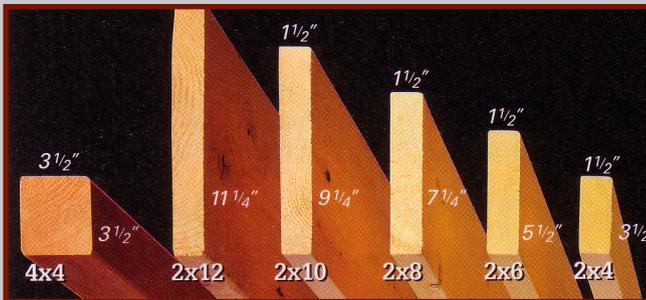


What is dimensional lumber?

Dimensional lumber is wood that is dressed (planed) to a nominal (by name only) 2-in. or 4-in. thickness, like a 2 x 4, 2 x 10, or a 4 x 4. Cut from spruce, pine, hemlock, larch and fir, it's used for structural framing that's protected from the weather. To these species we'll add other softwood lumber that's commonly used for exposure to the weather, such as Western red cedar, redwood and treated wood because it's sold in the same dimensions and requires similar buying considerations. Locally, you may find other species. In the Southeastern United States, cypress is used in place of cedar and Southern yellow pine instead of fir or larch.

While nominal lumber descriptions have remained the same, the actual size has changed over the last 50 years. A 2 x 4, for example, now measures 1-1/2 x 3-1/2 in. Fig A 9 (above) shows the nominal sizes of dimensional lumber and gives you the actual size of the piece you'll be taking home.



	Pros	Cons	Uses
Framing Lumber			
Spruce, Pine, Fir, Hemlock, Larch \$	High strength; consistent quality; high availability	Rots outdoors; stains poorly; larch, Southern yellow pine and fir hard to nail; clear grades are difficult to find	Stud walls, joists, rafters, beams, trusses
Outdoor Lumber			
Treated Pine \$\$	Very rot and insect resistant; ground contact for .40 and .60 ratings; high strength. Clearer grades available	Green or brown color; knotty in lower grades; often moisture-laden and heavy; tendency to warp; stains poorly	Stud walls, joists, rafters, fences and posts, deck framing, decking and rails, porches, barn and shed framing
Western Red Cedar \$\$\$	Rot and insect resistant; lightweight; stains and paints well; clear grades are available	Structurally weaker; splits easily	Fences and posts; decking and rails; porches, exterior furniture, exterior trim
Redwood \$\$\$\$	Rot and insect resistant; stains well; clear select grades available	Structurally weaker; expensive	Fences and posts; decking and rails; porches, exterior furniture, exterior trim

Choosing Lumber



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Eyeballing each piece

In search of good lumber, straightness is obviously a key factor. Keep in mind though, that you're not buying a pool cue, so you'll have to look at each piece with a less critical eye. As you sight down the length of each piece you'll see pieces that have crook, bow or a combination of the two. You'll also notice pieces with a twist. These common defects occur because the wood changes shape when it's sawn from the tree, but small deviations won't affect most projects.



Bow Studs can bow a half-inch or more and still be acceptable for framing because you can push them straight as you apply the drywall or sheathing. They can also have a twist and be straightened as you nail them in place. This is also true for floor joists (2 x 6 and wider).



Crook When you frame with studs that have a crook, try to match the crooks so they all face upward on joists or toward the exterior on walls. Usually ½ in. of crook in an 8-ft stud won't matter in a wall. But mismatching will give floors and walls a really uneven surface.



Cup is commonly referred to as "warp". The flat side of the piece of lumber actually curves up due to shrinkage across the face. This can be a real problem, especially when it's used for decking. The cup can hold water as well as create a tripping hazard. Avoid cupped wood for decking.



Twist This is a spiral effect found in some pieces. Usually twisted pieces can be used in framing and held in place with nails if the twist isn't too serious. If the piece has more than a 20-degree turn in 8 ft., don't buy it. Be sure to avoid using lumber with bows, crook and twists for the corners of framing and around door openings. Badly misshapen lumber should be cut into short lengths only or avoided altogether.

