

Architectural Woodwork Standards

SECTION - 3 LUMBER

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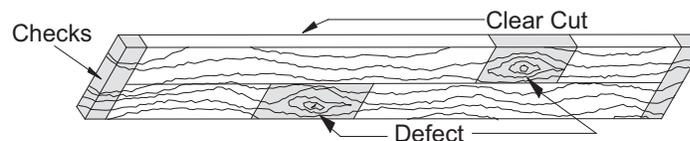
(Including: Hardwood and Softwood)

GENERAL

1 INFORMATION

1.1 GRADES

- 1.1.1 **GRADE CLASSIFICATIONS ECONOMY, CUSTOM, and PREMIUM** are used within these standards only in reference to the acceptable quality of workmanship, material, or installation in a completed architectural woodwork product.
- 1.1.2 **THIS MATERIAL SECTION** deals with lumber, which is a component of finished products covered in sections 6 - 12.
- 1.1.2.1 **IN THIS SECTION**, the use of these classifications is only for the purpose of identifying lumber that can be used in finished products meeting those Grades.
- 1.1.2.2 These classifications are not intended to be used as Grades of raw material or to judge a stand-alone board or member.
- 1.1.3 **LUMBER ASSOCIATION GRADES** shall not be used, since even their highest Grades permit defects unacceptable in architectural woodwork and are not based upon the use of the whole piece, but rather on a percentage of the piece.
- 1.1.3.1 The appearance of a piece in the end product is of importance, not whether it is cut from a larger board that contained defects that can be eliminated.



1.1.4 LUMBER RULES

- 1.1.4.1 Apply only to surfaces visible after manufacture and installation.
- 1.1.4.2 Establish criteria as to which, if any, natural or seasoning characteristics are acceptable.
- 1.1.4.3 Limit the extent of characteristics that will be permitted based on an exposed area's size and proximity of characteristics to one another.
- 1.1.4.4 Do not apply to special varieties of species that display unusual characteristics desirable for aesthetic and design reasons.
- 1.1.5 **MODIFICATIONS** by the contract documents shall govern if in conflict with these standards.

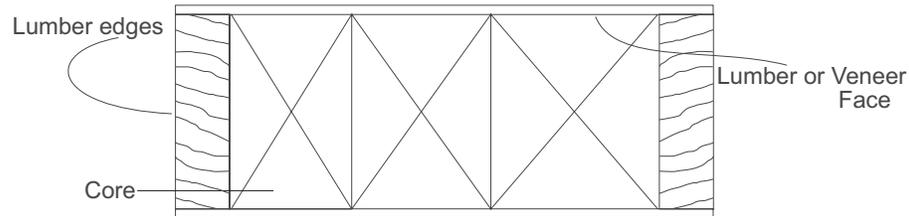
1.2 BASIC CONSIDERATIONS

- 1.2.1 **AVAILABILITY:** Wide and/or long pieces of clear stock are typically not available.
- 1.2.1.1 If available, the cost might be substantially higher.
- 1.2.2 **ECONOMIES** can be realized by detailing and specifying thicknesses and widths within the finish sizes listed herein.
- 1.2.3 **LUMBER** is furnished plain sawn unless otherwise specified.
- 1.2.4 **LUMBER GRAIN** might not match veneer grain.
- 1.2.5 Lumber might not accept **TRANSPARENT FINISHES** in the same manner as plywood; special finishing techniques might be required (see Section 5).
- 1.2.6 **FIRE-RETARDANT** lumber, with a particular flame-spread classification, is restricted to those species with natural qualities and/or those that will accept treatment using currently available technology.

GENERAL

1.2 BASIC CONSIDERATIONS (continued)

- 1.2.7 **PRESERVATIVE TREATMENT** of lumber will extend its natural life when used in an exterior application and exposed to the elements.
- 1.2.8 **HARDWOOD** is typically not recommended for exterior use.
- 1.2.8.1 Exceptions include Apitong, Teak, Tanguile, and Honduras Mahogany.
- 1.2.9 **QUARTERED** lumber is typically narrower than plain sawn lumber of the same species.
- 1.2.10 **SPECIAL CHARACTERISTICS**, such as sapwood, heartwood, ribbon stripe, quarter sawn, and rift sawn, if desired, are required to be so specified.
- 1.2.11 **VENEERED CONSTRUCTION** of lumber can be used to secure wide and thick members in species with limited cutting potential. An acceptable technique is to apply thin lumber or veneer of the faces and edges of a compatible density lumber, structural composite lumber (SCL), or a medium-density fiberboard core.



