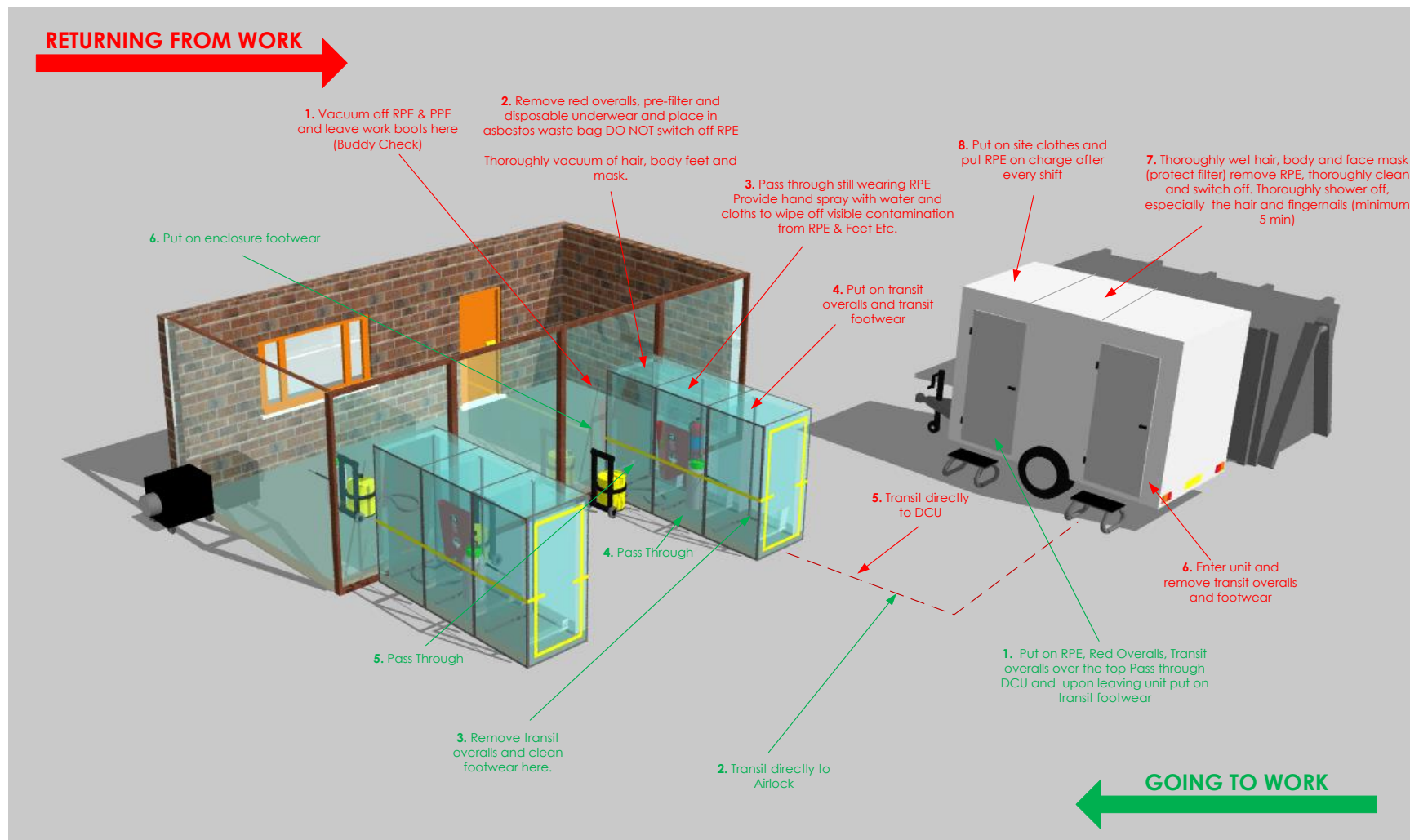


DIAGRAM 2(A) - HYGIENE FACILITY NOT CONNECTED TO THE WORK AREA WITH SEPERATE BAGLOCK (TRANSIT PROCEDURE)



16.3 Decontamination Arrangements for Non-Enclosure Works

The Plan of Work will fully detail site specific decontamination arrangements for works which will not be carried out from within the confines of enclosures. However, the typical procedure for removing and decontaminating personal protective equipment (PPE) and RPE is as follows: e.g. after low-risk non-licensed work activity

- Initially when planning to leave the work area, vac off self, RPE and work boots using the brush attachment on a Class H vacuum cleaner then vac off the brush attachment
- Clean your work boots with damp rags.
- In addition use damp rags utilising a 'patting' action. Rubbing can disturb fibres.
- Where there are two workers, they can help to clean each other a 'buddy check' system will be operated
- Peel off blue disposable overalls, carefully rolling them inside out. Put them in a suitable RED asbestos waste bag.
- Finally, vac off and remove the pre-filter from the P3 half mask, and place in the RED asbestos waste bag.
- Further clean respirator with the use of damp rags / wipes by utilising a 'patting' action. Once thoroughly clean, cap filter and place RPE in approved container.
- The "Asbestos/Respirator Zones" should be limited to authorised competent personnel wearing PPE/RPE where necessary (Respirator Zone(s)). Keep all other people away from the area, especially during personal decontamination.

NB: Any non-licensed or NNLW work **which requires any significant degree of decontamination (this will be assessed during job planning) will be provided with a DCU to permit both Primary and Secondary Decontamination.** In such cases, procedures will usually be in accordance with those set out in Section 17 of this document.

17.0 ASBESTOS WASTE

URAS ensure that all hazardous waste is disposed of according to current legislative requirements.

More information is provided within the industry guidance document entitled “**Asbestos Skips, Van Waste Compartments, Waste Storage and Movement on Site**”⁷.

17.1 Environment Agency

All hazardous waste movements must be notified to the Environment Agency using hazardous waste consignment notes in accordance with The Hazardous Waste Regulations 2005.

Premises in England need not be registered.

17.2 Registering of Sites for Hazardous Waste

Premises in England need not be registered.

Any sites in Wales where which produce >500kg hazardous waste per year must be registered for hazardous waste. On larger scale sites and factories it is likely that the site will already be registered – if this is the case then URAS should obtain from the client, the waste registration number for all consignment notes.

Where sites do need to be registered and the waste is over the 500kg per annum then the site will be registered with the Environment Agency and an individual registration number obtained (this will be valid for 12 months).

All registrations are completed online either by URAS or by the appointed waste contractor.

17.3 Transfer & Disposal of Asbestos Hazardous Waste by Registered Carriers

Transfer and disposal of asbestos contaminated waste materials shall be contracted only to registered waste carriers, licensed in accordance with the Control of Pollution (Amendment) Act 1989 and the Control of Waste (Dealing with seized property) Regulations 2015.

The asbestos contaminated waste shall only be transported when the vehicle driver is in receipt of the Waste Consignment Note – duly completed for the carriage and disposal of hazardous waste. He must check that the load and vehicle security is satisfactory prior to commencing transfer to a licensed tip authorised by the Area Environment Agency in accordance with the Environmental Protection Act 1990 and the 2005 hazardous Waste regime⁸.

17.4 Carriage of Asbestos Waste

URAS also have a site registration number for transferring small amounts of waste under The Waste Carriers Licence.

⁷ See further Appendix 02/24 Minutes of the 44th meeting of the Asbestos Network Technical Working Group (ANTWG), 21st August 2024.

⁸ The Hazardous Waste regulations 2005 (as amended).

In line with the small load limit exemption provided for in the ADR at 1.1.3.6, URAS will never transport more than 333kg of crocidolite or amosite (blue or brown) asbestos or 1000kg of chrysotile (white) asbestos waste.

Bonded projects are exempt subject to Special Provision 168.

17.5 Asbestos Waste Skips

All asbestos waste skips must be lidded and lockable and must remain locked at all times when not being used. Skips should display suitable and sufficient warning signage.

The POW should allow for the skip to be as close to the work area as is reasonably practicable.

17.6 Movement of Asbestos Waste in Vehicles

If a vehicle is being used, the vehicle **MUST** contain an asbestos waste compartment which must be lockable and must remain locked at all times when not being used. On rare occasions (such as a new or alternative vehicle), as a minimum the waste will be in a rigid container such as a wheelie bin or lidded crate which will be securely fixed in the vehicle. Waste compartment or waste containers must display suitable and sufficient warning signage. **Only waste shall be placed in a designated waste compartment which will NOT be used for any other purpose.**

17.7 Bagging of Asbestos Waste & Waste Transit Procedure

All bags, both clear and red coloured polythene must be 'UN approved receptacles', marked and identified in accordance with The Control of Asbestos Regulations 2012 – regulation 24 and The Control of Dangerous Goods and Use of Transportable Pressure Equipment Regulations (CDG) 2009 and each be effectively sealed. The bags to be a minimum thickness of 500-gauge polythene.

Asbestos waste material will be placed in red polythene bags as it is removed inside the enclosure. Any debris which falls into the bottom of an enclosure will be collected on a containment sheet and bagged before the end of each shift.

The red bags will be effectively sealed using adhesive tape or bag ties and vacuumed prior to placing in the inner section (one nearest the enclosure) of the triple airlock or baglock as applicable.

Each bag will then be further vacuumed, wiped with a damp cloth or sprayed with an atomised water spray prior to transferring into the centre stage of the triple airlock / baglock.

In the middle stage, each bag will then be 'double bagged' by placing it in a clear polythene asbestos waste bag which will be effectively sealed using adhesive tape or a bag tie. The bag will be wiped down before being placed in the outer section (farthest from the enclosure) of the triple airlock / baglock for transferring to a secured enclosed skip.

Where possible a separate baglock for double bagging and transferring the asbestos contaminated waste will be provided.

Waste should be removed from the enclosure daily as minimum.

For the operations of 'double bagging' in the inner and centre sections of the triple airlock / baglock full respiratory protection must be worn. For transferring the double bagged waste from the clean section of the triple airlock to placing waste bags in the secure skip, PPE and half mask RPE with a P3 filter should be worn.

Bagged asbestos waste will be removed to a secure asbestos marked waste skip or vehicle waste compartment as soon as possible by the most direct route.

