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Standard Terminology Relating to Veneer and Plywood[1,2]

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INTRODUCTION

The terms included in this terminology standard are intended to apply to a family of wood veneer-based panel products manufactured for use in construction and industrial applications.

1. Scope

1.1 This standard covers a repository of terms and classifications essential needed for the business of Subcommittee D07.03.

1.2 The terms in this standard pertain to processing and characteristics of wood veneer and plywood products.

2. Terminology

adhesive—a substance capable of holding materials together by surface attachment.

NOTE 1—adhesive is the general term and includes, among others, cement, glue, mucilage, and paste. All of these terms are loosely used interchangeably. Various descriptive adjectives are applied to the term adhesive to indicate certain characteristics as follows:
(1) Physical form, that is, liquid adhesive, tape adhesive
(2) Chemical type, that is, silicate adhesive, resin adhesive
(3) Materials bonded, that is, paper adhesive, metal-plastic adhesive, can label adhesive
(4) Conditions of use, that is, hot-setting adhesive

back—the side reverse to the face of a panel, or the poorer side of a panel in any grade of plywood calling for a face and back.

balanced construction—See under **construction.**

banding (railing)—a portion of wood or other material extending around one or more edges of a plywood panel.

bleed through—adhesive or components of adhesive that have seeped through the outer layer or ply of a bonded wood product and that show as a blemish or discoloration on the surface.

blemish—anything marring the appearance of the veneer that is not classifiable as a defect.

blister—*in plywood*, an elevation of the surface of an adherend (separation between plies), somewhat resembling in shape a blister on the human skin; its boundaries may be indefinitely outlined and it may have burst or become flattened.

bolt (veneer)—a short log cut to length suitable for peeling in a lathe; also block.

bond, *n*—the attachment at an interface between an adhesive and an adherend.

bond, *v*—to attach materials together by means of an adhesive.

borer holes—voids made by wood-boring insects.

broken grain (shelling, leafing, grain separation)—a separation on veneer surface between annual rings.

cauls, *n*—sheets of material employed singly or in pairs in hot or cold pressing of assemblies being bonded. Cauls are employed usually to protect either the faces or the press platen or both against marring and staining, to prevent sticking, to facilitate press loading, or to impart a desired surface texture or finish, and to provide uniform pressure distribution.

NOTE 2—Cauls may be made of any material such as aluminum, stainless steel, hardboard, fiberboard, or plastic, with the length and width generally equal to the platen size of the press in which they are employed.

center—inner layers whose grain direction runs parallel to that of the outer plies; may be of parallel laminated plies. (See also **core**.)

clipper—the shearing machine used to dimension dry or green veneers to width.

compreg—synthetic resin-treated, compressed wood with reduced swelling and shrinking characteristics and increased density and strength properties.

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[2] These definitions are specific to veneer and plywood. Other definitions relating to timber appear in ASTM Terminology D9, Relating to Wood, *Annual Book of ASTM Standards*, Vol 04.10.

construction—details of arrangement or thickness or both, of veneers and other components used in the fabrication of plywood.

all-veneer construction—plywood in which all plies are veneer. Ordinarily no single ply of veneer will exceed 5⁄16 in. (7.9 mm) in thickness.

balanced construction—a construction such that the forces induced by uniformly distributed changes in moisture content will not cause warpage.

composite construction—a panel assembly consisting of veneers and other wood-based materials. Normally the non-veneer component is identified in describing the construction.

lumber core construction—plywood in which the center ply or core is of lumber rather than of veneer. Ordinarily cores that are 3⁄8 in. (9.5 mm) or greater in thickness will be of lumber.

symmetrical construction—plywood panels in which the plies on one side of the panel center line are essentially equal in thickness, grain direction, properties, and arrangement to those on the other side of the center line.

core—(*1) in decorative or hardwood plywood*, the center most ply. It may be of lumber (either edgeglued or closely assembled) or other wood-based panel material, or of one or more thicknesses of veneer.

