

Commercial Lumber

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In a broad sense, commercial lumber is any lumber that is bought or sold in the normal channels of commerce. Commercial lumber may be found in a variety of forms, species, and types, and in various commercial establishments, both wholesale and retail. Most commercial lumber is graded by standardized rules that make purchasing more or less uniform throughout the country.

When sawn, a log yields lumber of varying quality. To enable users to buy the quality that best suits their purposes, lumber is graded into use categories, each having an appropriate range in quality.

Generally, the grade of a piece of lumber is based on the number, character, and location of features that may lower the strength, durability, or utility value of the lumber. Among the more common visual features are knots, checks, pitch pockets, shake, and stain, some of which are a natural part of the tree. Some grades are free or practically free from these features. Other grades, which constitute the great bulk of lumber, contain fairly numerous knots and other features. With proper grading, lumber containing these features is entirely satisfactory for many uses.

The grading operation for most lumber takes place at the sawmill. Establishment of grading procedures is largely the responsibility of manufacturers' associations. Because of the wide variety of wood species, industrial practices, and customer needs, different lumber grading practices coexist. The grading practices of most interest are considered in the sections that follow, under the major categories of hardwood lumber and softwood lumber.

Hardwood Lumber

The principal use of hardwood lumber is for remanufacture into furniture, cabinetwork, and pallets, or direct use as flooring, paneling, moulding, and millwork. Hardwood lumber is graded and marketed in three main categories: Factory lumber, dimension parts, and finished market products. Several hardwood species are graded under the American Softwood Lumber Standard and sold as structural lumber (Ch. 6). Also, specially graded hardwood lumber can be used for structural glued-laminated lumber.

Prior to 1898, hardwoods were graded by individual mills for local markets. In 1898, manufacturers and users formed the National Hardwood Lumber Association to standardize grading for hardwood lumber. Between 1898 and 1932, grading was based on the number and size of visual features. In 1932, the basis for grading was changed to standard clear-cutting sizes.

Both Factory lumber and dimension parts are intended to serve the industrial customer. The important difference is that for Factory lumber, the grades reflect the proportion of a piece that can be cut into useful smaller pieces, whereas the grades for dimension parts are based on use of the entire piece. Finished market products are graded for their unique end-use with little or no remanufacture. Examples of finished products include moulding, stair treads, and hardwood flooring.

Factory Lumber

Grades

The rules adopted by the National Hardwood Lumber Association are considered standard in grading hardwood lumber intended for cutting into smaller pieces to make furniture or other fabricated products. In these rules, the grade of a piece of hardwood lumber is determined by the proportion of a piece that can be cut into a certain number of smaller pieces of material, commonly called cuttings, which are generally clear on one side, have the reverse face sound, and are not smaller than a specified size.

The best grade in the Factory lumber category is termed FAS. The second grade is F1F. The third grade is Selects, which is followed by No. 1 Common, No. 2A Common, No. 2B Common, Sound Wormy, No. 3A Common, and No. 3B Common. Except for F1F and Selects, the poorer side of a piece is inspected for grade assignment. Standard hardwood lumber grades are described in Table 5–1. This table illustrates, for example, that FAS includes pieces that will allow at least 83-1/3% of their surface measure to be cut into clear face material. Except for Sound Wormy, the minimum acceptable length, width, surface measure, and percentage of piece that must work into a cutting decrease with decreasing grade. Figure 5–1 is an example of grading for cuttings.

This brief summary of grades for Factory lumber should not be regarded as a complete set of grading rules because many details, exceptions, and special rules for certain species are not included. The complete official rules of the National Hardwood Lumber Association (NHLA) should be followed as the only full description of existing grades (see Table 5–2 for addresses of NHLA and other U.S. hardwood grading associations). Table 5–3 lists names of commercial domestic hardwood species that are graded by NHLA rules.

Standard Dimensions

Standard lengths of hardwood lumber are in 300-mm (1-ft) increments from 1.2 to 4.8 m (4 to 16 ft). Standard thickness values for hardwood lumber, rough and surfaced on two sides (S2S), are given in Table 5–4. The thickness of S1S lumber

is subject to contract agreement. Abbreviations commonly used in contracts and other documents for the purchase and sale of lumber are listed at the end of this chapter.

Hardwood lumber is usually manufactured to random width. The hardwood lumber grades do not specify standard widths; however, the grades do specify minimum width for each grade as follows:

Grade	Minimum width (mm (in.))
FAS	150 (6)
F1F	150 (6)
Selects	100 (4)
No. 1, 2A, 2B, 3A, 3B Common	80 (3)

If the width is specified by purchase agreement, S1E or S2E lumber is 10 mm (3/8 in.) scant of nominal size in lumber less than 200 mm (8 in.) wide and 13 mm (1/2 in.) scant in lumber ≥ 200 mm (≥ 8 in.) wide.

Dimension and Component Parts

The term “dimension parts” for hardwoods signifies stock that is processed in specific thickness, width, and length, or multiples thereof and ranges from semi-machined to completely machined component products. This stock is sometimes referred to as “hardwood dimension stock” or “hardwood lumber for dimension parts.” This stock should not be confused with “dimension lumber,” a term used in the structural lumber market to mean lumber standard 38 mm to less than 114 mm thick (nominal 2 in. to less than 5 in. thick).

Dimension component parts are normally kiln dried and generally graded under the rules of the Wood Components Manufacturers Association (WCMA). These rules encompass three classes of material, each of which is classified into various grades:

Hardwood dimension parts (flat stock)	Solid kiln- dried squares (rough)	Solid kiln-dried squares (surfaced)
Clear two faces	Clear	Clear
Clear one face	Select	Select
Paint	Sound	Paint
Core		Second
Sound		

Each class may be further defined as semifabricated (rough or surfaced) or completely fabricated, including edge-glued panels. The rough wood component parts are blank-sawn and ripped to size. Surfaced semifabricated parts have been through one or more manufacturing stages. Completely fabricated parts have been completely processed for their end use.

Table 5–1. Standard hardwood lumber grades^{a,b}

Grade and allowable lengths	Allowable width (in.)	Allowable surface measure of pieces (ft ²)	Minimum amount of piece in clearface cuttings (%)	Allowable cuttings	
				Maximum no.	Minimum size
FAS ^c	6+	4 to 9	83-1/3	1	4 in. by 5 ft, or 3 in. by 7 ft
		10 to 14		2	
		15+		3	
F1F ^c	6+	4 to 7	83-1/3	1	4 in. by 5 ft, or 3 in. by 7 ft
		6 and 7	91-2/3	2	
		8 to 11	83-1/3	2	
		8 to 11	91-2/3	3	
		12 to 15	83-1/2	3	
		12 to 15	91-2/3	4	
Selects 6 to 16 ft (will admit 30% of 6 to 11 ft)	4+	2 and 3	91-2/3	1	4 in. by 5 ft, or 3 in. by 7 ft
		4+	— ^d		
No. 1 Common 4 to 16 ft (will admit 10% of 4 to 7 ft, 1/2 of which may be 4 and 5 ft)	3+	1	100	0	4 in. by 2 ft, or 3 in. by 3 ft
		2	75	1	
		3 and 4	66-2/3	1	
		3 and 4	75	2	
		5 to 7	66-2/3	2	
		5 to 7	75	3	
		8 to 10	66-2/3	3	
		11 to 13	66-2/3	4	
No. 2 Common 4 to 16 ft (will admit 30% of 4 to 7 ft, 1/3 of which may be 4 and 5 ft)	3+	1	66-2/3	1	3 in. by 2 ft
		2 and 3	50	1	
		2 and 3	66-2/3	2	
		4 and 5	50	2	
		4 and 5	66-2/3	3	
		6 and 7	50	3	
		6 and 7	66-2/3	4	
		8 and 9	50	4	
		10 and 11	50	5	
12 and 13	50	6			
Sound Wormy ^e No. 3A Common 4 to 16 ft (will admit 50% of 4 to 7 ft, 1/2 of which may be 4 and 5 ft)	3+	1+	33-1/3 ^f	— ^g	3 in. by 2 ft
Sound Wormy ^e No. 3B Common 4 to 16 ft (will admit 50% of 4 to 7 ft, 1/2 of which may be 4 and 5 ft)	3+	1+	25 ^h	— ^g	1-1/2 in. by 2 ft

^aCurrent grading rules are written only in the inch–pound system of measurement.

^bInspection made on poorer side of piece, except in Selects grade.

^cFAS is a grade that designates Firsts and Seconds. F1F is a grade that designates FAS one face.

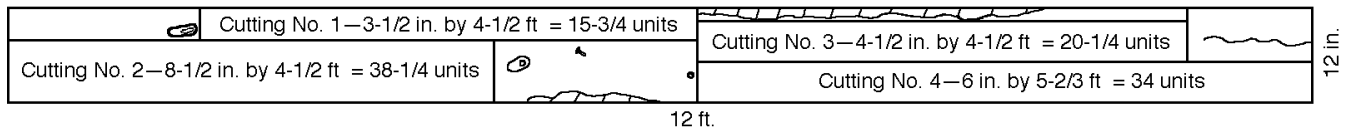
^dSame as F1F, with reverse side of board not below No. 1 Common or reverse side of sound cuttings.

^eSame requirements as those for No. 1 Common and better except that wormholes and limited sound knots and other imperfections are allowed in cuttings.

^fAlso admits pieces that grade not below No. 2 Common on the good face and reverse side of sound cuttings.

^gUnlimited.

^hCuttings must be sound; clear face not required.



