

**RWANDA
STANDARD**

**DRS
426**

1st edition

2019-mm-dd

**Furniture — Chairs and tables for
educational institutions —Functional size
and performance requirements**



Reference number

DRS 426:2019

© RSB 2019

In order to match with technological development and to keep continuous progress in industries, standards are subject to periodic review. Users shall ascertain that they are in possession of the latest edition

© RSB 2019

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without prior written permission from RSB.

Requests for permission to reproduce this document should be addressed to:

Rwanda Standards Board

P.O Box 7099 Kigali-Rwanda

KK 15 Rd, 49

Tel. +250 788303492

Toll Free: 3250

E-mail: info@rsb.gov.rw

Website: www.rsb.gov.rw

ePortal: www.portal.rsb.gov.rw

Contents

Page

Foreword	V
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Functional sizes requirements	5
4.1 Types	5
4.2 Dimensions	5
4.3 Size	6
4.4 Appearance and surface finish	17
5 Performance requirements	17
5.1 Requirements for tables	17
5.1.1 Corners of table tops	17
5.1.2 Edges of table tops	17
5.1.3 Height and working angle of table tops	18
5.2 Single tables for general use	18
5.3 Dual tables for general use, typing tables and science tables	18
5.3.1 Dimensions	18
5.3.2 Performance of dual tables	18
5.3.3 Performance of typing and science tables	18
5.4 Drawing table	18
5.4.1 Basic dimensions	18
5.4.2 Additional requirements for design	19
5.4.3 Performance of small drawing tables	19
5.4.4 Performance of large drawing tables	19
5.5 Needlework, arts and crafts, and nursery school tables	19
5.5.1 Basic dimensions	19
5.6 Specific Requirements for Teachers' desks	19
5.6.1 Basic dimensions	19
5.6.2 Pedestals	19
5.6.3 Drawers	19
5.6.4 Performance	20
5.7 Specific requirements for chairs and stools	20
5.7.1 Chairs for general use	20
5.8 Laboratory stools	20
5.8.1 Basic dimensions	20
5.8.2 Performance	20
6 Inspection and test methods for stability, strength and durability	20
6.1 Inspection	20
6.2 Sequence of tests	21
6.3 Impact resistance test for desk and table tops	21
6.3.1 Apparatus	21
6.3.2 Procedure	21
6.4 Static load resistance test for single tables	22
6.5 Static load resistance test for dual and drawing tables	22
6.6 Deflection resistance test for table tops	22
6.6.1 Apparatus	22
6.6.2 Procedure	22
6.7 Securing test for desk and table tops	22

6.8	Drawer load test	22
6.9	Backward tipping test for chairs and stools	23
6.9.1	Apparatus	23
6.9.2	Procedure	23
6.10	Test for colour stability of thermoplastics shells and table tops	23
7	Marking	23

Copy for public comments

Foreword

Rwanda Standards are prepared by Technical Committees and approved by Rwanda Standards Board (RSB) Board of Directors in accordance with the procedures of RSB, in compliance with Annex 3 of the WTO/TBT agreement on the preparation, adoption and application of standards.

The main task of technical committees is to prepare national standards. Final Draft Rwanda Standards adopted by Technical committees are ratified by members of RSB Board of Directors for publication and gazettment as Rwanda Standards.

DRS 426 was prepared by Technical Committee RSB/TC 54, *Timber, furniture and engineered wood*.

In the preparation of this standard, reference was made to the following standard:

- 1) SANS 660, Classroom furniture specification
- 2) BS EN 1729 -1:2015, Furniture — Chairs and tables for educational institutions
- 3) ISO 5970:1979, Furniture – Chairs and tables for educational institutions – Functional sizes

The assistance derived from the above source is hereby acknowledged with thanks.

Committee membership

The following organizations were represented on the Technical Committee on Timber, Furniture and Engineered wood (RSB/TC 54) in the preparation of this standard.

Action pour le Developement de l'Artisanat au Rwanda (ADARWA)

Association pour la défense des droits des consommateurs au Rwanda (ADECOR)

Association pour la Promotion des Artisans du Bois (APROAB)

GiZ Eco—Emploi

Integrated Polytechnic Regional Centre (IPRC) — KITABI

Kalka and Partners Ltd

MANUMETAL

MASS DESIGN

Ministry of Trade and Industry (MINICOM)

DRS 426:2019

National Industrial Research and development Agency (NIRDA)

New Forest Company (NFC)

REAL Contractors

Rwanda Education Board (REB)

Rwanda Environment Management Authority (REMA)

Rwanda Public Procurement Authority (RPPA)

Rwanda Water and Forestry Authority (RWFA)

Rwanda Wood Association

STRAW Tech

University of Rwanda — College of Agriculture, Animal Science and Veterinary Medicine (UR — CAVM)

University of Rwanda — College of Science and Technology (UR — CST)

Rwanda Standards Board (RSB) — Secretariat

Copy for public comments

Introduction

Despite the Rwandan growth trend, the wood sector has not been implemented as required to produce high quality wood products and vigorous competitive market. The quality of wooden furniture is highly affected by the quality of timber, standardized production chain, quality control mechanism and grading rules. The lack of aforesaid factors results into market dominated by poor quality wooden furniture, compromised safety and unfair competition at the market.

The emerging market dynamics show that consumer's preferences have gradually shifted from furniture made by local timbers to the imported ones, which is considered as a limiting factor to the development and growth of the wood economy in Rwanda.

To ensure a positive trade balance in wood market there is a dire need to improve and ensure quality of domestic wood products.

This Draft Standard is one of the series of standards on furniture in Rwanda. The series currently consists of the following:

DRS 413:2019 Furniture — Quality and grading of wooden furniture (Under development)

DRS 424:2019 Furniture — Specifications for bedsteads (Under development)

DRS 425:2019 Furniture — Storage units — Functional sizes, stability, strength and durability for storage units (Under development)

DRS 426:2019 Furniture — Chairs and tables for educational institutions — Functional sizes, strength, durability and stability for seating and tables (Under development)

Furniture — Chairs and tables for home furniture — Functional sizes, strength, durability and stability for seating and tables (Under development)

Furniture — Tables — Test methods for the determination of stability, strength and durability (Under development)

ISO 7170:2005 Furniture — Storage units — Determination of strength and durability

ISO 7171:2019 Furniture — Storage units — Test methods for the determination of stability

ISO 7173:1989 Furniture — Chairs and stools — Determination of strength and durability

Furniture — Chairs and tables for educational institutions — Part 1: Functional size and performance requirements

1 Scope

This Rwanda standard specifies performance requirements for seating and tables in educational institutions. It includes requirements for functional sizes, strength, durability and stability.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 7172, Furniture – Tables – Determination of stability

ISO 105-A02, Textiles -Tests for colour fastness - Part A02: Grey scale for assessing change in colour

3 Terms and definitions

For the purposes of this standard, the following terms and definitions apply.

