



Asbestos: The Analysts' Guide

(HSG 248, Revision 2)

What it means for the 4-Stage Clearance

Asbestos: The Analysts' Guide (HSG 248, Revision 2) is the authoritative source of asbestos analytical procedures within Great Britain.

Revision 2 of this guidance, for analysts involved in asbestos work, was published online on 14th May 2021. It has been updated to include HSE findings and developments in analytical procedures and methodology. It provides clarification on technical and personal safety issues, especially in relation to sampling and 4-stage clearances, and new information on sampling soils for asbestos is included.

Asbestos: The Analysts' Guide is designed to support asbestos analysts in complying with their legal obligations and is also useful to other professionals; asbestos consultants, occupational hygienists, safety professionals, asbestos removal contractors, building owners and facilities managers.

In this article we concentrate on what Revision 2 means as far as the 4-stage clearance is concerned.

1. Scoping / Contract Arrangements

The relationship between Licensed Contractor and Analyst is a formal contract under the Construction (Design and Management) Regulations 2015 (CDM 2015). The Licensed Contractor has legal duties to cooperate with the Analyst and provide the Analyst with adequate information in a timely manner. In addition, the Analyst has duties to provide information to the Licensed Contractor. The revised Analysts' Guide addresses this via the following paragraphs:

6.7 *If a pre-removal work site inspection does not occur, it will be essential for the analyst to be provided with a copy of the contractor's POW before visiting the site for several reasons: to enable their own POW to be prepared, for the 4-stage clearance to be planned in advance (e.g., site plans prepared) and for the clearance to be properly scoped. The analyst should obtain a copy of the contractor's POW when appointed or at the earliest opportunity.*

6.10 *To make sure there is no uncertainty or confusion over the outcome of the clearance procedures, separate copies of the Certificate of Reoccupation (CfR) are provided to the building occupier or owner and to the licensed contractor promptly on completion of the process. The licensed contractor should also be issued with a copy of the clearance certificate for the DCU, irrespective of who has employed the analyst. HSE regards the CfR and the clearance certificate for the DCU as the same clearance contractual process. The CfR and DCU clearance certificate can be issued as hard copies or electronically.*

2. Analysts Cleaning during 4SC

The risks to Analysts with regards to cleaning during 4-stage clearances (4SC) is that if there is residual material/dust still in enclosure at the 4SC then the risks associated with asbestos exposure are increased for Analysts.

If there is residual material/dust still in the enclosure at the 4SC, then this means that the operatives have failed to clean up and the supervisor has failed to thoroughly inspect.

In addition, Analysts are potentially carrying out licensed work when they carry out cleaning during the 4SC, which means that the Licensed Contractor's actions are potentially responsible for Analysts causing a breach of legislation (in contravention of Section 36 of the Health and Safety at Work etc. Act 1974).

Revision 2 of The Analysts' Guide states on page 51 that:

*It is the licensed contractor's legal duty to ensure that the work area is thoroughly cleaned after work is completed and the area declared clear of visible asbestos materials before the independent 4-stage clearance procedure is carried out by the analyst. This includes dust and debris on all surfaces, items and equipment. **The licensed contractor should complete a handover document to confirm that the area has been inspected and is visually clean.** If the handover*

document is not available or not completed or there is any doubt regarding the cleanliness of the site, the 4-stage clearance should not be started. Receipt of the handover form should be recorded in the Certificate for Reoccupation.

and that:

The analyst should NOT clean up any dust or debris as part of the 4-stage clearance. This is work with asbestos and is potentially a licensed activity. Clean-up should only be carried out by the licensed contractor.

3. Evidence-based 4SC Process

There are **new** monitoring and managing procedures for asbestos removal work and 4SC:

3.1. Handover form

To be completed by the Site Supervisor once the work area is ready for the 4-stage clearance to confirm that the following have been checked to ensure they are free from asbestos and visually clean:

- ▶ ACM removal locations
- ▶ Floors/surfaces/walls/ items
- ▶ All rooms checked etc.

The Supervisor is to sign the form to certify that the inspection has been completed. The Analyst is to sign to confirm receipt.

