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DRAFT CARICOM STANDARD

Specification for Wooden Furniture

Contents

Foreword

This Draft Caricom Standard was prepared by the **Regional Technical Committee (RTC) – Wooden Products, hosted by the CARICOM Member State, Guyana**.

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Specification for Wooden Furniture

1 Scope

This standard specifies the requirements for the materials, construction, workmanship and finish employed in the manufacture of wooden furniture.

2 Definitions

For the purpose of this standard, the following definitions shall apply:

2.1 **boxed heart:** When the heart is enclosed within the four surfaces of a hewn or sawn timber through its entire length and reasonably well centered at both ends.

2.2 **blue stain:** A bluish discolouration of the sapwood and growth root resulting from fungal infection.

2.3 **carcase:** The body, shell or frame of a piece of furniture exclusive of ornamentation doors or fittings.

2.4 **check:** A fissure or crack along the grain of the timber but which does not pass through from one face to the opposite or adjacent one.

2.5 **decay:** A disintegration of the wood substance due to action of wood-destroying fungi.

2.6 **defect:** Any irregularity occurring in, or on the timber, resulting in reduction of its quality.

2.7 **easy chair:** A single relaxing chair.

2.8 **edge veneering:** The fixing to an edge of a solid hardwood lip up to 6 mm thick.

2.9 **furniture:** The immovable equipment of a building, room etc e.g. table, chairs, beds, including mattresses.

2.10 **grain:** The general direction or arrangement of the fibres in wood.

2.11 **hardwoods:** Timbers of the broad-leafed tree species. The fine structure of hardwood timber is different (fibres and vessels) to that of the softwoods (tracheids).

2.12 **heartwood:** The inner part of the tree beneath the sapwood where the cells are no longer taking part in the growth process of the tree.

2.13 **knot:** Portions of branches embedded in the wood.

2.14 **kicker:** Strip of wood set above the drawer to prevent its tilting when opened.

2.15 **laminated wood:** An assembled product made up of layers of wood and adhesives in which the grain of adjacent layers is parallel.

2.16 **lipping:** The fixing to an edge of a solid hardwood lip at least 6 mm thick, tongued and grooved into the edge or by means of a high frequency bonding process.

2.17 **runner:** The supports of a drawer side on which the drawer slides.

2.18 **sapwood:** The outer layer of wood in a tree stem adjacent to the bark and playing an active part in the growth process of the tree.

2.19 **seasoning:** Process of reducing initial moisture content of timber to the required moisture content.

2.23 **sets:** A number of things that resemble one another or are usually found together.

2.20 **settee:** Two or three seater chairs.

2.21 **splits:** A separation of the wood due to the tearing apart of the wood cells.

2.22 **shake:** Separation of the wood fibers along the grain.

2.23 **split:** A separation of the fibres along the grain forming a crack or fissure extending through the piece from one surface to another.

2.24 **veneer:** A thin sheet of wood produced by rotary-cutting or slicing.

2.25 **webbing:** Strong, narrow, closely woven fabric designed for bearing weights.

3 Materials

3.1 Timber

3.1.1 Furniture shall be constructed of hardwoods with a density of 480-640 kg/m^3 at 8-15% moisture content.

3.1.2 Growth rings shall be between 5 and 20 per 20 mm measured at right angles to the ring system.

3.1.3 Timber shall be seasoned to a moisture content of 8-15%. Kiln drying and conditioning shall be effected in such a way that case hardening, honey-combing, bow, spring or twist do not occur.

3.1.4 For load bearing structural members, the slope of grain shall not diverge from the longitudinal direction of the member by more than 1 in 10.

3.1.5 Knots and knotholes shall be absent from load-bearing structural timbers. Sound knots may occur elsewhere provided that they are free from signs of decay, sound across the face, at least as hard as the surrounding wood and do not exceed 20 mm or $^1/_4$ the width of the face on which they occur, whichever is the smaller. Cluster or pin knots for decorative purposes may occur in nonload-bearing components. Dead knots are not acceptable.

The timber shall be free from checks; splits and shakes; boxed heart, exposed pith; dead, black or loose knots; knot-holes and wane. It shall also be free from signs of decay, and fungal or insect attack, but timber affected by "blue-stain" may be used in non-show wood for non-structural components. The timber shall be sound bright (that is, free from discolouration).

