BY CLAYTON DEKORNE

A Trip to the Lumberyard

As a carpenter-in-training, I was allowed to accompany my father to the lumberyard, and little by little, I learned my way around the stacks, so that eventually, long before I could be called a carpenter of any sort, I could make the trip to the lumberyard myself and come back to the jobsite with a decent load of lumber.

But this experience isn't always part of the training for new hires these days. As one contractor recently explained to me, insurance requirements for adding employees as additionally insured onto a company's insurance policy are steep for young 20-somethings, so he limits who drives on company time. This contractor depends either on his more experienced carpenters picking up materials on their way to the jobsite, or on deliveries. Understandably, to control costs and keep jobs on budget, savvy contractors try to shut down the cost of running to the lumberyard frequently. But the result is that new carpenters don't have the luxury of accompanying an experienced carpenter to the lumberyard where they can learn experientially how to select lumber. New crew members need to learn this another way.


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This article is intended as a primer on selecting softwood dimensional wood materials for framing and finish that you typically find at a lumberyard. A follow-up article will cover hardwoods used primarily for finish work—materials you typically need to get from a specialty lumber dealer or millwork supplier.

FINISH VS. FRAMING MATERIAL

Lumber found at most lumberyards is differentiated as "yard lumber" (appearance-graded softwood for finish work) and "structural lumber" (stress-graded softwood for framing).

1-by and 5/4. On site, we commonly refer to finish material as "1-by" material—dimensional lumber used for trimwork that is rough cut to 1 inch thick, hence the name, but dressed out at 3/4 inch thick—or "five-quarter"—dimensional finish lumber that is rough cut to 1 3/4 inches thick and dressed out to 1 1/8 inches thick. (Actual dressed dimensions can vary 1/16 to 1/8 inch depending on the moisture content.)

2-by and up. Framing lumber is often called 2-by material (rough cut to 2 inches thick but dressed out to about 1 1/2 inches thick), 4-by (roughed to 4 inches thick but dressed to 3 1/2 inches), 6-by (dressed to 5 1/2 inches), and so on. Unless you are on a timber-framing crew, you don't use many 6-bys or larger dimensional stock. At these sizes, we now rely much more on engineered wood materials—a topic for another day.

FINISH LUMBER

Here, I focus on making sense of "flat stock," used for casing, jambs, baseboards, ceiling and wall paneling, and other finish boards. From a lumber producer's standpoint, "select" also applies to the materials used for millwork and moldings. But selecting these is often simpler; they're almost always milled from clear, select wood. There are no knotty grades of this material, so you just need to look for straight pieces that aren't cracked or scuffed.

If the yard carries a really big inventory of softwood finish lumber, you may see lumber designated S4S (surfaced four sides), though this designation is more common to hardwoods, which we will cover in a later article.

Select 1-by and 5/4. Among the finish-grade "white

"Legal" lumber grades must have a grade stamp listed by the American Lumber Standard Committee (ALSC); these stamps **(2, 3)** are among them. The "J-Grade" stamp **(4)** signifies a premium grade for the Japanese market that has been intermittently available recently owing to transportation disruptions. But while considered "better," it's not technically listed for use in the U.S. The IPPC tag **(5)** certifies "heat treated" (good for killing insects) wood for pallets that is not allowed for structural uses.

woods" typically found in lumberyards (mostly pines of which there are several used for finish lumber, but occasionally may include aspen and balsam fir), most select lumber grades are generally described by letters.

A Select (or Clear) is not common. True "clear" material has no visible defects on either side of the board. It's preferred for naturally finished or high-end painted trim and cabinet stock.

B Select (sometimes called Prime) may have small defects such as pin knots or a few pitch pockets. It is also used for trimwork and cabinets, but if a natural finish is called for, carpenters will need to select the best side and strive to cut out the infrequent defects.

B&B (or B&BTR). Frequently, you may find yards carrying "B and Better," which is a mix of A and B Select materials.

C Select may have tight pin knots that are more frequent on one side than in B Select, but it should have one side that is nearly clear. Here, too, carpenters will need to select the best face, but they will likely to have to live with some pin knots.

C&BTR (or "C and Better") is a mix of C and B Select.

D and D Select contains pin knots and numerous small blemishes. When available, it is the best choice for a purposefully rustic, clear-finished look.

Note that select grades may also be called by names such as "Superior," "Prime," or "Supreme" for the better grades, and "Choice" for D and D Select. If a yard has a big enough inventory, you may see premium-graded materials sorted by grain specification: FG (flat grain), VG (vertical grain), and MG (mixed grain). But this is not common unless you are ordering from a large regional lumber distributor or specialty hardwood and millwork supply. We'll get into that in another article.

