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IS 3386 (1979): wooden fence posts [CED 9: Timber and Timber Stores]



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IS : 3386 - 1979

*Indian Standard*  
SPECIFICATION FOR  
WOODEN FENCE POSTS  
( *First Revision* )

UDC 674.71 : 69.028.8



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

Price Rs. 6.00



March 1980

# *Indian Standard*

## SPECIFICATION FOR WOODEN FENCE POSTS

### ( *First Revision* )

Timber Stores Sectional Committee, BDC 33

*Chairman*

DR A. N. NAYER  
C-59, Inderpuri  
New Delhi 110012

*Members*

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**AMENDMENT NO. 1 APRIL 2009  
TO  
IS 3386 : 1979 SPECIFICATION FOR  
WOODEN FENCE POSTS**

*( First Revision )*

*(Page 6, clause 8.2.4)* — Delete SI No. (ii) from the informal table under the clause and renumber the existing SI Nos. (iii), (iv) and (v) as (ii), (iii) and (iv) respectively.



*Indian Standard*  
SPECIFICATION FOR  
WOODEN FENCE POSTS  
( *First Revision* )

**0. FOREWORD**

**0.1** This Indian Standard ( First Revision ) was adopted by the Indian Standards Institution on 27 November 1979, after the draft finalized by the Timber Stores Sectional Committee had been approved by the Civil Engineering Division Council.

**0.2** Wooden fence posts are extensively used for protecting various buildings, gardens and forest plantations. This standard is intended to provide guidance on the species, sizes, workmanship and other requirements, and treatment of fence posts for the more common type of fences; it does not cover fence posts of decorative or any special nature. The standard is also intended to ensure satisfactory service to the purchaser and assist the suppliers and erection contractors by eliminating avoidable variation in demands.

**0.2.1** Species of timber for fence posts shall be such that they preferably are available in a round form in their natural state and shall be mechanically strong as judged from basic suitability figures of: (a) strength as a beam, (b) suitability as a post, (c) retention of shape, and (d) screw and nail holding power ( *see* IS : 1708-1969\* ). From the above basic suitability values, the composite suitability figure shall be computed by taking an average of these four values. Appendix A gives the composite suitability figure for various species of timber for fence posts. A value of 60 percent of the composite suitability figure of teak shall be taken as a minimum for mechanical suitability of the species of timber for fence posts.

**0.3** This standard was first published in 1965. The present revision has been taken up in the light of experience gained during last few years in the use of this standard. In this first revision, provisions relating to preservation have been elaborated covering long term protection and use of these fence posts. Opportunity has also been taken to incorporate Amendment No. 1 issued earlier.

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\*Methods of testing small clear specimens of timber ( *first revision* ).



**0.4** In the formulation of this standard, due weightage has been given to the 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.

**0.5** 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, shall be rounded off in accordance with IS : 2-1960\*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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## 1. SCOPE

**1.1** This standard covers the requirements of two types of wooden fence posts and accompanying rails for purposes of general trade and also covers recommendations on their use under ordinary conditions.

## 2. TERMINOLOGY

**2.1** For the purpose of this standard, the definitions given in IS : 707-1976† shall apply.

## 3. SPECIES OF TIMBER

**3.1** Unless otherwise specified, the species of timber suitable for fence posts and other wooden components of a fence are given in Appendix A. The abbreviations are based on IS : 1150-1976‡. Any other suitable species of timber not included in Appendix A may be used with the prior approval, in writing, of the purchaser.

## 4. PERMISSIBLE DEFECTS

**4.1 Surface Cracks** — In round and cleft fence posts, surface cracks shall not exceed 10 mm in depth, 3 mm in width, and length not more than one-third the length of the pole, provided they are not so numerous and so located as to impair the usefulness of the post. In sawn posts ( rectangular or segmental surface ), cracks are permitted only up to 5 mm in depth, 1 mm in width and up to 10 cm in length. Their number and location shall not impair the usefulness of the post.

**4.2 End Splits** — The longest end split in round and cleft fence posts shall not be more than 12 cm and there shall not be more than one end split on each end. In sawn posts, no end split shall be permitted.

\*Rules for rounding off numerical values (*revised*).

†Glossary of terms applicable to timber technology and utilization (*second revision*).

‡Trade names and abbreviated symbols for timber species (*second revision*).

