(DZONGKHA TITLE)

BHUTAN STANDARD

Timber Door Frame- Specification

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FOREWORD

This Bhutan Standard for Timber Door Frame - Specification was adopted by Bhutan Standards Bureau after the draft finalized by the Wood and Timber Product Standards Technical Committee TC 07 and approved by the Bhutan Standards Bureau Board (BSB Board) on xxxx 2021

This standard is subject to systematic review after five years to keep pace with the market trends, industrial and technological developments. Any suggestions and further information may be directed to the concerned Technical Committee.

(DZONGKHA)

BHUTAN STANDARD
Timber Door Frame- Specification

1 Scope

1.1 This standard shall cover material, construction, workmanship and sizes of timber door frames generally used in residential and institutional buildings.

1.2 This standard does not cover timber doors frames for commercial, industrial, religious and other special buildings such as workshops and garages

1.3 This standards shall not cover sliding, revolving and folding doors, and it is limited to rectangular doors.

1.4 The traditional cornices which are above the door frame shall not be covered by this standard. These cornices shall be fabricated as an additional component as per Bhutan Building Regulation and Bhutanese Architectural Guidelines.

2 Normative References

The following documents are indispensable for application of this document. For dated references, only the edition cited applies, for undated references, the latest edition of the latest document (including any amendments) applies.

FDBTS 346: 2021 D4442-20 Standard Test Methods for Direct Moisture Content Measurement of Wood and WoodBased Materials

FDBTS 347: 2021 lS 401: 2001 (reaffirmed 2002) Preservation of Timber – Code of Practice

FDBTS 348: 2021 IS 851: 1987 Specification for Synthetic Resin Adhesives for Construction Work (Non-Structural) in Wood Practice

3 Terms and Definition

3.1 Actual Door Size – overall dimensions of the door frame after maintaining offset of 5 mm

3.2 Check - a separation of fibres along the grain which is confined to one face of a piece of wood

3.3 Dead knots - a knot in which the layers of annual growth are not completely intergrown with those of the adjacent wood. It is surrounded by pith or bark. The encasement may be partial or complete

3.4 Holdfasts – are fasteners used to firmly hold the door frames on the jamb

3.5 Jamb – surface of the door frame that comes in contact with the walls and columns

3.6 Live knots - a knot free from decay and other defects, in which the fibres are firmly intergrown with those of the surrounding wood.

3.7 Offset – clear gap between actual door line and opening line

3.8 Opening Size – size of the openings on the unfinished walls

3.9 Pin hole - hole not over 2 mm in diameter, usually darkly stained and not containing bore dust or frass

3.10 Pitch pockets - accumulation of resin between growth rings of coniferous wood as seen on the cross-section.

3.11 Preservatives - a substance or a chemical that is added to wood to prevent decomposition by microbial growth or by undesirable chemical changes

3.12 Profile - the ornamentation provided at the edges of the door frames

3.13 Rebate - a recess along the edge of a piece of timber to receive another piece or a door, sash or frame

3.14 Sapwood - the outer layers of the log, which in the growing tree contain living cells and food material. The sapwood is usually lighter in colour and is readily attacked by insects and fungi

3.15 Scantling – the sawn but unfinished timber members

3.16 Worm hole – hole made by a burrowing worm

4 Materials

4.1 Timber

Commonly available timbers species suitable for the manufacture of door shall be in accordance with timber classification as specified in **ANNEX-A** of this standard. The Door frames shall be made from all heart stock of a decay resistant species or wood treated to make it decay-resistant. Vertical timber posts, head and sill of the frame shall be of same species.

4.1.1 Defects

Defects like decay, fungal growth, boxed heart, splits, pitch pocket or streaks on the exposed faces of the frame shall be prohibited. However, the timber shall be graded as First Grade or Second Grade on the basis of the permissible defects in timber as given in **Table 1**.

