Canada Wood
加 拿 大 木 业

加拿大针叶木锯材分级培训手册

Canada Wood
加拿大木业协会

前 言

加拿大是木材资源极其丰富的国家，加拿大的铁杉-冷杉、花旗松、西部红柏、云杉、黄柏、SPF等锯材在国内的工厂加工和建筑中已经被广泛应用，为了让国内加工厂、木材经销商、建造商等更多地了解加拿大针叶木锯材，促进针叶木锯材的销售和应用，加拿大木业协会(Canada Wood)经过几个月的筹划、编写、翻译、校审、定稿，出版此本《加拿大针叶木锯材分级培训手册》，希望对中国的业内人士有所帮助。

加拿大锯材分级中，使用很多中国木材分级中没有的名词和术语。在翻译校对过程中，与“锯材检验国家标准(GB/T 4822-1999)”和“锯材缺陷国家标准(GB/T 4823-1999)”进行了对比。对于含义与国标中已有名词相同者，尽量采用国标中已有名词；对于国标中已有名词不适用、或与加拿大定义不同、或国标中没有对应名词者，采用新译名词。新译名词力求简单明确。衷心希望业内人士在使用本手册过程中，提出改进意见。

加拿大木业协会是非营利的推广机构，如需本手册或其他资料，请向加拿大木业协会免费索取。

Introduction to Canada Wood
加拿大木业协会介绍

Canada Wood is a non-profit organization registered in Canada and Hong Kong as the group that represents the Canadian Forest Industry overseas.
加拿大木业协会是一家在加拿大注册、在海外代表加拿大林业的非营利机构。

Canada Wood is comprised of several prominent Wood Product and Technical Organizations in Canada which combine their efforts to support the growth and development of wood construction in China.
加拿大木业协会是由一些著名的加拿大木材产品和木材技术机构所组成，为支持木制品和木建筑在中国的成长和发展而共同努力。

Canada Wood receives major funding support from both the Federal Government of Canada, the Provincial Governments of British Columbia and Quebec and Canadian Forest Industry.
加拿大木业协会的经费来源主要来自联邦政府、卑诗省省政府、魁北克省省政府和加拿大林木工业界。

Canada Wood has offices in both Shanghai and Beijing and works closely with several Chinese government agencies including the Ministry of Construction and Ministry of Public Seaurity Fire Bureau plus the Construction and Management Commission in Shanghai.
加拿大木业协会在上海和北京设有办事处，正与几家中国政府机构 — 包括建设部、公安部消防局及上海建筑管理委员会 — 紧密合作。

Canada Wood has also signed MOU's institutions such as the Academy of Forests and Tongji University.
加拿大木业协会也和如中国林业科学院和同济大学等学术机构签定了备忘录。

Please do not hesitate contacting us if you require further information. at info@canadawood.cn or visit our website at www.canadawood.cn.
如果你想得到更多的资料，请用电子邮件 info@canadawood.cn 与我们联系或者浏览我们的网站 www.canadawood.cn。

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DISCLAIMER
声 明

1) Disclaimer — Not an official Grade Rule book
声明 — 本手册不是一本官方分级规则手册

This book is intended as an introduction and guideline to lumber grading rules commonly used in North America. The grade rule descriptions are simplified where possible to provide a brief overview of the lumber grade rules.

本手册旨在为北美市场通用的锯材分级规则做一介绍和指引。分级规则陈述尽可能简单，从而为锯材分级规则提供一个简明扼要的总体介绍。

This is not an official Grade Rule book. While every effort has been made to ensure the accuracy of the material covered, if any discrepancy between this book and the official Grade Rule book occurs, the official Grade Rule book shall take precedence. The grade rule descriptions contained in this book may have been condensed for simplicity, for more detail, please refer to the official Grade Rules books.

这不是一本官方的分级规则手册。尽管我们尽可能地保证手册中涉及材料的准确性，但是一旦此书与官方书籍中有不一致的情形，以官方分级书籍所述为准。 此手册中的分级规则描述可能为求简洁而被浓缩，如果要了解更详细的资料，请查阅官方分级规则书籍。

2) Disclaimer — re: Design values (See Design Tables - Tables 4a- 4d)
声明 — 关于设计值(请参见设计表格 — 表格 4a - 4d)

The following lumber design values tables are excerpted from the NLGA's "Lumber Design Values for USA". The tables supplied are a general overview only, illustrating the differences between grades and species for some key design values. These tables are not definitive, and do not account for design value methods, moisture content, width adjustment factors etc. for complete details please refer to the NLGA book, paragraphs 900 to 910e.

本手册的锯材设计值节选于加拿大国家锯材分级委员会(NLGA)的“美国锯材设计值”部分。所提供的表格仅为不同等级和树种的一些主要设计值提供一般介绍。这些表格并不详尽，没有考虑不同设计值方法、含水率、宽度调整等因素的影响。欲了解详尽资料，请参考NLGA手册中第900至910e款。

3) Disclaimer — Grade Tables
声明 — 等级表格

The grade tables contained in this handbook are intended as a simplified overview only. For full grade details and limitations please refer to the appropriate official Grade Rule book.

这本手册收录的等级表格旨在提供一般简单介绍。欲了解全部等级详细资料和限制，请参考相关的官方分级规则书籍。

GENERAL PROVISIONS
总 则

1. Scope
范围

This handbook is an abbreviated summary of grade rules relevant to the Chinese market. The rules covered in this book are drawn from the National Lumber Grades Authority (NLGA) and Pacific Lumber Inspection Bureau (PLIB) R List.

此手册是一本与中国市场有关的分级规则的浓缩版。此手册所包括的规则节选于加拿大国家锯材分级委员会(NLGA)和太平洋锯材检验局(PLIB)的R目录(R List)。

The purpose of grading rules is to maintain a standard or measure of value between mills manufacturing the same or similar woods so that uniform qualities will be the result.

分级规则的目的是使生产同样或相似产品的生产厂家保持同一标准或尺度以达到产品质量始终一致的结果。

This book provides a general overview of some of the most commonly used lumber grades in three broad categories of lumber products.

这本手册提供了三大类别锯材产品一些最常用的锯材分级的总体介绍。

Appearance (Clear) grades — Products which are graded primarily for their aesthetic (visually pleasing, attractive) attributes. This often means that there are very limited allowances for wood characteristics such as knots, pockets, wane etc.

外观(无缺陷)级 — 主要以美观(视觉美感、吸引力)特性来划分等级的产品。通常意味着很少容许木材的天然特征如节疤、树脂/皮囊和钝棱等。

Shop (Factory) grades — Products which are graded primarily for the clear (appearance) grades that they will yield, when further manufactured. In other words, Factory grades are intended to be further chopped (cross-cut), ripped (reduced in width), or resawn (reduced in thickness) to yield smaller "clear cuttings" (minimal defects).

车间(工厂)级 — 需要进一步加工，主要根据其中无缺陷(外观)材的出材率来分级的产品。换言之，工厂等级的目的是为了进一步横切(减少长度)、纵锯(减少宽度)，或者再锯(减少厚度)以生产更小的“无缺陷锯块”(最少瑕疵)。

Structural lumber grades — Products which are primarily graded for strength and other structural design values, with much less concern for appearance. Such lumber may not appear as highly visually attractive, but it will provide the strength, and serviceability necessary in its intended structural application.