Asbestos waste can only be stored under the following circumstances: -

- On site in a locked and lidded skip, or in the waste compartment of a locked vehicle, or the locked waste trailer.
- At a waste management facility, licensed or permitted by EA or SEPA.

Under no circumstances should asbestos waste be stored in an enclosure, airlock or the hygiene facility.

Sharp and large objects which do not lend themselves to bagging will be double wrapped in polythene and all joints sealed with adhesive tape. A clear / red polythene bag, labelled as asbestos waste will be fixed to the package. Sharp edges should be protected with cardboard or similar as necessary.

Baglocks will be constructed to be large enough for handling the specific waste which is to be generated. E.g. Large AIB boards. In exceptional circumstances, if this is not reasonably practicable, any items which are too large to fit through the maximum baglock size will be fully wrapped and sealed and will remain in the enclosure until it has been dismantled (the baglocks shall be designed wherever possible to accommodate the waste to be removed, only where this is not logistically feasible will any waste remain within the enclosure). In such circumstances, the waste packages will form part of the four-stage clearance by the analyst.

Note: As of 31st January 2017, The Department for Transport's Authorisation No. 465 expired meaning that wrapping large, non-manufactured fibrous asbestos waste in 1000-gauge is no longer compliant with CDG 2009.

18.0 RESPIRATORY PROTECTIVE EQUIPMENT (RPE)

The company provides adequate and suitable respiratory protective equipment (RPE) whenever employees are liable to be exposed to asbestos. To be suitable the RPE must fit the wearer and the following additional factors will be considered when selecting RPE:

- The anticipated exposure level, i.e. airborne Asbestos concentration in F/ml
- The type of additional contaminant(s) and relevant Occupational Exposure Limits (OELs)
- Other environmental conditions, e.g. other hazardous substances such as solvent vapours, Oxygen deficient atmosphere, etc.
- Personal fitness
- Fit – quantitative fit testing
- Personal characteristics of the wearer - Effect on Face seal e.g. presence of facial hair or spectacles will affect the face seal. e.g. Clean-shaven policy.
- Freedom of movement – hoses or cables may restrict movement.
- Duration of work - self-powered respirator will only last for a maximum 8 hours on a full charge
- Physical and thermal stress - the cooling effect of powered masks makes them far more acceptable in warm environments

Where, despite the use of other control measures, the assessment of the work concludes that exposure of workers is liable to exceed the control limit of 0.1 f/cm² or exceed the 0.6 f/cm² peak level measure over 10 minutes (STEL), then URAS shall provide suitable RPE which will reduce exposure to a level as low as is reasonably practicable below the control limit.

It should be noted that RPE is the last line of defence in asbestos works. All other higher level control measures must have been put into place to reduce the risk as far as is reasonably practicable prior to the issue of RPE.

The RPE provided for work with asbestos must be marked with a CE symbol. The CE marking means that the RPE meets the minimum legal requirements for its design and manufacture by conforming to a European Standard. The CE marking does not indicate that it is automatically suitable for a certain type of use.

18.1 Face Fit Testing

Any operative wearing a respirator must undergo a quantitative fit test, this means that before any tight-fitting respirator is issued to an operative a test must be carried out to confirm that the model and size of mask can provide an adequate seal to the face. The test may either be a full Total Inward Leakage test to the appropriate EN norm, or alternatively an ambient particle portable device can be used.

A satisfactory fit test result means that the operative may use any well-maintained example of the respirator model tested, provided it is the mask size tested, and there have been no significant facial changes since the test (e.g. weight loss, scarring, dental work).

Records are kept showing which employees have been successfully tested on each model / size mask.

It should be noted that it is most unlikely that the required protection will be achieved if the RPE wearer has facial hair which is likely to affect the seal of the mask. URAS therefore operates a firm 'clean-shaven' policy.

Operatives will be weighed annually and weights recorded. If a significant weight gain / loss is found then the operative will be subject to a new face fit test for all respirators in use.

As best practice, all face fits will be redone annually for all mask users.

18.2 Powered Respirators

Powered respirators are specified in European Standard EN147 or its revision EN12942. This standard has three levels of protection – TMP1, TMP2, TMP3. For asbestos, only powered respirators marked as approved to EN 147, TMP3 should be used (maximum leakage 0.05%).

RPE shall be compatible with any other PPE required for a project. In particular, any PPE which protects the head or eyes of employees should not affect the fit of the RPE. These respirators consist of a tight-fitting full facemask to which filtered air is supplied by a battery driven fan and have the advantage of being totally self-contained.

The company may use two types of powered respirators;

- with the fan / motor assembly mounted on the waist and is delivered via a flexible and kink-resistant hose to the wearer's facemask, or
- With the fan / motor assembly affixed to the front of the facemask and battery pack around the user's waist.

The powered respirators that the URAS work team use will only be selected for a person if, prior to issue, quantitative fit-testing demonstrates a good fit factor is achieved in each aspect of the fit test.. Generally, a variety of suitable respirators will be used based on individual characteristics. The RPE in use will be clearly detailed on the PoW.

See further the current revisions of:

Guidance on respiratory protective equipment (RPE) fit testing INDG479 (rev1), published 03/19, HSE Books <https://www.hse.gov.uk/pubns/indg479.pdf>

The selection, use and maintenance of respiratory protective equipment – A practical guide HSG53 HSE 2013 www.hse.gov.uk/pubns/ priced/hsg53.pdf

The respirator has four basic components: -

Facemask & Fan / Motor Assembly

The full facemasks are manufactured from silicone or neoprene rubber. The head straps should be readily adjustable and easily undone, as the masks have to be decontaminated on each occasion of use. Normal spectacles should never be worn with facemask as they will prevent the mask sealing properly on the face.

Filters & Pre-filters

There are three types of filters, they provide protection against: -

- Solids, solid and liquid aerosols of negligible volatility and decomposition.
- Gases and vapours as specified by the manufacturer.
- Combinations of solids and gases.

For asbestos removal, it is usually only necessary to use filters for particulates but occasionally, when solvents are being used it may be necessary to use

combination filters. Only P3 (high efficiency) filters should be used with positive pressure respirators for asbestos.

Pre-filters

These are made from a fairly open, non-weave textile and are designed as a coarse filter to remove large particles from the airflow with the intention of prolonging the life of the main filter.

Changing of Pre-filters & Main Filters

a) **Pre-filters**

Pre-filters will be removed within the inner stage of the airlock and placed directly into an asbestos waste sack on exiting the enclosure.

b) **Main Filters**

The main filter will be removed in the shower section of the DCU. On entering the shower area shower down body, wet the filter, turn off the powerpack, remove the filter and place directly into asbestos waste sack situated in the shower area.

Fan / Motor Assembly

Fan / motor assemblies are mounted on at the waist or on the facemask and should not have crevices or awkward corners which prevent easy decontamination.

Battery

Batteries currently in use are Lithium which charge in a short amount of time yet retain their charge for longer.

18.3 Half Mask Respirator

URAS work team has selected Sundstrom SR100 as the preferred ori-nasal respirator. These face pieces will only be selected for a person if, prior to issue, quantitative fit-testing demonstrates a good fit factor is achieved in each aspect of the fit test. See further the current revisions of INDG 479. If required, based on individual characteristics suitable alternative half mask will be provided. The RPE in use will be clearly detailed on the PoW.

Manufactured to EN143, fitted with a P3 type filter. The assigned protection factor to this respirator is 20; this type of respirator should only be used where control limits are unlikely to be exceeded. For instance when handling wrapped asbestos waste, pre-cleaning / constructing enclosures in dusty areas and handling asbestos cement sheeting in well-ventilated areas or other similar lower risk activities.

The filter must be wetted prior to removal and disposed of in an asbestos waste sack – for onward disposal as hazardous waste.

Respirators will be inspected daily by user and monthly by a competent person. The mask will be replaced if deemed necessary on the monthly inspection.

18.4 Cleaning of RPE

Before leaving the work area the operative will be required to go through a decontamination procedure, this will involve taking a shower whilst still wearing their working respirator. The procedure for this is detailed in full in the relevant Section

(17.1.2) relating to decontamination in the shower compartment of the DCU. **Operatives MUST ensure that both their person and their RPE is fully cleaned and decontaminated.**

Other relevant points arising are:

- The efficiency of the filters used in powered respirators will be reduced if they are allowed to become wet and there is clearly a conflict between removing the contamination from outside the respirator and preventing the shower water entering the inlet of the filter.
- All asbestos workers MUST follow the laid-out decontamination/transit procedures (Section 17) with the respirator switched on, enter the shower.
- Respirators face pieces must be cleaned inside and out every time they have been used
- Respirator filters cannot be cleaned. Both pre-filters, if fitted and main filters, may release fibres after use. It is therefore not possible to decontaminate blowers unless the filters are capped.
- Used filters must not be taken off blowers and re-used unless they are able to be capped off in the shower to prevent potential for contamination or spread.

18.5 Respirator Testing

Daily checks should be carried out by operatives and recorded. In addition it is also a requirement to carry out a comprehensive monthly check including flow rates, battery duration etc. this is carried out Operations Manager and duly recorded, a copy of this inspection is made available on site. A more in depth 6 monthly inspection is carried out by our competent approved supplier. Adequate records of this are maintained with a copy held on site.

18.6 Inspection, Maintenance and Testing of RPE

Disposable RPE will not be used by URAS site teams.

18.6.1 Non-disposable RPE

Non-disposable RPE is maintained in good condition and in working order, through sufficient cleaning and decontamination and by carrying out regular checks and examinations. The following separate examinations will be carried out:

- a 'pre-issue' examination will be carried out by the Operations Manager (a competent person) before the RPE is issued to a wearer;
- 'periodic examinations' will be carried out by the Supervisors (a competent person) regularly to make sure the RPE is in efficient working order;
- a 'pre-use' and **pre-use wearer-seal check** examination, carried out by the user (operative or supervisor) wearer before the RPE is used.

All URAS wearers of non-disposable RPE will receive sufficient training to be able to complete the necessary checks.

