SRI LANKA STANDARD 261 PART 1: 1991

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PLYWOOD FOR GENERAL PURPOSES

PART 1: TERMINOLOGY

(FIRST REVISION)

SRI LANKA STANDARDS INSTITUTION

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Gr. 5

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~~XXXXX~~ Sri Lanka Standard

PLYWOOD FOR GENERAL PURPOSES (FIRST REVISION)

Part 1 : Terminology

FOREWORD

This standard was authorized for adoption and publication as a Sri Lanka Standard by the Council of the Sri Lanka Standards Institution on 91/09/29, 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 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 the 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 1) deals with terminology applicable to plywood. Part 2 of this standard 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 3 of this standard specifies test methods related to plywood.

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 preparation of this standard.

1 SCOPE

This Part of the standard deals with terminology applicable to plywood used for general purposes.

2 DEFINITIONS

The following definitions shall apply to the terms used in this standard :

2.1 Composition and preparation of elements

2.1.1 veneer : A thin sheet of wood of uniform thickness not exceeding 5 mm obtained by slicing or rotary cutting.

2.1.2 side of a veneer

2.1.2.1 loose side (slack side) : The side of the peeled or sliced veneer that is in contact with the knife as the veneer is being cut and which undergoes an elongation often producing cutting checks.

2.1.2.2 tight side : The side of the veneer opposite to the loose side.

2.1.3 ply : Each of the layers of wood in plywood.

NOTE – Wood here refers to veneers only.

2.1.3.1 outer ply : Outer layer of plywood formed either of a single even veneer or several veneers jointed or placed tightly, edge to edge.

2.1.3.2 inner ply : Inner layer of plywood formed either of a single veneer or several veneers jointed or placed tightly, edge to edge.

2.1.3.3 central ply : The middle ply on either side of which the other plies are placed symmetrically. This may sometimes be composed of two veneers (or plies) with parallel grain glued to each other.

2.1.3.4 core : The central layer of plywood, generally thicker than the other plies. It may sometimes be composed of veneers placed edge to edge which may or may not be glued together.

2.1.4 trimmed veneer : Veneer, at least one edge of which has been cut straight and perpendicular to the surface of the veneer.

2.1.5 joint : The junction of two adjacent pieces of veneer.

2.1.5.1 jointed veneer : Two or more trimmed veneers placed edge to edge in the same direction of the grain and bonded together.

2.1.5.2 edge joint : Joint between the trimmed edges of two veneers so that the joint is practically parallel to the grain of these two veneers.

2.1.5.3 end joint : Joint made between two veneers placed in the same direction of the grain so that the joint is at right angles to the grain of these veneers.

2.1.5.4 butt joint : End joint made between the trimmed ends of two veneers.

2.1.5.5 scarf joint : End joint made by bonding the ends of two veneers bevelled in thickness.

2.1.5.6 finger joint : End joint obtained by assembling two veneers with edges machined to usually give tapered projections in the plane, which have been glued and interlocked.

2.1.6 glue line : The resultant layer of adhesive effecting union between any two adjoining plies in an assembly.

2.2 grain

2.2.1 grain of the ply : Direction and arrangement of the fibres in a ply.

2.2.1.1 straight grain : Grain which is straight and parallel or nearly parallel to an edges of the ply.

2.2.1.2 angle grain : Grain forming an angle other than about 90° with either of the edges of the ply.

2.2.2 cross-banded plies : Assembly in which the grain of two adjacent plies forms an angle of about 90°.

2.3 plywood panels

2.3.1 plywood : Panel consisting of an assembly of plies bonded together with the direction of the grain in alternate plies usually at right angles. In general, the outer and inner plies are placed symmetrically on both sides of a central ply or core.

2.3.1.1 long grained plywood : Plywood in which the grain of the outer plies is parallel or nearly parallel to the longer edge of the panel.

2.3.1.2 cross grained plywood : Plywood in which the grain of the outer plies is parallel or nearly parallel to the shorter edge of the panel.

