SLS 261 PART 2 : 1991

~~XXXXX~~ Sri Lanka Standard

PLYWOOD FOR GENERAL PURPOSES
(FIRST REVISION)
PART 2 : SPECIFICATION FOR MANUFACTURE

199.78

SRI LANKA STANDARDS INSTITUTION

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FOREWORD

This standard was authorized for adoption and publication as a Sri Lanka Standard by the Council of the Sri Lanka Standards Institution on 91/10/29, after the draft, finalized by the Drafting Committee on Plywood, had been approved by the Civil Engineering Divisional Committee.

Sri Lanka Standard specification for plywood for general purposes SLS 261 : 1974, provided for three grades of plywood based on the type of adhesive used, three classes of plywood based on species of timber, and six types of plywood depending upon the visual features of the face and back. SLS 261 : 1974 is now revised as Sri Lanka Standard Plywood for General Purposes, in three parts as follows :

Part 1 Terminology;
Part 2 Specification for manufacture; and
Part 3 Methods of tests.

In this revision there are (a) four grades of plywood based on types of adhesive ; (b) ten types of plywood based on appearence of face and back; (c) two classes based on durability ; and (d) two categories based on species of timber.

This part of the standard (Part 2) deals with requirements for manufacture and specifies grades, types, classes, materials, manufacture, dimensions and tolerances, workmanship and finish, sampling and criteria for conformity, tests, a method of marking and delivery. Part 1 of this standard deals with terminology applicable to plywood. Part 3 of this standard specifies test methods related to plywood.

For the purpose of deciding whether a particular requirement of this part of the standard is complied with, the final value observed or calculated expressing the result of a test or an observation shall be rounded off in accordance with CS 102. The number of significant figures to be retained in the rounded off value shall be the same as that of the specified value in this standard.

The Sri Lanka Standards Institution gratefully acknowledges the use of relevant publications of the American Society for Testing and Materials, British Standards Institution, Bureau of Indian Standards and the Singapore Institute of Standards and Industrial Research, in the preperation of this standard.

1 SCOPE

This Part of the Standard covers the requirements for plywood for general purposes and does not deal with plywood panels for tea chests.

2 REFERENCES

ASTM D 1758 Evaluating wood preservatives by field tests with stakes
BS 4512 Methods of test for clear plywood
CS 102 Presentation of numerical values
SLS 428 Random sampling methods
SLS 261 Plywood for general purposes, Part 1 - Terminology.
SLS 261 Plywood for general purposes, Part 3 - Methods of test.

3 DEFINITIONS

For the purpose of this standard the definitions given in Part 1 of SLS 261 : 1990 shall apply.

4 GRADES

4.1 Plywood for general purposes shall be of the following four grades depending upon the type of adhesive used for bonding the veneers :

a) BWP grade, ie Boiling water proof grade ;
b) BWR grade, ie Boiling water resistant grade;
c) WWR grade, ie Warm water resistant grade ; and
d) CWR grade, ie Cold water resistant grade.

4.1.1 BWP grade plywood shall be highly resistant to weather, micro-organism, cold and boiling water, steam and dry heat.

4.1.2 BWR grade plywood shall survive exposure to weather for only a few years. They will withstand cold water indefinitely and boiling water for a limited period. They are highly resistant to micro-organisms.

4.1.3 WWR grade plywood shall withstand cold water for a long period and hot water for a limited time, but may fail in the boiling water test. They are resistant to attack by micro-organisms.

4.1.4 CWR grade plywood shall be resistant to cold water but not to alternate wetting and drying. They have moderate resistance to micro-organisms.

NOTE -Appendix A gives some common applications of these grades of plywood. This is not to be considered as complete, but is presented to cover the more common uses of plywood for the guidance of the customer.

5 TYPES

5.1 Plywood shall be classified into four types according to the surface appearance as follows :

a) Type 'A' - natural surface remaining visible;
b) Type 'B' - natural surface which may remain visible;
c) Type 'C' - natural surface generally intend to be unseen, painted or coated; and
d) Type 'D' - surface with no requirements for appearence.

NOTE - See Table 1 for permissisble limits of defects for each type.

