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Department of labour

Guide
Asbestos Regulations 2001

Chief Directorate: Occupational Health and Safety

NO: OHC 1

FOREWORD

The purpose of this document is to provide guidance to all persons, employees and the public alike, who are responsible for or concerned with the control and prevention of exposure to asbestos in the working environment.

This guide does not replace the Asbestos Regulations of 2001. It is intended to give practical insight into the application of the Regulations. It should always be read in conjunction with the Asbestos Regulations and the Occupational Health and Safety Act of 1993.

CONTENTS

INTRODUCTION

The inhalation of airborne asbestos fibres can cause serious lung diseases including asbestosis, cancer of the lungs and mesothelioma. These diseases usually become apparent only some years after exposure to asbestos and sometimes not until 40 or more years after the first exposure. **Cigarette smokers who are occupationally exposed to asbestos exhibit a marked increase in the incidence of lung cancer when compared to non-smokers.**

Exposure to asbestos may result from:

- Inhalation
  Asbestos can be breathed in as raw fibre or as dust that contains regulated fibres also known as respirable fibres. Inhalation is the most common source of exposure to asbestos.
- Ingestion
  Asbestos can be swallowed in the dust form if it gets on hands, clothing, a beard or moustache. Asbestos fibres can also be taken into the body if food or beverage is contaminated with asbestos. Smoking contaminated cigarettes is particularly risky, because asbestos particles can be breathed in and swallowed.

The old Asbestos Regulations were repealed and the Asbestos Regulations, 2001 were published on 10 February 2002 in Government Gazette No. 23108 with the aim of protecting employees against the adverse effects of asbestos on human health.

The purpose of these guidance notes is to explain in simple language the provisions of the Asbestos Regulations 2001.

Asbestos is any asbestos mineral or any product containing asbestos.

Throughout this guide, the Act means the Occupational Health and Safety Act of 1993.

NB! A specific guideline relating to "**demolition work" as defined in regulation 1 of the Asbestos Regulations 2001 is available from the office of the Chief Inspector.**

Regulation 2: Scope of application

These regulations are intended to protect the health of any person who may be exposed to asbestos. (In or outside the workplace).

Regulation 3: Notification of asbestos work

Before starting on asbestos-related work, regardless of the extent of the work, every employer (or self-employed person) must write to the relevant provincial director and explain what kind of work is to be done.

Such work could include manufacturing processes during which asbestos fibres are mixed with other materials and the fabrication, installation or removal of asbestos containing materials.

Regulation 4: Exposure to asbestos

Employers and self-employed persons must not allow anybody to work in or to enter an environment in which they may be exposed to asbestos that will exceed the exposure limit for asbestos. The exposure limit is currently set at 0,2 fibres per millilitre of air averaged over a four-hour working period.

Employers must, by means of applying good occupational hygiene principles, keep the airborne asbestos concentration in the workplace at the lowest possible level, but definitely not in excess of the occupational exposure limit (OEL). Good occupational hygiene principles include the following:

- The design and layout of the workplace, engineering measures to control dust, good housekeeping, and good personal hygiene are the first line of defense;
- Administrative controls,
- Thorough training and supervision of employees; and
- The involvement of all employees in safety and health matters in the workplace.

In cases where the concentration of airborne asbestos fibres cannot be contained at or below the occupational exposure limit, employees must be issued with approved/homologated respiratory protective equipment (minimum P2 or FF2). However, this is the last line of defense and the employer must first be able to prove that there is no other reasonable way to reduce the airborne asbestos to below the OEL

Regulation 5: Information and Training

Education and training of any person who may be exposure to lead is of paramount importance, in order to assist employers and employees in reducing the risk of exposure to asbestos dust.

The employer must ensure that he obtains suitable information and training in order to train employees effectively. Alternatively obtain the services of a person who has the requisite competence.

Competence in relation to these regulations infers that the person has practical experience relating to the correct handling, hygiene and work practices relating to work with asbestos. Additionally the person must have a theoretical knowledge of the toxic effects of asbestos.