结构锯材等级 — 主要以强度和其它结构设计值来分级的产品，较少考虑外观因素。这样的锯材看上去不一定非常的美观，但是它在实际运用中提供了所期望的强度和实用性。

2. Interpretations
解释

The interpretations of these rules are vested in the original publishing authority - NLGA and Pacific

Lumber Inspection Bureau (PLIB - R List).
规则的解释权属于原始出版机构- 加拿大国家锯材分级委员会(NLGA)和太平洋锯材检验局(PLIB - R List)。

For the NLGA rules, written interpretations from the NLGA are available upon request.
对于加拿大国家锯材分级委员会(NLGA)的规则， NLGA 会应要求提供书面解释。

3. Lumber
锯材

Lumber is a manufactured product derived from a log in a sawmill or planing mill.
锯材是在锯木厂或木材刨光厂由原木加工而来的产品。

4. American and Canadian Standard Lumber
美国和加拿大标准锯材

Lumber manufactured and measured according to the NLGA provisions may be regarded as American and/or Canadian Standard Lumber meeting the provision of ALS Standard PS 20 and/or CSA's Standard 0141 and may be so designated. (Commonly referred to as ALS and/or CLS Lumber)
根据NLGA条款生产和计尺的锯材可以被认为是美国和/或加拿大标准锯材，它们达到ALS标准PS 20和/或CSA标准0141，因此可以被标明使用。(通常被称为ALS和/或CLS 锯材)

5. Original Grading
初始分级

The grade of lumber, as determined by the Lumber Grader, applies to the size, form, condition or degree of seasoning at time of original grading.
锯材的等级，是基于锯材分级员分级当时锯材的尺寸、形状、干燥状况或程度所作出的。

6. Remanufacturing
再加工

NLGA lumber grades with the exception of Shop/Factory lumber grades are not graded with the intent that they will be suitable for remanufacturing to small sizes.
除了车间/工厂级，NLGA 锯材分级的目的不是为了再加工成小尺寸材料。

7. Species Covered
涉及的树种

The NLGA grade rules apply to all softwood lumber species manufactured in Canada. The R List grade rules apply to British Columbia's coast species. The following is a list of the commercially important species of British Columbia.
NLGA分级规则适用于所有在加拿大生产的针叶木锯材。R目录分级规则适用于卑诗省的沿海树种。下表所列为卑诗省重要的商业树种。

Common Names 通用名	Botanical Name 植物学名	Stamp Identification 标签识别
Western Hemlock 西部铁杉	Tsuga heterophylla	W Hem (N)
Amabalis Fir 太平洋银冷杉	Abies amabilis	Am Fir (N)
Douglas Fir 花旗松	Pseudotsuga menziesii	D Fir (N)
Sitka Spruce 锡特加云杉	Picea sitchensis	C Sitka
Yellow Cedar 黄柏	Chamaecyparis nootkatensis	Y Cedar (N)

Common Names 通用名	Botanical Name 植物学名	Stamp Identification 标签识别
Western Red Cedar 西部红柏	Thuja plicata	WR Cedar (N)
Western White Pine 西部白松	Pinus monticola	WW Pine
Engelman Spruce 恩格尔曼云杉	Picea englemanii	E Spr (N)
Western White Spruce 西部白云杉	Picea glauca	WW Spr
Lodgepole Pine 扭叶松	Pinus contorta	L Pine (N)
Alpine Fir 高山冷杉	Abies lasiocarpa	Alpine Fir or Ap Fir (N)

Species Combination 树种组合	**Stamp Identification** 标签识别
Western Hemlock 西部铁杉 Amabalis Fir 太平洋银冷杉	Hem-Fir (N)
Pacific Coast Yellow Cedar 太平洋沿海黄柏 Western Red Cedar 西部红柏	W Cedar (N)
Douglas Fir 花旗松 Hem-Fir 铁杉-冷杉 Coast Sitka Spruce 沿海锡特加云杉	Coast Species
White Spruce 白云杉 Engleman Spruce 恩格尔曼云杉 Lodgepole Pine 扭叶松 Alpine Fir 高山冷杉 Jack Pine 杰克松 Balsam Fir 香脂冷杉	S-P-F or Spruce-Pine-Fir
Douglas Fir 花旗松 Western Larch (Tamarack) 西部落叶松	D Fir-L (N)
Any Canadian species covered by this Rule 以此规则分级的任何加拿大树种	Northern Species or N. Species

Since the composition of species in timber stands varies and there is no practical way to determine the species percentage that might be included in a particular shipment, lumber marked with a combination grade stamp may be all of any one species or some mixture of any of the species in combination.
由于林地中树种组成不同，而且通常没有切实可行的办法来确定一批货物中各树种所占百分比，等级章标明属于某树种组合的锯材可以是其中任何一种树种或者是该树种组合中任何几种树种的混合。

Even though individual species of a combination may be separately identified, design values (a measurement in strength of lumber) are published for four species combinations in dimension lumber sizes: Spruce- Pine- Fir, Douglas Fir- L (N), Hem- Fir (N) and Northern Species. The (N) stands for "North" which distinguishes Canadian species from U.S. species.
尽管某一树种组合中的树种可以被分别辨认，在规格材各尺寸中，设计值(锯材强度的衡量标准)都是按照四类树种组合而发布的：云杉- 松木- 冷杉，花旗松- 落叶松(N)，铁杉- 冷杉(N)和北方树种。(N)代表“北部”以区分加拿大和美国的相同树种。

8. A Lumber Grade
锯材等级

A lumber grade is a minimum standard describing the extent and limitations of the characteristics permitted in a piece of lumber having regard to the end use for which the grade is intended.
锯材等级是根据该等级的最终用途制定的最低标准，它规定了该等级锯材所允许缺陷的程度和限制。

9. Freedom of Contract
合同权

The right to freedom of contract between buyer and seller is recognized and any of the provisions of these rules may be set aside by special agreement. However, if the lumber is grade stamped it must still meet or exceed the minimum provisions of the grade as defined in the rules.
规则承认买卖双方的合同权，双方如有特殊协议，规则的任何条款均可以搁置。但是，如果锯材盖有等级章，它仍然必须达到或超过该等级规则所定义的最低条款。

10. Grade Checking
等级检查

The grade checking of lumber is the inspection of lumber for the supervision control made by a certified grading agency on its graders' performance.
锯材的等级检查由经过认证的等级机构所进行，其目的是监督和控制分级员的业务水平。

11. Re- inspection
复验

The reinspection of lumber is the verification made upon a claim, of a shipment or an item of a shipment.
锯材的复验是根据投诉、对某批货物或其中某项产品所进行的核查。

12. Faces Graded
评级面

Dimension lumber, timbers and similar items are graded for strength. Characteristics on all four sides and both ends are considered in relation to their effect on the strength of the piece. The principle factors which govern the strength of a piece of lumber include the slope of grain, size of knots and their location.
规格材、方料和类似的产品是按强度来分级的。四个表面和两个端头的缺陷都与锯材的强度有关，所以都要被考虑进去。影响锯材强度的主要因素包括木纹斜度、节疤的大小和位置。

Clear lumber grades, when rough or surfaced, are graded from the face or best side unless otherwise specified. The reverse face may have characteristics approximately one grade lower than the face.
无缺陷级锯材，无论是毛面还是刨光面，除非有特别说明，一般都根据正面或最好的一个表面来分级，与之相反的那个表面可能具有低于正面大约一个等级的缺陷。

Factory lumber is graded from the poorer face.
工厂级锯材的等级根据较差一面来划分。

13. Equivalent Characteristics
等效缺陷

When characteristics are not described they are assessed in relation to the characteristics permitted for the grade under consideration and are allowed if judged by the grader or inspector to be equivalent.
当遇到规则没有注明的缺陷时，如果分级员或检验员判断它们与该等级规则中所允许的缺陷具有等效性，则可以允许。

