A P A

The Engineered Wood Association

APA PRODUCT GUIDE

SANDED PLYWOOD

A P A

The Engineered Wood Association

DO THE RIGHT THING RIGHT™

Wood is good. It is the earth's natural, energy efficient and renewable building material.

Engineered wood is a better use of wood. It uses less wood to make more wood products.

That's why using APA trademarked plywood, oriented strand board and *APA EWS* glued laminated timbers is the right thing to do.

A few facts about wood.

- *We're not running out of trees.* One-third of the United States land base – 731 million acres – is covered by forests. About two-thirds of that 731 million acres is suitable for repeated planting and harvesting of timber. But only about half of the land suitable for growing timber is open to logging. Most of that harvestable acreage also is open to other uses, such as camping, hiking, hunting, etc.

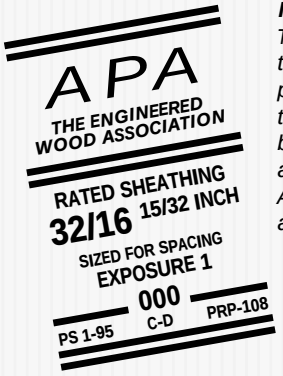
- *We're growing more wood every day.* American landowners plant more than two billion trees every year. In addition, millions of trees seed naturally. The forest products industry, which comprises about 15 percent of forestland ownership, is responsible for 41 percent of replanted forest acreage. That works out to more than one billion trees a year, or about three million trees planted every day. This high rate of replanting accounts for the fact that each year, 27 percent more timber is grown than is harvested.

- *Manufacturing wood products is energy efficient.* Wood products made up 47 percent of all industrial raw materials manufactured in the United States, yet consumed only 4 percent of the energy needed to manufacture all industrial raw materials, according to a 1987 study.

Material	Percent of Production	Percent of Energy Use
Wood	47	4
Steel	23	48
Aluminum	2	8

- *Good news for a healthy planet.* For every ton of wood grown, a young forest produces 1.07 tons of oxygen and absorbs 1.47 tons of carbon dioxide.

Wood. It's the right product for the environment.



NOTICE:
The recommendations in this guide apply only to panels that bear the APA trademark. Only panels bearing the APA trademark are subject to the Association's quality auditing program.

Sanded plywood is a structural plywood panel with face and back plies that are sanded smooth in the manufacturing process. The panels have three or more cross-laminated layers of wood veneer, each layer consisting of one or more plies. Face plies are B-grade or better veneer as defined in U.S. Product Standard PS 1-95 for Construction and Industrial Plywood.

The high grade of face and back veneers and the smooth sanded surface make sanded plywood the preferred panel for a variety of applications where appearance is important. And, because sanded plywood is a structural product, it also offers the advantages of high strength and stiffness values, dimensional stability, impact resistance, fastener-holding ability, and workability.

This brochure from APA – The Engineered Wood Association describes the specifications of sanded plywood, panel characteristics, typical applications, and finishing recommendations. Sample trademarks are also included.

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SPECIFICATIONS

Grade Designations

Most sanded plywood grades are identified by the veneer grade used on the face and back of the panel, for example, A-C, B-D, etc. (See Table 1.)

Veneer grades define veneer quality according to natural unrepaired growth characteristics and allowable number and size of repairs permitted during manufacture. (See Table 2.) Veneer grades in descending order of quality are A, B, C-Plugged, C and D.(1) The minimum grade of veneer permitted in Exterior plywood is C. Use of D-grade veneer for sanded grades is limited to backs and inner plies of Exposure 1 or Interior panels.

Sanded plywood has B-grade or better veneer on one or both sides. Panels with B-grade or better veneer on both sides usually carry the APA trademark on the panel edge. Otherwise, the trademark is stamped on the back of the panel. Typical APA sanded plywood trademarks (edgemarks and backstamps) are illustrated and explained at right.

Exposure Durability Classifications

Sanded plywood is produced in three basic exposure durability classifications: Exterior, Exposure 1 and Interior.

Exterior panels are made with a fully waterproof bond and are designed for applications subject to permanent exposure to the weather or moisture.

Exposure 1 panels have a fully waterproof bond and are designed for applications where long delays may be expected prior to providing protection, or where high moisture conditions may be encountered in service. Exposure 1 panels are made with the same exterior adhesives used in Exterior panels. However, because other compositional factors may affect glueline performance, only Exterior panels should be used for permanent exposure to the weather.

Interior panels lacking additional glueline information in their trademarks are manufactured with interior glue and are intended for interior applications only.

