

KENYA STANDARDS

**Furniture - Sofa Set (Couch or Settee) – Specification**

**KENYABUREAU OF STANDARDS (KEBS)**

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**TECHNICAL COMMITTEE REPRESENTATION**

The following organizations were represented on the technical committee.

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Directorate of Occupational Safety and Health Services (DOSHS)  
Galua Fabricators Ltd  
Kenya Industrial Research and Development Institute (KIRDI)  
Kenya National Federation of Jua Kali Association (KNFJKA)  
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**REVISION OF KENYA STANDARDS**

In order to keep abreast of progress in industry, Kenya Standards shall be regularly reviewed. Suggestions for improvements to published standards, addressed to the Managing Director, Kenya Bureau of Standards are welcome.

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## Furniture - Sofa Set (Couch or Settee) – Specification

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## Foreword

Kenya Bureau of Standards is a national standard body (NSB). The work of preparing Kenya Standards is normally carried out through national technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. National organizations, governmental and non-governmental, in liaison with KEBS, also take part in the work.

Kenya Standards are drafted in accordance with the rules given in the KS ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare National Standards. Draft Kenya Standards adopted by the technical committees are circulated to the technical committee members for balloting. Publication as a Kenya Standard requires approval by at least 2/3 of the members casting a vote.

A couch, also known as a sofa, settee, futon, or chesterfield (see history of the term below) is a piece of furniture for seating two or three people in the form of a bench, with armrests, which is partially or entirely upholstered, and often fitted with springs and tailored cushions. Although a couch is used primarily for seating, it may be used for sleeping. In homes, couches are normally found in the family room, living room, den, or the lounge. They are sometimes also found in non-residential settings such as hotels, lobbies of commercial offices, waiting rooms, and bars.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. KEBS shall not be held responsible for identifying any or all such patent rights.

This Kenya Standard was prepared by Technical Committee KEBS/TC 167, *Furniture*.

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

IS 3663: 1993: Dimensions of tables and Chairs for office purposes

The assistance derived from these publications is hereby acknowledged.

## Kenya Standard

### Sofa Set – Specification

#### 1 SCOPE

This Kenya Standard prescribes the requirements and test methods for Sofa Sets (also known as couch or settee).

#### 2 NORMATIVE REFERENCE

This Kenya Standard incorporates by dated or undated references, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter.

For dated references, subsequent amendments to or revisions of these publications apply to this Kenya Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

*ISO 7617-2:2003, Plastics-coated fabrics for upholstery — Part 2: Specification for PVC-coated woven fabrics*

*KS 1267-2, Pillows for domestic use — specification, Part 2: Synthetic-fibre filled*

*KS 376, Flexible polyurethane (polyether) foams - Specification - Part 1: Mattresses (Third Edition)*

*ISO 17076-1:2020, Leather — Determination of abrasion resistance — Part 1: Taber® method*

*ISO 17236:2002, Leather — Physical and mechanical tests — Determination of extension set*

*CD 030/SER/2020, Furniture — Code of Practice — Joints used in Wooden Furniture*

#### DEFINITION

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

##### 2.1

**couch** also known as a **sofa**, **settee** or **chesterfield**

is a piece of furniture for seating one or more people in the form of a bench, with or without armrests, that is partially or entirely upholstered, and often fitted with springs and tailored cushions. Although a couch is used primarily for seating, it may be used for sleeping

##### 2.2

**frame**

is usually made of wood, but can also be made of steel, plastic or laminated boards and most often than not gives shape, determines strength and by extension, durability of the sofa or couch or settee.

#### 3 TYPES

The types of couches shall be the one-, or more seater, designed for seating one, or more persons.

Note 1: A sectional sofa, often just referred to as a "sectional", is formed from multiple sections (typically two, three, and four) and usually includes at least two pieces that join at an angle of 90 degrees or slightly greater, used to wrap around walls or other furniture.

Note 2: Other variants include the divan, the fainting couch (backless or partial-backed) and the canapé (an ornamental three-seater). To conserve space, some sofas double as beds in the form of sofa beds, daybeds, or futons.

**4 REQUIREMENTS**

**4.1 MATERIALS**

**4.1.1 General**

A couch shall consist of the frame, the padding and the covering or upholstery.