14. Maximum Combination of Characteristics (for NLGA rules)
缺陷的最大组合(适用NLGA规则)

All or nearly all of the permissible characteristics of the grade are rarely present in maximum size or number in any one piece. Any piece with an unusual combination of characteristics which seriously affects normal serviceability is excluded from the grade under consideration.
一个等级中所有或者几乎所有可允许的缺陷都以最大尺寸出现在一块锯材上的情况很少发生。一块锯材上如果某等级允许的缺陷超常、集中出现，并严重影响其正常用途，则应将其从该等级中剔除。

15. Variation in Grading
分级误差

The grading of lumber cannot be considered an exact science because it is based on a visual inspection of each piece and the judgment of the grader. The provisions of the NLGA and NGR are, however, sufficiently explicit to establish a maximum of five (5) percent below grade as a reasonable variation between graders.
锯材分级不应被认为是精确的科学，因为它取决于分级员对每片锯材的目测和判断。因此，在NLGA和NGR的条款中，十分明确规定低于等级者最多为百分之五(5%)，以此作为分级员之间的合理误差。

16. Basis of Measurement
基本计量

Board measure is the standard basis of measuring lumber under these rules. The board measurement of lumber, rough or dressed, is based on the corresponding nominal dimension.
在这些规则中，板尺是锯材计量的标准基础。锯材的板尺计量，无论是毛面或是刨光面的锯材，都是基于相应的名义尺寸。

17. Unit of Measurement
计量单位

Board foot is the unit of measurement of lumber. A board foot is the quantity of lumber contained in or derived by drying, dressing or working from a piece of rough green lumber 1 inch thick, 1 foot wide, and 1 foot long, or its equivalent in thicker, wider, narrower or longer lumber.
板尺是锯材计量的单位。一板尺是指包含于一英寸厚、一英尺宽、一英尺长的毛面湿材中的木材数量，或是通过干燥、刨光或加工处理可从上述毛面湿材中得到的木材数量，也可以是厚度、宽度、长度不同但同等体积的材料。

18. Board Measure
板尺计量

The number of board feet in a piece of lumber is obtained by multiplying the nominal thickness in inches or fraction of an inch by nominal width in feet by the length in feet.
一块锯材的板尺计量方法是：名义厚度(英寸)乘以名义宽度(英尺)再乘以长度(英尺)。

19. Standard (Dressed) Sizes
标准(刨光)尺寸

Standard thicknesses and widths are shown in Tables 2, 3a, 3b and 3c. The dressed thicknesses and widths, as shown, are considered standard for corresponding nominal sizes as shown. Lumber of any size, rough or dressed, is described by its nominal dimensions in customary use and in these rules.
标准厚度和宽度在表2，3a，3b和3c中列出。刨光后的厚度和宽度，如表所示，被认为是所示相应名义尺寸的标准尺寸。在常规用途和这些规则中，任何尺寸的锯材，无论是毛面还是刨光面，都以名义尺寸来表述。

20. Actual Sizes vs Nominal Sizes
实际尺寸与名义尺寸

The use of 'nominal' sizes in the language of these rules is for convenience and follows the practice of the industry. No inference should be drawn that the 'nominal' sizes are actual sizes.
规则中使用“名义”尺寸这一说法是为了方便和遵从行业习惯。不可臆断“名义”尺寸就是实际尺寸。

21. Standard Lengths
标准长度

Standard lengths are multiples of 1', but some items are customarily shipped in multiples of 2'. In all items longer lengths than those listed may be included at shipper's option.
标准长度是1英尺的倍数，但是某些产品习惯以2英尺的倍数装运。在所有产品中，发货方有权发出长度大于合同规定的材料。

22. Trimmed Length
截齐长度

Unless otherwise stated in the contract of purchase, all lumber under these rules is trimmed for the removal of sniped, splintered or uneven log lengths. It must be trimmed at least to the length specified. Some over-length is generally acceptable.
除非在购买合同中另行有规定，规则要求所有的锯材要经过截齐，剔除残缺的、开裂的、和不平整的原木端头。至少要修整到所规定的长度，有一些长度余量通常是允许的。

23. Grade Stamped Lumber (for NLGA rules)
盖有等级章的锯材(适用于NLGA规则)

Standard lumber (rough or dressed) in the species covered by these rules may be available grade stamped under the direction of agencies accredited by the Canadian Lumber Standards Accreditation Board, or for the U.S. market by the American Lumber Standards Board of Review.
这些规定所涵盖树种的标准锯材(毛面或刨光面)可以在加拿大锯材标准认证理事会指导下获得等级章，在美国市场由美国锯材标准理事会负责。

24. Grade Stamps
等级章

A certified grade stamp is the buyer's assurance that the lumber involved has been carefully inspected by a qualified grader who is regularly supervised for grading efficiency in accordance with the requirements of CSA Standard 0141 and/or ALS Standard PS 20, and that the lumber was graded under a grading rule approved by the CLS Accreditation Board and/or the ALS Board of Review.
经认证的等级章是对买家所购买锯材的质量的保证，它表明该锯材已被合格的分级员仔细检验；而且，根据CSA标准0104和/或ALS标准PS20，该分级员的分级水平受到定期监督检查；同时，该产品已按照由加拿大锯材标准认证理事会(CLS)和/或美国锯材标准理事会(ALS)认可的分级规则进行分级。

Each grade stamp shows the:
每个等级章标明：

a) Registered symbol of the certified agency
认证机构的注册标记

b) Mill and/or grader identity usually by number
通常以数字表明的锯木厂和/或分级员

c) Grading rule used where applicable
适用的分级规则

d) Grade
等级

e) Species or species group
树种或树种组合

In addition some indications relating to sizes and moisture content may be added to the grade stamps.
另外有关尺寸和含水率等信息也可能会出现在等级章上。

25. Grading Rule
分级规则

When lumber is graded in accordance with the NLGA grade rules, grade stamps of an accredited Canadian agency, shall contain the abbreviation "NLGA". Accredited agencies may also be approved to grade under other rules.
当锯材是按照NLGA分级规则分级时，认可的加拿大机构的等级章应包括“NLGA”这一缩写，认可机构也可以被允许按照其它规则进行分级。

26. Moisture Content Standards
含水率标准

The moisture content of wood is the weight of water in wood expressed as a percentage of the weight of the wood from which all water has been removed (oven dry). Moisture is removed from lumber either by air drying or by use of drying kilns.
木材的含水率是指木材中所含水分的重量与不含水木材(烘干)的重量百分比。木材中的水分可以通过风干或窑干的方式去除。

27. Design Values
设计值

For use in Canada, design values are assigned to the grades by the CSA Technical Committee on Engineering Design in Wood. Design values are published in the current edition of CSA 086.1.
在加拿大，加拿大标准协会(CSA)木材工程设计技术委员会确定各等级锯材的设计值。设计值公布在CSA086.1最新的版本中。

For use in the USA, design values are published in Para 900.
在美国，设计值公布在第900款。

Note The American Lumber Standard Board of Review does not approve design values for use in Canada and the Canadian Lumber Standards Accreditation Board does not approve design values for the use in the USA.
注：美国锯材标准理事会(ALS)不对在加拿大使用的设计值进行认可，加拿大锯材标准认证理事会(CLS)不对在美国使用的设计值进行认可。

SPECIES
树 种

Douglas Fir
花旗松

Prominent Characteristics: contrast in color between heartwood and sapwood, resinous (pitch pockets and resin ducts), prominent summerwood.