3.1

Dual table

Table used by two or more people

3.2

Effective centre of seat (of a chair)

Intersection of the diagonals of that part of the upper surface of a seat bounded by the sides and front of the seat and by the line parallel to the front at the effective depth of the seat

3.3

Effective depth of seat (of a chair)

Distance between the centre of the front edge of a seat and the point of intersection of the seat and the extended centre line of the front surface of the backrest

3.4

Flash line

Ridge left on a moulded plastics article at the line where the mould halves meet

3.5

Height of seat

Vertical distance between the horizontal plane on which the chair or stool stands and the effective centre of the seat (of a chair) or the top of the seat (of a stool)

3.6

Lamin-veneered board

Composite board that has veneers of either high-pressure or low-pressure decorative laminates of a selected type

3.7

Lectern

Removable, hinged writing surface that has a tubular steel frame that attaches to the frame of a chair

3.9

Pedestal

Rectangular cabinet containing drawers

3.10

Pellet

Insert of material tightly fitted, into a counter bored screw or bolt hole using an adhesive, and so set that the grain, colour and pattern of the inserted material is continuous with that of the surrounding surface

3.11

Self-edging

Edge-strip or edge-banding of a material the same as or similar to that of the facing

3.12

Shell

Single-piece moulding comprising a seat and bracket and that can be secured to a chair frame

3.13**Single table**

Table used by one pupil or person

3.14**Size (of chairs, stools and tables)**

Differentiation between dimensions within any one type of unit

3.15**Solid timber**

Timber that is not built up in thickness but that can be built up in width, by means of bonding

3.16**Stackable**

Identical units that, when stacked, partly envelop one another

3.17**Stacking block**

Piece of resilient material fixed to the underside of a unit in order to prevent abrasion when units are stacked

3.18**Stopper**

Flanged fitting permanently inserted into the end of a tube to seal it off and sufficiently strong to transmit the load from the tube to the bearing surface, without suffering deformation

3.19**Surfaces exposed to view**

Surfaces of an assembled unit that may be observed from a normal standing or sitting position when the unit is in use

NOTE Exposed surfaces include the inside of a drawer and any other moveable part in an open position.

3.20**Student's bench desk**

Combination of the bench and desk for seating and writing surfaces used in classroom

3.21

Stool

Piece of furniture intended for seating without backrest and armrests

3.22

Teacher's desk

Table intended for the use by the teacher with a top writing surface and with a provision of the storage unit below the top surface

3.23

Educational institution

Place where people of different ages gain an education, including preschools, childcare, primary-elementary schools, secondary-high schools and universities.

3.24

Needle work table

Table used to hold sewing materials with or without drawers fitted with partitions and supports standing on casters.

3.25

Drawing table

Multipurpose desk which can be used for any kind of drawing, writing or impromptu sketching on a large sheet of paper or for reading a large format book or other oversized document or for drafting precise technical illustrations

EXAMPLE used e.g. for engineering or architectural drawings.

3.26

Typing table

Piece of furniture with a top flat surface for typing, a storage unit and castors

3.28

Laboratory science table

Table designed to facilitate the science lab experiments.

4 Functional sizes requirements

4.1 Types

Furniture for educational institution shall be of one of the following types:

a) Tables

- 1) Single table for general use,
- 2) Dual table for general use,
- 3) Drawing table,
- 4) Typing table,
- 5) Needlework table,
- 6) Arts and crafts table,
- 7) Science /laboratory table;

b) Desks:

- 1) Teachers' desks;
- 2) Student's desk;

c) Chairs: General purpose chairs;

d) Stools;

e) Bench;

f) Combined bench and table.

4.2 Dimensions

The dimensions of educational institutions furniture shall conform to the relevant dimensions given in figure 1 to figure 9, except that where indicated, the dimensions given represent preferred sizes. In such cases other dimensions are acceptable.

Dimensions for seating are given in table 1, and for tables in table 2. The references to the dimensions are shown in figure 10 (dimensions in section) and figure 11 (dimensions in plan-view).

The minimum depth (t_1) and the minimum length (b_1) for tables for single and dual use shall be in accordance with table 2.

The leg clearance zone as defined by dimensions h_2 , h_3 , h_4 , b_2 , t_2 , and t_3 shall be provided under all tables at which students will be seated.

4.3 Size

The size of a table, chair or laboratory stool shall be designated as A, B, C or D (see figures 1 - 9) and shall conform to the height dimensions for tables, chairs and stools provided in figures 3 – 9.

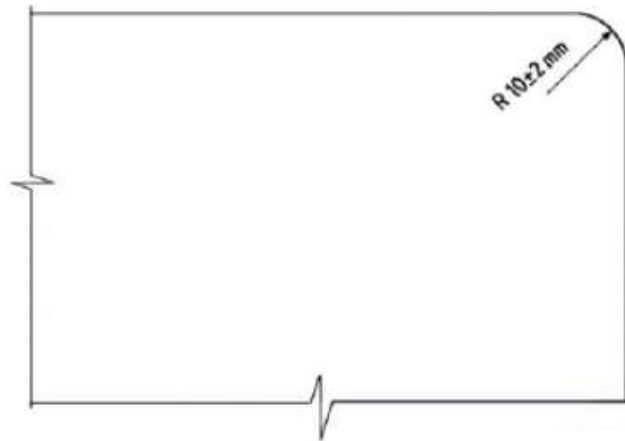
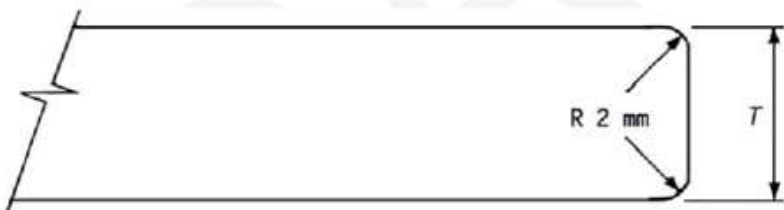