Table 1: Permissible Defects in Various Grades of Timber

SL.No	Defects	First Grade	Second Grade
1	Cross Grain	Not steeper than 1 in 15	Not steeper than 1 in 10
2	Sound Knots and live knots a) Size, Max b) Number per metre	 20mm 1	 35mm 2
3	Decayed knots, dead knots and knot holes	Not more than 10mm size centrally located and not more than 1 knot per metre. These shall be completely put out and tightly plugged with seasoned timber of the same species and properly glued, so that its grains run in the direction of main pieces.	Not more than 10mm size centrally located and not more than 2 knots per metre. These shall be completely put out and tightly plugged with seasoned timber of the same species and properly glued, so that its grains run in the direction of main

			pieces.
4	Pitch pockets or streaks	None	Permissible except on exposed edges, provided they are clear and filled up with putty or filler. When these are located on exposed edges of the core, they shall be cut out and plugged with similar species of timber with grains running in the same direction as that of the pieces. the pieces shall be well glued.
5	Sapwood	Total not exceeding 5mm wide and 150mm long per metre	Total not exceeding 10mm wide and 300mm long per metre
6	Pin Holes (other than due to live infestation)	Permitted provided they are not in clusters	Permitted
7	Worm holes	None	Permitted provided they are not more than 10mm in diameter and not more than one per meter and provided such warm holes are plugged with similar timber in such a manner that the plugging merge with the surrounding area both as to colour and grains
8	Checks, depth, Max	3mm, provided it is fully stopped	One-fourth of the total thickness of piece or 6mm whichever is less, provided it is fully stopped.

4.1.2 Seasoning and Treatment

Any piece of wood will give off or take in moisture from the surrounding atmosphere until the moisture in wood has come to a balance with the existing atmospheric conditions. The moisture content at which timber neither gains nor loses moisture when subject to a given constant condition of temperature and humidity is known as equilibrium moisture content corresponding to that condition.

Seasoned timber (whether air or kiln dried) shall conform to the moisture content requirements as specified in Table 2 if the averaged moisture content of all the samples from a given lot is within the permissible limit. Sapwood of durable species in hardwood and sapwood of non-durable species shall be treated with suitable preservatives (except the water soluble leachable type) as specified in **FDBTS 347: 2021/IS 401: 2001 (reaffirmed 2002)**.

Table 2 - Permissible Moisture Content of Timber Doors Frames

Door components	Moisture Content, Percent, Max	Average Moisture Content of all samples from a lot shall be	Moisture Content of individual samples shall be	Test Method
50 mm and above in thickness	16%	Within +3%	+5%	D4442 - 20
Thinner than 50 mm	14%	+2%	Within +3%	

5 Constructions and Workmanship

5.1 General

5.1.1 Timber shall be sawn in the direction of grain. Sawing shall be truly straight and square. The scantling shall be planed smooth and accurate to the full dimensions, rebates, etc., before assembly

5.1.2 All members of frame shall be exactly at right angles. The right-angle shall be checked from the inside surface of the respective members.

5.1.3 All members of frames shall be straight without any wrap or bow and shall have smooth, well-planed on all sides.

5.1.4 The depth of the rebate in frame for housing the shutter shall be 15 mm.

5.1.5 The overall height and width of the opening is derived after allowing an offset of 5 mm all round for fitting and fixing of the frame.

5.1.6 The frame in contact with walls and columns shall have a rebate of 15 mm depth to secure the plaster.

5.1.7 Profile, casing and ornamentation shall be done as agreed between the purchaser and supplier.

5.2 Joinery

5.2.1 Frames of timber doors shall be assembled by any of the following simple, neat and strong joints:

a) Single Dovetail Joint - Dovetail joint is formed at the corner of two pieces in such a way that the notch made on one is fitted exactly into projection of corresponding size and shape made in the other. A wedge shaped dovetail joint is made in a way, which will resist withdrawal except in the direction in which it was assembled (This type of joint is usually adopted when the frame is not built-in as the work proceeds).

b) Closed Mortise and Tenon joint - For closed mortise and tenon joint the head is mortised to receive the tenon on the post. The mortise and tenon must be correctly proportioned. Thickness of tenon should be equal to 1/3 that of the member and width of tenon not exceeding five times the thickness. In case the head usually projects from 50 to 100 mm beyond the posts, and these projections called “horns” assists in making the frames secure when it is built into the wall). Mortise and tenon joints shall fit in fully and accurately preferably without welding or filling. The joints shall be glued, framed, put together and pinned with hardwood or bamboo pins not less than 8 mm dia after the frames are put together and pressed.

c) Haunched Mortice and Tenon Joint - Haunched mortise and tenon joint is adopted when the frame is not built-in as the work proceeds. Horns are not required (These are removed after wedging has been completed) and therefore width of tenon is reduced to facilitate wedging. This haunch increases the

strength of tenon at its roots and prevents twisting of post. The joint shall however be glued. In the case of doorframes without sill, the vertical members (posts) shall be held in position at specified distances by means spacers, which may be removed after fixing of the frames in position.