显著特征：心材和边材颜色对比鲜明，有树脂(树脂囊和树脂管)，晚材明显。

- Douglas Fir is a heavy, dense and comparatively hard softwood. Rate of growth (rings per inch on the end) can range from very fine grain to very rapid growth.

  花旗松是一种重、致密、而且相当坚硬的针叶材。生长率(端头每英寸年轮数)可以从非常细密到非常粗宽(速生)不等。

- The heartwood is typically a distinctive reddish/brown color. If heart stain is present the heartwood may be dark brown to deep purple in color (easily distinguishable from the normal heartwood). Sapwood is a light creamy color.

  心材通常为特征性的红色或棕色。如果有心材变色出现，心材可能呈深棕至深紫色(与普通心材很容易区分)。边材为淡奶色。

- The contrast in color between the summerwood and springwood bands is very distinct on the ends and the face of the piece.

  在表面和端头，晚材和早材的颜色对比非常明显。

- Douglas Fir is a resinous species and resin ducts can usually be seen on the surface of a flat grain piece (resin ducts appear as light brown scratches approximately 1/4" to 1" long or longer and run within the true line of the wood fibers on the piece).

  花旗松属有脂类树种，在平纹木材表面通常可见树脂管(树脂管呈浅棕色，大约为1/4英寸至1英寸或更长，在木纤维的纹路内延展)。

- If pitch pockets (other than blisters) exist they are generally long and narrow and are filled with a thick dark amber liquid pitch. The pitch will eventually dry and crystallize white. Douglas Fir rarely has bark pockets other than occasionally around knots.

  如果存在树脂囊(与包状突起物不同)，它们通常长而窄，充满浓稠深琥珀色液状树脂。树脂最终会干燥、结晶为白色。花旗松很少有树皮囊(仅偶尔可能在节疤周围出现)。

- Douglas Fir has a relatively strong resinous smell.

  花旗松具有相当浓的树脂气味。

- Occasional pieces will have small green mineral streaks scattered through the piece.
  偶尔在一些木材上，会出现小的绿色矿物线。

- White specks, if present, will appear as small very white pits occurring along the line of fibers. Knots which are not intergrown will often be encased with dry white pitch.
  如果有白斑朽，会沿着纤维条纹以小白痕出现。节疤如果不是共生节，会被干燥白色树脂环绕。

- Shake, if present, is often filled with pitch (crystals or liquid).
  如果有轮裂，通常充满树脂(晶体或液体)。

Western Hemlock
西部铁杉

Prominent Characteristics: light uniform color, purple/black mineral streaks, mineral and bark pockets, no resin, and sour odor when green.
显著特征：均匀的浅色，紫/黑色矿物线，矿物囊和树皮囊，无树脂，湿材时有酸性气味。

- Hem-Fir can range from very heavy in the pieces of wet Hemlock (particularly in those pieces containing sapwood) to quite light in the heartwood pieces of Amabilis Fir.
  铁杉-冷杉树种组合的比重变化比较大，如西部铁杉的湿材(尤其是含边材的锯材)非常沉重，而太平洋银冷杉心材的锯材则非常轻。

- The color is a uniform, milky brown, sometimes purplish color in Hemlock and lighter color in the Amabilis. There is very little difference in color between the sapwood and the heartwood in both these species.
  颜色为均匀奶黄色，有时铁杉呈紫色而太平洋银冷杉颜色较浅。两树种的边材和心材在颜色上几乎没有差别。

- Very little difference in color between the springwood and summerwood bands on the end or face of the piece.
  在端头或表面，早材和晚材的颜色几乎没有差别。

- Hem-Fir has a slightly sour smell when wet. Almost odorless when seasoned.
  铁杉-冷杉潮湿时有轻微酸性气味，干燥后几乎无气味。

- Hem-Fir is non resinous (no resin ducts) but in a very rare case a small pitch pocket may be found. Bark pockets are quite common and many pieces contain numerous very small pockets appearing like bark pockets in nature but having only a lightly perceptible opening in Hemlock to a short tear-drop appearance in Amabilis Fir. These are referred to as mineral pockets and are restricted differently than bark pockets.
  铁杉-冷杉为无脂类树种(无树脂管)，在非常罕见的情形下可能有小树脂囊出现。树皮囊较常见，很多锯材中包含为数众多的、非常小的、貌似树皮囊的囊状物。它们在铁杉中只有隐约可见的开口，而在银冷杉中以泪滴状形式出现。这里指的是矿物囊，受到的限制与树皮囊非常不同。

- Pieces of Hem-Fir will often have narrow purple streaks or an individual grain that is purple in color (these markings may be the most distinguishing characteristic of the Hem-Fir group). These are known as mineral streaks or in the latter cases as a dark grain and are not considered as irregularities.

铁杉-冷杉锯材通常有紫色窄条痕或单条紫色木纹(这些痕迹可能是铁杉-冷杉树种组合最显著的特征)。这些就是所谓的矿物线，或在后一种情形下又称为深色木纹，在这一树种组合这些特征不是异常现象。

- Knots if intergrown will be relatively dark sometimes with a faint purple hue (Hemlock) to a pale light brown (Amabilis) in color. Knots not intergrown will often be surrounded by bark and may be dark brown to black in color. (These black knots may appear unsound as particles may be easily scratched out but often these particles are simply a layer of bark).

  如果是连生节，通常颜色较深，有时带有浅紫色(铁杉)，有时稍带浅棕色(银冷杉)。如果不是连生节，通常被树皮环绕，颜色可能为深棕色至黑色。(这些黑色的节疤可能呈腐朽的颗粒状，容易被刮出，通常这些颗粒为一层树皮)。

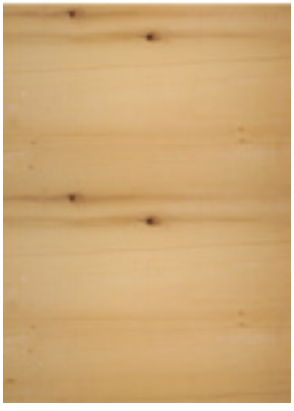
- The pits of white specks and honeycomb in Hem-Fir (N) are usually a light brown in color, as opposed to the usual white color in other species.

  铁杉-冷杉的白斑朽和蜂窝朽的斑孔通常呈浅棕色，其它树种通常为白色。

Sitka Spruce
锡特加云杉

Prominent Characteristics: light color, "bearded" knots, sheen, pink color streaks, very long fibers, resinous.

显著特征：浅色，“胡须状”节疤，有光泽，粉红色条痕，木纤维非常长，有树脂。



- Sitka Spruce is a strong, yet relatively light-weight species. It is white in color often with faint pink streaks appearing, especially around knots. Sitka Spruce has a shiny appearance. Under the right kind of light conditions it will appear to have a sheen.

  锡特加云杉是一种强度高但相对重量轻的树种。呈白色通常带有浅粉红色条痕，特别是在节疤周围。锡特加云杉呈有光泽的外观。在适当的光线条件下，光泽明显。

- Sitka Spruce is resinous. The resin ducts can only be seen on the surface under favorable conditions and will appear as small white scratches. When green, Sitka Spruce has a light spicy smell but is virtually odorless when dry.

  锡特加云杉分泌树脂。树脂管仅在理想条件下可见，呈小的白色条痕。潮湿时，锡特加云杉有轻微辛辣气味，干燥时几乎无气味。

- Pitch pockets, if present, will be shorter and wider than in Douglas Fir and Pine, the pitch will be very thick to almost solid and will be creamy white in color.