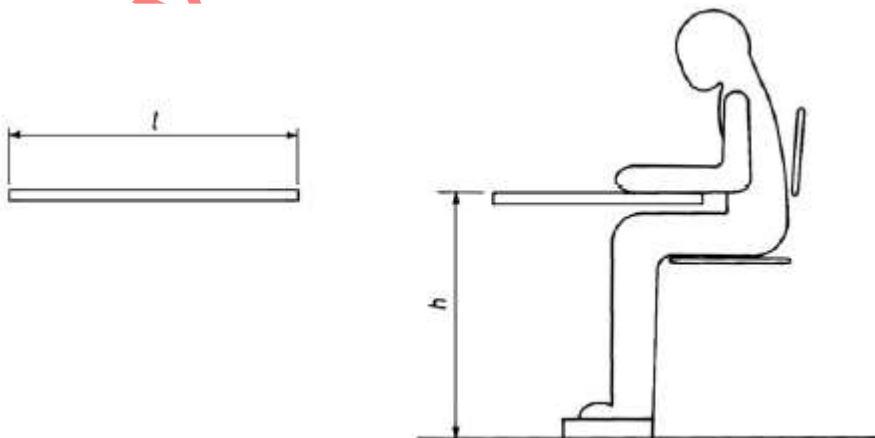
Figure 1: Corner dimensions of table tops, seats and backrests

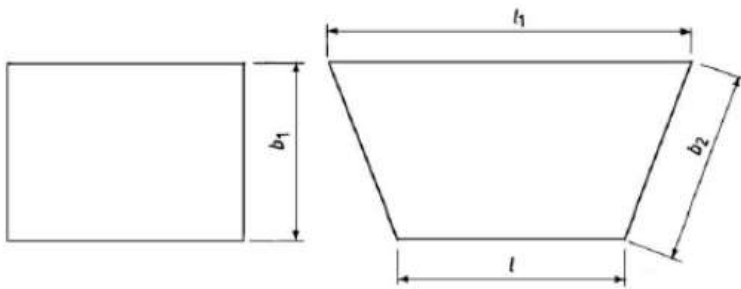


Note:

- a) $T - 18 \text{ mm} < T < 25 \text{ mm}$
- b) Tolerance: $\pm 1 \text{ mm}$

Figure 2: Edge dimensions of table tops, seats and backrests

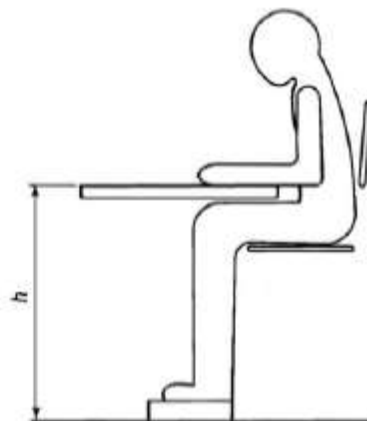
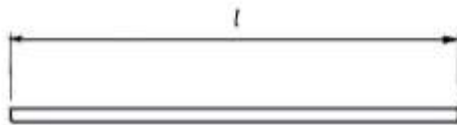




1	2	3	4	5	6
Size	Dimensions				
	mm				
	<i>h</i>	<i>l</i> *	<i>l</i> ₁	<i>b</i> ₁ *	<i>b</i> ₂
A	500	600	1 200	500	600
B	550	600	1 200	500	600
C	650	600	1 200	500	600
D	725	600	1 200	500	600
	Tolerances				
	± 7	± 3	± 6	± 3	± 3

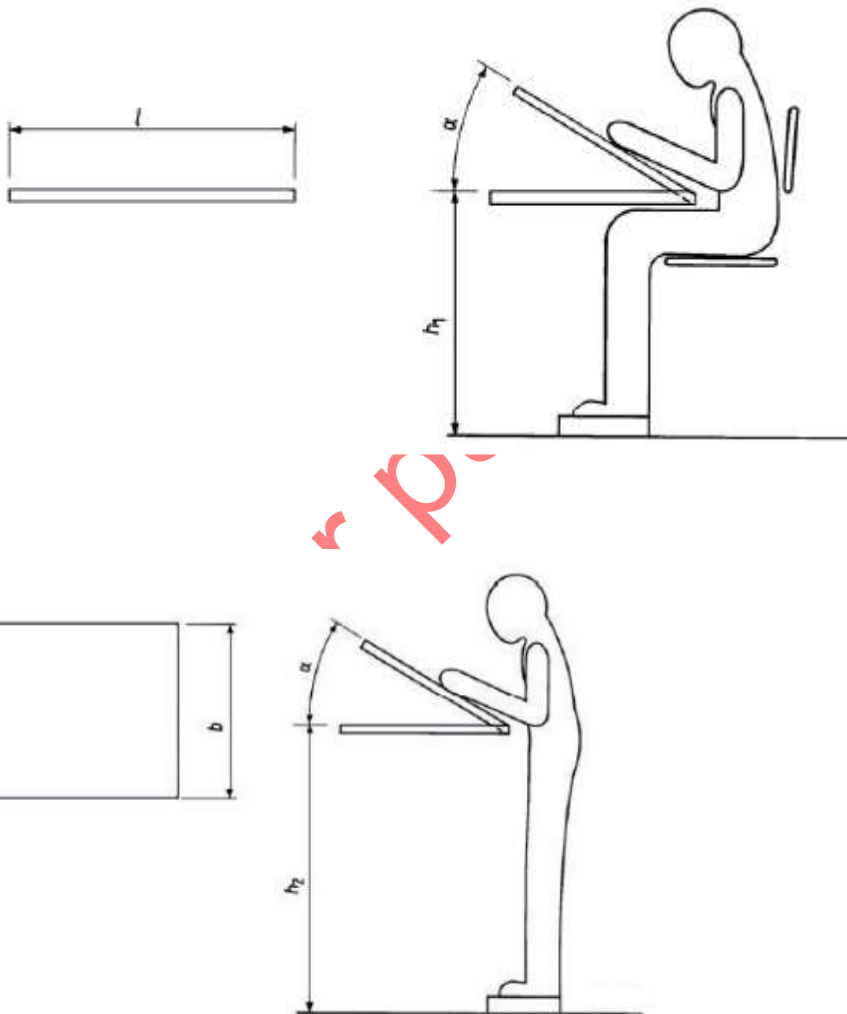
* Preferred dimension.

Figure 3 — Dimensions of single tables for general use



1	2	3	4
Size	Dimensions		
	mm		
	<i>h</i>	<i>l</i> *	<i>b</i> *
A	500	1 200	500
B	550	1 200	500
C	850	1 200	500
D	725	1 200	500
Science table	770	1 200	500
	Tolerances		
	± 7	± 6	± 3
* Preferred dimension.			

