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Guide to the use of FILON GRP Sheeting to meet Control of Asbestos at Work Regulations 2002 - Implementation within the Roofing and Cladding Sector

Keywords : - Roof Finishes - Overlapping Sheets - Reinforced Plastics

Introduction

This brochure is intended to provide awareness on the new Asbestos Regulations. It highlights key points and actions required on Duty Holders and gives guidance on how the Duty Holder may manage their responsibilities. The document is not all inclusive and must not be read as a substitute to reading and understanding the New Regulations.

New Regulations came into force in May 2004, which relate to all Non-Domestic Buildings. A duty is placed on all non-domestic building owners, agents or tenants - those responsible for the upkeep and repair of the building - to be aware of all asbestos containing materials (ACM) within or on the structure of the building, and to draw up a written plan as to how the ACM will be managed to minimise the release of asbestos dust into the work place environment.

Background

It is now proven that asbestos, when inhaled into the lungs, may cause cancer of the lung and chest linings.

Asbestos in its various forms was used throughout the last century and particularly within the building industry. It was used to provide fire protection to structural components, heat insulation in boilers and pipes, acoustic insulation in theatres and shops, humidity control in swimming pools, wall partitioning, service ducts, ceiling and floor tiles, and possibly its greater use was when mixed with cement to provide strength and reinforcement to cladding, roofing, gutters and downpipes , flue systems, water tanks, pressure and sewage pipes.

Asbestos products can no longer be bought or sold in the UK, but it is estimated that 4.4 million buildings exist in the UK that contain asbestos in some format and of these 2 million are in the non-domestic sector.

Research shows that the group of people most at risk from asbestos related diseases are those in maintenance and building related trades such as plumbers, electricians, joiners and cablers. They are at risk because invariably they are not aware that they are drilling into, cutting, or working with existing buildings products that contain asbestos and that they frequently work in confined spaces with these materials.

Asbestos Types

asbestos used:

- Chrysotile (white)
- Crosidolite (blue)
- Amosite (brown)

Chrysotile is considerded the least dangerous and is the product primarily used for asbestos cement products.

Crosidolite and Amosite were less used but were included in fire protection products and occasionally for cement based products.

Action Levels and Control Limits

In order to control and regulate the handling and working with ACM the following limits are applied :

Action Levels

- Chrysolite 72 fibre-hours per millilitre of air
- Any other form 48 fibre-hours per millilitre of air

Control Limits

- Chrysotile
  0.3 fibres per millilitre of air averaged over continuous 4 hours .
  0.9 fibres per millilitre of air averaged over continuous 10 minutes
- Any other form or a mixture of both
  0.2 fibres per millilitre of air averaged over continuous 4 hours
  0.6 fibres per millilitre of air averaged over continuous 10 minutes

The Action Level is calculated by multiplying the airborne exposure in fibres/millilitre by the time in hours for which it lasts to give exposure in fibre-hours/millilitre. Cumulative exposure is calculated by adding together all the individual exposures over a 12 week period.

Asbestos and Asbestos Cement

From a fibre release point of view Asbestos products and Asbestos Cement products are fundamentally different.

Asbestos product generally contain over 50% by volume of asbestos fibres and this can increase up to approximately 90%. As such the products are fiberous to touch and when handled fibres will generally be released unless they have been sealed in by some means. Such products will readily take up water and are therefore generally unsuitable for outside applications. Note however that Asbestos Wood (50% by volume) was frequently used for under eaves soffits. Asbestos products may also be used as wall linings and certainly for cladding to internal structural stanchions and beams to provide fire protection.

Asbestos Cement products are approximately 90% cement and 10% fibre by volume. The fibres become locked in as the cement sets and the process of manufacture encourages the surface to be cement rich. Handling such products when new provided minimal risk. Although the cement would take up some water, the products were watertight and widely used for roofing, cladding, rainwater gutters and pipes, soil and pressure pipes and even water storage tanks.