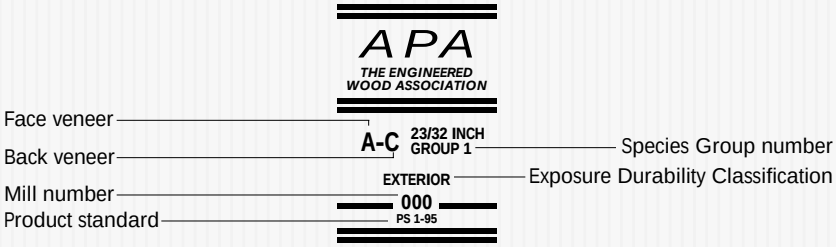
Species Groups

Plywood can be manufactured from over 70 species of wood under *U.S. Product Standard PS 1-95 for Construction and Industrial Plywood.* These species are divided according to strength and stiffness into five groups – Groups 1 through 5. Group 1 species are the strongest and stiffest, Group 2 the next strongest, and so on. (See Table 3.)

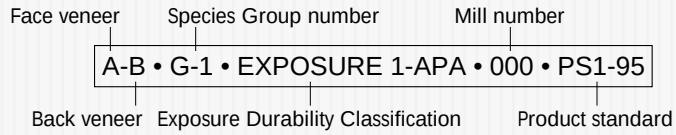
The Group number in the APA trademark of sanded plywood refers to the species used for face and back veneers. When face and back veneers are from different species, the higher Group number is used.(2)

TYPICAL APA SANDED PLYWOOD TRADEMARKS

Typical Back Stamp



Typical Edgemark



Panel Size and Thickness

Standard sanded plywood dimensions are 48 by 96 inches, although some manufacturers are equipped to produce longer and wider panels. Common thicknesses are 1/4, 9/32, 11/32, 3/8, 15/32, 1/2, 19/32, 5/8, 23/32, and 3/4 inch.

How to Order

To order sanded plywood, designate the thickness, APA trademark, grade, Group number, exposure durability classification, dimensions, and number of pieces. For example:

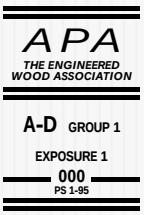
3/4" APA A-C, Group 1, Exterior,
48" x 96", 100 pcs.

(1) Some manufacturers also produce an essentially clear N-grade (natural finish) veneer available only by special order.

(2) Panels 3/8-inch thick or less are identified by face species because they are chosen primarily for appearance and used in applications where structural properties are not critical. Panels thicker than 3/8 inch are identified by face species if C or D backs are at least 1/8-inch thick and are not more than one species group number higher than face species.

TABLE 1

GUIDE TO APA SANDED PLYWOOD GRADES[1][2]

APA A-A Typical Trademark A-A • G-1 • EXPOSURE 1-APA • 000 • PS1-95		Use where appearance of both sides is important for interior applications such as built-ins, cabinets, furniture, partitions; and exterior applications such as fences, signs, boats, shipping containers, tanks, ducts, etc. Smooth surfaces suitable for painting. EXPOSURE DURABILITY CLASSIFICATIONS: Interior, Exposure 1, Exterior. COMMON THICKNESSES: 1/4, 11/32, 3/8, 15/32, 1/2, 19/32, 5/8, 23/32, 3/4.
APA A-B Typical Trademark A-B • G-1 • EXPOSURE 1-APA • 000 • PS1-95		For use where appearance of one side is less important but where two solid surfaces are necessary. EXPOSURE DURABILITY CLASSIFICATIONS: Interior, Exposure 1, Exterior. COMMON THICKNESSES: 1/4, 11/32, 3/8, 15/32, 1/2, 19/32, 5/8, 23/32, 3/4.
APA A-C Typical Trademark		For use where appearance of only one side is important in exterior or interior applications, such as soffits, fences, farm buildings, etc.[3] EXPOSURE DURABILITY CLASSIFICATION: Exterior. COMMON THICKNESSES: 1/4, 9/32, 11/32, 3/8, 15/32, 1/2, 19/32, 5/8, 23/32, 3/4.
APA A-D Typical Trademark		For use where appearance of only one side is important in interior applications, such as paneling, built-ins, shelving, partitions, flow racks, etc.[3] EXPOSURE DURABILITY CLASSIFICATIONS: Interior, Exposure 1. COMMON THICKNESSES: 1/4, 9/32, 11/32, 3/8, 15/32, 1/2, 19/32, 5/8, 23/32, 3/4.
APA B-B Typical Trademark B-B • G-2 • EXPOSURE 1-APA • 000 • PS1-95		Utility panels with two solid sides. EXPOSURE DURABILITY CLASSIFICATIONS: Interior, Exposure 1, Exterior. COMMON THICKNESSES: 1/4, 11/32, 3/8, 15/32, 1/2, 19/32, 5/8, 23/32, 3/4.
APA B-C Typical Trademark		Utility panel for farm service and work buildings, boxcar and truck linings, containers, tanks, agricultural equipment, as a base for exterior coatings and other exterior uses or applications subject to high or continuous moisture.[3] EXPOSURE DURABILITY CLASSIFICATION: Exterior. COMMON THICKNESSES: 1/4, 9/32, 11/32, 3/8, 15/32, 1/2, 19/32, 5/8, 23/32, 3/4.
APA B-D Typical Trademark		Utility panel for backing, sides of built-ins, industry shelving, slip sheets, separator boards, bins and other interior or protected applications.[3] EXPOSURE DURABILITY CLASSIFICATIONS: Interior, Exposure 1. COMMON THICKNESSES: 1/4, 9/32, 11/32, 3/8, 15/32, 1/2, 19/32, 5/8, 23/32, 3/4.

