Substrates

States' Substrates are Engineered to Match Every Application

When you order hardwood plywood from States Industries, you can choose the type of core or "substrate" used in assembling your panel products. The substrate is the base material over which thin decorative face and back veneers are applied. Core selection is often a balance between performance characteristics and price.

There are three common categories of cores, and each category contains several variations. These categories are veneer cores, composite cores and hybrid/ combination cores.

Substrate Options

Substrate options for your States decorative panel include:

ApplePly

ArmorCore

Veneer Core

Composite Core

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Veneer Core

Veneer cores are comprised of wood veneers laminated in alternating directions to achieve the desired panel thickness. Generally, the higher number of plies used, the better the core. Veneer core panels are lightweight and hold screws better than most other substrates. In addition, they are high in dimensional stability and bending strength. Veneer core panels may be laminated in one step for maximum economy or constructed and sanded to a metered tolerance using a two-step laminating process.

ApplePly® Premium Veneer Core

ApplePly is States' highest quality, veneer core panel, constructed from 1/16" Alder and Birch using a two-step lamination process. Because the innerplies are thin, uniform hardwood veneers, ApplePly machines beautifully. ApplePly is specified for its attractive edge, high strength and solid hardwood core. It is widely used in retail fixtures, contemporary furniture and architectural interiors, where its attractive edge is incorporated as a design element.

ArmorCore Combination Core

ArmorCore is a hybrid substrate, combining composite crossbands with veneer innerplies to produce an exceptionally flat, smooth surface. ArmorCore is preferred in applications where panels need to have the weight, structural value and screw-holding ability of veneer core with the superior flatness and higher density of MDF. ArmorCore is offered in one-step and two-step construction for maximum flexibility.

Composite Core

Composite core panels include particleboard and MDF of several densities. Composite cores are valued for their flat, smooth surfaces and tight tolerances, as well as their relatively low costs. MDF is available in both thin and thick versions, and its more refined particles improve its machinability. Particleboard is available in thicknesses above 7/16" and is the lowest cost substrate used in hardwood plywood.

One-Step vs. Two-Step Construction

In conventional one-step hardwood plywood layup, all veneers—including the face and back—are laminated at one time. Two-step layup means that the inner plies are first laminated into a "blank" and any surface knots or splits are puttied. The blank is then sanded to a calibrated tolerance and overlaid with face and back veneers. The advantages of using the more expensive two-step construction are the smoothness of the surface and the consistency of the panel's thickness.

Core Comparisons

Substrate	Flatness	Visual Edge	Surface Uniformity	Dimensional Stability	Screw Holding	Bending Strength	Thickness Tolerance	Costs
1-Step Veneer	1	3	2	5	5	5	3	$$
2-Step Veneer	3	3	2	5	5	5	3	$$$
ApplePly	5	5	5	5	5	5	5	$$$$
1-Step Armorcore	4	4	5	4	5	5	2	$$
2-Step Armorcore	5	4	5	4	5	5	4	$$$
MDF	4	5	5	3	3	3	5	$$
Particleboard	5	3	5	3	3	3	5	$

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