**4.3 Knots** — The knots shall not be more than half the diameter or cross-sectional dimensions of fence posts. Their number, condition and distribution shall be such as not to weaken a post to an extent so as to make it unsuitable for use.

**4.4 Slope of Grain** — The slope of grain shall not be steeper than 1 in 10, for round and segmental posts, and 1 in 15 for sawn posts measured along the axis of the post.

**4.5 Ghoon Holes** — These shall be well scattered and not concentrated in any area and no Ghoon holes shall be permitted if these contain live infestation of powder-post beetles.

**4.6 Curvatures** — Not more than one curvature shall be permitted in any fence post. A maximum deviation of axis equal to half the diameter of cross-sectional dimension in the respective plane shall be permitted in any post.

## 5. TYPES AND DIMENSIONS OF FENCE POSTS

5.1 Fence posts shall be of two types given in Table 1.

TABLE 1 TYPES AND DIMENSIONS OF FENCE POSTS

TYPE	LENGTH	DIAMETER OF ROUND AND SEGMENTAL POSTS	CROSS SECTION OF RECTANGULAR FENCE POSTS	
			Width	Thickness
(1)	(2) m	(3) cm	(4) cm	(5) cm
1	Above 2.5	12 to 20	10 to 20	3 to 6
2	1.5 to 2.5	8 to 12	Below 10	2 to 5

5.2 A tolerance of  $\pm 5$  cm in length, and  $\pm 0.5$  cm in diameter of round and segmental posts, and in the width of rectangular posts shall be permitted. A tolerance of  $\pm 2$  mm in the thickness of these posts shall be permitted.

5.3 Unless otherwise specified, all fence posts shall conform to the dimensions specified in 5.1 and 5.2.

5.4 The lengths shall be measured between the extreme ends of the posts; the diameters and cross-sectional dimensions shall be measured at the midlength of the posts.

5.5 The type of the fence post shall be determined by the lower type under which any of the dimensions may place it.

## 6. MANUFACTURE

**6.1** Unless otherwise specified, the bark of the round and the segmental posts shall be completely removed and all the branches and protruding portions shall be dressed down flush with the surface. The bottom ends (that is, ends of larger diameter) shall be sawn square and the tops shall be either tapered or sawn square as required.

**6.2** The sawn rectangular fence posts shall be so sawn as to obtain uniform cross section throughout the length and shall be pointed at the tops, when required, as for pale fencing.

**6.3** Prick posts shall be of a section equal to that of the rails and of the same length as that of the main posts. They may be sawn or cleft and may be tapered. Sometimes these may be pointed at the larger end for the purpose of driving into the ground.

**6.4** All posts and corresponding rails and guy rods, wherever required, shall be suitable for fixing to fences as generally recommended in Appendix B.

## 7. REQUIREMENTS

**7.1** All fence posts shall be seasoned (either in air or in a kiln) as specified in IS : 1141-1973\* to a moisture content not more than 18 percent within a depth of 10 mm from the surface when measured anywhere in middle one-third length of the post, and shall be fit for proper treatment (see 8). The moisture content shall be determined in accordance with the method specified in IS : 287-1973†.

**7.2** The fence posts shall be reasonably straight and shall be free from defects other than those permissible under 4.

**7.3** Rails shall conform to B-4 and shall be governed by the appropriate clauses for fence posts.

## 8. PRESERVATIVE TREATMENT AND PAINTING

### 8.1 Prophylactic Treatment for Protection During Storage

**8.1.1** If immediate preservative treatment is not possible, the fence posts, after debarking shall be given prophylactic treatment either by brushing, spraying or dipping with any of the preservative solutions as given in IS : 401-1967‡, so as to avoid infection by fungi or insect during

\*Code of practice for seasoning of timber (first revision).

†Recommendations for maximum permissible moisture content of timber used for different purposes (second revision).

‡Code of practice for preservation of timber (second revision).

transport or storage. The prophylactic treatment should be given immediately after the felling of the trees.

## 8.2 Preservative Treatment for Long Term Protection in Use

**8.2.1** For obtaining a long service life, the fence posts shall be treated by pressure process, or by hot and cold process or sap-displacement method, as the case may be.

