

## **Module 4**

### **Hazard identification and risk assessment**

## **In Module 4 we will look at:**

- Hazard identification and risk assessment
- Work planning
- Asbestos working procedures
- Threshold values for asbestos exposure
- Medical examination requirements
- Accidents and incidents management plan
- Notification to the H&S authorities

## Hazard identification and risk assessment

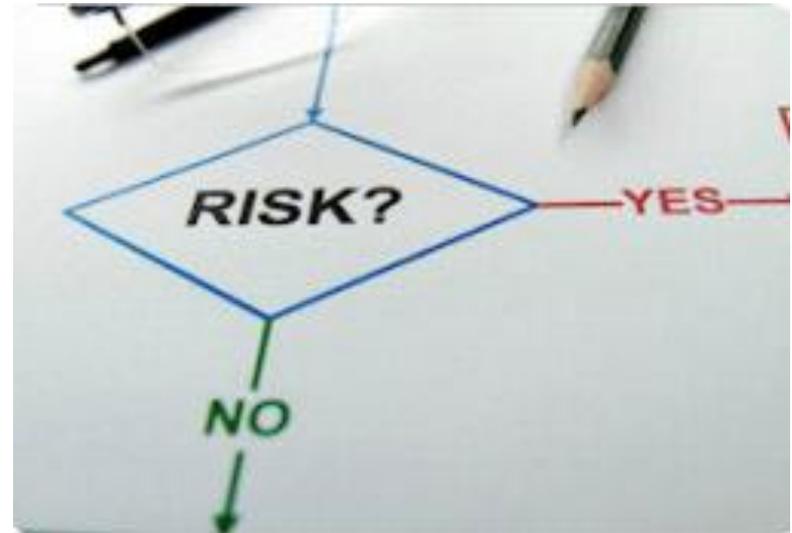
Risk assessment should cover: the nature, degree and duration of exposure, work equipment, the organisation of working processes and work activities the extent of the health and safety.

During preparation of a risk assessment, it is best to always keep a written record of information used to assess the risks in a company or organisation.

Once that information is gained it is important to evaluate any lack of data.

Asbestos management requires constant care and checking whether the asbestos containing material is still in good condition and if the management and maintenance of the system is efficient.

If the condition of asbestos or its storage place is not suitable, it is necessary to organise its removal.



## **Hazard identification and risk assessment**

After the decision has been made to start the work, it is necessary to record where the asbestos containing materials can be found, or if they may be damaged.

This is done in the hazard risk assessment for each specific work area. It should also take into account the risk of exposure to workers and everyone else in the vicinity.

The assessment may be based on similar or previous works and measures.

Instructions should be prepared separately for each plan of work.

A written risk assessment and work plan of instructions should be readily available in the work place. It should describe emergency situations and procedures to be followed, as well as the people who are responsible for actions in such cases.



## Work planning

Before the work starts, it is necessary to clarify the areas of the building where asbestos or asbestos containing materials could be.

Working with asbestos and its products is organised in accordance with technical project and work schedule taking into account the implementation of measurements of the concentration of asbestos dust in the working environment, pre- and after work as well as health and safety legislations.

In order to protect workers from asbestos exposure, if despite undertaken actions, reduction of asbestos dust concentration to the admissible value is impossible, personal protective equipment (PPE) must be used. The use of such equipment cannot be permanent and should be reduced to a minimum.

## Work planning

### *Personal protective equipment, depending on the nature of the work*

Nature of the work	Personal protective equipment
<p>Works directly related with fragile products containing asbestos. Works in an enclosed environment with high speed rotary tools treatment of bound asbestos-containing products.</p>	<p>Protective clothing Type 5. Footwear without laces Gloves Respiratory protective equipment with P3 filter Breathing apparatus in case of less than 19% oxygen</p>
<p>Isolated (limited) friable asbestos containing materials surfaces drilling and dismantling. Work with asbestos textile using hand tools. Fragile asbestos containing materials breaking work.</p>	<p>Protective clothing Type 5. Footwear without laces Gloves Respiratory protective equipment with P3 filter</p>
<p>Asbestos containing materials sampling. Ceiling panels sheets changing. Asbestos containing materials bound with hand-processing tools. Work alongside fragile asbestos containing products. Work with non-friable, bonded asbestos containing materials.</p>	<p>Protective clothing Type 5. Footwear without laces Gloves Respiratory protective equipment with P3 filter</p>

## **Asbestos working procedures**

In order to ensure proper workflow and for dismantlement without risk to the workers health and safety, it is necessary to establish a work plan.

