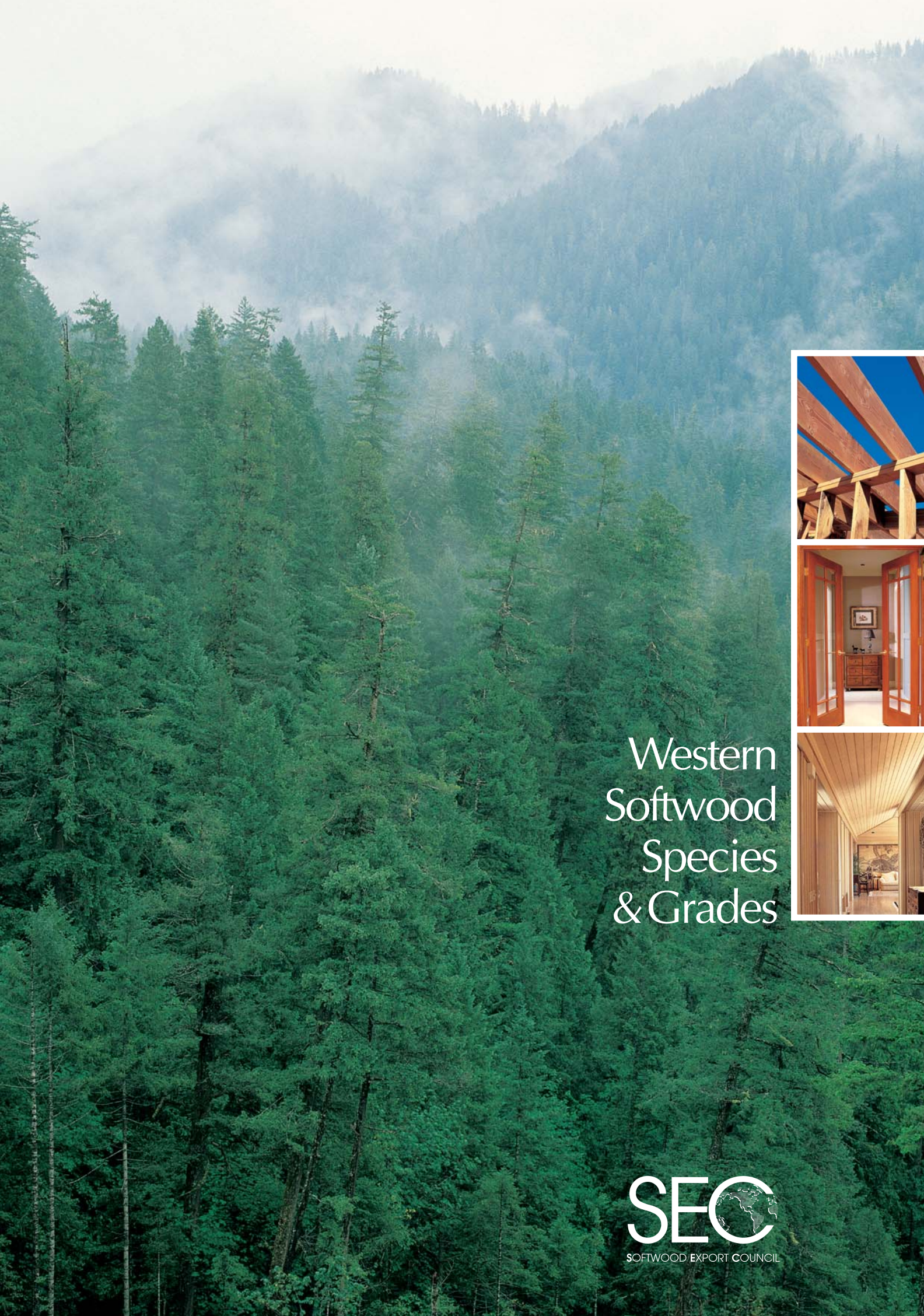


Western Softwood Species & Grades

SEC
SOFTWOOD EXPORT COUNCIL

Western Timberlands

The western United States is a vast wonderland of sweeping grasslands, craggy mountains, coastal temperate rainforests, inland forests, high desert plateaus, raging white waters, pristine lakes and enormous rivers.

It is also home to some of the most abundant and beloved public, private, industrial and non-industrial timberlands in the world. Millions of acres are set aside in perpetuity, permanently protected from commercial use.

On private and public lands where timber production is among the shared values assigned to a forested area, harvesting is governed by county, state and federal U.S. environmental and land management laws. In addition, the timber basket states of Oregon, Washington, California and Idaho are governed by some of the toughest State Forest Practices Acts and Best Management Practices (laws), with the highest compliance levels, of any timber growing region on the planet.

These laws protect habitat for threatened and endangered species, watersheds, soils, ecosystem health and diversity, and require reforestation in site-specific species within specified periods of time (within one year in Oregon and within three years in the other states).

More than 21 commercially important softwood species are native to the West. Among others, these include: Douglas fir (Oregon Pine) and Western Larch, Western Hemlock which is often marketed along with several of the true firs (*Abies* species) as Hem-Fir, Ponderosa and Lodgepole pines, Sugar pine, Idaho (or Western) White pine, four species of cedar (Incense, Western Red, Port Orford, and Alaskan Yellow), California redwood, and Engelmann and Sitka spruces. Only a few are shown in this brochure.

Timber Grades

Western species are manufactured into hundreds of timber products marketed according to specifically defined timber grades. The rules for these grades have evolved over nearly a century for convenience in referencing specific products and to provide buyers, sellers, and specifiers with a dependable measure for determining timber quality. Species and grades may be grouped, according to intended end uses, into several broad categories:

- **Structural timber** is graded for its load-bearing and load-carrying capacity in framing and construction applications. Species groupings simplify design. Please refer to page 6.
- **Appearance timber** is graded for its visual characteristics, with the highest grades reserved for timber that is virtually clear, free of characteristics and defects. Species are often marketed individually or in specific combinations. Please refer to page 14.
- **Factory and Shop timber** is graded for its suitability to be re-cut and further manufactured into doors, windows, furniture and other products. Criteria for these grades are determined by the percentage of clear "cuttings" recoverable from the graded piece. Please refer to page 22.
- **California redwood grades** are specific to the naturally durable species, *Sequoia sempervirens,* a commercially grown species of redwood native to northern California and southern Oregon. Redwood timber grades are based on appearance and durability. Please refer to page 30.
- **Special Export grades** are available. Many manufacturers provide timber products in the grades and sizes determined by the requirements of individual destination countries. All of the grades shown in this publication are widely traded in the international marketplace. Other export grades are available through buyer-seller agreements.

In the early days of wood products, independent grading agencies developed grades for the species in their regions. As modern construction practices and building codes began to require greater standardization in all building materials, structural timber products were standardized for grade and size under the *National Grading Rule for Dimension Lumber* and grouped into species combinations in the early 1970s. However, the non-structural timber products in specialty and appearance-grade products remain characterized by a variety of regionally oriented, species-specific grades maintained by accredited grading agencies.

Member Grading Agencies

This publication offers a representative sampling of western softwood grades provided by the member agencies of the Softwood Export Council (SEC):

- Pacific Lumber Inspection Bureau (PLIB),
- Redwood Inspection Service (RIS), a division of the California Redwood Association (CRA),
- West Coast Lumber Inspection Bureau (WCLIB), and
- Western Wood Products Association (WWPA).

All of these agencies are accredited by the American Lumber Standard Committee, Inc. (ALSC), under the U.S. Department of Commerce.

RIS, WCLIB and WWPA are accredited rules-writing agencies and represent three, of only six, agencies in the U.S. whose grading rules are certified as conforming to the *American Softwood Lumber Standard PS-20.* This U.S. product standard provides a mechanism for timber to be of the size, grade and design values indicated by its labelling.

All four agencies are certified to provide grading and inspection services for structural products under the *National Grading Rule for Dimension Lumber* (NGR). PLIB, WCLIB and WWPA are also accredited by the Canadian Lumber Standards Accreditation Board to provide grading inspection services under the *Standard Grading Rules for Canadian Lumber* published by the National Lumber Grades Authority (NLGA) of Canada.

