

# इंटरनेट

# मानक

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IS 11767 (2005): Recommendations for cleaning of premises and plants using asbestos fibres [CED 53: Cement Matrix Products]



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भारतीय मानक  
एस्बेस्टॉस के उपयोग से परिसर और पादपों की  
स्वच्छता की अनुशंसाएँ  
( पहला पुनरीक्षण )

*Indian Standard*  
RECOMMENDATIONS FOR CLEANING OF  
PREMISES AND PLANTS USING  
ASBESTOS FIBRES  
( *First Revision* )

ICS 13.040.30

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**BUREAU OF INDIAN STANDARDS**  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

## FOREWORD

This Indian Standard (First Revision) was adopted by Bureau of Indian Standards, after the draft finalized by the Cement Matrix Products Sectional Committee had been approved by the Civil Engineering Division Council.

Considering that exposure to asbestos dust can have harmful effects on the health of workers, this standard was first published in 1986. In this revision, provision has been made for waste recycling where practicable, suitable treatment of waste water containing asbestos before it is disposed off and recommendations for internal de-dusting mechanism for regular vacuum-cleaning bags.

This standard gives guidance on how the risk of exposure to asbestos dust can be prevented, controlled or minimized. It lays down the recommendations for cleaning of premises and plants using asbestos fibres and to prevent the risk of exposure to airborne asbestos fibre dust in work environment and the harmful effects on the health of workers arising from such exposure.

In the formulation of this standard reference has been made to 'ILO Code of Practice: Safety in the use of asbestos' 1984 published by International Labour Organization, Geneva and relevant schedule on 'Handling and processing of asbestos' framed under Section 87 of *Factories Act*.

# *Indian Standard*

## RECOMMENDATIONS FOR CLEANING OF PREMISES AND PLANTS USING ASBESTOS FIBRES

### (*First Revision*)

#### 1 SCOPE

This standard lays down the recommendations for cleaning of premises and plants using asbestos fibres.

#### 2 OBJECT

The objects of this standard are as follows:

- a) To prevent the risk of exposure to airborne asbestos fibre dust in work environment, in particular the settled dust that may become airborne; and
- b) To prevent the harmful effects on the health of workers arising from such exposure.

#### 3 APPLICATION

3.1 The provision of this standard shall apply to any place where any form of asbestos fibre is stored, handled, processed or applied in such a way that airborne asbestos dust is likely to be generated.

3.2 The provisions shall not apply to storage of asbestos containing products which do not release dust during normal handling, such as locked-in or encapsulated products.

#### 4 REFERENCES

The standards listed in Annex A contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on these standards are encouraged to investigate the possibility of applying the most recent editions of the standards indicated in Annex A.

#### 5 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 11451 shall apply.

#### 6 GENERAL REQUIREMENTS

6.1 Every employer who undertakes work that is liable to release airborne asbestos fibres, shall take adequate steps to secure the cleanliness of the premises or those parts of the premises where the work is carried on.

6.2 All machinery, plant and equipment together with all external surfaces of exhaust ventilation equipment

and all internal surfaces of the building shall be kept free from asbestos dust.

6.3 All machinery, plant and equipment which give rise to asbestos dust shall be located in a building. The employer shall ensure that the building or part of the building in which any process is carried out by any machinery, plant or equipment that is likely to release airborne asbestos dust, shall comply with the following requirements:

- a) Design and construction of the building shall facilitate easy cleaning;
- b) Overhead structures of new buildings shall be constructed with smooth surfaces and high ledges shall be avoided; and
- c) Adequate and suitable vacuum-cleaning system should be installed; and in case it is not possible to install vacuum-cleaning system, a well-organized wet mopping operation to avoid accumulation of asbestos dust that might become airborne shall be provided.

6.4 The best way to keep premises and the plant clean is to prevent spillage or spread of asbestos material on the floor. Every source of spillage or contamination should be tackled at source so as to minimize the need for subsequent cleaning.

