

Minutes of the Seventh Meeting of the Asbestos Liaison Group, held on 24 September 2002, Fortune Room, Rose Court, London

Present

HSE

Anne Wilson Head of Health Unit
Jim Skilling Head of ALU
June Cairns ALU
Liz Standen ALU
Martin Gibson Scotland Specialist Group
Robbert Hermanns Scotland Specialist Group
Martin Stear TD3
Tracy Phillips HDC
Bill Macdonald HDC

TAs/TUs

Ernie Mitchell ACAD
Mike Wilkes ACAD
Jean Prentice ACAD
Terry Jago ARCA
Peter Dolan ARCA
Rob Blackburn Atac
Tony Tynan NFDC
Nigel Bryson GMB
Neil Moore GMB
Leonie Wingrove TGWU

1 Introductions, apologies, welcome etc

1.1 Ms Wilson welcomed everyone to the meeting and introduced herself as the new Head of Health Unit, and confirmed she would be chairing ALG meetings from now on. She welcomed Ernie Mitchell, who had replaced David Hayes and recorded the Group's thanks to David for his contribution. Congratulations were extended to Leonie Wingrove on the birth of her baby daughter and to Nigel Bryson on receiving the OBE. Apologies for absence were received on behalf of John Claxton, HSE. It was confirmed that John's tenure as ALPI representative on the Group was drawing to an end and that he would be replaced next year by Ray Cooke, the ALPI in Birmingham.

2 Minutes of the meeting held on 21 May 2002

2.1 The minutes were agreed.

3 Matters arising

3.1 (3.4) The item on the asbestos laundering project was remitted to substantive agenda item 4(iii).

Item discharged

3.2 (3.5) Dr Gibson reported that the HSL Protimeter project had not progressed as quickly as had been envisaged. He hoped to agree the scope and timescale of the project with HSL soon, so that work could start as soon as possible. He would keep the Group apprised of developments.

Action: Dr Gibson

3.3 (3.6) The revised memo on supervisory licence holders (ALG 8/01 rev1) had been issued on 17.6.02.

Item discharged

3.4 (3.8) There was a further discussion about HSE's current guidance to Appointed Doctors, which required asbestos workers to have mandatory chest X-rays (CXR) every 2 years, the fact that this was not a useful indicator of asbestos related illness, and also that the guidance was at odds with the Ionising Radiations (Medical Exposure) Regulations 2000 (IR(ME)R). Dr Hermanns explained that an Expert meeting had taken place in December 2001 to consider all statutory medicals involving ionising radiation. The result was that the Appointed Doctors' guidance would be redrafted to reflect IR(ME) Regs and current medical thinking. It would also allow practitioners to determine whether a CXR was required or not. The revised guidance was currently being prepared and should be available by the next meeting.

3.5 The TAs referred to concerns expressed by their members, as many employees felt reassured (wrongly) by having regular CXRs and wouldn't want this requirement removed. The issue would require sensitive handling and they hoped that the guidance would allow for the option of a CXR if the employee wanted it. TAs and TUs were invited to comment to Mr Skilling within 2 weeks **(8.10.02)**

Action: TAs/TUs

3.6 (3.11) The item on BIOH examinations was remitted to substantive agenda item 6(i).

Item discharged

3.7 (3.12) Mrs Standen and Mr Mitchell referred to the CSCS meeting they had attended in June. The NVQ problems had been discussed at the meeting and it had been agreed that asbestos operatives could enter the scheme via the "Green Card" specialist operatives route. However, it now appeared that this would not, after all, be acceptable and another meeting with CSCS was now likely. Although this wasn't an issue for ALG, per se, it might help if HSE wrote formally to CSCS, which Mrs Standen agreed to do. GMB might also be able to apply pressure on CSCS. TAs would keep ALG informed of any progress.

Action: Mrs Standen/TAs

3.8 (3.14) Mr Skilling reported that although ALU had not formally documented its revised disclosure procedures, he confirmed that these had been tightened up and that staff were working to them.

Action: Mr Skilling

3.9 (3.19) Mr Stear confirmed that the work to establish a basic standard for disposable overalls would be included in the current HSL project on the effectiveness of decontamination arrangements and PPE. He hoped to provide a progress report for the next meeting.