The member companies of the SEC member grading agencies manufacture and ship approximately 85% of the total softwood timber production from the western region.

Operating since 1903, the **Pacific Lumber Inspection Bureau** (PLIB), is a private, non-profit timber quality control inspection bureau. It is perhaps best known for its grading rules, *Export "R" List Grading and Dressing Rules for West Coast Softwood Lumber,* one of the oldest and most widely used references in international softwood trading.

PLIB provides grading and inspection services in accordance with contract specifications between buyers and sellers to over 40 softwood timber manufacturers and remanufacturers in western Oregon, Washington, and in the southern interior of British Columbia, Canada.

PLIB is approved by both the ALSC and the Canadian Lumber Standards Accreditation Board to provide mill supervisory services under the NGR, RIS, WCLIB, WWPA and NLGA rules as well as to supervise glued and machine-graded timber.

Redwood grading rules, the *Standard Specifications for Grades of California Redwood Lumber,* are developed and published by the **Redwood Inspection Service** (RIS). This inspection agency is ALSC-approved to provide mill supervisory services under the NGR, its own, and the WCLIB and WWPA grading rules and to supervise machine-graded timber.

RIS is the grading and inspection services division of the **California Redwood Association** (CRA) which, at the age of 80, is one of the oldest, private non-profit trade associations in the forest products industry. CRA's primary responsibility is to maintain the integrity and high quality of RIS redwood grades. In addition, CRA promotes the use of redwood timber products and provides technical information and support services to redwood manufacturers, architectural specifiers and builders.

The birth of the **West Coast Lumber Inspection Bureau** (WCLIB) can be traced to 1911 when four northwest associations joined together to form the West Coast Lumberman's Association. Forty years later, the grading services division was established as an independent subsidiary of the WCLA, and in 1968, the West Coast Lumber Inspection Bureau was incorporated as an independent organization. The WCLIB currently provides services to more than 110 saw mills and remanufacturers located primarily throughout the northwestern U.S. In addition to its primary objective to develop and maintain uniform timber grading standards through publication of the *Standard Grading Rules for West Coast Lumber,* WCLIB provides grading supervision services, reinspection and transient inspection services, grader training services, and general and technical product support services. WCLIB is approved under ALSC and the Canadian Lumber Standards Accreditation Board to provide mill supervisory services under the NGR, its own, and RIS, NLGA and WWPA rules as well as to supervise glued and machine-graded timber.

With one of its predecessor organizations dating back to 1906, **Western Wood Products Association** (WWPA) is among the oldest and largest private, non-profit timber trade associations in the world, representing more than 130 sawmills in the 12 contiguous western states and Alaska. In addition to its most important function in quality control as a certified rules-writing, grading and inspection agency, WWPA provides economic analysis, technical support to member manufacturers, product support services and information to engineers, architects and builders, and business information services for the industry.

WWPA is approved under ALSC and the Canadian Lumber Standards Accreditation Board to provide mill supervisory services under the NGR, its own, and RIS, NLGA and WCLIB rules as well as to supervise glued and machine-graded timber.

Contact Information

The Softwood Export Council may be contacted at any time for information on its member organizations and/or the products of their member companies. Please refer to the SEC website: http://www.softwood.org for details.

Note: Metric measures throughout this text are soft conversions of actual U.S. sizes. Nominal sizes, such as 2x4, 2x8, etc. are used as names and have not been converted into metrics units.

Services for International Customers

SEC member grading agencies are industry leaders in providing special services for the international customers of its member companies and their products.

These agencies are approved by the U.S. Department of Agriculture (USDA) Animal & Plant Health Inspection Service (APHIS) to issue *Heat Treatment Certification Using a Kiln Facility* as well as *Certificates of Debarking and Grub Hole Control,* as required by EU and other countries.

Upon request, they will provide *Inspection Certificates* that attest to the accuracy of the grades and tallies shipped by their member companies. If any disagreement should arise, all SEC member grading agencies are able to provide *Reinspection Services* anywhere in the world to resolve disputes.

Certificates of Kiln Drying certifying a moisture content of less than 20% are also available.

In addition, these agencies are approved to prepare documentation for individual companies in preparation for acquisition of the USDA *Phytosanitary Certificates* that are required by specific destination countries.

All four agencies are accredited by ALSC to supervise NGR-based grading and grade marking services on structural products for Japan. Under the Japanese Ministry of Construction, these SEC agencies are approved to provide grade-stamping services for machine stress-rated timber as well as for visually graded structural dimension timber.

The Japanese government further allows WWPA to provide grading supervision services in those WWPA-JAS mills certified to use the **JAS grade mark** on structural products to be shipped directly to Japanese construction sites.

Grade Stamps

While appearance-grade products are sometimes grade stamped on the back or ends, grade marks for appearance products do not have to be stamped directly onto the timber. This avoids marring the beauty of the wood. However, the information revealed by a grade stamp is still required for commerce and, as such, is included in written documentation that accompanies a shipment.

Grade-stamping requirements for structural timber are different. Structural grades have assigned design values for use in engineering and construction. Design values are numerical indications of strength and performance properties, derived according to rigorous testing protocols that testify to a grade's appropriateness for particular applications. Thus, building codes and other regulatory entities that oversee design and construction require structural timber products be clearly grade stamped with an approved registered mark.

Most grade stamps, except those for heavy members 127 mm x 127 mm and larger, contain the following five basic elements:

1. **Certification Mark**
   The grading agency's registered mark. Attests to quality control supervision.
2. **Mill Identification**
   Reveals the manufacturing mill's identity. It may be a name or assigned mill number. Grading agencies may be contacted to identify an individual mill whenever necessary.
3. **Grade Designation**
   Grade name, number or abbreviation.
4. **Species Identification**
   Indicates species by individual species or species combination.
5. **Moisture Content & How Seasoned**
   Indicates the moisture content/condition of seasoning when timber was surfaced at the mill (KD indicates kiln dried):

   MC15 or KD15 --- 15% maximum moisture content

   S-DRY or KD --- 19% maximum moisture content

   S-GRN --- over 19% moisture content (unseasoned)

Natural Characteristics & Manufacturing Imperfections

Grades are determined by the natural characteristics of the log and any manufacturing imperfections that may occur during timber processing. Log characteristics will appear in a given piece of timber and affect its strength, stiffness and appearance. Manufacturing imperfections may also affect grade.

Grades are determined by complex sets of criteria that consider the type, size, closeness, frequency and location of all characteristics and imperfections within a piece.

Natural characteristics and imperfections are evaluated in several ways:

- Timber graders visually judge the total effect of the various combinations of characteristics and imperfections, relative to the limitations set forth in the grading rules for each grade and species, and assign appropriate grades accordingly. Most timber production is graded by visual inspection.
- Sophisticated, state-of-the-art computerized grading equipment digitally scans the characteristics and imperfections in a timber piece, then electronically calculates and assigns the grade based on criteria set forth in the grading rules.
- In the case of machine stress-rated (MSR) timber, each piece is non-destructively tested with stress-rating equipment to calculate the combined effect of the characteristics and imperfections on strength. MSR grades are provided numerically to facilitate engineering.

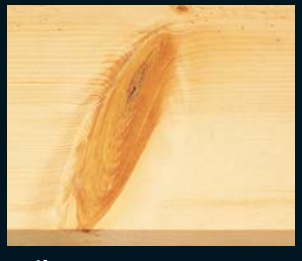
Some of the more common characteristics and manufacturing imperfections are shown below to emphasize appearance details.