3.2 Plywood

Plywood shall be balanced construction, that is, shall contain either an uneven number of piles of thickness symmetrically disposed about the centre ply and the grain of adjacent piles at right angles or an even number of similarly disposed piles but with the grain of the middle two layers parallel. Facing plies shall be unjointed and shall be free from knots, surface irregularities, pinholes or patching.

Adhesives used in the construction of plywood shall be of at least interior (INT) type.

3.3 Laminated components

Laminated components and associated corewood where present shall not have defects such as knots, checks, splits, shakes or boxed heart.

3.4 Veneers

Veneers shall be free from visible defects or surface irregularities. Backing veneers may contain discoloration.

3.5 Blockboard

Blockboard shall be faced with grade one veneer and bonded with interior (INT) type adhesive.

3.6 Chipboard

Chipboard shall be of the flat pressed type and not the extruded type.

3.7 Dowels

Dowels shall be made of straight-grained hardwood and shall be multi-grooved lengthwise at an angle of 25^0 to their axes. The moisture content shall be 8 - 10 percent on the kiln dry weight basis.

3.8 Webbing

Webbing shall be made from flax, hemp or jute.

3.8.1 Rubberised webbing

Rubberised webbing shall contain a core of cords laid on the bias, that is, with warp and weft threads at an angle. It shall have a breaking strength of 14 newtons per mm of width. In the test, the distance between grips shall be 200 mm and the width of the specimen shall be the full width of the webbing. Rubberised webbing shall be used in accordance with the manufacturer's instructions.

3.8.2 Rubber webbing

Rubber webbing shall have a breaking strength of 20 Newtons per mm of width when tested as described in **3.8.1**. It shall be protected against premature degradation and shall be used in accordance with the manufacturer's instructions.

3.9 Hessian

Hessian cloth shall weigh 300 g per metre of 1 metre wide material.

3.10 Polyurethane foam

Flexible polyurethane foam shall have a density of 19 - 20 kg/m^3. Crumbed foam shall be well-bonded and shall be free from skin.

3.11 Flock for upholstery filling

Flock for upholstery filling shall not contain more than 1.8 percent soluble extractable matter.

3.12 Thread for upholstery

Sewing thread for upholstery shall have a breaking strength of 20 Newtons and shall be suitable for the upholstery fabric with which it is used.

Dyed thread shall have a colour fastness rating equal to that of the fabric with which it is to be used.

3.13 Adhesives

3.13.1 Adhesives do not stop wood movement. If the strength of the adhesive exceeds the strength of the wood fibers then the wood would fail around the adhesive joint. With this fact in mind, furniture manufactured shall be designed and manufactured to accommodate this wood movement. Composite boards are dimensionally more stable in length and width, but may be subject to variances in thickness as they absorb or loose moisture. The exposed edge of composite materials shall be sealed to protect against gradual deterioration from moisture absorption promoting fungal growth. Composite materials when joined to solid wood shall be considered in the same way as joining long grain solid wood to cross grain solid wood.

3.13.2 Adhesives shall consist of:

(a) phenolic or aminoplastic gap-filling or close-contact adhesive of at least moisture resistant (MR) type;

(b) polyvinyl acetate;

(c) urea formaldehyde;

(d) urethane; or

(e) hot melt adhesives for edge lipping of chipboard used in accordance with the manufacturer's instructions.

3.14 Spring wire

All springs shall be manufactured from hard drawn carbon steel wire and shall be given a low temperature heat treatment at 250 ^{0}C in order to relieve the stresses set up during cooling.

3.15 Hardware

All hardware fittings shall be corrosion resistant and shall be suitable for the purpose for which they are used.

4 Manufacture

4.1 Manufacturing requirements

The manufacturer shall ensure that all materials used in the manufacture of furniture comply with this standard and shall hold for inspection documentary evidence of such compliance. He shall have adequate facilities for the storage of materials and for manufacture of furniture in accordance with this standard.

4.2 Warranty

The manufacturer shall make good or replace without charge, any article or articles sold as complying with this standard, in which defects appear within one year for the furniture frame.

5 Cabinet furniture

5.1 General construction

The carcase of cabinet furniture shall be constructed using one of the following three methods of construction or a combination of these:

(a) frame;
(b) stool; or
(c) box.

The dimensions stated are minimum unless otherwise stated.