The 4-stage clearance Certificate for Reoccupation (CfR) has been modified to include the Handover Form. **The 4-stage clearance NOT to start until handover form is received and acceptable.**

3.2. Visual inspection time to be specified in advance.

Specifying the expected visual inspection time in advance makes commercial sense for Analysts as the estimated time can be budgeted for when quoting the work. There will be a process whereby the estimated time for conducting stage 2 of the 4-stage clearance (4SC) will be entered onto the CfR as well as a record of how long the 4SC takes. Factors to consider are (Illustrative list):

- ▶ Room size, volume and layout
- ▶ Room complexity
- ▶ Extent of sheeting out
- ▶ Items remaining
- ▶ Voids (cabling)
- ▶ High level surfaces
- ▶ Ducting
- ▶ Tunnels/cavities
- ▶ Potential unforeseen situations

Paragraph 6.8 of Revision 2 of The Analysts' Guide gives further detail.

6.8 The analyst should estimate and record the expected time for the thorough visual inspection. The time estimate should be established through discussion of the site conditions with the licensed contractor. The analyst will also apply their own knowledge and experience of thorough visual inspections (Figure 6.2). Factors which can affect inspection times include: the layout and design of the area, items present, extent and location of surfaces, obstructions, inclusion of ceiling voids, and extent of cables in voids. Factors to consider for the inspection time estimate are set out in Box A5.3 (Appendix 5) and examples of inspection times are given in Table A5.4 (Appendix 5). The time estimate should be inserted into the CfR at stage 1 and the licensed contractor (and the client where practical) advised of the estimated time.

6.9 The time that the thorough visual inspection actually took should be recorded on the CfR at the end of stage 2. Where there is a greater than 20% difference (i.e., less than or more than) between the estimated and actual time, a very short explanation should be provided on the CfR. Building occupiers are liable to be concerned and challenging where the inspection time seems unusually short. The analyst should build up a data set of estimated and actual times to inform their estimates in the future. **In addition, the analyst should provide photographic evidence in the CfR that the correct procedures have been followed;** for example, that the negative pressure unit (NPU) has been capped, and that the areas have been thoroughly cleaned. The CfR form has been redesigned accordingly (see Appendix 6). More information on these matters is given in paragraphs 6.17–6.18.

Appendix 5 paragraph A5.21 also states that:

A5.21 The estimated time should be inserted into the front page of the CfR and the client and/or licensed contractor should be advised of the expected time. Once the thorough visual inspection has been completed, the actual time taken should be recorded. Where the difference between both times is significant (e.g., less than or more than 20%), an explanation should be provided (e.g., access is easier or more difficult than expected; remedial cleaning required). The analyst should build up a data set of estimated and actual times to inform their estimates in the future.

Table A5.4 Estimated times to carry out the thorough visual inspection in various types of asbestos removal scenarios.

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

A5.28 The analyst will have to make judgements on the extent and significance of dust and debris found during the inspection: whether it is minor and can be cleaned up during the course of the inspection, or whether it is more substantial and shows that the final clean has not been sufficiently thorough. It is the duty of the contractor to undertake the final clean and carry out a thorough visual inspection before requesting a 4-stage clearance. If it is clear that this has not been done or been sufficient, the analyst should withdraw and fail the enclosure, citing what needs to be done before another inspection is undertaken. The visual inspection should be failed where the analyst estimates that the cleaning will take more than 10 minutes in total. Where the visual inspection has been failed, the analyst should withdraw from the enclosure to allow cleaning to take place. The failing may be due to several likely occurrences of minor contamination or one significant incident (see Box A5.4).

Analysts are required to record if additional cleaning is required.

3.3. Photographic evidence of conditions and completeness

6.17 The analyst should provide visual confirmation through suitable proportionate and identifiable photographic evidence that all the criteria required for the 4-stage clearance to proceed have been met and that the removal areas are free from asbestos and that the enclosure has been thoroughly cleaned and is visually asbestos dust- and debris-free. This means that larger removals will normally need more photographs than smaller jobs. This evidence will help provide reassurance that the premises are safe for reoccupation or demolition. Photographs should be in colour and can be inserted into the relevant sections of the CFR. Photographs should contain a caption explaining their content and should be sufficiently detailed to enable close examination of the feature highlighted. The required photographs (with time and dates on the photographs) are set out in Tables 6.1 and 6.2.