Education and training must be planned carefully and presented on commencement of employment, and at least annually thereafter.

It is of the utmost importance that health and safety representatives or committees are thoroughly trained and educated with regards to working with asbestos. This is to ensure that the health and safety representatives or committees are able to make informed decisions relating to their discretionary powers.

It is the duty of employers to ensure that all employees have thorough knowledge of the provisions of the Act and these regulations.

Regulation 6: Duties of persons who may be exposed

Employees or any other person exposed to asbestos has a moral and legal duty to comply with any lawful instruction and procedure (written or oral) given by or on behalf of employers. In addition, employees must comply with the requirements laid down by the Act and other applicable regulations.

Failure to do so could result in an increased risk to his health and safety and that of others and may lead to his prosecution.

These instructions and procedures may differ from one workplace to another because workplaces are not identical.

Regulation 7: Assessment of Potential Exposure

This regulation requires the employer to establish if any person is exposed or is likely to be exposed to asbestos dust at the workplace. Assessment is the first step in the process of collecting information in order to make decisions with regard to the risk to health of workers and measures necessary to control asbestos hazards.

The onus is on the employer (or self-employed person) to ensure that a proper assessment is conducted.

Who should conduct the assessment?

The person conducting the assessment should be conversant with the work environment, the processes relating to the asbestos work to be performed and the risks associated with asbestos exposure.

Assessments must be conducted in consultation with health and safety representatives or committee to ensure that their inputs are taken into considerations and ensure transparency.

This assessment is a complex scientific process and it is recommended that reference such as the SAIOH[1] is consulted.

Re-assessments

The re-assessment is intended to confirm the validity of the previous assessment and ascertain that the control measures have been implemented and are effective.

The re-assessment needs not repeat the previous assessment procedure but would be designed specifically to address a range of concerns outlined in this regulation.

Regulation 8: Air monitoring

The employer must introduce a formal measurement program to establish the airborne concentration of asbestos in a particular work place when there is a possibility that workers could be exposed to airborne asbestos in excess of half the OEL (0.2/2 = 0,1 regulated fibre).

[1] *SAIOH-means the South African Institute for Occupational Hygiene*

Due to the highly technical nature of the air monitoring programme and the requirement that only specialised appointees may conduct such measurement, these guidelines do not go into specific details. As a general guideline, however:

- The employer must first inform the relevant health and safety representative or health and safety committee of the proposed monitoring and give them a reasonable opportunity to comment;
- The monitoring should be conducted by either an approved asbestos inspection authority[2] (AIA), or a person who is registered with the South African Institute of Occupational Hygienists (SAIOH) and whose ability to do the measurements is verified by the AIA.
- The AIA is accountable for the entire process of monitoring and takes full responsibility for the validity, accuracy and correctness of measurement results.
- The decision regarding the number and duration of samples lies with the AIA. The sampling strategy must, however, be representative of the exposure of all employees. If measurement of a representative employee shows that the exposure is above the OEL, then the exposure of all employees that will have the same exposure must be measured.
- Representative measurements must be done at least every 12 months.

  (See Information Brochure No. 1 for Approved Inspection Authorities for Occupational Hygiene for more information - available from the DOL provincial office)

Regulation 9: Medical Surveillance

The need for medical surveillance and the nature thereof is based on both the risk assessment and air monitoring results.

The employer must ensure that an employee undergoes medical surveillance if:
- They are exposed or likely to be exposed to asbestos dust, which may exceed the OEL for asbestos; or
- The occupational medicine practitioner certifies that the relevant employee should be under medical surveillance.

Medical Surveillance should be conducted by an Occupational Medicine Practitioner (OMP) who taking into account the nature of the work and the risks associated with it, should draft a structured surveillance programme to include:

- Initial health evaluation (to be carried immediately or within 14 days of a person starting employment)
  a) Medical and occupational history evaluation,
  b) Medical examination and test which should include chest X-rays, pulmonary function testing and physical examination and
  c) Any other medical examination recommended by the OMP to determine the most appropriate work circumstances for the individual. For example the ability to wear a respirator and conditions that might aggravate a pre-existing medical disorders.
- Subsequent evaluation (be conducted at intervals not exceeding two years or at shorter intervals if specified by the occupational medicine practitioner) in which items (b) or (c) of the initial health evaluation should be repeated.