#### 7 CLEANING

##### 7.1 General

7.1.1 Cleaning shall be carried out, as far as practicable, by vacuum-cleaning equipment or by some other means in such a way that asbestos dust neither escapes nor is discharged into the air of the workplace.

7.1.1.1 Where required, suitable extension hoses shall be fitted to the vacuum-cleaning equipment.

7.1.2 Workers undertaking the cleaning shall wear appropriate protective clothing and respiratory equipment (*see* IS 12078).

7.1.2.1 Such cleaning shall be carried out as far as is practicable, when no other workers are present. If it is necessary for other workers to be present, they shall also wear protective clothing and respiratory equipment.

**7.1.3** Dry sweeping or dry cleaning of asbestos shall never be permitted.

**7.1.4** Compressed air shall not be used for cleaning premises.

**7.1.5** Dustless method of cleaning, such as efficient vacuum-cleaning system, shall be used, as far as practicable.

**7.1.5.1** Where use of vacuum-system is not possible, the use of wet cleaning methods may be adopted.

## **7.2 Cleaning of Floors, Walls and Overhead Structures**

### **7.2.1 General**

Cleaning shall be done as frequently as is necessary to secure cleanliness and removal of asbestos dust and debris, in order to prevent or minimize exposure to asbestos fibre and the spread of contamination. Cleaning shall be done at the minimum frequencies given below:

- a) Immediate cleaning of spills and area, on completion of a short job or operation;
- b) Daily or end of shift cleaning of floors, as may be necessary;
- c) Weekly cleaning of all working level surfaces (ledges, tables, etc); and
- d) Annual cleaning of
  - 1) overhead structures,
  - 2) walls, and
  - 3) piping surfaces.

NOTE — More frequent cleaning is to be carried out, if necessary.

**7.2.1.1** In case of shut down, the premises and machinery shall be properly cleaned before the plant is re-commissioned.

### **7.2.2 Floors**

**7.2.2.1** Floors shall be regularly cleared of spillages, accumulated dust and waste material.

**7.2.2.2** The floor shall be kept free from any materials, plant or other articles not immediately required for the work carried on in the room and which would obstruct the proper cleaning of the floor.

**7.2.2.3** Floor surfaces shall always be kept in good and smooth condition. Cracked or broken surfaces shall be repaired as quickly as possible.

**7.2.2.4** When washing is undertaken, the asbestos-containing waste water shall be disposed off, after suitable treatment.

### **7.2.3 Walls**

**7.2.3.1** Walls shall be cleaned annually or more

frequently, should this be necessitated by the nature of the building or the process.

**7.2.3.2** If washing is undertaken, the asbestos-containing waste water shall be disposed off, after suitable treatment.

**7.2.3.3** Care shall be taken, so that waste water containing asbestos fibre does not dry out on the floor, exposing the asbestos fibre that could become airborne.

**7.2.3.4** New building shall be constructed in such a way that their walls have smooth surfaces. Walls of existing buildings shall be rendered smooth as far as practicable.

### **7.2.4 Overhead Structures**

When overhead cleaning is taking place, equipment / machinery below, shall be covered by plastic sheeting.

## **7.3 Cleaning of Machinery and Equipment**

**7.3.1** Where practicable, parts of equipment inaccessible to the vacuum cleaner should be cleaned out with oiled brushes.

**7.3.2** Where there is a potential for dust accumulation, exposed parts of machinery and equipment shall be cleaned at the end of each shift.

**7.3.3** Where machinery is fitted with exhaust equipment, the exhaust ventilation shall be in operation while the cleaning is in progress.

## **8 VACUUM-CLEANING EQUIPMENT**

**8.1** Only vacuum equipment with appropriate filters shall be used for collecting asbestos dust and waste, and such equipment shall be so designed that the dust does not escape from the equipment back into the workplace or to the atmosphere.