5.2 Plywood shall be designated by the type of two surfaces of the panels, and designated as AA,AB, AC, AD, BB, BC, BD, CC, CD and DD. The better quality surface shall be called 'face' and the opposite surface shall be called 'back'. The face is denoted by the first letter and the 'back' is denoted by the second letter in the designation. For example, 'AA' designated panel shall have both surfaces of type 'A' and 'AB' designated panel shall have one face of type 'A' and the back of type 'B' and so on.

5.3 The permissible limits of defects on each type specified in 5.1, shall conform to Table 1. However, the maximum number of defects, permitted on any one surface of the panel shall be restricted in accordance with the requirements laid down in Table 2.

5.4 If the number of defects visible on any one surface of the panel exceeds the maximum indicated in Table 2, such a surface shall be classified as the next lower quality. However, if on any one surface the extent of any single category of defect exceeds the specified limit such that it falls under the next lower category of surface but the total number of categories of permissible defects on the surface under consideration is less than the number specified for it in Table 2, it shall still be referred to as the surface of the higher category.

TABLE 1- Permissible limits of defects of plywood for General Purposes

DEFECT	TYPE OF SURFACES			
	A	B	C	D
(1)	(2)	(3)	(4)	(5)
Blister	Not permitted	Not permitted	Not permitted	Permitted provided that they do not impair the serviceability of the panel.
Checks	Individual check not more than 25 mm in length, and the total length not more than 300 mm/m^2. *	Individual check not more than 50 mm in length, and the total length not more than 600 mm/m^2.*	Individual check not more than 100 mm in length, and the total length not more than 1000 mm/m^2. *	Individual check not more than 125 mm in length, and the total length not more than 1200 mm/m^2. *
Decay	Not permitted.	Not permitted.	Not permitted.	5 percent of the area.
Discolouration (sound)	5 percent of the area	25 percent of the area.	50 percent of the area.	Permitted.
Discolouration (unsound)	Not permitted.	Not permitted.	Not permitted.	10 percent of the area.
Dote	Not permitted.	The total length not more than 50 mm/m^2. *	The total length not more than 100 mm/m^2.*	The total length not more than 150 mm/m^2. *

* m^2 refers to a square metre of the panel.

(1)	(2)	(3)	(4)	(5)
Insect holes	Not permitted.	Scattered up to 12 holes/m^2. *	Scattered up to 24 holes/m^2. *	Scattered up to 50 holes/m^2. *
Joints	None in 250 mm wide face, and one joint for every multiple of 200 mm width.	None in 200 mm wide face, and one joint for every multiple of 150 mm width.	Permitted.	Permitted.
Dead Knots (See Note at the end of this table)	Not permitted	2 Knots up to 12 mm diameter/m^2, * but Knot holes or loose Knots not permitted.	4 Knots up to 20 mm diameter/m^2, but Knot holes or loose knots not permitted.	8 Knots up to 20 mm in diameter/m^2 * including Knot holes.
Non-adhering pin Knots (See Note, at the end of this table.)	Not permitted	2 Knots/m^2. *	6 Knots/m^2. *	10 Knots/m^2. *
Tight Pin Knots	Permitted, provided they do not mar the appearance.	Permitted.	Permitted.	Permitted.
Tight Knots	3 Knots up to 25 mm diameter/m^2. *	6 Knots up to 25 mm diameter/m^2. *	Permitted.	Permitted.
Patches	Not permitted.	4 patches/m^2* provided they are all tight patches, properly made and do not mar the appearence.	Any number, provided they are all tight patchs, properly made and are matched for colour	Any number, provided they a are all tight patches,,and properly made.

* m^2 refers to a square metre of the panel.

(1)	(2)	(3)	(4)	(5)
	I			
Splits	One split, not more than 1.0 mm wide and not longer than 50 mm provided it is filled with a suitable filler.	Permitted, if properly filled with suitable veneer inserts, up to an individual maximum width of 3 mm and up to an individual maximum length of 250 mm and in number up to two splits per panel width.	Permitted, if properly filled with suitable veneer inserts, (splits up to 25 mm long and 0.8 mm wide may be ignored provided they are suitably filled), up to an individual maximum width of 3.5 mm and up to an individual maximum length of 300 mm and in number up to three splits per panel width.	Permitted if filled with suitable veneer inserts, (splits up to 25 mm long and 0.8 mm wide may be ignored), up to an individual maximum width of 4.5 mm and up to an individual maximum length of 400 mm and in number up to six splits per panel width.
Swirl	Up to 4 swirls/m^2* provided they do not mar the appearance.	Unlimited number of swirls, provided they do not mar the appearance.	Permitted.	Permitted.
Other defects	To be considered under the category of defects listed, above, where applicable, to which it most closely resembles.			