[2] *An approved inspection authority approved to monitor asbestos is also known as an approved asbestos inspection authority. The two terms mean the same thing.*

Employees certified unfit must not be allowed into the workplace where they may be exposed to asbestos dust. Where the health problem is as a result of exposure to asbestos in that workplace, the incident must be investigated and recorded in an Annexure 2 form as required by the General Administrative Regulations.

Regulation 10: Respirator zones

A respirator zone is an area where the concentration of regulated asbestos fibres in the air is, or is likely to be greater than the OEL for asbestos. No persons should be allowed to enter the area without wearing respiratory protective equipment and protective clothing.

Respirator zones must be clearly demarcated and identified to prevent accidental and chance, albeit brief, entry. Even if a person passes through the area or there is little work being conducted in that area, a respirator must be worn.

Floor markings or chevron tape are examples of demarcation where the area is not defined by walls. In addition, all access routes should be demarcated and identified by SABS symbolic warning signs that are clearly visible.

Respirator zones should only be regarded as a temporary control measure. The employer should therefore investigate the use of control measures other than respiratory protective equipment and protective clothing to reduce the airborne asbestos concentrations to below the OEL for asbestos. As a precaution asbestos removal operations should be regarded as respirator zone.

Regulation 11: Control of exposure to asbestos

Where the assessment, air monitoring and medical surveillance identify potential exposure, control measures should be implemented. The hierarchy of control starts with avoiding the use of asbestos, followed by engineering measures to limit the creation of asbestos dust at source (once the dust become airborne it is difficult and expensive to control). Personal protective equipment is used only as a last resort and for emergency purposes.

The control measures should aim at reducing the exposure to far below the OEL as is reasonable practicable. The following measures can be used to control the exposure:

- Using a substitute for asbestos;
- Phasing out of asbestos;
- Limiting the number of employees who will be exposed or may be exposed;
- Limiting the period during which an employee will be exposed or may be exposed;
- Limiting the amount of asbestos fibres which may contaminate the working environment;
- Introducing engineering measures for the control of exposure, including the following:
  a) Process separation, automation or enclosure;
  b) Bonding of asbestos fibres with other material to prevent the release of asbestos fibres;
  c) Installation of local extraction ventilation systems to processes, equipment or tools for the control of emissions of airborne asbestos fibres;
  d) Use of wet methods where appropriate;
  e) Separate workplaces for carrying out different processes; and
  f) An indicator to enable early corrective action to be taken.

- Introducing appropriate work procedures which an employee must follow where asbestos materials are used, processed, handled or stored which could give rise to the exposure of an employee, and those procedures shall include written instructions to ensure that:
  g) Asbestos is safely handled, used and disposed of;
  h) Process machinery, installations, equipment, tools and local extraction and general ventilation systems are safely used and maintained; and
  i) Early corrective action regarding the control of asbestos exposure can be taken.

Regulation 12: Cleanliness of premises and plant

Asbestos dust is practically indestructible. It can be easily disturbed and become airborne. Therefore it is important to remove it from the work environment in order to prevent its continuous re-circulation.

Accidental spillage can lead to an increased concentration of asbestos dust. In such a case, corrective steps must be taken immediately so that employees may proceed with their work.

Cleaning must be done in such a manner that asbestos dust cannot escape or be released into the atmosphere.

Vacuum cleaning equipment should preferably be used (Domestic vacuum cleaners are not suitable and should never be used for this purpose). The equipment should have a filtering efficiency of at least 99% for dust particles of 1 μm in size. A certificate to this effect may be obtained from the supplier.

Where the floor surface is smooth and free of cracks and joints, wet sweeping may be used. Dust should be sprinkled with water or wet sawdust before being collected and picked up. In such a case, the employees concerned must be provided with suitable protective clothing and respiratory protective equipment. Dry sweeping and use of compressed air is strictly prohibited.