1. Determine Surface Measure (S.M.) using lumber scale stick or from formula:

$$\frac{\text{Width in inches} \times \text{length in feet}}{12} = \frac{12 \text{ in.} \times 12 \text{ ft}}{12}$$

$$= 12 \text{ ft}^2 \text{ S.M.}$$
2. No. 1 Common is assumed grade of board. Percent of clear-cutting area required for No. 1 Common— $66\frac{2}{3}\%$ or $\frac{8}{12}$.
3. Determine maximum number of cuttings permitted.
 For No. 1 Common grade $(\text{S.M.} + 1) \div 3$

$$= \frac{(12 + 1)}{3} = \frac{13}{3} = 4 \text{ cuttings.}$$
4. Determine minimum size of cuttings.
 For No. 1 Common grade 4 in. \times 2 ft or 3 in. \times 3 ft.
5. Determine clear-face cutting units needed.
 For No. 1 Common grade $\text{S.M.} \times 8 = 12 \times 8 = 96 \text{ units}$
6. Determine total area of permitted clear-face cutting in units.
 Width in inches and fractions of inches \times length in feet and fractions of feet
 Cutting #1— $3\frac{1}{2} \text{ in.} \times 4\frac{1}{2} \text{ ft} = 15\frac{3}{4} \text{ units}$
 Cutting #2— $8\frac{1}{2} \text{ in.} \times 4\frac{1}{2} \text{ ft} = 38 \text{ units}$
 Cutting #3— $4\frac{1}{2} \text{ in.} \times 4\frac{1}{2} \text{ ft} = 20\frac{1}{4} \text{ units}$
 Cutting #4— $6 \text{ in.} \times 5\frac{2}{3} \text{ ft} = 34 \text{ units}$

Total Units	108
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 Units required for No. 1 Common—96.
7. Conclusion: Board meets requirements for No. 1 Common grade.

Figure 5–1. Example of hardwood grading for cuttings using No. 1 Common lumber grade. Current grading rules are written only in the inch–pound system of measurement.

Table 5–2. Hardwood grading associations in United States^a

Name and address	Species covered by grading rules (products)
National Hardwood Lumber Association P.O. Box 34518 Memphis, TN 38184–0518	All hardwood species (furniture cuttings, construction lumber, siding, panels)
Wood Components Manufacturers Association 1000 Johnson Ferry Rd., Suite A-130 Marietta, GA 30068	All hardwood species (hardwood furniture dimension, squares, laminated stock, interior trim, stair treads and risers)
Maple Flooring Manufacturers Association 60 Revere Dr., Suite 500 Northbrook, IL 60062	Maple, beech, birch (flooring)
National Oak Flooring Manufacturers Association P.O. Box 3009 Memphis, TN 38173–0009 www.nofma.org	Oak, ash, pecan, hickory, pecan, beech, birch, hard maple (flooring, including prefinished)

^aGrading associations that include hardwood species in structural grades are listed in Table 5–5.

Table 5–3. Nomenclature of commercial hardwood lumber

Commercial name for lumber	Common tree name	Botanical name	Commercial name for lumber	Common tree name	Botanical name
Alder, Red	Red alder	<i>Alnus rubra</i>	Maple, Oregon	Big leaf maple	<i>Acer macrophyllum</i>
Ash, Black	Black ash	<i>Fraxinus nigra</i>	Maple, Soft	Red maple	<i>Acer rubrum</i>
Ash, Oregon	Oregon ash	<i>Fraxinus latifolia</i>		Silver maple	<i>Acer saccharinum</i>
Ash, White	Blue ash	<i>Fraxinus quadrangulata</i>	Oak, Red	Black oak	<i>Quercus velutina</i>
	Green ash	<i>Fraxinus pennsylvanica</i>		Blackjack oak	<i>Quercus marilandica</i>
	White ash	<i>Fraxinus americana</i>		California black oak	<i>Quercus kelloggi</i>
Aspen (popple)	Bigtooth aspen	<i>Populus grandidentata</i>		Cherrybark oak	<i>Quercus falcata</i> var. <i>pagodaefolia</i>
	Quaking aspen	<i>Populus tremuloides</i>		Laurel oak	<i>Quercus laurifolia</i>
Basswood	American basswood	<i>Tilia americana</i>		Northern pin oak	<i>Quercus ellipsoidalis</i>
	White basswood	<i>Tilia heterophylla</i>		Northern red oak	<i>Quercus rubra</i>
Beech	American beech	<i>Fagus grandifolia</i>		Nuttall oak	<i>Quercus nuttallii</i>
Birch	Gray birch	<i>Betula populifolia</i>		Pin oak	<i>Quercus palustris</i>
	Paper birch	<i>Betula papyrifera</i>		Scarlet oak	<i>Quercus coccinea</i>
	River birch	<i>Betula nigra</i>		Shumard oak	<i>Quercus shumardii</i>
	Sweet birch	<i>Betula lenta</i>		Southern red oak	<i>Quercus falcata</i>
	Yellow birch	<i>Betula alleghaniensis</i>		Turkey oak	<i>Quercus laevis</i>
Box Elder	Boxelder	<i>Acer negundo</i>		Willow oak	<i>Quercus phellos</i>
Buckeye	Ohio buckeye	<i>Aesculus glabra</i>	Oak, White	Arizona white oak	<i>Quercus arizonica</i>
	Yellow buckeye	<i>Aesculus octandra</i>		Blue oak	<i>Quercus douglasii</i>
Butternut	Butternut	<i>Juglans cinerea</i>		Bur oak	<i>Quercus macrocarpa</i>
Cherry	Black cherry	<i>Prunus serotina</i>		Valley oak	<i>Quercus lobata</i>
Chestnut	American chestnut	<i>Castanea dentata</i>		Chestnut oak	<i>Quercus prinus</i>
Cottonwood	Balsam poplar	<i>Populus balsamifera</i>		Chinkapin oak	<i>Quercus muehlenbergii</i>
	Eastern cottonwood	<i>Populus deltoides</i>		Emory oak	<i>Quercus emoryi</i>
	Black cottonwood	<i>Populus trichocarpa</i>		Gambel oak	<i>Quercus gambelii</i>
Cucumber	Cucumbertree	<i>Magnolia acuminata</i>		Mexican blue oak	<i>Quercus oblongifolia</i>
Dogwood	Flowering dogwood	<i>Cornus florida</i>		Live oak	<i>Quercus virginiana</i>
	Pacific dogwood	<i>Cornus nuttallii</i>		Oregon white oak	<i>Quercus garryana</i>
Elm, Rock	Cedar elm	<i>Ulmus crassifolia</i>		Overcup oak	<i>Quercus lyrata</i>
	Rock elm	<i>Ulmus thomasii</i>		Post oak	<i>Quercus stellata</i>
	September elm	<i>Ulmus serotina</i>		Swamp chestnut oak	<i>Quercus michauxii</i>
	Winged elm	<i>Ulmus alata</i>		Swamp white oak	<i>Quercus bicolor</i>
Elm, Soft	American elm	<i>Ulmus americana</i>		White oak	<i>Quercus alba</i>
	Slippery elm	<i>Ulmus rubra</i>	Oregon Myrtle	California-laurel	<i>Umbellularia californica</i>
Gum	Sweetgum	<i>Liquidambar styraciflua</i>	Osage Orange	Osage-orange	<i>Maclura pomifera</i>
Hackberry	Hackberry	<i>Celtis occidentalis</i>	Pecan	Bitternut hickory	<i>Carya cordiformis</i>
	Sugarberry	<i>Celtis laevigata</i>		Nutmeg hickory	<i>Carya myristiciformis</i>
Hickory	Mockernut hickory	<i>Carya tomentosa</i>		Water hickory	<i>Carya aquatica</i>
	Pignut hickory	<i>Carya glabra</i>		Pecan	<i>Carya illinoensis</i>
	Shagbark hickory	<i>Carya ovata</i>	Persimmon	Common persimmon	<i>Diospyros virginiana</i>
	Shellbark hickory	<i>Carya laciniosa</i>	Poplar	Yellow-poplar	<i>Liriodendron tulipifera</i>
Holly	American holly	<i>Ilex opaca</i>	Sassafras	Sassafras	<i>Sassafras albidum</i>
Ironwood	Eastern hophornbeam	<i>Ostrya virginiana</i>	Sycamore	Sycamore	<i>Platanus occidentalis</i>
Locust	Black locust	<i>Robinia pseudoacacia</i>	Tanoak	Tanoak	<i>Lithocarpus densiflorus</i>
	Honeylocust	<i>Gleditsia triacanthos</i>	Tupelo	Black tupelo, blackgum	<i>Nyssa sylvatica</i>
Madrone	Pacific madrone	<i>Arbutus menziesii</i>		Ogeechee tupelo	<i>Nyssa ogeche</i>
Magnolia	Southern magnolia	<i>Magnolia grandiflora</i>		Water tupelo	<i>Nyssa aquatica</i>
	Sweetbay	<i>Magnolia virginiana</i>	Walnut	Black walnut	<i>Juglans nigra</i>
Maple, Hard	Black maple	<i>Acer nigrum</i>	Willow	Black willow	<i>Salix nigra</i>
	Sugar maple	<i>Acer saccharum</i>		Peachleaf willow	<i>Salix amygdaloides</i>

Table 5–4. Standard thickness values for rough and surfaced (S2S) hardwood lumber

Rough (mm (in.))		Surfaced (mm (in.))	
9.5	(3/8)	4.8	(3/16)
12.7	(1/2)	7.9	(5/16)
15.9	(5/8)	9.4	(7/16)
19.0	(3/4)	14.3	(9/16)
25.4	(1)	20.6	(13/16)
31.8	(1-1/4)	27.0	(1-1/16)
38.1	(1-1/2)	33.3	(1-5/16)
44.4	(1-3/4)	38.1	(1-1/2)
50.8	(2)	44.4	(1-3/4)
63.5	(2-1/2)	57.2	(2-1/4)
76.2	(3)	69.8	(2-3/4)
88.9	(3-1/2)	82.6	(3-1/4)
101.6	(4)	95.2	(3-3/4)
114.3	(4-1/2)	— ^a	— ^a
127.0	(5)	— ^a	— ^a
139.7	(5-1/2)	— ^a	— ^a
152.4	(6)	— ^a	— ^a

^aFinished size not specified in rules. Thickness subject to special contract.

Finished Market Products

Some hardwood lumber products are graded in relatively finished form, with little or no further processing anticipated. Flooring is probably the finished market product with the highest volume. Other examples are lath, siding, ties, planks, carstock, construction boards, timbers, trim, moulding, stair treads, and risers. Grading rules promulgated for flooring anticipate final consumer use and are summarized in this section. Details on grades of other finished products are found in appropriate association grading rules.

