DRAFT TANZANIA STANDARD

Wood-based panels – Plywood – Blockboards and battenboards

TANZANIA BUREAU OF STANDARDS

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0. National Foreword

The Tanzania Bureau of Standards is the statutory national standards body for Tanzania, established under standards Act No. 3 of 1975, amended by Act No. 2 of 2009.

This draft Tanzania Standard is being prepared by BCDC 6 Sawn timber, logs and wood-based components Technical Committee under the supervision of the Building and Construction Divisional Committee (BCDC).

This draft Tanzania Standard is an identical adoption of the 1st Edition of International Standard ISO 13609: 2014 *Wood-based panels – Plywood – Blockboards and battenboards*.

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

Terminologies and conventions

The text of the International Standard is hereby being recommended for approval without deviation for publication as draft Tanzania standard.

Some terminologies and conventions are not identical with those used in Tanzania Standards; attention is drawn to the following;

The comma has been used as a decimal marker for metric dimensions. In Tanzania, it is current practice to use a full point on the baseline as the decimal marker.

Whenever the words “ISO Standard” appear referring to this standard, they should read as “Tanzania Standard”.

This standard of the International Organization for Standardization (ISO) was approved for publication as a Tanzania Standard with the following editorial changes:

a) deletion of informative preliminary material from the adopted International Standard
b) inclusion of national informative material (National foreword, terminologies and conventions)
c) deletion of the translation text in French to retain English language which is the official national language
d) changes in document layout (pagination, font type and size)

Wood-based panels — Plywood — Blockboards and battenboards

1. Scope

This draft Tanzania Standard establishes requirements for the specifications of blockboards and battenboards for general use, in dry, tropic dry/humid, and high-humid/exterior conditions. It includes requirements of materials, lay-up, physical and mechanical properties, bonding quality, formaldehyde release, conformity verification, and marking.

The values listed in this draft Tanzania Standard relate to product properties, but they are not characteristic values to be used in design calculations.

2. Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC Guide 65*, General requirements for bodies operating product certification systems*

ISO/IEC 17065*, Conformity assessment— Requirements for bodies certifying products, processes and services*

BCDC 6 (53) CD2/ISO 1954, *Plywood — Tolerances on dimensions*

BCDC 6 (51) CD2/ISO 2074, *Plywood — Vocabulary*

BCDC 6 (58) CD2/ISO 2426-2, *Plywood — Classification by surface appearance — Part 2: Hardwood*

BCDC 6 (59) CD2/ISO 2426-3, *Plywood — Classification by surface appearance — Part 3: Softwood*

ISO 9426*, Wood-based panels — Determination of dimensions of panels*

ISO 12460-1, *Wood-based panels — Determination of formaldehyde release — Part 1: Formaldehyde emission by the 1-cubic-metre chamber method*

ISO 12460-3, *Wood-based panels — Determination of formaldehyde release — Part 3: Gas analysis method*

ISO 12460-4*, Wood-based panels — Determination of formaldehyde release — Part 4: Desiccator method*

BCDC 6 (60) CD2/ISO 12465, *Plywood — Specifications*

ISO 12466-1*, Plywood — Bonding quality — Part 1: Test methods*

BCDC 6 (67) CD2/ISO 12466-2*, Plywood — Bonding quality — Part 2: Requirements*

ISO 16978, *Wood-based panels — Determination of modulus of elasticity in bending and of bending strength*

ISO 16979*, Wood-based panels — Determination of moisture content*

ISO 16999, *Wood-based panels — Sampling and cutting of test pieces*

ISO 18775, *Veneers — Terms and definitions, determination of physical characteristics and tolerances*

3. Terms and definitions

For the purposes of this document, the terms and definitions in BCDC 6 (51) CD2/ISO 2074, BCDC 6 (60) CD2/ISO 12465, and ISO 18775 and the following apply.

3.1 Core strip

Individual wood pieces with rectangular cross section which are assembled to form the solid core

4. Material requirement

4.1 Requirements for veneer

The following requirements apply to veneer at the time of pressing.

4.1.1 Wood species

Any wood species is permitted.