Figure 4 — Dimensions of dual tables for general use, science tables and typing tables (size C)

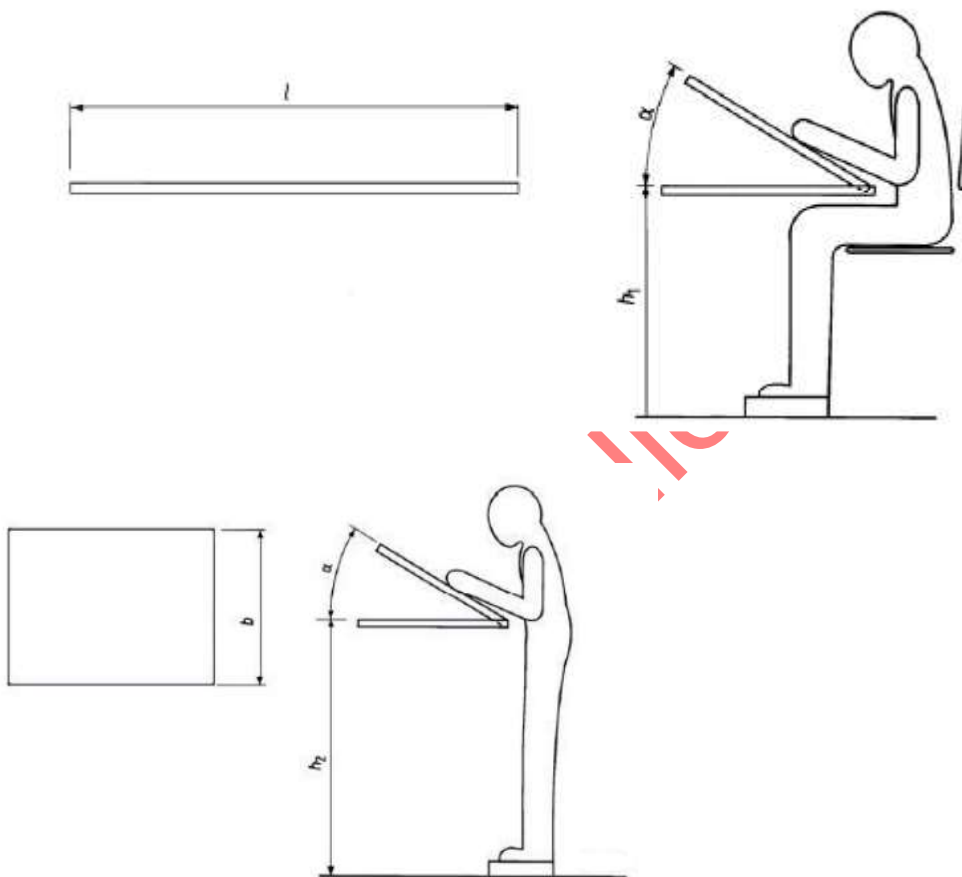


ments

ments

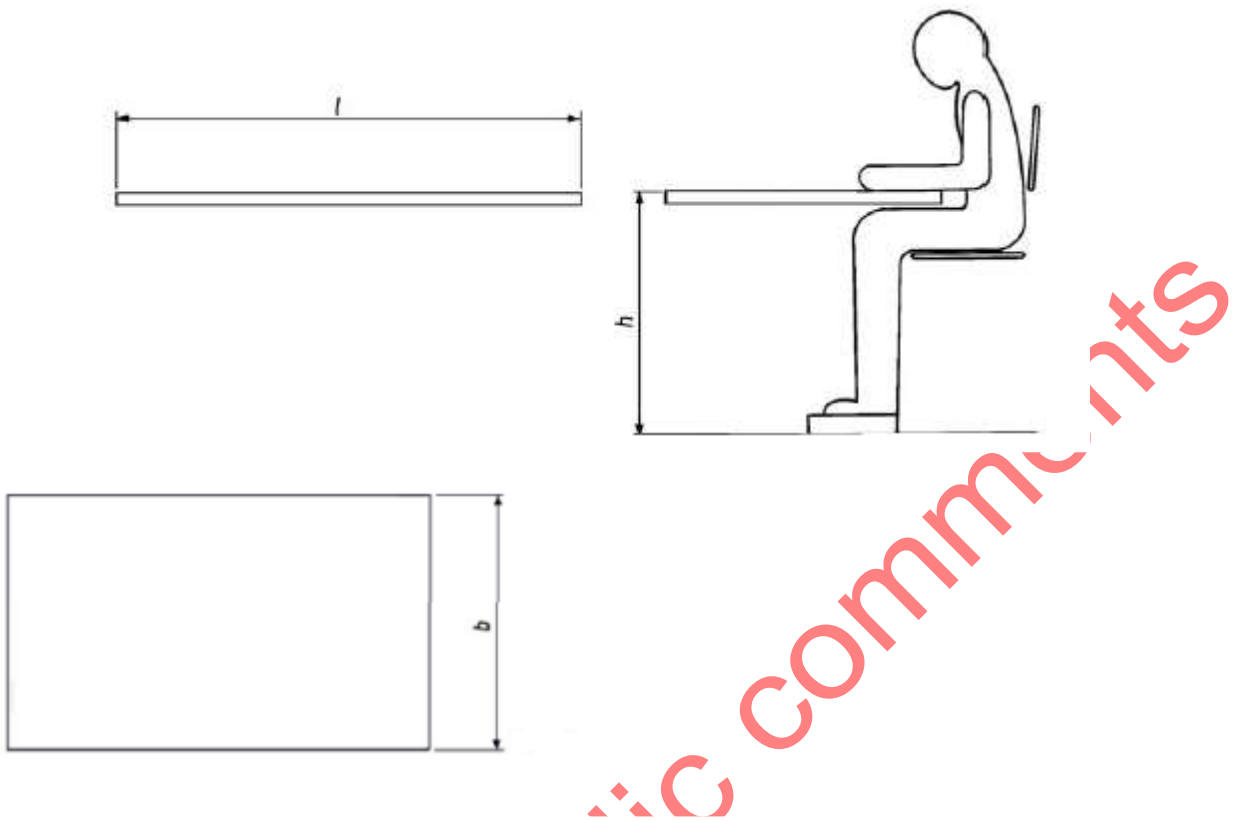
1	2	3	4	5
Dimensions mm				Angle °
h_1	h_2	l	b	α
725	1 200	600	500	0 – 30
Tolerances				
-7	+6	± 3	± 3	+2,5 (only on 30)