Continued on next page

TABLE 1

CONTINUED

APA MARINE	MARINE • A-A • EXT-APA • 000 • PS 1-95	Specially designed plywood panel made only with Douglas-fir or western larch, and highly restrictive limitations on core gaps and face repairs. Ideal for boat hulls and other marine applications where bending is involved. Also available with HDO or MDO faces. EXPOSURE DURABILITY CLASSIFICATION: Exterior. COMMON THICKNESSES: 1/4, 3/8, 1/2, 5/8, 3/4.
APA B-B PLYFORM CLASS 1	APA THE ENGINEERED WOOD ASSOCIATION PLYFORM B-B CLASS 1 EXTERIOR 000 PS 1-95	APA proprietary concrete form panels designed for high reuse. Sanded both sides and mill-oiled unless otherwise specified. Class I, the strongest, stiffest and more commonly available, is limited to Group 1 faces, Group 1 or 2 cross-bands, and Group 1, 2, 3, or 4 inner plies. (Plyform Class II, limited to Group 1, 2 or 3 faces under certain conditions and Group 1, 2, 3 or 4 inner plies, may also be available.) Also available in HDO for very smooth concrete finish, in Structural I, and with special overlays. EXPOSURE DURABILITY CLASSIFICATION: Exterior. COMMON THICKNESSES: 19/32, 5/8, 23/32, 3/4.

Grade	Thicknesses	Minimum Number of Plies	Minimum Number of Layers[4]
APA A-A APA A-B	1/4, 9/32, 11/32, 3/8	3	3
APA A-C APA A-D	15/32, 1/2	4	3
APA B-B APA B-C APA B-D	19/32, 5/8, 23/32, 3/4	5	5
APA MARINE	1/4, 3/8	3	3
	1/2, 5/8, 3/4	5	5

(1) Exterior sanded panels can also be manufactured in Structural I (all plies limited to Group 1 species) and Structural II (all plies limited to Group 1, 2 or 3 species). Check availability before specifying.

(2) For information on touch-sanded plywood (such as Underlayment), contact APA.

(3) For nonstructural floor underlayment in areas to be covered with thin resilient (non-textile) floor covering, or other applications requiring improved inner-ply construction, specify panels marked “plugged inner plies” (also may be designated “plugged crossbands under face” or “plugged crossbands (or core)” or “meets underlayment requirements”).

(4) A layer is a single veneer ply, or two or more plies laminated with grain direction parallel in each ply.

TABLE 2

VENEER GRADES

N	Smooth surface "natural finish" veneer. Select, all heartwood or all sapwood. Free of open defects. Allows not more than 6 repairs, wood only, per 4 x 8 panel, made parallel to grain and well-matched for grain and color.
A	Smooth, paintable. Not more than 18 neatly made repairs, boat, sled, or router type, and parallel to grain, permitted. Wood or synthetic repairs permitted. May be used for natural finish in less demanding applications.
B	Solid surface. Shims, sled or router repairs, and tight knots to 1 inch across grain permitted. Wood or synthetic repairs permitted. Some minor splits permitted.
C Plugged	Improved C veneer with splits limited to 1/8-inch width and knotholes or other open defects limited to 1/4 x 1/2 inch. Wood or synthetic repairs permitted. Admits some broken grain.
C	Tight knots to 1-1/2 inch. Knotholes to 1 inch across grain and some to 1-1/2 inch if total width of knots and knotholes is within specified limits. Synthetic or wood repairs. Discoloration and sanding defects that do not impair strength permitted. Limited splits allowed. Stitching permitted.
D	Knots and knotholes to 2-1/2-inch width across grain and 1/2 inch larger within specified limits. Limited splits are permitted. Stitching permitted. Limited to Exposure 1 or Interior panels.