Note: This shall not be applicable to the bench.

**4.1.2 Frame**

The frame shall be made of wood or steel, plastic or boards.

The wood used under the upholstery shall be made from dry wood that is free of defects and shall meet the requirements in table 1 below.

Frame performance shall be tested in accordance with Annex A.

Table 1. Physical and mechanical properties of wooden sofa set frame

| <b>Moisture content (%)</b> | <b>Density (g/cm<sup>3</sup>)</b> | <b>Tension strength (N/mm<sup>2</sup>)</b> | <b>Compression strength (N/mm<sup>2</sup>)</b> | <b>Shear strength (N/mm<sup>2</sup>)</b> | <b>Bending strength (N/mm<sup>2</sup>)</b> |
|-----------------------------|-----------------------------------|--|--|--|--|
| 7.5-10.5                    | 0.58-0.65                         | 10.9-130                                   | 16.5-80  | 5.5-10.5                                 | 32.8-130                                   |

**4.1.3 Show wood**

The show wood of the legs, arms and back shall be suitable meeting requirements in table 1.

**4.1.4 Padding**

Sofa padding shall be made from foam, fibers, down feathers or a combination thereof meeting the requirements of KS 376.

If fiber cushions are used, then they shall conform to the requirements of KS 1267-2.

**4.1.5 Upholstery/coverings**

**4.1.5.1 General**

Sofa coverings shall be made out of soft leather, corduroy or linen fabric coverings or specialist reticulated foam (for outdoor sofas).

**4.1.5.2 Reticulated foams**

Due to its highly advanced open cellular structure, the upholstery shall have water freely pass through it making it highly resistant to soaking and shall conform to the requirements of KS ISO 8873 Parts 1 and 2.

**4.1.5.3 PVC-Coated type (“PU leather” or “resin”)**

If the upholstery is of the PVC-Coated type (“PU leather” or “rexin”) then it shall meet the requirements of KS ISO 7617 Parts 1, 2 and 3.

**4.1.5.4 Leather**

If leather upholstery, it shall conform to the requirements of KS ISO 17076 Part 2 and KS ISO 17236.

**4.2 Dimension(s)**

The general dimensions for a single sofa shall be as shown in figure 1 below.

