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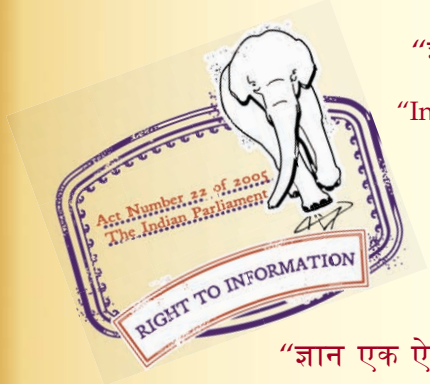

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IS : 3140 - 1965
(Reaffirmed 2000)

Indian Standard

CODE OF PRACTICE FOR PAINTING ASBESTOS CEMENT BUILDING PRODUCTS

(Second Reprint JANUARY 1989)

UDC 667.66:691.328.5

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

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Indian Standard

CODE OF PRACTICE FOR PAINTING ASBESTOS CEMENT BUILDING PRODUCTS

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Indian Standard

CODE OF PRACTICE FOR PAINTING ASBESTOS CEMENT BUILDING PRODUCTS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 4 June 1965, after the draft finalized by the Painting, Varnishing and Allied Finishes Sectional Committee had been approved by the Building Division Council.

0.2 The durability of asbestos cement is adequate for most purposes and the material offers ample protection against water penetration as a roof or wall covering; however, painting of asbestos cement products may be necessary or desirable for hygienic or æsthetic reasons; for waterproofing the surface itself to prevent the asbestos sheets from soaking with water; or for protection against chemical attack when exposed to atmospheres heavily contaminated with acid fume.

0.2.1 Asbestos cement is a difficult material to paint successfully, for like wood it may contain sufficient moisture to cause blistering; like plaster surfaces it may have variable suction and since it is a portland cement product it will contain alkalies that may attack the paint film. The purpose of this standard is to explain the preparatory treatment and the painting system and provide guidance for successfully overcoming the problems connected with painting asbestos cement building products.

0.3 The Sectional Committee responsible for the preparation of this standard has taken into consideration the views of producers, consumers and technologists and has related the standard to the manufacturing and trade practices followed in the country in this field. Due weightage has also been given to the need for international co-ordination among standards prevailing in different countries of the world.

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1. SCOPE

1.1 This standard covers the paint finishing of asbestos cement building products, such as:

a) roofing and cladding sheets, and

b) rain-water gutters and downpipes.

2. TERMINOLOGY

2.1 For the purpose of this standard, definitions given in IS : 1303-1958* and the following shall apply.

2.2 **Back Painting** — Coating the back and edges of the sheets with a specified paint to prevent entry of moisture from the back.

3. NECESSARY INFORMATION

3.1 For successful planning and execution of painting finish of asbestos cement, the following information shall be furnished to the person in charge:

a) Situations in which the asbestos cement products are being used in buildings, for example, with respect to sheets whether in the roof, in the side-cladding or in internal work; with respect to pipes and gutters, whether in the exterior or in the interior of the building.
b) The extent of exposure to corrosive atmosphere for which protection is needed.
c) The extent to which the asbestos cement has weathered.
d) The purpose of painting, whether for æsthetic, protective or both.

4. CHARACTERISTICS OF THE SUBSTRATA AND TREATMENT

4.1 **Alkalinity of the Surface** — Asbestos cement being based on Portland cement will be, specially when new and damp, sufficiently alkaline to attack oil paint. The necessary precautions in the painting work to overcome this difficulty will be as in **4.1.1** and **4.1.2.**

4.1.1 *Weathering* — Probably the best way of reducing the risk of alkali attack is to allow the sheets to weather for some months. The alkalies become ' carbonated ' on exposure to air, and rain will often wash them off the surface to some extent. With long exposure, however, surfaces become powdery and dirty, and offer a poor key for paint unless properly cleaned. Although weathering reduces the risk, it may not entirely overcome the danger of alkali attack.

4.1.2 *Use of Appropriate Paint System* — In choosing paint for a particular job, the risk of attack by alkali shall be taken into consideration. Paints which are by themselves highly resistant to alkali attack may be used. But where paints used are not alkali-resistant, at least two coats of alkali-resistant primer shall be applied. This primer shall not only be resistant but shall also form an impervious barrier so that alkali cannot get through to attack the paint system above. For selection of suitable paint systems, reference may be made to IS : 2395 (Part II)†.

*Glossary of terms relating to paints.

†Code of practice for calcareous surfaces: Part II Painting schedules (*under preparation*). (Since published) .

4.1.3 Asbestos cement surface shall not be treated with chemicals like hydrochloric acid or zinc sulphate to neutralize the alkalies. Also the use of chemicals will often leave a powdery deposit on the surface which may interfere with the adhesion of paint. The use of hydrochloric acid for cleaning will also make asbestos cement sheet brittle.

4.2 Porosity and Suction of Surface — Asbestos cement sheets are porous in varying degrees and moisture absorbed will often be the cause of failure of paint system. It is, therefore, essential that asbestos cement sheets are dry when they are painted. To ensure this, each sheet shall be left with both sides exposed to good drying conditions for seven to ten days before painting.

Where there is danger of moisture entering the sheets from the back owing to dampness or condensation, 'back painting' shall be done with an alkali-resistant primer conforming to IS : 109-1950*, a bitumen paint conforming to IS : 158-1950† or a colourless waterproofer. Usually, 'back painting' will have to be done before the sheets are fixed and will be particularly necessary where impervious painting system is adopted for the treatment of the surface.