TABLE 3

CLASSIFICATION OF SPECIES

Group 1	Group 2	Group 3	Group 4	Group 5
Apitong	Cedar, Port Orford	Alder, Red	Aspen	Basswood
Beech, American	Cypress	Birch, Paper	Bigtooth Quaking	Poplar, Balsam
Birch	Douglas-fir 2(1)	Cedar, Alaska	Cativo	
Sweet	Fir	Fir, Subalpine	Cedar	
Yellow	Balsam	Hemlock, Eastern	Incense	
Douglas-fir 1(1)	California Red	Maple, Bigleaf	Western Red	
Kapur	Grand	Pine	Cottonwood	
Keruing	Noble	Jack	Eastern	
Larch, Western	Pacific Silver	Lodgepole	Black (Western Poplar)	
Maple, Sugar	White	Ponderosa	Pine	
Pine	Hemlock, Western	Spruce	Eastern White	
Caribbean	Lauan	Redwood	Sugar	
Ocote	Almon	Spruce		
Pine,	Bagtikan	Engelmann		
Southern	Mayapis	White		
Loblolly	Red			
Longleaf	Tangile			
Shortleaf	White			
Slash	Maple, Black			
Tanoak	Mengkulang			
	Meranti, Red(2)			
	Mersawa			
	Pine			
	Pond			
	Red			
	Virginia			
	Western White			
	Spruce			
	Black			
	Red			
	Sitka			
	Sweetgum			
	Tamarack			
	Yellow-Poplar			

(1) Douglas-fir from trees grown in the states of Washington, Oregon, California, Idaho, Montana, Wyoming, and the Canadian Provinces of Alberta and British Columbia shall be classed as Douglas-fir No. 1. Douglas-fir from trees grown in the states of Nevada, Utah, Colorado, Arizona and New Mexico shall be classed as Douglas-fir No. 2.

(2) Red Meranti shall be limited to species having a specific gravity of 0.41 or more based on green volume and oven dry weight.

PRODUCT FEATURES

APA trademarked sanded plywood offers numerous advantages as a structural and aesthetic construction material, including:

Appearance

The high grade of sanded plywood face or face and back veneers provides a beautiful finish-quality surface for all kinds of applications, from cabinets and built-ins to soffits and paneling. And since it is sanded at the mill, little or no additional sanding is required for most applications.

Strength and Stiffness

By cross-laminating layers of wood veneer, sanded plywood provides an excellent strength-to-weight ratio and exhibits superior stiffness along both the length and width of the panel. While sanded plywood, particularly thinner panels, is frequently used for appearance applications where structural properties are of little importance, it should be noted that sanded plywood is a structural material for which design stresses and section properties have been calculated and published. These data permit the product to be used for a wide variety of engineered construction and industrial applications where design values are required.

Dimensional Stability

Plywood's cross-laminated construction also provides superior dimensional stability, or resistance to warping or buckling in the plane of the panel when exposed to moisture. Wood tends to shrink much more across the grain than along the grain with changes in moisture content. In plywood, the tendency of individual veneers to swell or shrink is greatly restricted by the relative longitudinal stability of the adjacent plies.

Plywood also is dimensionally stable in the plane of the panel when subjected to changing temperatures.

Impact Resistance

Plywood improves on wood's well-known ability to absorb shock. Even when supported on only two edges, its cross-laminated construction and large panel size distribute impact loads. Impact load distribution is even greater when the panel is supported along all four edges.

Chemical Resistance

Exterior plywood exhibits excellent resistance to a wide range of chemicals, making it ideally suited for a number of demanding industrial applications. Plywood's strength is not significantly affected by organic chemicals, neutral and acid salts, or by most acids and alkalies in the pH range of 3 to 10. The chemical resistance of the phenolic resin glues used in Exterior plywood is at least as good, and generally better, than the wood itself.

Exposure 1 plywood has about the same chemical resistance as Exterior, but is not recommended for long-term exposure to moisture except in cases where some localized separation of veneers is acceptable.

Fastener-Holding Ability

Due again to its cross-laminated construction, sanded plywood possesses excellent nail-holding ability. Nails can be placed near panel edges without splitting the panel.

Sanded plywood also can be attached to steel or aluminum with mechanical fasteners. These commonly include self-drilling, self-tapping screws and hardened helically threaded nails which can be power or hand driven.