A Closer Look...

Once you've found a relatively straight piece, here are other blemishes you'll need to watch out for:

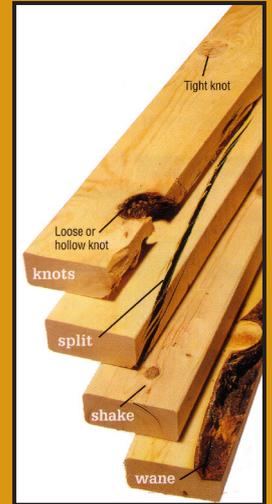
Surface defects

Knots are common in softwood lumber and usually don't affect the strength. However, large, loose knots, especially near the edges, can weaken lumber, so avoid using such pieces for joists or rafters.

Splits can be dangerous flaws if they continue along the length of a piece of lumber. Short cracks near the ends are common as the wood continues to dry, and these usually can be cut away as you build your project. Avoid using it if the split travels a foot or more past the cutting-off point.

Shake looks like a crack but is actually a separation between growth rings in the wood that may run the whole length. When choosing rafters and joists, avoid pieces with full-length shake.

Wane is a bark edge on a piece of lumber. Pieces with this defect are OK for framing because you can usually work around them. However, they can be a problem if you're hanging drywall, especially in an inside corner. If it's an otherwise straight piece, it's a keeper.



"If walking into a lumberyard makes you feel like the village idiot, you're not alone. Even professional carpenters can be confused by all the jargon being tossed around the lumber stacks."

Popular Wood Species and Grades

Spruce, pine, fir, hemlock and larch are general species classifications. The species you find reflects what is being cut and delivered in your area. Generally, these woods are used interchangeably for structural framing lumber. The wood is strong when it's kept dry, but it doesn't resist rot, so it's not for exterior use unless it's been treated with preservatives (see "Treated Wood").

Dimensional lumber in sizes 2x4 through 4x4 carries a stamp that defines its intended use, such as standard, utility, construction and stud. These are all suitable for framing. The economy grade is not intended for structural use. It's best used for furring and blocking where load isn't a concern. Wider joists and planks are graded by strength and appearance, the best being "select structural", followed by No. 1, No. 2 and No. 3.

Douglas fir, larch and Southern yellow pine, which are the densest of these species, are often used when extra rigidity is critical, as in joists, planks and rafters.

Treated Wood

Treated wood is processed from pine, spruce and fir by adding preservative chemicals under pressure. Very resistant to decay and insects, this wood is also used for framing and construction. Southern yellow pine is often treated and specified for exterior joists because it's stronger than other pine species.

Treated wood is often used for deck joist, fences and weather-exposed surfaces. Although it's often not as attractive as cedar or redwood, it costs less and can be used for decking and railings too. You can purchase higher grades when appearance is crucial. Treated lumber is often slightly wet when you first buy it, making it heavy to transport. It can also cause minor irritation when handling and cutting, so wear gloves for protection.

Truth is, most lumber doesn't need to look perfect to do the job. In more than 20 years of buying lumber, we've never seen a perfect stud. You simply need to decide if the defects you see will affect your project. If you're making deck furniture, your standard will be a lot higher than if you're building a compost bin.

Western red cedar is an excellent choice for exterior lumber. You can find red cedar log homes that are more than 200 years old and still standing. It's weaker than treated wood, so for joists and rafters you'll need to use wider pieces to get the same strength. Use the lower, knotty grades for decks and other exterior projects, and clear (defect-free) grades when appearance counts. Depending on your region, your lumberyard may carry other cedar substitutes such as cypress, which can be used interchangeably. Avoid using light colored pieces for exterior use. This "sapwood" isn't as resistant to decay.

Redwood is also resistant to decay. It's available in knotty grades for exterior projects, and in clear grades, which are very attractive as well as expensive. It is often used for decking and railings as well as outdoor furniture. Like Western red cedar, it's not suitable for use in framing. As with cedar, avoid using the light-colored sapwood outdoors because it's not as decay-resistant.