A work plan should contain information on:

- The nature and duration of the work.
- The place where the work is done.
- The methods applied when working with asbestos or asbestos containing materials.
- Equipment characteristics used for protection and decontamination of employees or others near the worksite.
- **the necessary air monitoring to assess employee exposures.**

## Asbestos working procedures

### Notification about start of the work

Before beginning dismantling works in areas with asbestos containing materials, the employer must to inform: **construction supervision authority, the labour inspector and the sanitary inspector.**

In the written notification, there must be indication of the date and the place of work, the methods of work and protective equipment, waste disposal methods and location.



## **Asbestos working procedures**

### **Work technologies and tools**

It should be ensured that work technologies and tools will cause minimal dust. This means that the panels, ventilation pipes and the other equipment has to be removed with the least possible damage.

Unbound asbestos must be removed with a vacuum cleaner that has an asbestos fibre filter. To avoid the dust, disassembling materials also need to go through irrigation.

## **Asbestos working procedures**

### **Work technologies and tools**

Whilst disassembling asbestos containing materials, they should not be allowed to fall on the ground or otherwise spread fibres in the work environment.

If the work can not be performed in such a way that would avoid asbestos fibres, these must be eliminated before the work starts. This could be done with exhaust ventilation equipment that contains an asbestos fibre filter. It is recommended that any ventilation systems are stopped, and all openings should be covered.



## **Asbestos working procedures**

### **Work technologies and tools**

If using a mechanical tool that raises dust, an efficient vacuum suction device must also be used. Ventilation and vacuum systems must be equipped with special filters to suppress asbestos fibres.

It is prohibited to wash surfaces made of asbestos containing materials with a high pressure water jet. After washing with a mild stream of water, the drainage must be cleaned of asbestos fibres.

## **Asbestos working procedures**

### **Covering of work place**

When there is a threat of asbestos fibres during demolition work, the work area should be isolated from the environment and covered with a tent or other cover.

It must be positioned so that any asbestos fibres do not spread.

For that reason, an exhaust ventilation system must also be installed in the tent to prevent dust entering the environment. Access into the tent or curtain must be done through a gateway.

Air exiting into the environment must be cleaned with an air filter, which filter the asbestos fibres. After the work is complete, the tent or curtain is dismantled and removed and the work place cleaned up.



## **Asbestos working procedures**

### **Changing, shower and eating facilities**

If demolition works are inside the building, two dressing rooms must be arranged near where the work is taking place, one for personal clothes, another for work clothes; and a room with a shower and/or sinks. Dressing rooms must be arranged so that they are separated by the shower room.

If demolition works are outside of the building, there must be a room for work clothes separately from the personal clothes, and sink with hot and cold water.

Any dining area must be separate from the work area.



## Asbestos working procedures

### Gateway

If works are inside the building, access must only be possible through the gateway. It will be built of wood, plastic sheet or other materials impervious to asbestos fibres.

Usually, gateways consists of three facilities:

- 1) Clean locker room for personal clothing;
- 2) Showers and/or sinks with hot and cold water, and storage for respiratory protective equipment;
- 3) Dirty locker room, closest to the work place, for work clothes, gloves, and shoes. There has to be a vacuum cleaner with an asbestos fibre filter to clean the clothes.

Doors separating these rooms have three layers of plastic sheets with a vertical slot.



## **Asbestos working procedures**

### **Work place management**

A well organised work place leads to safe working conditions. Efforts must be taken to protect asbestos containing materials from falling on the ground.

Any fallen materials should be immediately collected and the work area should be cleaned up with a vacuum cleaner with an asbestos fibre filter.

Asbestos dirt and other asbestos containing waste must be packaged in asbestos-proof double plastic bags or other tight sealed container and immediately removed.

Before removing an asbestos waste bag from the work place or gateway, it is necessary to clean it with a vacuum cleaner with an asbestos fibre filter.



## **Asbestos working procedures**

### **Work place management**

Every day after work, the gateway must be cleaned up with vacuum cleaner with asbestos fibre filter, and washed with water. Dry cleaning is prohibited.

Any person who performed the dismantling work must also be clean and free of asbestos containing material.

Work clothing must be stored separately from personal clothing. The laundry needs to be tightly packed for transport and washed separately from other clothing. Used disposable clothing must be treated as hazardous waste. Washing polluted clothing at home is prohibited.