NOTE - If the diameter of any non-adhering pin knot exceeds the value permitted for the type of surface, that knot shall be properly repaired subject to the allowable limits on patches given in this table.

* m^2 refers to a square metre of the panel.

TABLE 2 - Permissible number of defects

Type of surface	Maximum number of categories of permissible defects per square metre
A	3
B	6
C	9
D	No limit

6 CLASSES OF PLYWOOD BASED ON DURABILITY

Plywood shall be classified into the following two durability classes :

a) Class D, durable plywood treated, as required, to withstand decay and borer or termite attack, and for long term usage.

b) Class L, less durable plywood intended for uses requiring only limited protection for temporary usage.

6.1 Class D shall consist of plywood made of heartwood of timber species marked with an asterisk in Appendix B, and of remaining timber species subjected to preservative treatment as specified in 7.2.1 For Class D, other types of preservative treatment or other timber species, treated or untreated, can be used provided that the plywood made from such materials satisfies the Note - 2 below.

6.2 Class L shall consist of plywood made of timber not marked with an asterisk in Appendix B as well as sapwood of the remaining timbers species which are not subjected to preservative treatment.

NOTES

1. In the use of Class D plywood, attention should be paid to the exposure conditions. For BWP and BWR grades of plywood and where plywood is subjected for wetting and drying, preservative used shall be of a fixed type.

2. Preservative treated or untreated plywood can be considered durable if the index of condition of the test stakes at the termination of the test is not greater than 2.5 (see 8 of SLS 261 Part 3 : 1990).

7 REQUIREMENTS

7.1 Materials

7.1.1 Timber

The species of timber to be used for Type A or Type B surface (see Table 1) shall be those given in Category 1 of Appendix B. Other types of surfaces, cores and cross-bands shall be made from timber species listed in Category 1 and Category 2 of Appendix B.

7.1.2 Adhesives

The adhesive used for bonding the veneers in different grades of plywood shall be a phenolic or an aminoplastic adhesive. For CWR grade cold setting casein glue may also be used.

7.2 Manufacture

The veneers for all the grades shall be either rotary cut or sliced. The veneers shall be sufficiently smooth to permit an even spread of glue. The outer plies shall be laid with the tight side of veneer outermost.

7.2.1 Treatment

Veneers from the sapwood of timbers, marked with asterisks in Appendix B, and all veneers of the remaining timbers when used for plywood manufacture shall be treated as laid down in Appendix C.

7.3 Assembly

7.3.1 Thickness

The thickness of all individual veneers in one ply shall be uniform within a tolerance of ±5 per cent of the ply thikness. Corresponding veneers on either side of the central ply shall be of the same species or of species with similar physical and mechanical properties, and of the same thickness. In the normal dry condition, no outer ply shall have a thickness greater than 3.5 mm and no inner ply shall have a thickness greater than 5.0 mm. The requirements of thickness of face and core veneers shall be as follows :

a) In 3-ply boards up to 6 mm thick, the combined thickness of face veneers shall not exceed twice the thickness of the centre ply;

b) In a multi-ply board, the thickness of any veneer shall be not more than thrice the thickness of any other veneer; and

c) The sum of the thicknesses of the veneers in one direction shall approximate to the sum of the thicknesses of the veneers at right angles to them and shall be not greater than 1.5 times this sum, except for 3-ply as specified in (a).

7.3.2 Joints in veneers
Veneers that are jointed to form a ply, shall be spliced before assembly, except in the core. All joints shall be cut square. They may be taped on the face of the outer veneers, in which case the tape shall be removed at a later stage; metal clips or staples, if used, shall be removed. In assembly, joints in veneers running in the same direction shall be staggered. End joints and butt joints shall not be permitted for any of the surfaces.