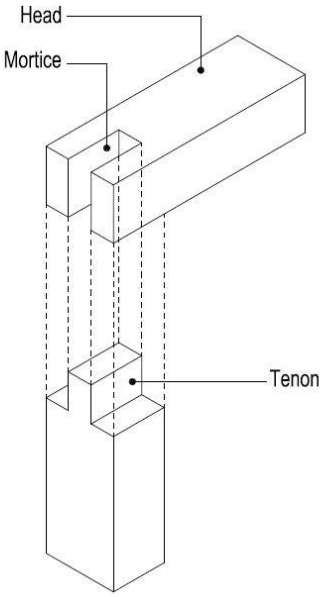

Fig.1 Single Dovetail Joint

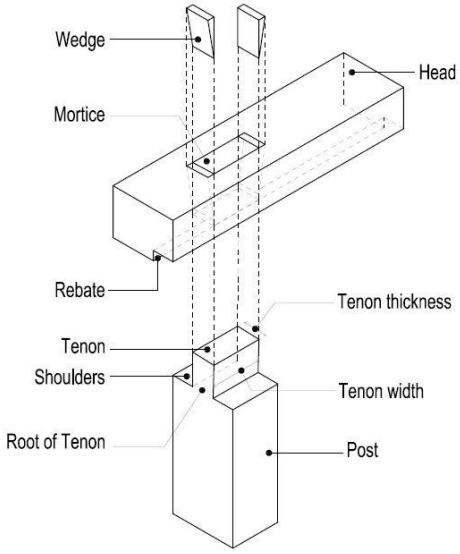

Fig.2 Closed mortise and tenon joint

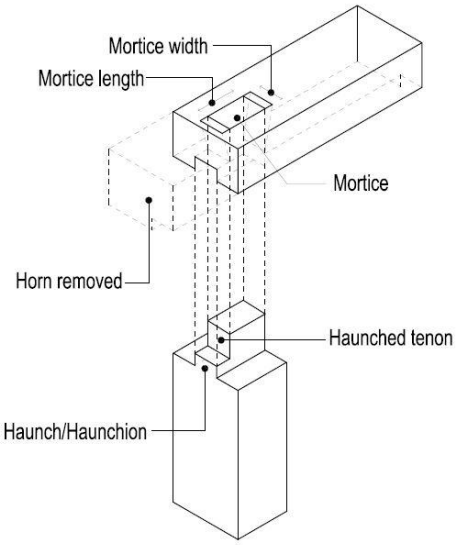

Fig.3 Haunched mortise and tenon joint

5.3 Gluing and Fastening of Joints

The contact faces of tenon and mortise shall be cleaned and treated with bulk type synthetic adhesives conforming to **FDBTS 348: 2021/IS 851: 1978** before putting together. The members shall be placed in

proper position and further secured with suitable nails and screws. However, gluing of joints is optional and may be done with the agreement between the purchaser and the supplier.

5.4 Fixing of Frame

The frames shall be fixed either during construction of wall (built-in) or after the wall has been completed. The frames shall be placed in proper position and secured to jamb with metallic fasteners or iron holdfasts. In case of door frame without threshold, the vertical members shall be embedded in flooring to its full depth and preferably anchored with metal pin as shown in **Fig.1**.

5.5 Locations of Holdfasts

A minimum of three holdfasts shall be fixed on each side of the door frames, one at the center point and other two at 30 to 40 cm from the top and bottom of frame.

6 Dimensions, Sizes and Tolerances

6.1 General

6.1.1 The door type, opening size and actual door size shall be as specified in **Table 3**, with tolerances of +/- 3 mm for width and +/-2 mm for height. The standards sizes for the doors are deduced from the commonly used sizes in the residential and institutional buildings in the country. Door designation, unfinished and finished frame sizes shall be as specified in **Table 4**, with tolerances of +/- 1.5 mm. Door frame with double shutter shall be used only on jambs having minimum width of 150 mm unless otherwise specified.