Pre-issue and thorough examination and test

The Operations Manager (a competent person) examines all new respirators (non-disposable) before a respirator is issued to any wearer for the first time. The pre-issue examination and thorough examination and test will involve visually examining each component in detail to make sure it is in good condition, is not damaged, cracked, broken or perished and it is working properly. The following checks will be undertaken and recorded on the URAS 'Monthly Inspection Record' form:

The condition of the head harness and facepiece (including the face seal, visor and breathing hose if fitted);

- the condition of inhalation and exhalation valves (if fitted);
- the condition of any threaded connections, gaskets and seals to ensure they can be fastened securely;
- that filters, where fitted, are the right type, undamaged, are fitted correctly and within their shelf life;
- the condition of the battery unit and its charge;
- the airflow rate.

NB: The examination and testing will also include any additional checks as specified in the manufacturer's instructions.

The 'pre-use' examination by the wearer

RPE is checked by the wearer before and after it is used to make sure that it is free from contamination and has not been damaged (user checks do not involve the equipment being disassembled).

This involves checking the condition of:

- cleanliness
- that filters, where fitted, are the right type (ensuring it is rated P3), undamaged, are fitted correctly and within their shelf life
- facepiece, including the seal and nosepiece
- straps;
- exhalation valve, if fitted.

Additionally, for powered respirators this involves the following checks:

- the condition of the head harness and clips or mounting points
- the condition of the visor & visor clamps
- the condition of the battery unit and its charge
- the condition of breathing hose (if fitted)
- the condition of the motor unit

The checks detailed above will be undertaken daily (before and after use) and recorded on the URAS 'Weekly Time, Exposure & RPE Record' form.

Before entering an asbestos work area, the user will also carry out pre-use wearer-seal checks and a basic face-fit check to confirm that the mask is fitted properly.

NB: A copy of the manufacturer's user instructions will be available on site for all users.

Frequency of tests

Thorough maintenance, examinations and, where appropriate, tests of non-disposable RPE is carried out by a competent person at least every month, or more frequently where the risks to health and the exposure conditions are more severe.

A more thorough examination is undertaken every 6 months, where the mask will be dismantled, maintained, cleaned and rebuilt.

'Spare' masks are maintained at the same intervals as RPE in use to ensure it is always available in fit and working order.

Emergency escape RPE should be examined and tested following the manufacturer's instructions.

Record keeping

A current record of fit testing, inspections and maintenance are available on site in hard copy and digital format.

A record of all fit testing, inspection, examination, maintenance and any defects that are repaired is kept available at Head Office for a minimum of five years for inspection by the relevant enforcing authority if requested.

Decontamination, cleaning and storage of non-disposable RPE

There are specific requirements for the decontamination, cleaning and storage of non-disposable RPE. The equipment will be:

- decontaminated, cleaned and dried after each use - (NB: URAS decontamination procedures are set out in Section 16 of this document)
- stored in a suitable safe and clean location before use – (URAS issue each RPE wearer with their own suitable Hard storage box both for Half and full-face respirators)
- in an emergency, disinfected whenever the equipment is being transferred from one wearer to another – If equipment is being provided to a different user, the Supervisor will ensure that it is suitably disinfected. In the unusual situation (say an emergency) that wearer need to transfer RPE from one to another on site, this will only be permitted provided that:
 - The new wearer has an up-to-date quantitative face fit certificate for the specific type, model and size of mask
 - The Site Supervisor ensures that it is suitably disinfected

19.0 PERSONAL PROTECTIVE EQUIPMENT (PROTECTIVE CLOTHING)

The company provides adequate and suitable personal protective equipment (PPE) and clothing, including footwear, whenever employees are liable to be exposed to asbestos. To be suitable the clothing must fit the wearer and the following additional factors will be considered when selecting PPE:

- The nature of the hazard and any additional hazards
- Fit for purpose - provide the necessary degree of protection against anticipated exposure or hazard i.e. what is the protection required?, what protection factor is afforded?
- Fit for the wearer - Freedom of movement
- Compatibility with other PPE
- Comfort
- Communication
- The nature and length of the work

For asbestos work, clothing (coveralls) need to be of sufficient size to avoid straining and ripping the joints, comfortable and, where appropriate, allow for the effects of heat and physical strain, and suitable for cold environments. Head covering should be close fitting and should be connected to the main overall. The head straps of the RPE should be worn under the hood.

The company use disposable overalls which are elasticated at the ankle, wrists and hood. All overalls must be Type 5 & 6, Category 3 (BS EN ISO 13982-1)

The specific requirements for PPE and RPE will be stated in the site-specific plan of work document.

The following colours are normally used on all URAS sites:

- White Disposable Overalls: Transit Colour
- Red Disposable Overalls: Working Within Enclosures
- Blue Disposable Overalls: Enclosure Construction

Disposable underwear will be provided in the form of disposable boxer shorts and disposable socks, both are white in colour and will be disposed of as hazardous waste during decontamination.

Wellington boots are preferable to any other form of footwear because they are easy to clean when leaving the work enclosure. Lace up footwear will trap asbestos fibres between the laces; this type of footwear will not normally be permitted. Wellington boots must have steel sole plate and toe cap, working Wellingtons are Blue and transit Wellingtons are White.

Gloves as appropriate are supplied for protection of hands.

All higher risk asbestos (licensed) and enclosure work will be carried out in aforereferenced RPE&PPE and **under no circumstances** will personal clothing be permitted to be worn under coveralls.

Similarly, during actual other removal activities involving NNLW or non-licensed work, when a DCU has been specified, personal clothing **WILL NOT be permitted** to be worn under coveralls.

There are, however, very low risk activities **(demonstrated by Risk Assessment and stated in the POW)** where it is permitted to wear clothing underneath suitable coveralls, albeit specified RPE must always be worn. These activities include:

- Supervisor or other outside man taking **SMALL QUANTITIES** of waste from outside the baglock (being passed out by the man in the airlock) to the skip or vehicle.

There are, however, extremely low risk activities (where no asbestos exposure risk exists) **(demonstrated by Risk Assessment and stated in the POW)** where it is permitted to wear clothing underneath suitable coveralls, without the use of RPE. These include:

- External airlock and baglock construction
- Elements of enclosure construction **UNDER NO CIRCUMSTANCES WOULD THIS INCLUDE PRE-CLEAN**

URAS will select PPE required on a job specific basis based upon identified hazards and risk assessment. E.g. Kevlar gloves to protect hands from sharps.

All PPE requirements will be specified in the POW and the supervisor must enforce its use.

The following Tables provides a summary of PPE types and relevant standards:

General PPE Required

Safety Helmet	✓	BS EN 397
Protective Footwear	✓	BS EN 345 / BS EN ISO 20345
Hi Visibility Clothing,	✓	BS EN 471
Eye Protection	✓	BS EN 166
Gloves	✓	BS EN 388
Hearing Protection	✓	BS EN 352
Flame Retardant Boiler Suit / Apron	If required (job specific)	BS EN 340
Body Harness	If required (job specific)	BS EN 361
Harness Lanyard	If required (job specific)	BS EN 354/355
Inertia Reel	If required (job specific)	BS EN 360

Asbestos PPE Required

Respirators (enclosure or higher risk activities)	✓	BS EN 147 OR EN 12942 TMP3 – P3 Filter
Respirators (non-enclosure or lower risk activities) e.g. Sundstrom SR100 (Orinasal)	✓	BS EN 143 P3 Filter)
Type 5/6 Cat 3 Coveralls - White	✓	BS EN 13982-1
Type 5/6 Cat 3 Coveralls - Blue	✓	BS EN 13982-1
Type 5/6 Cat 3 Coveralls - Red	✓	BS EN 13982-1
Transit Footwear	☐	BS EN 345 / BS EN ISO 20345

20.0 PLANT & EQUIPMENT – SELECTION & USE

Plant and equipment will be suitably managed.

BS 8520 "Equipment used in the controlled removal of asbestos-containing materials" has three parts, each constituting an individual specification or code of practice:

Part 1 (BS 8520-1:2009) "Controlled wetting equipment. Specification"

This provides the asbestos removal industry with a specification for equipment used in the controlled wetting of asbestos-containing materials. It promotes the manufacture of equipment and materials that will effectively wet asbestos-containing materials and suppress asbestos fibres both during and after the asbestos removal process. It specifies requirements for equipment for the controlled wetting of asbestos containing materials (ACMs) by injection or spraying of liquid to suppress the release of airborne asbestos. It applies to the wetting of ACMs by multipoint injection of sprayed coatings, insulating board, thermal insulation and coatings on pipes, tanks and vessels; spraying with low-pressure spray heads of insulating board and other materials less than 10mm thick.

Part 2 (BS 8520-2:2009) "Negative pressure units. Specification"

Although the manufacture of negative pressure units (NPU) has previously met the expectation of the asbestos removal industry, no specifications or specific guidance existed. It was therefore felt that there was a need to provide the asbestos removal industry with a minimum specification to raise industry standards with particular attention to health and safety issues. It specifies requirements for portable and/or transportable NPUs incorporating HEPA filters covered by BS EN 1822 for use in the controlled removal of ACMs. It applies to NPUs designed to create negative pressure within a portable decontamination unit facility or working enclosure and two-part NPUs. It does not apply to local exhaust ventilation.

Part 3 (BS 8520-3:2009) "Operation, cleaning and maintenance of class H vacuum cleaners. Code of practice"

BS 8520-3 gives recommendations for the operation, cleaning and maintenance of class H (High hazard) vacuum cleaners containing a filter conforming to BS EN1822 in the controlled removal of ACMs. It does not apply to any other types of vacuum cleaner for vacuuming up liquids or other applications..

All extraction plant will be in possession of a current test certificate and will be suitably marked with the details of the test and expiry dates and similarly tested in accordance with the required standard.

Pre filters will be changed daily or when visibly overloaded. Pre filters and vacuum bags will only be changed within the enclosure or service provider/ hirer within their specialist decontamination area.

All extraction and vacuum plant will be suitably sealed during transport and storage, vacuums will be sealed within clear asbestos bags.

All plant will be visually examined daily, and records kept on site and returned as part of job file.

See further AN Memo entitled “**Maintenance of air extraction equipment and Class “H” vacuum cleaners in the asbestos industry**”. (Asbestos Liaison Group (ALG) ALG Memo 01/09), January 2009.