5.1.1 Framed construction

Frames shall be of solid hardwood of 45 x 18 mm in cross-section. The joints of the frame shall be mortised and tenoned, or dowelled. Cross rails of 38 x 16 mm hardwood shall be used if the area within the frame members is over 0.75 m^2 and 3 mm plywood is used as facing. Alternatively, if 5 mm plywood facing is used, the area shall be up to 1.1 m^2 without a cross rail.

Facings shall be of plywood or faced hardwood of 3 mm in thickness. Where frames are double faced, the closed spaces shall be ventilated. Where glass is used in panelling, the frame shall be of show wood. The glass shall be held in place by slips pinned or screwed to the frames. The adhesive used to attach facings to frames shall be polyvinyl acetate or urea formaldehyde type.

Components shall be jointed together by:

(a) knock-down fittings, 300 mm apart;
(b) trenching/housing in a component;
(c) pocket screws, 300 mm apart; or
(d) dowelling and gluing.

The length of screws used shall be such that when inserted, about half of its length is located in each component joined, but the point of the screw shall not come closer to the face than 6 mm.

The corners formed by the components shall be finished in such a way that the framing, if not of show wood, is covered by a lipping or edge veneer. Where facings meet at a corner, they shall be mitred to show a clean arris. Components forming lipped or veneered.

The edge of all plywood shall be covered with solid timber to conceal the edges. Apron pieces, mouldings, shaped tops or bottoms shall be supported all around.

5.1.2 Stool construction

Stool construction consists of four main corner posts to which rails are attached giving a rectangular framework.

The joints of legs to the frame or top shall be:

(a) mortice and tenon;
(b) bridle joint;
(c) halving joint;
(d) mitre joint;
(e) dowelled joint;
(f) housing joint;
(g) combed joint; or
(h) knock-down fittings.

For stool supports for carcases, the legs shall be joined securely to a base frame or shall form an integral part of the carcase or alternatively shall be securely attached to a specially strengthened part of the carcase. The size and cross section of the legs and rails shall be related to the type of furniture and to its end use.

Fixing of stool bases to carcases shall be by pocket screws, dowels or glue blocks.

5.1.3 Box construction

Box construction is used basically for carcase construction. It consists of wide boards jointed at the ends to form a rectangular box-like structure. Boards shall be:

(a) 20 mm solid timber;
(b) 16 mm chipboard;
(c) 16 mm blockboard; or
(d) 12 mm plywood.

Nails shall not be used for fixing the structural components together.

Fixed divisions shall not be housed into the face of chipboard unless dowelled or glued into position to compliment the joint, or by a suitable screw/fixture designed to hold into the chipboard.

Internal divisions shall be fixed to the outer shell in such a way that the strength of the sides of the carcase is not affected adversely.

Backs shall be grooved in, rebated and screwed or pinned and glued.

Unsupported backs of 0.75 m^2 in area shall be of 3 mm plywood or hardboard and unsupported backs of 1.1 m^2 shall be of 5 mm plywood. Backs of greater area shall be supported by muntins (hardwood reinforcing members) or by extruded metal H-sections.

Lipping of edges with wood shall be formed by:

(a) veneered on edge using 0.5 mm veneer; or
(b) hardwood lip glued to the edge.

5.2 Headboards

Headboards of bedsteads shall be of solid timber with a minimum of 18 mm thick or shall consist of single or double faced frames of 40 x 14 mm solid timber glued to 5 mm plywood. Where the frame is shaped, the rail shall be 40 mm at any place. Cross rails shall be spaced at 450 mm from centre to centre. The frames shall be mortised and tenoned, dowelled or tongued and grooved. Legs shall be 38 x 38 mm. Legs shall be attached to head boards by dowels or screwed and glued with at least 3 counter-sunk screws.

Rails, if of solid timber, shall be 100 x 25 mm and shall be attached to the legs by knock-down fittings. Rails for spring or upholstered bases shall have 38 x 25 mm timber screwed and glued to the inside of the rails to serve as a support for the spring or upholstered base.

Webbed frames shall be of 75 x 50 mm rails. Two U-bars of steel or two 50 x 50 mm hardwood rails, reduced in section to allow for depression of the mattress, shall be provided to hold the side rails apart.

5.3 Tables

5.3.1 Framing

The cross-section of legs for tables with no underframe shall be:

(a) 40 x 40 mm for table tops of area, less than 1 m^2;
(b) 45 x 45 mm for table tops of area, 1 to 1.5 m^2 ; and
(c) 55 x 55 mm for table tops of area greater than 1.5 m^2.

The cross-section of the frame rails for tables with no under-frame shall be 90 x 22 mm.