6.1.2 The finished thickness of door shutter (t) shall be 35 mm and 40 mm.

6.1.3 Except for internal doors, the exterior door frame which are either with windows or in isolation, the height of the door shall be adjusted accordingly to align with windows.

6.1.4 The sizes of the scantling or the unfinished cross sectional sizes of the frame are deduced from the commonly available sizes in the country.

Table 3 - Door Type, Opening and Actual Door Sizes

Door Type	Opening Size (mm)	Actual Door Size (mm)
Large	1200 x 2100	1190 x 2090
	1100 x 2100	1090 x 2090
Medium	1000 x 2100	990 x 2090
	900 x 2100	890 x 2090
Small	800 x 2000	790 x 1990
	700 x 2000	690 x 1990

Note: measurement shall be read as width (W) x height (H) for opening sizes and width (W1) x height (H1) for actual door sizes

Table 4 – Door Designation, Unfinished and Finished Frame Sizes

Door Type	Designation	No. of Shutters	Unfinished Frame Size (mm)		Finished Frame Size (mm)	
			Broadleaved	Conifer	Broadleaved	Conifer
Large	12DS21	Single	75 x 100	100 x 125	65 x 90	90 x 115
	12DT21	Double	75 x 150*	100 x 150*	65 x 140	90 x 140
	11DS21	Single	75 x 100	100 x 125	65 x 90	90 x 115
	11DT21	Double	75 x 150*	100 x 150*	65 x 140	90 x 140
Medium	10DS21	Single	75 x 100	100 x 125	65 x 90	90 x 115
	10DT21	Double	75 x 150*	100 x 150*	65 x 140	90 x 140
	9DS21	Single	75 x 100	100 x 125	65 x 90	90 x 115
	9DT21	Double	75 x 150*	100 x 150*	65 x 140	90 x 140
Small	8DS20	Single	75 x 100	75 x 100	65 x 90	65 x 90
	8DT20	Double	75 x 150*	75 x 150*	65 x 140	65 x 140
	7DS20	Single	75 x 100	75 x 100	65 x 90	65 x 90
	7DT20	Double	75 x 150*	75 x 150*	65 x 140	65 x 140

Note:

1. Measurement shall be read as width (w) x depth (d) for unfinished and finished frame sizes

2. * This depth is subjected to protrusion of fixtures that needs to be accommodated between two shutters. However, if the protrusion is negligible this depth can be reduced to a minimum of 125 mm. In such case, doors with double shutter shall be permitted in jamb of 125 mm minimum width.

6.2 Designation

Frames of doors shall be designated by symbols denoting their width, type and height with 100 mm modules

Example:

'12 DT 21' would mean a frame of double door shutter with width of 1200 mm and height of 2100 mm

‘10 DS 21’ would mean a frame of single door shutter with width of 1000 mm and height of 2100 mm