Hardwood flooring generally is graded under the rules of the Maple Flooring Manufacturers Association (MFMA) or the National Oak Flooring Manufacturers Association (NOFMA). Tongued-and-grooved, end-matched hardwood flooring is commonly furnished. Square-edge, square-end-strip flooring is also available as well as parquet flooring suitable for laying with mastic.

The grading rules of the Maple Flooring Manufacturers Association cover flooring that is manufactured from hard maple, beech, and birch. Each species is graded into four categories:

- First grade—one face practically free of all imperfections; variations in natural color of wood allowed

- Second grade—tight, sound knots (except on edges or ends) and other slight imperfections allowed; must be possible to lay flooring without waste
- Third grade—may contain all visual features common to hard maple, beech, and birch; will not admit voids on edges or ends, or holes over 9.5-mm (3/8-in.) in diameter; must permit proper laying of floor and provide a serviceable floor; few restrictions on imperfections; must be possible to lay flooring properly
- Fourth grade—may contain all visual features, but must be possible to lay a serviceable floor, with some cutting

Combination grades of “Second and Better” and “Third and Better” are sometimes specified. There are also special grades based on color and species.

The standard thickness of MFMA hard maple, beech, and birch flooring is 19.8 mm (25/32 in.). Face widths are 38, 51, 57, and 83 mm (1-1/2, 2, 2-1/4, and 3-1/4 in.). Standard lengths are 610 mm (2 ft) and longer in First- and Second-grade flooring and 381 mm (1-1/4 ft) and longer in Third-grade flooring.

The Official Flooring Grading Rules of NOFMA cover oak (unfinished and prefinished), beech, birch, hard maple, ash, and hickory/pecan. Flooring grades are determined by the appearance of the face surface.

Oak is separated as red oak and white oak and by grain direction: plain sawn (all cuts), quartersawn (50% quartered character), rift sawn (75% rift character), and quarter/rift sawn (a combination). Oak flooring has four main grade separations—Clear, Select, No. 1 Common, and No. 2 Common. Clear is mostly heartwood and accepts a 10-mm (3/8-in.) strip of bright sapwood or an equivalent amount not more than 25 mm (1 in.) wide along the edge and a minimum number of character marks and discoloration, allowing for all natural heartwood color variations. Select allows all color variations of natural heartwood and sapwood along with characters such as small knots, pinworm holes, and brown streaks. No. 1 Common contains prominent variations in coloration, which include heavy streaks, sticker stains, open checks, knots, and small knot holes that fill. No. 2 Common contains sound natural variation of the forest product and manufacturing imperfections to provide a serviceable floor.

Average lengths for unfinished oak grades are as follows:

Grade	Standard packaging	Shorter packaging
Clear	1.14 m (3-3/4 ft)	1.07 m (3-1/2 ft)
Select	0.99 m (3-1/4 ft)	0.91 m (3 ft)
No. 1 Common	0.84 m (2-3/4 ft)	0.76 m (2-1/2 ft)
No. 2 Common	0.69 m (2-1/4 ft)	0.61 m (2 ft)

Standard packaging refers to nominal 2.4-m (8-ft) pallets or nested bundles. Shorter packaging refers to nominal 2.13-m (7-ft) and shorter pallets or nested bundles.

Standard and special NOFMA grades for species other than oak are as follows:

Species	Grade
Standard grades	
Beech, birch, and hard maple	First, Second, Third, Second & Better, Third & Better
Hickory and pecan	First, Second, Third, Second & Better, Third & Better
Ash	Clear, Select, No. 1 Common, No. 2 Common
Special grades	
Beech and birch	First Grade Red
Hard maple	First Grade White
Hickory and pecan	First Grade White, First Grade Red, Second Grade Red

Standard thickness values for NOFMA tongue and groove flooring are 19, 12, 9.5 (3/4, 1/2, 3/8 in.), with 19.8, and 26.2 mm (25/32 and 33/32 in.) for maple flooring. Standard face widths are 38, 51, 57, and 83 mm (1-1/2, 2, 2-1/4, and 3-1/4 in.). Strips are random length from minimum 0.23 m to maximum 2.59 m (9 to 102 in.).

Lumber Species

The names used by the trade to describe commercial lumber in the United States are not always the same as the names of trees adopted as official by the USDA Forest Service. Table 5-3 shows the common trade name, the USDA Forest Service tree name, and the botanical name. United States agencies and associations that prepare rules for and supervise grading of hardwoods are given in Table 5-2.

Softwood Lumber

For many years, softwood lumber has demonstrated the versatility of wood by serving as a primary raw material for construction and manufacture. In this role, softwood lumber has been produced in a wide variety of products from many different species. The first industry-sponsored grading rules (product descriptions) for softwoods, which were established before 1900, were comparatively simple because sawmills marketed their lumber locally and grades had only local significance. As new timber sources were developed and lumber was transported to distant points, each producing region continued to establish its own grading rules; thus, lumber from various regions differed in size, grade name, and allowable grade characteristics. When different species were graded under different rules and competed in the same consuming areas, confusion and dissatisfaction were inevitable.

To minimize unnecessary differences in the grading rules of softwood lumber and to improve and simplify these rules, a number of conferences were organized by the U.S. Department of Commerce from 1919 to 1925. These meetings were attended by representatives of lumber manufacturers, distributors, wholesalers, retailers, engineers, architects, and contractors. The result was a relative standardization of sizes, definitions, and procedures for deriving allowable design properties, formulated as a voluntary American Lumber Standard. This standard has been modified several times, including addition of hardwood species to the standard beginning in 1970. The current edition is the American Softwood Lumber Standard PS-20. Lumber cannot be graded as American Standard lumber unless the grade rules have been approved by the American Lumber Standard Committee (ALSC), Inc., Board of Review.

Softwood lumber is classified for market use by form of manufacture, species, and grade. For many products, the American Softwood Lumber Standard and the grading rules certified through it serve as a basic reference. For specific information on other products, reference must be made to grade rules, industry marketing aids, and trade journals.

Lumber Grades

Softwood lumber grades can be classified into three major categories of use: (a) yard lumber, (b) structural lumber, and (c) Factory and Shop lumber. Yard lumber and structural lumber relate principally to lumber expected to function as graded and sized after primary processing (sawing and planing). Factory and Shop refer to lumber that will undergo a number of further manufacturing steps and reach the consumer in a significantly different form.

Yard Lumber

The grading requirements of yard lumber are specifically related to the construction uses intended, and little or no further grading occurs once the piece leaves the sawmill. Yard lumber can be placed into two basic classifications, Select and Common. Select and Common lumber, as categorized here, encompass those lumber products in which appearance is of primary importance; structural integrity, while sometimes important, is a secondary feature.

Select Lumber—Select lumber is generally non-stress-graded, but it forms a separate category because of the distinct importance of appearance in the grading process. Select lumber is intended for natural and paint finishes. This category of lumber includes lumber that has been machined to a pattern and S4S lumber. Secondary manufacture of these items is usually restricted to on-site fitting such as cutting to length and mitering. The Select category includes trim, siding, flooring, ceiling, paneling, casing, base, stepping, and finish boards.

Most Select lumber grades are generally described by letters and combinations of letters (B&BTR, C&BTR, D) or names (Superior, Prime) depending upon the species and the grading rules under which the lumber is graded. (See list of

commonly used lumber abbreviations at the end of this chapter.) The specifications FG (flat grain), VG (vertical grain), and MG (mixed grain) are offered as a purchase option for some Select lumber products.

In cedar and redwood, 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 used for detailed reference.

Common Lumber—Common lumber is normally a non-stress-graded product. The grades of Common lumber are suitable for construction and utility purposes. Common lumber is generally separated into three to five different grades depending upon the species and grading rules involved. Grades may be described by number (No. 1, No. 2, No. 1 Common, No. 2 Common) or descriptive term (Select Merchantable, Construction, Standard).

Because there are differences in the inherent properties of various species and their corresponding names, the grades for different species are not always interchangeable. The top-grade boards (No. 1, No. 1 Common, Select Merchantable) are usually graded for serviceability, but appearance is also considered. These grades are used for such purposes as siding, cornice, shelving, and paneling. Features such as knots and knotholes are permitted to be larger and more frequent as the grade level becomes lower. Intermediate-grade boards are often used for such purposes as subfloors, roof and wall sheathing, and rough concrete work. The lower grade boards are selected for adequate strength, not appearance. They are used for roof and wall sheathing, subfloor, and rough concrete form work (Fig. 5-2).

Grading provisions for other non-stress-graded products vary by species, product, and applicable grading rules. For detailed descriptions, consult the appropriate grade rule for these products (see Table 5-5 for softwood grading organizations).

Structural Lumber—Almost all softwood lumber standard 38 to 89 mm thick (nominal 2 to 4 in. thick, actual 1-1/2 to 3-1/2 in. thick) is produced as dimension lumber. Dimension lumber is stress graded and assigned allowable properties under the National Grading Rule, a part of the American Softwood Lumber Standard. For dimension lumber, a single set of grade names and descriptions is used throughout the United States, although the allowable properties vary with species. Timbers (lumber standard 114 mm (nominal 5 in.) or more in least dimension) are also structurally graded under ALSC procedures. Unlike grade descriptions for dimension lumber, grade descriptions for structural timbers are not standardized across species. For most species, timber grades are classified according to intended use. Beams and stringers are members standard 114 mm (nominal 5 in.) or more in thickness with a width more than 51 mm (2 in.) greater than