Action: Mr Stear

3.10 (3.20) Dr Gibson reported that the HSE meeting with the Home Improvement Companies to discuss removal of AIB soffits had been arranged for 30 October, in London (Rose Court). Representatives from the asbestos licensing industry would also attend (post meeting note – David Hayes, John Fowler, from ARCA, Tony Dillon ACAD have been nominated). The meeting would discuss the various work practices required to do the work, the nature of the work, nature of different housing, concerns for the occupiers, local residents; full enclosures and the implications of practicality,

cost and time, etc. The ultimate aim was to produce guidance for HSE and the industry.

Action: Dr Gibson

3.11 (6.3.1) Ms Cairns reported that she would circulate to members the waiver policy in the form of a draft ALG memo, once ALPIs had commented on the latest revised version.

Action: Ms Cairns

3.12 (8.5.3) The item on clarification of asbestos detection limits and ASLIC was remitted to substantive agenda item 4(vi).

Item discharged

3.13 (8.6.1) The item on employers liability compulsory insurance was remitted to substantive agenda item 6(ii).

Item discharged

3.14 (8.7.1) Re the forthcoming change to WHO counting methods for asbestos fibres and the proposals to reduce the control limit under the Asbestos Worker Protection Directive. Mr Macdonald had not yet discussed with Mr Rajan the query regarding whether RPE that could be demonstrated to have a higher assigned protection factor could be used for work where other RPE was not appropriate, but would do so. He did express concern however about people working so close to the limits for which RPE would provide assigned protection.

Action: Mr Macdonald

3.15 (9.1) Ms Cairns confirmed that ALU had written to all licence holders (twice), the TAs and TUs about the proposals to change the asbestos licence charging arrangements. Thirty-six responses had been received, six of which had not agreed with the proposals. It was likely therefore, subject to the Health and Safety Commission's agreement, that the changes would come into effect from April 2003. It was agreed that there would be no need to have a separate charging guide, so long as ALU ensured that sufficient information on charges was included in relevant correspondence sent out from the Unit.

Item: discharged

3.16 (9.4.1) Ms Cairns reported that Mr Claxton had redrafted the method statement aide memoire as agreed at the last meeting. As this matter had also been discussed at the ALPI conference, it had been decided to invite comments on the draft from ALPIs first, before circulating to ALG.

Action: Ms Cairns/Mr Claxton

4 ALU Update

4.1 Asbestos Training Providers Project Update

4.1.1 Mrs Standen confirmed that the HSL report had been published (summary of the findings appended to the minutes as Annex 1) and that a meeting involving the majority of training organisations involved in the project had taken place in Sheffield

on 4 September. As a result, a small Working Group had been set up, comprising 2 Trade Association representatives; 2 representatives from independent training organisations and HSE. The WG met on 23 September and its aim was to agree length of courses, tutor to delegate ratio, course content etc in order to standardise training across the piece. It was anticipated that training providers would be able to meet the requirements of the forthcoming revised L28 ACoP within 6 months of it being published.

4.1.2 In response to a query on this, Mr Skilling confirmed that BIOH had not been involved and mentioned that completion of the P402 and P405 courses would not be sufficient to be deemed competent to obtain a supervisory asbestos licence. He agreed that ALU would consider the syllabuses for these courses and provide comments to the Group.

Action: Mrs Standen

4.1.3 Mr Jago asked whether as a result of this work, HSE would “regulate” training providers. Mr Skilling said that HSE did not intend to approve or certify training organisations. Instead he thought that this might be something that a Training Association (which it was hoped would be established) might consider – eg UKAS accreditation.

4.2 ALPI Conference Issues

4.2.1 Mr Skilling reported back from the ALPI conference, held on 10 -12 September, which had covered a wide range of issues including waiver policy, method statements, waste issues, AIB soffit removal, development of guidance on removal of difficult asbestos containing decorative coatings (eg vandal proof coating on Artex) prior to demolition; legal interpretation of the Prohibitions regs and re-use of the waste as rubble (asbestos intentionally added?), licensing policy re applicants who had no intention of working with asbestos, etc. He also confirmed that it was hoped that licensing information would be available on the Internet by Christmas 2002.

4.3 Laundering of asbestos contaminated items project update

4.3.1 Ms Cairns said that the report was being finalised following some queries and additional work that had been required. The final draft was expected to reach HSE by the end of September. The emerging findings showed that:

- few commercial laundries accepted asbestos contaminated towels and clothing, resulting in more employers making their own arrangements, the standards of which varied;
- asbestos was found on towels used by asbestos removal workers, suggesting that workers were not decontaminating themselves properly;
- asbestos was found on towels after laundering, which demonstrated that laundering was not 100% efficient at removing all asbestos fibres from contaminated towels;
- laundering was effective in removing asbestos from contaminated coveralls; and
- standards of cleanliness and precautions taken at the two laundries visited were very high.