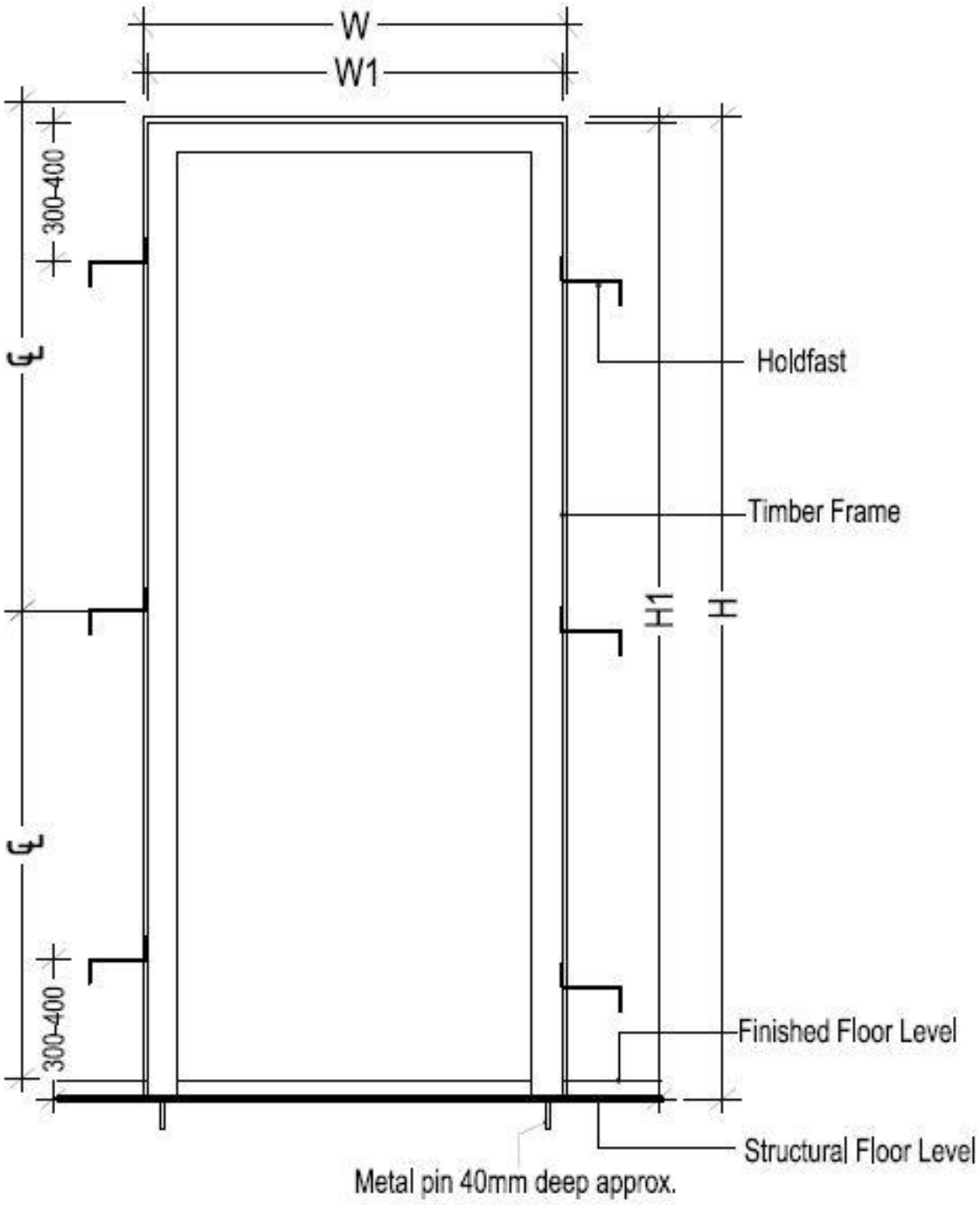

Fig. 1 Timber Door Frame

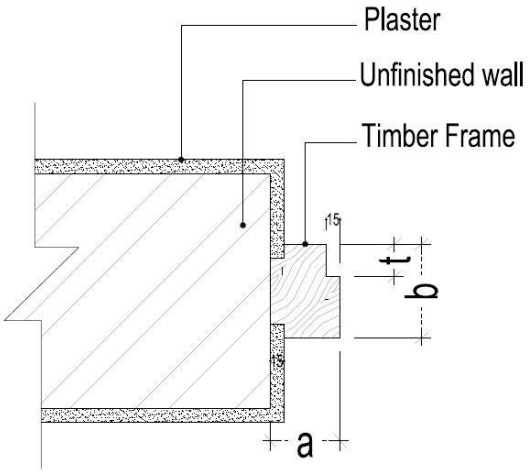

Fig. 2 Cross Section of Frame for Single Shutter

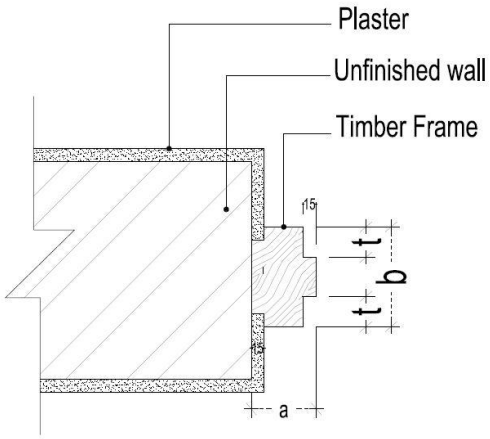

Fig. 3 Cross Section of Frame for Double Shutter

7 Finishing

7.1 All surfaces of the frames shall be fine and smooth finished with minimum 120 grit abrasive before delivery. The unexposed surfaces in contact with either wall or lintel shall be coated with moisture barrier materials.