Veneers shall be identified according to the species, species group, or mechanical properties.

When veneers of different species are used to form a layer, these veneers shall be of similar mechanical and physical properties.

4.1.2 Thickness

The thickness (t) of veneer shall be 0.55 mm ≤ t ≤ 6.0 mm. When veneers are used to cover a core, the thickness of veneers adjacent to the core shall not be less than 1.5 mm.

4.1.3 Surface appearance

The surface appearance of veneer shall be controlled.

Surface appearance of the face layer shall satisfy the criteria defined for class II, as given in TABLE 1 in BCDC 6 (58) CD2/ISO 2426-2 or in TABLE 1 in BCDC 6 (59) CD2/ISO 2426-3. Back layer shall not be more than 2 classes inferior to the face layer. If required, veneer classification of other layers shall be carried out in accordance with the limitations defined in Annex A of BCDC 6 (60) CD2/ISO 12465.

4.1.4 Joint

Veneers jointed in width are allowed. If there is a joint in length, it shall be bonded as finger jointing or scarf jointing. End joint is not permitted on face ply.

4.1.5 Direction

The grain of the veneer directly applied on the core strip shall be perpendicular to the grain of the core.

4.2 Requirements for plywood

The following requirements apply to plywood at the time of pressing.

4.2.1 Wood species

Any wood species is permitted.
Plywood used for face and back layer shall be of similar mechanical and physical properties.

4.2.2 Thickness

The thickness of plywood shall be greater than or equal to 3.0 mm.

4.2.3 Surface appearance

The surface appearance of plywood shall be controlled.

Surface appearance of the face layer shall satisfy the criteria defined for class II, as given in Table 1 in BCDC 6 (58) CD2/ISO 2426-2 or in TABLE 1 in BCDC 6 (59) CD2/ISO 2426-3.

4.2.4 Joint

Jointed plywood is not permitted when used for surface layers.

4.2.5 Direction

The direction of the grain of the veneer glued to the core shall be determined by considering the veneer lay-up of the plywood.

4.3 Requirements for core strip

4.3.1 Species

Within a panel, all strips should be made from the same species. If there are more than one species, similar physical property is required. Otherwise, there shall be an agreement between involved parties.

4.3.2 Dimensions

For the blockboard, the width (w) of the strip shall be 7 mm ≤ w ≤ 30 mm. For the battenboard, the width (w) of the strip shall be 30 mm < w ≤ 76 mm. There is no limitation for strip length.

The thickness of each strip should not be less than 8.0 mm within a tolerance of ± 0.1 mm.
Each piece of core strip shall be sized in thickness, individually or after assembly into the core plate.

The ratio of width to thickness of each strip should not exceed 3.5.

4.3.3 Quality of core strip

Each piece of core strip shall meet the quality requirements as follows:

a) for sound knot, the maximum of diameter shall not exceed 25 mm or 80 % of the width of the strip, whichever is lesser;
b) for intergrown knot or encased knot, the maximum diameter shall not exceed 15 mm or half of the width of the strip, whichever is lesser;
c) for gum pocket, resin pocket, and bark pocket, the width shall not exceed 3 mm;
d) for want or wane, the width shall not exceed 5 mm on the core face and the length shall not exceed 20 mm.

4.3.4 Moisture content

Moisture content of the core strip shall be between 8 % and 12 % at the time of assembling.

4.4 Requirements for core strip assembly

4.4.1 Direction of core strip

The length direction of the strip shall be parallel or nearly parallel to the long edge of the board.

4.4.2 Jointing assembly in the length direction of core strip

For jointed strip,the following criteria shall be satisfied:

a) any joint seam shall not be wider than 1 mm;
b) the distance between any two adjacent seams shall not be less than 50 mm;
c) for finger jointing or scarf jointing, the slope of the scarves shall not be steeper than 1 in 8.

4.4.3 Jointing assembly in the width direction of core strip

In width direction, the core strips could be glued or unglued and the following criteria shall be satisfied:

a) gap between solid wood strips shall not exceed 1.5 mm;
b) in any 1 000 mm in the width direction of core strip, the sum of gaps shall not exceed 6 mm.