Workability

The ease with which sanded plywood can be cut, drilled, routed, jointed, glued, fastened and finished with ordinary tools and basic skills is another of its many advantages.

Support panels firmly with the best side up when hand sawing or when using a radial-arm or table saw. Cut with the best side down when using a portable power saw.

Plywood also can be die cut and stitched. Thicknesses up to and including 3/8 inch can be die cut with little difficulty. Some experience and specialized techniques are necessary to cut thicker panels. Grades with a minimum of defects provide the smoothest cut and Exterior panels are preferred to Exposure 1 or Interior panels. Fabric or plastic materials can be stitched to panels up to 3/8-inch thick with industrial sewing machines. Ultimate test values in excess of 100 pounds per lineal inch have been achieved with fabrics stitched to 1/4-inch-thick plywood.

Availability

Sanded plywood is made by numerous APA member manufacturers and is available in virtually every region of the country. Some grades, thicknesses and species are more commonly manufactured than others. Check with your supplier for local availability of the many sanded grades, thicknesses and species.

APPLICATIONS

Construction

APA sanded plywood finds numerous uses in both residential and nonresidential construction, and for both new construction and remodeling projects.

Typical construction applications include soffits, stair treads and risers, cabinets and built-ins, shelving, paneling, and accent panels. Sanded plywood, with special inner-ply construction for resistance to indentation and punctures from concentrated loads, is ideal as an underlayment base for thin resilient floor coverings and high performance floor or roof deck coatings.

Sanded plywood is widely used for paneling, accent walls, counter tops and fronts and other interior applications in commercial structures. Easy to stain attractively, plywood in these applications contributes the warmth and natural beauty of real wood while meeting project cost constraints.

Sanded plywood is an ideal choice for cabinets, built-ins, shelving and similar applications for the same reasons – good looks and reasonable cost. Panels are also commonly used as a backing for other finish materials in these and other applications. For walls, for example, plywood serves as an excellent backing for wall coverings such as rare hardwoods, vinyl surfaces and decorative fabrics.

Materials Handling

APA sanded plywood is widely used for a number of materials handling applications, including pallets, slave pallets, pallet bins and tanks, liquid tanks, crating, shelving and cable reels.

Sanded plywood is particularly well suited for materials handling applications where damage to the commodity or material being shipped or stored can be minimized by a smooth surface. For example, bins designed to handle soft fruits or vegetables are commonly made of sanded plywood. Similarly, smooth sanded plywood pallet decks can reduce damage to goods that might otherwise be torn or snagged by more abrasive or splinter-prone pallet decks.

Transportation

Sanded plywood's smooth surface and structural properties make it an excellent lining for trucks, trailers, vans and railcars.

Sanded plywood linings are resistant to splitting, puncturing and impact damage. They are durable. And their smooth surface makes them ideal for sliding and skidding palletized and loose-loaded freight. Snag-free panel surfaces reduce costly damage to boxed and bagged goods and possess high resistance to prolonged friction and abrasion.

Unless specific or unusual use requirements are anticipated, 1/4- or 3/8-inch sanded plywood serves admirably for sidewall truck linings. As added protection against fork tine damage, scuff panels are often installed over the bottom two feet. Thicker panels are recommended for front end linings, intermodal or piggy-back van front wall construction, and railcar linings.

Sanded plywood also is widely used in recreational vehicles because it delivers superior strength and stiffness without sacrificing weight considerations.

