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SPRAYED ASBESTOS INSULATION - ASSOCIATED HEALTH HAZARDS

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INTENTION

1.1 The intention of this Technical Instruction is to make known the health hazards associated with sprayed asbestos insulation. It supplements "The Asbestos Regulations 1969" in considering and making provision for persons other than asbestos spray operators who are liable to be affected by falling asbestos dust. It requires immediate action to be taken in relation to the inspection of existing properties where sprayed asbestos is known to exist, and details remedial action to be put in hand. The risk is very real and this instruction must be implemented as soon as possible.

INTRODUCTION

2.1 A serious health hazard affects persons who (a) are engaged in, or subjected to dust produced by processes involving asbestos and (b) live or work in accommodation which may be subject to contamination by asbestos dust, eg from sprayed asbestos finishes to walls and ceilings.

2.2 As a result of research by medical and health organisations and following representations in Parliament, "The Asbestos Regulations 1969", a supplement of "The Factories Act 1961", was promulgated with effect from May 1970. The "Regulations" supersede "The Asbestos Industries Regulations 1931" and provide safety precautions for persons in category (a) but not for those in category (b).

2.3 Three groups of asbestos have been used in the building industry:-

Crocidolite	(Blue asbestos)
Chrysotile	(White ")
Amosite	(Grey ")

The dust of all these groups is dangerous but crocidolite is considered the most dangerous of all. Crocidolite, as far as is known, is no longer incorporated in building products or sprayed applications in the United Kingdom, but is prevalent in existing work.

2.4 Crocidolite, in addition to chrysotile and amosite is particularly suitable for thermal insulation, sound absorption, anti-condensation and fire protection purposes. All are applied in sprayed form to internal surfaces, and have a finish that is soft, friable and subject to dusting by abrasion, mechanical damage or attack by birds. The inhalation of this dust may lead to the asbestos diseases.

2.5 Officers undertaking inspections should familiarise themselves with the nature and appearance of the three groups of asbestos together with their dust. Particular attention should be given to crocidolite, the rich blue lavender colour of which facilitates identification; the effects of heat and ageing however may bleach it.

2.6 All work on sprayed asbestos insulation must be carried out in accordance with "The Asbestos Regulations 1969" and the requirements of this instruction.

SAFETY PRECAUTIONS

General Hygiene

3.1 During spraying, stripping and cleaning up operations, a high standard of site and personal cleanliness must be maintained. The following precautions must be implemented.

(1) All mechanical ventilation shut down, and the work area cleared of building debris and unnecessary equipment before the work commences.

(2) Adequate wind breaks created and protective screens erected where necessary.

(3) Cleaning of the work area at the end of each day and at completion, by using efficient vacuum cleaning equipment. In occupied buildings protective screens made of dust proof sheeting are to be provided.

(4) Collection of asbestos dust and debris and placing in impervious dust-tight bags for disposal.

(5) The use of efficient respirators and protective clothing.

Pre-damping

3.2 All asbestos spraying must be carried out by a process which includes a pre-damping technique (ie damping the asbestos fibre before mixing).

Danger Areas

3.3 Work areas must be enclosed or segregated from adjacent areas, the standard of protection will depend upon the type of asbestos and the method of application:

(1) (a) Application of sprayed asbestos coatings and finishes by a process which includes a pre-damping technique.

(b) Application of asbestos based coatings and finishes which are prepared in slurry form before spraying or applying by hand tools. These coatings would generally be for decoration or as finishing cements.

(c) Cleaning up work areas, bagging and disposal of waste (except where crocidolite is involved).

(2) (a) Stripping off old asbestos coatings.

(b) Cleaning up work areas, bagging and disposal of waste where crocidolite is involved.

3.4 (1) Where the operations are as (1) (a) - (c) above, the work area must be segregated by roping off from adjacent areas. When operating in a large area the ropes must be at least 8 metres away from any work point and notices posted on the rope boundary warning persons not to enter. Where the work is being carried out in small enclosed

areas, all access ways must be roped off and warning signs again posted, worded as follows:-

> PROTECTED AREA
>
> Respirators and protective overalls must be worn by all persons entering or working in this area while work is in progress.

(2) Where the operations are as 3.3(2) (a) & (b) above and on a substantial scale, the work area must be effectively sealed by enclosing with sheeting so that dust cannot escape into surrounding areas where persons may be employed.

3.5 Where the work is of a minor nature, eg making good to small holes etc. and where crocidolite is not involved, the above procedure, ie 3.4 (2) may, subject to the approval of the Regional Safety Officer, be relaxed and the procedure at 3.4 (1) adopted.

Stripping

3.6 Before stripping, sprayed asbestos coatings must be thoroughly wetted with water using a multi-jet spray at a rate of not less than 5 litres/m^2 for each 50 mm thickness of coating. The coating must be left to soak overnight or until spot checks show it to be wetted throughout its thickness, and this condition must be maintained during the stripping, by further spraying as necessary.

3.7 In areas where wetting is not possible the District Inspector of Factories (D.I.F.) must be consulted as to an alternative procedure. Asbestos waste from stripping must be kept damp and collected as soon as possible by vacuum cleaner or other dustless method and placed in dust-tight impervious bags. When crocidolite is involved, the bags must be clearly marked "Blue asbestos - do not inhale dust". Arrangements must be made with the Local Authority for the disposal of asbestos waste, and where this is not possible the D.I.F. must be consulted.