7.3.3 Grain direction
Unless otherwise specified by the purchaser and except in boards consisting of an even number of plies, the direction of grain of the veneer in adjacent plies shall be at right angles to each other, and that of the outer plies shall run parallel to the length of the sheet.

In boards consisting of an even number of plies, the grain of the centre pair shall follow the same direction. In adjacent plies in which the grains should be at right angles to each other a deviation not exceeding 10° may be permitted. In all cases the grain on both faces of the assembled boards shall run in the same direction.

7.3.4 Scarf joints
When sizes larger than the available press sizes are required, scarf joints through the thickness of the board may be permitted. All scarf joints shall be bonded with the same or better adhesive than the one used for the manufacture of plywood and shall be made with an inclination not greater than 1 in 12.

7.3.5 Permissible defects

a) Gaps in cores and cross-bands may be permitted except for 3-ply plywood of BWP and BWR grades provided the width of gap does not exceed 1 mm in case of 3-ply and 5-ply and 2 mm in case of boards with more than 5-ply. Such gaps, if more than one, shall be spaced not less than 80 mm away from each other and are staggered not less than 50 mm away between a ply and the next ply having the same grain direction.

b) Splits in cores and cross-bands may be permitted to an extent of 3 per core or cross-band.

c) Overlap and warp shall not be permitted in any of the grades.

7.4 WORKMANSHIP AND FINISH

7.4.1 The plywood boards shall be of uniform thickness within the tolerance limits specified under 7.5.3.

7.4.2 The faces of plywood boards shall be smooth and face veneers shall be of uniform thickness. Slight sanding may be given to rough boards in order to make them smooth.

7.5 Dimensions and tolerances

Dimensions of plywood boards shall be quoted in the following order :

The first dimension shall represent the length, that is normaly the dimension parallel to the grain of the faces ;
The second dimension shall represent the width ; and
The third dimension shall represent the thickness.

7.5.1 Size

Unless otherwise specified, plywood boards shall be of the sizes specified in Table 3.

TABLE 3 – Sizes of plywood boards in metres

Nominal length	Nominal width
3.Ø	1.5
2.4	1.2
2.1	1.2
1.8	1.2
1.8	Ø.9
1.5	1.2
1.5	Ø.9
1.2	1.2
Ø.9	Ø.9

7.5.2 Thickness

Unless otherwise specified, thickness of plywood boards shall be as specified in Table 4. The thickness shall be measured in mm up to one place of decimal.

TABLE 4 – Thickness of plywood boards

Board	Thickness (mm)	Board	Thickness (mm)
3-ply	3,4,5 & 6	7-ply	9,12,15 & 16
5-ply	5,6,8 & 9	9-ply	12,15,16 & 19
		11-ply	19,22 & 25
		above 11-ply	As ordered

7.5.3 Tolerance
The following tolerances on the nominal sizes of finished boards shall be permissible.

Physical features	Tolerance
a) Length	± 3 mm
b) Width	± 3 mm
c) thickness up to including 5 mm	± 10 per cent
d) Thickness above 5 mm	± 5 per cent
e) Edge straightness	± 1 mm per metre length of chord.
f) Squareness	Ø.25 per cent of the longer diagonal, or ± 1.5mm per metre of the edge of the panel being assessed. (see Note 1 below)
g) Flatness	As ordered (see Note 2 below)

NOTES

1. It shall be permissible to determine the out of squareness by measurement of diagonals, but where these differ by more than Ø.25 per cent, where there is doubt about the validity of the diagonal measuring method, e.g. when the shorter edges of the panel incline to or away from the centre by a similar amount, and in cases of dispute, the try-square method shall be employed.

2. The amount of distortion that can be tolerated will depend not only on the thickness of the panel, the construction and the species, but also on the requirements of the end use. Accordingly the acceptable deviation in flatness shall be agreed between the supplier and the purchaser.

