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Door Company

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TECHNICAL BULLETIN 101-02

Crossbanding Natural vs. Engineered

For years Poplar has been the most widely used species of natural hardwood veneer crossbanding in 5-ply door construction. There are three reasons why Poplar has been so widely accepted and used. First it is a very dimensionally stable wood. Second it has been in plentiful supply from logs large enough with so few defects that the entire crossband for a door was commonly supplied from a single piece of veneer. Finally, it has also been competitively priced with other species. Although other species can and are used, they typically do not equal Poplar in all three categories.

Increased demand in recent years has resulted in smaller diameter logs and logs of lower quality being used for crossbanding, just as they are for face veneers. The result has been that crossbanding veneer now has spliced joints more often than not. These splices cause sand-throughs in production and when they don't they may still telegraph through the face veneer causing a visible horizontal line across the face of the door. In order to maintain their yields, veneer suppliers now allow more defects, such as knots and splits that were once graded out. This requires a much closer inspection of the crossbands received by the door manufacturer to insure there isn't anything that will create a telegraphing problem when the door is pressed. The end result is a higher percentage of rejected and wasted material. This, of course, is factored into door pricing offsetting some of the savings originally intended by using it.

As the problems with natural veneer crossband increase, door manufacturers have been seeking alternative materials to use. The solution came in an engineered wood product called HDF (High Density Fiberboard). HDF has been used in Europe as a crossband material for years and it has a number of advantages over natural veneer crossbanding as shown in the table below.

	Engineered Wood (Homanit HDF)	Natural Poplar
Thickness	Totally uniform and perfectly flat.	Varies even within the same piece of crossbanding due to uneven shrinkage during the curing process.
Joints	None	Can be none but typically multiple.
Durability and strength	Excellent! Can even be handled with automated equipment.	Cracks and splits easily. Must be handled by hand. Can even split while in the press. Has no strength until bonded to the core.
Impact Resistance	Harder than any veneer crossbanding. Manufacturers experience far fewer handling marks in production, complaints by installers and end-users.	As a backer to face veneer, much softer than high density fiberboard. Result is prone to visible denting from normal handling in the installation or general use by the occupant.
Color	Totally uniform (typically light brown) Almost invisible on most species even with clear finish except very light colored woods.	Not uniform. Varies from almost white to a dark green and can be both colors on the same edge of a door. Matches light colored woods only when crossband is all light in color. Stands out dramatically against most species except light colored wood.
Environmental	Environmentally correct. Maximum usage of domestic natural resources and sawmill waste. Material can be safely burned for thermal energy or be composted.	Over usage is resulting in harvesting of less than mature trees and veneering also results in waste because the entire log is not usable.

It seems as though this alternative to a more finite resource, also has aesthetic and performance advantages that make it more equitable as well. Oshkosh Architectural Door Company recommends it with confidence in its guide specifications.