4.3.2 The report was likely to recommend that workers should start the initial drying process in the shower cubicle of the DCU, as the study had shown that contamination could come off on the towel because of inadequate showering. The used towel would then be treated as contaminated. This differed from HSE's existing guidance, which allowed for all the drying to be done in the clean end of the DCU, if preferred. Regarding the potential risk to an asbestos worker from any fibres that might be released from laundered towels, she commented that this was unlikely to present a risk as the asbestos worker would only use a single towel, shaken for a few seconds, in a damp, well ventilated atmosphere. Whether this presented a risk to other groups of workers (eg laundry workers) was being looked into.

4.3.3 It was agreed that members would be sent a copy of the report when it was available.

Action: Ms Cairns

4.4 Modular DCU project update

4.4.1 Mrs Standen circulated a summary of the findings from this report (appended to the minutes as Annex 2). The next stage would be to write to suppliers and manufacturers about the minimum requirements. It was confirmed that modular units, which met the minimum requirements, were only acceptable in situations where it was impracticable to accommodate a normal sized DCU.

Action: Mrs Standen

4.5 ASLIC and detection limits

4.5.1 Mr Skilling reported that following the last meeting, ALU had sought legal advice on this.

Post meeting note – HSE Solicitor's Office have confirmed that as the definition of asbestos in the Regulations does not refer to any percentage, any asbestos in a sheet, tile or building board will be sufficient to render it AIB unless the exemptions in the definition apply. Solicitor's Office also agree with the extract in the minutes (8.5.2) from the previous meeting, which for ease of reference, are reproduced below:-

"In later correspondence, Mr Blackburn referred to the definition of 'asbestos insulating board' under Reg 2 of ASLIC ('...means any sheet, tile or building board consisting of a mixture of asbestos and other material except - (a) asbestos cement: or (b) any article of bitumen, plastic, resin or rubber which contains asbestos and the thermal or acoustic properties of which are incidental to its main purpose') which he considered clear and unambiguous although the L11 Guide went on to describe AIB as "...a lightly compressed board made from asbestos fibre and hydrated Portland cement or calcium silicate with other filler materials... ". He had taken the former as the definition and treated the second as a common description of typical AIB and had never used any percentage asbestos content as a basis for assessing whether the product was licensable".

4.5.2 Mr Stear remarked that this was a matter for surveyors and not analysts, to deal with. Whilst the analyst would determine whether asbestos was present or not, it would be for the surveyor to provide information about the type of material and whether it was licensable.

All to note

5 Asbestos Guidance Update

5.5.1 Mr Stear reported that HSG 227, A Comprehensive Guide to Managing Asbestos in Premises was with the printers, ready for issue when the new regulations became available. A free leaflet entitled, A Short Guide to Managing Asbestos in Premises was also ready for publication.

5.5.2 The consolidated guidance for asbestos licensed contractors, which would replace HSG 189/1 and EH47, 50 and 51 was planned for publication next summer. The draft would be available for comment next spring. The draft consolidated guidance for analysts, which would include EH10, MDHS 39 and the new certificate of reoccupation, would also be available next summer. The Asbestos House was now available as a priced poster.

All to note

6 ARCA and TICA/ACAD Technical Committee(s) Issues

6.1 BIOH examinations – lack of appeals procedure and associated issues

6.1.1 Mr Blackburn referred to previous discussions on this matter viz the validity of some of the questions, the lack of an appeals procedure for P402 examinations and the fact that individuals' careers were being affected. Mr Skilling responded that the matter had been raised at the recent Committee for Fibre Measurement meeting and was actively being pursued.

Action: Mr Macdonald (and other CFM members)

6.2 Employers Liability Compulsory Insurance

6.2.1 Mr Jago said that there were now only three underwriters in Lloyds prepared to offer asbestos insurance; that the cost of the premiums had all increased substantially and that all three underwriters would not take on new asbestos business. He was concerned that some asbestos licensed contractors would not be able to work because they were inadequately insured and that others might be tempted to cut corners or that insurance certificates might be forged.

6.2.2 Mr Skilling empathised with the problem and undertook to follow up the outcome of the recent high level meeting on this subject attended by the DDG (ALU had provided examples of the problems being experienced by the industry for this meeting).