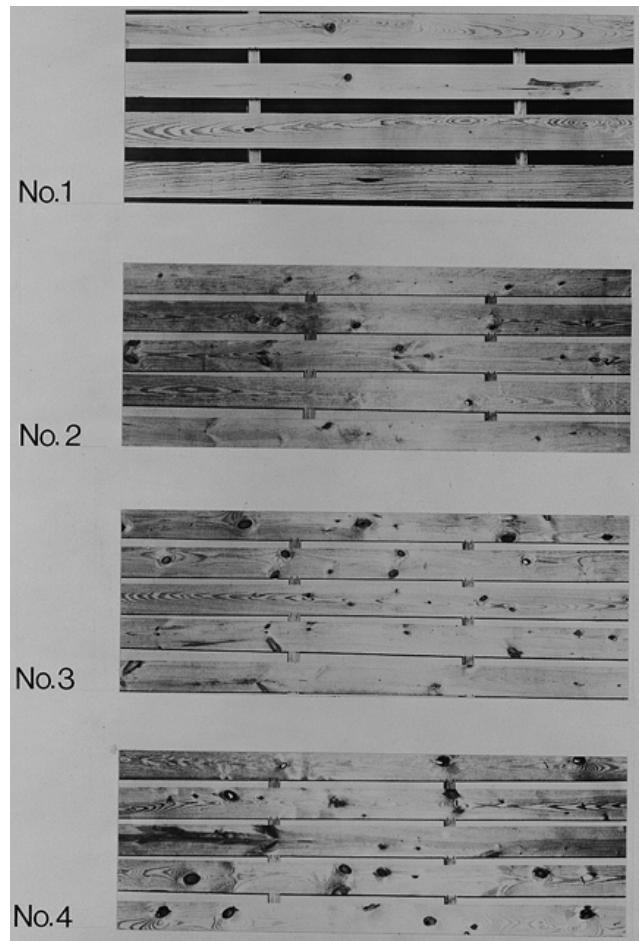


Figure 5-2. Typical examples of softwood boards in the lower grades.

the thickness. Beams and stringers are primarily used to resist bending stresses, and the grade description for the middle third of the length of the beam is more stringent than that for the outer two-thirds. Posts and timbers are members standard 114 by 114 mm (nominal 5 by 5 in.) and larger, where the width is not more than 51 mm (2 in.) greater than the thickness. Post and timbers are primarily used to resist axial stresses. Structural timbers of Southern Pine are graded without regard to anticipated use, as with dimension lumber. Other stress-graded products include decking and some boards. Stress-graded lumber may be graded visually or mechanically. Stress grades and the National Grading Rule are discussed in Chapter 6.

Structural Laminations—Structural laminating grades describe the characteristics used to segregate lumber to be used in structural glued-laminated (glulam) timbers. Generally, allowable properties are not assigned separately to laminating grades; rather, the rules for laminating grades are based on the expected effect of that grade of lamination on the combined glulam timber.

Table 5–5. Organizations promulgating softwood grades

Name and address	Species covered by grading rules
Cedar Shingle & Shake Bureau 515 116th Avenue NE, Suite 275 Bellevue, WA 98004–5294	Western redcedar (shingles and shakes)
National Hardwood Lumber Association P.O. Box 34518 Memphis, TN 38184–0518	Baldcypress, eastern redcedar
National Lumber Grades Authority ^a 406 First Capital Place 960 Quamside Drive New Westminster, BC, Canada V3M6G2	Northern white cedar, western red cedar, yellow cedar, alpine fir, amabilis fir, balsam fir, Douglas-fir, grand fir, eastern hemlock, western hemlock, western larch, eastern white pine, jack pine, lodgepole pine, ponderosa pine, red pine, western white pine, black spruce, sitka spruce, red spruce, Engelmann spruce, white spruce, tamarack, aspen, black cottonwood, balsam poplar, red alder, white birch
Northeastern Lumber Manufacturers Association, Inc. 272 Tuttle Road, P.O. Box 87A Cumberland Center, ME 04021	Balsam fir, eastern white pine, red pine, eastern hemlock, black spruce, white spruce, red spruce, pitch pine, tamarack, jack pine, northern white cedar, aspen, red maple, mixed maple, beech, birch, hickory, mixed oaks, red oak, northern red oak, white oak, yellow poplar
Northern Softwood Lumber Bureau ^a 272 Tuttle Road, P.O. Box 87A Cumberland Center, ME 04021	Eastern white pine, jack pine, red pine, pitch pine, eastern spruce (red, white, and black), balsam fir, eastern hemlock, tamarack, eastern cottonwood, aspen (bigtooth and quaking), yellow poplar
Redwood Inspection Service 405 Enfrente Drive, Suite 200 Novato, CA 94949	Redwood
Southern Cypress Manufacturers Association 400 Penn Center Boulevard Suite 530 Pittsburgh, PA 15235	Baldcypress
Southern Pine Inspection Bureau ^a 4709 Scenic Highway Pensacola, FL 32504	Longleaf pine, slash pine, shortleaf pine, loblolly pine, Virginia pine, pond pine, pitch pine
West Coast Lumber Inspection Bureau ^a Box 23145 6980 SW. Varns Road Portland, OR 97223	Douglas-fir, western hemlock, western redcedar, incense-cedar, Port-Orford-cedar, yellow-cedar, western true firs, mountain hemlock, Sitka spruce, western larch
Western Wood Products Association ^a Yeon Building, 522 SW Fifth Avenue Portland, OR 97204–2122	Ponderosa pine, western white pine, Douglas-fir, sugar pine, western true firs, western larch, Engelmann spruce, incense-cedar, western hemlock, lodgepole pine, western redcedar, mountain hemlock, red alder, aspen, alpine fir, Idaho white pine

^aPublishes grading rules certified by the Board of Review of the American Lumber Standard Committee as conforming to the American Softwood Lumber Standard PS–20.

There are two kinds of graded material: visually graded and E-rated. Visually graded material is graded according to one of three sets of grading rules: (1) the first set is based on the grading rules certified as meeting the requirements of the American Softwood Lumber Standard with additional requirements for laminating; (2) the second set involves laminating grades typically used for visually graded western species and includes three basic categories (L1, L2, L3); and (3) the third set includes special requirements for tension

members and outer tension laminations on bending members. The visual grades have provisions for dense, close-grain, medium-grain, or coarsegrain lumber.

The E-rated grades are categorized by a combination of visual grading criteria and lumber stiffness. These grades are expressed in terms of the size of maximum edge characteristic permitted (as a fraction of the width) along with a specified long-span modulus of elasticity (for example, 1/6–2.2E).

Factory and Shop Lumber

A wide variety of species, grades, and sizes of softwood lumber is supplied to industrial accounts for cutting to specific smaller sizes, which become integral parts of other products. In the secondary manufacturing process, grade descriptions, sizes, and often the entire appearance of the wood piece are changed. Thus, for Factory and Shop lumber, the role of the grading process is to reflect as accurately as possible the yield to be obtained in the subsequent cutting operation. Typical of lumber for secondary manufacture are the factory grades, industrial clears, box lumber, moulding stock, and ladder stock. The variety of species available for these purposes has led to a variety of grade names and grade definitions. The following sections briefly outline some of the more common classifications. For details, reference must be made to industry sources, such as certified grading rules. Availability and grade designation often vary by region and species.

Factory (Shop) Grades—Traditionally, softwood lumber used for cuttings has been called Factory or Shop. This lumber forms the basic raw material for many secondary manufacturing operations. Some grading rules refer to these grades as Factory, while others refer to them as Shop. All impose a somewhat similar nomenclature in the grade structure. Shop lumber is graded on the basis of characteristics that affect its use for general cut-up purposes or on the basis of size of cutting, such as for sash and doors. Factory Select and Select Shop are typical high grades, followed by No. 1 Shop, No. 2 Shop, and No. 3 Shop.

Grade characteristics of boards are influenced by the width, length, and thickness of the basic piece and are based on the amount of high-quality material that can be removed by cutting. Typically, Factory Select and Select Shop lumber would be required to contain 70% of cuttings of specified size, clear on both sides. No. 1 Shop would be required to have 50% cuttings and No. 2 Shop, 33-1/3%. Because of different characteristics assigned to grades with similar nomenclature, the grades of Factory and Shop lumber must be referenced to the appropriate certified grading rules.

Industrial Clears—These grades are used for trim, cabinet stock, garage door stock, and other product components where excellent appearance, mechanical and physical properties, and finishing characteristics are important. The principal grades are B&BTR, C, and D Industrial. Grading is primarily based on the best face, although the influence of edge characteristics is important and varies depending upon piece width and thickness. In redwood, the Industrial Clear All Heart grade includes an “all heart” requirement for decay resistance in the manufacture of cooling towers, tanks, pipe, and similar products.

Moulding, Ladder, Pole, Tank, and Pencil Stock—Within producing regions, grading rules delineate the requirements for a variety of lumber classes oriented to specific consumer products. Custom and the characteristics of the

wood supply have led to different grade descriptions and terminology. For example, in West Coast species, the ladder industry can choose from one “ladder and pole stock” grade plus two ladder rail grades and one ladder rail stock grade. In Southern Pine, ladder stock is available as Select and Industrial. Moulding stock, tank stock, pole stock, stave stock, stadium seat stock, box lumber, and pencil stock are other typical classes oriented to the final product. Some product classes have only one grade level; a few offer two or three levels. Special features of these grades may include a restriction on sapwood related to desired decay resistance, specific requirements for slope of grain and growth ring orientation for high-stress use such as ladders, and particular cutting requirements as in pencil stock. All references to these grades should be made directly to current certified grading rules.

Lumber Manufacture

Size

Lumber length is recorded in actual dimensions, whereas width and thickness are traditionally recorded in “nominal” dimensions—actual dimensions are somewhat less.

Softwood lumber is manufactured in length multiples of 300 mm (1 ft) as specified in various grading rules. In practice, 600-mm (2-ft) multiples (in even numbers) are common for most construction lumber. Width of softwood lumber varies, commonly from standard 38 to 387 mm (nominal 2 to 16 in.). The thickness of lumber can be generally categorized as follows:

- Boards—lumber less than standard 38 mm (nominal 2 in.) in thickness
- Dimension—lumber from standard 38 mm (nominal 2 in.) to, but not including, 114 mm (5 in.) in thickness
- Timbers—lumber standard 114 mm (nominal 5 in.) or more in thickness in least dimension

To standardize and clarify nominal to actual sizes, the American Softwood Lumber Standard PS-20 specifies the actual thickness and width for lumber that falls under the standard. The standard sizes for yard and structural lumber are given in Table 5-6. Timbers are usually surfaced while “green” (unseasoned); therefore, only green sizes are given.

Because dimension lumber and boards may be surfaced green or dry at the prerogative of the manufacturer, both green and dry standard sizes are given. The sizes are such that a piece of green lumber, surfaced to the standard green size, will shrink to approximately the standard dry size as it dries to about 15% moisture content. The definition of dry is lumber that has been seasoned or dried to a maximum moisture content of 19%. Lumber may also be designated as kiln dried (KD), meaning the lumber has been seasoned in a chamber to a predetermined moisture content by applying heat.