8 MARKING

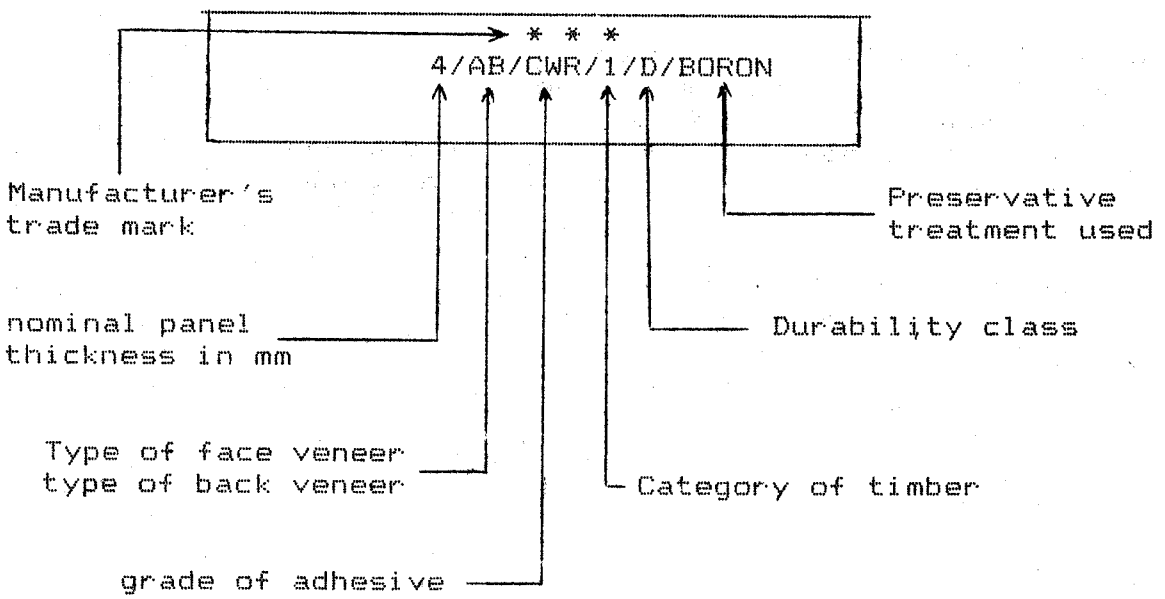
Each panel complying with this standard shall be indelibly marked near an edge on the back or on an edge with the following markings :

a) Manufaturer's trade mark;
b) Panel thickness (see 7.5);
c) Type of face and back (see 5);
d) Grade of adhesive (see 4);
e) Category of timber (see 7.1.1) ;and
f) Durability class (see 6) and, if treated, details of treatment (see 7.2.1).

In the case of post-manufacture preservative treatment, each board shall be marked with the following additional information:

i) The processor's name or mark;
ii) The durability class;
iii) The preservative code mark ; and
iv) The method of treatment.

Example



NOTE – Attention is drawn to certification facilities offered by SLSI. See the inside back cover of this standard.

9 DELIVERY

Unless otherwise specified, the plywood boards shall be delivered in a clean condition and shall be suitably packed.

10 TESTS

Test pieces, cut from each of the boards selected under 11 shall be subjected to the tests specified under 10.1,10.2 and 10.3.

10.1 Glue adhesion

Glue adhesion shall be deemed satsifactory if the plywood complies with requirements specified under 10.1.1, 10.1.2 and 10.1.3.

10.1.1 Glue shear strength in dry state

The plywood, when tested in accordance with 3 of SLS 261 Part 3 : 1990, shall have an average and a minimum individual shear strength not less than the values specified in Table 5 against each grade.

10.1.2 Mycological test

The Plywood,when tested in accordance with 4 of SLS 261 Part 3 : 1990, shall have an average and a minimum individual shear strength not less than the values shown in Table 5 against each grade.

10.1.3 Water resistance test

The plywood, when tested in accordance with 5 of SLS 261 Part 3 : 1990, shall have an average and a minimum individual shear strength, not less than the values shown in Table 5 against each grade.

10.2 Moisture content

The Plywood, when tested in accordance with 6 of SLS 261 Part 3 : 1990, shall have a moisture content of not less than 7 per cent and not more than 15 per cent.