All company decontamination units (DCUs), also known as the “Hygiene Facility” comply with HSG247 – Asbestos: The Licensed Contractors Guide Chapter 8 – Appendix 8.1. NB: Current guidance in relation to the gas and electrical safety aspects when setting up and using DCUs on site is provided within industry guidance document entitled “ **Decontamination Unit (DCU) Services (Gas and Electrical)**”⁹.

Hygiene facilities will be provided where necessary either as self-contained mobile units, modular units or in the case of lengthy projects, purpose-built systems. The facility will be kept clean and always maintained to a high standard. The units will not be used as a means of storage for site materials or any waste.

DCU's – Supervisors and their team must return the DCU in a clean and tidy manner. This will be verified by the Supervisors on return, checking to ensure that unit is fit for redeployment complete with all necessary accessories for use on the next project.

20.1 Controlled Wetting Equipment

All controlled wetting equipment purchased after 13th August 2004 must meet the criteria laid down in BS 8520-1:2009 (previously PAS60-1 now withdrawn).

The wetting equipment shall be capable of delivering a wetting solution to ACM through tubes attached to valves and needles or a low-pressure spray head.

Where more than one needle is used, the rate of flow of the wetting solution from the needles shall be controllable and similar at each needle regardless of elevation.

Valves shall be capable of delivering similar amounts of wetting solution by being set or locked to a position. If valves cannot be set or locked, a method of recording shall be installed to ensure an even flow through the needles during operation.

Where the wetting equipment incorporates a low-pressure spray head, the rate of flow of the wetting solution from the nozzle shall be consistent and of a velocity sufficient to dampen the ACM without disturbing it.

Where wetting solution is intended to be delivered by mains water pressure, the water pressure shall be sufficient to achieve delivery of the wetting solution to the

⁹ See further Appendix 01/22 Minutes of the 35th meeting of the Asbestos Network Technical Working Group (ANTWG), 12th July 2022.

ACM. The inlet pressure shall be controllable with a pressure regulating valve. A pressure booster shall be available in case the mains water pressure is not adequate to achieve delivery of the wetting solution.

A wetting solution filter capable of filtering to a maximum particle diameter of 70um shall be fitted to the wetting equipment to filter the wetting solution before it reaches the point of injection or spray. The dilution mixture of surfactant to water shall be clearly understood and achieved.

The wetting equipment shall incorporate a warning facility which is activated if the pressure or flow rate decreases to zero.

The machine shall be provided complete with instructions and installation for use which must be followed to the letter; this will be supervised by the URAS Site Supervisor.

All URAS operatives have received training from the manufacturer in the correct use and cleaning of the equipment.

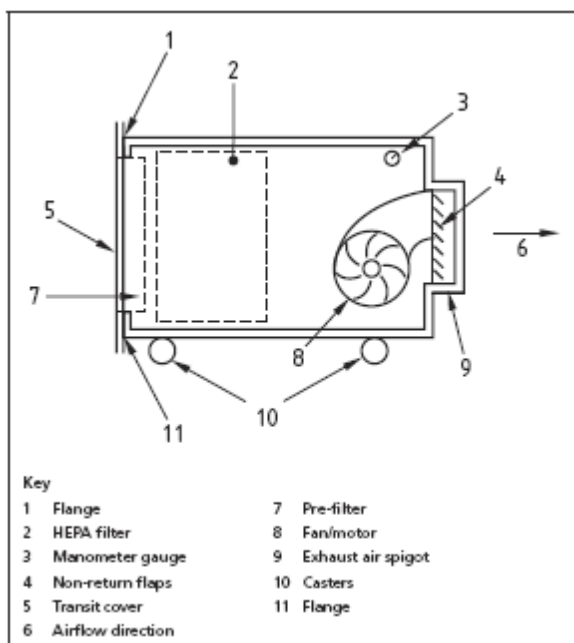
The wetting equipment will be examined by the manufacturer every 12 months. Copy of such examinations will be available on site with the machine.

20.2 Negative Pressure Units (NPU's)

All negative pressure units purchased after 13th August 2004 must meet the criteria laid down in BS 8520-2:2009 (previously PAS60-2 now withdrawn). This standard also applies to negative pressure equipment within portable decontamination units.

Example Negative Pressure Unit: -

Example negative pressure unit



General Specification

When tested for filtration efficiency in accordance with BS EN 60335-2.69 the HEPA filter shall allow a maximum penetration of 0.005% when fully assembled in an NPU.

The HEPA filter inlet face shall be protected by a metal mesh grille or by other means (for example, an intermediate filter or pre-filter to prevent accidental damage to the HEPA filter when in use).

The design shall ensure that the HEPA filter is mechanically retained / fixed in position and supported within the outer case in such a way that it cannot move in normal use or in transit.

The NPU shall have an integral flange located at the air inlet point of the NPU as part of the outer case, to facilitate the fixing of the working enclosure to the NPU.

A NPU can be constructed in two parts to assist with handling; where this is so, both parts shall be capable of being securely joined together when in operation, with features designed to prevent the escape of asbestos fibres.

The NPU shall have a manometer on the outer case to indicate if the HEPA filter is blocked or partially blocked, i.e. when the airflow decreases by 20% or more from its optimal performance.

If the NPU's earthed components are not easily accessible, the NPU shall be fitted with an earth test point to facilitate electrical safety testing.

The manufacturer must supply at point of purchase instructions for installation and operation, instructions for maintenance and technical literature as stated in BS 852-2:2009.

Air Flow Rate Labelling: The airflow rate of the NPU, measured in cubic metres per hour shall be clearly stated on a rating plate attached to the outer case. A label shall be fixed on the manometer or on the outer case adjacent to the manometer display, stating the safe operating pressure range of the NPU.

Air Flow Calculation and Monitoring

Many of URAS's Negative Pressure Units now have digital gauges (as they are purchased with such devices fitted) so flow rates can be continually monitored on site, although they are also checked before deployment to site. Some of the older units are subject to manual anemometer checks which are completed by the Store Manager before the unit is deployed and recorded on a slip within a protective pocket on the machine. See example below: -

In addition to the pre-deployment checks, the Supervisors have field anemometers so that regular checks can be made, particularly once the setup is complete and prior to the smoke test.

The measurements and calculations are recorded on the URAS Air Flow Calculation Worksheets.

Measurements are taken after the setup is fully completed and all NPU(s) have been installed into the enclosure wall as per setup described in PoW.

For each NPU installed as part of the setup, the method for air flow calculation using anemometers is as follows:

1. Set anemometer measurement indicator to m/s (metres per second)
2. Prior to smoke test, energise the NPUs and from within the enclosure, take 5 no. readings from the exposed face of the prefilter.

3. The 5no. points are described as points A – E and recorded on the relevant URAS worksheet.
4. The 5 results are added together $A + B + C + D + E$ and the total is divided by 5 to give the average face velocity in m/s. (FV).
5. The average (FV) is multiplied by the following factors depending on the pre-filter size:
 - a. Filter size 15" x 15" (381mm x 381mm) – Factor is 506
 - b. Filter size 24" x 24" (609.6mm x 609.6mm) – Factor is 1336
 - c. **For example:**
 - i. 15" pre-filter gives $FV \times 506 = \text{Air Flow in m}^3/\text{hr (CMH)}$
 - ii. 24" pre-filter gives $FV \times 1336 = \text{Air Flow in m}^3/\text{hr (CMH)}$

For instance, a unit fitted with a 15" prefilter gives the following five readings in m/s; 4.78, 4.84, 4.32, 4.39, 4.76, Average (FV) = 4.62 m/s. $4.62 \times 506 = 2,338$ CMH. This result can then be compared to the pre-deployment measurement undertaken by the Store Manager and the last reading recorded on the DOP test certificate when the NPU was tested by our external approved supplier.

Note: Supervisor to record all measurements and calculations taken on the URAS Air Flow Calculation Worksheets.

The Supervisor can compare the total CMH being achieved in practice on the setup against the required CMH stipulated in the PoW by the Contracts Manager during the job planning. If actual ventilation rates being achieved are adequate the Supervisor can proceed to carry out the smoke test. Otherwise, this will be a STOP and HOLD position and the Supervisor MUST contact the Contracts Manager to agree the necessary course of action.

Warning Labels: Each NPU shall bear a securely attached label, in black 14pt font on a yellow-coloured background reading: -

- a) 'WARNING: For use by certified, trained operators only. Handle with care: high efficiency air filtering equipment. Not to be used within a working enclosure'.
- b) 'WARNING: The manufacturer's instructions must be read, understood and followed in the use of this equipment'.
- c) The NPU shall bear a red and white H (hazardous) label as specified in BS EN 60335-2 69.

Conformity Marking: The NPU shall be clearly and permanently marked with: -

- a) The number and date of BS 8520-2:2009.
- b) The name or trademark of the manufacturer or their appointed agent.
- c) The last two digits of the year of manufacture.

Precautions in Transit

The equipment must have a robust dust tight cover which seals the contaminated side of the machine when not in use. The fastening of this cover should have safety devices to ensure that they are not accidentally released and it is recommended that the cover carries a warning label to ensure it is not removed in a clean area.

Exhaust Discharge

The exhaust from the machine should be discharged outside the building wherever possible. The filtered exhaust must be fitted with an effective non-return valve or flap to prevent the back flow of air through the machine into the enclosure as a result of wind pressure. This is particularly likely if the equipment fails, is switched off, or is used as a standby system.

Servicing, Inspection & Record Keeping

Equipment must only be maintained by adequately trained staff working under controlled conditions.

Equipment should be inspected visually at least once per shift, paying particular attention to the electrical connections and hoses. A record of these inspections must be made and kept available on site.

The equipment requires six monthly filtration tests as a minimum in order to confirm that the filtration system is efficient. This test must also be carried out when the HEPA filter is changed. The filtration efficiency of the complete equipment must be 99.97% or better when measured with sodium chloride aerosol, condensation nuclei, or DOP, as detailed in EN60335/2/69-1999. The organisation testing the machine must provide a certificate confirming the filtration efficiency.

The equipment should be tested in accordance with the Electricity at Work Regulations 1989, and HSE Guidance Note HS(G)107. There is no prescribed interval; however, it would be appropriate to include this with the six-monthly filtration tests as a minimum.