Figure 5(a) — Dimensions of A2 drawing tables



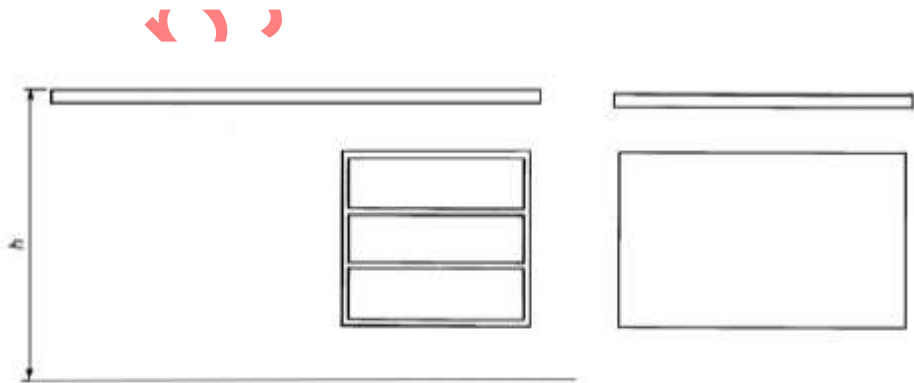
1	2	3	4	5
Dimensions mm				Angle °
h_1	h_2	l	b	α
725	1 200	1 200	650	0 – 30
Tolerances				
-7	+12	± 6	± 3	+2,5 (only on 30)

Figure 5(b) — Dimensions of A1 drawing tables



1	2	3	4
Type of table	Dimensions mm		
	h	l	b
Needlework	650	1 200	650
Arts and crafts	650	1 200	650
Nursery school	450	1 200	650
Tolerances			
	± 6	± 6	± 3

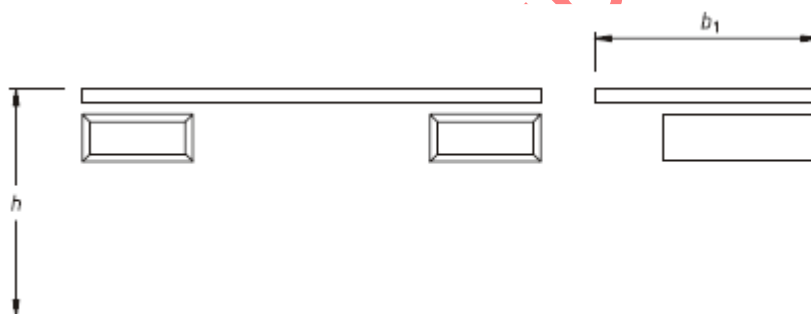
Figure 6 — Dimensions of needlework, arts and crafts, and nursery school tables





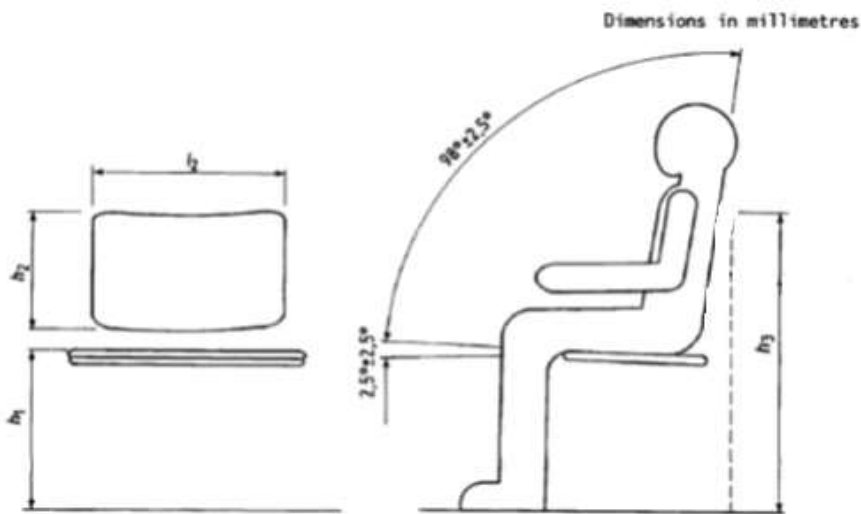
1	2	3
Dimensions mm		
<i>h</i>	<i>l</i>	<i>b</i>
725	1 220	760
Tolerances		
±7	±6	±4

Figure 7(a) — Dimensions of teachers' desks

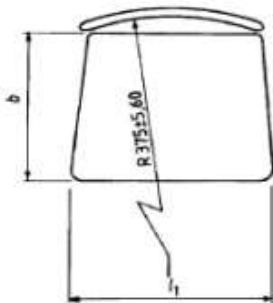


1	2	3
Dimensions mm		
<i>h</i>	<i>l</i>	<i>b₁</i>
725	1 500	900
Tolerances		
±7	±6	±8

Figure 7(b) — Dimensions of alternative teachers' desks



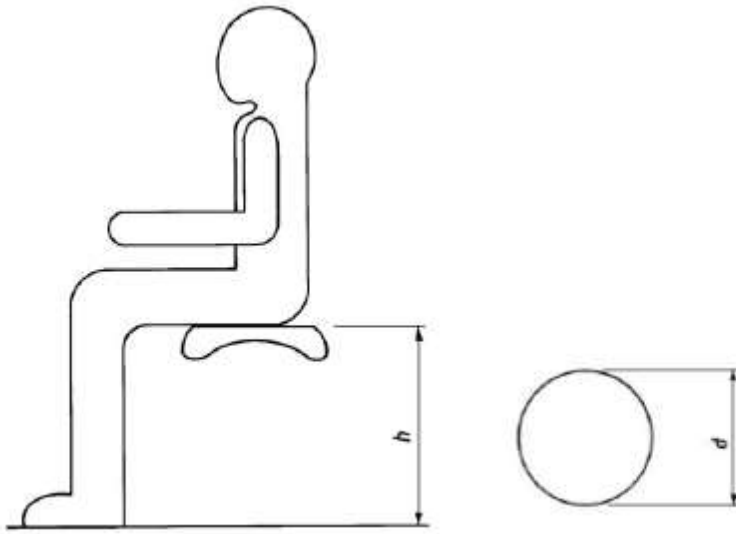
Dimensions



1	2	3	4	5	6	7
Size	Dimensions mm					
	h_1	h_2^*	h_3^*	l_1^*	b_2^*	b
A	300	175	575	300	250	265
B	325	175	600	300	250	265
C	350	175	617	310	290	290
D	375	175	660	350	300	325
E	425	175	750	400	350	375
	Tolerances					
	± 4	± 2	± 10	± 6	± 5	± 6

* Preferred dimension.