  如果有树脂囊出现，会比花旗松和松树的树脂囊短而宽，树脂非常浓，几乎成固态，颜色呈奶白色。

- Knots in Sitka Spruce will be a light tan color and can be extremely large. Encased knots will usually show a ring of white pitch. A somewhat unique characteristic of Sitka Spruce is the appearance of grain distortion and coloring occurring around some knots (often referred to as a beard or eye) that appear like whiskers trailing away on both sides of the knot.

  锡特加云杉的节疤常为浅褐色，直径可以很大。包裹节通常有一圈白树脂环绕。锡特加云杉有一独特特征，即在有些节疤周围，出现木纹变形和变色(通常被称为胡须或眼睛)，象连鬓胡须一样在节疤两边逐渐消失。

- Knots in dry lumber are prone to shatter/crack more than other species.

  与其它树种相比，干燥锡特加云杉锯材的节疤更易破碎/破裂。

- The wood fibers in Sitka Spruce are the longest of all coast species. If a strand of fibers are lifted and pulled from the piece they will often run for a foot or more. Occasionally dressed pieces will have a fuzzy dressing, particularly on the edges, due to the long fibers in this species.

在所有沿海树种中，锡特加云杉的木纤维最长。如果剔起一束木纤维，通常能抽出一英尺或更长。刨光的锯材有时表面呈绒毛状，特别是在边缘，这是由于该树种的长纤维所致。

- There is little distinction between the springwood and the summerwood.
早材和晚材几乎没有区别。

Western Red Cedar
西部红柏

Prominent Characteristics: dark color, variation in color, odor, presence of peck, very light weight.
显著特征：深色，色彩多变，有气味，会出现袋状朽，重量非常轻。

- Western Red Cedar is usually a very light, very soft, fine textured species, but it is not completely uncommon to find an occasional piece with very coarse grain and the odd piece can be very heavy when green.
  西部红柏通常是一种非常轻、软、质地细腻的树种，但是偶尔会碰到一块纹理很粗的锯材或潮湿时非常重的锯材也不是完全不可能。

- Western Red Cedar heartwood ranges in color from a light straw shade through shades of red-brown to a dark chocolate-brown. It is not unusual to find both color extremes in streak form in the same piece of lumber. The sapwood of Western Red Cedar is a narrow band, creamy white in color and the line between sapwood and heartwood is very distinct.
  西部红柏的心材在颜色上从浅稻草色到红棕色、再到巧克力褐色不等。在同一件锯材上不难找到有两种极端颜色的条纹。西部红柏的边材呈窄带状，奶白色，边材和心材的分界线非常明显。

- Western Red Cedar has a strong, pleasant, cinnamon-like odor that is likely its most distinguishing characteristic.
  西部红柏有浓烈、怡人、类似肉桂的气味，这可能是其最显著的特征。

- Bark pockets can be found in Western Red Cedar and knots not intergrown will often be surrounded by bark. Western Red Cedar is not a resinous species so pitch will not be found.
  西部红柏存在树皮囊，非连生的节疤则通常被树皮包裹。西部红柏为不含树脂的树种，因此没有树脂。

- Knots are usually dark brown in color. Soft knots will occur in Cedar.
  节疤的颜色通常为深棕色，会出现腐朽节。

- White specks will appear as very white pits. When advanced to the stage of honeycomb these pits will often be well separated but each pit can be 1" to 3" long.
  白斑朽常以非常白的斑孔出现。当发展至蜂窝朽阶段时，斑孔即完全分离，单个斑孔的长度可达1英寸至3英寸。

- A decay occurring only in the Cedars, known as Peck, will appear as well-defined pockets of a dark brown rot. The fibers take on a cube-like appearance and will crumble easily under thumb pressure.

袋状朽，一种只在柏树类木材中出现的腐朽，以轮廓分明的深棕色腐朽囊的形式出现。木纤维会变成小的方块状，在指力作用下会很容易溃散。

- Western Red Cedar reacts with iron and will often show bands of reddish to dark brown surface stain across the face of the piece where it has been sitting on steel transfer chains in the mill.
  西部红柏与铁起反应，在工厂接触钢质传送带时，表面常会出现红色条纹至深棕色表面变色。

Yellow Cedar
黄柏

Prominent Characteristics: light to bright yellow color, strong pungent odor, fine grain, may contain peck, no resin.
显著特征：浅黄至明黄色，有浓烈的辛辣气味，纹理细致，可能包含袋状朽，无树脂。

- Yellow Cedar is a very fine-grained, dense, hard and comparatively heavy species. The color ranges from light yellow to bright yellow. No distinction between sapwood and heartwood.
  黄柏是一种木纹非常细腻、致密、坚硬和相对较重的树种。颜色从浅黄至明黄不等。边材和心材无区别。

- Yellow Cedar has a strong pungent odor in the green but is only faintly present in seasoned pieces.
  黄柏的湿材具有浓烈的辛辣气味，但在干燥锯材中只是隐约可闻。

- Yellow Cedar is a non-resinous species so no pitch will be found.
  黄柏是一种不分泌树脂的树种，因此没有树脂。

- The annual rings of Yellow Cedar are not often distinguishable due to the fine grain and lack of distinction between the springwood and the summerwood.
  由于木纹非常细腻、边材和心材无区别，黄柏的年轮通常不易分辨。

- Knots will be pale yellow in color and soft knots are common as in Western Red Cedar.
  节疤的颜色呈浅黄色，与西部红柏一样常有腐朽节。

- Some pieces have black and grey or purple-black streaks of stain.
  一些锯材有黑色、灰色或紫黑的变色条纹。

- Yellow Cedar react with iron and will often show bands of reddish to dark brown marks across the face of the piece where it has been sitting on steel transfer chains in the mill.
  黄柏与铁起反应，在工厂接触钢质传送带时，表面常会出现红色条纹至深棕色表面变色。

Western White Pine
西部白松

Prominent characteristics: obtains its name from its light colored wood, fine grain, uniformed texture.
显著特征：其名称来自于它浅色的木材，纹理细致，质地均匀。

- Creamy white to light straw brown heartwood. Heartwood darkens upon exposure to sunlight.
  奶白至浅草棕色心材。心材暴露于阳光后颜色变深。

- Almost white sapwood. Sapwood is narrow to medium in width.
  边材几乎呈白色。边材宽度窄至中等。

- There are numerous knots which are typically darker in color. Knots are reddish in color but the inner portion of the knots tend to be lighter in color.
  节疤为数众多，通常颜色较深。在颜色上，节疤呈红色，但是节疤的内核部分倾向于颜色较浅。

- Grain is usually straight and even.
  纹理通常平直、均匀。

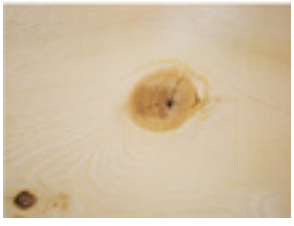
- A resinous species, aromatic with a sweet resinous, cinnamon-like smell.
  含树脂树种，发出有甜味、类似肉桂气味的芳香。

- Wood is characterized by very distinctive, visible resin ducts which sometimes result in a waxy to sticky feeling surface.
  具有非常明显、可见的树脂管，导致表面摸上去有一种蜡状、粘稠的感觉。

- Texture is typically medium to coarse, doesn't tend to split or splinter.
  质地通常为中等到粗糙，不易劈裂或破碎。