Checked Knot

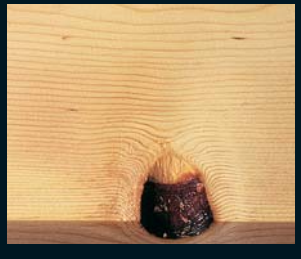
Tight Black Knot

Intergrown Knot

Not-firmly Fixed Knot



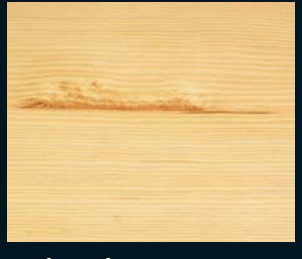
Spike Knot



Sloughed Knot

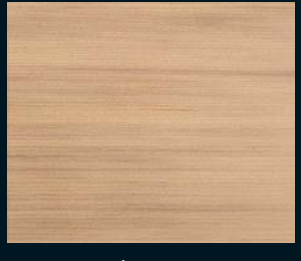
Unsound Knot

Wane



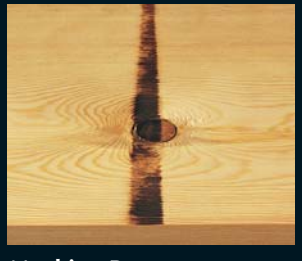
Bark Pocket

Pitch Streak

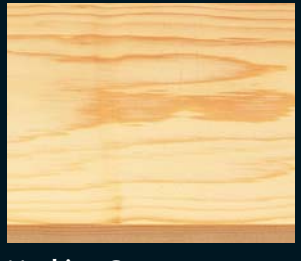


Brown Stain

Blue Stain



Machine Burn



Machine Gouge

Torn Grain (from Planer)

Skips in Dressing

Introduction

Structural products are manufactured primarily from second and third-growth timber. Pieces are evaluated either visually, mechanically or scanned digitally with grades assigned primarily on the basis each member's strength, not its appearance. Grading rules limit natural characteristics and the manufacturing imperfections that affect strength and influence the end uses appropriate to each grade, species and size. Each species and grade has assigned design values.

Design values for structural timber are derived using American Society for Testing and Materials standards, or criteria deemed appropriate by the National Institute of Standards and Technology, with the advice and counsel of the USDA Forest Products Laboratory.

Species Combinations

Some western species share performance properties. These are grouped together to simplify marketing, design and engineering and allow design values to be developed and assigned per species combination rather than individually.

With grades and design values assigned per species combination, adjustment factors can be applied to calculate the performance of different sized members in end use. U.S. design values and adjustment factors for western species are provided in the RIS, WCLIB and WWPA grade rule books and are published by various governmental agencies in destination countries.

Structural timber products are generally bought, sold and specified for end use according to the species combinations shown in Table 1. Because of unique durability characteristics, California redwood and the western cedars are marketed as distinct species.

Photo: Douglas fir, world renowned for its combination of strength, dimensional stability and beauty, is the dominant species for single-family and multi-storey wood framing throughout the western U.S.

Structural Grades

General classifications for structural timber in western species are explained below. Nominal sizes are used as "names." Metric references throughout this text are based on a soft conversion of actual, surfaced sizes (with 1" equaling 25.4 mm).

Dimension Lumber grades, based on the *National Grading Rule,* are divided into three categories for size and four for strength.

Size: The first size category includes products from ***38 x 38 mm*** *through* ***89 x 89 mm.*** (In the U.S., these sizes are referred to as 2x2 through 4x4, which reflect the nominal, unseasoned, and unsurfaced sizes of 2" x 2" and 4" x 4".) Sizes are available in *Structural Light Framing, Light Framing and Stud* strength categories.

Strength: ***Structural Light Framing*** (SLF) grades are intended to fit engineering applications where the highest design values are needed in light framing sizes from 38 to 89 mm thick x 38 to 89 mm wide.

SLF grades include:

SELECT STRUCTURAL*
No. 1*
No. 2*
No. 3

Strength: ***Light Framing*** (LF) grades in these sizes (from 38 to 89 mm thick x from 38 to 89 mm wide) are intended for framing uses where highest strength values are not required such as for wall framing, plates, sills, cripples, blocking etc.

LF grades include:

CONSTRUCTION*
STANDARD*
UTILITY

Size: The second size category includes products from ***38 x 38 mm*** through ***89 x 337 mm*** (U.S. nominal sizes 2x2 through 4x14). Products in this size range may be graded as Stud grade.

** Grades marked with an * are shown in photographs on the following pages.*

Western Species Combinations **Table 1**

	Species Combinations	Western Softwood Species	Alternate Combinations		
Western Woods	Douglas Fir - Larch	Douglas Fir – *Pseudotsuga menziesii* Western Larch – *Larix occidentalis*			White Woods (any combination of the Western true firs, spruces, hemlocks or pines)
	Douglas Fir – South	Douglas Fir-South - *Pseudotsuga menziesii* (grown in AZ, CO, NV, NM and UT)			
	Hem-Fir	Western Hemlock – *Tsuga heterophylla* Noble Fir – *Abies procera* California Red Fir – *Abies magnifica* Grand Fir – *Abies grandis* Pacific Silver Fir – *Abies amabilis* White Fir – *Abies concolor*			
	SPFS Spruce-Pine-Fir (South)	Sitka Spruce – *Picea sitchensis* Engelmann Spruce – *Picea engelmannii* Lodgepole Pine – *Pinus contorta*	Engelmann Spruce/ Lodgepole Pine		
	Western Woods	Alpine Fir – *Abies lasiocarpa* (or Subalpine Fir) Ponderosa Pine – *Pinus ponderosa* Sugar Pine – *Pinus lambertiana* Idaho White Pine – *Pinus monticola* (or Western White Pine) Mountain Hemlock – *Tsuga mertensiana*	Alpine Fir/ Hem-Fir Ponderosa Pine/Sugar Pine	Engelmann Spruce/ Lodgepole/ Alpine Fir Ponderosa/ Lodgepole Pines	
	California Redwood	California Redwood – *Sequoia sempervirens*			
	Western Cedars	Incense Cedar – *Libocedrus decurrens* Western Red Cedar – *Thuja plicata* Port Orford Cedar – *Chamaecyparis lawsoniana* Alaskan Cedar – *Chamaecyparis nootkatensis*			

Strength: ***Stud grade*** is an optional all-purpose grade (in sizes 38 to 89 mm thick x 38 to 337 mm wide) for vertical installations in load-bearing applications, such as for wall framing.

There is only one grade:
STUD*

Size: The third size category includes products from ***38 x 114 mm*** through ***89 x 438 mm*** (nominal 2x5 through 4x18). These sizes are categorized as *Structural Joists & Planks*.

Strength: ***Structural Joists & Planks*** (SJ&P) are intended to fit engineering applications for timber 114 mm and wider, such as floor joists, rafters, headers, small beams, trusses and general framing.

SJ&P grades include:
SELECT STRUCTURAL*
No. 1*
No. 2*
No. 3

Additional **Special Dimension** structural products include *Structural Glued* and *Machine Stress-Rated* (MSR) timber.

ALSC-certified grades for redwood with assigned design values include DECK HEART and DECK COMMON. These are classified as **Special Purpose** structural grades, specifically intended for residential deck construction and available in 38 x 89 mm and 38 x 140 mm only. RIS can provide redwood products graded to NGR specifications upon request. Redwood structural and appearance grades are shown on pages 30 and 31.

Special Sizes & Grades for Export

Special structural grades and sizes, specific to the needs of destination countries, are manufactured and shipped by U.S. mills under the supervision of RIS, PLIB, WCLIB and WWPA. Products may be shipped unseasoned or kiln dried. A variety of international products such as those commonly referred to as **Baby Squares, J-Grade,** and **Scantlings** are available through buyer-seller agreements.

Select Structural
Douglas Fir

Select Structural is recommended for use in applications where both high strength and stiffness values and good appearance are required. Sound, firm, encased and pith knots are limited up to no larger than 22 mm. They must be tight and well spaced. Unsound or loose knots or holes are limited to no larger than 19 mm, with one per 1.2 metres allowed. Tight limitations are placed on characteristics affecting strength. Piece #5 shows allowable heart pith.

No. 1
Douglas Fir

Recommended for construction where high strength and stiffness values and good appearance are desired. Knots must be of the same type as in *Select Structural* grade, with size no greater than 38 mm. Unsound or loose knots or holes are limited to no larger than 25 mm, with one allowed per 91 cm. Allowable wane, as in pieces #2 and #3, is described for Hem-Fir example of *No. 1* grade.

No. 2
Douglas Fir

Recommended for most general construction uses. Well-spaced knots of any quality are allowable in sizes up to 51 mm, with one hole up to 32 mm in diameter allowable per 61 cm. Allowable wane, as in piece #4, described for Hem-Fir example of *No. 2* grade. Piece #1 appears to be above grade, however a full-length machine skip makes it a *No. 2*.