Protective Equipment

3.8 Respirators and protective clothing must comply with the requirements of "The Asbestos Regulations 1969" and to the approval of the D.I.F.

3.9 The contractor who undertakes this work must be responsible for providing and maintaining all protective equipment for all persons exposed to the danger, whether employed by himself or other contractors.

Respirators

3.10 Positive pressure powered respirators must be used during the following operations:-

(1) Stripping amosite and chrysotile sprayed coatings [illegible]

(2) Stripping crocidolite and cleaning up afterwards when either a pre-wetted or dry process is used.

3.11 The ori-nasal dust respirator may be used in operations other than mentioned in 3.10

Protective Clothing

3.12 Protective clothing should be worn on all occasions when respirators are used and comprise overalls and headgear, and be made from a material containing a major proportion of man-made fibres. The headgear must be a close fitting cap and overalls of a boiler suit type which fit closely at neck, ankle and wrist, and without pockets. Dependent upon the scale of operations and the requirements of the D.I.F., accommodation must be provided for changing, cleansing and storage of protective clothing, and also storage for non-working clothes.

EXISTING INSULATION

Inspection

4.1 All accommodation where sprayed asbestos insulation exists, must be inspected immediately to identify the group of asbestos, its condition, and the presence of dust particles. Where it is clear that the material is crocidolite and dust particles can be identified, action must be taken as a matter of urgency, to carry out remedial treatment.

4.2 A similar inspection must be made in the case of amosite and chrysotile coatings, and where obvious damage has occurred remedial action must be taken, but as a second priority.

Identification

4.3 When the identification of dust is in doubt, a sample should be sent to the D.I.F. for identification.

Advisory Service

4.4 In any case of doubt involving procedure or extent of work advice should be sought from the Regional Safety Officer or D.I.F.

4.5 Where remedial work involving crocidolite spray insulation is to be carried out the "Regulations" require that 28 days notice be given to the D.I.F. To avoid delay, as soon as a decision is made to carry out remedial work the D.I.F. must be informed immediately by letter, and when work is to commence notice must be given by telephone.

Remedial Treatment

4.6 Existing asbestos spray insulation requiring treatment, must be sealed to prevent the escape of dust into the surrounding atmosphere. This work must be carried out by a specialist asbestos spray insulation firm.

4.7 Suitable materials are:-

(1) Cementitious hard setting compounds.

(2) PVA emulsion.

NOTE: See also para. 4.12

(c) In any situation subject to mechanical or abrasive damage.

(d) In the operational areas of Post Office Sorting Offices.

5.2 Alternative acceptable sprayed insulation treatments are the vermiculite gypsum compositions. They are proprietary treatments and applied by specialist contractors. Thermal, acoustic and fire resistant properties must be approximately equal to those of sprayed asbestos, ie

Thermal conductivity (K).....99 W/m deg
Sound absorption co-efficient over frequency range of 125/2000 Hz on 13 mm thick material.....0.50

A range of spray treatments manufactured by Mandoval Ltd (eg Andox) is currently available. The range covers a combination of thermal conductivity, sound absorption and fire resistance to suit particular requirements.
Approved sub-contractors are given in the appendix.

Further Information

5.3 Advice and approval of new sprayed insulation materials should be obtained from DGD/DBD Division 1 Technical Services Branch.

BIBLIOGRAPHY

6.1 The Factories Act 1961.

6.2 The Asbestos Regulations 1969.

6.3 BS Code of Practice 299. Sprayed Asbestos Insulation

6.4 BSS 3590 Sprayed Asbestos Insulation

BS 2091 Specification for Respirators for Protection against Harmful Dust and Gases.

IS 4275 Recommendations for the Selection, Use and Maintenance of Respiratory Protective Equipment.

6.5 Asbestosis Research Council Publications:-

(1) Code of Practice for the Handling and Disposal of Asbestos Waste Materials.

(2) Control and Safety. Guide No 1: Protective Equipment in the Asbestos Industry. Respiratory Equipment and Protective Clothing

(3) " " " " " 2: The Application of Sprayed Asbestos Coatings.

(4) Control and Safety. Guide No 3: Stripping and Fitting of Asbestos Containing Thermal Insulation Materials.

(5) " " " " " 5: Asbestos Based Materials for Building and Shipbuilding Industries and Electrical and Engineering Insulation.

6.6 D.E.P. HM Factory Inspectorate Publications:-

(1) Technical Data Note 13: Standards for Asbestos Dust Concentrations for use with the Asbestos Regulations 1969.

(2) " " " 24: Asbestos Regulations 1969. Respiratory Protective Equipment.

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APPENDIX TO T.I. (B) NO. 46

B.D.2. Manufactured and applied by:-

Turners Asbestos Cement Constructions Ltd
P.O. Box 22
Trafford Park
Manchester M17 1EU

also at
Turnall House
14 Woodside Place
Glasgow C3

also at
Turnall House
Sutton Park Road
Sutton Surrey

Licensee's are:-

Hamilton Gilmour Sprayed Asbestos Ltd
180 Ladywell Road
Lewisham
London SE13

Bell-Miller Insulating Engineers Ltd
Northinch Street
Glasgow W4

Audex. Manufactured by Mandoval Ltd

Approved Sub-Contractors:-

Sir Robert McAlpine and Sons Ltd
Special Finishes Division
40 Bernard Street
London WC1

Bell-Miller Insulating Engineers Ltd
Northinch Street
Glasgow W4