**8.2.2** For timber whose heartwood is durable or whose heartwood is easily treatable, hot and cold process using creosote-fuel oil ( 50 : 50 ) mixture or by modified hot and cold process with water soluble preservatives, may be adopted. The posts should, however, be treated by pressure process if the facilities for the same are available. The green posts after careful debarking may also be treated by adopting sap-displacement method using water soluble preservatives.

**8.2.3** For treatment of all timbers whose heartwood is not durable, irrespective of the type of preservative employed, pressure process shall be adopted.

**8.2.4** Recommended preservatives and their absorption ( on penetrated cross section basis ) shall be as given below:

<i>Sl No.</i>	<i>Preservative</i>	<i>Absorption</i>
i)	a) Creosote : fuel oil ( 50 : 50 )	160 kg/m <sup>3</sup>
	b) Creosote/LTC : fuel oil mixture	
	c) Pure creosote/LTC	
ii)	Pentachlorophenol in petrol oil	8 kg/m <sup>3</sup>
iii)	Copper-chrome-arsenic compound	12 kg/m <sup>3</sup>
iv)	Copper-chrome-boric-acid compound	20 kg/m <sup>3</sup>
v)	Acid-cupric-chromate compound	12 kg/m <sup>3</sup>

**8.3** Fence posts which are to be painted should be treated with water borne preservatives. Painting should be done after the posts have been thoroughly dried.

## 9. SAMPLING

**9.1** The method of drawing representative samples of wooden fence posts and the criteria for conformity shall be as prescribed in Appendix C.

## 10. MARKING

**10.1** Each fence post shall be marked legibly and indelibly with the following information:

- Manufacturer's name or trade-mark, if any;
- Type of post;
- Species of timber by symbol ( *see* Appendix A ); and
- Year of preservative treatment.

**10.2** The butt of each post shall be marked with the type and length for identification of posts, whenever required by the purchaser.

**10.3** Each post may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

## 11. ERECTION

**11.1** Erection of posts and rails, whenever required, shall be governed by the general principles recommended in Appendix B and all components of fence shall conform to a pre-designed uniform pattern throughout the fence. Preservative treatment and painting shall conform to the requirements specified in 8.

## A P P E N D I X A

[ Clauses 0.2.1, 3.1 and 10.1 (c) ]

### SPECIES OF TIMBER SUITABLE FOR FENCE POSTS

BOTANICAL NAME	STANDARD TRADE NAME	ABBREVIATED SYMBOL	COMPOSITE SUITABILITY FIGURE FOR FENCE POSTS
<i>Abies</i> spp. ( other than <i>Abies densa</i> )	fir	FIR	63
<i>Acacia nilotica</i> ( Syn. <i>A. arabica</i> )	babul	BAB	118
<i>Acrocarpus fraxinifolius</i>	mundani	MUN	95
<i>Adina cordifolia</i>	haldu	HAL	88
<i>Albizia chinensis</i> ( Syn. <i>A. stipulata</i> )	siris	SIR	97
<i>Anogeissus latifolia</i>	axlewood ( bakli )	AXL	105
<i>Anogeissus pendula</i>	kardhai	KAH	105
<i>Bridelia</i> spp.	Kassi	KAS	75
<i>Calophyllum</i> spp.	poon	POO	74
<i>Casuarina equisetifolia</i>	Casuarina	CAS	89
<i>Cedrus deodara</i>	deodar	DEO	80
<i>Cleistanthus collinus</i>	karada	KAR	*
<i>Cupressus torulosa</i>	cypress	CYP	73
<i>Dalbergia sissoo</i>	sissoo	SIS	95

\*Composite suitability figure for this species will be added later when data is available.