Select Structural
Hem-Fir

Select Structural is recommended for use in applications where both high strength and stiffness values and good appearance may be required. Sound, firm, encased and pith knots are limited up to no larger than 22 mm. They must be tight and well spaced. Unsound or loose knots or holes are limited to no larger than 19 mm, with one per 1.2 metres allowed. Piece #4 shows allowable centerline knots up to 22 mm.

No. 1
Hem-Fir

Knots must be of the same type as in *Select Structural* grade, with size no greater than 38 mm. Unsound or loose knots or holes are limited to no larger than 25 mm, with one allowed per 91 cm. Wane is allowable, as in piece #2, up to 1/4 the thickness and 1/4 the width full length, or equivalent on each face, provided that wane not exceed 1/2 the thickness or 1/3 the width for up to 1/4 the length.

No. 2
Hem-Fir

Recommended for most general construction uses. Well-spaced knots of any quality are allowable in sizes up to 51 mm, with one hole up to 32 mm in diameter allowable per 61 cm. Wane is allowable, as in piece #1 and #5, up to 1/3 the thickness and 1/3 the width full length, or equivalent on each face, provided that wane not exceed 2/3 the thickness or 1/2 the width for up to 1/4 the length.

Construction
Douglas Fir

In *Construction* grade pieces are of good appearance but graded primarily for strength and serviceability. Sound, firm, encased knots are tight and limited to no larger than 38 mm. Unsound or loose knots or holes are limited up to 25 mm, one per 910 mm. Maximum allowable wane up to 1/4 the thickness and 1/2 the width full length, or equivalent on each face, provided that wane not exceed 1/2 the thickness or 1/3 the width for up to 1/4 the length.

Standard
Douglas Fir

This grade is customarily used for the same purposes or in conjunction with *Construction* grade. Characteristics are limited to provide good strength and excellent serviceability. Knots are not restricted as to quality up to 51 mm anywhere in the wide face. Holes are limited up to 32 mm, one per 610 mm. Limitations on wane apply.

Stud
Douglas Fir

Intended for vertical installations in load-bearing applications. Knots are not restricted as to quality but must be well spaced and limited up to 38 mm, one per 310 mm. Limitations on crook, splits, shake, and edge knots. Wane, as in pieces #3 and #4, is allowed up to 1/3 the thickness and 1/2 the width full length, or equivalent on each face, provided that wane not exceed 1/2 the thickness and 3/4 the width for up to 1/4 the length.

Construction
Hem-Fir

Recommended and widely used for general construction purposes. Pieces are of good appearance but graded primarily for strength and serviceability. Sound, firm, encased knots are tight and limited to no larger than 38 mm. Unsound or loose knots or holes are limited up to 25 mm, one per 910 mm.

Standard
Hem-Fir

This grade is customarily used for the same purposes or in conjunction with *Construction* grade. Characteristics are limited to provide good strength and excellent serviceability. Knots are not restricted as to quality up to 51 mm anywhere in the wide face. Holes are limited up to 32 mm, one per 610 mm. Piece #5 includes white speck.

Stud
Hem-Fir

Used for vertical installations, such as wall framing. May be manufactured to the full basic length and double-end trimmed or may be precision-end trimmed to exact lengths. Knots are not restricted as to quality but must be well spaced limited up to 38 mm, one per 310 mm. Limitations on crook, splits, shake, and edge knots. Allowable wane shown in pieces #1 and #4.

Select Structural
Douglas Fir

In *Select Structural* grade knots are limited to sound, firm, encased and pith knots, if tight and well spaced, with one unsound or loose knot or hole per 1.2 metres. Centerline knots range from 38 mm on 114 mm widths to 83 mm on 337 to 343 mm widths. Edge knots range from maximums of 25 mm on 114 mm widths to 60 mm on widest. Unsound loose knots or holes range from maximum of 22 mm on 114 mm widths to 32 mm on the wide widths, one per 1.2 metres.

No. 1
Douglas Fir

Centerline knots range from maximums of 48 mm on 114 mm widths to 102 mm on 337 to 343 mm widths. Edge knots range from maximums of 32 mm on 114 mm widths to 79 mm on widest widths. Unsound loose knots or holes range from maximum of 29 mm on 114 mm widths to 38 mm on the wide widths. Restrictions on wane for this grade described for Hem-Fir example.

No. 2
Douglas Fir

Recommended for most general construction purposes. Well-spaced knots of any quality are allowable. Centerline knots range from maximums of 60 mm on 114 mm widths to 133 on wide widths. Edge knots range from maximums of 41 mm to 105 mm. Holes from any cause range from maximums of 35 mm on 114 mm widths to 89 mm on wide widths, one per 610 mm.

Select Structural
Hem-Fir

Knots are limited to sound, firm, encased and pith knots, if tight and well spaced, with one unsound or loose knot or hole per 1.2 metres. Restrictions on centerline, edge, unsound loose knots or holes are described for Douglas Fir. Wane is allowed up to 1/4 the thickness and 1/4 the width full length, or equivalent on each face, provided that wane not exceed 1/2 the thickness or 1/3 the width for up to 1/4 the length.

No. 1
Hem-Fir

Restrictions on centerline, edge, unsound loose knots or holes described in Douglas Fir example for No. 1 grade. Wane is allowed up to 1/4 the thickness and 1/4 the width full length, or equivalent on each face, provided that wane not exceed 1/2 the thickness or 1/3 the width for up to 1/4 the length.

No. 2
Hem-Fir

Recommended for most general construction purposes. Well-spaced knots of any quality are allowable. Restrictions on centerline, edge and unsound loose knots or holes apply. Wane is allowed up to 1/3 the thickness and 1/3 the width full length, or equivalent on each face, provided that wane not exceed 2/3 the thickness or 1/2 the width for up to 1/4 the length.

Introduction

These products are graded almost exclusively by visual inspection. The assigned grades are a judgement of appearance, not strength. Appearance-grade products can range from the extraordinarily rare and exquisite, clear and nearly clear SELECT, FINISH, R-List CLEARS and ARCHITECTURAL grades, to the most utilitarian boards intended for applications where economy is the most important consideration.

The extremely clear products are limited in availability, generally resulting from small volumes of older growth timber periodically harvested from privately owned forestlands. Most appearance-grade products are manufactured from primarily second-growth timberlands managed in natural stands.

Grades

Appearance grades are more species specific than are the structural grades. While sometimes marketed in combinations based on like appearances, species in the appearance grades are usually marketed separately. The species combinations in Table 1 are based on similarities (among species) in structural performance and do not necessarily apply to appearance-grade products.

Appearance grades often reflect their origins in the different ecological sub-regions of the vast, U.S. West. For instance, there are special grades (originating in Idaho) for Idaho White pine.

There are specific grades for redwood products, developed in coastal northern California and southern Oregon, the only area in the world where redwood is grown commercially. There is one set of "Board" grades for pine, originating from the inland West where Ponderosa, Lodgepole and Sugar pines thrive; and another for fir products, originating from the coastal region of the Pacific Northwest where Douglas fir and Western Hemlock dominate. While species may be graded to any number of rules, many producers remain responsive to the preferences of their customers, and keep the grades connected to the species for which they were initially developed and are often best suited.

Table 2 provides a partial list of western species appearance grades.

Photo: Richly stained, solid-sawn Douglas fir in FINISH grades was used to fabricate sliding panels and doors. Portions of the micro-lam beams of the ceiling light soffits are encased with Douglas fir, other portions rely on Douglas fir veneers to achieve the design.

Grade Categories & End Uses

As indicated in Table 2, appearance-grade products can be divided into two broad categories:

- The highest quality appearance products are often absolutely clear, free from natural characteristics, blemishes and manufacturing imperfections. They are the most perfect pieces possible, priced accordingly, and intended for applications where only the finest appearance is essential. Products in these grades are always carefully manufactured and usually kiln dried.
- The general-purpose BOARD grades are applied to knotty products with limitations for the types and quality of allowable characteristics and manufacturing imperfections determined by the range of individual grades. These products are more widely available and well suited to a variety of high to low-end applications.