Rails of extendable tables shall be supported by corner braces or corner blocks. Tables fitted with drawers shall have rails 115 mm deep.

The height of tables shall be 750 mm.

5.3.2 Table tops

Solid timber table tops shall be connected to the frame by a method which permits lateral movement of expansion or contraction.

The thickness of table tops shall be:

(a) 18 mm for solid timber tops;
(b) 16 mm for plywood; or
(c) 18 mm for un-veneered chipboard.

Cross rails shall be used to support the top when the unsupported area of the top is over 0.75 m^2.

Tops shall be secured to the rails by screws.

Edges of plywood or chipboard table tops shall be edge-veneered with solid hardwood lips, 3 mm thick.

The thickness of table tops made from MDF boards shall be 16mm.

5.4 Components

5.4.1 Shelves

All loose shelves shall be reversible. Solid timber shelves of up to 900 mm long shall be 25 mm thick. Shelves 900 mm to 1200 mm long shall be 28 mm thick and longer timber shelves shall be provided with intermediate support.

5.4.2 Drawers

5.4.2.1 Front

Front drawers shall be of solid timber or plywood 12 mm thick, or of chipboard or MDF boards 16 mm thick.

5.4.2.2 Sides and back

For internal drawer area of:

(a) under 5 dm^2, 6 mm thick and of solid wood, or plywood;
(b) 5 to 16 dm^2, 9 mm thick solid wood or plywood; and
(c) over 16 dm^2, 12 mm thick solid wood or plywood.

If the side of the drawer is grooved to take a runner, the side shall be 12 mm thick and the depth of the groove shall be not greater than half the side thickness.

5.4.2.3 Bottom

For internal drawer area of:

(a) under 5 dm^2, 3 mm plywood or hardboard;
(b) 5 to 16 dm^2, 3 mm plywood or hardboard; and
(c) over 16 dm^2, 5 mm plywood or hardboard.

The bottom of drawers over 600 mm wide shall be reinforced with a central muntin (hardwood member) of 45 x 16 mm solid material grooved to give support to the drawer bottom.

Grooves shall be provided in the sides and front to retain the bottom in place. The depth of the groove shall be not more than half the thickness of the sides. Alternatively, drawers shall have the bottom grooved half way into a 9 mm fillet (hardwood strip) glued to the sides.

5.4.2.4 Joint

Drawer front joint shall disassemble from the side and shall not stop against any part of the carcase. Front to side joints shall be dovetailed, lock jointed, comb jointed or dowel jointed. Drawer face shall be glued and screwed on to the drawer case.

Back to side joints shall be dovetailed, lock jointed or comb jointed or the back shall be held in grooves of depth half the thickness of the sides, the grooves shall be 12 mm in from the back ends of the sides.

5.4.2.5 Kickers, runners and drawer block

Drawer glides shall be metal with nylon rollers or hardwood kickers, runners and drawer blocks resistant to wear. Kickers, runners and drawer blocks shall be of hardwood to resist wear. Runners underneath the drawer shall be of such thickness that will support fully the drawer sides and blocks. Inserted type runners shall project into grooves, not more than the thickness of the sides. They shall be pinned and glued, or screwed and glued to the carcase, and shall extend the full length of the drawer.

The depth of runners, whether below or grooved into drawer sides shall be:

(a) 6 mm for drawers of area under 5 dm^2;
(b) 12 mm for drawers of area from 5 to 16 dm^2; and
(c) 18 mm for drawers of area greater than 16 dm^2.

The wearing surfaces of runners and kickers and drawer sides shall be treated with wax or other suitable materials to improve the sliding properties.

5.4.2.6 Pulls or handles

Pulls or handles shall be of adequate strength and shall be either the sunken or plant-on type. Drawers of over 600 mm wide shall be provided with two-handed-grip, plant-on handles or continuous concealed grooves.

5.4.2.7 Stops

Stops shall be fitted on at each side of drawers within 50 mm of the corners at the front or at the back of the drawer.

5.4.2.8 Clearance

The clearance between the back of the drawer and the carcase shall be 25 mm unless this require the drawer to be more than 400 mm deep overall.

5.4.3 Doors and falls

The thickness of doors and falls shall be:

(a) 15 mm for chipboard of area 36 dm^2 and under;
(b) 18 mm for chipboard of area over 36 dm^2;
(c) 12 mm for plywood of area 36 dm^2 and under;
(d) 16 mm for plywood of area over 36 dm^2;
(e) 15 mm for blockboard;
(f) 20 mm finished thickness for double or single flush doors; or
(g) 18 mm for solid timber framed panelled doors.