Figure 8 — Dimensions of chairs for general use



1	2	3
Size	Dimensions mm	
	<i>h</i>	<i>d</i>
A	380	285
B	460	285
C	600	285
D	700	285
Tolerances		
	± 7	± 3

Figure 9 — Dimensions of laboratory stools

Copy for

Public comments

Table 1: Seating (Dimensions in millimetres)

Identification	Size mark	0	1	2	3	4	5	6
	Age	3-4	4-5	6-7	8-10	11 -13	14- 18	Adult
Reference stature- average body height		900	1,050	1200	1350	1500	1650	1800
h_5 Height of seat ⁽²⁾ (tolerance ± 10)		220	260	300	340	380	420	460
t_4 Effective depth of seat ⁽³⁾ (tolerance ± 10)		--	260	290	330	360	380	400
b_3 Minimum width seat		--	250	270	290	320	340	360
W Reference point for β ⁽⁴⁾		--	160	170	190	200	210	220
h_6 Maximum height to bottom of backrest	max	--	120	130	150	160	170	190
	min	--	210	250	280	310	330	360
h_7 Height to top of backrest ⁽⁶⁾		--	250	280	310	330	360	400
b_4 Minimum width of backrest ⁽⁷⁾		--	250	250	250	280	300	320
r_1 Radius of front edge of the seat ⁽⁸⁾		--	30 to 50	30 to 50	30 to 50	30 to 50	30 to 50	30 to 50
r_2 Minimum radius of backrest ⁽⁹⁾		--	300	300	300	300	300	300
δ Angle of seat ⁽¹⁰⁾		--	0° to 4°	0° to 4°	0° to 4°	0° to 4°	0° to 4°	0° to 4°
β Inclination of back rest ⁽¹¹⁾		--	95° to 106°	95° to 106°	95° to 106°	95° to 106°	95° to 106°	95° to 106°

1) h_5 is measured to the highest point of the front of the seating area on the centre line.

W 2) t_4 is measured on the centre line of the seat plane from the front edge to a perpendicular line from reference point

3) For size 0, the identification colour and the height of seat only standardized.

4) h_5 is measured to the highest point of the front of the seating area on the centre line

W 5) t_4 is measured on the centre line of the seat plane from the front edge to a perpendicular line from reference point

6) W is the maximum height of foremost point of backrest.

7) Room for free movement of posterior in the writing position in the wrong should be ensured

8) h_6 and h_7 are measured on the centre line of the seat plane from the lowest part of the seating surface.

9) The upper and lower edge of the backrest should be well rounded.

10) r_1 is the approximate radius of the top surface, The curve need not be an exact arc of a circle.

11) r_2 is the radius of the backrest in a horizontal plane.

12) δ : the main part of the seating surface shall lie between the horizontal and a slope of 4° maximum, The seating surface may be flat or include dishing. Any dishing shall occur in the back two-thirds of the effective seat depth. The deepest part of dishing shall occur at the back part of the effective seat depth.

13) β is the angle between the horizontal and plane of the backrest between h_7 and W is not defined.

Table 2: Tables (Dimension in millimetres)

Identification	Size mark	0	1	2	3	4	5	6
	Age	3 -4	4 -5	6 -7	8 -10	11 -13	14 -18	Adult
Reference stature - average body height		900	1,050	1200	1350	1500	1650	1800
h_1 Height of top ^(2/3) (tolerance ± 10)		400	460	520	480	640	700	460
h_2 Minimum height of legroom ³⁾		--	350	410	470	530	590	400
h_3 Minimum height of knee zone		--	350	350	400	400	450	360
h_4 Minimum height of tibia zone		--	250	250	300	300	350	220
t_1 Maximum depth of top ⁴⁾		--	450	500	500	500	500	
b_1 Minimum length of top ⁴⁾	single table	--	600	600	700	700	700	190
	Double table	--	1200	1200	1300	1300	1300	360
b_2 Minimum width of knee zone		--	450	470	470	470	470	400
t_2 Minimum depth of knee zone		--	300	300	300	350	400	300
t_3 Minimum depth of tibia zone		--	400	400	400	400	450	400

- 1) h_1 : Table top surfaces specified in this Standard are national. However, should an inclined surface be required an inclination of 100 to 160 is recommended. The edge towards the pupil shall stay at approximately the same height as when the table is horizontal.
- 2) $h_1 - h_2$: If the shelf is provided within this zone, the opening should be not less than 60 mm high.
- 3) Table 2 gives the preferred sizes of the minimum depth and length of table tops. For standardization purposes it is recommended that these sizes be applied. However, if it is necessary to deviate from these sizes, the following incremental sizes should be used

Size b_1 : from 450 mm to 800 mm: 50 mm increment
 from 800 mm to 2 000 mm : 100 mm increment