Highest Quality Appearance Grades

CLEAR, SELECT and equivalent Idaho White pine grades are determined from the better side or face. FINISH grades are likewise graded from the better side or face but also from both edges on pieces 114 mm and narrower, and from the better side or face and one edge on pieces 140 mm and wider. These products are intended for high visibility in such applications as fascia, trim, refined panelling, railings, etc.

The redwood ARCHITECTURAL grades are assigned to the highest quality all-heartwood and clear products in this species. Architectural grades are free of defects on one face and available surfaced or saw textured for interior and exterior uses. Because all-heart redwood is decay and insect resistant, this

Western Species Appearance Grades — **Table 2**

	Product Categories	Grades	Equivalent Grades In Idaho White Pine
Highest Quality Appearance	**R-List Clears** *(applied primarily to Douglas fir, Western hemlock, Sitka spruce and Western Red cedar)*	No. 2 CLEAR & BTR* No. 3 CLEAR No. 4 CLEAR*	
	Selects *(applied to all species but used primarily for pine products)*	B & BTR SELECT C SELECT* D SELECT*	SUPREME CHOICE* QUALITY*
	Finish Grades *(usually available only in Douglas fir and Hem-Fir species)*	***WWPA Rules*** / ***WCLIB Rules*** SUPERIOR* / C & BTR PRIME* / D E*	
	Redwood Architectural Grades RIS Rules *(only for redwood species)*	*Heartwood Grades:* CLEAR ALL HEART* HEART B* *Sapwood Grades:* CLEAR* B GRADE*	
	Special Western Red Cedar Pattern[1] Grades *(only for cedar species)*	CLEAR HEART A GRADE B GRADE	
General Purpose Boards	**R-List Merchantable** *(primarily in Douglas fir, Western hemlock, Sitka spruce and Western Red cedar)*	SELECT MERCHANTABLE No. 1 MERCHANTABLE* No. 2 MERCHANTABLE No. 3 COMMON	
	Common Boards ***WWPA Rules*** *(primarily in pines, spruces and cedars)*	1 COMMON* 2 COMMON* 3 COMMON* 4 COMMON* 5 COMMON	COLONIAL STERLING STANDARD UTILITY INDUSTRIAL
	Board Grades ***WCLIB Rules*** *(primarily in Douglas fir and Hem-Fir species)*	SELECT MERCHANTABLE* CONSTRUCTION* STANDARD* UTILITY ECONOMY	
	Redwood Garden Grades RIS Rules *(only for redwood species)*	*Heartwood Grades:* CONSTRUCTION HEART/ DECK HEART* *Sapwood Grades:* CONSTRUCTION COMMON/ DECK COMMON* MERCHANTABLE	
	Special Western Red Cedar Pattern[1] Grades *(only for cedar)*	SELECT KNOTTY QUALITY KNOTTY	

* These grades are represented in photographs on the following pages.
[1] "Pattern" includes Finish, Panelling, Ceiling and Siding grades.

species is often favored for the highest quality outdoor applications such as siding and trim and for such amenities as decks, arbors, railings, planters, fences, etc.

The highest quality Red Cedar heartwood "Pattern" grades are typically run-to-pattern as siding products for exterior use. Such products take advantage of cedar heartwood's natural durability against decay and insect attack. Like redwood, these products are available surfaced or saw textured. Square-edged cedar boards are often graded under the SELECT rules.

General Purpose Boards (Knotty Grades)

In the general-purpose category, the COMMON and equivalent Idaho White pine grades are determined from the better face on knotty products. *1* and *2 Common* grades are intended for panelling, shelving and other uses where a fine appearance in a knotty product is desirable. *3 Common* is widely used for these applications as well, but also for fences, boxes, crating, sheathing and industrial applications. *4 Common* is the most widely used grade for general construction in such applications as sub-floors, roof and wall sheathing, concrete forms, low-cost fencing, crating, etc. *5 Common* is a good choice for applications where economy governs.

The MERCHANTABLE and BOARD grades (commonly applied to fir, hemlock and spruce species) are similarly evaluated from the better face with the higher Merchantable grades appropriate for any application where an exposed, refined knotty appearance is suitable. Construction grade is used for spaced sheathing, let-in bracing, fences, boxes, crating and industrial applications. The uses for R-List *No. 3 Common* and WCLIB *Standard* grade are similar to a *4 Common*, as described above.

Redwood GARDEN grades, in both all heart and heart/sapwood options, contain knots of varying sizes and qualities along with slight imperfections. *Construction Heart* and *Deck Heart*, two of the higher grades in the combination, are intended for decks, posts, retaining walls, fences and outdoor uses especially on or near soil. The *Construction Common* and *Deck Common* grades, which include sapwood, are for similar applications above ground where the heartwood's decay and insect resistance is not required.

Red Cedar *Select Knotty* and *Quality Knotty* general purpose "Pattern" grades are similar in appearance and end use to the *2* and *3 COMMONS*. Widely used for siding and panelling products and in landscape applications.

Please refer to page 16 to view grades; redwood grades begin on page 30.

C & BTR Select

Ponderosa Pine

C & Better (BTR) *Select* is a virtually clear, nearly blemish-free grade which can be applied to any species but usually reserved for western pines. It represents one of the most sought after products from the clear portion of the log and is recommended where fine appearance is essential. Pieces are graded from the better face. Few characteristics are allowed. Roughly equivalent to the *No. 2 Clear & BTR* (Export R-list Rules, shown on page 27), *Superior* (WWPA Rules, page18) and *C & BTR* (WCLIB Rules) grades which are usually reserved for Douglas fir, Hem-Fir species, spruces or Western cedars.

Choice & BTR

Idaho White Pine

The splendid characteristics of Idaho White pine (IWP) are widely known among woodworkers. It is very light in color, even textured, virtually free of any tendency to split or sliver, and is famous for its workability across or with the grain. Like redwood and cedar, IWP has its own set of grades that serve to specifically identify the species in the marketplace. *Choice & BTR* (which includes some pieces that would make *Supreme* grade), is identical to the *C & BTR Select* grade used for other Western pines.

Select Grades

D Select

Ponderosa Pine

Timber of this grade has many of the fine appearance features of the *C Select* grade. Although generally less restrictive than *C Select, D Select* is suitable where the requirements for finishing are less exacting. The grade is between the higher grades for clear wood and the BOARD grades applied to knotty products. Graded full length on the best face with reverse side often including larger and more numerous characteristics.

Quality

Idaho White Pine

Like redwood and cedar, IWP has its own set of grades that serve to specifically identify the species in the marketplace. *Quality,* used only for Idaho White pine, is identical to the *D Select* grade used for other Western pines.

These highest appearance grades are widely used for interior walls, mouldings, cabinets, siding, panelling, architectural woodwork, soffits, interior and exterior trim and hundreds of other standard and special applications. Western species provide excellent surfaces for any type of finish – natural, stain or paint.

12 D SEL WWP® MC 15

12 QUALITY WWP® KD IWP

Superior or C & BTR
Douglas Fir

Superior (WWPA Rules) and *C & BTR* (WCLIB Rules) grades are virtually clear, limited in availability, and priced accordingly. Intended for applications demanding only the finest quality. Recommended and widely used for interior trim and cabinet work with natural, stain or enamel finishes where refined appearance is sought. When *Superior VG* or *C & BTR VG* is specified, the face must present a vertical grain (VG) appearance.

Prime or D
Douglas Fir

Prime (WWPA Rules) and *D* (WCLIB Rules) grades, usually applied to Douglas fir and the Hem-Fir species, exhibit fine appearance although slightly less restrictive on characteristics than are *Superior* and *C & BTR*. VG (vertical grain) may be specified. In *Prime*, a 76 mm cutout at one end or more than .9 metres from the end is permitted in pieces of otherwise high appearance. Cutouts are restricted to pieces 3.7 metres and longer and 10% of the item.

E Finish
Douglas Fir

The intent of E Finish grade (WWPA Rules) is to include fall down from the higher FINISH grades where cross cutting and/or ripping will result in cuttings of *Prime* or *Superior* grade. Each piece of *E Finish* must contain two thirds or more of such cuttings 50 mm or wider and 400 mm or longer.