All plant records must be kept for a minimum of five years.

20.3 Class 'H' Filtered Vacuum Cleaners

All Class 'H' filtered vacuum cleaners purchased after 13th August 2004 must meet the criteria laid down in BS 8520-3: 2009 – Operation, cleaning and maintenance of class H vacuum cleaners – code of practice, (previously known as PAS 60-3:2004 – Equipment used in the controlled removal of asbestos containing materials – Part 3 – Operation, cleaning and maintenance of class H vacuum cleaners – code of practice – now withdrawn).

Training of Operators: As laid out in BS 8520-3:2009 URAS will ensure that only trained operators who are experienced and competent in working with asbestos operate Class H vacuum cleaners.

URAS will ensure that all work involving the removal of ACM's are carried out under a project specific risk assessment and plan of work. This plan of work will detail the selection and use of equipment, certification, checking and inspection and record keeping.

URAS will ensure that any new vacuum cleaner has been supplied with a filtration efficiency certificate, stating that vacuum cleaner essential filter element and operator instructions have been tested to BS EN 60335-2-69.

URAS will ensure that new and serviced vacuum cleaners are delivered with a filtration test certificate for the assembled vacuum cleaner, not just for the HEPA filter. If a filtration test certificate is not included, then the vacuum cleaner should not be used for removal of ACM's.

Decontamination of Vacuum Cleaner within Working Enclosure

- i. Vacs and accessories will be thoroughly vacuumed and wiped clean in the first instance. However, Due to the potential difficulties in decontaminating many of the accessories used, e.g. hose interiors or brush attachments, these items will be double bagged into clear asbestos waste sacks for use on the next project, or they will be disposed of as contaminated waste upon completion of works.
- ii. The vacuum cleaner should be used only for cleaning fine dust and debris (as recommended by the manufacturer) to minimise the risk of blocking the hose or damaging the dust bag. All larger pieces of debris should be collected and bagged before using the vacuum cleaner. Caution will be taken when collecting damp materials as this may cause the waste bag to fail and damage the vacuum cleaner.

Decontamination of Operators

URAS ensure that operators use the vacuum cleaner to decontaminate each other before they leave the working enclosure; this is described within section 17.0 of these procedures and is termed 'buddy vacuuming'. A hose should not be used without a brush attachment when cleaning the operator's outer garments. The brush attachment used should be as small as possible, i.e. not exceeding 10cm in diameter, to maximise the efficiency of the vacuum cleaner and to allow access to difficult areas, e.g. around the face seal of the mask.

Cleaning of Equipment

i. General

The vacuum cleaner and its accessories should be cleaned by competent, trained operators only, wearing suitable personal protective equipment. Cleaning should be carried out in a controlled environment inside the working enclosure only.

The inlet hose should be removed and sealed before cleaning of the vacuum cleaner takes place.

Only the outside of the vacuum cleaner and its accessories should be cleaned. Under no circumstances should the vacuum cleaner be dismantled for cleaning purposes outside the working enclosure.

ii. Outer Casings & Casters

The outer case and castors of the vacuum cleaner should be cleaned as follows.

- a. A brush attachment should be used to carry out the initial cleaning of the outer case, switches, clasps, casters and handles.
- b. The outer case should then be thoroughly cleaned with an adhesive wipe / damp cloth.

- c. Special attention should be given to the cleaning of clasps, crevices and cables with the brush attachment and the adhesive wipe / damp cloth to ensure that no visible debris remains.
- d. The vacuum cleaner should be given a further wipe around the outer case using an adhesive wipe prior to sealing the vacuum cleaner in a clear, asbestos waste sack (where the vacuum cleaners are too big to fit within a waste sack they will be wrapped with 1000-gauge polythene sheeting, fully sealed using spray adhesive and tape and asbestos waste sack attached to identify as hazardous waste). The outside of the asbestos waste bag / package should then be cleaned with an asbestos wipe / damp cloth. Only when this has been completed should the asbestos waste bag / package be removed from the working enclosure.

iii. **Hoses & Attachments**

The hoses and attachments of the vacuum cleaner should be cleaned as follows:

- a) Adhesive wipes / damp cloths should be used to clean the hose.
- b) Special attention should be given to the external corrugations of the hose to ensure no visible dust remains.
- c) It is unlikely that the internal corrugations of the hose can be cleaned sufficiently; the attachment ends or ends of the hose should be sealed using self-adhesive cloth tape or similar.
- d) The hoses and attachments should then be placed in double clear, asbestos waste sacks. Only when this has been completed should they be removed from the working enclosure.

iv. **Brush Attachments**

The brush attachments should be cleaned thoroughly by removing the brush attachment whilst the vacuum cleaner is still running and use the vacuum nozzle to clean the brush attachments paying particular attention to the bristles, any recesses etc., and placed into clear asbestos waste sacks and stored in a sealed container if being used again. Brush attachments that are not being used again should be placed in an asbestos waste bag and disposed of as asbestos waste.

v. **Cleaning of Equipment before Regular Maintenance or Repair**

Before regular maintenance or repair is carried out, the vacuum cleaner should be cleaned within a working enclosure as follows: -

- a) Clean the outer case thoroughly with a damp rag or adhesive wipe.
- b) Open the vacuum cleaner using the toggle fasteners on the outer case.
- c) Remove the dust bag (note – dust bags holding ACMs are treated as asbestos waste and must be disposed of in accordance with regulations).

- d) Using another class H vacuum cleaner thoroughly clean the inside of the vacuum cleaner and the inside of the motor housing containing the HEPA filter.
- e) In exceptional circumstances if another class H vacuum cleaner is not available, use a damp rag or adhesive wipe to thoroughly clean all internal surfaces, removing all visible dust. Allow the internal surfaces to dry before re-assembling the vacuum cleaner.
- f) The vacuum cleaner should also be cleaned before being submitted for regular electrical or HEPA filtration efficiency testing.

vi. **Dust Bags**

Only dust bags recommended by the vacuum cleaner manufacturer should be used and the manufacturer's instructions should be followed on how to change the dust bag.

Dust bags will only be changed within the working enclosure.

Dust bags should only be changed by competent, trained asbestos workers wearing suitable personal protective equipment.

The dust bag should be changed: -

- a) When the low flow or other warning device indicates that the dust bag needs to be changed.
- b) After any other noticeable decrease in the vacuum cleaner's performance (a full dust bag is the most common cause of a decrease in vacuum cleaner performance).
- c) More frequently when damp materials are being collected.
- d) On completion of the work.

Maintenance Inspections & Examinations

URAS will ensure that the nominated competent Site Supervisor conducts daily and weekly visual inspections of: -

- a) Electrical plugs for bent or damaged pins, signs of overheating, damage around the cable inlet, cracks and dents.
- b) Cables for cuts and fraying and any sign of overheating.
- c) Switches for damage to and functioning of the switch.
- d) Handles for cracks and chips.
- e) Hoses for holes, tears, cracks and damage to the reinforcement wire.
- f) The low flow indicator (check this by switching the vacuum cleaner on and place a hand over the inlet. After four or five seconds, a flashing light emitting diode or an audible tone indicates that the low flow indicator is functioning).
- g) The outer case, casters and handles for general structural damage and damage to seals.

Vacuum cleaners should be examined thoroughly and tested every 6 months by a competent approved supplier in accordance with the

manufactures' instructions. The effectiveness of the HEPA filter should be tested during these examinations.

21.0 HEALTH RECORDS, EXPOSURE & PERSONAL MONITORING

URAS is required by the Control of Asbestos Regulations (Regulation 22) to:

- a) Maintain a 'Health Record' that contains particulars specified by the Health and Safety Executive for all of its employees who are exposed to Asbestos
- b) Retain a copy of that 'Health Record' for a period of 40 years (after the last entry) or until an employee reaches the age of at least 80 years, whichever ensures the longer retention period.
- c) Provide Medical Surveillance, by requiring an appointed doctor to carry out a suitable examination of asbestos worker employees. The medical examination should be carried out at least every two years or such shorter time as the relevant doctor may require.

This procedure sets out URAS's procedures for ensuring the maintenance of a suitable Health Record and the provision of necessary medical surveillance (see further Section 24 of this document).

21.1 Health Records

URAS will maintain an individual employees Health record, in a suitable form. The Health record should contain the following:

The following information is held employee personnel files:

- Each employee's surname and first names, sex, date of birth, permanent address, post code and National Insurance Number.
- A record of any work with asbestos carried out by the employee, before current employment, if the employer has been informed. (If this has been provided it will be held in the employee personnel files).
- Dates of the medical examinations under the Regulations.

The following information is recorded on Daily Exposure Forms and filed electronically on a server record file for each employee:

- Lists the type of job(s) performed involving asbestos and, where relevant, its location, with start and end dates, with the average duration of exposure in hours per week, exposure levels and details of RPE used.

The following information is recorded on the Training Matrix:

- A recording and planning system which brings forward the next required examination date for each individual

URAS will furnish copies of the employee health record at any time requested, and provide a full copy on leaving company employment.

The record is kept for a period of at least 40 years from date of last entry or until an employee reaches the age of at least 80 years, whichever ensures the longer retention period.

Site Supervisors will ensure that operatives are fully (thoroughly and accurately) completing the Daily Exposure Record Forms.

COPY OF ANY PERSONAL AIR MONITORING TO BE RECORDED ON THE CENTRAL PERSONAL MONITORING DATABASE

21.2 Daily Exposure Records

Each asbestos removal operative will complete a Daily Exposure Record Form each day which will detail the work activity, duration of work, the RPE used and type of asbestos worked on each day. This must be submitted to the office at the end of the week where the information will be recorded and the exposure levels completed. These forms will be kept within the Health Record file which must be retained for 40 years.

Supervisors should undertake the completion of accurate daily exposure records and ensure that operatives on their sites are also accurately completing daily exposure records.

21.3 Personal Monitoring

The company employ an independent UKAS approved analyst to carry out personal monitoring to determine employee's exposure levels at predetermined intervals.