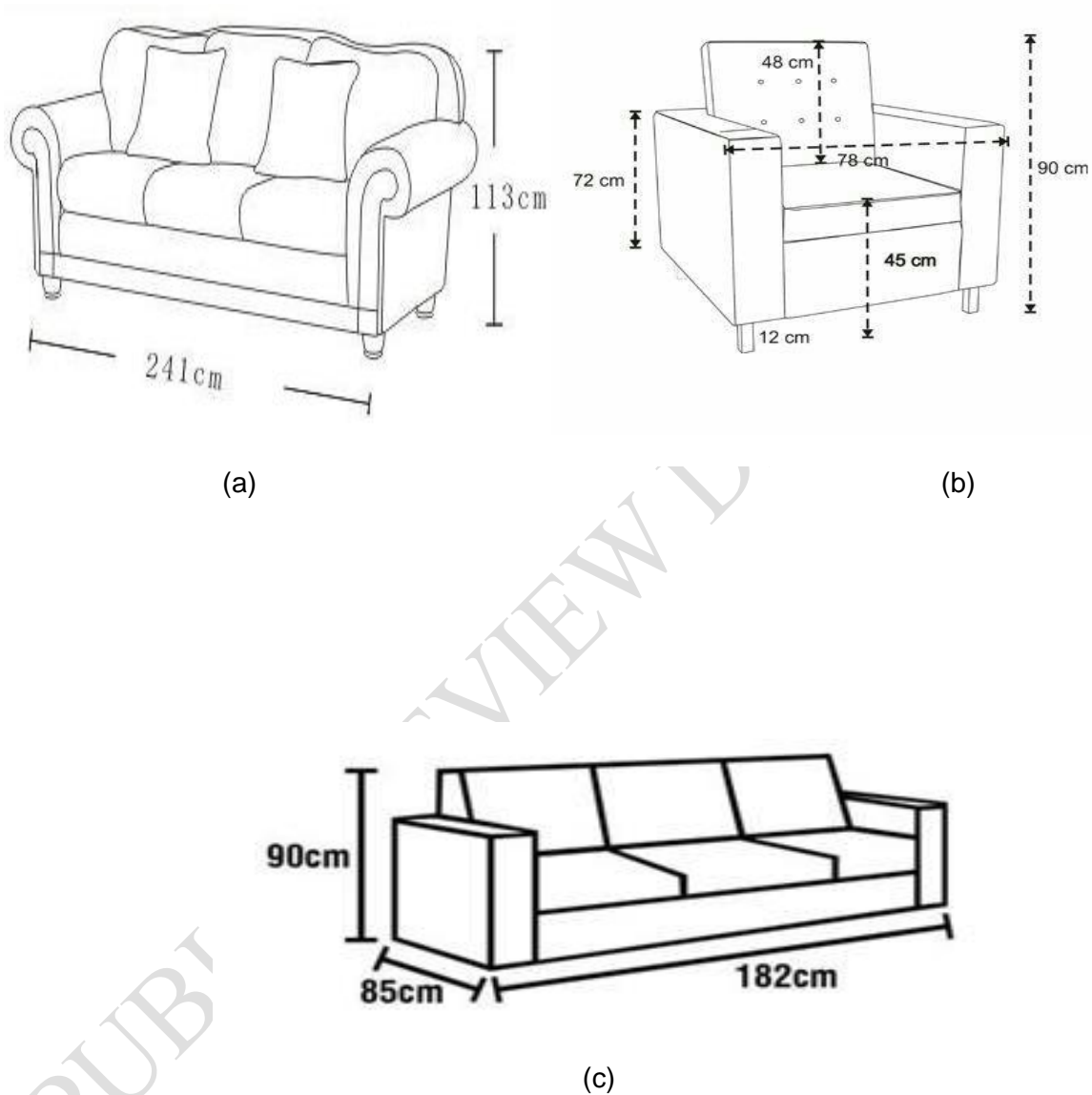


Figure 1: Schematic diagram for (a) Single seat, (b) double or two-seater and (c) three-seater settee or couch or sofa set.

**4.3 Joinery**

The settee joints shall be grooved beech dowels or tongue-and-groove joints in accordance to principles of CD030/SER/2020.

Note. CD030/SER/2020 under development

**4.4 Adhesives**

**4.4.1** Polyvinyl acetate adhesive shall be used to reinforce the joints of the frame wherever necessary. Polyvinyl acetate adhesives are preferred because of their cold applicability, easy spread, rapid drying, scentlessness and fireproof nature.

**4.4.2** The adhesive shall meet the requirements in table 2;

| SL | Characteristics | Requirements          |
|----|-----------------|-----------------------|
| 1  | Density         | 1.1 g/cm <sup>3</sup> |
| 2  | Viscosity       | 160-200 cps           |
| 3  | pH              | 5.00                  |
| 4  | Ash rate        | 3 %                   |

**4.5 Suspension System**

**4.5.1 General.** The suspension system determines the bounce in the cushions, and how they support your weight when you sit on them. The differing degrees of pressure your body puts on the cushions causes the coils to respond, giving what is known as “ride”.

**4.5.2 8-Way hand-tied Springs System**

The Gold Standard shall be the labor-intensive, 8-way hand-tied spring system. Each spring shall be set into the deck webbing and attached, with various spring rates depending on what portion of the seat deck its located. They are then tied together (8 strings per piece) and knotted at each juncture not looped.

**4.5.3 The sinuous spring – or S – system**

Sinuous springs are “S” shaped and run from the front of the seat to the back. These springs are supported by additional wires that cross from side to side. The S springs lack the localized response of a coil system but gives a firm ride that some people prefer, and it has less potential for sagging over time.

**5. Labelling**

The following information shall indelibly and legibly marked on each sofa set (couch or settee) by the manufacturer;

- a) Country of origin
- b) Name and address of the manufacturer;
- c) Registered Trade Mark
- d) Suspension system.



**Annex A**  
(normative)  
**Test for the performance of the frame**

**A.1 Preparation of test samples**

Frame members shall be made to the specification shown in table A.1 below.