Finish Grades

Select Merchantable
Douglas Fir

Select Merchantable (WCLIB Rules) is well suited for use in housing and light construction as panelling, shelving, siding or any finish application where a knotty type of timber with a refined appearance is desired. Each piece is of good appearance, must be close grained and free from wane on the face. A few, minor characteristics are allowed. Sound tight knots ranging from approximately 32 mm in 102mm widths to 64 mm in 305 widths, proportionate in wider widths, are permitted.

Construction
Douglas Fir

Construction grade (WCLIB Rules) boards are recommended and widely used for utilitarian shelving, subfloors, roof and wall sheathing, concrete forms and similar types of construction in non-load bearing applications. Where they occur, characteristics are limited to assure a high degree of serviceability. Various types and sizes of knots and knot holes, proportionate to the width of the piece, are permissible.

Standard
Douglas Fir

Standard boards (WCLIB Rules) are available in large volumes and more widely used than other grades for general, non-load bearing construction purposes. *Standard* is used for subfloors, roof and wall sheathing and other similar applications. Although appearance is given consideration, pieces are graded chiefly for serviceability and not intended for exposed positions. A variety of sizes and types of knots, knot holes, wane and other imperfections and defects are allowed.

1 Common
Ponderosa Pine

Ponderosa Pine is one of the most beloved species of the western region. Its creamy color, refined texture and workability characteristics are widely appreciated for windows, doors, mouldings, furniture, panelling, shelving, fascia, soffits, etc.

1 Common, while not available in large volumes, may be ordered when the ultimate in fine appearance in a knotty material is required in Ponderosa or Sugar pine, or in the spruce and cedar species. The grade includes all sound, tight-knotted stock with the size and character of the knots as the determining factor in the grade. *Colonial* is the equivalent grade in Idaho White pine.

2 Common
Engelmann Spruce

Engelmann spruce has the lightest weight of the commercially important western softwood species. It is extremely strong in relation to its weight. It is nearly white, ordourless, tasteless, smooth, soft textured and straight grained.

2 Common is intended primarily for use in housing and light construction where the wood will remain exposed, in such uses as panelling, shelving and other applications where the refined appearance can be seen and appreciated. *Sterling* is the equivalent grade in Idaho White pine.

12 1 COM WWP® S-DRY

12 2 COM WWP® S-DRY ES

3 Common
Ponderosa Pine

3 Common is recommended and widely used for a large range of building purposes where appearance and strength are both important. With characteristics limited to assure a high degree of serviceability, this grade is often used for shelving, panelling and siding and is especially well suited for fences, boxes, crating, sheathing and many industrial uses. *Standard* is the equivalent grade in Idaho White pine.

4 Common
Engelmann Spruce

4 Common is the most widely used of the COMMONS for general construction purposes such as subflooring, low cost fencing, crating, etc. It is popular for a variety of industrial uses. Although appearance is a consideration, pieces are graded for serviceability and not intended for exposed construction. A range of knot types and sizes, knot holes, characteristics and imperfections are allowed in the grade. *5 Common* (not shown) is available for economy-driven applications. *Utility* and *Industrial* are the equivalent grades in Idaho White pine.

12 3 COM WWP® S-DRY

12 4 COM WWP® S-DRY ES

Introduction

Products graded for industrial and remanufacturing applications are available in structural and non-structural grades. There are many types of specific grades in this broad classification of timber products; however, the focus here is on non-structural remanufacturing timber grades from RIS, WCLIB and WWPA and the Export "R" List grades from the PLIB.

Grades and End Uses

Timber products intended for remanufacturing purposes are generally graded for the percentage of standard-size clear "cuttings" that can be recovered from a piece after ripping and cross cutting it to remove defects or other characteristics. These cuttings are known as the economical clears of the timber industry and are used for windows, doors, furniture, mouldings, boxes, cabinetry and other millwork. They are also ideal for edge gluing, finger-jointing and/or laminating production operations.

The grades may be applied to most species, including redwood and cedar. However, in practice, the species most widely used for the remanufacturing grades are Douglas fir, Ponderosa pine, Sugar pine, and Western hemlock and the true firs, which are often combined and marketed as Hem-Fir.

While the predetermined sizes for the recoverable cuttings in these grades have evolved from the standard sizes used for U.S. joinery components, there is always flexibility in how small, clear cuttings can be recovered from a larger piece. Consequently, in the international marketplace, the sizes of the cuttings to be recovered from Factory and Shop timber are often adjusted to meet the requirements of particular remanufacturing needs.

Remanufacturing timber is usually sold in random widths from 102 to 635 mm, random lengths from 1.8 to 6.1 metres, and in thicknesses from 25 to 102 mm. Standard sizes are shown in Table 3. Applications for door and sash cuttings are shown in Figures 1 and 2.

Photo: Factory and Shop grade products are used throughout the world for doors, windows, shutters and other remanufactured items.

WCLIB and WWPA product categories and grades include:

Moulding Stock* – applies to all species, all widths and thicknesses, and defines timber suitable for ripping into strips 25 mm and wider, 3 metres and longer for making mouldings.

Shop Timber (WWPA & WCLIB) – applies to all species and thicknesses, graded with reference to the percentage of area in the piece that is recoverable in cuttings for use in window sash and door parts. Two quality levels are recognized in the cuttings, No. 1 and No. 2. Specific grades are:

Factory Select - No. 3 Clear (WWPA), Select (WCLIB) and *Nos. 1*, 2*, and 3 Shop.*

Door Stock (WCLIB) – applies to all species except cedar in stock 29 mm and thicker, graded for percentage of area in each piece recoverable in cuttings to be used as stiles and rails for door parts and muntins (or mullions) for window parts. Three levels of quality are recognized for the cuttings, Nos. 1, 2 and 3. Specific grades include the following and may be specified vertical grain (VG):

*Factory Select ** and *Nos. 1*, 2*, and 3 Shop.*

Flush Door Stock (WWPA) – includes products in Douglas fir and Hem-Fir which are 29 mm and thicker intended for use in the manufacture of flush-type doors to be covered with veneer. Specific grades are:

Factory Select (No. 3 Clear) and *Nos. 1, 2, and 3 Shop.*

Jamb and Head Stock (WWPA) – finished rough or smooth, in all species, 29 mm and thicker, 102 to 203 mm wide, graded for the recovery of cuttings suitable for manufacture into door jambs and component parts. Cuttings will include Sides, Heads, Moulding Rips and finger-joint material in predetermined sizes. Stock may be flat, vertical or mixed grain; usually to be resawn. Specific grades include:

Clear Door
Factory Select and
Nos. 1, 2 and 3.

Redwood remanufacturing grades are ideal for doors, windows, furniture and a variety of other remanufacturing applications for outdoor installations where a durable species is preferred, or for interior applications to showcase the beauty of the wood. Products include:

Factory Select (RIS) – a premium quality cutting grade that will produce *Clear All Heart* or *Clear* with one piece, not more than 305 linear mm, to be cut out. Standard sizes are 19 mm and thicker by 89 to 286 mm wide. *All Heart Factory Select* is available only by special contract.

No. 1 Shop (RIS) - a high quality cutting grade that will produce not less than 60% *Clear & BTR* cuttings 89 mm and wider by .9 metres and longer. Cuttings must meet grade requirements on one face and two edges. *All Heart Shop* is available by special contract.

PLIB's Export "R" List remanufacturing grades are generally evaluated against grading criteria that limit allowable characteristics rather than establishing a percentage of recoverable cuttings in predetermined sizes. The *Clears* are well suited to any remanufacturing application requiring the highest possible quality and appearance, e.g. furniture, cabinets, windows, doors, trim, etc. *Merchantable* grades allow for knots and other characteristics with the highest grades being well manufactured and suitable for high-end construction purposes; the lowest grade, a *3 Common*, is appropriate for more casual applications where unsound or loose knots are acceptable.