(*2*) *in construction plywood,* all plies or layers between the face and back.

core block—in cutting rotary veneer, the portion of the bolt remaining after available veneer has been removed.

cross band, *n*—inner layers of veneer whose grain direction is usually perpendicular to that of the face plies, applied particularly to plywood of five or more plies and lumber-core panels.

cross band, *v*—to place the grain of the inner layer of veneer at right angles to that of the face and back.

delamination, *n*—the separation of layers in a laminate because of failure of the adhesive, either in the adhesive itself or at the interface between the adhesive and the adherend.

dryer—a kiln or chamber, or machine through which the green veneers are passed to remove excess moisture.

durability—(*1*) *as applied to wood*, its lasting qualities or permanence in service with particular reference to decay.

(*2*) *as applied to the adhesive bond*, its resistance to deterioration related to exposure conditions. (See also **delamination.**)

exterior type plywood—a term applied to plywood that is capable of withstanding prolonged exposure to severe service conditions including prolonged and repeated wetting without failure in the adhesive bonds; the commercial classification is a function of veneer grade as well as adhesive durability.

face—the better side of a panel in any grade of plywood calling for a face and back; also either side of a panel where the grading rules draw no distinction between faces.

flitch—a portion of a log sawed on two or more sides and intended for remanufacture into sliced or sawn veneer. The term is also applied to the resulting sheets of veneer stacked together in sequence of cutting.

gap—an open joint or split in the inner plies which results when crossband or center veneers are broken or not tightly butted.

*glue***,** *n*—See **adhesive.**

groove—a decorative face treatment, consisting of narrow parallel channels formed into the surface of the panel; such as machined.

V-groove—narrow and shallow V- or U-shaped channels machined on the plywood face to achieve a decorative effect.

impreg—wood impregnated with synthetic resin that is cured in place so as to reduce materially swelling and shrinking of the wood on exposure to varying environmental conditions.

inner plies—plies other than face or back plies in a panel construction. Subface, subback, crossband, and center are classed as inner plies.

interior type plywood—a term frequently applied to plywood bonded with adhesives that maintain adequate bonds under conditions usually existing in the interior of buildings; the commercial classification is a function of veneer grade as well as adhesive durability.

joint—the junction of two adjacent pieces of wood or veneer.

adhesive joint—the place where two pieces of wood are joined together by means of adhesive.

edge joint—the place where two pieces of wood are joined together edge to edge (joint running parallel to the grain).

end joint—the place where two pieces of wood are joined together end to end (joint running perpendicular to the grain) which may be accomplished by a butt joint, scarf joint, or lap joint.

open joint—a discontinuity between two adjacent veneers within a ply (gap).

starved joint—an adhesive joint that is poorly bonded because of an insufficient quantity of adhesive.

sunken joint—in the case of plywood, a depression in the surface of the face ply directly above an edge joint in a lumber core or crossband. Usually the result of localized shrinkage in the edge-jointed layer.

jointed—veneer or other ply components that have machined edges for tightest possible layup.

knotholes—voids remaining after removal of knots.

lap—a condition in which adjacent veneers overlap one another instead of making a smooth edge joint.

lathe—the machine on which rotary, half-round, and rift veneer is cut.

layer—a single veneer ply or two or more plies laminated with grain direction parallel. Two or more plies laminated with grain direction parallel is a parallel laminated layer.

loose side—*in knife-cut veneer,* the side of the sheet that was in contact with the knife as the sheet was being cut, and that contains cutting checks. (See **tight side**.)

matching—*in plywood*, the arrangement of strips of veneer to obtain a particular repetitive pattern.

book matching—turning alternative adjacent strips of veneer of a flitch over.

mismatching—making sheets of face veneer from specially selected dissimilar (in color or grain or both) strips of veneer.

reversed matching—turning alternate adjacent strips of veneer of a flitch end for end; also called "swing matching."

slip matching—laying adjacent strips of veneer tight side up without turning; also called "slide matching."

panel—a sheet of plywood of any construction.

patches—insertions of sound wood or synthetic material in veneer or panels from which defective portions have been removed.

peeler log—a log selected as suitable for cutting into rotary veneer.

platen—a plate of metal, especially one that exerts or receives pressure, as in a press used for gluing plywood.

plugs—straight-sided insertions of sound wood or synthetic material replacing defective portions of veneers. They usually are held in place by friction until veneers are bonded into plywood.

ply—a single sheet of veneer, or several strips laid with adjoining edges, that may or may not be bonded, which forms one veneer lamina in a bonded plywood panel. (See also **layer**.)

plywood—usually a crossbanded assembly made of layers of veneer or veneer in combination with a lumber core or other wood-based panel material joined with an adhesive. Plywood generally is constructed of an odd number of layers with grain of adjacent layers perpendicular to one another. Outer layers and all odd-numbered layers generally have the grain direction oriented parallel to the long dimension of the panel.

press—an apparatus for applying and maintaining pressure on an assembly of veneers and adhesive in the manufacture of plywood. It may be operated mechanically or hydraulically and the platens may be cold or heated depending on the type of adhesive used.

