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मानक

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Mazdoor Kisan Shakti Sangathan

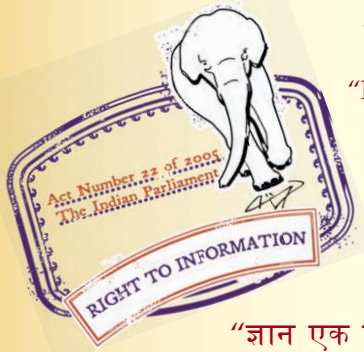
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Jawaharlal Nehru

“Step Out From the Old to the New”

IS 3084 (1989): Pencil slats- [CED 9: Timber and Timber Stores]



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Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”



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*Indian Standard*  
PENCIL SLATS — SPECIFICATION  
( *Second Revision* )

भारतीय मानक

पैन्सिल स्लेट की विशिष्टि  
( दुसरा पुनरीक्षण )

UDC 674.032.3/4—415 : 686.863.3

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

## FOREWORD

This Indian Standard ( Second Revision ) was adopted by the Bureau of Indian Standards on 4 January 1989, after the draft finalized by the Timber Stores Sectional Committee had been approved by the Civil Engineering Division Council.

This standard was originally published in 1965 and the first revision was brought out in 1975. In this second revision, Amendment No. 1 issued to the standard has been incorporated.

IS 1375 : 1959 covers black lead pencils. However, the species of timber for the manufacture of their casing have not been specified.

To a very limited extent, the requirements of timber for pencil slats are still being met by import of African and American cedar. However, the bulk of production is now based on indigenous species of timber. The indigenous species included in this standard are based on investigations on their suitability for making pencils carried out by the Forest Research Institute, Dehra Dun.

This standard contains a revised list of species suitable for pencil slats in accordance with the latest results of investigations done and a quality classification of the species has been included.

This standard contains a revised Annex B recommending a two-step and an alternative single-step waxing and dyeing treatment procedure. Also it includes Annex A for recommended sawing practice for slats. The dimensional tolerances to be allowed for slats prepared from green or insufficiently seasoned timber are also included in Note 2 below 5.

In the formulation of this standard, due weightage has been given to international co-ordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test of analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

# Indian Standard

## PENCIL SLATS — SPECIFICATION

### ( Second Revision )

#### 1 SCOPE

1.1 This standard ( Second Revision ) covers the requirements of pencil slats.

#### 2 REFERENCES

2.1 The following Indian Standards are necessary adjuncts to this standard:

| IS No.         | Title   |
|----------------|---|
| IS 1375 : 1959 | Specification for black pencils   |
| IS 707 : 1976  | Glossary of terms applicable to timber technology and utilization ( second revision ) |

#### 3 TERMINOLOGY

3.1 For the purpose of this standard, the definitions given in IS 707 : 1976 shall apply.

#### 4 SPECIES OF TIMBER

4.1 Pencil slats shall be manufactured from any of the species of timber given in Table 1.

4.2 Other species of timber may also be used subject to prior agreement between the purchaser and the supplier.

**Table 1 Species of Timber for Pencil Manufacture**  
( Clauses 4.1 and 7 )

| Quality    | Trade Name     | Botanical Name                     | Abbreviation            |
|------------|----------------|------------------------------------|-------------------------|
| I          | Alder          | <i>Alnus</i> spp.                  | ALD                     |
|            | Cypress        | <i>Cupressus torulosa</i>          | CYP                     |
|            | Deodar         | <i>Cedrus deodara</i>              | DEO                     |
|            | Horse chestnut | <i>Aesculus indica</i>             | HCH                     |
|            | Juniper        | <i>Juniperus macrospora</i>        | JUN                     |
|            | II             | Bakota                             | <i>Endospermus</i> spp. |
| Banati     |                | <i>Lophopetalum wightianum</i>     | BAN                     |
| Chatian    |                | <i>Alstonia scholaris</i>          | CHT                     |
| Holygent   |                | <i>Holigarna arnotiana</i>         | HOY                     |
| Kadam      |                | <i>Anthocephalus cadamba</i>       | KAD                     |
| Kuthan     |                | <i>Hymenodictyon excelsum</i>      | KUT                     |
| Lambapatti |                | <i>Sideroxylon longepetiolatum</i> | LAM                     |
| Rudrak     |                | <i>Elacocarpus tuberculatus</i>    | RUD                     |

4.3 The timber for pencil slats shall be soft, light and reasonably strong with straight and close grain. It shall have good machining properties, shall not chip off during manufacturing operations and shall whittle well in mending. In addition, it shall take a smooth finish and good polish.