- 1.2.12 **NATURAL** as a type selection of a species allows an unlimited amount of heartwood or sapwood within a face and is the default selection, unless specified otherwise.
- 1.2.13 **SELECT RED** or **WHITE** means all heartwood or sapwood, respectively, and must be so specified if desired.
- 1.2.14 **HICKORY, PECAN, BUTTERNUT, KNOTTY PINE, WORMY CHESTNUT, PECKY CYPRESS, and WATTLED WALNUT**, for example, exhibit "special and unusual characteristics" and are not covered by these standards.
- 1.2.14.1 If their use is contemplated, individual ranges of characteristics and availability should be investigated and specified accordingly.
- 1.2.15 **HONDURAS MAHOGANY** varies in color from a light pink to a light red, reddish brown to a golden brown or yellowish tan, and:
- 1.2.15.1 Figure or grain includes plain sliced, plain to broken stripe, mottled, fiddleback, swirl, and crotches.
- 1.2.15.2 It can turn darker or lighter in color after machining.
- 1.2.16 **LAUAN, TANGUILE**, and other species are native to the Philippine Islands and are sometimes referred to as Philippine Mahogany; however, they are not a true Mahogany.
- 1.2.16.1 **MAHOGANY** is a generic term and should not be specified without further definition.
- 1.2.17 **CHERRY, WALNUT**, and certain other hardwood species are required to be specified by origin - such as American Cherry, American Walnut, or English Brown Oak - because they can be significantly different in color and texture.
- 1.2.18 **PHOTODEGRADATION** is the effect on the appearance of exposed wood faces caused by exposure to both sun and artificial light sources. If an entire face is exposed to a light source, it will photodegrade somewhat uniformly and hardly be noticeable, whereas partially exposed surfaces or surfaces with shadow lines might show nonuniform photodegradation. Some woods, such as American Cherry and Walnut, are more susceptible than others, and extra care should be taken to protect against the effects of nonuniform photodegradation.

GENERAL

1.2 BASIC CONSIDERATIONS (continued)

1.2.19 **OXIDATION** is the effect on the appearance of exposed wood faces caused by exposure to atmosphere. This is analogous to browning reactions in freshly cut fruit; for instance, apples. Hardwoods can develop deep yellow to reddish brown discolorations on the surface of the wood when exposed to air immediately after sawing or peeling. These discolorations are especially noticeable on Cherry, Birch, Red Alder, Sycamore, Oak, Maple, and Sweet Gum. Some species, such as Alder, Oak, Birch, and Maple, develop these discolorations during air-seasoning. A related gray stain on several varieties of Southern Oaks also appears to be oxidative in nature. Proper selection, sanding, and finishing can minimize the effects of oxidation. Care should be taken when using filler, as it might not change the same as the wood.

1.3 RECOMMENDATIONS

1.3.1 **SPECIFY** requirements for:

1.3.1.1 **UNIFORM COLOR**; special finishing techniques might be required (see Section 5).

1.3.1.2 **SPECIAL CHARACTERISTICS**, such as sapwood, heartwood, ribbon stripe, quarter sawn, rift sawn, or vertical grain.

1.3.1.3 **EXTERIOR APPLICATIONS**, where species selection should take decay resistance into consideration. The following species, when selected for **HEARTWOOD ONLY**, exhibit the listed decay resistance in accordance with the 1999 Wood Handbook by the Forest Products Laboratory:

1.3.1.3.1 **RESISTANT** or **VERY RESISTANT**:

1.3.1.3.1.1 **DOMESTIC** (* indicates extremely high decay resistance):

Baldcypress (Old Growth)	Locust, Black *
Cedar	Oak, White
Cherry, Black	Redwood (Old Growth)
Chestnut	Walnut, Black
Cypress, Arizona	Yew, Pacific *
Juniper	