White Spruce
白云杉

- In general, spruce is light in colour, nearly white to pale yellowish brown.
  一般地说，云杉颜色较浅，近乎白色至浅黄棕色。
- Often spruce will have a shiny appearance.
  通常，云杉具有带光泽的外观。
- Lighter in weigh compared to other species.
  与其它树种相比，重量较轻。
- Distinctly white wood, with very little color variation between springwood and summerwood.
  典型的浅色木材，早材和晚材的颜色差异很小。
- Dry, checked, brown knots. Look for beards around knots.
  干燥、开裂的棕色节疤。注意观察节疤周围呈连鬓胡须状。
- May have numerous small intergrown or encased pin knots.
  可以有为数众多的、小的连生节或针状包裹节。
- Resinous, look for pitch pockets.
  有树脂树种，有树脂囊。
- Brown heartstain; brown specks.
  棕色心材变色，棕色斑朽。
- Spruce is usually straight- grained, non- porous with a fine to medium texture.
  云杉通常为直纹、无孔，质地细腻至中等。
- Growth ring figuration is slight.
  年轮花纹轻淡。
- Spruce does not have a distinctive odour or taste.
  云杉没有明显的气味或味道。



Lodgepole Pine
扭叶松

- Generally, the wood is light in colour, ranging from whitish to pale yellow.
  一般地说，该树种颜色较浅，从白到浅黄不等。

- A distinctive characteristic of this species are dimples that you can often see on flat grain surfaces.
  该树种的一个显著特征是从平纹表面上通常可见到波纹(微凹处)。

- Typically, you will see pencil marks around the pith.
  通常，在髓心周围有笔痕。

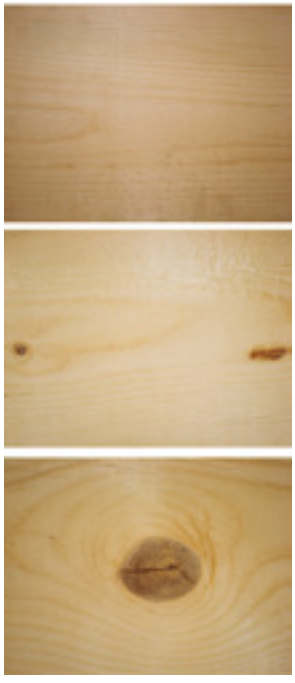
- You will feel a waxy or soapy feeling to knots, knots are dark in color.
  节疤摸上去有一种蜡状、滑腻的感觉。节疤颜色呈深色。

- Red to reddish- brown heartstain; white to yellowish specks.
  红色至红棕色心材变色，斑朽呈白色至黄色。

- Distinctive resinous odor.
  特殊的的树脂气味。

- Lodgepole pine is generally straight- grained, non- porous with a fine and uniform texture.
  扭叶松通常为直纹，无孔，质地细腻均匀。

- The wood has a resinous odour, especially when green.
  有树脂气味，特别是在潮湿时。



Alpine Fir
高山冷杉

- Alpine Fir has a dull finish, ranging in colour from yellow to yellow-white.
  高山冷杉外观暗淡，颜色从黄至黄白。

- Live knots are a yellow color, dead knots are grey.
  活节呈黄色，死节呈灰色。

- Non-resinous. Look for pockets of checks (from kiln drying).
  不分泌树脂，注意干裂形成的空腔(源于窑干)。

- Look for mineral streaks and pockets.
  有矿物线和树囊。

- Brown heartstain; brown specks.
  棕色心材变色；棕色斑朽。

- Has a distinct odor when green.
  潮湿时有一种独特的气味。

- Fine straight grain and a smooth texture
  纹理通直细腻，质地光滑。

WOOD CHARACTERISTICS
木材的特性

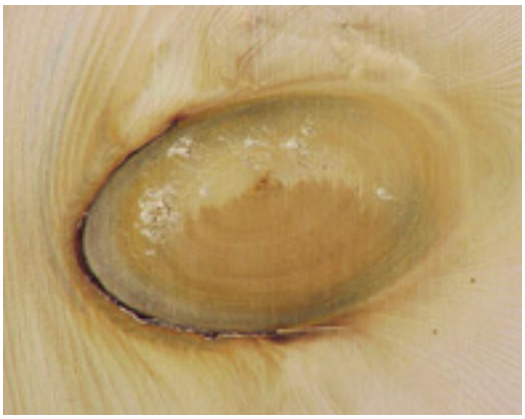
Knots classified as to "Form"
以“形态”分类的节疤

Round Knot — Refers to the knot shape, as a result of the tree branch being sawn thru at approximately right angles. Round knots are measured between lines parallel to lumber edges in structural lumber. For other grades of lumber, they are measured as an average of the length and width of the knot.

圆节 — 指的是节疤的形状，是树的枝条被几乎直角锯开的结果。在结构锯材中，圆节大小根据与锯材边缘平行的节疤边线之间的距离量出。对于其它等级的锯材，以节疤的长和宽的平均值计量。

Oval knot — Simply refers to the knot shape, as a result of the tree branch being sawn thru at an angle between 0 and 90 degrees. Oval knots are still measured between lines parallel to lumber edges in structural lumber. For other grades of lumber, they are measured as an average of the length and width of the knot.

椭圆节 — 指节疤形状，是以从0至90度角锯开枝条的结果。在结构等级锯材中，椭圆节仍以与锯材边缘平行的节疤边线之间的距离计量。对于其它等级的锯材，以节疤的长和宽的平均值计量。



Spike knots — Found in vertical grain lumber, as a result of a tree branch being sawn along its axis. The size of spike knot is determined by mathematical formulas, which convert the spike knot shape to the equivalent round knot size. Large spike knots result in significant strength reduction due to their large displacement of wood fibre. Structural lumber is sawn flat grain to avoid spike knots.

条状节 — 存在于垂直纹锯材中，是沿着枝条长轴锯开的结果。条状节的尺寸由数学公式算出，它将条状节转换成对等的圆节尺寸。大的条状节由于大面积木纤维错位，导致强度大幅下降。结构锯材通常以平纹锯切以避免条状节。

Knots classified as to "Quality"
以“质量”分类的节疤

Intergrown knot — The very best knot quality. Knot fiber is intergrown with surrounding wood fiber, and therefore is expected to retain its place in the piece (will not fall out). Not restricted at all in grades which allow knots.

连生节 — 又称活节，最好质量的节疤。节疤纤维和周围树木纤维交织生长在一起，因此节疤会固定在所处的位置(不会脱落)。在所有允许节疤的等级中均不受限制。

Encased knots — Knots which are NOT intergrown, and as a result have a layer of bark or pitch separating them from the surrounding wood. Such knots are less desirable because they may become loose and fall-out. Not restricted in any structural grades, as long as the knot is still tightly fixed (won't move). Not in Chinds standards.

包裹节 — 非连生节，有一层树皮或树脂将其与周围木材组织隔开。这样的节疤不是很理想，它们可能会松动脱落。只要节疤依然紧密固定(不会移动),在所有结构等级中不受限制。在中国国家标准中没有定义此种节疤类型。

Fixed knot — An encased knot which will not move, due to its growth, shape, or position. It is often the irregular shape of these knots which keep them "locked" into place. Not restricted in any structural lumber grades, and treated the same as intergrown knots in most other grade rules. Not in Chinds standards.

固定节 — 包裹节的一种类型，由于其生长、形状和位置的原因而不会脱落。通常由于这些节疤的不规则形状使其被锁定在所在位置。在任何结构锯材等级中不受限制。在大部分其它分级规则中与连生节同样对待。在中国国家标准中没有定义此种节疤类型。

Unsound knot — Knots which contain decay. These knots are much less desirable and are restricted more than sound knots in Structural and Appearance grades of lumber.