Table 6.1 Areas and items to be photographed as part of the 4-stage clearance and include in CFR

	Areas/items to be photographed (photographs should be in colour)
Stage 1	
1	Skip area and waste route are free from obvious asbestos debris and waste bags.
2	Transit route is clean and free from obvious asbestos debris and waste bags.
3	The DCU is free from obvious asbestos debris and waste bags. Photographs should be taken of the clean end, shower and dirty end.
4	The areas surrounding the enclosure/work area are free from obvious asbestos debris and waste bags.
Stage 2	
1	The airlock and baglock are free of waste bags, materials and unnecessary equipment.
2	All ACMs have been completely removed (as far as reasonably practicable) from the underlying surfaces. Sufficient photos should be provided to cover the removal work area(s).
3	The interior surfaces inside the enclosure are free from debris and fine settled dust. Sufficient photo should be provided of the enclosure including high-level surfaces (including scaffolding) and voids.
Stage 3	
1	The areas are dry. Sufficient photos should be provided to cover the relevant area(s).
2	The NPU's are sealed.
3	The sampling pumps in each of the sampling locations.
4	The brush used for disturbance of surfaces.
Stage 4	
1	The former enclosure area. Sufficient photos should be provided to cover the relevant area(s).

Table 6.2 Areas and items to be photographed as part of the clearance procedure for the DCU and included in the clearance certificate for DCU

Areas/Items to be photographed	
Clean end	
1	Main view of the clean end showing area is clean and free from storage debris and waste sacks.
Shower area	
1	Area is free from stored items, obvious debris and waste is dry.
2	Airborne sampling equipment.
Dirty end	
1	Area is free from stored items, obvious debris and waste.
2	Airborne sampling equipment.

6.18 Photographs should also be taken of the items and areas that are the reason for any failure of the clearance procedures. These photographs should be entered into the appropriate section of the CfR. The 4-stage clearance procedure and the procedures for inspection of the DCU are set out in detail in Appendix 5.

Photographs are to be included as part of the CfR and the template for the CfR has been amended to include recording that this has been done at the appropriate stages.

3.4. Video evidence

Video evidence of the 4-stage clearance is desirable, and the video should cover the key stages - transit and waste routes, external area around the enclosure, internal areas of the enclosure (airlock, baglock, enclosure sections etc), capped NPU, sampling pumps etc. The video should be issued to the Client and the Licensed Contractor.

6.19 It will also be beneficial for a video recording of the 4-stage clearance to be made to provide evidence that the clearance criteria have been met. The video recordings will also be useful for training purposes. Video recordings can be made on mobile cameras, phones or other suitable devices.

6.20 The video should show key features only of the clearance process: i.e. the transit and waste routes, the external area around the enclosure, the internal areas of the enclosure (airlock, baglock, enclosure sections etc), capped NPU, sampling pumps and the area after the enclosure has been dismantled. Video footage can also be used to show locations where additional cleaning was required and visual dust/failures were identified. The video can be submitted on memory stick or other suitable storage format. Video recordings should be presented to both the building client and the licensed contractor irrespective of who engages the analyst. The video recording is in addition to the CfR.

3.5. Analysts Appropriate PPE for 4-stage clearance

The Analyst should be dressed to go through the full decontamination procedures, and these should be set out in their written procedures, including procedures for entering and exiting enclosures. Analysts should not be wearing their "own" clothes, they should be wearing two sets of coveralls and disposable undergarments.

Table 8.3 Summary of the minimum standard of clothing, PPE and RPE to be worn and decontamination procedures for analysts for various activities.

	Domestic clothes possible?	Summary of PPE to be worn			Decontamination required	
		Coverall	RPE ¹	Cleanable footwear	Preliminary	Full
Survey/other sampling: normal ²	Yes	Single	Half-mask or disposable APF=20	Yes	Yes	No
Survey/other sampling: known/anticipated heavy contamination/ high risk ²	No	Two	Half-mask or disposable APF=20	Yes	Yes	No
4-stage clearance: stage 1 and any pre-enclosure entry preparation ³	Yes	Optional	No	Optional	No	No
4-stage clearance: stages 2 and 3 (inside enclosure)	No	Two ⁴	Half-mask or disposable APF=20	Yes	Yes	If necessary ⁵
4-stage clearance: stages 4 visual inspection (after enclosure dismantling)	Yes	Optional	Optional	Yes	If necessary	No
DCU clearance ⁶	Yes	Single	Half-mask or disposable APF=20	Yes	Yes	No
Live enclosures ⁷	No	Two	Full-facepiece powered APF=40	Yes	Yes	Yes

Notes:
¹ Where RPE has to be worn continuously for long periods, powered equipment or breaks will be necessary (see paragraph 8.11)
² See paragraph 8.27 ³ See paragraph 9.7 ⁴ See paragraphs 9.4 - 9.5 ⁵ See paragraphs 9.9 - 9.10 ⁶ See paragraph 8.31 ⁷ See paragraph 8.32

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