Action: Ms Cairns

6.3 Licence holder name changes

6.3.1 In response to Mr Jago's query, Ms Cairns explained that if a company changed their name, but not their Companies House Registration number (ie there was no change of legal entity), then they were required to provide proof (copy of Companies House Certificate of Incorporation) to ALU. The name on the licence could then be changed and an amended licence issued. The expiry date would remain unchanged. If, however, the company changed its Companies House registration, (ie a new legal entity had been created), then the licence would be invalid, and a brand new licence would have to be applied for.

All to note

6.4 White asbestos debate/spurious allegations re the asbestos industry

6.4.1 Mr Jago reported that following the recent Conservative Party press release, ARCA had written asking for justification of the allegations contained in it and wondered whether it might be beneficial to issue a joint HSE/Trade Association/Trades Union statement on this matter.

6.4.2 After discussion, it was agreed that HSE would not be able to contribute to a joint statement but that other organisations might wish to consider responding separately.

All to note

6.5 Arrangements for electronic notifications and method statements

6.5.1 Mr Jago referred to the initiative in London, whereby method statements could be emailed to HSE and wondered whether there were plans to introduce these arrangements across the country. Mr Skilling replied that presently there were no standard arrangements in place but that this was likely to change in the near future with the introduction of an electronic, interactive ASB5 notification form which could be emailed to HSE offices. He would update ALG as more information on this became available.

Action: Mr Skilling

6.6 Clarification of licensable material

6.6.1 Mr Wilkes asked whether the following materials were licensable:

- (a) Galbestos – **not licensable**. This was because the presence of asbestos was solely to delay the onset of corrosion and had no relevance to thermal and/or acoustic insulation properties. ALU had already issued guidance to ALPIs to this effect;
- (b) asbestos rope used for gasketing – **not licensable**. This was because it fell into the category of other asbestos products, which might be used at high temperature but had no insulation properties;
- (c) the sheathing and insulation inside electrical cables, where they contain asbestos – **licensable** – because it was being used for insulation purposes;
- (d) boarding produced in late 1970s when asbestos was first replaced that were found to have traces of tremolite in the vermiculite – **licensable** because it could be defined as AIB (previous discussion at 4.5.1 also refers);
- (e) fire doors in good condition – completely sealed, removed by unscrewing the hinges – so long as the asbestos was in good condition, was completely sealed and could be removed in this way, and only 1 or 2 doors were involved, then the work could be done under the short duration exemption and would not be regarded as licensable. If more doors were to be removed, then the expectation was that the work would be notifiable.

All to note

6.6.2 Mr Blackburn referred to the definition of cement in ASLIC and mentioned that some laboratories only undertook a density test, whereas it was also relevant to test for cement too. Mr Skilling agreed that the material had to contain cement in order to meet the definition and said that HSL would be writing to AIMS members about a better test. He also said that in time for the next revision of ASLIC, he was keen to review the classification of AIB and asbestos cement so that it did not rely on density. If members had any thoughts on this, they should let him know.

Action: ARCA/ACAD

6.7 Circumstances when licensable work can be conducted without enclosures

6.7.1 In response to Mr Wilkes's enquiry about whether this would be permitted, Dr Gibson said that each situation would have to be looked at on its own merits. In certain circumstances eg if the site was remote, if the work was outside, and if there were other risks that made building an enclosure impractical, then it would be acceptable to do the work without using a "traditional" enclosure. However, in these situations some form of localised containment would still be necessary eg wrap and cut method or glovebags with controlled wet stripping. Personal and reassurance monitoring should also be undertaken to ensure the prevention of spread.

Footnote: In these situations the area should also be marked by suitable warning notices and by physical barriers, and contractors must assess the risks to others (eg nearby workers). It may be appropriate to perform the work when others are not in the vicinity

All to note

6.8 Wet vacuum cleaners

6.8.1 Mr Wilkes asked whether any guidance existed for the use of wet vacuum cleaners, which were capable of absorbing damp and dry asbestos material. As they were not type H, Dr Gibson explained that the equipment wouldn't comply with HSE's requirements. The equipment seemed a good idea in theory and Dr Gibson agreed to make some enquiries with HSL once Mr Wilkes provided him with the supplier information.