PLIB Export "R" List remanufacturing grades include:

Clears – separated into three special grades of vertical or random grain with grades determined by number and size of irregularities permitted and number of annual growth rings (in the two highest grades). Allowable characteristics vary with three thickness categories. Specific grades include:

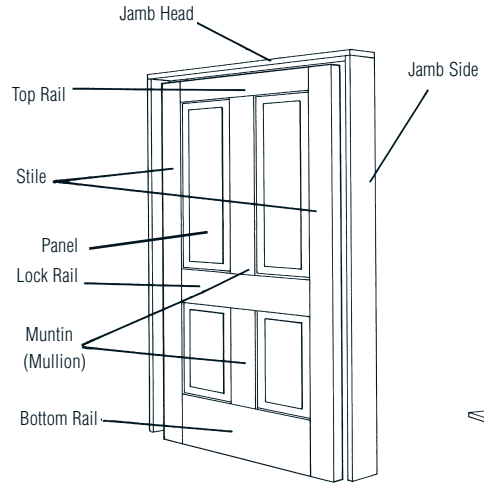
*No. 2 Clear**
No. 3 Clear
*No. 4 Clear**

Merchantable - separated into four special grades determined by allowable characteristics for knots and imperfections varying with four thickness categories. Specific grades include:

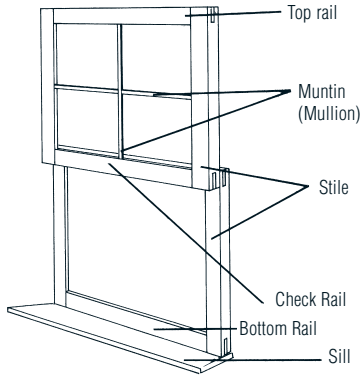
Selected Merchantable
*No. 1 Merchantable**
No. 2 Merchantable
No. 3 Common

** Grades marked with an * are shown on the following pages.*

Door Cuttings **Figure 1**



Sash Cuttings **Figure 2**



Standard Sizes for Remanufacturing Timber Grades **Table 3**

Product	**Description**	**Nominal Size** (U.S.) Thickness (Inches)		Width	**Dry Dressed Sizes** Thickness (mm)	Width (mm)	Lengths (m)
Factory & Shop Timber	S2S (Surfaced 2 Sides)	1	(4/4)	Refer to grading rules.	19	Usually sold random width	1.8 & longer in multiples of 0.3 m
		1-1/4	(5/4)		29		
		1-1/2	(6/4)		36		
		1-3/4	(7/4)		40		
		2	(8/4)		46		
		2-1/2	(10/4)		60		
		3	(12/4)		70		
		4	(16/4)		95		

Note on sizes: Timber sizes and product classifications shown above are for standard U.S. domestic grades and specifications. Many mills will custom cut products to specific grades and sizes requested by customers.

29 mm & Thicker RWL Moulding Stock
Ponderosa Pine

Moulding Stock is suitable for ripping into strips 25 mm and wider, 3.0 m and longer. At least 66.7 % of the area contains such rips of the grade permissible in standard mouldings. In 29, 36 and 40 mm wide *Moulding Stock,* the grade of each rip is determined from the poorest face. Wane, stain, skips in dressing or other characteristics that will surface off in making mouldings are permitted in computing the percentage of rips. Up to 10% of the total cubic metres of any item may be 1.8 to 2.7 m, provided each piece contains 66.7% or more of full length Moulding Rips.

Both pieces are 4.9 metres long.

Example 1 is 152 mm wide and contains 83.8% of acceptable Moulding Rips. Rip is 127 mm x 4.9 m.

Example 2 contains 76.2% of acceptable Moulding Rips. The scale-off mark (which is the circled numeral 1 in the board) indicates that 0.09 m^2 surface measure is "scaled off" due to wane creating a total loss of 10% or more of the area of the piece. Rips are 32 mm x 4.9 m, 32 mm x 4.6 m, 44 mm x 4.3 m, 44 mm x 3.7 m, and 38 mm x 3 m.

29 mm & Thicker RWL No. 1 Shop
Sugar Pine

Each piece contains from 50% to 70% of No. 1 Door Cuttings, except that pieces containing one or more No. 1 Door Cuttings will permit one No. 2 Stile. Not over two Muntins (Mullions) are included in any piece.

Each piece is 4.9 metres long.

Example 1 is 378 mm wide and scales 1.9 m^2 surface measure. The total area of acceptable Door Cuttings is 1.05 m^2, or 55.3%. Cuttings are two at 229 x 914 mm, 229 x 711 mm and 229 x 762 mm.

Example 2 is 356 mm wide and scales 1.7 m^2 surface measure. The total area of acceptable Door Cuttings is 1.16 m^2 or 68.2 %. Cuttings are one at 152 x 1219 mm and three at 152 x 2134 mm.

19 mm S4S (DAR) No. 2 Shop
Ponderosa Pine

This grade consists of Shop type pieces which do not have the required percentage of cuttings necessary for 19 mm *No. 1 Shop.* Each piece contains not less than 33.3% of cuttings of the size and quality permissible in 19 mm *No. 1 Shop* grade.

Each piece is 286 mm wide and 4.9 metres long.

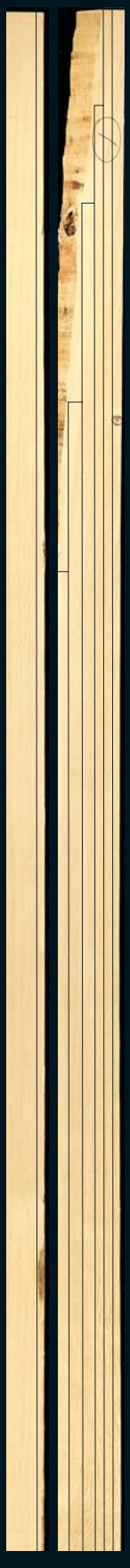
Example 1 contains 40.7% of acceptable cuttings. One of the cuttings contains a very small pitch pocket. Cuttings are 171 x 1219mm, 241 x 483 and 127 x 1549 mm.

Example 2 contains 36.4% of acceptable cuttings. A very small allowable pitch pocket is in one of the cuttings grading *C Select.* Cuttings are 152 x 2007 mm and 165 x 1219 mm. The scale-off mark (the circled numeral 2 on the board) indicates that .185 m^2 surface measure is "scaled off" due to massed pitch showing on reverse face creating a total loss of 5% or more of the area of the piece.

Example 3 contains 40.0% of acceptable cuttings. One of the cuttings contains a 13 mm pin knot which will grade *C Select.* Cuttings are 165 X 2108 mm, 102 x 914 mm and 127 x 914 mm.

29 mm & Thicker RWL
Moulding Stock
Ponderosa Pine

1 2



29 mm & Thicker RWL
No. 1 Shop
Sugar Pine

1 2

19 mm S4S (DAR)
No. 2 Shop
Ponderosa Pine

1 2 3

No. 2 Clear & BTR
Douglas Fir

Each piece shall be sound timber, well manufactured. Three irregularities are permitted on face side, four on reverse side, including corresponding half of edges, for each lineal 3.7 m, based on 203 mm widths; and shall average at least 6 rings of annual growth to 25 mm on either one end or the other. Knots are permitted on the reverse face only. In 127 mm and thicker stock, an occasional piece 5.5 m or longer may have one larger irregularity showing in one or two surfaces if so placed that by cutting it out, the shortest cutting will be 2.4 m or longer, providing the balance of piece is practically free from other irregularities. Limit of waste, 305 mm.

Example 1 is virtually free of irregularities on the face.

Only one small pitch pocket shows in **Example 2**.

Example 3 shows allowable irregularities for the reverse face. It contains one pin knot, one small knot and one very small pitch streak (as would be permitted on the face of *No. 3 Clear).*

No. 4 Clear
Douglas Fir

No. 4 Clear is a grade recommended and widely used where general utility purposes are of more importance than appearance. Each piece shall be well manufactured and will permit one or more irregularities which are of such size or number that it is not of *No. 3 Clear* grade. Unless otherwise specified, irregularities in the reverse face can be slightly in excess of those allowed on the face. Grade descriptions are based on a piece 203 mm wide and 3.7 m in length. In all thicknesses, occasional pieces in shipment may have a 102 mm cutout 1.2 m or more from either end in pieces 3.7 m or longer.