## Limit values for asbestos exposure

Employers shall ensure that no worker is exposed to an airborne concentration of asbestos in excess of 0,1 fibres per cm<sup>3</sup> during an 8-hour period (a workday)

The maximum allowable concentration (MAC) of asbestos dust in Poland are as follows: 0.5 mg/m<sup>3</sup> (total dust) and 0.1 fibre /cm<sup>3</sup> (respirable dust) for all kinds of asbestos

## **Medical examination requirements**

Workers who have been exposed to asbestos in their current or former employment, are entitled to a free, periodic medical examinations.

Providing prophylactic health care for workers is the responsibility of the occupational health services.



## **Medical surveillance programs for employees and registers**

The main purpose of the medical surveillance program is to confirm the ability of employee to perform work at their position and to identify medical conditions that could lead to an occupational disease.

For former asbestos workers the objective of this examination is early diagnosis and treatment of asbestos diseases. This approach follows a long latency period of asbestos-related diseases (it can manifest 40 years after exposure to asbestos) and increase the risk depending on the level and duration of asbestos exposure .

## **Medical surveillance programs for employees and registers**

A site medical surveillance should provide the following components:

- pre-employment screening;
- periodic medical examinations;
- termination examination.



## **Medical surveillance programs for employees and registers**

Each worker's state of health must be assessed before exposure to asbestos. This assessment must include personal interview and general clinical examination, with particular reference to the chest (chest radiograph, spirometry).

Both radiographic and functional pulmonary worsening may occur long after asbestos exposure. Medical surveillance should continue after the end of the work.

A general follow-up scheme of asbestos exposed workers should be stratified according to the intensity, latency (between the start of exposure and disease) and duration of exposure (e.g. every 1 to 3 years).

## **Medical surveillance programs for employees and registers**

Follow-up of asbestos workers is necessary, especially from the compensation point of view.

Employers must keep a register indicating the nature and duration of the activity and the exposure. Worker and physician shall have access to information concerned.

Data shall be kept for 40 years and transferred to the authority concerned if the firm ceased to exist.

## Accidents and incidents management plan

If the concentration of asbestos fibres threshold is exceeded at the work place, it is necessary to immediately take the following steps:

- It must be determined why the threshold was exceeded.
- As soon as possible, undertake the appropriate actions to reduce the concentration of asbestos fibres in the work place.
- Work can only continue in the affected area after appropriate procedures are taken to protect workers.

In order to verify the effectiveness of the actions and procedures, immediate re-evaluation of the asbestos fibre concentration must be obtained.



## Accidents and incidents management plan

Airborne asbestos fibre concentrations must be reduced to a maximum. In the case of certain activities such as demolition, removal, repair and maintenance, where the concentration threshold is likely to be exceeded, and the use of technical prevention equipment would not effectively prevent the concentration of asbestos fibres in the air, the employer is obliged to stop work and immediately take action to reduce employee exposure to acceptable limit.

If asbestos exposure can not be reduced by any actions or procedures to achieve a lower concentration of asbestos fibres, it is necessary to wear personal respiratory protection. This may not be permanent, but there must be a minimum time set for this to be worn.



## Notification to the H&S authorities

If you plan to carry out asbestos exposure work outdoors, it must be done as follows:

- Before starting the work, the employer must to inform: **construction supervision authority, the labour inspector and the sanitary inspector, at least 7 days before the beginning of work.**
- Employees and/or their representatives should be provided access to the company's report.

Each time work conditions are changed in a way that could increase asbestos dust concentrations in the work place, a new company report must be prepared.



Activity-Who is most at risk?

The people most at risk to the health effects of asbestos are:

Demolition workers-2

May be exposed if materials disturbed

Production workers-1 (Most at risk)

Historically at risk: Insulation workers, industrial users, weavers, ship yard workers

Removal Operatives-4

At risk if proper procedures aren't followed

Maintenance Workers-3

Joiners, plumbers, electricians etc. may be exposed if unaware of risks

Out of these people, who do you think is most at risk?

Drag and drop into the correct order.

Lowest risk

Highest risk

## Questions

1. What does PPE stand for?

**Personal Protective Equipment**

Protect Personal Equipment

Protective Personal Equipment

Personal Production Equipment

2. What is the latency period of asbestos related diseases?

10 years

20 years

**40 years**

60 years

3. Before the removal of asbestos-containing material a risk assessment should be conducted?

**True**

False

4. It is prohibited to wash surfaces made of asbestos with a jet wash?

**True**

False

5. A work plan should **not** contain information on the nature and duration of the work?

True

**False**