In addition to the URAS employee Health Record, a further record will be maintained where 'personal air monitoring' has taken place during all working operations on various ACM types involving:

- A. Site set up
- B. Pre-cleaning
- C. Enclosure construction
- D. Applying suppressant
- E. Removal works
- F. Encapsulation works
- G. Bagging of waste
- H. Cleaning of enclosure
- I. Clearance testing
- J. Enclosure dismantling
- K. Transiting (personnel)
- L. Transiting of waste (loading of waste into skips / vans)
- M. Handpicking of waste
- N. Non-Asbestos Task
- O. Other e.g. Blasting

All operatives will be involved in this monitoring so individual exposure records can be obtained. Further these records will be used to demonstrate that working procedures/methods are effective in reducing exposure so far as is reasonably practicable (before the use of RPE) and that any RPE being used is affording a suitable assigned protection factor.

The data obtained from the Central Personal Monitoring Database, in conjunction with the 'Daily Exposure Record Forms' will be kept allowing URAS to form a reasonable view of the typical degree (intensity/dose) and duration of each employee's exposure to asbestos during the time they have worked for URAS. This

will achieve conformance with recommendations made in Paragraph 510, of HSE ACoP and Guidance document L143 (2nd Edition 2013), entitled "Managing and working with asbestos".

As with the personal health record, all these records are kept for a period of 40 years from date of last entry or 80 years of age, whichever is greater

Further information on the company's arrangements in relation to Personal Monitoring and the use and review of the data is provided in the standalone Policy document ref URAS/AD 002.01 entitled "Health Surveillance and Personal Monitoring Policy".

.

22.0 HEALTH SURVEILLANCE FOR THOSE ENGAGED IN ASBESTOS WORK

URAS is required by Regulations to appoint a doctor to carry out an examination of asbestos worker employees. The medical examination should:

- Take place in the employee's normal working hours
- Be at the employer's expense
- Trigger a review of all methods of work, risk assessments and co-worker health if an employee is diagnosed with an asbestos-related condition. The affected worker should undergo further medical and managerial redeployment assessment if continuing in the current role might endanger themselves and/or others

The medical consists of a clinical examination including the lung function test, and apart from a general assessment of the fitness, the doctor looks for any signs of any chest disease which might for instance make respirator wearing difficult then specifically for the faint crackling sound which occur on breathing in, and which remain even after a cough to clear the air passages; these, if present, are due to the thickening of a scarred lung. The lung function test also helps the doctor establish that the lungs are performing well and to exclude other diseases. If containing less air, the breathing test would cause a reduction in the column of air that could be exhaled.

It is at the doctor's discretion as to whether a chest X ray will be undertaken as this is not a legal requirement. Further the risks associated with exposure to ionising radiation needs to be managed.

Examinations take place at intervals not exceeding 2 years.

A 'certificate' will be issued by the examining 'appointed doctor' to the employer. Under 'The Control of Asbestos Regulations 2012', the employee will also be given by the doctor a copy of the certificate. As an employee, if you have not received a copy of the certificate within 4 weeks from the date of your examination, you are advised to report the matter to your company management.

Note:

Where the examining doctor finds something untoward, it is normal practice for the doctor to contact the person concerned and tell him to report to his own doctor. The doctor will not contact the company, as the information is confidential.

All operatives engaged in work with asbestos handling and removal must be medically examined before commencing any such work and, without fail, at a maximum of 2 yearly intervals thereafter. Medicals will continue to be offered to operatives no longer engaged in asbestos removal work. It will be at the Doctor's discretion as to whether an X-ray is deemed necessary.

Further information is provided in the standalone Policy document ref URAS/AD 002.01 entitled "Health Surveillance and Personal Monitoring Policy".

23.0 ASBESTOS TRAINING

23.1 Asbestos Supervisor & Operative Training

Asbestos training is carried out using a competent and experienced training provider who is able to deliver the relevant identified training needs. The following training courses are used for asbestos supervisors and operatives: -

- Asbestos Removal New Operative Course New Employees (3 Days)
- Asbestos Removal Operative Refresher Course Operatives (1 Day)
- Asbestos Removal New Supervisor Course New Supervisors (3 Days)
- Asbestos Removal Supervisor Refresher Course Supervisors (1 Day)

23.2 Management Asbestos Training

Management also receive training specific to asbestos removal works the relevant courses are detailed below: -

- Asbestos Removal – A Course for Managers / Directors (2 Days)
- Asbestos Removal – A Refresher Course for Managers / Directors (1 Day)

23.3 Asbestos Refresher Training

Refresher training will be carried out as a minimum at yearly intervals and will highlight any changes in legislation, techniques or control measures, and be especially targeted to cover any knowledge or skill gaps identified by training needs analysis (TNA), auditing or other active or passive monitoring mechanisms.

In addition to industry standard refresher training URAS aim to carry out bespoke refresher training for the site teams at least annually. This is usually undertaken by an in-house team using our retained asbestos consultant and any external specialists as required.

23.4 Asbestos Awareness Training

URAS will ensure that Asbestos Awareness Training is given to employees whose work could foreseeably expose them to asbestos, in particular it should be given to those workers in the refurbishment, maintenance and allied trades where it is foreseeable that their work will disturb the fabric of the building because ACM's may be exposed during it. A competent and experienced training provider shall deliver the training.

23.5 Non-licensable Work with Asbestos –>NNLW

URAS shall ensure that those employees whose work will knowingly disturb ACMs, and which is defined as non-licensable work or>NNLW will receive task specific information, instruction and training. A competent and experienced training provider shall deliver the training.

23.6 Auditor Training

All those in-house staff concerned with carrying out site asbestos audits must be appropriately trained. A competent and experienced training provider shall carry out auditor training as necessary. This should be refreshed periodically.

23.7 Trades entering an Enclosure (Area)

On rare occasions there may be a requirement for trades to enter an area either in an emergency or for a planned need which is unavoidable. **NB: The overarching aim is for URAS to avoid other trades entering the asbestos enclosure wherever possible.**

However, in certain exceptional circumstances it may become necessary. In these cases, during enclosure access and egress, URAS assumes responsibility for the health and safety of the 'other trade' as if they are one of our directly employed employees. Consequently, if it is unavoidable, URAS will ensure that the person(s) are provided adequate information, instruction & training including the use appropriate personal and respiratory protective equipment for the task. Each person must be inducted onto site and the induction must be recorded on the relevant site paperwork. Unless the person(s) can demonstrate adequate training, the Contracts Manager or Supervisor (if not done by the office in advance) is to complete the essential training, using URAS's full training toolbox talk, which will include as a minimum:

1. Use of RPE & PPE
2. Personal Decontamination Including Transiting if applicable.
3. URAS PoW briefing
4. Site Specific Induction Including Emergency Procedures

The Supervisor will also ensure that the person(s) complete and sign the RPE/PPE & induction register. **NB:** The inductee(s) should not fill in the register, they must only sign it.

NB: URAS Supervisor MUST 'chaperone' the contractor throughout the process to ensure URAS procedures for enclosure entry/egress including the decontamination process are being followed. Note, all other trades/contractors must work to URAS Procedures.

23.8 Training Needs Analysis

It is essential that each individual's training is tailored to suit their individual training needs. In order to establish an individual's training needs their work must be monitored in order to determine their training requirements.

For each site based individual URAS hold a portfolio of information.

For Supervisors, the portfolio would typically hold the following information:

- Site audits.
- Client feedback.
- Attendance and disciplinary records.
- Contracts Managers feedback and assessments.
- Appraisals
- Any other information relevant to performance.

For operatives, the portfolios would typically hold the following information:

- Supervisor appraisals.
- Site audit feedback specific to the individual.
- Client feedback.

- Attendance and disciplinary records.
- Contracts Managers feedback and assessments.
- Any other information relevant to performance.

The salient findings from the above information will be fully reviewed periodically and at least annually an appraisal meeting will be held with the individual to discuss their performance and to field any feedback from them which may be relevant.

The information will be used to determine the individuals training needs.

All site audit feedback is reviewed and monitored and used as a training guidance tool across the board (for site-based staff and managers) in order to ensure that all training conducted is targeted specifically to the company's training needs.

24.0 EMERGENCY PROCEDURES & ARRANGEMENTS

Emergency procedures are any procedures that are designed to cope with unforeseen circumstances or incidents during asbestos removal work on site that may result in danger to health, safety or life and which may require an immediate cessation of work in order to rectify the problem.

URAS will endeavour during assessment and planning stages to ensure that the Client/Site Owner has made URAS aware of any specific hazards and/or emergency procedures for inclusion in the POW. On higher risk sites, the client must also conduct a site-specific induction for URAS operatives, which must detail all emergency procedures and evacuation procedures for the site.

In the event of an emergency creating imminent and acute risk, the risk from asbestos exposure becomes secondary to the health, safety and welfare of operatives exposed to these other risks.

NB: Some basic principles for 'foreseeable incidents' are set out below but in all cases the action to be taken in the event of an accident, incident or other emergency [Emergency Preparedness] will be set out in the site-specific emergency plan with the PoW.

24.1 Injury or Illness In the Enclosure

All Supervisors are trained in first aid as the Appointed Person – 1 day course. URAS endeavours to ensure that 100% of all site-based operatives are trained in Emergency First Aid.

Certain injuries may be reportable under the Reporting of Injuries, Diseases & Dangerous Occurrences Regulations (RIDDOR). RIDDOR should be referred to for a comprehensive list of reportable injuries, illnesses and dangerous occurrences.

In the event of an injury or medical emergency occurring to an operative within the enclosure the course of action will depend on the type of injury or emergency. As with a fire situation, the risks present must be prioritised. If a person is unable to breathe they will die (fact). If, in assisting them to breathe either the casualty or those assisting him / her are exposed to asbestos, they may or may not suffer from the contributory effects of that exposure at some point in the future (theoretical risk).

Should the casualty have suffered any serious injury, especially resulting from a fall or any kind of spinal injury, the best course of action may be to not move the

casualty and ensure that the casualty is comfortable and is breathing until the emergency services arrive.

If it is necessary slit the sheeting of the enclosure to remove the casualty it should be resealed as soon as possible to prevent the spread of asbestos. Air monitoring should be arranged as deemed appropriate and any clean up requirements put into operation.