TABLE 5 - Average and minimum individual shear strength for plywood

Grade	Shear strength, N/mm²					
	Dry state		Mycological test		Water resistancee	
(1)	(2)		(3)		(4)	
	Av.	Min.	Av.	Min.	Av.	Min.
BWP	2.1	1.7	1.6	1.3	1.6	1.3
BWR	2.1	1.7	1.6	1.3	1.6	1.3
WWR	1.6	1.3	1.3	1.Ø	1.3	1.Ø
CWR	1.1	Ø.9	Ø.6	Ø.5	Ø.6	Ø.5

Av. - Average
Min. - Minimum individual.

1Ø.3 Measurement of physical feaatures

1Ø.3.1 Length
The plywood board, when tested in accordance with 7 of SLS 261 Part 3 : 199Ø shall have a length spetified in 7.5.1 within the tolerance specified in 7.5.3.

1Ø.3.2 Width
The plywood board, when tested in accordance with 7 of SLS 261 Part 3 : 199Ø shall have a width specified in 7.5.1 within the tolerance specified in 7.5.3.

1Ø.3.3 Thickness
The plywood board, when tested in accordance with 7 of SLS 261 Part 3 : 199Ø shall have a thickness specified in 7.5.2 within the tolerance specified in 7.5.3.

1Ø.3.4 Edge straightness
Edge straightness of the plywood board, when tested in accordance with 7 of SLS 261 Part 3 : 199Ø, shall be within the tolerance specified in 7.5.3.

10.3.5 Squareness
Squareness of the plywood board, when tested in accordance with 7 of SLS 261 Part 3 : 1990, shall be within the tolerance specified in 7.5.3

10.3.6 Flatness
Flatness of the plywood board, when tested in accordance with 7 of SLS 261 Part 3 : 1990, shall be within the tolerance specified in 7.5.3.

11 SAMPLING AND CRITERIA FOR CONFORMITY

11.1 Lot
In any consignment all the plywood of same size, thickness, grade, class and type belonging to one batch of manufacture or supply shall constitute a lot.

11.2 Scale of sampling

11.2.1 Samples shall be tested from each lot for ascertaining its conformity to the requirements of this specification.

11.2.2 The number of plywood boards to be selected from a lot shall be in accordance with Table 6.

TABLE 6 - Scale of sampling

Number of plywood boards in the lot	Stage of Sampling	Number of boards to be selected	Cumulative sample	Acceptance number	Rejection number	Number of boards to be selected as the sub sample
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Up to 90	first stage	3	3	0	2	2
	second stage	3	6	1	2	
91 to 150	first stage	5	5	0	2	3
	second stage	5	10	1	2	
151 to 500	first stage	8	8	0	3	5
	second stage	8	16	3	4	
501 to 1200	first stage	13	13	1	4	8
	second stage	13	26	4	5	
1201 and above	first stage	20	20	2	5	13
	second stage	20	40	6	7	

11.2.3 The plywood boards shall be selected at random. Inorder to ensure randomness of selection, table of random numbers as given in SLS 428 shall be used.

11.3 Number of tests

11.3.1 Each board selected as in the first stage as given in 11.2.2 shall be examined for marking requirements (see 8), dimensions (see 7.5) and workmanship and finish (see 7.4). If the number of defectives in the first stage, lies between the acceptance number (see Column 5 of Table 6) and the rejection number (See column 6 of Table o second stage sample as given in 11.2.2 shall be drawn and examined for marking requirements, dimensions, workmanship and finish.

11.3.2 If the lot has been found satisfactory in respect of the requirements when examined under 11.3.1 the sub sample as given in Column 7 of the Table 6 shall be selected and tested for the other requirements given in 10.

11.4 Criteria for conformity

A lot shall be declared as conforming to the requirements of this specification if the following conditions are satisfied :

a) The number of defectives in the first stage sample is less than or equal to the corresponding first stage acceptance number given in Column 5 of Table 6 ; or

b) The number of defectives in the first stage and second stage (cumulative sample) is less than or equl to the corresponding second stage acceptance number given in column 5 of Table 6 ; and

c) The plywood when tested as in 11.3.2 shall conform to the relevant requirements.