#### 5 DIMENSIONS

5.1 The length, width and thickness of pencil shall be as follows:

- a) Length: 184 + 2 mm,
- b) Width: 70 + 2 mm ( 8 ply ),  
63.5 + 2 mm ( 7 ply ),  
55 + 2 mm ( 6 ply ),  
47 + 2 mm ( 5 ply ),
- c) Thickness 5.5 ± 0.5 mm.

#### NOTES

1 The term 'ply' denotes the number of pencils that can be produced from a double slat block.

2 For conversion of pencil slats, the log should first be sawn into pencil slat blocks of adequate thickness, allowing margin for subsequent shrinkage and depending upon the 'ply' of slats desired ( see Annex A ). For best results, the blocks should first be air seasoned to the required moisture content before final sawing of slats. Oversizes in the width of slats, inclusive of shrinkage during drying and the sawing tolerances mentioned in 5.1 shall, however, be provided as follows if slats are sawn from green or insufficiently seasoned blocks:

- Width: 70 ± 5 mm ( 8 ply ),  
63.5 ± 5 mm ( 7 ply ),  
55 ± 5 mm ( 6 ply ), and  
47 ± 4 mm ( 5 ply ).

Extra tolerances over those prescribed in 5.1 are not required in the length and thickness of slats.

#### 6 REQUIREMENTS

6.1 The moisture content of the slats shall not exceed 12 percent.

NOTE — This is achieved by seasoning the timber to a moisture content not exceeding 12 percent before sawing into slats.

6.2 The slats shall be free from centre heart ( pith ), any kind of decay, splits, checks, cracks, knots, splinters, borer holes, warp and any other defect which is likely to impair their utility.

## 7 TREATMENT

**7.1** Slats of all timbers given in Table 1 shall be either with treatment or without treatment.

NOTE — Before manufacture of pencils, however, it is essential to improve the wilting property of wood by waxing. If desired, the colour of wood may also be improved by dyeing treatment ( see Annex B ).

## 8 PACKING

**8.1** Pencil slats shall be bundled together in suitable numbers as agreed to between the purchaser and the supplier.

## 9 MARKING

**9.1** Each bundle of pencil slats shall be legibly and indelibly marked with the following:

- a) Quantity packed-number of slats and ply,
- b) Manufacturer's name, initials or recognized trade-mark,
- c) Species of timber used,
- d) Whether treatment is given or not, and
- e) Year of manufacture.

## ANNEX A

( Clause 5 )

### SAWING PROCEDURE FOR SLATS

**A-1** The green sawn pencil slat blocks should be air seasoned to appropriate moisture content before sawing of slats to avoid warping of sawn slats. Sawing of slats is a precision job owing to the very close tolerances demanded in slat thickness. Slat saws ( band or circular ) need accurate

setting and maintenance to avoid taper in width and length of sawn slats. The sawn slats need proper stacking with restraint during storage to avoid warping and should finally be allowed to dry to moisture content below 12 percent.

## ANNEX B

( Clause 7 )

### WAXING AND DYEING TREATMENT

#### B-1 PROCEDURE

**B-1.1** Either a two-step or a single-step waxing and dyeing procedure shall be used for the slats.

#### B-1.2 Two-Step Process

**B-1.2.1** In the two-step procedure, partially air dried slats shall be first charged into a vacuum-pressure treating cylinder and subjected to a vacuum for about half-an-hour. The water solution of dye shall then be admitted without breaking the vacuum. A suitable hydraulic pressure shall then be applied for adequate period, depending upon the permeability of the species, to ensure impregnation.

NOTE — In case of deodar, cypress and juniper, a vacuum of 55 cm of mercury is applied for 30 minutes followed by a hydraulic pressure of 0.85 to 0.95 N/mm<sup>2</sup> for 1 hour. The schedule is suitably varied for treating timbers other than deodar, cypress and juniper.

**B-1.2.2** The dyed slats shall then be dried to 12 percent moisture content in open air or in a kiln. They shall then be dipped in molten paraffin wax at 80 to 100°C and the wax shall be allow-

ed to cool through a suitable range of temperature to ensure 8 to 15 percent of wax absorption on the basis of the dry weight of slats, depending upon the species. The superficially waxed slats shall be finally given a heat treatment in a kiln at 70 to 80°C for 12 to 24 hours to allow the wax to penetrate uniformly into the slats.

#### B-1.3 Single-Step Process ( Alternative Process )

The dyeing and waxing of air dried slats may alternatively be carried out in a single step using a suitable water emulsion or dispersion of wax to which dye shall be added provided an absorption of wax between 8 to 15 percent of the dry weight of slats is attained. The impregnation with wax emulsion or dispersion shall be carried out by a vacuum-pressure treating procedure similar to that described in **B-1.2.1** keeping the treating solution heated above the melting point of wax, if necessary. The treated slats shall then be finally dried and conditioned in a kiln for adequate period and the temperature finally raised to 70 to 80°C.

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