Action: Mr Wilkes/Dr Gibson

7 Health Directorate Update

7.1 Duty to Manage/CAWR 2002/Supporting Campaign/L27/L28 AcoPs

7.1.1 Mr Macdonald reported that on 16 July 2002 the Health and Safety Commission had agreed the CAWR 2002 Regulations and accompanying duty to manage ACoP. These were now with the Minister for signing and approval, respectively. As HSE was unable to confirm when the Regulations would be signed, it had been necessary to postpone the launch, originally scheduled for 3 October. A revised date would be arranged in due course.

7.1.2 The accompanying ACoP and the management guidance would be issued once the Regulations were signed. As far as the revised L27 and L28 AcoPs were concerned, Mrs Phillips explained that following the consultation period, some changes had been made to take account of comments. It was noted that the format would remain as per the layout in the CD, but with the inclusion of more cross-

references. She agreed to arrange for members to be provided with a summary of the L27/L28 changes.

Action: Mrs Phillips/Ms Cairns

7.1.3 With reference to the new 4-stage clearance procedure, Mr Macdonald asked members for their views on whether an appropriate "lead in" period was necessary. Mr Wilkes commented that sufficient time would be required initially to purchase the ACoPs, read and understand them but having done that, the new arrangements should be implemented fairly quickly thereafter. In response to Ms Prentice's query about what would happen about contracts in progress when the new ACoPs came on stream, given that tendering would have been based on the previous clearance arrangements, Mr Macdonald said he would anticipate a reasonable approach being taken by inspectors in such circumstances.

7.1.4 On the publicity front, Mr Skilling confirmed that an article about the new clearance procedures would appear in the next edition of Fibre Aspects, together with a copy of the Certificate of Reoccupation. It was agreed that this would be a good start, possibly to be followed up with an article in Construction News, which would reach a wider audience.

7.2 Accreditation/personnel certification issues

7.2.1 Mr Macdonald reported that 32 organisations were now accredited by UKAS for asbestos surveying with a further 41 applications being processed. The work of the two WGs, set up to develop a certification scheme, had not progressed as well as expected, and it was now unlikely that they would combine to develop a common standard. The difficulty for HSE and UKAS about there being two schemes, meant that it would be harder to ensure equivalence than if there was a single scheme. To progress matters, HSE had suggested that one of the WGs send a draft application for accreditation to UKAS who had agreed to review it.

7.3 Matters arising from the Committee for Fibre Measurement Meeting (CFM)

7.3.1 Mr Macdonald reported on the preparatory work being undertaken by CFM for the WHO new counting method, the changeover for which was scheduled for 1.1.2005. HSL would be revising MDHS 39/4 in the light of the change - the draft would be available for consultation around Christmas 2002.

8 Any other relevant business

8.1 Mr Wilkes raised a query concerning licensed scaffolders. He had followed ALU guidance (and the ALG memo) and had not initiated medicals as none of the workers would exceed the action level. However, an HSE inspector had queried this and asked how it could be determined if the workers were fit to wear the RPE they had been issued if they had not undergone a medical examination. Dr Hermanns explained that the medical required by CAWR did not test an individual's fitness to work, so even if they had been given medicals it would not have addressed this issue. (see minute 3.4)

8.2 It was confirmed that licensed scaffolders did not require a medical as defined in CAWR, unless they would exceed the action level. Mr Skilling agreed to make enquiries as to whether the face fit test included assessing an individual's suitability

to do work whilst wearing a respirator. He would discuss the issue with the inspector concerned.

Action: Mr Skilling

9 Date, time, location of next meetings

9.1 Future meetings were agreed as follows:

Tuesday 21 January 2003, 10.00am, Edinburgh;