2.3.1.3 multi-ply : Plywood formed of more than three plies.

2.3.2 decorative plywood : Plywood of which, one or both of the outer plies comprise of decorative wood veneer.

2.3.3 scarfed plywood : Plywood obtained by assembling two or more plywood panels with bevelled or multiple bevelled glued joints to obtain an increase in size.

2.3.4 finger jointed plywood : Plywood obtained by assembling two or more plywood panels with edges machined to give tapered projections, which are glued and interlocked in the plane of the ply to obtain an increase in size.

2.3.5 raw plywood : Standard plywood for general use produced to cover a wide range of uses and which are not further processed beyond sanding and/or scraping.

2.3.6 structural plywood : Plywood having defined strength properties.

2.3.7 homogeneous plywood : Plywood of which all the plies are of the same species.

2.3.8 mixed plywood : Plywood of which all or certain of the inner plies or core are of a species different from that of the outer plies.

2.3.9 face : The better surface of the plywood.

2.3.10 back : Surface opposite to the face.

2.3.11 panel : A sheet of plywood.

2.3.11.1 length of the panel : Surface dimension in the direction of the longest edge (if any) of the ply.

2.3.11.2 width of the panel : Dimension at right angles to the length in the plane of the panel.

2.3.11.3 thickness of the panel : Dimension at right angles to the length and the width.

2.3.11.4 lay up : The arrangement of plies in a plywood panel.

2.4 defects and characteristics

2.4.1 defects and characteristics inherent in wood plies

2.4.1.1 knots : Portions of branches embedded in the wood by the natural growth of the tree.

NOTE - For evaluation purposes the diameter of a knot is conventionally defined as the average value of the smallest and the largest width of the knot.

2.4.1.2 intergrown knots (adhering knots) (tight knots) : Knots the circumference of which is intergrown with the surrounding wood for not less than 3/4 of their cross-sectional perimeter.

2.4.1.3 partially intergrown knots (partially adhering knots) : Knots the circumference of which is intergrown with the surrounding wood for between 3/4 and 1/4 of the cross-sectional perimeter.

2.4.1.4 non-adhering knots (dead knots) (encased knots) : Knots the circumference of which is not intergrown with surrounding wood or intergrown with it only for 1/4 or less of their cross-sectional perimeter.

2.4.1.5 loose knots : Non-adhering knots that cannot be relied upon to remain in place in the veneer..

2.4.1.6 knot holes : Voids produced by removal of loose knots.

2.4.1.7 sound knots : Knots free from decay and knots the circumference of which is intergrown with the surrounding wood for more than 1/4 of their cross-sectional perimeter.

2.4.1.8 pin knots : Sound intergrown knots of not more than 5 mm diameter.

2.4.1.9 unsound knots : Knots in which not more than 1/3 of the cross-section is decayed.

2.4.1.10 decayed knots : Knots in which more than 1/3 of the cross-section is decayed.

2.4.1.11 round knots : Knots, the ratio between the maximum and the minimum diameters of which is not more than two.

2.4.1.12 oval knots : Knots, the ratio between the maximum and the minimum diameters of which is more than two but not more than four.

2.4.1.13 splay (spike) knots : Knots, the ratio between the maximum and the minimum diameters of which exceeds four.

2.4.1.14 swirl : A figure produced by irregular grain in the region of a crotch or knot.

2.4.2 abnormal structure

2.4.2.1 resin pocket (pitch pocket) (gum pocket) : A lens shaped cavity in the wood containing or which has contained a resinous substance.

2.4.2.2 inbark (bark pocket) (ingrown bark) : Bark which is completely or partially enclosed in the wood.

2.4.2.3 resin streak (pitch streak) : Local accumulation of resin or gum in the form of a streak.

2.4.3 defects due to borers and parasitic plants

2.4.3.1 worm holes (borer holes) (insect holes) : Holes and channels left in the wood by insects or their larvae (grubs).