In the case of walls, light fittings, equipment and other structures, wet rags may be used. The sawdust and used rags should be treated or disposed as asbestos waste. Care should be taken to avoid electrocution during wet cleaning.

Good hygiene plays an important role in the reduction of exposure and the contamination of the environment.

Regulation 13: Control of exposure to asbestos of persons other than employees

People outside of the workplace can be exposed to airborne asbestos as a result of work carried out by the employer or any person working for him.
The employer must therefore take steps to prevent the release of asbestos into the environment. This could include the use of proper filtration systems. Any substance that forms part of the filtration system should be disposed of as asbestos waste.

Asbestos can be carried through the water systems into other areas outside the workplaces where it could accumulate, become dry and become airborne in an uncontrolled manner.

When asbestos is transported care should be taken to ensure that asbestos is not released into the environment. See regulation 19 for further details.

Regulation 14: Asbestos that forms part of the structure of a workplace, building plant or premises.

The employer must take reasonable steps to determine the location of asbestos in the workplace, buildings, plant or premises for the purposes of managing the potential risk associated with such materials.
An inventory of the asbestos must be made, ideally with the help of health and safety representatives, or at least made available to the health and safety representatives for comment. The inventory may be compiled as follows:

No	Area	Types of asbestos	Condition	Approximate quantity	Occupational exposure	Assessed exposure risk	Control procedure in place

The condition of the material and the risk associated with it must be assessed and a management plan developed. Any employee likely to be exposed must be fully informed of the risk, procedures and work practices necessary to prevent exposure.
Where a control procedure for asbestos involves removal this may qualify as demolition, in which case regulation 21 applies (refer to demolition guideline)

Regulation 15: Asbestos cement sheeting and related products

Employers who work with asbestos cement products, especially roof sheets, must take steps to avoid general accidents since asbestos cement sheeting may not withstand the weight of persons and tools.
The employer should develop a safe work procedure to prevent the release of asbestos into the environment. This procedure should include the use of hand or power tools that will not generate unnecessary dust. Operators who cut asbestos-cement products must wear an approved respirator.

Ideally, new asbestos cement products should be painted or otherwise coated to prevent release of fibre and inhibit the growth of lichen or moss. It is not the intention of these regulations to encourage the unnecessary cleaning of existing roofs and structures. Although some people may wish to clean and repaint for aesthetic reason it is not technically necessary in terms of this regulation.

Dry brushing, scraping, sanding and abrasion cleaning techniques are not allowed. Roof cleaning with a high-pressure water jet is allowed but only in conjunction with a profiled hood that prevents the dispersal of contaminated water. Water polluted with asbestos must be filtered and the residue disposed of safely.

Regulation 16: Records

The benefit of keeping records as specified in the regulation are as follows:

- There is a long time period between initial exposure and the development of asbestos related disease

- Protects both employer and employees

Thorough, complete and up to date records should therefore be kept of:

- Medical surveillance for a minimum period of 40 years;
- Maintenance of control measures for a period of 3 years;
- Asbestos inventory for minimum period of 40 years;
- Training given to employee in terms of Asbestos Regulations for as long as the employee remains employed at the workplace in which he or she is being exposed to asbestos dust; and
- Assessments and air monitoring for a period of 40 years.

Records should be made available as follows: To the

- inspectors from the Department of Labour:- All records that an employer is required to keep, excluding personal medical records. Personal medical records may only be made available to the inspector with the written consent of the employee concerned);
- the employee personal occupational health practitioner:- The personal medical records, when called for in writing by the employee concern; and
- health and safety representatives and committees:- Records of assessments, asbestos inventory and air monitoring.

Regulation 17: Personal protective equipment and facilities

Employers must provide effective personal protective equipment and facilities free of charge. The equipment must also be properly selected, maintained, cleaned, undamaged and properly used. Some manufacturers of respirators give specific instructions in this regard.

Personal Protective Clothing

All employees who are exposed to asbestos dust must be provided with protective clothing.