*railing***—**See **banding.**

*rotary-cut veneer***—**See under **veneer.**

rough cut—irregular-shaped areas of uneven corrugations on the veneer surface, occurring as the veneer is cut by the lathe or slicer.

rough sawn—*in plywood*, a decorative treatment produced by scoring across the grain of the panel surface to provide a saw-roughened texture.

*sawn veneer***—**See under **veneer.**

shim—*in plywood*, a long narrow repair in the panel surface not more than 3⁄16 in. (4.8 mm) wide made of wood or suitable synthetic compound.

*sliced veneer***—**See under **veneer.**

slicer—machine for producing veneer by slicing.

stay log—a device used on a veneer lathe to which is fastened a flitch or segment of a bolt to secure desired grain effects in the veneer.

striated—a term used to describe plywood with a face veneer that has been grooved or scored parallel to the grain.

sub-face (sub-back)—the ply adjacent to the exposed face (or back) of a parallel laminated outer layer.

synthetic fillers—generally of the "wood dough" type, limited to the repair of minor defects in panels.

synthetic patches, plugs, and shims—generally composed of two-component formulations of materials which will provide high level performance in terms of bond characteristics, weatherability and durability, used to repair defects in veneer or plywood panels.

tape—ribbons, usually of paper or cloth, coated with adhesive that are used to fasten veneers together for convenience in handling during the gluing operation.

tight side—*in knife-cut veneer,* the side of the sheet that was farthest from the knife as the sheet was being cut and that contains no cutting checks. (See **loose side**.)

touch sanding—*in plywood*, a light surface sanding to control thickness; not intended as a full surfacing operation.

type—the designation of plywood as a function of veneer grade and adhesive durability.

veneer—thin sheets of wood from which plywood is made; also referred to as plies in the bonded panel.

figured veneer—veneer containing irregular grain formations that add to its value for furniture panel faces and other decorative uses. Various figures are referred to as rift-cut, comb-grained, stripe, rope, mottle, fiddle-back, cross-fire, quartered, crossbar, curley, blister, birds' eye, feather, crotch, ribbon, stump, burl, etc.

half-round veneer—a manner of cutting veneer to bring out a certain beauty of figure. The flitch is mounted on a stay log and is cut on a lathe. It differs from rotary-cut veneer in that the flitch is cut with a wider sweep than when mounted at the lathe center, and the center of the tree is not near the center of rotation.

plain sliced veneer—veneer sliced approximately tangent to the growth rings; also termed "flat cut."

quartered veneer—veneer produced by slicing or sawing a log on a plane approximately perpendicular to the growth rings. This may bring out a certain figure resulting from the presence of rays which are especially conspicuous in oak.

rift cut veneer—veneer cut at approximately 45 deg to the rays.

rotary-cut veneer—veneer cut in a continuous ribbon by centering the entire log or bolt in a lathe and rotating it against a knife.

sawn veneer—veneer produced by sawing.

sliced veneer—veneer that is sliced off by moving a log, bolt, or flitch laterally against a knife or vice versa.

waterproof—*as applied to plywood,* the term is synonymous with **exterior type plywood**.

water resistant—a term frequently applied to plywood that is capable of withstanding limited exposure to water or to severe conditions without failure in the adhesive bonds.

weatherproof—*as applied to plywood*, the term is synonymous with **exterior type plywood**.

wood failure—*(1) as applied to plywood glueline testing,* the area of wood fiber remaining at the glueline following completion of the specified shear test determined by means of visual examination and expressed as a percent of the test area (See Practice D5266, *Standard Practice for Estimating the Percentage of Wood Failure in Adhesive Bonded Joints*).

(2) as applied to failure in plywood not directly associated with the adhesive, a rupture, shelling, tearing or breaking of the wood itself. (See also **broken grain.**)

3. Keywords

3.1 plywood; veneer; wood-based panels