Tuesday 20 May 2003, 10.00am, Rose Court, London; and

Tuesday 23 September 2003, 10.00am, Edinburgh

Annex 1

HSL asbestos training project - Summary of findings	HSL asbestos training project - Summary of recommendations
There is confusion over the definitions of what constitutes refresher and awareness training.	Define 'refresher' and 'awareness' to differentiate between the 2 types of course.
Most providers appeared to cover EH50 topics in appendix 1.	Use EU report as best practice guidance for course content.
Objectives of course are not always clearly set out.	Ensure that clearly stated course objectives are relevant to the role and training needs of delegates.
The content of refresher training is repetitive which is boring for delegates.	Ensure that refresher training is based on Training Needs Analysis (TNA) and not just regurgitation of initial training.
It is thought that delegates have low levels of motivation (22 employees were interviewed as part of the project).	Use different training techniques to stimulate interest, i.e. not just lecturing; encourage delegate participation; indicate achievement during course, not just at the end.
The majority of courses have a practical content of 30% or less (there seems to be confusion about what 'practical' means).	Increase level of practical training by practising use and maintenance of RPE; decontamination procedures; setting up enclosures and airlocks; removal techniques.
Duration of courses - most operative courses last 2 days, new supervisor courses last 3 (although delegates seemed to think that they mostly lasted 2 days) and refresher courses last 1 day.	Duration of courses (minimum) in days: a) New operatives – 2 b) Operatives refresher – 1 (>6 hours) c) New supervisors – 3 d) Supervisor refresher – 1
Most courses are delivered using a lecturing technique.	Report lists different training techniques and refers to training literature. Emphasis on 'doing' and using a variety of techniques.
There are no qualifications or standards of competence that trainers are required to have in this sector.	Trainers need to have adequate knowledge and experience in the asbestos industry as well as being a good communicator and being able to design and operate training courses effectively.
Most courses have a mixture of delegates e.g. new operatives and refresher operatives, which means that their training needs are not being addressed.	Avoid mixing different delegates as they have different training needs.
Tutor to delegate ratios varied from 1:3 to 1: 30.	Ratios of tutors to delegates: a) New operatives – up to 1:10 b) New supervisors – up to 1:10 c) Refresher course – up to 1:15 d) Awareness courses -1:15 +

There is a high level of competition between providers and the 2 trade associations do not represent all the contractors or training providers.	Form an asbestos training providers' body to represent their views and to exchange ideas about how to improve training standards.
Not all delegates were assessed at the end of their training. Some only received attendance certificates. Those that were assessed had multiple-choice questions	Develop a standard assessment using multiple-choice questions and practical assessment.
Anecdotal evidence that training certificates are being forged.	Develop a nationally recognised card once training has become more standardised using a unique reference number and a photograph of the card holder.
NVQs are not popular in the industry. Only 4 people have obtained NVQ level 2 (operative level) out of 70 people that joined the scheme.	Need to research why NVQs have failed so far and then the industry should decide whether to continue with or expand their use.
There is good information available on the content of training courses in the EU report, L28 and EH50.	Use the EU report as a reference document when designing future asbestos courses. NB the new L28 is a lot more prescriptive about what should be covered in asbestos training.

Annex 2

HSL modular DCU project - Summary of findings	HSL modular DCU project - Summary of recommendations
Smallest unit measured 1 m x 0.8 m x 2 m.	Minimum measurements for each compartment : 1 m x 1 m x 2 m (based on ergonomic reference). Where practicable units should be larger.
Surfaces easy to clean although some potential dust traps found around fittings.	
Only 1 unit had insufficient hooks and had no sink or place to put soap/shampoo.	At least 4 hooks in the shower area and 'clean end'.
Possible that clips and wing nuts holding the panels together may become damaged which could lead to air leaks.	Ensure that clips etc are regularly checked for damage and to ensure that the panels are tightly engaged.
Self-closing doors on 2 units found to be hard to close and 'dirty end' door was not self-closing.	Ensure that the doors are self-closing by design.
No battery charging points provided.	Provide charging points.
In 1 unit a locker had been used as a seat close to the air extraction ports thereby reducing airflow.	Provide bench seats and fix lockers in position.
There were no functioning sinks in any unit (2 had sinks but no connection pipes).	Fit drainage pipes to sinks.
Heating was deemed adequate.	
Only one unit not provided with artificial light.	Provide artificial light in all units.
No 2-way light switches.	Not applicable.
All units had acceptable number of air changes per hour (80-100) although negative pressure was high in 'dirty end'.	Recommend change to EH47 to state air changes per hour instead of airflow in metres per second. Essential that intervening airlock is provided between the enclosure and the unit to prevent air being drawn into the 'dirty end' from the enclosure.
2 units had did not have pressure or gravity operated flaps for the replacement air system.	Need pressure or gravity operated flaps. An increased grille size would increase the volume of air flowing through the unit and reduce the pressure difference.
Showers and water supply were deemed to be acceptable. Waste water was filtered.	No knowledge of filtration efficiency. The water management system should be able to pump clean water in and dirty water out at the same time.

Electrical power was supplied via 110v transformer and all appliances were double insulated.	No need for RCCB as using 110v supply.
Air extraction units were sited outside the unit and connected by a flexible tube with 1 or 2 connection points into the 'dirty end'.	Recommend having 3 connection points (2 on the sides and 1 on the front) to choose from.

1

¹ Asb Committee – DCU notes