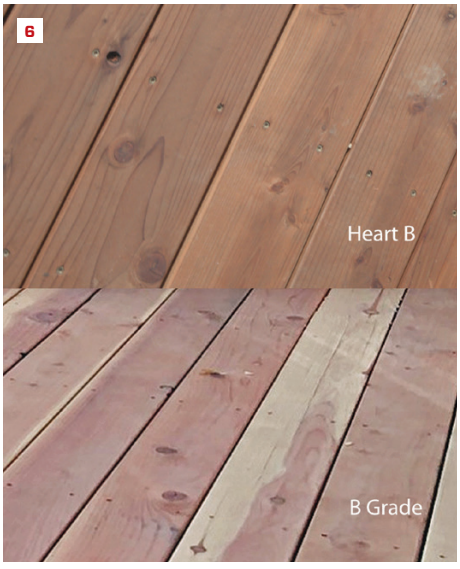
Common 1-by and 5/4, sometimes referred to as the "knotty grades," is normally a non-stress-graded product used for construction and utility purposes. Common finish lumber is generally separated into three different grades, No. 1, No. 2, and No. 3.

No. 1 Common (or Construction grade) is high-quality pine with a knotty look. Knots are tight and small. It is used mostly for shelving in closets and inside cabinets. It paints out OK if you seal the knots before priming.

No. 2 Common (or Standard) has slightly larger, but still tight, knots. It doesn't paint as well as No. 1 Common. It's one of the most available woods and is better for sheathing or fencing than for any finish application. You have to sand around knots, fill checks in the larger knots, and seal before painting. It's very hard to pull off for interior uses unless you're purposefully going for a "rustic" look.

No. 3 Common (or Utility) is low quality; loose knots (that fall out to become knotholes), splits, and other defects relegate these boards to formwork, barriers, and other temporary construction uses.

Redwood and cedar. While classified as softwood like the other woods dealt with here, redwood and cedar are in a class of their own. In both species, there is a pronounced difference in color between heartwood and sapwood. Heartwood also has high natural resistance to decay, so some grades are denoted as "heart." Because Select lumber grades emphasize the quality of one face, the reverse side may be lower in quality. Select lumber grades are not uniform across species and products, so certified grade rules for the species must be



Redwood grades account for defects such as knots, but also for the pronounced difference between heartwood and sapwood **(6)**. Code inspectors may look for an end tag specifying the "use category" for treated wood **(7)**. Both of these are ALSC accredited; the "checkmark" on the green tags indicates the added conformance with AWPA standards.

used for detailed reference. Cedar architectural grades include Clear Heart, A, and B. Redwood architectural grades include Heart Clear (or Clear All Heart), Clear, Heart B, and B Grade.

Cedar and redwood are normally kiln-dried. It's critical that you unwrap these if they are wrapped in plastic and let them acclimate to jobsite conditions before installing them.

FRAMING LUMBER

Almost all softwood lumber sold in 2-by and 4-by dimensions for structural applications is "stress graded," but this grading is a visual inspection. It is different from "machine stress rated" (MSR) lumber, used by truss and other component manufacturers, that is run through nondestructive grading equipment to verify its structural capacity. For most stick framing, lumber is visually inspected and assigned allowable properties under the National Grading Rule, a part of the American Softwood Lumber Standard set by the American Lumber Standard Committee (ALSC).

For dimensional framing lumber, a single set of grade names and descriptions is used throughout the United States, although the allowable properties vary with species. The most common grades are divided by the way they are used:

Select Structural is usually specified for girder beams and columns, or for joists and rafters, and includes No. 1 & BTR (for Douglfir & hem-fir); No. 1 (primarily for spruce-pine-fir, or S-P-F, which means any stick of S-P-F lumber can be any of these three species); No. 2, and No. 3. The lower the number, the fewer defects.

Stud grade lumber is mostly for 2x4 and 2x6s, but you may find 2x2s and occasionally larger members marked with a Stud-grade stamp. These are rated for vertical use in load-bearing walls. Beware: An inspector can red tag a Stud-graded piece of lumber used for a ledger, short span rafter, or other horizontal framing member.

Light framing grades—designated "Construction," "Standard," and "Utility," in order from better to worse—include less expensive 2x3, 2x4, and 4x4 lumber. These grades can be used for wall framing (studs, sills, plates, posts, and cripples), but they are typically not as straight and true, and may be better suited to temporary uses, such as formwork, handrails, barriers, and platforms used during construction.

Grade stamps. One of the most important sets of ALSC rules is for the grade stamps that identify—for each stick of structural lumber—the wood species, the mill where it was produced, the dryness at the time the board was surfaced, and the inspection agency supervising the grading. Every piece of framing lumber is stamped, and the stamp is something a building inspector might look for. Recently, there has been a spate of appearances of lumber in the supply chain that is not approved (often from overseas sources or wood certified for pallets) sold for framing, and the International Code Council has begun a campaign to alert inspectors to this "illegal wood." To verify if the grade stamp on the lumber you are buying is "legal," check the most current "Lumber facsimile list" by going to alsc.org and clicking on "Lumber Program."

PRESERVATIVE-TREATED LUMBER

Preservative-treated wood is treated with chemicals to create a bug- and rot-resistant wood for outdoor uses. There's a lot to learn about the different treatments used (start with "Decay Resistance and the Code," Jul/2019), but most important thing to understand is that code inspectors will look for an end tag on treated-wood structures. Any structural member used within 18 inches of the ground must be preservative treated. If it's not touching the ground, the inspector will look for an American Wood Protection Association (AWPA) "U1" tag, or ALSC-certified category tag, that specifies "Above Grade." If it's touching or buried in the ground, the wood needs a "Ground Contact" tag.