Respiratory Protective Equipment

All employees in respirator zones, and any other employees who by the nature of their work may be exposed to greater than the OEL for asbestos, must be provided with respirators.

Only respirators that have been approved/homologated by the South African Bureau of Standard (SABS) may be used. When selecting a respirator, the following must be kept in mind:

- The concentration of asbestos fibre;
- The duration of exposure;
- The exposure limit for the asbestos; and
- The safety factor of the respirator.

Respirators can spread contagious diseases. It is advisable to provide respirators for personal use by specific employees. But, if respirators are used in turn by more than one employee, they must be cleaned and disinfected according to the manufacturer's instructions after every use.

No employee should be allowed to remove personal protective clothing and respirators from workplace. This is to prevent asbestos dust being spread to private households.

Personal protective clothing and respiratory protective equipment may only be removed from the premises for repair or washing under controlled conditions. The employer or self-employed person has a responsibility to ensure that when contaminated personal protective equipment is sent off the premises to a contractor for cleaning, that:

- Equipment is packed in impermeable containers;
- The container is tightly sealed;
- The container is clearly marked to indicate that it contains asbestos; and
- The contractor is fully informed of the following:
  a) The requirements of these regulations; and
  b) Precautions to be taken for handling the asbestos contaminated equipment.

This requirement also put the responsibility on the employer to train the contractor on the danger of exposure to asbestos dust.

When the contaminated equipment is removed from the workplace it must not pose a danger to employees or the public.

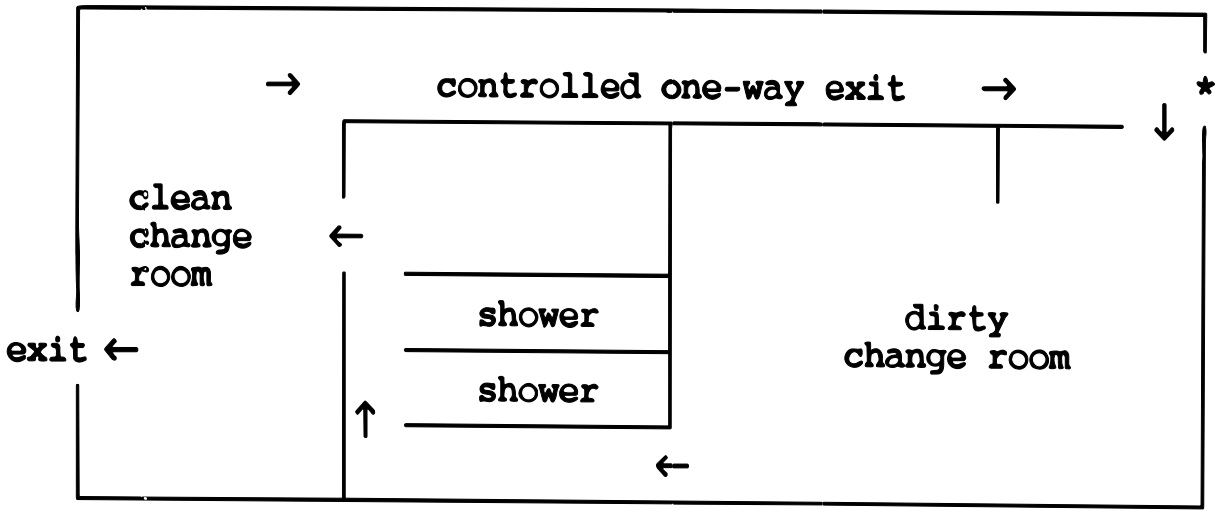
Cleaning And Storage Of Personal Protective Equipment

All cleaned personal protective equipment must be stored in a place or container where it will be safe from asbestos contamination and damage.

Separate storage facilities must be provided for used personal protective equipment and personal property of employees. Typically, such equipment consists of lockers or any similar type of repository.