7.2 Door frames for wet areas shall be made water resistant on all exposed sides with suitable wood preservatives.

7.3 In the case of door frames to be polished or varnished, a suitable wood primer shall be applied before delivery.

8 Marking

All frames shall be provided with the following information:

a) Name of Manufacturer and trade-mark

b) Timber Species

c) Designation

d) Batch number; and

e) Month and year of manufacture.

9 Sampling

In any consignment all the frames of the same type, size and manufactured from the same species of wood under similar conditions of production shall be grouped together to constitute a lot. Samples shall be selected and tested from each lot seperately to determine its conformity or otherwise to the requirements of this standard.

The number of samples to be selected at random from a lot for inspection shall depend upon the size of the lot (the number of frames in the lot) and shall be in accordance to the information given in the ***Table 5***. All the frames selected in the sample shall be inspected for material, dimensions, tolerances, workmanship, joinery and finish.

A frame, which is not meeting any one of the requirement, shall be considered as defective. A lot shall be considered as conforming to the requirements of this standard in case the number of defective frames found in the sample does not exceed the permissible number of defectives. However, the defective ones shall not be counted for supply.

Table 5- Sample size and permissible number of defectives

Lot Size	Sample Size	Permissible number of Defectives
Up to 50	8	0
51 to 100	13	1
101 to 150	20	2
151 to 300	32	3
301 to 500	50	5
501 and above	80	7

10 Information to be supplied by the Purchaser

The purchaser shall supply the following information at the time of placing the order:

a) The purchaser shall provide details of requirements,

b) Whether any other provisions have to be made;

c) Whether the frames are to be polished or painted.

ANNEX A

List of Commonly available/used timber species

Note: the timber classification is based on the Royalty Schedule approved by the Ministry of Agriculture and Forest. However the list is subjected to change as per the government directives

a) Special Class

Sl. No	Scientific Name	Timber Type	Local Name				Use			
			Dzongkha	Sharchhop	Lhotsham	English	Door & Window (Shutter)	Door & Window (Frame)	Flooring	Panelling
1	Acacia catechu	Broadleaved	Toeja	Toeja	Khair	Cutch tree	yes	yes	yes	yes
2	Aquilaria agalocha	Broadleaved	Agoor	Agoor	Aghoree	Agarwood	no	no	no	no
3	Cupressus	Conifer	Tshendey	Tshenden-shing	Dhupi	Cypress	yes	yes	yes	Yes
4	Dalbergia sissoo	Broadleaved	Jaseng	-	Sissoo	North Indian Rosewood	Yes	Yes	Yes	Yes
5	Juglans regia	Broadleaved	Ta-shing	Kheshing	Okhar	Walnut	Yes	Yes	Yes	Yes
6	Junipers spp.	Conifer	Shoop	Shookpu-shing	Dhupi	Juniper	yes	yes	yes	Yes
7	Morus laevigata	Broadleaved	Tshende	Phroom-tekpa shing	Kimbu	Himalayan Mulberry	Yes	Yes	Yes	Yes
8	Shorea robusta	Broadleaved	-	-	Sal	Sal tree	Yes	Yes	Yes	Yes
9	Taxus baccata	Conifer	Ha-shing	Keerang-shing	Dhengre salla	Yew	yes	yes	yes	yes
10	Tectona grandis	Broadleaved	-	-	Sagoon	Teak	Yes	Yes	Yes	Yes

b) A Class

Sl. No	Scientific Name	Timber Type	Local Name				Use			
			Dzongkha	Sharchhop	Lhotsham	English	Door & Window (Shutter)	Door & Window (Frame)	Flooring	Panelling
1	Acer spp.	Broadleaved	Chalam	Sermaling-shing	Kapasey	Maple	yes	yes	yes	yes
2	Albizia lebbeck	Broadleaved	Khrithang-shing	-	Kalo siris	Lebbek tree	yes	yes	yes	yes
3	Betula alnoides	Broadleaved	Taap	Char-shing	Saur	Birch	yes	yes	yes	yes
4	Betula bhutanica	Broadleaved	Taap	Chaar-shing	Bhoj Patra	Birch	yes	yes	yes	yes
5	Dipterocarpus macrocarpus	Broadleaved	-	Hollong	-	-	yes	yes	yes	yes
6	Duabanga grandiflora	Broadleaved	Patang shing	Bikaling shing	Lampatey	-	yes	yes	yes	yes
7	Gmelina arborea	Broadleaved	Gamar shing	Kholom shing	Gamari/Khamari	Beechwood	yes	yes	yes	yes
8	Michelia champaca	Broadleaved	Kha-shing	Kar-shing	Champ	Champak tree	yes	yes	yes	yes
9	Phoebe goalparensis	Broadleaved	-	Sechanglu-shing	Bonsum	Assam Teak	yes	yes	yes	yes
10	Michelia excelsa	Broadleaved	-	Champay-shing	Rani champ	The Temple Magnolia Doltsopa	Yes	Yes	Yes	Yes