Agriculture

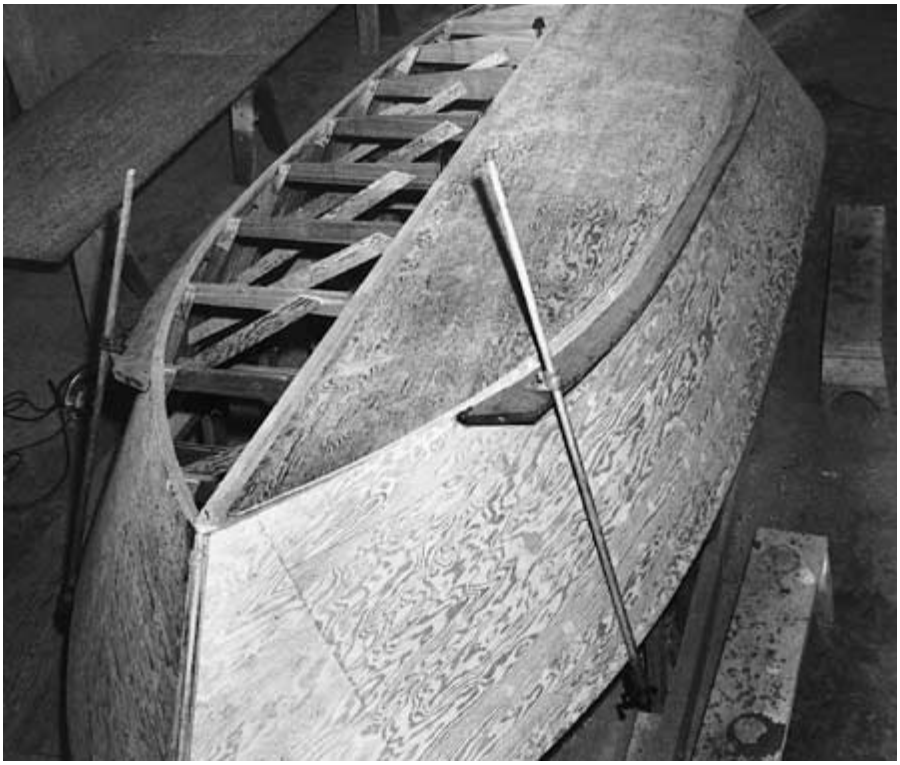
APA sanded plywood has a long history of use on the farm and for all kinds of agricultural applications. In addition to bins and crates where, as discussed above, sanded plywood can help reduce damage to soft fruits and vegetables, it is also used extensively for farm service buildings, animal shelters, granular storage bins, and various agricultural equipment applications.

Manufactured Products

Numerous industries use sanded plywood for all kinds of manufactured products and products made for sale. Among these are store and office fixtures, display cases, furniture, cabinets, signs, cable reels, ducts, doors, work benches, storage units, bookcases, toys, and boats.

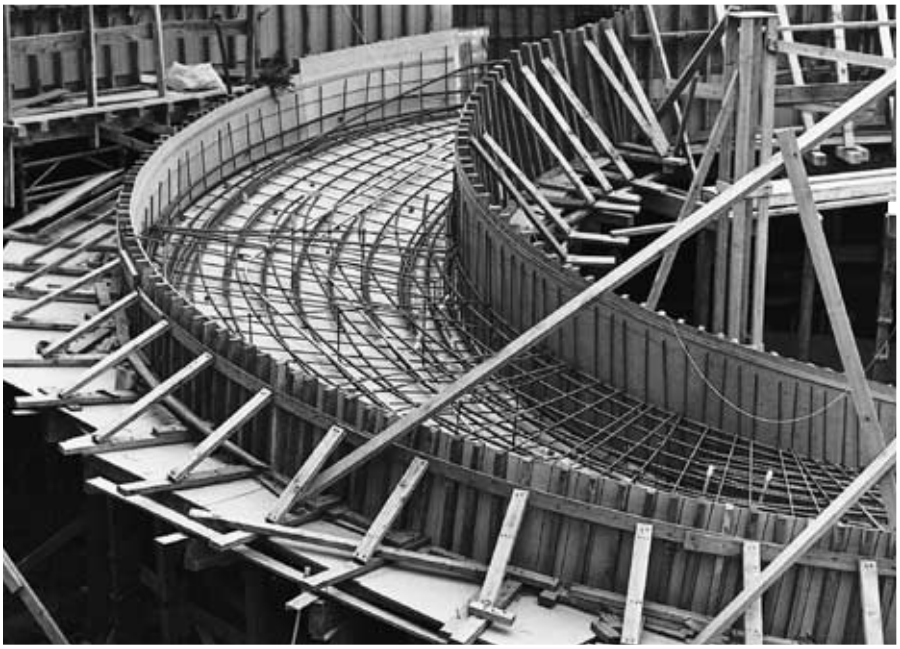
Sanded plywood for such applications is easy to work with, lends strength and durability, and provides an excellent surface for finish materials such as plastic laminates or other coverings.

For boats and other marine applications where resistance to the elements and structural integrity is particularly critical, a special Marine grade sanded panel is manufactured. Marine grade is a specially designed panel made only with Douglas-fir or western larch, and with highly restrictive limitations on core gaps and face repairs. It is especially well suited for boat hulls and other applications where bending is involved. Marine plywood may be difficult to obtain in some areas. Check with your supplier before ordering.



Concrete Forming

While any grade of Exterior sanded plywood can be used for concrete formwork, B-B Plyform is specifically made and recommended for formwork applications. B-B Plyform is a proprietary product made only by members of *APA – The Engineered Wood Association*. The product provides numerous reuses and is available in two classes: Class I and Class II. Class I is stronger, stiffer and more commonly available.