Whereas these products offer considerably reduced risk it should be born in mind that where sheets are exposed to the external weather, the cement rich surface on the outside will weather away to leave a fibre rich surface. These fibres are still generally 'locked in' but manhandling of old sheets will release fibres from the weathered face.

It should also be noted that the internal faces to the sheets which are not exposed to the elements, will remain cement rich at the surface and thus such sheets will not litter fibres from the underside into the building. Thus having an asbestos cement roof, be it slates or corrugated roofing, will not in itself create fibre litter within the building and therefore does not offer increased exposure to the occupants, provided the roofing is not disturbed.

In addition to this, Asbestos Cement products were generally made from the lower risk Chysotile fibre.

Asbestos products that were used for fire protection, sound insulation, heat protection and moisture absorbtion were designed specifically to achieve their task and would contain a mix of asbestos types to suit the requirements and thus the risks to exposure was many times greater than for asbestos cement.

Thus it will be seen that for future maintenance, the greater risk to exposure is for people working within the building, particularly since the ACM may not be obvious, frequently covered with wallpaper or painted over with stipple finish.

Responsibility and Duty

Under the New Regulations there is now a duty to manage ACM within the non-domestic buildings. The Duty Holder will be the building owner or, if on a maintenance lease, the tenant.

The first requirement is to survey the building, as best as is practicably achievable, to determine if there are ACM present in the building and to fully record their position and their condition.

The surveyor must be competent and have appropriate knowledge of asbestos products and sampling.

Where access cannot be gained, this must be also be recorded. If ACMs are in place, then it will be necessary to draw up a Management Plan to manage the products and any work associated with these products and to ensure that all persons involved are fully informed.

The Management Plan must be filed within the building and be readily available on request.

Note that the survey must include fixed plant and equipment where asbestos may be used for insulation, lagging, friction plates and gaskets.

Managing ACM

Having identified, recorded and filed the presence of ACMs within the building, the Duty holder must now manage the products and people working with or near the products. Managing the risk means making sure that as far as reasonably practicable, no one can come to any harm from asbestos on the premises. The management requirement will be based on a risk assessment and hierarchy of possible solutions. The risk assessment should be recorded and a method statement must be prepared to provide detail of how the work is to be actioned to comply with the regulations.

NB The Risk Assessment should also consider all other aspects of safety such as working at height and working on fragile roofs, which may be far more significant than the exposure to asbestos fibre.

Hierarchy of Actions

1. ACMs that are sound and generally not releasing fibre should not be disturbed and if this is not possible, disturbance should be as little as possible.

2. Where ACMs are themselves damaged and need attention, effect repair with least disturbance by sealing or replacing just that component. For Asbestos Cement profiled roofing and cladding sheets FILON DR provides the ideal solution to over-sheet/replace single damaged sheets.

3. Where removal is necessary or the proposed work will release fibres, e.g. drilling into asbestos insulation board, state whether the employees might be exposed to asbestos levels in excess of the Control Limits and Action Levels. Wherever possible keep the exposure levels below these limits.

Actions if the Action Level is Likely to be Exceeded

1. A full risk assessment must be prepared and must be brought to the attention of everyone who will be involved in the work. This risk assessment must be left on site and be readily available.

2. The HSE must be notified of the proposed work 14 days in advance of commencement.

3. The areas of work must be clearly marked off and change of signage adopted to keep other people out of the work area.

4. Monitoring of personal exposure to asbestos fibre in the air at regular intervals and records must be retained for **40 years**.

5. The Duty Holder, or the employer in the case of an outside contractor, must keep acceptable health records and ensure that each employee who has been exposed is under adequate medical surveillance by a doctor.
   This will be achieved by :
   a) A medical prior to work starting and then periodic medical examinations of not more than 2 year intervals whilst exposure continues.
   b) The medical records to be kept for **40 years**.
   More detailed information on medical requirements is given in ACOP1.