Sl. No	Scientific Name	Timber Type	Local Name				Use			
			Dzongkha	Sharchhop	Lhotsham	English	Door & Window (Shutter)	Door & Window (Frame)	Flooring	Panelling
11	Pinus Bhutanica	Conifer	Tongphu	Chang-shing	Salla	Bhutan pine	Yes	Yes	Yes	Yes
12	Pinus wallichiana	Conifer	Tongphu	Chang-shing	Salla	Bluepine	Yes	Yes	Yes	Yes
13	Terminalia mycriocarpa	Broadleaved	-	-	Hollok/Panisaj	East Indian almond	Yes	Yes	Yes	Yes
14	Terminalia tomentosa	Broadleaved	-	-	Pakhasaj	Indian Laurel	Yes	Yes	Yes	Yes

c) B Class

Sl. No	Scientific Name	Timber Type	Local Name				Use			
			Dzongkha	Sharchhop	Lhotsham	English	Door & Window (Shutter)	Door & Window (Frame)	Flooring	Panelling
1	*Abies densa*	*Conifer*	Dung-shing	Waangshing	Gobresalla	Silver fir	Yes	Yes	Yes	Yes
2	*Acrocarpus framinifolious*	*Broadleaved*	-	-	Mandaney	Indian Ash	Yes	Yes	Yes	Yes
3	*Adina cordifolia*	*Broadleaved*	-	-	Haldu	Kadam	yes	yes	yes	yes
4	*Ailanthus grandis*	*Broadleaved*	-	-	Gokul	Tree of Heaven	No	No	No	No
5	*Alangium excelsa*	*Broadleaved*	-	-	Jhikri	Alangium	No	No	No	No
6	*Ammora willichii*	*Broadleaved*	-	-	Lali	Amoora wallichii King	Yes	Yes	Yes	Yes
7	*Artocarpus chaplasa*	*Broadleaved*	-	-	Latar	Jack tree	no	no	no	no
8	Bohemeria regulosa	*Broadleaved*	-	Dongtsong-Shing	Dhar	False nettles	No	No	No	No
9	*Bucklandia populea*	*Broadleaved*	-	-	Pipla	Pipli tree	Yes	Yes	Yes	Yes
10	*Bombax ceba*	*Broadleaved*	Pema geyser	Pema geyser	Semal	Cotton tree	No	No	No	No

Sl. No	Scientific Name	Timber Type	Local Name				Use			
			Dzongkha	Sharchhop	Lhotsham	English	Door & Window (Shutter)	Door & Window (Frame)	Flooring	Panelling
11	Cassia fistula	Broadleaved	-	Dhongkala say Shing	Sonalu	Indian laburnum	No	No	No	No
12	Cedrela toona	Broadleaved	Chhuen-shing	Rawa shing	Tooni	Chinese Mahagony	Yes	Yes	Yes	Yes
13	Chukrasia tabularis	Broadleaved	-	-	Chekrasi	White Cedar	Yes	Yes	Yes	Yes
14	Elaeocarpus spp.	Broadleaved	-	Gasha-thung shing	Bhadrase	Wooden begar (Olive fruited)	Yes	Yes	Yes	Yes
15	Larix griffithii	Conifer	Zaashi	-	Bhangre salla	Larch	Yes	Yes	Yes	Yes
16	Phoebe bainesiana	Broadleaved	-	-	Aangare	Bonsum	Yes	Yes	Yes	Yes
17	Picea spinulosa	Conifer	Bashi	-	-	Spruce	Yes	Yes	Yes	Yes
18	Pinus roxburghii	Conifer	Theytong	Roinangshing	-	Chirpine	Yes	Yes	Yes	Yes
19	Schima wallichii	Broadleaved	Puyam	Zalashing	Chiluane	Chinese Guggar tree	Yes	Yes	Yes	Yes
20	Tsuga dumosa	Conifer	Sah shing	-	Dengre salla	Hemlock	Yes	Yes	Yes	Yes
21	Alnus spp.	Broadleaved	Gama shing	Gamo shing	Utis	Nepal Black Sedar	No	No	No	No