Do-It-Yourself Applications

There are few materials more widely used or ideally suited for miscellaneous homeowner and do-it-yourself applications than APA sanded plywood. The uses to which it can be put are limited only by the imagination and woodworking skills of the user.

Typical do-it-yourself applications include workbenches, tool and toy boxes, desks and tables, other furniture of all kinds, outdoor storage buildings, patio shelters, fences, and countless home repair and maintenance projects.

FINISHING RECOMMENDATIONS

Interior Applications

A wide variety of finishes are available for sanded plywood used in interior applications. The most common are described below. Always use finishes formulated for wood and follow the finish manufacturer's recommendations for best results. For interior (and exterior) applications, little or no sanding of the mill-sanded plywood surface is advised before application of the finish, to avoid uneven highlighting of hard and soft grain areas on the surface of the panels.

Natural Finishes. Various clear finishes and oils can be used on sanded plywood to provide the ever-popular real wood appearance. For the most natural effect, use two coats of a clear penetrating sealer. This type of finish resists soiling and allows easy cleaning. Some sealers can be tinted or used with light stains to add color and to produce a variety of attractive effects. Other clear finishes can also be used. Many finish manufacturers recommend that a sealer be used before applying a film-forming clear finish such as varnish.

Color Toning. Repairs and grain irregularities in sanded plywood can be pleasantly subdued by color toning. Tones of light gray, brown or tan go well with wood colors and provide the best masking. Two color toning techniques are recommended. The easiest method uses a heavy-bodied non-penetrating sealer containing non-hiding pigments, and companion stains for color. Tint a small amount of the sealer with stains until the desired tone is obtained on a panel sample. Then mix the same proportions of stain and sealer in sufficient quantity for the entire job and apply by brush or spray. After drying and light sanding, apply a coat of clear finish to give the desired luster.

Where more control of the panel color differences is desired, begin by whitening the surface with pigmented resin sealer or diluted interior white undercoat. Wipe off before becoming tacky to display the grain desired. Then apply a clear resin sealer, allow to dry, and sand lightly. Next, apply a light stain, pigmented sealer or tinted undercoat and wipe to the desired color depth.

After drying and light sanding, apply a coat of satin varnish or brushing lacquer to provide luster and durability.

Semitransparent Stains. Semitransparent stains are highly recommended where both color and show-through of the grain and natural wood characteristics are desired. When light colors are used, only oil-based semitransparent stains are recommended. These help prevent discoloration of the finish caused by natural water-soluble compounds (called extractives) in the wood.

Solid-color Stains and Paints (Including Enamels). These colored finishes, especially paint, are opaque and mask repairs and wood grain patterns. Paints typically provide a smoother surface than solid-color stains.

Paints are available in either oil base or water base (latex). Both normally require two coats, a primer or undercoat and a topcoat. The oil-based and darker colored latex solid-color stains often require only one coat. However, lighter colored latex stains usually require a stain-resistant undercoat to prevent discoloration of the finish by extractives.

Paints are available in a full range of gloss levels, including flat, semigloss and gloss. The flat finishes are generally more difficult to clean when soiled.

Exterior Applications

Sanded plywood is not recommended as an exterior siding on most buildings. However, it is frequently used for soffits and miscellaneous other exterior uses. For these applications, acrylic latex house paints are recommended.

House paints require at least two coats, a primer and topcoat. Primers are formulated specifically for controlled penetration, optimum bonding to the substrate, and minimal extractive staining. Some acrylic latex systems use oil or oil-alkyd primer followed by the acrylic latex topcoat. Other systems use one or two coats of a stain-blocking acrylic latex primer and generally offer superior performance. In any case, select companion products that are designed to be used together and preferably from the same manufacturer. Two topcoats will provide significant improvement in the life and performance of the finish.

Edge Treatment. All edges of plywood panels used for exterior applications should receive edge protection to minimize the effects of moisture absorption. Use the same exterior house paint primer for the edges that will be used on the face.

CARE AND HANDLING

Like all building materials, sanded plywood should be properly stored, handled and installed to assure superior in-service performance.

Protect the edges and ends of panels. While minor damage to panel edges and ends won't affect the structural capability of the panel, it can add to in-place repair costs. Place panels to be moved by forklift on pallets or bunks to avoid damage by fork tines.

Panels to be transported on open truckbeds should be covered with standard tarpaulins. For open railcar shipment, use "lumber wrap" to avoid extended weather exposure.