The wash and change room facilities must consist of at least the following:

- A clean change room
  This is a room where employees take off their own clothes and put on clean protective clothing and equipment. In this room, facilities must also be provided for the protection of clean protective equipment as well as private clothes.
- Showers and washing facilities
  No employee may enter a *clean* change room from an asbestos area or respirator zone without showering. The showers should preferably have cold and hot water mixed, in other words, coming out of the same tap, and be activated immediately when a person passes under it. Soap should also be provided for each employee.
- A dirty change room
  All asbestos-contaminated protective clothing and equipment must be removed and left in this room. Facilities for the protection and removal of protective equipment and clothing must also be provided.



* to or from asbestos contaminated area or respirator zone

Regulation 18: Maintenance of control measures

It is essential to ensure that all control equipment and facilities are kept in good order.

Engineering controls should be tested and examined at intervals not exceeding 24 months by an approved inspection authority approved for that purpose.

Regulation 19: Labelling, packaging, transportation and storage

Asbestos can be spread by air, water and human activity. For this reason, all asbestos that has the potential to contaminate, must be:

- Controlled in such a manner that it does not release fibres;
- Kept in containers or a similar suitable manner of containment that makes it difficult to be spread to other areas of the workplace or to other premises; by wind or by water; and
- Contained during transport and clearly labelled (In the form of Annexure 1).

The manner of containment or the kinds of containers to be used will depend on the kind of material being packaged, transported or stored.

Regulation 20: Disposal of Asbestos Waste

Asbestos waste has a potential to pollute the environment and pose a health risk to human health. Therefore, industry must strive to attain maximum reclamation and recycling of asbestos waste. However, asbestos waste must not be used in products that normally do not contain asbestos.

If asbestos waste is not used for reclamation or recycling, the employer must have it dumped safely by ensuring that:

- Asbestos dust is not released during transportation to the dumping ground. Instead, use tightly sealing containers;
- Asbestos waste is dumped on dumping sites specifically approved for asbestos waste in terms of the Environmental Conservation Act, 1989(Act No. 73 of 1989) and the National Environmental Management Act, 1998 (Act No. 107 of 1998);
- All employees who are involved in the transportation and dumping of asbestos waste are provided with the required respirators and protective clothing and they are properly trained in the procedure to be followed in the event of spillage or similar emergency or situation that could arise by accident;
- All equipment is thoroughly cleaned after dumping. This includes vehicles and protective clothing;
- All incidental spillage of asbestos waste be cleaned up immediately. The driver of the vehicle carrying asbestos waste must have the necessary training and be conversant with the instructions to handle such cases; and
- Contractors, and owners of dumping grounds where asbestos waste is disposed, must also comply with the provisions of this regulation. No waste should be left uncovered at the end of a workday.

Regulation 21: Demolition

The regulations thus far dealt with asbestos work under fairly routine circumstances. The regulation entitled demolition deals with work with asbestos under specialized circumstances. The legislator cannot provide for such non-routine situations and therefore the employer must provide his own procedures.

These procedures are submitted in the form of a plan of work to the AIA for approval. The plan of work becomes an independent document and supplements specific requirements of the Asbestos Regulations. These plans of work may adopt different exposure limits, monitoring procedures, methods of control and any other aspect which the AIA decides is appropriate for the carrying out of the particular 'demolition work' that is approved by the AIA. The procedures contained in the plan of work approved by the AIA are legally enforceable.

Please refer to guidance note no: OHC 5 entitled 'Asbestos demolition work'. This guidance note specifically provides details that need to be included in the plan of work.

Regulation 22: Prohibition

This regulation prohibits:

- The use of compressed air to clean the workplace. This method of cleaning creates a danger because asbestos dust becomes airborne and it has the potential to increase the exposure levels and also contaminate other workplaces or environment. Instead, use vacuum-cleaning equipment, or sprinkle the dust with water or wet sawdust before sweeping or removing it.
- Smoking, eating and drinking, and the keeping or foodstuffs or beverages in zoned areas. Because asbestos can enter the body through the digestive tract, this prohibition, as well as any other matters regarding personal hygiene in zoned areas must be given priority.
- Applying asbestos by spraying or similar methods.