Size t_1 : from 450 m to 1 200 mm : 50 mm increment

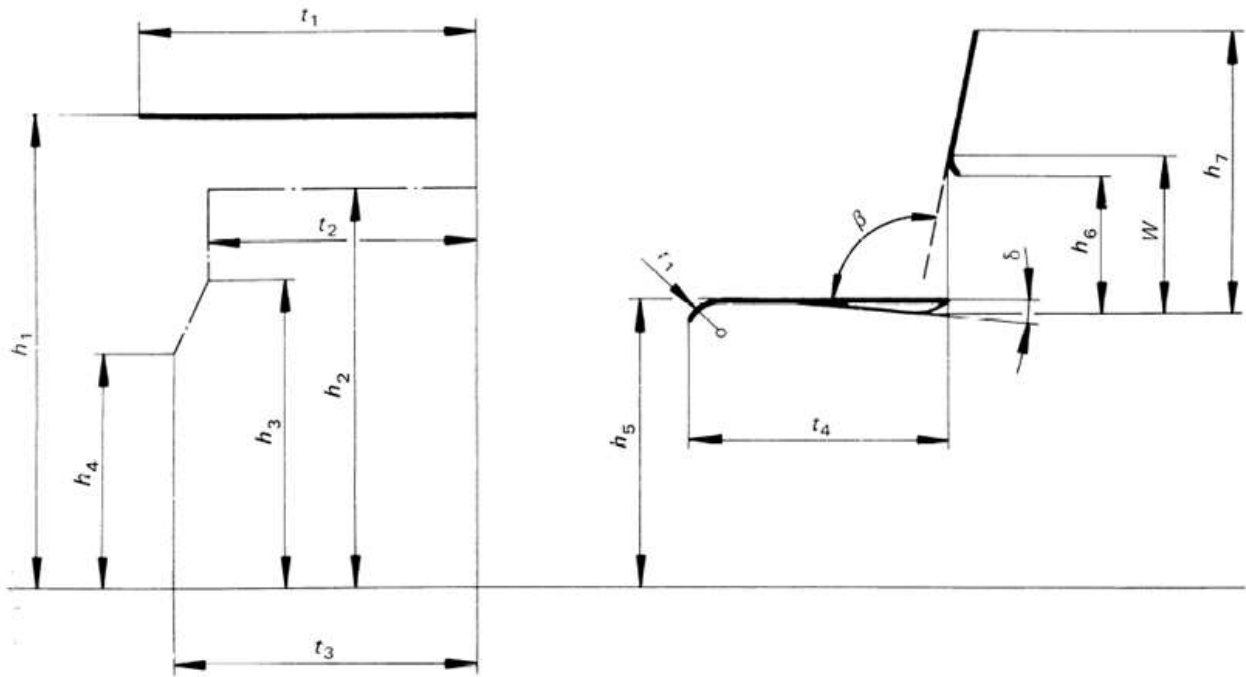


Figure 10: Dimensions in section

Copy for public

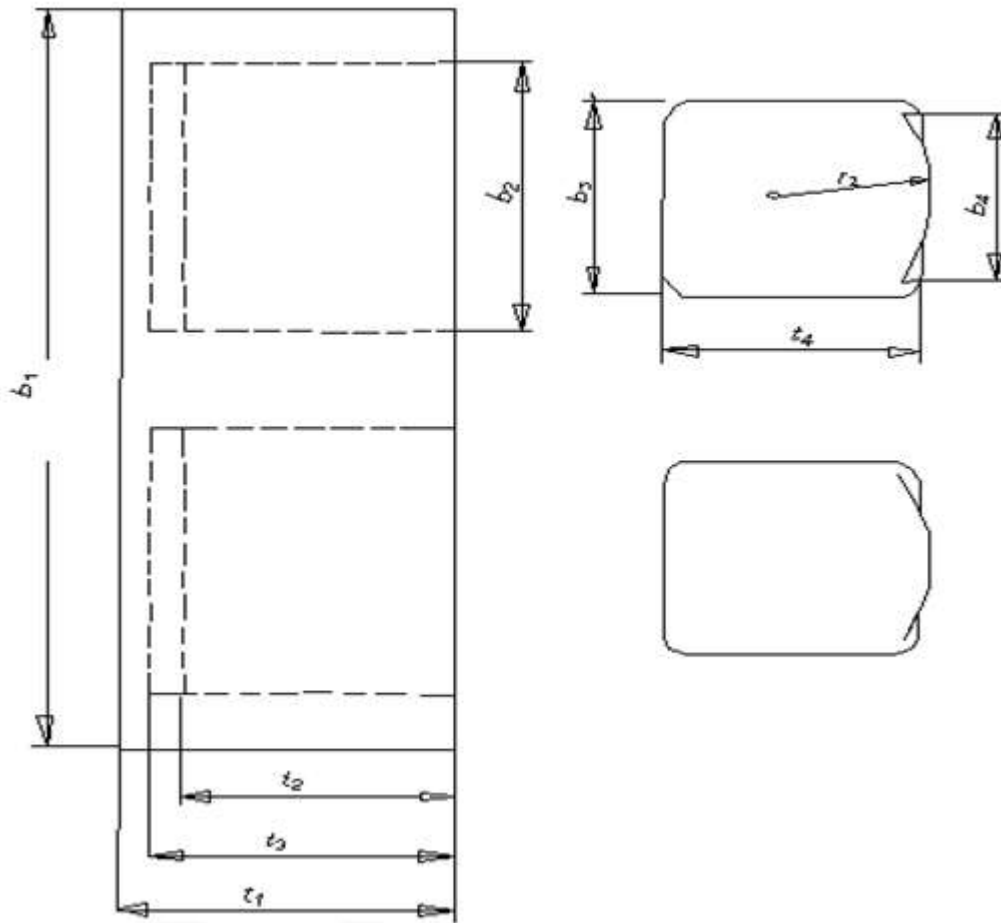


Figure 11: Dimension in plan

4.4 Appearance and surface finish

The appearance and finish of classroom furniture shall have no defects.

5 Performance requirements

5.1 Requirements for tables

Stability of tables shall be determined in accordance with principles outlined in ISO 7172.

5.1.1 Corners of table tops

Corners of table tops shall have a radius that conforms to that shown in figure 1.

5.1.2 Edges of table tops

Edges of table tops shall conform to the profile shown in figure 2.

5.1.3 Height and working angle of table tops

Tables shall either have different fixed heights as shown in figure 3 or, when so required, shall be adjustable in height and shall have acceptable locking mechanisms. Tops shall also be either in a fixed horizontal position or adjustable to other angles, as required, and in the case of adjustable tops, shall have acceptable locking mechanisms.

5.2 Single tables for general use

Single table meeting functional sizes illustrated in figure 3, shall be such that when tested:

- a) In accordance with 6.3, the horizontal displacement of the top from its original position does not exceed 5 mm,
- b) In accordance with 6.4, no deformation, gap, fracture or apparent loosening of a joint intended to be rigid develops,
- c) In accordance with 6.6, the recorded deflection does not exceed 0,5 mm per 0,1 m² of area of the top being tested, and
- d) In accordance with 6.7, no loosening of the top at any securing point is evident.

5.3 Dual tables for general use, typing tables and science tables

5.3.1 Dimensions

Dimensions of dual tables, typing tables and science tables shall be as given in figure 4.

5.3.2 Performance of dual tables

In addition to complying with the requirements of 5.2, a dual table shall be such that, when it is tested in accordance with 6.5, the table successfully withstands the static load and overbalancing forces applied.

5.3.3 Performance of typing and science tables

The requirements given in 5.2 shall apply.

5.4 Drawing table

5.4.1 Basic dimensions

The basic dimensions of drawing tables shall be as given in figure 5(a) or figure 5(b).

5.4.2 Additional requirements for design

Drawing tables shall be adjustable in height, the angle of each top shall be adjustable (when required) and an acceptable locking mechanism shall be provided for each adjustment system.

5.4.3 Performance of small drawing tables

The requirements given in 5.2 shall apply.

5.4.4 Performance of large drawing tables

In addition to complying with the requirements of 5.2, a large drawing table shall be such that, when it is tested in accordance with 6.5, the table successfully withstands the static load and overbalancing forces applied.

5.5 Needlework, arts and crafts, and nursery school tables

5.5.1 Basic dimensions

The basic dimensions of needlework, arts and crafts, and nursery school tables shall be as given in figure 6.

5.5.2 Performance

The requirements given in 5.2 shall apply.

5.6 Specific Requirements for Teachers' desks

5.6.1 Basic dimensions

The basic dimensions of teachers' desks shall be as given in figure 7(a) or figure 7(b).

5.6.2 Pedestals

Pedestals shall be either an integral part of the desk or shall be a removable unit that, when fixed in position within the frame of the desk, appears to be integral part of it.

5.6.3 Drawers

Drawer fronts shall be of acceptable solid hardwood, and the sides and backs shall be of either acceptable hardwood or acceptable softwood. The fronts, sides and backs shall be grooved for plywood or hardboard bottoms. The sides shall extend past the back for a distance of at least 75 mm, and one of the following systems of guides shall be provided:

- a) two hardwood guide beads to each drawer, so secured within the pedestal as to engage the grooves cut in each side of the drawer; or

b) two hardwood guide beads that are secured to the drawer bearers and that work against distance pieces (of minimum thickness 6 mm) secured to the bottom edge of the sides of the drawer; or

c) as in (b) above, but without distance pieces.