1.3.1.3.1.2 **IMPORT** (* indicates extremely high decay resistance):

Goncalo Alves *	Mahogany, Honduras
Ipe (lapacho) *	Purpleheart *
Jarrah *	Spanish Cedar
Lignumvitae *	Teak (Old Growth) *

1.3.1.3.2 **MODERATELY RESISTANT**:

1.3.1.3.2.1 **DOMESTIC**:

Baldcypress (Young Growth)	Redwood (Young Growth)
Fir, Douglas	Tamarack
Larch, Western	

1.3.1.3.2.2 **IMPORT**:

Avodire	Mahogany, African
Benge	Meranti, Dark Red
Bubinga	Sapele
Keruing	Teak (Young Growth)

1.3.1.3.3 If none of the above species is specified, these standards require exterior woodwork to be **TREATED** with an industry-tested and accepted preservative formulation listed by **WDMA**.

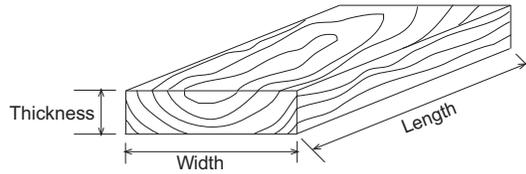
1.4 ACKNOWLEDGEMENTS

1.4.1 **ENGINEERED WOOD PRODUCTS** are typically manufactured from sliced veneers, which in some cases are stained, then glued up and sawn in such a manner as to imitate a particular species. Use of these engineered products are allowed only if specified and/or approved by the owner and/or design professional.

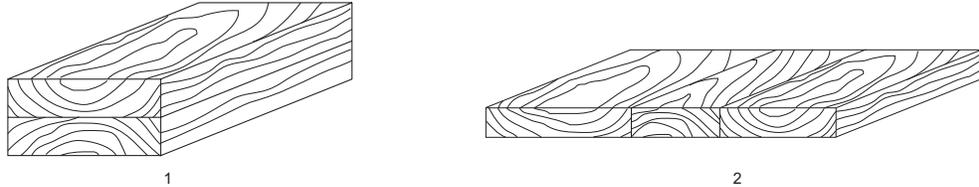
GENERAL

1.5 INDUSTRY PRACTICES

1.5.1 Lumber is **DIMENSIONED** in the following conventional order: thickness, followed by width (across the grain direction), followed by length (with the grain direction); see drawing:



1.5.2 **GLUING** for thickness and/or width is permitted as governed by these standards; see drawing:



1.5.3 Specification of **PHILIPPINE MAHOGANY** permits the use of Lauan, Tanguille, and other natural Philippine species.

1.5.4 Specification by the generic term **MAHOGANY** means Genuine Mahogany, such as Honduras or African.

1.5.5 **SPECIES** not specifically covered by these standards shall be as agreed to between owner/design professional and manufacturer/installer as to length requirements and size/exposed area of permitted natural characteristics.

PRODUCT

2 SCOPE

2.1 All hardwood and softwood lumber used for the fabrication or production of the architectural millwork covered by these standards.

3 DEFAULT STIPULATION

3.1 If not otherwise specified or indicated in the contract documents, all lumber shall be natural softwood.

4 RULES - The following RULES shall govern unless a project's contract documents require otherwise.

These rules are not intended to create a lumber grade; they are only intended to establish the acceptable requirements and/or characteristics after the architectural woodwork is completed or installed.

Where E, C, or P is not indicated, the rule applies to all Grades equally.

Errata, published on the Associations' websites at www.awinet.org, www.awmac.com, or www.woodworkinstitute.com, shall TAKE PRECEDENCE OVER THESE RULES, subject to their date of posting and a project's bid date.

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DESCRIPTION		E	C	P
4.1	GENERAL			
↓	4.1.1	Aesthetic GRADE RULES apply only to exposed and semi-exposed surfaces visible after installation.		
	4.1.2	VISIBLE SURFACES shall be sound lumber, free of decay, shake, pith, wane, and warp.		
	4.1.3	"BOARD" refers to a piece of lumber before gluing for width or thickness.		