腐朽节 — 又称非健全节，指内含腐朽的节疤。这些节疤不是很理想，在结构和外观等级锯材中受到比健全节更多的限制。

Not Firmly Fixed knots — Commonly abbreviated as NFF, these encased knots can not be relied on the stay in the piece, in other words, they are likely to fall out. Such knots are restricted more than intergrown knots in the top grades of structural boards and appearance lumber. Not in China's standards.

松动节 — 通常以NFF的缩写来表示，这种包裹节不会总是固定在所在位置，即它们有可能脱落。此类节疤在高等级的结构锯材和外观锯材中受到比连生节更多的限制。在中国国家标准中没有定义此种节疤类型。

Holes
孔洞

Knot holes — Void left where a not firmly fixed knot has fallen out. Knot holes are restricted more than knots in virtually all grades of lumber, due to the reduced appearance and serviceability. Not in China's standards.

节孔 — 松动节脱落后留下的空间。由于对外观和用途的不良影响，在几乎所有等级的锯材中，节孔受到比节疤更多的限制。在中国国家标准中没有定义此种缺陷类型。

Slough knots — The void left on the corner of a piece of lumber, when a corner knot falls out. Less damaging in strength and appearance than a knot hole elsewhere in the piece. Slough knots are not restricted in any structural lumber grades. Small slough knots are often tolerated in appearance grades of lumber, if it can be safely assumed that they will be "dressed off" (planed or sawn off in the manufacture of the finished product) by the end-user in appearance lumber grades. Not in China's standards.

边缘脱节 — 在锯材边缘由于节疤脱落留下的空间。与其它位置的节孔相比，它对强度和外观影响较小。边缘脱节在所有结构锯材等级中不受限制。如果有理由相信外观等级锯材的最终用户在使用时能够“修整掉”它们(在生产成品时可以刨去或锯去)，外观等级锯材容许小的边缘脱节。在中国国家标准中没有定义此种节疤类型。

Pinholes — Small (1/16") bug holes left by the Ambrosia beetle. They are stained black shortly after the wood is attacked by an accompanying fungus. Due to their size, pinholes have even less impact on strength than grubholes. Therefore there is a substantial tolerance for pinholes in all structural lumber grades. Due to their unsightly appearance there is no tolerance for pinholes in appearance grades.

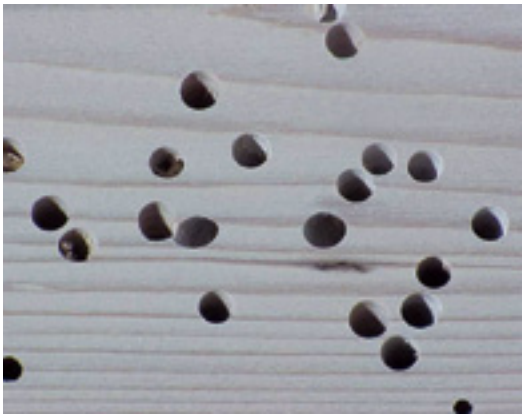
针孔虫眼 — 安布柔思亚甲虫造成的小虫孔(1/16英寸)。随甲虫而来的真菌侵蚀后，很快会使虫眼留下黑色斑迹。由于它的尺寸，针孔虫眼对强度的影响小于一般虫眼，因此所有结构等级锯材对其有相当程度的容许。由于其外表不美观，在外观等级中，针孔虫眼不被容许。

Grubholes — Holes left by wood boring insects that may be hollow or packed with "frass" (fine sawdust excreted by bug). As long as their presence isn't excessive, there is a fairly high tolerance for grubholes in structural lumber, due their low impact on strength. They may however be restricted in international exports due to phytosanitary concerns. There is no tolerance for grubholes in appearance grades of lumber.

虫孔 — 树虫侵蚀后造成的空间，可能是空的或充满“木渣”(虫排泄的细木屑)。只要数量不过多，对强度影响较低，在结构锯材中容许的程度较高。但是，出于植物检疫的考虑，在出口国际市场时可能受到限制。外观等级的锯材不容许有虫孔。

Teredo holes — Similar in size to Grubholes (approx. 1/4" diameter) but can occur in much greater concentrations. Restricted the same as grubholes in all grades. Not in Chinds standards.

海虫孔 — 与虫孔尺寸相似(直径大约1/4英寸)但是出现的密度要高很多。在所有分级中与虫孔受到的限制相同。在中国国家标准中没有定义此种缺陷类型。



Pitch Streaks and Pockets
树脂斑和树囊

Pitch Streaks — Concentrations of amassed pitch which are often the result of a tree addressing a stress or wound. There is not limitation on pitch streaks in structural lumber since they do not affect strength. However areas of pitch streak will not take adhesives well and therefore are not desirable in glued lumber manufacturing. Pitch streaks are severely limited in appearance grades due to their visual impact, and low paint and stain adhesion. Not in Chinese standards.

树脂斑 — 树脂凝聚成块，通常为树受到压力或受伤的结果。由于不影响强度，在结构锯材中树脂斑不受限制。但是由于树脂斑所在位置受胶性能不好，在胶合材生产中不很理想。由于其视觉影响不好，受漆性低和容易附着污迹，树脂斑在外观等级中受到严重限制。在中国国家标准中没有定义此种缺陷类型。

Pitch Pockets — Small openings between wood fibers where resinous species create and store pitch. Not restricted in structural lumber grades. Restricted as knots or bark pockets in appearance grades.

树脂囊 — 含脂类树种木纤维之间产生并储有树脂的小开口。在结构等级锯材中不受限制。在外观等级中，它与节疤和树皮囊一样受到限制。

Bark Pockets — Formed when outer bark is grown over by the tree. Bark pockets are not restricted in structural lumber grades, but must be assessed as an equivalent characteristic such as wane, if they become excessive in size, or are located on the edge of a piece. These are very restricted in appearance grades of lumber, similar to knots.

树皮囊 — 当外层树皮为后期树木生长所包埋时形成。在结构等级锯材中不受限制，但是如果尺寸超大，或位于锯材的边缘，就必须按照钝棱等特征等效评估。在外观等级锯材中与节疤相似，受到严格限制。

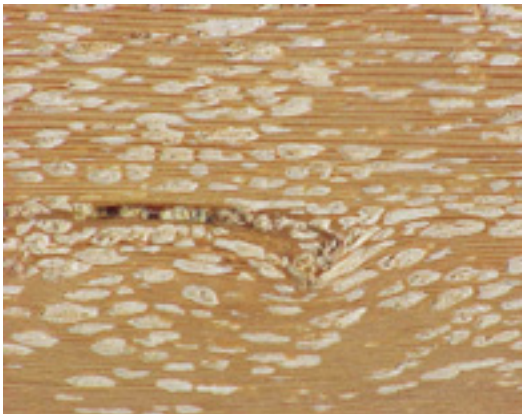
Heartstain — The first sign of a type of decay - referred to as incipient decay. Indicates that some wood strength reduction may have occurred. In structural lumber grades it is only restricted in Select Structural, the top grade in SLF and J&P. Many appearance grades also limit heartstain as they do any other stain due to visual impact. Not in Chinds standards.

心材变色 — 木材的一种腐朽形式的最初迹象-象征着腐朽的开始。意味木材强度可能已开始下降。在结构锯材等级中仅在结构轻型框架等级(SLF和J&P)的最高等级-优选结构级中受到限制。由于对外观的影响，许多外观等级中也象对其它变色一样对心材变色进行限制。在中国国家标准中没有定义此种缺陷类型。

Whitespeck — A type of fungal decay, which is the later stage of the heartstain fungi. Heartstain will not progress to whitespeck once the tree is cut. Not permitted in the top structural grades, but No.2 structural and Standard will allow up to 1/3 the volume. Whitespeck is not allowed in any of the appearance grades.