2.4.3.2 small worm holes (pin worm holes) : Worm holes not more than 1.5 mm in diameter more or less perpendicular to the surface of the ply.

2.4.3.3 large worm holes (including marine borer holes) : Holes more than 1.5 mm in diameter or a channel made by a worm or a marine borer.

2.4.3.4 marks of parasitic plants : Small channels caused by parasitic plants or saprophytes perforating the wood.

2.4.4 discolouration

2.4.4.1 chemical stain : Discolouration of the wood caused by chemicals or by chemical reactions.

2.4.4.2 mould (fungal growth) : The mycelia and spores or mould fungi.

2.4.4.3 blue stain : Bluish colouring of the sapwood sometimes with a greenish tinge caused by sapstain fungi.

2.4.4.4 coloured sapstains : Orange, yellow, pink (up to light violet) and brown colourations of the sapwood, also caused by sapstain fungi.

2.4.4.5 discolouration (sound) : A change from the normal colour of the wood which does not impair the strenth of the wood, for example blue stains; chemical stains; and coloured sap stains.

2.4.4.6 discolouration (unsound) : A change from the normal colour of the wood accompanied by strength reduction in the coloured portion which may have some affect in the wood, for example decay; and mould.

2.4.5 fungal decay

2.4.5.1 dote (incipient decay) : The early stages of decay characterized by bleached or discoloured streaks, or patches in the wood, the general texture remaining more or less unchanged.

NOTE - The term is commonly applied to timber that is slightly affected by decay and is not acceptable for certain purposes.

2.4.5.2 decay (rot) : The decomposition of the substance of the cell walls by wood-destroying fungi or other micro-organisms resulting in softening, progressive loss of strength and density and often a change of texture and colour.

2.4.5.3 heartwood rot (heart rot) : Zones of heartwood characterized by abnormal colour and reduced hardness, appearing in a growing tree under the action of wood-destroying fungi.

2.4.5.4 pocket rot (white pocket) : A type of decay usually in conifers in which the attack is limited to small areas of pockets usually lens shaped, surrounded by apparently sound wood.

2.4.6 mechanical defects

2.4.6.1 dog holes : Holes in logs caused by clamps, logger's tools, etc., during transport and handling.

2.4.7 manufacturing defects

2.4.7.1 open joint : Discontinuity between two adjacent veneers within an outer ply.

2.4.7.2 pleat : Defect due to a veneer being folded, forming several thicknesses of veneer locally.

2.4.7.3 core gap : Discontinuity between two adjacent veneers within an inner ply or between two adjacent core elements, visible on the edges of the plywood.

2.4.7.4 hidden core gap : Discontinuity between two adjacent veneers within an inner ply or between two adjacent core elements, not visible on the edges of the plywood.

2.4.7.5 overlap : Defect due to overlapping of two adjacent veneers (or two sections of a split veneer) in a ply, resulting in a local excess thickness or possibly in a change in the appearance of the surface of the panel.

2.4.7.6 outer overlap : Overlap in an outer ply.

2.4.7.7 inner overlap : Overlap in an inner ply.

2.4.7.8 core overlap : Overlap in a core.

2.4.7.9 blister : A bulge on the surface due to a separation of constituent veneers, usually at a glue line.

2.4.7.10 delaminations : Separation of veneers through lack of adhesion that is visible at the edge(s) of the plywood panel.

2.4.7.11 hollow : Local depression in an outer ply.

2.4.7.12 imprint : Local indentation in an outer ply.

2.4.7.13 bump : Local over-thickness showing on the outer ply.

2.4.7.14 split : Separation of the fibres along the grain, extending through the whole thickness of the veneer.

2.4.7.15 open split : Split in an outer ply which would, if not filled,expose a portion of the surface of the underlying ply or the glue line.

2.4.7.16 closed split (tight split) : Split situated in an outer ply the edges of which have come so close that there remains only a hair-line crack visible on the surface of the plywood.