Chipboard or MDF board if hinged on edge, shall be fitted with 12 mm lipping.

Three hinges shall be provided for doors of over 900 mm high. Alternatively, a single piano hinge shall be used for all doors in which case chipboard need not be lipped.

5.4.3.1 Closures

Doors over 1200 mm high shall be fitted with closure at the top and at the bottom, or one near the centre. Falls shall be similarly fitted with closures.

5.4.3.2 Sliding doors

Sliding doors shall be designed to have a height to width ratio of 9 : 5. The sliding mechanism shall operate smoothly. The bottom of doors shall be fitted with wear-resistant, smooth-running fitments, and the upper surface of the bottom frame shall be similarly fitted.

All unframed glass, such as for shelves, sliding doors or table tops shall be of 6 mm plate or float glass ground and polished on all edges.

5.5 Dimension of cabinet furniture

5.5.1 Wardrobes

Wardrobes shall have a clear internal depth of:

(a) 480 mm for face hanging of garments; and
(b) 530 mm for side hanging of garments.

They shall have a hanging height of 1500 mm, but for men's wardrobes so labelled, the hanging height shall be 1350 mm.

5.5.2 Chests of drawers and dressing tables

Chests of drawers and dressing tables of 900 mm wide and over shall have an internal depth of 430 mm and those less than 900 mm shall have a depth of 400 mm.

5.5.3 Bedsteads

The length provided for sleeping in all types of bedsteads shall have a minimum of 1930 mm and the width of the sleeping space shall be 900 mm.

6 Chairs

6.1 Construction

6.1.1 Dining chairs

6.1.1.1 Frame

In the construction of dining chairs, mortice and tenon joints or combed joints shall be used. In the side rail to back leg joint, mortice and tenon joints only shall be used. Dowel joints shall be used in the joint of side rail to front leg or in front and back rails, provided that a joint using three dowels can be achieved. The minimum side stretcher dimension shall be 85 x 22 mm without under frame and 65 x 22 mm with under frame.

If the chair legs are less than 625 mm^2 in cross-section an under frame shall be used, all round, but at least joining back to front legs. Where arms are provided, an underframe need not be included. If the chair legs are attached to one rail only, it shall be joined by a mortice and tenon joint which is pinned by a dowel at right angles to the joint.

Underframing connecting back and front legs shall be mortised and tenoned at both joints and shall be 560 mm^2 in cross-section.

6.1.1.2 Seat- drop in and covered type

The seat shall be constructed of 6 mm thick plywood or MDF board, of a dowelled frame having a cross-section of 48 x 16 mm. The gap between the seat and the chair frame shall not exceed 1.5 mm when the seat is in place.

Where a laminated seat is stuffed over, it shall be vented. All dining chairs except those with solid seats, shall have corner blocks which shall be fixed by rebating or by gluing and screwing or shall have gussets glued into grooves.

6.1.1.3 Seat- un-upholstered type

If the seat forms part of the fixed structure of the chair, it shall have 9 mm thick plywood, supported by rails. If edge jointed solid timber is used, it shall form part of the structure and the legs shall be fixed to it directly by dowelling or tenoning.

6.1.2 Easy chairs

Dowel joints shall be used for all joints, provided the height of the seat rails of the chairs is 350 mm. Where the seat rails are higher than this, the side rails shall be connected to the back by mortice and tenon joint. Rails holding the seating, shall be attached by a screw or nail.

All rails carrying springing or webbing shall be constructed from close-grained hardwood with good tack-holding properties at least comparable to beech or birch and shall be 35 x 22 mm in cross-section.

6.1.3 Settees

Timber for rails shall be 47 x 47 mm or 75 x 32 mm.

Dowel joints shall be used with three dowels. Where two dowels are used, they shall be situated at the top and the bottom of the rail. All joints shall be braced by corner blocks which shall be glued, or metal braces shall be used.

For settees over 900 mm wide, a cross rail having a cross-section of 75 x 32 mm or 48 x 48 mm shall be inserted at the centre of the base. The cross rail shall be so reduced in section as to allow for depression of the springing or webbing.

For settees wider than 1350 mm, at least two such cross rails similarly dipped shall be fitted and an extra pair of legs forming an integral part of the frame structure shall be provided.