All incidents / accidents must be reported to the office as soon as possible and an accident report form submitted. An accident investigation will then be considered in as detailed in the URAS Health & Safety Policy and the Quality Management System.

It will be the responsibility of the Health & Safety Manager to notify the relevant enforcing authority of any RIDDOR reportable incidents.

Each work team is equipped with a fully stocked First Aid Kit appropriate to the number of operatives in the team and the nature of the work. It will be the responsibility of the Supervisor to inform the office when supplies are required for their first aid kit.

Any additional first aid requirements would be identified at risk assessment stage and provided on site as appropriate.

24.2 Fire

Prior to commencement of works the building or site owners must provide URAS with details of local evacuation procedures which are in place. These will be factored in when compiling the POW.

In addition, the client should provide a site-specific induction for the designated work team detailing the specific procedures. The client should also make the work team aware of any planned fire alarm test during their time on site.

When considering the response to a fire within, or adjacent to an enclosure, the risks presented by the fire and any asbestos present must be prioritised. The risk from fire is real and immediate; the risk from any asbestos present may lead to health problems in the future.

When escaping from a fire it may be unavoidable to expose oneself or others to airborne asbestos fibres. Measures should be taken to reduce the asbestos hazard once safe to do so.

An appropriate fire extinguisher should be made available outside the enclosure to enable small fires generated within or adjacent to enclosure to be tackled. A fire should only be tackled if it is safe to do so and the individual(s) involved have adequate training.

An enclosure constructed from ordinary 1000-gauge polythene sheeting will burn very quickly and shed droplets of molten polythene which will adhere to any surface they fall on. Fires inside an enclosure should only be tackled if they are small and there is an easily accessible escape route if control is lost. In the event of a major fire inside the enclosure the quickest route to a fire escape should be utilised. This may mean slitting the enclosure wall (polythene). A knife should be provided for this purpose at suitable locations around the enclosure.

If the fire brigade is called to the scene they should be advised that asbestos is present.

In the event that a fire alarm sounds whilst operatives are in the enclosure, the operatives shall leave the enclosure immediately and make their way to the muster point or decontamination unit if safe to do so, avoiding other persons on the way wherever possible. If the decontamination unit is not in a safe location the operatives shall assemble well away from other people until it is safe to enter the decontamination unit or until transport can be arranged to take them to an alternative decontamination unit. At this time, the Supervisor should undertake a full roll call to ensure that all operatives are accounted for.

Following an incident where the enclosure has been damaged, either by fire or the operatives' attempts to escape the fire, further access to the area must be restricted to competent persons trained in the use of, and wearing, respiratory protective equipment (RPE) until the enclosure is repaired. Moreover, leak and/or reassurance air tests will be undertaken to determine that airborne fibres levels are less than 0.01 fibres per millilitre outside the enclosure, otherwise further cleaning will be required. Control measures must be applied to reduce the risk of the spread of asbestos whilst the enclosure is repaired. Access to all non-essential personnel will be prohibited until such time as the areas has been assessed to be suitable for re-occupation.

24.3 Bombs / Explosions

In the case of a bomb alert or if there is an explosion within, or close to, the premises, the incident should be treated as one of imminent danger and the area should be evacuated immediately. Site specific / client's emergency / evacuation procedures to be followed. Note – client must outline such procedures during induction of URAS operatives.

24.4 Gas Leaks

Where there is a leak of toxic gas or asphyxiants which would affect the safety of operatives, the operatives would immediately vacate the enclosure without decontamination procedures being followed. Priority will be to reach a "safe" location or refuge. In the event, asbestos removal personnel should endeavour to remain segregated from other workers until subsequent thorough decontamination has taken place.

Customer or main contractor will be immediately notified in order that appropriate action can be taken to prevent further emissions of toxic gas or asphyxiants.

24.5 Power Failure of Power Assisted RPE

The failure of a full-face powered respirator should be a highly unlikely occurrence if the following procedures are observed:

- Always keep respirators fully charged when not in use.
- Always check flow rate before and after use.
- Replace filter when flow rate drops.
- Before and after use checks (at least daily) are carried out by wearers and recorded.

- Ensure that all respirators are thoroughly examined, maintained and, where appropriate tested by the in-house competent person at least every month. All non-disposable RPE will also be examined, serviced and tested by the in-house competent person at least every six months.

In the event of a loss of power to the respirator the operative must make his way directly to the airlock and exit the enclosure, following full transit and decontamination procedures. It is important to remember that even without power, the respirator will continue to afford protection from airborne asbestos fibres, to the assigned protection factor of the respirator in use. However, breathing may become more difficult and laboured, so it is important not to panic, but to leave the area in a normal but timely manner, in order to remedy the power loss problem.

24.6 Failure of Negative Pressure Unit

There are four types of failure which may befall a negative pressure unit which should be indicated by a visual or audible alarm. Any visible or audible alarm should be attended to immediately and the appropriate procedures undertaken.

24.6.1 NPU - Loss of Air Movement – Due to Blocked Pre-filter

This can be attributed to lack of effective management on site and can usually be prevented by changing the filter when it becomes overloaded.

24.6.2 NPU - Power Failure

It is important to ensure that an adequate supply of power is available to the work area which is sufficient for all the equipment in use. If power to an NPU is lost and cannot immediately be restored, all work must stop. The enclosure must then be completely sealed at the airlock / baglock to prevent the possible escape of asbestos fibres, until power can be restored.

If it is not possible to regain power or supply temporary power (e.g. a generator) in a reasonable period, then the Supervisor will need to have the operatives leave the work area. Such situations will require some dynamic assessment from a competent Supervisor, but in principle best endeavours must be applied to the specifics of the site situation to ensure that adequate decontamination (ideally primary and secondary) is achieved.

It is best practice to spray any exposed asbestos (or debris) in the enclosure with dilute surfactant where practicable (do not use PVA solution). The enclosure should be re-inspected to ensure its integrity following a power failure and prior to work recommencing.

24.6.7 NPU - Failure of a Motor Unit

If the motor on the NPU fails it will be necessary to replace the unit. The procedure should be as follows: -

- Turn the unit off.
- Remove the pre-filter.
- Vacuum out the pre-filter aperture (Class 'H' vacuum cleaner).
- Seal the front of the HEPA filter with polythene sheeting and adhesive tape.

- Seal the enclosure around the front of the NPU to maintain the integrity of the enclosure
- Connect a new NPU of the same air flow rating to the enclosure and remove the seal to reconnect the NPU to the enclosure.
- Fit the transit cover to the defective unit and send for repair.

Depending upon the site conditions, it is good practice to re-smoke test the enclosure before work resumes.

24.6.8 NPU- Failure of the Filtration System

This rare occurrence is extremely serious as airborne fibres will be expelled with force into the surrounding atmosphere, outside the enclosure. This is the fundamental reason that unless it is not reasonably practicable NPUs will also be vented to the outside air (not within a building or space). Leak tests are recommended as these will usually identify failure of a HEPA filter.

In the event of a failure of the HEPA filter being detected, the NPU should be switched off and the surrounding area should be evacuated of all non-essential personnel. Access to all non-essential personnel will be prohibited until such time as the areas has been assessed to be suitable for re-occupation.

Further air tests should be conducted at incremental distances from the area to determine the extent of potential contamination (as the contamination is by airborne fibres there will be no obvious visible clues as to the extent of the contamination). Access to the affected area should be restricted to personnel trained in the use of RPE.

Other than ventilation of the area there is little that can be done to decontaminate the area. A free flow of air through the affected area to the outside atmosphere is the most effective way of dispersing the fibres. Ensure that there are no open windows to adjacent buildings / areas or persons in the immediate vicinity before ventilating the area. It may be necessary to run air tests in adjacent areas during this procedure.

Spraying down the area with surfactant solution or PVA solution should not be carried out as it will only cause the fibres to settle on surfaces from where they may be disturbed at a later time. Vacuuming or 'tack ragging' the area will help to a certain extent but it is very difficult to be sure that you have cleaned all surfaces of dust which is invisible to the naked eye.

The NPU should be replaced using the procedure described in section c above. Work should not resume, and adjacent areas should not be reoccupied until the air tests in all areas affected indicate airborne fibre levels off less than 0.01 fibres per millilitre. These air tests should be disturbance air tests and be conducted by an asbestos analyst wearing adequate PPE/RPE.

24.7 Total Loss of Electrical Power

Should this problem occur, it is potentially the worst situation possible due to the following:

Negative pressure in the enclosure is lost.

Decontamination of the men prior to transit to showers cannot be done thoroughly.

If electrical showers are provided in the decontamination unit the operatives will have to shower in cold water (unless the DCU is self-contained).

The negative pressure unit in the 'dirty end' of the DCU will not function.

Some of the above would not apply if self-contained DCU's are in operation.

The following action should be taken: -

Cease work and without the use of the vacuuming equipment, make every effort to remove as much dust contamination as possible by wiping clean the respirator face piece, hose and power packs. As a vacuum is unavailable, use damp rags utilising a 'patting' action to clean as rubbing can disturb fibres.

Remove boots and leave at the entrance to the airlock system.

Remove stripping overalls rolling them inside out and place in the RED asbestos bag and then, in centre stage of airlock, wash face piece, hose and power pack with water provided and wet hands, feet and hair.

Follow the normal decontamination procedure from this point on and on leaving the airlock proceed immediately to the shower unit. If the DCU is self-contained (or means to power it can be achieved in a timely manner) use this and follow normal procedures detailed in Section 17.0 of this document.

If power to the DCU cannot be achieved utilise basic equipment on site to perform Secondary decontamination to the best standard possible.

Seal off the airlock when last man leaves the area.

Do not re-enter the enclosure until the power supply has been resumed and negative pressure established.

Notify occupier of premises and / or client, and our own company management.

Implement any investigation, air monitoring and remedial measures as agreed with company management.

Notify occupier of premises and / or client and our own company management on resumption of the services and normal working.

24.8 Failure of Lighting Within Enclosure

Provision should be made for emergency lighting to be available in the case of failure of the lighting system, if working hours or the nature of the enclosure are such that natural light would be insufficient. This requirement would be identified at risk assessment stage and emergency lighting provisions provided as required.