Table 5–6. American Standard Lumber sizes for yard and structural lumber for construction

Item	Thickness					Face width				
	Nominal (in.)	Minimum dressed				Nominal (in.)	Minimum dressed			
		Dry (mm)	Dry (in.)	Green (mm)	Green (in.)		Dry (mm)	Dry (in.)	Green (mm)	Green (in.)
Boards	1	19	(3/4)	20	(25/32)	2	38	(1-1/2)	40	(1-9/16)
	1-1/4	25	(1)	26	(1-1/32)	3	64	(2-1/2)	65	(2-9/16)
	1-1/2	32	(1-1/4)	33	(1-9/32)	4	89	(3-1/2)	90	(3-9/16)
						5	114	(4-1/2)	117	(4-5/8)
						6	140	(5-1/2)	143	(5-5/8)
						7	165	(6-1/2)	168	(6-5/8)
						8	184	(7-1/4)	190	(7-1/2)
						9	210	(8-1/4)	216	(8-1/2)
						10	235	(9-1/4)	241	(9-1/2)
						11	260	(10-1/4)	267	(10-1/2)
						12	286	(11-1/4)	292	(11-1/2)
						14	337	(13-1/4)	343	(13-1/2)
						16	387	(15-1/4)	394	(15-1/2)
Dimension	2	38	(1-1/2)	40	(1-9/16)	2	38	(1-1/2)	40	(1-9/16)
	2-1/2	51	(2)	52	(2-1/16)	3	64	(2-1/2)	65	(2-9/16)
	3	64	(2-1/2)	65	(2-9/16)	4	89	(3-1/2)	90	(3-9/16)
	3-1/2	76	(3)	78	(3-1/16)	5	114	(4-1/2)	117	(4-5/8)
	4	89	(3-1/2)	90	(3-9/16)	6	140	(5-1/2)	143	(5-5/8)
	4-1/2	102	(4)	103	(4-1/16)	8	184	(7-1/4)	190	(7-1/2)
						10	235	(9-1/4)	241	(9-1/2)
						12	286	(11-1/4)	292	(11-1/2)
						14	337	(13-1/4)	343	(13-1/2)
					16	387	(15-1/4)	394	(15-1/2)	
Timbers	≥5	13 mm off	(1/2 in. off)	13 mm off	(1/2 in. off)	≥5	13 mm off	(1/2 in. off)	13 mm off	(1/2 in. off)

Factory and Shop lumber for remanufacture is offered in specified sizes to fit end-product requirements. Factory (Shop) grades for general cuttings are offered in thickness from standard 19 to 89 mm (nominal 1 to 4 in.). Thicknesses of door cuttings start at 35 mm (nominal 1-3/8 in.). Cuttings are of various lengths and widths. Laminating stock is sometimes offered oversize, compared with standard dimension sizes, to permit resurfacing prior to laminating. Industrial Clears can be offered rough or surfaced in a variety of sizes, starting from standard 38 mm (nominal 2 in.) and thinner and as narrow as standard 64 mm (nominal 3 in.). Sizes for special product grades such as moulding stock and ladder stock are specified in appropriate grading rules or handled by purchase agreements.

Surfacing

Lumber can be produced either rough or surfaced (dressed). Rough lumber has surface imperfections caused by the primary sawing operations. It may be greater than target size by variable amounts in both thickness and width, depending

upon the type of sawmill equipment. Rough lumber serves as a raw material for further manufacture and also for some decorative purposes. A roughsawn surface is common in post and timber products. Because of surface roughness, grading of rough lumber is generally more difficult.

Surfaced lumber has been surfaced by a machine on one side (S1S), two sides (S2S), one edge (S1E), two edges (S2E), or combinations of sides and edges (S1S1E, S2S1E, S1S2, S4S). Lumber is surfaced to attain smoothness and uniformity of size.

Imperfections or blemishes defined in the grading rules and caused by machining are classified as “manufacturing imperfections.” For example, chipped and torn grain are surface irregularities in which surface fibers have been torn out by the surfacing operation. Chipped grain is a “barely perceptible” characteristic, while torn grain is classified by depth. Raised grain, skip, machine burn and gouge, chip marks, and wavy surfacing are other manufacturing imperfections. Manufacturing imperfections are defined in the American Softwood

Lumber Standard and further detailed in the grading rules. Classifications of manufacturing imperfections (combinations of imperfections allowed) are established in the rules as Standard A, Standard B, and so on. For example, Standard A admits very light torn grain, occasional slight chip marks, and very slight knife marks. These classifications are used as part of the grade rule description of some lumber products to specify the allowable surface quality.

Patterns

Lumber that has been matched, shiplapped, or otherwise patterned, in addition to being surfaced, is often classified as “worked lumber.” Figure 5–3 shows typical patterns.

Softwood Lumber Species

The names of lumber species adopted by the trade as standard may vary from the names of trees adopted as official by the USDA Forest Service. Table 5–7 shows the American Softwood Lumber Standard commercial names for lumber, the USDA Forest Service tree names, and the botanical names. Some softwood species are marketed primarily in combinations. Designations such as Southern Pine and Hem–Fir represent typical combinations. Grading rule agencies (Table 5–5) should be contacted for questions regarding combination names and species not listed in Table 5–7. Species groups are discussed further in Chapter 6.

Softwood Lumber Grading

Most lumber is graded under the supervision of inspection bureaus and grading agencies. These organizations supervise lumber mill grading and provide re-inspection services to resolve disputes concerning lumber shipments. Some of these agencies also write grading rules that reflect the species and products in the geographic regions they represent. These grading rules follow the American Softwood Lumber Standard (PS–20). This is important because it provides for recognized uniform grading procedures. Names and addresses of rules-writing organizations in the United States and the species with which they are concerned are listed in Table 5–5. Canadian softwood lumber imported into the United States and graded by inspection agencies in Canada also follows the PS–20 standard. Names and addresses of accredited Canadian grading agencies may be obtained from the American Lumber Standard Committee, P.O. Box 210, Germantown, Maryland 20874.

Purchase of Lumber

After primary manufacture, most lumber products are marketed through wholesalers to remanufacturing plants or retail outlets. Because of the extremely wide variety of lumber products, wholesaling is very specialized—some organizations deal with only a limited number of species or products. Where the primary manufacturer can readily identify the customers, direct sales may be made. Primary manufacturers often sell directly to large retail-chain contractors, manufacturers of mobile and modular housing, and truss fabricators.

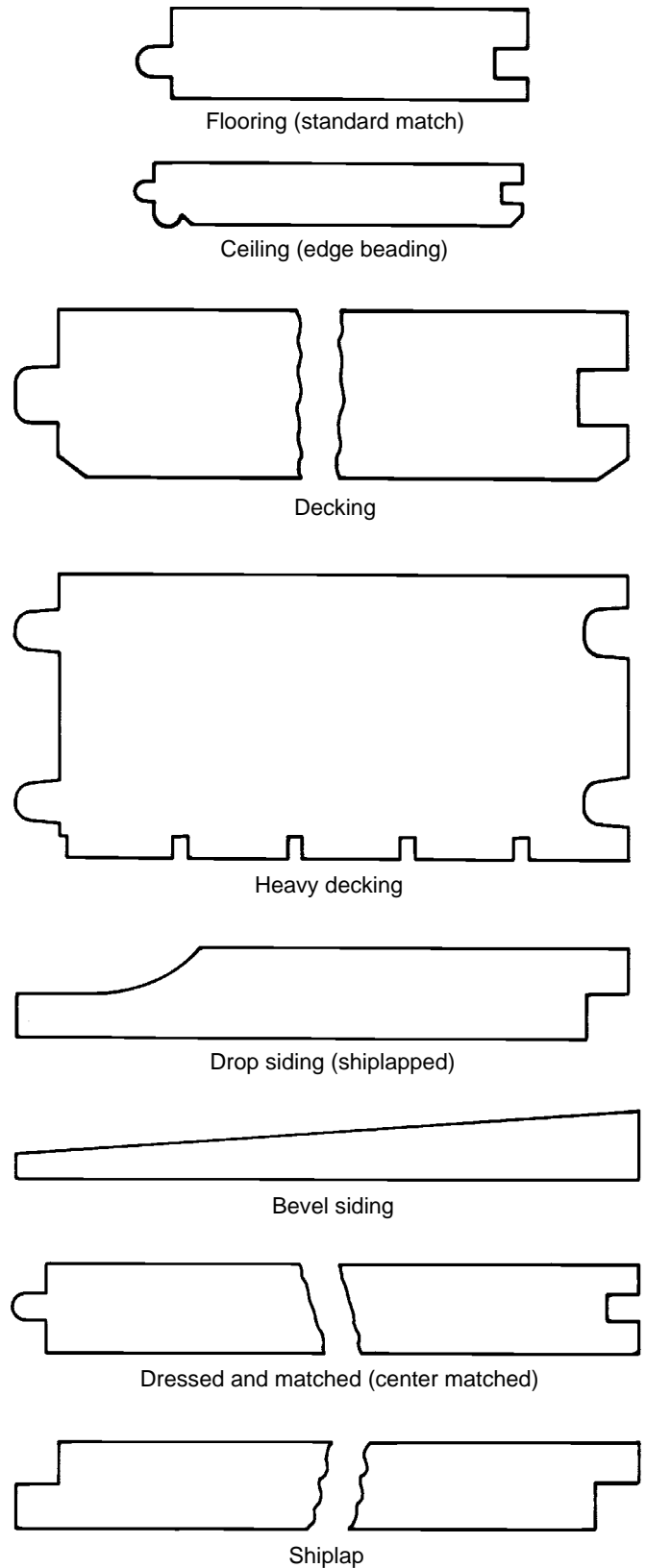


Figure 5–3. Typical patterns of worked lumber.