All load-bearing rails shall be formed of beech or similar close-grained hardwood.

Arms on fully upholstered settees shall be planed and arises rounded to prevent wear on the filling and cover.

Backs shall form an integral part of the structure and shall be fixed at at least three points. Dowel or mortice and tenon joints shall be used throughout. The rails shall be 44 x 44 mm.

The section of bearing members at ground level shall be 38 x 38 mm.

6.2 Adhesives

In the construction of chair joints, a gap-filling urea formaldehyde adhesive shall be used in accordance with the manufacturer's instructions. Other adhesives shall be used provided it can be shown that they have equivalent properties of strength and durability.

6.3 Upholstering

6.3.1 General assembly

The edges of the front, arm and back frame shall be covered with 25 mm foam or with papercord or wadding to prevent wear of the covering.

Where loose cushions are used over serpentine or tension springs which damage cushion covers, a layer of felt with upholstery fabric quilted-on shall be attached to the webbing.

Arms shall be padded inside and on top. The covering materials on the inside arms of full upholstered settees shall be supported by webbing.

6.3.1.1 Webbing

Jute, hemp or flax webbing shall be attached to the frame at each end with five tacks, 12 mm long, and at least two of the tacks shall be driven through a double layer of the webbing. The webbing shall be stretched to the full limit practicable with a web strainer. Strips of fabric shall not be used as webbing.

The number of lengths of webbing used in any settee or chair seat shall be as follows:

(a) **Settees:** Twelve lengths of webbing from back to front and five end to end.

(b) **Easy chairs:** Ten lengths of webbing, five each way.

(c) **Spring-seated dining chairs:**

(i) **Slip-in type:** Two lengths of webbing each way; and

(ii) **Stuff-over type:** Three lengths of webbing each way.

6.3.1.2 Rubberised webbing or rubber webbing

Rubberised webbing or rubber webbing shall be used in accordance with the recommendation of the manufacturer, particularly in regard to the method of attachment, tensioning and spacing of strands.

6.3.2 Serpentine (no sag) springs

6.3.2.1 Fixing

Springs shall be attached from front to back rails, that is, transversely. All steel fixing clips shall be suitably insulated with fabric to eliminate metal-to-metal contact and prevent squeaks.

Brass clips shall be used without fabric insulation.

6.3.2.2 Number of dimensions of springs

The number and size of strands used in serpentine springing or any chair or settee shall be as follows:

(a) **Dining chairs:** A minimum of three strands, 2.95 mm shall be used. Strands need not be cross-clipped.

(b) **Easy chairs:** A minimum of five strands, 3.66 mm shall be used in the manufacture of seats and a minimum of four strands, 2.64 mm on the back.

(c) **Settees:** For settee seats, a minimum of twelve strands, 3.25 mm shall be used in the manufacture of any settee measuring 1400 mm between the arms. For each 125 mm of length below or above 1400 mm, the number of strands shall be reduced or increased by one. All strands shall be counter or cross-clipped.

For settee backs, a minimum of eleven strands, 2.64 mm shall be used in the manufacture of any settee measuring 1400 mm, between the arms. For each 125 mm of length below or above, the number of strands shall be reduced or increased by one. Strands are not required to be counter or cross-clipped.

6.3.3 Tension springs

6.3.3.1 Fixing of springs

Tension springs shall be fixed securely to ensure adequate strength and avoid damage to upholstery. They shall be continuous between points of fixing to frame and no metal extensions shall be substituted for any portion of the spring. The amount of stretch in a spring, when fixed, shall be between 38 and 50 mm.

6.3.3.2 Number and dimensions of springs

The wire used in tension springs for seats shall be at least 1.63 mm and for backs at least 0.91 mm.

The coil diameters of tension springs shall be:

(a) for seats, 12 mm when of 2 mm wire, and 9 mm when of 1.63 mm wire; and

(b) for backs, 9 mm when of 1.22 mm wire, and 6 mm when of 0.91 mm wire.

The number of tension springs used in any chair or settee shall be as follows:

(a) **Easy chairs:** For seats, at least 9 tension springs shall be used, but if the springs are attached to a steel frame, the number of springs shall be reduced to six for seats above 500 x 500 mm and under, or to eight for seats above 500 x 500 mm and up to 580 x 580 mm.

For backs, at least 8 tension springs shall be used, but if the springs are attached to a steel frame the number of springs shall be reduced to five.