2.4.7.17 internal split : Split situated in an inner ply or core.

2.4.7.18 check : Short separation of the fibres in a ply which does not normally start from an edge, which does not always extend through the whole thickness of the veneer, and which does not allow the under-lying ply or glue line to appear.

2.4.7.19 cutting check (knife check) (lathe check) : Small check which can appear when an outer ply has been laid with the loose side outermost.

2.4.7.20 torn grain : Irregularities on the surface of the plywood due to a tearing of fibres.

2.4.7.21 shell : Separation of the fibres in a ply approximately parallel to its surface.

2.4.7.22 sanding/scraping through : Local absence of outer ply resulting from excessive sanding or scraping which reveals some of the glue line or of the underlying ply.

2.4.7.23 glue percolation : Glue which has seeped through the outer ply and shows up as a blemish on the surface.

2.4.8 distortion

2.4.8.1 warping : Distortion which is generally regular, part or all of the panel having become curved.

2.4.8.2 longitudinal warping (bow) : Warping in the lengthwise direction of the plywood.

2.4.8.3 transverse warping (cup) : Warping in the breadthwise direction of the plywood.

2,4,8.4 dishing : A combination of longitudinal and transverse warping of the plywood.

2.4.8.5 waviness : Distortion of a sinusoidal nature.

2.5 Repair

2.5.1 filling : Sealing of an open defect with filler to provide a surface level with the surrounding wood.

2.5.2 insert : A piece of sound veneer tightly fitted in a sheet of veneer, from which a defective portion has been removed, in such a manner that it is in contact with the surronding veneer right round its perimeter.

2.5.2.1 shim : Insert in the form of a long narrow strip of veneer.

2.5.2.2 patch (plug) : Insert of a shape other than that of a shim.

2.6 State of surfaces

2.6.1 sanded plywood : Plywood in which one or both surfaces have been smoothed by means of a mechanical sander.

2.6.2 scraped plywood : Plywood in which one or both surfaces have been smoothed by means of a mechanical scraper.

2.6.3 unsmoothed plywood : Plywood which has not been sanded or scraped.

2.7 Further processing

2.7.1 overlaid plywood : Plywood surfaced with an overlay sheet or film on one or both surfaces.

2.7.1.1 high density overlay : A cellulose fibre sheet containing not less than 45 per cent resin soilds of the thermosetting phenol type and bonded to the face and back plies to give a weather resistant finish.

2.7.1.2 medium density overlay (MDO) : A special cellulose fibre sheet impregnated with 17 per cent to 44 per cent resin solids (thermosetting phenol or melamine type) and bonded to the face and back plies. The finish is designed for painting, not for exposure without protection.

2.7.1.3 metal-faced plywood : Plywood with or metal sheet bonded to one or both surfaces.

2.7.1.4 paper-faced plywood : Plywood with paper, bonded to one or both surfaces (sometimes as a pre-treatment for painting).

2.7.1.5 plastic-faced plywood : Plywood with plastic laminate, plastic sheet or glass reinforced plastic applied to one or both surfaces.

2.7.2 coated plywood : Plywood surface with coatings for functional or decorative purposes, normally applied in liquid form.

2.7.2.1 pre-finished plywood : Plywood with paints or clear finishes (including flame-retardant paints and varnishes) applied to one or both surfaces and requiring no further treatment.

2.7.2.2 primed plywood : Plywood with priming coats applied to one or both surfaces to seal the surface in preparation for further treatment.

2.7.2.3 flame-retardant plywood : Plywood treated with flame-retardant chemicals to reduce the rate of spread of flame.

2.7.2.4 preservative treated plywood : Plywood treated with fungicide or insecticides to repel fungi or insects.

2.7.3 shaped plywood : Plywood bent or shaped into surfaces of single or double curvature.

2.7.3.1 preformed plywood : Plywood moulded to shape during the bonding of the plies or layers.

2.7.3.2 post-formed plywood : Plywood shaped by bending it after it has been manufactured.