Table 5–7. Nomenclature of commercial softwood lumber

Commercial species or species group names under American Softwood Lumber Standard	Tree name used in this handbook	Botanical name
Cedar		
Alaska	yellow-cedar	<i>Chamaecyparis nootkatensis</i>
Eastern Red	eastern redcedar	<i>Juniperus virginiana</i>
Incense	incense-cedar	<i>Libocedrus decurrens</i>
Northern White	northern white-cedar	<i>Thuja occidentalis</i>
Port Orford	Port-Orford-cedar	<i>Chamaecyparis lawsoniana</i>
Southern White	Atlantic white-cedar	<i>Chamaecyparis thyoides</i>
Western Red	western redcedar	<i>Thuja plicata</i>
Cypress		
Baldcypress	baldcypress	<i>Taxodium distichum</i>
Pond cypress	pond cypress	<i>Taxodium distichum</i> var. <i>nutans</i>
Fir		
Alpine	subalpine fir (alpine fir)	<i>Abies lasiocarpa</i>
Balsam	balsam fir	<i>Abies balsamea</i>
California Red	California red fir	<i>Abies magnifica</i>
Douglas Fir	Douglas-fir	<i>Pseudotsuga menziesii</i>
Fraser	Fraser fir	<i>Abies fraseri</i>
Grand	grand fir	<i>Abies grandis</i>
Noble Fir	noble fir	<i>Abies procera</i>
Pacific Grand	Pacific silver fir	<i>Abies amabilis</i>
White	white fir	<i>Abies concolor</i>
Hemlock		
Carolina	Carolina hemlock	<i>Tsuga caroliniana</i>
Eastern	eastern hemlock	<i>Tsuga canadensis</i>
Mountain	mountain hemlock	<i>Tsuga mertensiana</i>
Western	western hemlock	<i>Tsuga heterophylla</i>
Juniper		
Western	alligator juniper	<i>Juniperus deppeana</i>
	Rocky Mountain juniper	<i>Juniperus scopulorum</i>
	Utah juniper	<i>Juniperus osteosperma</i>
	western juniper	<i>Juniperus occidentalis</i>
Larch		
Western	western larch	<i>Larix occidentalis</i>
Pine		
Bishop	bishop pine	<i>Pinus muricata</i>
Coulter	Coulter pine	<i>Pinus coulteri</i>
Digger	Digger pine	<i>Pinus sabibiana</i>
Knobcone	knobcone pine	<i>Pinus attenuata</i>
Idaho White	western white pine	<i>Pinus monticola</i>
Jack	jack pine	<i>Pinus banksiana</i>
Jeffrey	Jeffrey pine	<i>Pinus jeffreyi</i>
Limber	limber pine	<i>Pinus flexilis</i>
Lodgepole	lodgepole pine	<i>Pinus contorta</i>
Longleaf	longleaf pine	<i>Pinus palustris</i>
	slash pine	<i>Pinus elliottii</i>
Northern White	eastern white pine	<i>Pinus strobus</i>
Norway	red pine	<i>Pinus resinosa</i>
Pitch	pitch pine	<i>Pinus rigida</i>
Ponderosa	ponderosa pine	<i>Pinus ponderosa</i>
Southern Pine Major	loblolly pine	<i>Pinus taeda</i>
	longleaf pine	<i>Pinus palustris</i>
	shortleaf pine	<i>Pinus echinata</i>
	slash pine	<i>Pinus elliottii</i>
Southern Pine Minor	pond pine	<i>Pinus serotina</i>
	sand pine	<i>Pinus clausa</i>
	spruce pine	<i>Pinus glabra</i>
	Virginia pine	<i>Pinus virginiana</i>
Southern Pine Mixed	loblolly pine	<i>Pinus taeda</i>
	longleaf pine	<i>Pinus palustris</i>
	pond pine	<i>Pinus serotina</i>
	shortleaf pine	<i>Pinus echinata</i>
	slash pine	<i>Pinus elliottii</i>
	Virginia pine	<i>Pinus virginiana</i>
Radiata/Monterey Pine	Monterey pine	<i>Pinus radiata</i>

Table 5–7. Nomenclature of commercial softwood lumber—con.

Commercial species or species group names under American Softwood Lumber Standard	Tree name used in this handbook	Botanical name
Pine—con.		
Sugar	sugar pine	<i>Pinus lambertiana</i>
Whitebark	whitebark pine	<i>Pinus albicaulis</i>
Redwood		
Redwood	redwood	<i>Sequoia sempervirens</i>
Spruce		
Blue	blue spruce	<i>Picea pungens</i>
Eastern	black spruce	<i>Picea mariana</i>
	red spruce	<i>Picea rubens</i>
	white spruce	<i>Picea glauca</i>
Engelmann	Engelmann spruce	<i>Picea engelmannii</i>
Sitka	Sitka spruce	<i>Picea sitchensis</i>
Tamarack		
Tamarack	tamarack	<i>Larix laricina</i>
Yew		
Pacific	Pacific yew	<i>Taxus brevifolia</i>
Coast Species		
	Douglas-fir	<i>Pseudotsuga menziesii</i>
	western larch	<i>Larix occidentalis</i>
Eastern Softwoods		
	black spruce	<i>Picea mariana</i>
	red spruce	<i>Picea rubens</i>
	white spruce	<i>Picea glauca</i>
	balsam fir	<i>Abies balsamea</i>
	eastern white pine	<i>Pinus strobus</i>
	jack pine	<i>Pinus banksiana</i>
	pitch pine	<i>Pinus rigida</i>
	red pine	<i>Pinus resinosa</i>
	eastern hemlock	<i>Tsuga canadensis</i>
	tamarack	<i>Larix occidentalis</i>
Hem–Fir		
	western hemlock	<i>Tsuga heterophylla</i>
	California red fir	<i>Abies magnifica</i>
	grand fir	<i>Abies grandis</i>
	noble fir	<i>Abies procera</i>
	Pacific silver fir	<i>Abies amabilis</i>
	white fir	<i>Abies concolor</i>
Hem–Fir (North)		
	western hemlock	<i>Tsuga heterophylla</i>
	Pacific silver fir	<i>Abies amabilis</i>
Northern Pine		
	jack pine	<i>Pinus banksiana</i>
	pitch pine	<i>Pinus rigida</i>
	red pine	<i>Pinus resinosa</i>
North Species		
	northern white cedar	<i>Thuja occidentalis</i>
	western redcedar	<i>Thuja plicata</i>
	yellow-cedar	<i>Chamaecyparis nootkatensis</i>
	eastern hemlock	<i>Tsuga canadensis</i>
	western hemlock	<i>Tsuga heterophylla</i>
	Douglas-fir	<i>Pseudotsuga menziesii</i>
	balsam fir	<i>Abies balsamea</i>
	grand fir	<i>Abies grandis</i>
	Pacific silver fir	<i>Abies amabilis</i>
	subalpine (alpine) fir	<i>Abies lasiocarpa</i>
	western larch	<i>Larix occidentalis</i>
	tamarack	<i>Larix laricina</i>
	eastern white pine	<i>Pinus strobus</i>
	jack pine	<i>Pinus banksiana</i>
	lodgepole pine	<i>Pinus contorta</i>
	ponderosa pine	<i>Pinus ponderosa</i>
	red pine	<i>Pinus resinosa</i>
	western white pine	<i>Pinus monticola</i>
	whitebark pine	<i>Pinus albicaulis</i>
	black spruce	<i>Picea mariana</i>
	Engelmann spruce	<i>Picea engelmannii</i>
	red spruce	<i>Picea rubens</i>
	Sitka spruce	<i>Picea sitchensis</i>

Table 5–7. Nomenclature of commercial softwood lumber—con.

Commercial species or species group names under American Softwood Lumber Standard	Tree name used in this handbook	Botanical name
North Species—con.	white spruce	<i>Picea glauca</i>
	bigtooth aspen	<i>Populus grandidentata</i>
	quaking aspen	<i>Populus tremuloides</i>
	black cottonwood	<i>Populus trichocarpa</i>
	balsam poplar	<i>Populus balsamifera</i>
Southern Pine	loblolly pine	<i>Pinus taeda</i>
	longleaf pine	<i>Pinus palustris</i>
	shortleaf pine	<i>Pinus echinata</i>
	slash pine	<i>Pinus elliottii</i>
Spruce–Pine–Fir	black spruce	<i>Picea mariana</i>
	Engelmann spruce	<i>Picea engelmannii</i>
	red spruce	<i>Picea rubens</i>
	balsam fir	<i>Abies balsamea</i>
	subalpine (alpine) fir	<i>Abies lasiocarpa</i>
	jack pine	<i>Pinus banksiana</i>
Spruce–Pine–Fir (South)	lodgepole pine	<i>Pinus contorta</i>
	black spruce	<i>Picea mariana</i>
	Engelmann spruce	<i>Picea engelmannii</i>
	red spruce	<i>Picea rubens</i>
	Sitka spruce	<i>Picea sitchensis</i>
	white spruce	<i>Picea glauca</i>
	balsam fir	<i>Abies balsamea</i>
	jack pine	<i>Pinus banksiana</i>
Western Cedars	lodgepole pine	<i>Pinus contorta</i>
	red pine	<i>Pinus resinosa</i>
	incense cedar	<i>Libocedrus decurrens</i>
	western redcedar	<i>Thuja plicata</i>
	Port-Orford-cedar	<i>Chamaecyparis lawsoniana</i>
Western Cedar (North)	yellow-cedar	<i>Chamaecyparis nootkatensis</i>
	western redcedar	<i>Thuja plicata</i>
Western Woods	yellow-cedar	<i>Chamaecyparis nootkatensis</i>
	Douglas-fir	<i>Pseudotsuga menziesii</i>
	California red fir	<i>Abies magnifica</i>
	grand fir	<i>Abies grandis</i>
	noble fir	<i>Abies procera</i>
	Pacific silver fir	<i>Abies amabilis</i>
	subalpine fir	<i>Abies lasiocarpa</i>
	white fir	<i>Abies concolor</i>
Hemlock	mountain hemlock	<i>Tsuga mertensiana</i>
	western hemlock	<i>Tsuga heterophylla</i>
	western larch	<i>Larix occidentalis</i>
	Engelmann spruce	<i>Picea engelmannii</i>
	Sitka spruce	<i>Picea sitchensis</i>
	lodgepole pine	<i>Pinus contorta</i>
	ponderosa pine	<i>Pinus ponderosa</i>
	sugar pine	<i>Pinus lambertiana</i>
White Woods	western white pine	<i>Pinus monticola</i>
	California red fir	<i>Abies magnifica</i>
	grand fir	<i>Abies grandis</i>
	noble fir	<i>Abies procera</i>
	Pacific silver fir	<i>Abies amabilis</i>
	subalpine fir	<i>Abies lasiocarpa</i>
	white fir	<i>Abies concolor</i>
	mountain hemlock	<i>Tsuga mertensiana</i>
	western hemlock	<i>Tsuga heterophylla</i>
	Engelmann spruce	<i>Picea engelmannii</i>
	Sitka spruce	<i>Picea sitchensis</i>
lodgepole pine	<i>Pinus contorta</i>	
ponderosa pine	<i>Pinus ponderosa</i>	
sugar pine	<i>Pinus lambertiana</i>	
western white pine	<i>Pinus monticola</i>	

Some primary manufacturers and wholesalers set up distribution yards in lumber-consuming areas to distribute both hardwood and softwood products more effectively. Retail yards draw inventory from distribution yards and, in wood-producing areas, from local lumber producers. The wide range of grades and species covered in the grade rules may not be readily available in most retail outlets.