Sl. No	Scientific Name	Timber Type	Local Name				Use			
			Dzongkha	Sharchhop	Lhotsham	English	Door & Window (Shutter)	Door & Window (Frame)	Flooring	Panelling
22	Anthocephalus kadamba	Broadleaved	-	-	Kadam	burflower-tree	Yes	Yes	Yes	Yes
23	Artocarpus hirsuta	Broadleaved	-	-	Aini/Koko	Wildjack or Jungle Jack	no	no	no	no
24	Castonopsis spp.	Broadleaved	Sokay	Tshai shing	Katus	chinquapin or chinkapin	Yes	Yes	Yes	Yes
25	Cinnimomum obtusifolium	Broadleaved	-	-	Gansarai	Cinnamom tree	yes	yes	yes	yes
26	Garuga pinnata	Broadleaved	-	-	Dabdabe	Garuga	No	No	No	No
27	Lagerstroemia spp.	Broadleaved	-	-	Sidha	Pride of India or Queen Crape Myrtle	Yes	Yes	Yes	Yes
28	Machilus spp	Broadleaved	-	-	Kawla	-	Yes	Yes	Yes	Yes
29	Nyssa javanica	Broadleaved	-	-	Lekh chailauna	-	Yes	Yes	Yes	Yes
30	Prunus nepalensis	Broadleaved	-	-	Arupata	Prunus	Yes	Yes	Yes	Yes
31	Pterospermum acerifolium	Broadleaved	-	-	Hathipaile	Dinner plate tree,Maple leafed Bayur tree, Bayur tree	Yes	Yes	Yes	Yes
32	Sterculia villosa	Boardleaved	-	Frang shing	Odal	Elephant Rope tree	No	No	No	No

Sl. No	Scientific Name	Timber Type	Local Name				Use			
			Dzongkha	Sharchhop	Lhotsham	English	Door & Window (Shutter)	Door & Window (Frame)	Flooring	Panelling
33	Syzygium spp.	Broadleaved	-	Mentsu say shing	Jamun/Ambake	Jamun tree	Yes	Yes	Yes	Yes
34	Tetrameles nidiflora	Broadleaved	-	-	Maina	Tetrameles	No	No	No	No
35	Quercus spp.	Broadleaved	Bjishing	-	-	Oak	Yes	Yes	Yes	Yes

WOOD AND TIMBER PRODUCTS TECHNICAL COMMITTEE (TC 07)

Organization	*Representative(s)*
	(Chairperson)
Forest Resource Division, Natural Resources Development Corporation Limited	Mr. Ashit Chhetri
	(Members)
Bhutan Board Products Limited	Mr. Gayleg Dorji
Wood Craft Centre Limited	Mr. Sonam Tshering
Department of Forests and Park Services Ministry of Agriculture and Forest	Mr. Tashi Norbu Waiba
Association of Wood based Industries	Mr. Sanyag Gyeltshen
Department of Engineering Services, Ministry of Works & Human Settlement	Mr. Karma Tenzin
Department of Engineering Services, Ministry of Works & Human Settlement	Mr. Tshering Norbu
Thimphu Thromde	Mr. Sonam Tshering
Bhutan Standards Bureau	Mr. Sherab Tenzin, Director General (Ex-officio member)

Member Secretary

Chenzom
Standardization Division
Bhutan Standards Bureau

TIMBER DOORS AND WINDOWS SUB-COMMITTEE (TC-07/SC-02)

Organization	*Representative(s)*
	(Chairperson)
Department of Engineering Services, Ministry of Works & Human Settlement	Mr. Tshering Norbu
	(Members)
Thimphu Thromde	Mr. Sonam Tshering
Department of Engineering Services, Ministry of Works & Human Settlement	Mr. Karma Tenzin
Ongdi Timber Industries	Mr. Jigme Wangchuk

Member Secretary
Chenzom
Standardization Division
Bhutan Standards Bureau