4.4.4 Thickness and tolerance

Determination of thickness and tolerance of the core plate shall be carried out in accordance with ISO 9426 and BCDC 6 (53) CD2/ISO 1954.

4.5 Adhesives

Except the adhesive used for bonding core strips in width direction, the adhesive used for combination with the veneers, plywood, and core shall provide the board performance necessary to satisfy the requirements for bond type as specified in Clause 7 in this standard.

Bonding strength and durability of the adhesives applied to finger jointing and scarf jointing veneers and strips shall not be inferior to the criteria defined above. Any glue failure is not permitted in transverse modulus of rupture test.

5. Panel lay-up and manufacturing requirements

The lay-up shall be controlled, including the thickness, orientation, wood species, and quality of veneers.

NOTE Any other characteristics can be required and added as in contract, if necessary.

6. General requirements

6.1 Dimensions and tolerances

Unless stated otherwise by the manufacturer, dimensions of blockboard or battenboard are determined in the conditions given in ISO 9426, and tolerances applied in the conditions given in BCDC 6 (53) CD2/ISO 1954.

6.2 Classification by surface appearance

If required, classification by surface appearance shall be carried out in accordance with BCDC 6 (58) CD2/ISO 2426-2 and BCDC 6 (59) CD2/ISO 2426-3.

6.3 Requirements of physical and mechanical properties

6.3.1 Moisture content

Sampling and cutting of test pieces shall be carried out in accordance with ISO 16999.

Determination of moisture content of board shall be carried out in according with ISO 16979.

Unless specified otherwise, moisture content of blockboard and battenboard shall be between 8.0 % and 14.0 % when dispatched from the factory.

6.3.2 Mechanical properties

If required, the modulus of elasticity in bending and bending strength in both panel directions shall be provided in accordance with ISO 16978.

7. Bonding quality

The bonding quality shall be established by testing in accordance with the requirements of ISO 12466-1 and classified in accordance with BCDC 6 (67) CD2/ISO 12466-2.

a) for blockboards and battenboards used in dry conditions, the bonding quality shall comply with the requirements of bonding class 1 of BCDC 6 (67) CD2/ISO 12466-2;
b) for blockboards and battenboards used in dry/humid conditions, the bonding quality shall comply with the requirements of bonding class 2 of BCDC 6 (67) CD2/ISO 12466-2;
c) for blockboards and battenboards used in high-humid/exterior conditions, the bonding quality shall comply with the requirements of bonding class 3 of BCDC 6 (67) CD2/ISO 12466-2.

8. Formaldehyde release requirements

Determination of formaldehyde release shall be carried out in accordance with ISO 12460-1 as the reference method, and ISO 12460-3 or ISO 12460-4 for factory production control.

NOTE If factory production control methods are employed to determine formaldehyde release, a correlation between the utilized method and the1-cubic meter chamber method as in ISO 12460-1 shall be established.

TABLE 1 — **Limit of formaldehyde release**

Characteristic	Test method	Requirement
Formaldehyde release	ISO 12460-1	≤ 0.124 mg/m^3

9. Other characteristics

Other characteristics, such as reaction to fire, insect resistance, and fungi resistance, can be determined and expressed to the corresponding national standards or regulations, if necessary.

10. Conformances

a) Blockboards and battenboards conforming to this standard shall be manufactured under a quality system which includes factory production and quality control with internal auditing.
b) External auditing of the factory quality control.

NOTE The bodies certifying the quality-control system should follow the requirements of ISO/IEC 17065:2012 or ISO/IEC Guide 65:1996

11. Marking, identification, and documentation

The marking and the accompanying information shall be placed on the product itself, on a label attached to it, on its packaging, or in the accompanying commercial documents with the following information:

a) the reference to this standard;
b) the name (or logo) or code of the manufacturer;
c) species, or mechanical/structural property identifications;
d) the bonding class;
e) the formaldehyde release;
f) reference to the quality system;
g) the nominal dimensions, in millimetres; and optionally
h) the quality label and the certification body (if any);
i) the batch number, or the production week and year;

j) the adhesive type.

NOTE Further documents, if required, will be provided by the manufacturer.