Transportation is a vital factor in lumber distribution. Often, the lumber shipped by water is green because weight is not a major factor in this type of shipping. On the other hand, lumber reaching the East Coast from the Pacific Coast by rail is usually kiln-dried because rail shipping rates are based on weight. A shorter rail haul places southern and northeastern species in a favorable economic position in regard to shipping costs in this market.

Changing transportation costs have influenced shifts in market distribution of species and products. Trucks have become a major factor in lumber transport for regional remanufacture plants, for retail supply from distribution yards, and for much construction lumber distribution.

The increased production capacity of foreign hardwood and softwood manufacturing and the availability of water transport has brought foreign lumber products to the U.S. market, particularly in coastal areas.

Retail Yard Inventory

The small retail yards throughout the United States carry softwoods for construction purposes and often carry small stocks of one or two hardwoods in grades suitable for finishing or cabinetwork. Special orders must be made for other hardwoods. Trim items such as moulding in either softwood or hardwood are available cut to standard size and pattern. Millwork plants usually make ready-for-installation cabinets, and retail yards carry or catalog many common styles and sizes. Hardwood flooring is available to the buyer only in standard patterns. Most retail yards carry stress grades of lumber.

The assortment of species in general construction items carried by retail yards depends to a great extent upon geographic location, and both transportation costs and tradition are important factors. Retail yards within, or close to, a major lumber-producing region commonly emphasize local timber. For example, a local retail yard on the Pacific Northwest Coast may stock only green Douglas Fir and cedar in dimension grades, dry pine and hemlock in boards and moulding, and assorted special items such as redwood posts, cedar shingles and shakes, and rough cedar siding. The only hardwoods may be walnut and “Philippine mahogany” (the common market name encompassing many species, including tanguile, red meranti, and white lauan). Retail yards located farther from a major softwood supply, such as in the Midwest, may draw from several growing areas and may stock spruce and Southern Pine, for example. Because they are located in a major hardwood production

area, these yards may stock, or have available to them, a different and wider variety of hardwoods.

Geography has less influence where consumer demands are more specific. For example, where long construction lumber (6 to 8 m (20 to 26 ft)) is required, West Coast species are often marketed because the height of the trees in several species makes long lengths a practical market item. Ease of preservative treatability makes treated Southern Pine construction lumber available in a wide geographic area.

Structural Lumber for Construction

Dimension lumber is the principal stress-graded lumber available in a retail yard. It is primarily framing lumber for joists, rafters, and studs. Strength, stiffness, and uniformity of size are essential requirements. Dimension lumber is stocked in almost all yards, frequently in only one or two of the general purpose construction woods such as pine, fir, hemlock, or spruce. Standard 38- by 89-mm (nominal 2- by 4-in.) and wider dimension lumber is found in Select Structural, No. 1, No. 2, and No. 3 grades. Standard 38- by 89-mm (nominal 2- by 4-in.) dimension lumber may also be available as Construction, Standard, Utility, and STUD grades. STUD grade is also available in wider widths.

Dimension lumber is often found in standard 38-, 89-, 140-, 184-, 235-, and 286-mm (nominal 2-, 4-, 6-, 8-, 10-, and 12-in.) widths and 2.4- to 5.4-m (8- to 18-ft) lengths in multiples of 0.6 m (2 ft). Dimension lumber formed by structural end-jointing procedures may be available. Dimension lumber thicker than standard 38 mm (nominal 2 in.) and longer than 5.4 m (18 ft) is not commonly available in many retail yards.

Other stress-graded products generally available are posts and timbers; some beams and stringers may also be in stock. Typical grades in these products are Select Structural, No. 1, and No. 2.

Yard Lumber for Construction

Boards are the most common non-stress-graded general purpose construction lumber in the retail yard. Boards are stocked in one or more species, usually in standard 19 mm (nominal 1 in.) thickness. Common widths are standard 38, 64, 89, 140, 184, 235, and 286 mm (nominal 2, 3, 4, 6, 8, 10, and 12 in.). Grades generally available in retail yards are No. 1 Common, No. 2 Common, and No. 3 Common (Construction, Standard, No. 1, No. 2, etc.). Boards are sold square edged, dressed (surfaced) and matched (tongued and grooved), or with a shiplapped joint. Boards formed by end-jointing of shorter sections may constitute an appreciable portion of the inventory.

Select Lumber

Completion of a construction project usually depends on the availability of lumber items in finished or semi-finished form. The following items often may be stocked in only a few species, finishes, or sizes depending on the lumber yard.

Finish—Finish boards usually are available in a local yard in one or two species, principally in grade C&BTR. Cedar and redwood have different grade designations: grades such as Clear Heart, A, or B are used in cedar; Clear All Heart, Clear, and B grade are typical in redwood. Finish boards are usually standard 19 mm (nominal 1 in.) thick, surfaced on two sides to 19 mm (3/4 in.); 38- to 286-mm (2- to 12-in.) widths are usually stocked, in even increments.

Siding—Siding is specifically intended to cover exterior walls. Beveled siding is ordinarily stocked only in white pine, ponderosa pine, western redcedar, cypress, or redwood. Drop siding, also known as rustic or barn siding, is usually stocked in the same species as is beveled siding. Siding may be stocked as B&BTR or C&BTR except in cedar, where Clear, A, and B grades may be available, and redwood, where Clear All Heart, Clear, and B grades may be found. Vertical grain (VG) is sometimes part of the grade designation. Drop siding is also sometimes stocked in sound knotted C and D grades of Southern Pine, Douglas Fir, and hemlock. Drop siding may be surfaced and matched, or shiplapped. Knotty grades of cedar (Select Tight Knot (STK)) and redwood (Rustic) are commonly available.

Flooring—Flooring is made chiefly from hardwoods, such as oak and maple, and the harder softwood species, such as Douglas-fir, western larch, and Southern Pine. Often, at least one softwood and one hardwood are stocked. Flooring is usually 19 mm (3/4 in.) thick. Thicker flooring is available for heavy-duty floors. Thinner flooring is available, especially for re-covering old floors. Vertical- and flat-grained (also called quartersawn and plainsawn) flooring is manufactured from both softwoods and hardwoods. Vertical-grained flooring shrinks and swells less than flat-grained flooring, is more uniform in texture, and wears more uniformly, and the edge joints have less tendency to open.

Softwood flooring is usually available in B&BTR, C Select, or D Select grades. In maple, the chief grades are Clear, No. 1, and No. 2. The grades in quartersawn oak are Clear and Select, and in plainsawn, Clear, Select, and No. 1 Common. Quartersawn hardwood flooring has the same advantages as does vertical-grained softwood flooring. In addition, the silver or flaked grain of quartersawn flooring is frequently preferred to the figure of plainsawn flooring.

Casing and Base—Casing and base are standard items in the more important softwoods and are stocked in most yards in at least one species. The chief grade, B&BTR, is designed to meet the requirements of interior trim for dwellings. Many casing and base patterns are surfaced to 17.5 by 57 mm (11/16 by 2-1/4 in.); other sizes include 14.3 mm (9/16 in.) by 76 mm (3 in.), by 83 mm (3-1/4 in.), and by 89 mm (3-1/2 in.). Hardwoods for the same purposes, such as oak and birch, may be carried in stock in the retail yard or obtained on special order.

Shingles and Shakes—Commonly available shingles are sawn from western redcedar and northern white-cedar. For western redcedar, the shingle grades are No. 1, No. 2, and

No. 3; for northern white-cedar, Extra, Clear, 2nd Clear, Clearwall, and Utility.

Shingles that contain only heartwood are more resistant to decay than are shingles that contain sapwood. Edge-grained shingles are less likely to warp and split than flat-grained shingles, thick-butted shingles less likely than thin-butted shingles, and narrow shingles less likely than wide shingles. The standard thickness values of thin-butted shingles are described as 4/2, 5/2-1/4, and 5/2 (four shingles to 51 mm (2 in.) of butt thickness, five shingles to 57 mm (2-1/4 in.) of butt thickness, and five shingles to 51 mm (2 in.) of butt thickness). Lengths may be 406, 457, or 610 mm (16, 18, or 24 in.). Random widths and specified (“dimension” shingle) widths are available in western redcedar, redwood, and cypress.

Shingles are usually packed four bundles to a square. A square of shingles will cover roughly 9 m² (100 ft²) of roof area when the shingles are applied at standard weather exposures.

Shakes are hand split or hand split and resawn from western redcedar. Shakes are of a single grade and must be 100% clear. In the case of hand split and resawn material, shakes are graded from the split face. Hand-split shakes are graded from the best face. Shakes must be 100% heartwood. The standard thickness of shakes ranges from 9.5 to 32 mm (3/8 to 1-1/4 in.). Lengths are 457 and 610 mm (18 and 24 in.), with a special “Starter-Finish Course” length of 381 mm (15 in.).

