

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 393

ASBESTOS-CEMENT CORRUGATED SHEETS FOR ROOFING AND CLADDING

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BRIEF HISTORY

The ISO Recommendation R 393, *Asbestos-cement corrugated sheets for roofing and cladding*, was drawn up by Technical Committee ISO/TC 77, *Products in asbestos-cement*, the Secretariat of which is held by the Association Suisse de Normalisation (SNV).

Work on this question by the Technical Committee began in 1956 and led, in 1963, to the adoption of a Draft ISO Recommendation.

In December 1963, this Draft ISO Recommendation (No. 691) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies:

Australia	Ireland	Republic of South Africa
Austria	Israel	Romania
Belgium	Italy	Spain
Colombia	Lebanon	Sweden
Czechoslovakia	Morocco	Switzerland
Denmark	Netherlands	Turkey
Finland	New Zealand	U.A.R.
France	Norway	United Kingdom
Germany	Poland	U.S.S.R.
Greece	Portugal	Venezuela
Hungary	Republic of Korea	Yugoslavia.

Four Member Bodies opposed the approval of the Draft:

Brazil, Japan, Mexico, Peru.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in November 1964, to accept it as an ISO RECOMMENDATION.

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ASBESTOS-CEMENT CORRUGATED SHEETS FOR ROOFING AND CLADDING ¹

1. SCOPE

This Recommendation applies to straight or curved asbestos-cement corrugated sheets and fittings without any metallic reinforcing media, to be used for roofing and cladding.

It defines certain conditions of manufacture, dimensions and acceptance tests for these products.

2. CORRUGATED SHEETS

2.1 Composition

The sheets are made from a close and homogeneous mixture essentially consisting of a suitable inorganic hydraulic binder, asbestos fibre and water, excluding any materials liable to cause ultimate deterioration in the quality of the sheets. ²

The sheets may be left in their natural colour or colouring matter may be added in the composition; they may also receive adherent coloured or uncoloured coatings on their surfaces.

2.2 Classification

The sheets are classified both according to the height of their corrugations and according to their load bearing capacity.

2.2.1 Geometrical classification

(Classification according to the height of the corrugations)

DEFINITION — The height h of the corrugations is the height measured from the valley of the corrugation up to the crown of the next corrugation (see Figure 1). This dimension includes one thickness only.



Fig. 1

¹ Asymmetrical section corrugated sheets are covered by ISO Recommendation R 394.

² This Recommendation also applies to autoclaved sheets when the binder is partially replaced by ground silica.

DESIGNATION OF THE CATEGORY

- (1) deep corrugations
height not less than 42 mm
- (2) medium corrugations
height less than 42 mm
and not less than 30 mm
- (3) shallow corrugations
height less than 30 mm
and not less than 15 mm.

2.2.2 Mechanical classification

(Classification according to the load bearing capacity)

DEFINITION — The sheets are classified according to a classifying index C_m which takes into account the minimum unit bending stress value of 160 kgf/cm², that defines the intrinsic quality of the asbestos-cement material (2.4.2), and the nominal bending section modulus W_n corresponding to the theoretical profile (2.4.1.1) and to the nominal thickness (2.4.1.3) of the sheet.

The classifying index C_m represents a minimum acceptable load bearing capacity related to a width of one metre.

DESIGNATION OF THE CLASS

- (1) class 150 C_m : 150 kgf/m
- (2) class 212 C_m : 212 kgf/m
- (3) class 300 C_m : 300 kgf/m
- (4) class 425 C_m : 425 kgf/m.

One lower class may be introduced into this classification; it has to be chosen from the same series of preferred numbers as the classes above.

2.2.3 Choice of the classifications

The national standards may prescribe one or other or both the above classifications on the condition that the minimum unit bending stress value of 160 kgf/cm² provided for in 2.4.2 is maintained.

- (a) In order to facilitate the interchangeability of the sheets and consequently to ensure the tightness of the roofs when matching sheets, a sheet should keep within the category of its geometrical profile irrespective of its minimum load bearing capacity.
- (b) It is not permissible to change the class according to the minimum acceptable load bearing capacity of a sheet as determined by 2.2.2, even if the verification of bearing capacities carried out according to 2.5.2.2 indicates an index corresponding to a higher class than the classifying index C_m for the sheet.

2.3 General appearance and finish

The sheets are elements the cross-section of which consists of approximately sinusoidal corrugations to make the sheet rigid. The surface intended to be exposed to the weather should be finished smooth.

The edges of the sheets should be square, straight and clean.