(b) **Settees:** For seats, at least 21 tension springs shall be used for settees measuring 1200 mm between the arms. For each 150 mm of length below or above 1200 mm, the number of springs shall be reduced or increased by three.

For backs, at least 16 tension springs shall be used for settees measuring 1200 mm between the arms. For each 150 mm of length below or above 1200 mm, the number of springs shall be reduced or increased by two.

6.3.4 Spring cushion units

The minimum number of compression springs shall be as follows:

(a) **Open type units:** A minimum of twenty-four springs, 100 mm high x 2.34 mm shall be used in each open type unit; and

(b) **Bagged or pocketed units:** A minimum of thirty springs, 125 mm x 2.03 mm shall be used in each bagged or pocketed unit, either clipped or sewn.

6.3.5 Latex and polyurethane foam cushions

Latex or polyurethane foam units shall be 12 mm from the edge of the sewn cushion material, and the thickness of the foam units shall be the same as that of the sewn cushion boarders. Where rubberised hair is used in conjunction with latex or polyurethane foam, it shall be firmly attached with a recommended adhesive solution to each surface of the foam unit.

6.4 Dimensions

6.4.1 Dining chairs

The height of un-upholstered seats and of fully depressed upholstered seats shall be 430 to 460 mm.

6.4.2 Easy chairs

Easy chairs shall have a width of 460 mm and a depth of 495 mm.

6.4.3 Settees

The width of seat at the front excluding arms shall be at least 900 mm for two-seaters settees and 1350 mm for three-seater settees. The depth of the seating area of settees shall be 460 mm.

7 Workmanship and finish

7.1 Factory

The factory shall be clean, have provision for the removal of dust and chips, well-lighted and ventilated, and shall have adequate working area.

7.2 Machining

The machining of woods shall be precise and without defects. Special attention shall be directed to precise and careful execution of construction and joints. All furniture shall be free from direct saw marks or rough wood in places that are not normally visible. Planer marks, snipe or tear-out is not permitted.

7.3 Joints and gluing

All joints shall be close and without gaps. Joints shall be free from visible splittings, cracks or other defects as a result of joining. They shall be hand tight and well glued using a recommended adhesive and following any instructions provided by the manufacturer. All surplus adhesive shall be wiped off.

7.4 Veneering

The atmosphere of the space where veneering is done shall be free from dirt and dust. It shall be kept dry and draught-free.

All veneered man-made boards shall have a balancing veneer of similar weight with the grain running in the same direction. Joints in veneers shall be free from filler.

7.5 Finishing

The lacquering and sanding area shall be free from dust and dirt. All finished furniture shall be uniform in quality, clean and free from defects that will affect their appearance and or serviceability.

All external surfaces shall be free from sharp edges, burrs and other hazards. Furniture shall remain in a stable and upright position when empty with all drawers, doors and other movable parts fully extended and open. All polished glass and mirrors shall be clean, free of waves, bubbles, flaws and scratches.

8 Labelling

8.1 General requirements

8.1.1 All labels shall be prominently and conspicuously displayed. All required information shall be in legible, unambiguous English and be in a letter size of 2 mm in length.

8.1.2 All labels shall be securely affixed to the furniture by whatever method the distributor or retailer chooses. It shall be of such permanency as to remain on or attached to the product until the completion of sale to the consumer.

8.2 Detailed requirements

8.2.1 The label on furniture shall have the following:

(a) the common name or type of furniture;

(b) mark/code to distinguish the manufacturer;

(c) the country of origin;

(d) type of predominant material(s) which dictates the nature of the furniture, for example, type of wood;

(e) for upholstered furniture: The type of fabric, the type of material used for the frame and the filling;

(f) type of finish, for example, lacquer, varnish or paint; and

(h) precautionary note for general usage and care, for example : Do not scrape, scratch or scour", "clean with soap and water only", "protect from cosmetics and alcohol".

8.2.2 In addition to the above requirements, identify and state the number of pieces in a set.

When labelling sets, only one item in the set needs to be labelled, implying that this item is a representative sample of the lot.

8.2.3 When an upholstered item is said to be covered by a given material, for example: tapestry, velvet, cotton, leather, it is implied that the entire exposed surface is covered with the said material. If, however, any part of the exposed surface is not so covered, the type of the other material shall be clearly stated on the label.

9 Inspection

Furniture shall be inspected to determine compliance of materials, construction, workmanship and finish with the requirements of this standard.