Example 1 contains six knots ranging from 10 to 25 mm.

Example 2 has three knots with the maximum size of 25 mm, three knots 19 mm, several pin knots and a very small pitch pocket.

Example 3 contains five knots ranging from10 to 19 mm, and medium heart stain.

51mm x 254 & 305 mm
No. 1 Merchantable
Douglas Fir

Each piece shall be well manufactured and suitable for good substantial purposes, must be medium grain and will permit sound and tight knots ranging from approximately 38 mm in 102 mm widths to 76 mm in 305 mm widths, proportionate in wider widths.

Sound and tight knots up to 68 mm are contained in **Example 1** with sapwood less than one half the area.

Example 2 contains sapwood including blue stain less than one half the area with sound and tight knots up to 64 mm.

Example 3 has sound and tight knots, with the largest knot 64 mm, and allowable wane on one end.

No. 2 Clear & BTR
Douglas Fir

No. 4 Clear
Douglas Fir

51mm x 254 & 305 mm
No. 1 Merchantable
Douglas Fir

2 x 5 Full (51 x 127 mm) Factory Select VG
Hem-Fir

Each piece contains 70% or more of No. 1 Door Cuttings. Sizes and grades of cuttings permitted in any combination are as follows:

127 and 152 mm widths - Any number of No. 1 Stiles, one only No. 1 Top Rail. In pieces requiring three Stiles to get the necessary percentage of cuttings, one No. 2 Stile is allowed. Muntins are not permitted in this grade.

254 and 305 mm widths – Any number of No. 1 Stiles, one No. 1 Top Rail and two only No. 1 Bottom Rails are allowed. In pieces requiring three Stiles to get the necessary percentage of cuttings, one No. 2 Stile is allowed. Muntins are not permitted in this grade.

Each piece is 4.9 metres long.

Example 1 contains 74.1% of acceptable Door Cuttings, including on No. 1 Top Rail and one No. 1 Stile. Cuttings are 127 mm x 1194 and 2464 mm long.

Example 2 contains 98.4% of acceptable Door Cuttings, including two No. 1 Stiles. Cuttings are 127 mm wide x 2362 and 2438 mm long.

Example 3 contains 74.1% of acceptable Door Cuttings, including a No. 1 Top Rail and Stile. Cuttings are 127 mm wide x 1194 and 2464 mm long.

2 x 5 Full (51 x 127 mm) No. 1 Shop VG
Douglas Fir

Each piece contains from 50% to 70% of Door Cuttings. Sizes and grade of cuttings admissible are any of the following or combinations thereof:

- **a**. any number of No. 1 Stiles; or
- **b.** any number of No. 1 Rails 229, 254 and 305 mm wide; or
- **c.** two only No. 1 Muntins or No. 1 Top Rails; or
- **d.** one only No. 2 Stile allowed.

Each 127 or 152 mm piece in this grade contains at least one Stile.

Each piece is 4.9 metres long.

Example 1 contains 87.0% of acceptable Door Cuttings, but will not make *Factory Select* as only one No. 1 Top Rail is permitted in that grade. Cuttings are 127 mm wide x 2108, 940 and 1194 long.

Example 2 contains 89.1% of acceptable Door Cuttings, but will not make *Factory Select* as only one No. 1 Top Rail is permitted in that grade. Cuttings are 127 mm wide x 1041, 2261 and 1041 long.

Example 3 contains 81.3% of acceptable Door Cuttings, but will not make *Factory Select* as only one No. 1 Top Rail is permitted in that grade. Cuttings are 127 mm wide x 686, 2108 and 1194 mm long.

2 x 5 Full (51 x 127 mm) No. 2 Shop VG
Douglas Fir

Each piece contains not less than 25% No. 1 Door Cuttings, or 40% No. 2 Door Cuttings, or 60% No. 3 Door Cuttings, or 33.3% of No. 1 and No. 2 Door Cuttings combined. Any combination of Stiles, Rails or Muntins is permitted except No. 1 Rails are figured as No. 2.

Each piece is 4.9 metres long.

Example 1 contains 71% of acceptable Door Cuttings. Annual growth-ring count of less than 6 rings per 25 mm in this piece makes all of its cuttings No. 3 Cuttings. Cuttings are 127 mm wide x 635, 686 and 2159 mm long.

Example 2 contains 74.2 % of acceptable Door Cuttings. This piece does not contain a Stile which is needed to qualify it as a *No. 1 Shop.* Cuttings are 127 mm wide x 965 and 1067; two are 787 mm long.

Example 3 contains 65.6% of acceptable Door Cuttings. The mixed No. 1 and No. 2 Door Cuttings determine this grade. Cuttings are 127 mm wide x 737, 762, 787 and 914 mm long.

2 x 5 Full (51 x 127 mm)
Factory Select VG
Hem-Fir

2 x 5 Full (51 x 127 mm)
No. 1 Shop VG
Douglas Fir

2 x 5 Full (51 x 127 mm)
No. 2 Shop VG
Douglas Fir

Clear All Heart
Architectural Grade

Clear All Heart is the finest architectural heartwood grade, combining durability and beautiful appearance. It is normally Certified Kiln Dried (but also available unseasoned) and free of defects on one face. Available surfaced or saw-textured. Used for siding, panelling, trim, cabinetry, moulding, fascia, soffits and millwork or for highly refined decks, hot tubs and garden structures.

Clear
Architectural Grade

Clear grade is the same general quality as *Clear All Heart* except that *Clear* contains sapwood. Normally Certified Kiln Dried (but also available unseasoned). Readily available surfaced or saw-textured. Used for siding, panelling, trim, cabinetry, moulding, fascia and soffits, and for quality decking, garden structures and other above-ground applications.

Heart B
Architectural Grade

Heart B is a quality heartwood grade containing limited knots and other characteristics not permitted in *Clear All Heart.* Available dried or unseasoned; surfaced or saw-textured. Widely used for siding, panelling, trim, fascia, moulding and other architectural details. Well suited for quality decking, garden structures and other above-ground outdoor applications.

California Redwood

MILL ONE
CLEAR HT
C K D
REDWOOD
R/S

MILL ONE
CLEAR
KILN DRIED
REDWOOD
R/S

MILL ONE
HEART B
S-DRY
REDWOOD
R/S

B Grade
Architectural Grade

A quality architectural grade containing sapwood, allowing limited knots and other characteristics not permitted in *Clear.* Available dried or unseasoned; surfaced or saw-textured. Widely used for siding, panelling, trim, fascia, moulding and other architectural uses. Also appropriate for quality decking, garden structures and other above-ground outdoor applications.

Construction Heart/ Deck Heart
Garden Grade

These two heartwood grades contain knots of varying sizes and quality. Available seasoned or unseasoned; surfaced or rough. *Deck Heart,* available only in 38 x 89 mm and 38 x 140 mm, is graded for strength in addition to appearance. Used for decks, posts, retaining walls, fences, garden structures, stairs and any use on or near soil.

Construction Common/ Deck Common
Garden Grade

Construction Common and *Deck Common* allow the same characteristics as *Construction Heart,* but permit sapwood. Both grades are available unseasoned or seasoned; surfaced or rough. Available only in 38 x 89 mm and 38 x 140 mm, is graded for strength in addition to appearance. Used for decking, fence boards and other above-ground garden uses.

MILL ONE
B
S-GRN
REDWOOD

MILL ONE
DECK HRT
S-DRY
REDWOOD

MILL ONE
CONST COM
S-DRY
REDWOOD

The Softwood Export Council (SEC) is a non-profit trade council of U.S. softwood grading agencies, industry trade associations, state export development agencies and others interested in the promotion of U.S. softwood products internationally. SEC coordinates overseas market development activities with the U.S. Foreign Agricultural Service, its member organizations' agents and with importers and users of U.S. softwood products in international markets.

International field offices and SEC representatives are located in Japan, Korea, China, Mexico, Spain and England. Details are provided on the SEC website.

The SEC website also provides information on member organizations, services and companies as well as a directory of literature and supporting information on products. Most product support publications, many in multiple languages, may be ordered directly from SEC international field offices.

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