Glazed patches which are often visible in asbestos cement sheets offer little key for decoration and will have to be roughened. More absorbent patches, which are whiter than the rest of the surface tend to suck the medium out of the paint and this is likely to affect the durability of the paint film on those patches. The suction is also generally high as well as variable. To overcome this effect the pretreatment with primer as mentioned in the paint schedules shall be applied over the whole surface. Application of the primer shall be minimum two coats.

If the suction is so high or variable that normal painting procedure is unlikely to give a satisfactory finish, suitable pretreatment to the surface shall be given in accordance with the relevant provisions of IS : 2395 (Part I)‡.

4.3 Fungus Growth — It is very important to remove and kill any existing fungus growth. The surface shall be thoroughly scraped and rubbed down with glass wool and sandpaper and then washed down with clean water and allowed to dry. A coat of fungicidal wash shall then be applied and allowed to dry, after which a further coat shall be applied and left for sometime to dry thoroughly. Painting shall be carried out over the top of the fungicidal wash without first removing it with water [*see also* relevant provisions on fungicidal treatment in IS : 2395 (Part I)‡].

*Specification for ready mixed paint, brushing, priming, plaster, to Indian Standard colour No. 361, light stone.

†Specification for ready mixed paint, brushing, bituminous black, lead-free, acid, alkali, water and heat resisting, for general purposes.

‡Code of practice for painting calcareous surfaces: Part I Concrete, plaster and masonry surfaces (*under preparation*). (Since published) .

The surface shall be brushed with a soft bristle brush to remove any dust particles 24 hours after the wash.

4.4 Selection of Paints

4.4.1 The paints that will be used on asbestos cement sheets shall be as classified in IS : 2395 (Part II)*, depending upon the degree of their alkali resistance and porosity.

4.4.1.1 Unless otherwise specified, the schedules for painting asbestos cement products shall generally be in accordance with IS : 2395 (Part II)*.

4.4.1.2 Whenever an impervious paint or paint system is used on the face, ' back painting ' shall be done.

4.4.2 When the backs of sheets are inaccessible for back painting, a porous paint shall be chosen. Porous paints will allow the sheets to breathe so that there is less risk of trouble caused by moisture.

4.4.3 *For External Sheeting* — For external cladding an alkali-resistant paint either (a) porous, or (b) impervious (with back painting), may be used.

4.4.3.1 Where it is desired to tone down the natural colour of the sheets, a wash of green copper (as ferrous sulphate about 0·1 g/ml of water) shall be used. This will give a durable brownish stain, although the finish is unlikely to be uniform.

4.4.4 *Gutters, Downpipes, etc* — Painting of asbestos cement roof gutters and building pipes will not be satisfactory unless the inside (water-carrying) surface is given a waterproof coating of bitumen; and for pipes this treatment, of course, will have to be done before erection at site. For painting the outer surface an alkali-resistant porous paint shall be used. This will allow the asbestos cement to breathe and so reduce risk of blistering and flaking.

5. PREPARATION OF SURFACE

5.1 The surface shall be cleaned by rubbing with sandpaper. Any glazed areas shall be roughened. Loose powdery material after rubbing shall be brushed off. If there is fungus growth, fungicidal treatment shall be given as described in **4.3** Wire brushes shall preferably be avoided in cleaning operations as they will lead to difficulties from deposited particles of iron causing iron stains.

5.2 If the suction of the surface is high or variable, give a pretreatment as described in **4.2.**

*Code of practice for painting calcareous surfaces: Part II Painting schedules (*under preparation*). (Since published).

5.3 In the case of previously painted surfaces, the preparation shall be as in **5.3.1** to **5.3.4.**

5.3.1 In the case of previously painted surfaces, any existing paint showing extensive flaking, bleaching, or saponification should be removed and the surface allowed to dry completely. All loose material shall be removed by scraping, sandpapering, and washing, and then drying the surface thoroughly. The choice of the subsequent paint system in relation to the existing finish shall be in accordance with the recommendations in IS : 2395 (Part II)*. An old glossy surface shall always be well roughened down to facilitate the adhesion of subsequent surface coatings.

5.3.2 *Fungus Growth* — Fungus growth shall be treated in accordance with **4.3.** No attempt shall be made to burn off old paint or to hasten drying of the sheets with a blow lamp, as asbestos cement will crack with explosive violence when heated.

5.3.3 If the existing finish is a bitumen paint, this may first be sealed with two coats of aluminium paint or emulsion paint in order to prevent it from ' bleeding ' through subsequent coats of enamel or oil based paints.

NOTE — Where use of aluminium or emulsion paints is not satisfactory as a result of softening of bitumen in hot climates, solutions of spirit, soluble shellac or manilla resins, may be found suitable in certain cases. Care shall be taken when sandpapering the sealer coat on bituminous surface, to avoid rupturing of surface and bleeding through the bitumen.

5.3.4 Before applying the paint finish, the sheets shall be given a final sandpapering and then be washed down with clean water and allowed to dry thoroughly.

5.3.5 After preparation of the surface, if the old paint film is sound, one or two coats only of any of the finishing paints may be applied.

6. BACK PAINTING

6.1 Back painting shall be done when an impervious paint system is adopted for the finish. The back and edges of the sheet shall be protected with at least one coat of alkali-resistant primer, bitumen paint or colourless waterproofer. Care shall be taken not to contaminate the face of the sheet with bitumen or waterproofer, or to pick up material applied to the edges when painting the face, because bitumen can blend with and discolour oil paints, and waterproofers will interfere with the drying of paint. If practicable, the back painting shall be done after the face of the sheet has been painted. In many cases, normally back painting will have to be done before the sheets are fixed

7. PAINTING

7.1 Asbestos sheets shall be thoroughly dry at the time of painting. Any system of painting compatible with the primer applied may be adopted according to the requirements of the finish.

*Code of practice for painting calcareous surfaces: Part II Painting schedules (*under preparation*). (Since published)

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