5.6.4 Performance

A desk shall be such that, when a drawer is tested in accordance with 6.8, the desk is capable of withstanding the test without becoming damaged or deformed.

5.7 Specific requirements for chairs and stools

5.7.1 Chairs for general use

5.7.1.1 Basic dimensions

The basic dimensions of chairs for general use shall be as given in figure 8.

5.7.1.2 Performance

A chair shall be such that

- a) when tested in accordance with 6.9 and 6.10, no spreading of the legs, damage to the frame or loosening of fasteners occurs, and
- b) When tested in accordance with 6.10, the shell shows no sign of permanent set, whitening or cracking.

5.8 Laboratory stools

5.8.1 Basic dimensions

The basic dimensions of laboratory stools shall be as given in figure 9.

5.8.2 Performance

A stool shall be such that when tested in accordance with 6.9 and 6.10 no spreading of the legs, damage to the frame or loosening of fasteners occurs.

6 Inspection and test methods for stability, strength and durability

6.1 Inspection

Visually examine and measure each unit in the sample for compliance with the requirements of the specification for which tests to assess compliance are not given in 6.3 to 6.10.

6.2 Sequence of tests

Carry out the applicable tests on each test specimen in the sequence in which they are given. Should a failure occur during the sequence of tests, deem the specimen concerned to be defective and no further tests need be performed on it.

6.3 Impact resistance test for desk and table tops

6.3.1 Apparatus

- a) A test rig that consists essentially of a frame structure to which the desk or table under test can be firmly secured to avoid movement, and a means of applying a vertical downward force of $1\,000\text{ N} \pm 10\text{ N}$.
- b) A piece of mass $25\text{ kg} \pm 1\text{ kg}$ to be suspended by means of a cord.
- c) Cord of reasonable strength to suspend at least 26 kg and length of at least 1 m to hold the mass piece referred to in (b) above.
- d) Felt of width and length each approximately 500 mm , and of thickness at least 10 mm .
- e) Chocks of suitable size to restrain the horizontal movement of the desk legs.

6.3.2 Procedure

- a) Place the desk or table in the test rig and restrain the horizontal movement of the legs by securing (in an acceptable manner) the chocks against the bottoms of the legs.
- b) Without disturbing the balance of the desk or table, apply a vertical force of $1\,000\text{ N} \pm 10\text{ N}$ to the top, and secure the top firmly to avoid movement during the test.
- c) Using the cord, suspend the mass piece $1\text{ m} \pm 0,01\text{ m}$ vertically above one end of the desk or table top.
- d) Place the piece of felt on the edge at the end of the desk or table top.
- e) Raise the mass piece through an arc that the cord makes an angle of 45° to the vertical, then release the mass piece and allow it to strike the felt.
- f) Subject each end of the desk or table top to 25 such impacts.
- g) Check for horizontal displacement of the top from its original position.
- h) Check for compliance with requirement 5.2(a).

6.4 Static load resistance test for single tables

Place the table in the normal position on a level surface and apply, for at least 1 min, a force of 500 N distributed over an area of 150 mm x 150 mm in the approximate centre of the table top. Check for compliance with requirement 5.2(b).

6.5 Static load resistance test for dual and drawing tables

For a period of 1 min, apply two forces, each of 500 N and each distributed over an area of 150 mm x 150 mm, at two points in the approximate centre of each half of the table top. Check for compliance with the requirements of 5.3.2 and 5.4.4.

6.6 Deflection resistance test for table tops

6.6.1 Apparatus

- a) A straight edge of length at least equal to that of the table.
- b) A feeler gauge or other acceptable means of measuring deflection.

6.6.2 Procedure

- a) Subject the table top to a force of 100 N applied perpendicularly to the centre of the surface.
- b) So place the straight edge across the table top that it rests on the edges of the table top.
- c) Measure the maximum vertical deflection between the table top and the lower surface of the straight edge.
- d) Record the deflection to the nearest 25 mm.
- e) Check for compliance with the requirement of 5.2(c).

6.7 Securing test for desk and table tops

Stand the desk or table upon a plane surface. Attach a mass piece of 20 kg \pm 0,1 kg to a leg. Using a suitable apparatus attached to the corner of the top nearest to the loaded leg, raise the end of the desk or table approximately 250 mm from the supporting plane, and lower to its original position. Repeat this operation 250 times, and check for compliance with the requirement of 5.2(d).

6.8 Drawer load test

With the desk in the normal working position, extend the drawer to the fully open position.

A drawer should be extended for at least 80 % of the travel of which it is capable, before the guides become disengaged place a mass piece of 25 kg \pm 1 kg on the middle of the top edge of the drawer front and, after a period of 1 min, remove the mass piece and examine the desk for compliance with the requirement of 5.6.

6.9 Backward tipping test for chairs and stools

6.9.1 Apparatus

A test rig capable of accommodating a chair or stool and allowing it to fall backwards freely through 90° onto a flat solid surface covered with high density foam rubber of nominal thickness 15 mm.

6.9.2 Procedure

- a) Attach the rear legs of a chair or stool, or in the case of a stool without a backrest, two adjacent legs to the test rig.
- b) Allow the chair or stool to so fall backwards from a point where it is just out of equilibrium onto the foam/rubber, that the chair's backrest or the edge of the stool's seat strikes the foam/rubber cushion.
- c) Repeat this operation 30 times.
- d) Examine the chair or stool for compliance with the requirements of 5.7.

6.10 Test for colour stability of thermoplastics shells and table tops

Use an acceptable colour stability test method and expose the specimen for 72 h. Then use the grey scale described in ISO 105-A02 for assessing the change in colour, and determine and record the light fastness rating of the specimen.

7 Marking

Each table, desk, chair and stool shall bear the following information in clear and legible marking and in a manner that will not impair the finish or strength (or both) of the article. On the underside of table tops or under the seat of chairs and stools there must be:

- 1) the manufacturer's name, trade name or trade mark;
- 2) the date of manufacture or the production batch identification number or letter.

Bibliography

- [1] DUS/1915, School Furniture-Specification, 2018
- [3] ISO 4470, Moisture content of timber (electric moisture-meter method)
- [4] ISO 2808, Paints and varnishes – Determination of film thickness
- [5] ISO 3668, Paints and varnishes – Visual comparison of the colour of paints.
- [6] ISO 12578, Timber structures - Glued laminated timber - Component performance requirements

Copy for public comments

Copy for public comments



ICS 97.140

©RSB 2019 - All rights reserved