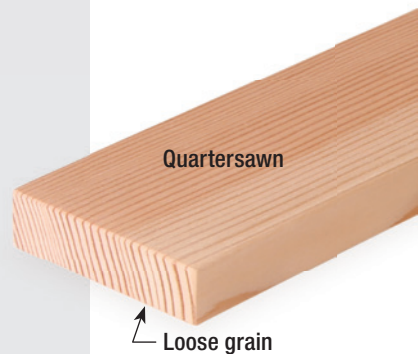


VERTICAL GRAIN DOUGLAS-FIR



Light, strong, and pin-striped

By Ken Burton

Douglas-fir is one of the United States' most plentiful softwoods. Due to its excellent strength-to-weight ratio, it has long been the go-to species for carpentry and construction projects. Construction 2×4s designated as SPF (spruce, pine, fir)—are often Douglas-fir. But before you dismiss this species as simply fodder for framing walls and floors, take a closer look at the photos and the title of the article. We're talking about CVG (Clear, Vertical Grain) Douglas-fir; boards that are more processed and quarter-sawn—cut so the growth rings are relatively perpendicular to board faces.

Where the wood comes from

In truth, Doug-Fir, *Pseudotsuga menziesii*, isn't a fir, at all. It's genus (*Pseudotsuga*) translates to "false hemlock." Doug-Fir forests grow in the Pacific Northwest and up into British Columbia. Mature trees can be 200 feet tall and 6 feet in diameter. The dense stands in which they grow cause the trees to self-prune, yielding straight-grained logs free of knots. As of this writing, the plentiful Douglas-fir is considered far from endangered.

History in woodworking

Ever since the Oregon Trail opened up the Northwest to settlement, Douglas-fir has been valued as a prime building material. Architects, carpenters, and cabinetmakers have long valued the wood for its stability and uniform appearance, and have used it for doors, window sashes, paneling, trim, and cabinetry.

Selecting the best stock

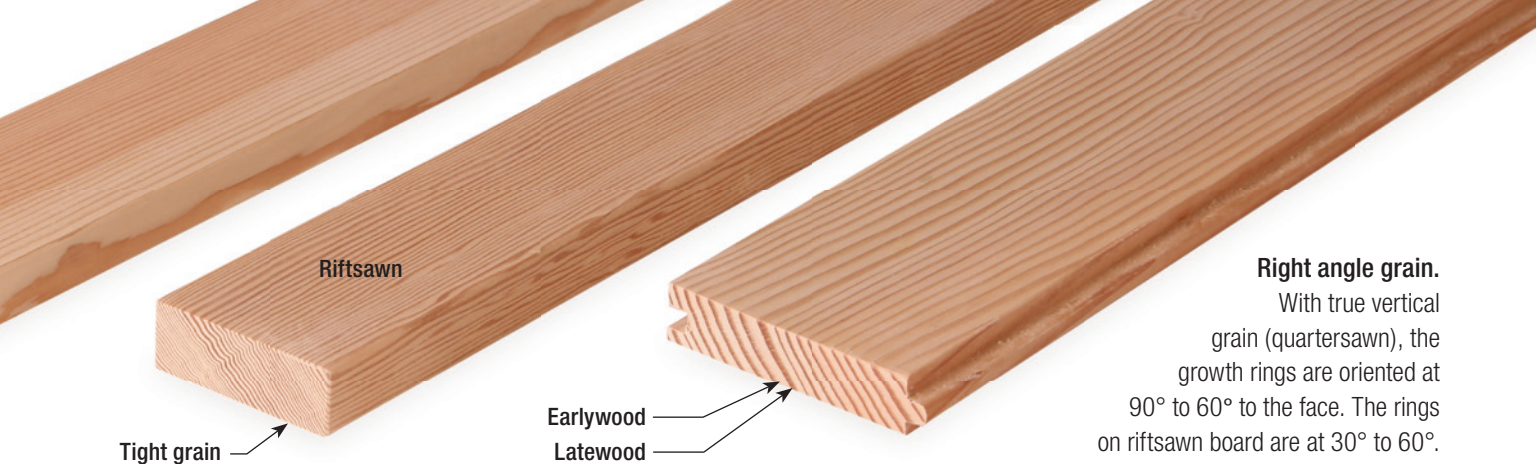
Unlike many of the exotic species discussed in previous WoodSense columns, CVG Douglas-fir can be found at big box hardware stores, although the sales staff may not know exactly what you're asking for. My local place, stocks what they refer to as "tongue and groove fir flooring" (above, right) in the aisle with the premium quality pine boards. While not all the pieces in the bin are vertical grain, you can usually sort through and find those that are. This material is meant to be used for porch flooring and has a groove on one edge and a tongue on the other, so you'll waste a little of it if you just want square-edged boards. These 1×4 pieces sell for about \$6/board foot. You can also find the wood online. CVG Doug-fir is quite uniform in appearance, so, seeing