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BOTANICAL NAME	STANDARD TRADE NAME	ABBREVIATED SYMBOL	COMPOSITE SUITABILITY FIGURE FOR FENCE POSTS
<i>Dipterocarpus</i> spp. ( other than <i>D. macrocarpus</i> )	gurjan	GUR	90
<i>Garuga pinnata</i>	garuga	GAU	75
<i>Grewia tiliifolia</i>	dhama	DHA	101
<i>Heritiera</i> spp.	sundri	SUN	94
<i>Hopea</i> spp. ( Syn. other than <i>H odorata</i> )	hopea	HOP	123
<i>Kingiodendron pinnatum</i> ( Syn. <i>Hardwickia pinnata</i> )	piney	PIN	78
<i>Lagerstroemia hypoleuca</i>	pyinma	PYI	77
<i>Lagerstroemia lanceolata</i>	benteak	BEN	84
<i>Lagerstroemia parviflora</i>	lendi	LEN	88
<i>Lagerstroemia speciosa</i> ( Syn. <i>L. flosreginae</i> )	jarul	JAR	75
<i>Mesua ferrea</i>	mesua	MES	131
<i>Milium tomentosum</i> ( Syn. <i>Saccopetalum tomentosum</i> )	hoom	HOO	89
<i>Ougeinia ojeinsis</i> ( Syn. <i>O. dalbergioides</i> )	sandan	SAD	90
<i>Picea smithiana</i> ( Syn. <i>P. morinda</i> )	spruce	SPR	65
<i>Pinus roxburghii</i> ( Syn. <i>P. longifolia</i> )	chir	CHR	70
<i>Pinus wallichiana</i> ( Syn. <i>P. exelsa</i> )	kail	KAI	62
<i>Poeciloneuron indicum</i>	ballagi	BAL	135
<i>Pterocarpus marsupium</i>	bijasal	BIJ	101
<i>Shorea assamica</i>	makai	MAK	69
<i>Shorea robusta</i>	sal	SAL	109
<i>Syzygium</i> spp.	jaman	JAM	92
<i>Tectona grandis</i>	teak	TEA	100
<i>Terminalia alata</i> ( Syn. <i>T. coriaces</i> ; <i>T. crenulata</i> )	laurel	LAU	100
<i>Terminalia arjuna</i>	arjun	ARJ	86
<i>Terminalia bialata</i> ( sapwood )	white chuglam ( silver grey wood )	WCH	87
<i>Terminalia manii</i>	black chuglam	BCH	96
<i>Terminalia myriocarpa</i>	hollock	HOL	77
<i>Terminalia paniculata</i>	kindal	KIN	91
<i>Terminalia procera</i>	white bombwe	WBO	77
<i>Xylia xylocarpa</i>	irul	IRU	103
<i>Xylocarpus</i> spp.	pussur	PUS	100

## APPENDIX B

( Clauses 6.4, 7.3 and 11.1 )

### RECOMMENDATIONS FOR ERECTION OF FENCE POSTS

#### B-1. FOUNDATION

**B-1.1** All fence posts shall be erected so that at least 40 cm of the butt is firmly gripped in the ground.

**B-1.2** The holes in the ground shall be as small as practicable to allow for refilling with earth which shall be well rammed.

**B-1.3** When the posts are set in concrete, concrete shall be completely set with posts gripped in it and the earth well rammed on all sides of concrete. The top of the concrete may be sloped away from the post in all directions to facilitate drainage.

#### B-2. SPACING

**B-2.1** The spacing of the posts shall be such as to provide the required degree of protection adequately. A distance of 3 metres for morticed fences, and 2 metres for nailed fences are recommended.

#### B-3. CONNECTING MATERIAL

**B-3.1** The posts shall be linked by barbed wire ( *see* IS : 278-1969\* ) or wooden rails or any other type of suitable connecting material. All nails and other iron material shall be galvanized.

#### B-4. RAILS

**B-4.1** When wooden rails are used these may be wane-free, rectangular or sawn or cleft segmental from poles of not less than 8 cm in diameter at thinner end. A convenient recommended size for rectangular sawn rail is 8 × 4 cm. The rails shall be sawn straight, so that when fixed, centre line of the rail shall not deviate at any point more than 5 cm from the ground within the length between any two adjacent posts. The segmental posts may also include the natural curve of the round pole provided such curvature appears only once and in one plane only.

#### B-5. MORTICED FENCE

**B-5.1** In a morticed fence, one prick post shall be supplied for each bay and driven into the ground to a depth of 40 cm.

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\*Specification for galvanized steel barbed wire for fencing ( *second revision* ).

**B-5.2** In morticed fences wooden rails shall fit into the mortices in the posts and shall be nailed to each prick post with two plain head wire nails (*see* IS : 723-1972\*) of 10 cm length at each inter-section and the ends of nails shall be clinched downwards.