Actions if the Control Limit is Exceeded

1. Where risk assessment shows that the Control Limits may be exceeded then each employee involved in the work must be provided with approved respiratory protective equipment (RPE), and ensure that the concentrations of asbestos in the air inhaled by the employee is as low as possible and certainly below the Control Limits.

2. The fitting of RPE is a specialist area. Employees require training on their use and fitment to ensure good seals. Since this work is so specialised, it would be normal to give the work to specialist contractors.

How to Reduce Fibre Release

First Rule - Where the ACMs are not causing fibre release, then leave alone whenever possible.

Second Rule - If the work on the ACM needs to be done, then consider how this can be done with least fibre release.

Examples of Actions to Minimise Release

1. For damaged sheet(s) of asbestos cement on the roof - if cracked consider sealing with bitumen based compound,
or
over sheet the broken sheet with FILON DR of the same profile. By removing the existing retaining screws/bolts, the FILON DR sheet can be slid under the upper endlap and placed directly on the damaged sheet and refitted.
NB trying to remove the broken AC sheet will generally lead to more sheets being broken since the old sheets will be very fragile and friable. The process may then become self perpetuating.

2. Where complete roofs need repair, sheet removal will generate much fibre release from the weathered outer skin. This can be overcome by over-roofing rather than removal. FILON Over-Roofing in the same profile using patented profiled spacers is an ideal solution.
Over-Roofing does require the AC sheets to be drilled creating some fibre release, but the majority of the fibre release will pass up the drill spiral and be deposited in the cavity below the over roof sheets where it will remain inert.

3. Where sheet removal is necessary, always damp down the sheets so that fibres on the surface that might be removed by manhandling become heavier and therefore fall to the ground rather than float in breathable air.
Always remove all fixings by unscrewing or cropping so that ACM sheets can be removed as a complete sheet, where they must be double wrapped in polythene or carried to a specified and covered skip for removal from site. Never break or drop the sheets or pass down a chute since this has the potential for excess fibre release.

4. Never use power tools to cut ACMs unless they are fitted with extraction facility. Where possible use scribing tools and break along the scribe or alternatively use hand cutting tools. Always ensure that the ACM is dampened to minimise fibre release.

5. If sheets need to be drilled, dip the drill in wall paper glue or similar and regularly clear the drill of matted swarf.

6. When drilling into or working with ACM in confined/enclosed areas, always wear a disposable mask that is CE marked to EN149 with FFP2 particulate filters, and wear disposable overalls which should be disposed of at the end of the shift as asbestos waste. Remember, if the risk assessment shows that Action Levels and/or Control Limits will be exceeded, then the appropriate action described in the relevant preceeding sections must be observed.

7. Remember when working at height and particularly on an old asbestos cement roof which will be fragile, the immediate dangers to life are very high. All work on roofs should be carried out in accordance with the advice in HSG33 '**Health and Safety in Roof Work**' and the document prepared by the Advisory Committee for Roof Work ACR(CP)001:2003 '**Recommended Practice for Work on Profiled Sheeted Roofs**'.

8. Two working procedure documents on working with Asbestos are available and must be complied with as appropriate:
- HSG.189/1 '**Controlled Asbestos Stripping Techniques**'
- HSG.189/2 '**Working with Asbestos Cement**'

9. In the final resort, if stripping of ACMs is to be undertaken then two key rules apply:
a) If the stripping is of low density material e.g. insulation board, sprays, lagging, - then the work MUST be carried out by contractors licenced to strip and remove asbestos.
b) If the work is on high density material such as Asbestos Cement or floor tiles, then the work can be carried out by unlicensed workers, but full risk assessment must be carried out prior to the work starting. If Asbestos Cement products are removed by accommodating all the recommendations given above, then it will generally be the case that the Action Levels and the Control Limits will not be exceeded.

10. Remember when the work has been completed, it is necessary to clear up the site and remove residual contamination. This must be done with care. Use vacuum cleaning or dampen down before sweeping/cleaning. Contaminated clothing should be disposed of - never shake out. Where work has been carried out within a building and is not of a minor nature, then Clearance air sampling and a **Certificate of Reoccupation** will be required.