**8.2** The vacuum-cleaning equipment used shall be properly maintained and after each cleaning operation, its surfaces shall be kept in a clean state and free from asbestos waste and dust. Periodical and preventive maintenance is to be carried out.

**8.3** Portable equipment requires locating the collecting unit within the workplace, and therefore, a suitable high efficiency filter shall be used.

**8.4** The collection bags within the portable vacuum-cleaning units shall be disposable. These should be disposed in approved manner after the end of their useful life (*see* IS 11768).

**8.5** If a collection bag within a portable cleaner bursts during use, the unit shall be removed from the workplace, if possible, into the open.

**8.5.1** The burst bag and its contents shall be removed and placed inside an impermeable bag by an operator wearing protective clothing and respiratory equipment.

**8.5.2** The interior of the cleaner shall then be cleared of dust, where practicable, with the use of another vacuum cleaner.

**8.6** The collected material shall be disposed off, in accordance with the provisions given in IS 11768.

## **8.7 Type and Selection of Vacuum-Cleaning Equipment**

**8.7.1** There are two types of high efficiency filter vacuum-cleaning systems, namely, central and portable types, as described in 8.7.1.1 and 8.7.1.2.

### **8.7.1.1 Central vacuum-cleaning system**

It is composed of a central suction, filtration and settling unit from which ducts run to the sections of the plant where cleaning will be required. This system is preferred since the vacuumed air is not let out into the workplace. The air is filtered before being released into the outside environment.

### **8.7.1.2 Portable vacuum-cleaning system**

It is a relatively simple unit consisting of a flexible hose for collection, a motor to provide negative pressure and canister mounted on wheels to support the filtration system and collect the waste.

The portable vacuum-cleaning equipment shall be suitable for use with asbestos and the exhaust air shall be filtered to remove particles of 0.3 microns with 99.97 percent efficiency.

**8.7.2** The principal determining factor in the selection of a unit is whether the asbestos is being vacuumed wet or dry.

### **8.7.3 Collection Capacity**

Collection capacity is determined by the amount of waste to be collected. Sufficient capacity is required to minimize the frequency of changing the collecting bags.

### **8.7.4 Attachments**

Depending on the specific cleaning requirements, various attachments or extensions may be needed.

### **8.7.5 Suction Capacity**

Suction capacity is a combination of the vacuum or lifting ability, and the rate of air movement or carrying ability of the unit. The suction capacity required is determined by the amount and mass of the waste to be collected.

### **8.7.6 Bag Changing**

The most common servicing aspect of a portable vacuum cleaner is emptying the collected waste. It is important to do this regularly.

**8.7.6.1** Since the waste contains asbestos fibres, it is essential to minimize release of fibres during bag changing. This is facilitated by the use of disposable collection bags, which are easily removed and replaced. A paper collection bag shall be placed in a polyethylene bag to ensure containment of fibres during disposal. Where a regular bag is used it should be equipped with internal de-dusting mechanism that can be operated externally.

## **8.8 Maintenance**

The manufacturer's instructions shall be followed regarding frequency of cleaning, replacing the filters, and other maintenance necessary for the vacuum-cleaning equipment.

**8.8.1** When performing such maintenance work, respiratory protective equipment as recommended in IS 9623 shall be worn.

## **9 WASTE DISPOSAL**

All waste materials collected as a result of cleaning of premises and plants shall be recycled where practicable or placed and sealed in impermeable bags and disposed off in accordance with the provisions laid down in IS 11768.



ANNEX A  
(Clause 4)

LIST OF REFERRED INDIAN STANDARDS

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
9623 : 1980	Recommendations for the selection, use and maintenance of respiratory protective devices	11768 : 1986	Recommendations for disposal of asbestos waste material
11451 : 1986	Recommendations for safety and health requirements relating to occupational exposure to asbestos	12078 : 1987	Recommendations for personal protection of workers engaged in handling asbestos

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### Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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$$\begin{cases} 2832\ 9295, 2832\ 7858 \\ 2832\ 7891, 2832\ 7892 \end{cases}$$

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