11.5 Re-test

If the samples selected as specified under 11 are found not to be fully complying with the requirements of 10.2 and 10.3 a further similar set of samples shall be taken at random from the same batch and subjected to the tests. If any of the samples in the second set is also found not to comply fully with the requirements of tests, all the boards in the batch represented by the samples shall be rejected.

11.6 Other tests

For testing any other mechanical peroperty of plywood for general purposes subject to agreement between the purchaser and the suplier, reference shall be made to BS 4512.

APPENDIX - A
APPLICATIONS OF PLYWOOD

Application	Grade of plywood (see 4)
1. Formwork to concrete	BWP/BWR/WWR*
2. Furniture (indoor)	WWR
3. Furniture (outdoor)	BWR
4. Wall panelling (internal), partitioning and ceilings	WWR
5. Wall panelling (external)	BWP
6. External doors	BWR
7. Internal doors	WWR
8. Bathroom doors	BWR
9. Stair balustrades	WWR
10. Floor boards	BWR
11. Roof sheathing of flat roofs	BWR
12. Valance boards and barge boards	BWR
13. Railway coach and motor vehicle body construction	WWR/BWR *
14. Boxes, packing cases, suitcases and briefcases	CWR
15. Gusset plates of timber trusses	BWR
16. Sports goods (eg. Table tennis tables, carrom boards)	WWR
17. Boat body construction	BWP
18. Floor boards subjected to high temperatures (eg. near engines of vehicles)	BWP
19. Toys	CWR
20. Radio, Television and Speaker cabinets	WWR
21. Kitchen work tops	BWR
22. 'Box' and 'I' beams	BWR
23. Musical instruments (eg. guitars)	WWR
24. Sewing machine covers (top and bottom)	WWR
25. Machine parts (eg. in weaving machines)	BWR

* The grade should be decided by the customer's particular requirements.

APPENDIX B

SPECIES OF TIMBER SUITABLE FOR THE MANUFACTURE OF PLYWOOD FOR GENERAL PURPOSES

Local Name (Standard Name)	Botanical Name (Scientific Name)	Category (see 7.1.1)
1. Amba	Mangifera indica L.	2
2. Ambarella	Spondias pinnata (L.) Kurz.	2
3. Andunwenna	Ilex zeylanica (Hook.f) Maxim.	2
4. Aridda	Campnosperma zeylanica Thw.	2
5. Beraliya Dun*	Doona cordifolia Thw.	2
6. Bomi	Litsea glutinosa (Lour) C.B.Rob	2
7. Bulu	Terminalia belerica (Gaertn) Roxb.	2
8. Buruta	Chloroxylon swietenia DC.	1
9. Del	Artocarpus nobilis Thw.	2
10. Diyapara	Wormia triquetra Rottb.	2
11 Diyathaliya	Mastixia tetrandra (Wight ex Thw.)C.B Clerke	2
12. Dorana	Dipterocarpus glandulosus Thw.	2
13. Etamba	Mangifera zeylanica (BL.) Hook.f.	2
14. Gal-veralu	Elaeocarpus subvillosus Arn.	2
15. Godakirilla	Holoptelea intergrifolia (Roxb.)Planch.	2
16. Gonna	Ficus callosa Willd.	2
17. Hal	Vateria copallifera (Retz.) Alston	2
18. Hampalanda*	Terminalia parviflora Thw.	2

19. Havarinuga	Alstonia macrophylla Wall.ex.G.Don	2
20. Hik	Lannea coromandelica (Houtt.) Merr.	2
21. Hora	Dipterocarpus zeylanicus Thw.	2
22. Hulanhik*	Chuckrasia tabularis A. Juss.	1
23. Hulan-idda	Shorea stipularis Thw.	2
24. kalumediriya*	Diospyros quaesita Thw.	1
25. Kandumbala	Pygeum zeylanicum Gaertn.	2
26. karawu*	Phyllanthus indicus (Dalz.) Muell Arg.	2
27. katuboda	Cullenia zeylanica (Gardn.) K.Schum.	2
28. Katu-imbul	Salmalia malabarica (DC.) Schott. & Endl.	2
29. Keena (Domba keena, Guru keena & Up-country keena)	Calophyllum Spp.	1
30. Kekuna	Canarium zeylanicum (Retz.) BL.	1
31. Kirihambiliya	Palaquium grande (Thw.) Engl.	1
32. Kiripedda	Palaquium petiolare (Thw.)Engl.	1
33. Kokun	Kokoona zeylanica Thw.	1
34. Kolon*	Adina cordifolia (Roxb.) Brandis	1
35. Kosgonna	Ficus Spp.	1
36. Mahogany (Brood leaf)*	Swietenia macrophylla King	1
37. Mahaogany (Narrow leaf)*	Swietenia mahogani Jacq.	1
38. Malaboda	Myristica dactyloides Gertn.	1