**B-5.3** Joints in rails of morticed fences shall be scarfed, the length of the scarf being 15 cm.

## **B-6. JOINTS**

**B-6.1** In nailed fences, rails shall be butt-jointed on the centre line of such posts. The joints shall be staggered so that alternate joints occur in one post. The rails shall be nailed to the posts with two nails at each end and two nails at the centre and one nail on other posts. The nails shall be 10 cm in length and clinched as above.

## **B-7. SPACING OF RAILS**

**B-7.1** The number of rails running parallel to each other in any fence depend upon the protection expected of the fence and their spacing shall be equal between the bottom post rail and a point 10 cm from the top of the post.

## **B-8. LEVEL OF FENCE**

**B-8.1** When finally erected, the level of the fence shall follow approximately the profile of the ground and shall conform truly to the design set out by the indentor.

# **A P P E N D I X C**

( *Clause 9.1* )

## **SAMPLING OF WOODEN FENCE POSTS**

### **C-1. SAMPLING**

**C-1.1 Lot** — In any consignment, all the wooden fence posts of the same type and manufactured under similar conditions of production shall be grouped together to constitute a lot as samples for inspection.

**C-1.2** The number of fence posts to be selected from the lot as samples for inspection shall depend upon the size of the lot and shall be in accordance with col 1 and 2 of Table 2.

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\*Specification for steel countersunk head wire nails (*first revision*).



**C-1.2.1** For random selection, the procedures as given in IS: 4905-1968\* shall be adopted.

**TABLE 2 SAMPLE SIZE AND CRITERIA FOR CONFORMITY**

( Clause C-1.2 )

LOT SIZE	SAMPLE SIZE	PERMISSIBLE NUMBER OF DEFECTIVE FENCE POSTS
(1)	(2)	(3)
Up to 100	13	0
101 to 150	20	1
151 „ 300	32	2
301 „ 500	50	3
501 „ 1 000	80	5
1 001 „ 3 000	125	7
3 001 and above	200	10

**C-1.3** All the fence posts selected as in **C-1.2** shall be inspected for visual defects ( see 4 and 7.2 ), moisture content ( see 7.1 ), dimensions and tolerances ( see 5.1 and 5.2 ), preservative treatment and painting ( see 8 ). Any fence post which fails to satisfy the requirements of any one or more characteristics shall be considered as a defective fence post.

**C-1.4 Criteria for Conformity** — The lot shall be considered as conforming to the requirements of this standard if the number of defective fence posts out of those inspected does not exceed the corresponding number given in col 3 of Table 2.

\*Methods for random sampling.

# INDIAN STANDARDS

## ON

### TIMBER STORES

#### IS:

- 620-1975 General requirements for wooden tool handles (*third revision*)
- 2133-1977 Wooden tent pins (*first revision*)
- 2891-1975 Wooden handles for felling axes and hand axes (*first revision*)
- 2892-1964 Wooden handles for picks and beaters
- 2893-1964 Wooden handles for adzes
- 2894-1965 Wooden handles for wood working chisels and gouges
- 2895-1977 Wooden handles for engineers' files (*first revision*)
- 2896-1977 Wooden handles for carpenter's augers (*first revision*)
- 2897-1965 Wooden handles for shovels
- 2922-1975 Wooden tent mallets
- 3053-1977 Cane baskets for general purposes (*first revision*)
- 3084-1975 Pencil slats (*first revision*)
- 3386-1979 Wooden fence posts (*first revision*)
- 3806-1966 Wooden beaters
- 4435-1967 Wooden ladders and trestles
- 4650-1968 Anvil blocks
- 4953-1973 Wooden handles for hand hammers
- 5942-1970 Wooden handles for *POWRAHS*
- 6641-1972 Wooden disc for tents
- 6642-1972 Mason mallets
- 6643-1972 Wooden pins for bivouac tents
- 6644-1972 Tinmen mallets
- 6656-1972 Caulking mallets
- 6676-1972 Bossing (plumbers) mallets
- 6729-1972 Paddles
- 7344-1974 Bamboo tent poles
- 7548-1975 Vase for store tent
- 7549-1975 Timber half wrought for sporting rifles
- 7550-1975 Cane baskets for ration
- 7850-1975 Wooden boxes for microscope slides
- 8295 Bamboo chicks
- ( Part I )-1976 Part I Fine
- ( Part II )-1976 Part II Coarse