Table A-1. Measurements of the members of sofa frames (mm)

| Member     | Length | Width | Thickness |
|------------|--------|-------|-----------|
| Stump      | 532    | 70    | 18        |
| Back post  | 800    | 70    | 18        |
| Arm        | 602    | 70    | 18        |
| Side rail  | 564    | 70    | 18        |
| Side slat  | 564    | 70    | 18        |
| Front rail | 550    | 70    | 18        |
| Back rail  | 550    | 70    | 18        |
| Top rail   | 550    | 70    | 18        |

A.1.1 Grooved beech dowels shall be utilized in the joints, and the diameter of the dowels shall be 8 mm while the length of the dowels shall be 40 mm.

A.1.2 Horizontal and vertical drill presses shall be utilized for the dowel holes. Dowel hole centers are drilled at a point 16 mm from the edges symmetrically, and to the center of the thickness of the members from the faces. The distance between centerlines of two dowels shall be 38 mm. The depth of the embedment of the dowels in the edge shall be 27 mm, and the depth of the embedment of the dowels in the face to be 13 mm. In the other words, penetration of the dowels shall be 13 mm.

A.1.3 Assembling procedure of the sofa frames shall be performed in two phases; The side frames of the sofa to be constructed first (sub-assembly); afterwards, the side frames shall be combined to the front, back, and top rails and assembly of the whole sofa frames constituted.

A.1.4 In the gluing process, glue is spread over the dowels and intersection surfaces, approximately with  $150 \pm 10$  g/m<sup>2</sup>. In the pressing process, the sofa frames are maintained for 2 hours by applying pressure to the joints.

A.1.5 All sofa frames shall be stored in a chamber with the conditions of temperature of  $20 \pm 2$  °C and relative humidity of  $65 \pm 5$  percent for two months.

A.1.6 Measurements of the gravities shall be made with an analytic weighing machine with a sensitivity of 0.01. The moisture content is finally calculated.

**A.2 Performance Tests**

A.2.1 Tests are carried out on a 30 kN capacity "Seidner Bending Machine". Static loading rate is adjusted to 6 mm/min. Sofa frames are tested according to the principles of KS ISO 7174-1 by applying both seat and backrest loads which the sofa can be imposed upon in service (Figure 2).

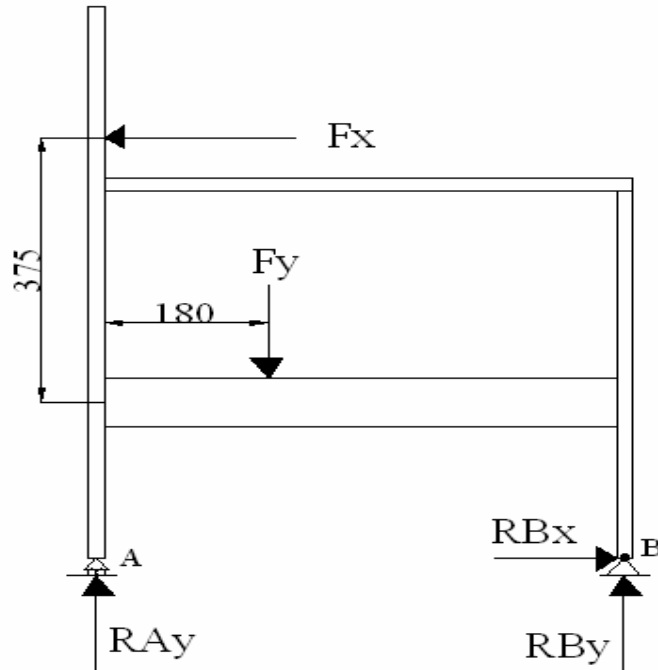


Figure 2. Applying the seat and backrest loads

**A.2.2** Seat load ( $F_y$ ), a constant value of 85 kgf (833 N), is applied to the sofa, backrest loading ( $F_x$ ) was continued from the coordinate points as shown in Figure 2 until a failure or full separation occur in the joints or members of sofa frame.

### A.3 Procedure

Required physical and mechanical properties for structural analysis of the wood and wood composite materials used in the tests shall be evaluated in accordance with the procedures described in ASTM D 1037 standard.

### A.4 Results

In the tests, the ultimate failure loads are recorded in Newton (N).