39. Mugunu	Tetrameles nudiflora R.Br. ex Benn.	2
40. Na-imbul	Harupllia arborea (Blanco) Radlk	2
41. Nedun*	Pericopsis mooniana (Thw.) Thw.	1
42. Netavu	Xylopia parvifolia (Wight.) Hook.f. and Thoms.	2
43. Owilla	Polyalthia longifolia (Sonnerat.) Thw.	2
44. Panakka*	Pleurostylia opposita (Wall.) Alston.	1
45. Pelen	Kurrimia ceylanica Arn.	2
46. Pihimbiya*	Filicium decipiens (Wight & Arn.) Thw.	2
47. Ratatiya	Plaquium thwaitsei Trim.	2
48. Rivigaha	Antiaris toxicaris (Pers.) Leschen.	2
49. Rubber wood	Hevea brasiliensis	2
50. Sooriyamara*	Albizzia odoratissima (L.f.) Benth.	1
51. Talan	Letsea gardneri (Thw.) Hook.f.	2
52. Tekka*	Tectona grandis L.f.	1
53. Telambu	Sterculia foetida L.	2
54. Tiniya	Doona congestifolia Thw.	2
55. Toona	Cedrella toona Roxb.	2
56. Ululu	Machilus macrantha Nees.	2
57. Uruhonda*	Urandra apicalis Thw.	2
58. Walbeli	Hibiscus tiliaceus L.	2
59. Walbilin	Ailanthus triphysa (Dennst.) Alston	2
60. Waldivul	Hydnocarpus octandra Thw.	2
61. Walu-kina	Calophyllum bracteatum Thw.	2

62. Walwaraka*	Casearia zeylanica (Gaertn.) Thw.	2
63. Welang*	Pterospermum canescens Roxb.	2
64. Yakahalu	Doona trapezifolia Thw.	2

* Treatment not required

APPENDIX C

PRESERVATIVE TREATMENT OF VENEERS

The veneers requiring treatment in the manufacture of plywood shall be soaked in a 1.25 per cent solution of boric acid, or 1.9 per cent solution of borax at a temperature of 93°C to 100°C for a period of 10 minutes to 40 minutes, depending on the species and thickness. The veneers may also be dipped in a 2 per cent solution of boric acid or 3 per cent solution of borax for 2 minutes at the above temperature and then left stacked at least for 2 hours.

Alternatively the veneers may be soaked at a temperature of 27 ± 2 °C in a 5 per cent solution of sodium pentachlorophenate in water for a period of 2 minutes and then stacked for at least half an hour before drying. They shall then be dried to a moisture content specified. For BWP, BWR, MWR and CWR grades of plywood bonded with synthetic resin adhesive, the preservative mentioned above shall be given immediately after the boards come out of the press. However, if pressure impregnation facilities are not available, treatment shall be given to individual veneers prior to bonding. For CWR grade of plywood bonded with casein glue the treatment shall be given before bonding the veneers. For BWP and BWR grades, the preservative used shall be of fixed type subject to the agreement between the manufacturer and the user.

For treatment of Rubberwood an aquecus solution, preferably at a temperature higher than 45°C, containing 5 per cent boric acid and 5 per cent Sodium tetraborate is recommended. In addition, 0.5 per cent of sodium pentachlorophenate is recommended to prevent mould growth during drying.

NOTES

1. Species of timber, not marked with an asterisk in Appendix B, are of sufficient durability to give temporary protection in the short term. For long term protection against decay, borer attack or termite attack, plywood sheets during or after manufacture shall be given adequate preservative treatment.

2. All percentages are on a mass to mass (m/m) basis.