Vertical Grain Douglas-Fir Quick Take

DENSITY	32 lbs./cu. ft.
HARDNESS	Medium (hard as far as softwoods go)
STABILITY	Very Good
ROT/INSECT RESISTANCE	Moderate
TEXTURE	Coarse
TOXICITY	Low. Although rare, skin and nose irritation and nausea have been reported.
USES	Doors, window frames, paneling, flooring, cabinetry, furniture, boxes, plywood

From dawn to dusk.

While pinkish-red when freshly cut, CVG (Clear, Vertical Grain) Douglas-fir ages to a beautiful, warm reddish-brown with darker stripes.



Tight grain

Riftsawn

Earlywood
Latewood

Right angle grain.
With true vertical grain (quartersawn), the growth rings are oriented at 90° to 60° to the face. The rings on riftsawn board are at 30° to 60°.

before buying isn't as important as when buying lumber with prominent figure. But do note whether the grain is described as "tight" or "loose." The tighter the grain, the closer together the growth rings are, creating a more uniform texture and making it easier to work. With some old-growth lumber, the ring spacing can be 1/16" or less.

Working CVG Douglas-fir

Doug-fir is one of the harder softwoods on the market and features a distinct difference in the hardness of the earlywood (the lighter colored areas) and the latewood (the darker stripes). You'll feel this distinctly when bandsawing across the grain. The harder areas can also cause small drill bits to drift off course. The wood can splinter easily, and is tough to work with hand tools. Folded sandpaper can slip beneath a splinter, angling it right into your finger. Do yourself a favor and use a sanding block.

The wood machines well, but use very sharp cutters, and employ backer blocks when crosscutting to minimize exit tearout. Climb-cutting when routing profiles greatly reduces splintering. The wood glues without a problem and holds both nails and screws well, but drill pilot holes to prevent splitting.

Finishing

Doug-fir has a warm, reddish-brown hue that deepens with age. It accepts stains readily and can be finished with any number of different top-coats, but soaks up oil.

CVG Douglas-Fir in the shop

My most recent experience with CVG Douglas-fir came in the residential construction class I teach as one of the Technology Education electives available to my high school students. (There are still a few of us teaching "shop" in America's public schools.) As part of a renovation project, our gym was updated with ADA-compliant seating. I convinced the demo crew to save me the lumber from the old bleachers—most of it CVG Doug-fir. Those boards were just as flat, straight, and sturdy as when they were installed over 50 years ago, though with more chewing gum.

With my lumber rack overflowing, I set about designing a project my students could tackle that would teach valuable woodworking lessons and utilize this beautiful reclaimed wood. We built a version of the tool tote (shown here). I also wanted them to have a bit of school history to take home (although I doubt that will matter much to them until they get a little older).

The fir was harder and more prone to splintering than the pine the students were used to working. They also learned the value of drilling pilot holes before nailing through the thin sides and of using a backup board when crosscutting. (Or crosscutting, as they named it).

I was impressed with the wood's stability. When I resawn the pieces for the sides of the tool tote, I expected the pieces to cup and bow, but they stayed flat. Out of curiosity (and to show the



students another use of the bandsaw), I installed a fresh blade and sliced one piece into some veneer. Just like the resawn pieces, the veneers stayed perfectly flat.

The students learned the importance of grain direction when edge jointing. Doug-fir's flatsawn edges tore badly when run against the grain. Given the board's uniform face grain, ascertaining proper orientation for jointer feeding was tricky. It was essentially a coin toss to decide which way to first run the board over the jointer.

I also found using fresh router bits made a big difference in how cleanly the boards cut. While cherry can be routed with a bit that has lost some sharpness (albeit with some burning), Doug-fir splinters badly when using dull cutters.

I'm pleased with the results and look forward to using the rest of my stash with next year's class. And I'm planning a project to use the T&G pieces I picked up from the home center. ■

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