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मानक

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“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 9195-1 (1979): Gymnasium Equipment, Part I: General Requirements [PCD 22: Sports Goods]



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Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard
**SPECIFICATION FOR
 GYMNASIUM EQUIPMENT**
PART I GENERAL REQUIREMENTS

1. Scope → Specifies general requirements for gymnasium equipment primarily for use in schools and establishments of further education and by the services.

2. Material

2.1 The timber used for the manufacture of gymnasium equipment shall be seasoned to a moisture content not exceeding 15 percent and not less than 10 percent. Any timber piece/pieces of a particular species found abnormally lighter in weight (less than 75 percent of the average weight of the species), shall not be used. The timber shall have a slope of grain not exceeding 1 in 15. Occasional small knots shall be permitted, if they are sound and tight and where the diameter of such knot does not exceed one-eighth of the width of the face on which it occurs. The timber shall be free from centre heart (pith), warp, checks, shakes, splits (except a few hair splits), any kind of decay (rot), borer holes and any other defect which is likely to reduce the ultimate strength of timber or utility of the raw material.

2.1.1 There shall be the following two groups of timber for use in gymnasium equipment [see IS : 1150-1966 Trade names and abbreviated symbols for timber species (*first revision*)] :

Botanical Name	Trade Name	Average Weight at 12 Percent Moisture Content (kg/m ³)
GROUP I		
<i>Acrocarpus fraxinifolius</i> W. & A.	mundani	690
<i>Albizia lebbek</i> Benth.	kokko	640
<i>Albizia procera</i> Benth.	safed-siris	640
<i>Amoora</i> spp.	amari	625
<i>Artocarpus hirsutus</i> Lam	aini	595
<i>Calophyllum</i> spp.	poon	655
<i>Chukrasia Velutina</i> W. & A.	chickrassy	675
<i>Dillenia</i> spp.	dillenia	625
<i>Kingiodendron pinnatum</i> Harms	piney	625
<i>Lagerstroemia lanceolata</i> Wall.	benteak	675
<i>Tectona grandis</i> Linn. F.	teak	640
<i>Terminalia bialata</i> Kurz (sapwood)	white chuglam	705
<i>Terminalia myriocarpa</i> Heurck & Muell.— Arg.	hollock	610
GROUP II		
<i>Albizia odoratissima</i> Benth.	kala-siris	735
<i>Acacia nilotica</i> Del.	babul	785
<i>Anogeissus latifolia</i> Bedd.	axlewood (bakli)	930
<i>Dalbergia sissoo</i> Roxb.	sissoo	770
<i>Dysoxylum malabaricum</i> Bedd.	white cedar	720
<i>Fraxinus</i> spp.	ash	720
<i>Grewia tiliaefolia</i> Vahl.	dhaman	770
<i>Lagerstroemia parvifolia</i> Roxb.	lendi	775
<i>Ougeinia oojeinensis</i> Hochreut	sandan	850
<i>Pterocarpus marsupium</i> Roxb.	bijasal	800
<i>Quercus</i> spp.	Indian oak	865
<i>Shorea robusta</i> Gaertn. F.	sal	880
<i>Terminalia paniculata</i> Roth	kindal	770
<i>Terminalia alata</i> Roth	laurel	895

Adopted 29 June 1979

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2.2 Blockboards — Shall conform to IS : 1659-1969 'Specification for blockboards (*first revision*)'.

2.3 Plywood — Plywood, where used, shall comply with the requirements of IS : 303-1975 'Specification for plywood for general purposes (*second revision*)'.

2.4 Leather — Shall be of prime quality, properly tanned, of good colour and free from flaws [see IS : 580-1973 Specification for harness leather (*second revision*)].

2.5 Malleable Iron Castings — Shall conform to IS : 2108-1962 'Specification for blackheart malleable iron castings', and they shall be completely clean and solid.

2.6 Grey Iron Castings — Shall conform to IS : 210-1970 'Specification for grey iron castings (*second revision*)'.

2.7 Tubes and Tubulars — These shall be of mild steel and shall conform to IS : 1239 (Part I)-1973 'Specification for mild steel tubulars and other wrought steel fittings: Part I Mild steel tubes (*third revision*)' and IS : 1239 (Part II)-1969 'Specification for mild steel tubulars and other wrought steel fittings: Part II Mild steel tubulars and other wrought steel pipe fittings (*second revision*)'.

2.8 Screws and Staples — All screws shall be of steel and shall conform to the requirements of IS : 1363-1967 'Specification for black hexagon bolts, nuts and lock nuts (dia 6 to 39 mm) and black hexagon screws (dia 6 to 24 mm) (*first revision*)'. Staples shall be of the industrial type, gun driven, and either intrinsically rust resistant or so treated as to render them adequately resistant to rusting.

2.9 Adhesives — These shall conform to the requirements of IS : 848-1974 'Specification for synthetic resin adhesives for plywood (phenolic and aminoplastic) (*first revision*)', or IS : 851-1957 'Specification for synthetic resin adhesives for construction work in wood' as appropriate for the work concerned.

2.10 Steel — All wing bolts, hooks, thimbles and cap fittings shall be made of mild steel conforming to IS : 226-1975 'Specification for structural steel standard quality (*fifth revision*)'.

3. Construction

3.1 It is essential, if satisfactory performance is to be obtained from the apparatus, that before any decision with regard to the building structure is taken, there should be full consultation at the initial stages. All those concerned with the setting up and equipping of a gymnasium (for example, the architect, the inspector, organizers of and advisers on physical education, those responsible for the management and running of gymnasium and the manufacturer supplying the fixed apparatus and floor fittings) shall be consulted in order to obtain a properly co-ordinated arrangement of equipment and the necessary strength of the main structure, especially when this equipment is permanently fixed in position. This is of particular importance with a building of framed construction having non-load bearing panels or infilling. The unit spacing of the framing should, if possible, be related to the dimensions of apparatus fixed to the walls.

3.2 Considerable care shall be taken in the positioning of any permanently projecting objects, such as hooks, window mechanisms, switches, radiators and other heating devices, accidental contact with which could cause serious injury. The apparatus used for swinging and similar exercises should be placed in such a position that contact by the user with an adjacent object, that might cause injury, is not likely to take place.

4. Finish — All woodwork shall be smoothly finished with all exposed edges suitably rounded and, shall receive two coats of pale, hard drying varnish, or such other finish as agreed to between the purchaser and the manufacturer. The steel components shall be cadmium plated [see IS : 1572-1968 Specification for electroplated coatings of cadmium on iron and steel (*first revision*)]. Iron work shall be treated as specified in the standard for individual equipment.

5. Maintenance — It is important that all physical training equipment should be maintained in a first class, fully safe condition and to this end, at least one annual competent inspection and general maintenance of the apparatus must be arranged. The inspection, repair and maintenance should be always carried out by persons specifically qualified for this work and that a certificate should be issued showing that the work has been carried out satisfactorily.