Important Purchase Considerations

Some points to consider when ordering lumber or timbers are the following:

1. **Quantity**—Lineal measure, board measure, surface measure, number of pieces of definite size and length. Consider that the board measure depends on the thickness and width nomenclature used and that the interpretation of these must be clearly delineated. In other words, such features as nominal or actual dimensions and pattern size must be considered.
2. **Size**—Thickness in millimeters or inches—nominal or actual if surfaced on faces; width in millimeters or inches—nominal or actual if surfaced on edges; length in meters or feet—may be nominal average length, limiting length, or a single uniform length. Often a trade designation, “random” length, is used to denote a nonspecified assortment of lengths. Such an assortment should contain critical lengths as well as a range. The limits allowed in making the assortment random can be established at the time of purchase.
3. **Grade**—As indicated in grading rules of lumber manufacturing associations. In softwoods that are in compliance with the American Softwood Lumber Standard, each piece of lumber may be grade stamped with its official grade species identification, a name or number identifying

the producing mill, the dryness at the time of surfacing, and a symbol identifying the inspection agency supervising the grading inspection. The grade designation stamped on a piece indicates the quality at the time the piece was graded. Subsequent exposure to unfavorable storage conditions, improper drying, or careless handling may cause the material to fall below its original grade.

Working or recutting a graded product to a pattern may change or invalidate the original grade. The purchase specification should be clear in regard to regrading or acceptance of worked lumber. In softwood lumber, grades for dry lumber generally are determined after kiln drying and surfacing. However, this practice is not general for hardwood Factory lumber, where the grade is generally based on quality and size prior to kiln drying. To be certain the product grade is correct, refer to the grading rule by number and paragraph.

4. Species or species group of wood—Such as Douglas Fir, Southern Pine, Hem–Fir. Some species have been grouped for marketing convenience; others are sold under a variety of names. Be sure the species or species group is correctly and clearly described on the purchase specification.
5. Product—Such as flooring, siding, timbers, boards. Nomenclature varies by species, region, and grading association. To be certain the nomenclature is correct for the product, refer to the grading rule by number and paragraph.
6. Condition of seasoning—Such as air dry, kiln dry. Softwood lumber less than 114 mm (nominal 5 in.) in thickness dried to 19% moisture content or less is defined as dry by the American Softwood Lumber Standard. Kiln-dried lumber is lumber that has been seasoned in a chamber to a predetermined moisture content by applying heat. Green lumber is lumber less than 114 mm (nominal 5 in.) in thickness, which has a moisture content in excess of 19%. If the moisture requirement is critical, the level of moisture content and the method by which it will be achieved must be specified.
7. Surfacing and working—Rough (unplaned), surfaced (dressed, planed), or patterned stock. Specify condition. If surfaced, indicate code (S4S, S1S1E). If patterned, list pattern number with reference to appropriate grade rules.
8. Grading rules—Official grading agency name and name of official rules under which product is graded, product identification, paragraph and page number of rules, and date of rules or official rule edition may be specified by the buyer.
9. Manufacturer—Name of manufacturer or trade name of specific product or both. Most lumber products are sold without reference to a specific manufacturer. If proprietary names or quality features of a manufacturer are required, this must be stipulated clearly on the purchase agreement.

10. Reinspection—Procedures for resolution of purchase disputes. The American Softwood Lumber Standard provides for procedures to be followed in resolution of manufacturer–wholesaler–consumer conflicts over quality or quantity of ALS lumber grades. The dispute may be resolved by reinspecting the shipment. Time limits, liability, costs, and complaint procedures are outlined in the grade rules of both softwood and hardwood agencies under which the disputed shipment was graded and purchased.

Commonly Used Lumber Abbreviations

The following standard lumber abbreviations are commonly used in contracts and other documents for purchase and sale of lumber.

AAR	Association of American Railroads
AD	air dried
ADF	after deducting freight
AF	alpine fir
ALS	American Lumber Standard
AST	antistain treated; at ship tackle (western softwoods)
AV or avg	average
AW&L	all widths and lengths
B1S	see EB1S, CB1S, and E&CB1S
B2S	see EB2S, CB2S, and E&CB2S
B&B, B&BTR	B and Better
B&S	beams and stringers
BD	board
BD FT	board feet
BDL	bundle
BEV	bevel or beveled
BH	boxed heart
B/L, BL	bill of lading
BM	board measure
BSND	bright sapwood, no defect
BTR	better
CB	center beaded
CB1S	center bead on one side
CB2S	center bead on two sides
CC	cubical content
cft or cu. ft.	cubic foot or feet
CF	cost and freight
CIF	cost, insurance, and freight
CIFE	cost, insurance, freight, and exchange
CG2E	center groove on two edges
C/L	carload
CLG	ceiling
CLR	clear

CM	center matched	FLG, Flg	flooring
Com	Common	FOB	free on board (named point)
CONST	construction	FOHC	free of heart center
CS	caulking seam	FOK	free of knots
CSG	casing	FRT, Frt	freight
CV	center V	FT, ft	foot, feet
CV1S	center V on one side	FT. SM	feet surface measure
CV2S	center V on two sides	G	girth
DB Clg	double-beaded ceiling (E&CB1S)	GM	grade marked
DB Part	double-beaded partition (E&CB2S)	G/R	grooved roofing
DET	double end-trimmed	HB, H.B.	hollow back
DF	Douglas-fir	HEM	hemlock
DF-L	Douglas-fir plus larch	H-F	mixed hemlock and fir (Hem-Fir)
DIM	dimension	Hrt	heart
DKG	decking	H&M	hit and miss
D/S, DS, D/Sdg	drop siding	H or M	hit or miss
D1S, D2S	see S1S and S2S	IC	incense cedar
D&M	dressed and matched	IN, in.	inch, inches
D&CM	dressed and center matched	Ind	industrial
D&SM	dressed and standard matched	IWP	Idaho white pine
D2S&CM	dressed two sides and center matched	J&P	joists and planks
D2S&SM	dressed two sides and standard matched	JTD	jointed
E	edge	KD	kiln dried
EB1S	edge bead one side	KDAT	kiln-dried after treatment
EB2S, SB2S	edge bead on two sides	L	western larch
EE	eased edges	LBR, Lbr	lumber
EG	edge (vertical or rift) grain	LCL	less than carload
EM	end matched	LGR	longer
EV1S, SV1S	edge V one side	LGTH	length
EV2S, SV2S	edge V two sides	Lft, Lf	lineal foot, feet
E&CB1S	edge and center bead one side	LIN, Lin	lineal
E&CB2S, DB2S, BC&2S	edge and center bead two sides	LL	longleaf
E&CV1S, DV1S, V&CV1S	edge and center V one side	LNG, Lng	lining
E&CV2S, DV2S, V&CV2S	edge and center V two sides	LP	lodgepole pine
ES	Engelmann spruce	M	thousand
F _b , F _t , F _c , F _v , F _{cx}	allowable stress (MPa (lb/in ²)) in bending; tension, compression and shear parallel to grain; and in compression perpendicular to grain, respectively	MBM, MBF, M.BM	thousand (feet) board measure
FA	facial area	MC, M.C.	moisture content
Fac	factory	MERCH, Merch	merchantable
FAS	free alongside (vessel)	MFMA	Maple Flooring Manufacturers Association
FAS	Firsts and Seconds	MG	medium grain or mixed grain
FAS1F	Firsts and Seconds one face	MH	mountain hemlock
FBM, Ft. BM	feet board measure	MLDG, Mldg	moulding
FG	flat or slash grain	Mft	thousand feet
FJ	finger joint; end-jointed lumber using finger-joint configuration	M-S	mixed species
		MSR	machine stress rated
		N	nosed
		NBM	net board measure
		NOFMA	National Oak Flooring Manufacturers Association
		No.	number

N1E or N2E	nosed one or two edges	S&E	side and edge (surfaced on)
Ord	order	S1E	surfaced one edge
PAD	partially air-dried	S2E	surfaced two edges
PAR, Par	paragraph	S1S	surfaced one side
PART, Part	partition	S2S	surfaced two sides
PAT, Pat	pattern	S4S	surfaced four sides
Pcs.	pieces	S1S&CM	surfaced one side and center matched
PE	plain end	S2S&CM	surfaced two sides and center matched
PET	precision end-trimmed	S4S&CS	surfaced four sides and caulking seam
PP	ponderosa pine	S1S1E	surfaced one side, one edge
P&T	posts and timbers	S1S2E	surfaced one side, two edges
P1S, P2S	see S1S and S2S	S2S1E	surfaced two sides, one edge
RDM	random	S2S&SL	surfaced two sides and shiplapped
REG, Reg	regular	S2S&SM	surfaced two sides and standard matched
Rfg.	roofing	TBR	timber
RGH, Rgh	rough	T&G	tongued and grooved
R/L, RL	random lengths	TSO	treating service only (nonconforming to standard)
R/W, RW	random widths	UTIL	utility
RES	resawn	VG	vertical (edge) grain
SBIS	single bead one side	V1S	see EV1S, CV1S, and E&CV1S
SDG, Sdg	siding	V2S	see EV2S, CV2S, and E&CV2S
S-DRY	surfaced dry; lumber $\leq 19\%$ moisture content per ALS for softwood	WC	western cedar
SE	square edge	WCH	West Coast hemlock
SEL, Sel	Select or Select grade	WCW	West Coast woods
SE&S	square edge and sound	WDR, wdr	wider
SG	slash or flat grain	WF	white fir
S-GRN	surfaced green; lumber unseasoned, $>19\%$ moisture content per ALS for softwood	WHAD	worm holes (defect)
SGSSND	sapwood, gum spots and streaks, no defect	WHND	worm holes (no defect)
SIT. SPR	Sitka spruce	WT	weight
S/L, SL, S/Lap	shiplap	WTH	width
SM	surface measure	WRC	western redcedar
Specs	specifications	WW	white woods (Engelmann spruce, any true firs, any hemlocks, any pines)
SP	sugar pine		
SQ	square		
SQRS	squares		
SRB	stress-rated board		
STD, Std	standard		
Std. lgths.	standard lengths		
STD. M	standard matched		
SS	Sitka spruce		
SSE	sound square edge		
SSND	sap stain, no defect (stained)		
STK	Select tight knot		
STK	stock		
STPG	stepping		
STR, STRUCT	structural		
SYP	Southern Pine		

Reference

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