In the event of a failure of all lighting within the enclosure, all work should stop. If it is safe to do so operatives should make their way to the airlock and decontaminate and transit as normal. If it is unsafe to leave the enclosure in the dark an outside person should assist the operatives to exit the enclosure with the aid of a torch which should be made available.

All leads should be fixed at high level or taped to the floor wherever possible to reduce the risk of tripping. Luminous signs should be provided in complex enclosures showing a clear route to exit – the need for this should be determined at risk assessment stage.

24.9 Water Within the Enclosure

Should an enclosure become flooded, the first priority is to shut off the source of the flood. Most floods inside asbestos enclosures are caused by accidental damage to non-isolated pipe work whilst it is being stripped.

If it is not possible to isolate the supply at a stopcock a temporary repair should be made to the pipe.

If water has leaked from the enclosure into adjacent areas, and is potentially contaminated, this must be cleared up, an assessment should be made by the Supervisor and procedures immediately put into place to decontaminate the area. Visual assessment, supported by air tests should then be conducted in affected areas until the airborne fibre levels are below 0.010 fibres per millilitre.

24.10 Failure of Services to a Decontamination Unit

If either the water, gas or electric supply to the decontamination unit (DCU) fail it is impossible for the operatives to use that facility to decontaminate. If a relatively short period of time is needed in order to obtain a working DCU, then the operatives should be held in the area until that has been achieved. Otherwise, the operatives should transit to the dirty end of the unit as normal and wait there until alternative decontamination facilities are in place. If a fully functioning DCU cannot be achieved in a timely manner, Operatives should utilise basic equipment on site to perform Secondary decontamination to the best standard possible.

24.11 Uncontrolled Release of Asbestos Materials into Workplace

In all cases where there has been an accidental, unplanned or unexpected release of asbestos materials into the workplace the following steps shall be taken:

- Warn people who may be affected;
- Exclude people from the area who are not needed to deal with release;
- Identify the cause of the uncontrolled release;
- Regain adequate control as soon as possible.

In particular URAS will ensure that:

- Anyone in the work area affected who is not wearing PPE, including RPE leaves that area immediately;
- Prohibit access to all non-essential personnel until such time as the area(s) has been assessed to be suitable for re-occupation.
- Arrangements are made to decontaminate anyone who may have become contaminated with dust and debris;
- Any clothing or PPE is decontaminated or disposed of as contaminated waste.
- Measures are taken to contain and reduce fibre release.

Note – any employee who was not wearing adequate RPE or has been potentially exposed to asbestos fibres in an incident, a note that exposure has occurred shall be made into that employee's health record and / or personnel record.

24.12 Spillage of Waste During Transit

Whilst transporting waste from the baglock / airlock to the skip or vehicle, all operatives involved should wear suitable PPE & respiratory protection, i.e. ori-nasal

P3 filtered respirators, as a precaution against the possibility of asbestos being spilled from a bag during transit.

NB: Spillage is usually caused by sharp items puncturing the double bags from within, or poor handling of the bags causing them to be dropped. **CARE should be taken to avoid these issues.**

Bagged waste should never by design, be taken through areas of high pedestrian traffic unless the area can be temporarily closed to others. In the event of a spillage the waste must immediately be vacuumed up with Class 'H' filtered vacuum cleaners, or if the amount is too great, it should first be soaked with a surfactant solution (if it is likely to dry out) and carefully picked up and placed within a fresh, undamaged asbestos waste sack. The Supervisor should visually inspect the standard of cleaning. An assessment should be made as to whether further cleaning and an air test is required. See further guidance below:

Damaged Waste Bag Releasing Asbestos Containing Materials During Transfer from 3-Stage Baglock to Skip

When spillage occurs, the bag is lowered to the ground to stabilise the contents to prevent further spillage.

Whichever is most practical in the circumstances, either?

- a) A temporary barrier will be erected.
- b) Personnel will be assigned to the spillage area to warn and / or prevent others access to the spillage area.

An operative fully protected for asbestos removal work (but in transit overalls) will clear up the spillage as follows:

- a) The split bag will be further double bagged and sealed.
- b) All pieces of asbestos containing material will be soaked by a fine mist spray of dilute surfactant. It will then be picked up and placed in a red asbestos waste bag and sealed and then double bagged in a clear asbestos waste bag and sealed.
- c) Where practical a class 'H' vacuum cleaner will be used to vacuum up residual dust.
- d) If c) is not practical the residual dust will be dampened and scraped up and double bagged as b). The shovel will be thoroughly cleaned OR disposed of as asbestos waste.
- e) If the spillage occurs on soft earth or aggregate, as a minimum the top 50mm of the ground will be skimmed off and disposed of as contaminated waste. Any further cleaning needs will be assessed on a case-by-case basis.

The operative involved in the clean-up will put the waste bags in a secured skip.

After disposing of the asbestos waste bags, the operative will go to the decontamination unit and carry out the full decontamination procedure.

The standard of cleaning will be visually inspected by the Supervisor, who will determine if any further cleaning is required.

If the location of the spillage is in an internal area a reassurance air monitoring test would be taken.

The barrier will be removed or the persons on standby preventing access will be recalled on satisfactory completion of the clean-up.

24.13 Accidents & Emergencies During Transportation

Irrespective of the size of the vehicle and also whether or not the carriage of asbestos waste in the vehicle falls with the general requirements of The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations (CDG) 2009 it is important that URAS ensures that the driver is aware of the following: -

The driver must take reasonable steps to ensure the emergency services are informed of the contents of the vehicle and/or waste trailer when asbestos waste is present (refer to note below).

Important Note – it is URAS's policy that under NO circumstances will it be permitted to carry in excess of 333kg of amosite or crocidolite or in excess of 1000kg of Chrysotile asbestos at any time.

Should an incident occur where there is a potential for release of asbestos fibres to the atmosphere the following should be observed. The driver, having due regard for his or her own safety*, must take reasonable efforts to contain or secure the spillage and ensure that any other person is not put at risk.

***No actions will be undertaken on LIVE roads until appropriate road/lane closures have been achieved in collaboration with the other relevant authorities e.g. Police service**

In the event of a spillage the waste must immediately be vacuumed up with Class 'H' filtered vacuum cleaners, or if the amount is too great, it should first be soaked with a surfactant solution (if it is likely to dry out) and carefully picked up and placed within a fresh, undamaged asbestos waste sack. An assessment should be made as to whether an air test is required. This should be carried out whilst wearing PPE and RPE (ori-nasal).

With respect to incidents involving the emergency services information must be passed onto them as soon as possible concerning the quantity and type of asbestos being carried so that they can assist in taking appropriate action to control the potential risks arising.

When using a vehicle for waste, in order to avoid the accidental release of asbestos fibres, all plant and equipment which is used during asbestos removal work must be physically separated from the asbestos waste and transported and handled with care.

NB: Only waste shall be placed in the designated vehicle compartment/waste trailer, which will NOT be used for any other purpose.

24.14 High Readings – Air Monitoring Results during Work Activity

24.14.1 Personal Monitoring

URAS regularly employ an independent UKAS approved analyst (approved supplier only) to carry out personal monitoring for workers within the enclosure during work activity.

The plan of works will stipulate the air monitoring requirements for each project.

In the event that elevated exposure readings are encountered during the project, the Supervisor will ensure that works cease immediately whilst an assessment is carried out to determine the cause of the high readings. Works must not commence until URAS management have carried out the revised assessment and have ensured that the readings will not be significantly above the anticipated levels.

24.14.2 Leak Monitoring

Where the plan of works stipulates that leak monitoring external to the enclosure is required then this will be carried out by an independent UKAS accredited analyst. If during the monitoring, readings are found to be above the clearance indicator level i.e. 0.01 then the Supervisor must ensure that works cease immediately and that the management team are informed. Access to all non-essential personnel will be prohibited until such time as the areas has been assessed to be suitable for re-occupation. The enclosure would then be subject to a full visual inspection to check for breaches, along with a re-assessment of the control measures which have been implemented. A further smoke test would be required before works could recommence. The management team must record a detailed assessment and action plan prior to allowing works to commence.

25.0 AUDITING AND REVIEW ARRANGEMENTS

25.1 Internal Auditing

The company carries out regular internal audits on asbestos contracts. These are carried out to a set criteria and URAS endeavour to carry these out on a proportion of all contracts.

Various persons, namely the Asbestos Contracts Director, Operations Manager, Company/external HS Advisor and/or Squared Circle will carry out regular audits.

Once completed, Audits are reviewed by management, in line with the company's policies and procedures, and any issues raised are then addressed through the implementation of corrective or preventative action as appropriate.

Audits are also carried out periodically by our retained Asbestos Consultant.

Any major problems or concerns uncovered which require urgent attention are reported to management and addressed immediately. Copies of all audits are submitted to the Contracts Manager and Supervisor involved.

25.2 External Auditing

In addition to the above, the company maintains membership of the Asbestos Removal Contractors Association (ARCA) or the Asbestos and Environmental Safety Association (ASECA).

The Company is therefore subject to an unannounced audit at least annually by a trade association. The Company will typically ensure that several audits are undertaken over the course of the year.

URAS may also periodically employ an independent auditor to carry out regular audits of the process.

25.3 Client Auditing

Moreover, the company's Clients in various situations, may carry out unannounced audits of the Company's activities on site.

25.4 Senior Management Tours

The Directors or other senior managers carry out regular Senior Management Tours in order to visit our sites. These are carried out to attain three fundamental aims:

1. Demonstrate strong and active leadership from the top
2. Encourage worker involvement and engagement
3. Further support assessment and review

Specific points, particular if they are based on site conditions, acts or behaviours may be raised on site with the relevant people and used as learning/development points, but overall the findings are reviewed by management, in line with the company's policies and procedures. Issues raised are then addressed through the implementation of corrective or preventative action as appropriate.

25.5 Review and Action

Significant problems or concerns uncovered which require urgent attention are reported to management and/or other pertinent parties being addressed immediately. Copies are submitted to the Contracts Manager and the Supervisor involved.

All audits and Senior Management Tour findings / problems are reviewed at the Management Review Meetings which are held every 12 months, in line with the company's policies and procedures which are available upon request.