Removal of Asbestos Waste

If ACMs or contaminated overalls are removed from the building/site, these are subject to waste management controls set out in **Special Waste Regulations 1996**. Such waste must be consigned as soon as possible by a licensed haulier to a dump site licenced to accept asbestos. The only exception to this rule is that farmers may bury ACMs on their own land, but this rule in this respect may be disallowed in the future.

Note that all waste containing more than 0.1% weight for weight asbestos materials must be managed as above and there will generally be a charge in addition to the licenced haulier for dumping the material.

Instruction and Information

The New Regulations require employers to ensure that all employees or outside contractors, involved in maintenance or removal associated with or near ACMs, are fully briefed on all aspects associated with the health risks of handling and dealing with ACMs. Such training will include:
- How to minimise risk by reducing the fibre release to breathable air.
- How to use protective equipment.
- Awareness training of asbestos health issues.
- Refresher training as necessary.
- Records kept of all training given and to whom.

Cleaning of Asbestos Cement Roofs

Finally in this brief synopsis of the Relegations and Filon Products Ltd. involvement in the supply of products and systems to refurbish old asbestos cement roofs, it is relevant to add a section on recommended practice to deal with cleaning of old asbestos cement roofs.

The first priority is to leave the roof alone if possible. Lichen and moss, which readily live on the moisture contained within the AC sheets, do not have a detrimental effect on the weathering properties of the sheeting. Only remove this growth when it is deemed to be causing other problems.

Removal is best achieved by applying surface biocides using low pressure sprays or washes. The lichen and moss will then die and shrink and that should be sufficient.

If actual removal is necessary it may be carefully swept under damp surface conditions. All material collected must be bagged up and treated as asbestos waste.

In the event that the AC roof is required to be cleaned suitably for painting/surface protection layer, then all growth will need to be removed. This will require skilled specialist cleaners using units with rotary cleaning heads and high pressure water jets. All water used must be collected and post-filtered to collect all asbestos residue. The residue must be treated as asbestos waste.

Remember AC roofs are fragile, and all work on the roof must be carried out under the guidance of HSG 33 '**Health and Safety in Roof Work**'.

It should be noted that for repairs to AC roofs, using FILON DR for sheet replacement and FILON Over-Roofing for complete repair, removal of growth debris is not generally required and in exceptional circumstances can be removed locally by hand lifting or hand moving at the time of fixing the over sheeting.

Conclusions

1. These notes are not a substitute for the Asbestos Regulations 2002. They act as a guide to highlighting the requirements of the new legislation and to help building owners to assess the best way forward to manage the asbestos containing materials on/within their building.

2. All building owners/tenants responsible for building maintenance of all non-domestic buildings are required to survey the building for ACMs and record where they are installed. They must then manage the ACM to minimise fibre release and ensure that all involved in the maintenance on or near the ACMs are fully aware.

3. Where work is to be done, risk assessments must be carried out and include if Action Levels and/or Control Limits will be exceeded. Appropriate management action must be taken in all cases.

4. Wherever possible, undamaged ACMs should not be disturbed. Where repair or work to be done involving ACMs needs to be carried out, the work must be done in such a way as to minimise asbestos fibre release to the atmosphere.

5. Repair will generally be a better option than removal.

6. Removal will generally create a high level of fibre release and the removed material must be managed to prevent further release and taken by licenced haulier to a licensed dump.

7. Remember that properly managed ACMs on or within the building will not litter asbestos release within the building. People working within such buildings are as safe as people working outside in the open air.

8. Asbestos is a naturally occurring substance and is present in the air all the time and all over the world both at the North Pole and in mid Atlantic. People need not be concerned provided fibre release is managed and controlled.

9. Filon Products Ltd. solutions for repairs to asbestos cement roofs, using FILON DR for single sheet replacement and FILON Over-Roofing for complete roof repair, utilises the best practice to minimise fibre release and limits costs by not having to dispose of asbestos waste

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