Store panels whenever possible under a roof, especially if they won't be used soon after received. Keep panels away from open doorways and weight down the top panel in a stack to avoid any possible warpage from humidity. If moisture absorption is expected, cut steel banding on panel bundles to prevent edge damage. Use at least three full-width supports along the eight-foot length of the panel – one centered and the others 12 to 16 inches from each end.

If panels must be stored outside, special care should be taken to support and cover them. Stack panels on a level platform supported by 4 x 4 stringers or other blocking. Never leave panels or the platform in direct contact with the ground.

Cover the stack loosely with plastic sheets or tarps. Anchor the covering at the top of the stack, but keep it open and away from the sides and bottom to assure good ventilation. Tight coverings prevent air circulation and, when exposed to sunlight, create a "greenhouse" effect which may encourage mold formation.

ADDITIONAL INFORMATION

For sanded plywood design data or additional application information, write *APA – The Engineered Wood Association*, P.O. Box 11700, Tacoma, Washington 98411-0700, for any of the following publications, or contact the nearest APA field office listed on the back cover.

Plywood Design Specification, Form Y510

Design/Construction Guides:
Residential & Commercial, Form E30;
Concrete Forming, Form V345

Industrial Use Guides:
Materials Handling, Form M200;
Slave Pallets, Form S225;
Transport Equipment, Form G210

Handy Plan Catalog, Form Y630

ABOUT *APA*

APA – The Engineered Wood Association is a nonprofit trade association whose member mills produce approximately 75 percent of the structural wood panel products manufactured in the United States, and a significant percentage of panels produced in Canada.

Founded in 1933 as the Douglas Fir Plywood Association and widely recognized today as the voice of the structural wood panel industry, APA performs numerous functions and services on behalf of panel product users, specifiers, dealers, distributors, schools, universities and other key groups.

Among the most important of these functions is quality auditing. The APA trademark appears only on products manufactured by APA member mills and is the manufacturer's assurance that the product conforms to the standard shown on the trademark. That standard may be an APA performance standard, the *Voluntary Product Standard PS 1-95 for Construction and Industrial Plywood* or *Voluntary Product Standard PS 2-92, Performance Standard for Wood-Based Structural-Use Panels.* APA maintains four quality testing laboratories in key producing regions, and a 37,000-square-foot research center at Association headquarters in Tacoma, Washington.

But quality validation is only one of APA's many functions. The Association also:

- Operates the most sophisticated program for basic panel research in the world.
- Maintains an international network of field representatives to assist panel product users, specifiers, dealers, distributors and other segments of the trade.
- Conducts informational buyer and specifier seminars and provides dealer and distributor sales training.
- Publishes a vast inventory of publications on panel grades, applications, design criteria and scores of other topics.
- Advertises and publicizes panel product systems and applications in national trade and consumer magazines.
- Works to secure acceptance of structural wood panel products and applications by code officials, insuring agencies and lending institutions.
- Develops and maintains performance and industry product standards.
- Conducts in-depth market research and development programs to identify and penetrate new panel markets in the U.S. and abroad.
- Works in conjunction with other wood product industry organizations on solutions to problems of common concern.

Always insist on panels bearing the mark of quality – the APA trademark. Your APA panel purchase or specification is your highest assurance of quality. It is also an investment in the many trade services and programs that APA undertakes on your behalf.

SANDED PLYWOOD

PRODUCT GUIDE

We have field representatives in most major U.S. cities and in Canada who can help answer questions involving APA trademarked products. For additional assistance in specifying APA engineered wood products, get in touch with your nearest APA regional office. Call or write:

WESTERN REGION
7011 So. 19th St. ▪ P.O. Box 11700
Tacoma, Washington 98411-0700
(253) 565-6600 ▪ Fax: (253) 565-7265

EASTERN REGION
2130 Barrett Park Drive, Suite 102
Kennesaw, Georgia 30144-3681
(770) 427-9371 ▪ Fax: (770) 423-1703

U.S. HEADQUARTERS AND INTERNATIONAL MARKETING DIVISION
7011 So. 19th St. ▪ P.O. Box 11700
Tacoma, Washington 98411-0700
(253) 565-6600 ▪ Fax: (253) 565-7265

Web Address: @
www.apawood.org

PRODUCT SUPPORT HELP DESK
(253) 620-7400
E-mail Address: help@apawood.org

(Offices: Antwerp, Belgium; Bournemouth, United Kingdom; Hamburg, Germany; Mexico City, Mexico; Tokyo, Japan.) For Caribbean/Latin America, contact headquarters in Tacoma.

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The Engineered Wood Association