白斑朽 — 一种真菌腐朽，是引起心材变色的真菌进一步发展的结果。但树木被砍伐后心材变色就不会发展到白斑朽。在结构级的高等级中不容许，但是二级结构材和标准级中，可容许最多至锯材体积的1/3。在任何外观等级中白斑朽均不被容许。

Honeycomb — A later stage of fungal decay caused by the heartstain / whitespeck fungi. Once the honeycomb stage has been reached, wood strength has been much more seriously reduced. Not allowed in the top structural grades, but a small amount of honeycomb is allowed in No. 2 Str. and Standard grades, as long as it is firm (not soft). Appearance grades do not permit honeycomb.



蜂窝朽 — 由心材变色/白斑朽真菌引起的真菌腐朽的后期阶段。一旦到达蜂窝朽阶段，木材强度受到更为严重的影响。高等级结构锯材中不容许出现，但是只要它还坚实(不软)，在二级结构材和标准级中，可以容许少量的蜂窝朽。外观等级不容许蜂窝朽。

Unsound wood — Results in the complete loss of the structural integrity of wood. Unsound wood can be easily crumbled under ones thumb. No unsound wood is allowed in the top and middle grades of structural lumber. No unsound wood is allowed in appearance grades. Not in Chinds standards.

腐朽木 — 木材的结构强度完全丧失。腐朽木可以用手指捻碎。高等级和中等等级的结构锯材不容许腐朽木。外观等级中也不允许腐朽木。在中国国家标准中没有定义此种缺陷类型。

Peck — Is a type of decay that is only found in Cedar species. Although wood affected by peck has lost all structural integrity (can be crumbled under finger-nails), it will not spread further once the tree is cut. There is very little tolerance for this type of decay in most structural and appearance grades. It is treated as similarly to firm honeycomb - not restricted as tightly as unsound wood, but more restricted than Whitespeck. Not in Chinds standards.

袋状朽 — 一种只在柏树类木材中才会有的腐朽。尽管被袋状朽侵蚀后失去了所有的结构强度(可以用手指捻碎)，但是一旦树木被砍后它就不再继续扩散。在大部分的结构和外观等级中很少容许这种腐朽。通常将它与坚实的蜂窝朽相似对待- 不像腐朽木那样受到严格限制，但受到比白斑更多的限制。在中国国家标准中没有定义此种缺陷类型。

Skip — Areas of lumber which fail to dress-out when finished (planed smooth). Appear as rough spots in an otherwise smooth finish. Limited occurrence in the top grades of structural lumber, with more skip allowed in lower grades. Skip will not exist in rough lumber, so R-list export type clear grades are unaffected. May be limited in appearance grades which are sold S4S (surfaced).

漏刨 — 在表面加工时(刨光时)没有被修整的部分。表现为在光滑表面中出现的粗糙部分。在高等级的结构锯材中，其出现受到限制，而在低等级容许较多出现。在毛面锯材中漏刨现象不存在，因此在R目录出口类型无缺陷等级不受其影响。在以四面刨光(S4S)形式出售的外观等级中可能受到限制。

Shake — Cracks or fissures in wood, that occur naturally in the living tree. In structural grade rules shakes are restricted depending upon their length, and the number of faces which any one shake penetrates. The top grades of structural lumber only permit shake to occur on one face. The middle grades of structural lumber allow shakes to be longer, and they can occur on two faces. A shake which is continuous from one face through to another is called a "through shake". The lowest grades of structural lumber will allow shakes which are continuous through 3 faces of the lumber. In this case, the shake has had a severe impact on strength and product usefulness. Defined differently in Chinds standards. Shake is generally not allowed in appearance grades of lumber.

轮裂 — 在活的树木中自然出现的裂缝。在结构材等级规则中，根据它的长度、裂缝穿透的表面数量来确定其是否受到限制。高等级的结构锯材只容许轮裂出现在一个表面。结构锯材的中等等级容许轮裂更长、可以出现在两个表面。从一个表面连续穿透到另一个表面的轮裂叫“贯通轮裂”。最低等级的结构锯材容许穿越锯材三个表面的轮裂。在此情形下，轮裂严重影响强度和产品用途。中国国家标准中对此类缺陷的定义有所不同。在外观等级锯材中，一般不被容许轮裂。

Check — Cracks or fissures in wood that occur as a result of shrinkage when wood dries too quickly. May appear virtually identical to shakes, although they generally will not be as long or extensive. Limited in structural grades in the same way as shake. Some small allowances for checks may be permitted in appearance grade rules for dry lumber.

干裂 — 当干燥太快时，木材收缩产生的裂缝。看起来可能与自然轮裂几乎相同，但一般来说，其在长度或影响范围上不会像轮裂那样大。在结构等级锯材中与轮裂受到同样的限制。干燥的、外观等级锯材可容许少量干裂。

Wane — Defined as the absence of wood at the corner of a piece of lumber, most wane occurs when the roundness from the outside of the log is included in the sawn lumber. Since wane has more impact on a products usefulness (serviceability) than its strength, there is a fair tolerance for wane in all structural lumber grades. It is most restricted in the top grades, and less restricted in lower grades. Wane allowances are stated as a proportion of the face on which it occurs (e.g 1/3 the width by 1/3 the thickness full length). In appearance grades, the best grades do not allow wane, while the lower grades allow a small amount.

钝棱 — 锯材边角处的缺失。大多数钝棱是锯材包括了原木外围的圆形部分而形成。钝棱对产品的使用性能(用途)比对强度有更大的影响。在所有结构锯材等级中对钝棱有相当程度的容许。在高等级中限制较严，在低等级中限制较少。对钝棱的容许程度通常以其所在表面的所占比例来确定(例如1/3的宽度，1/3的厚度，全长)。在外观等级中，最高等级中不容允许钝棱出现，而较低等级中允许少量钝棱。

Slope of Grain — The term used to describe the angle of the wood fiber orientation. In most lumber the grain runs parallel with the edges, and therefore there is no slope of grain. When the grain runs off at an angle, strength and appearance is greatly reduced. Structural and appearance grades severely limit slope of grain for this reason. Slope of grain is not a common occurrence, and usually very few pieces of lumber from a mill run will be affected by it.

斜纹理 — 用来描述木材纤维方向角度的术语。在大部分锯材中纹理与边缘平行，因此不存在斜纹。当纹理呈现角度时，强度和外观受到很大影响。有鉴于此，结构和外观等级锯材中严格限制斜纹理。斜纹理并不常见，通常在锯木厂的某批锯材中，只有很少几块会出现斜纹理。

Warp
翘曲

Bow is a deviation from a flat plane of the wide face of a piece of lumber from end to end.

横弯是一块锯材宽面上从一端到另外一端的变形。

Crook is a deviation from a flat plane of the narrow face of a piece of lumber from end to end.

边弯是一块锯材窄面上从一端到另外一端的变形。

Twist is a deviation from the flat planes of all four faces by a spiraling or torsional action, usually the result of seasoning.

扭曲由螺旋或扭曲作用所造成的、所有四个平面的变形，通常由干燥引起。

Rate of Growth — Is the term used to describe the coarseness of wood grain. In North American lumber grading this is measured by the number of annual rings per inch. Too few rings per inch means coarse grain which can be less desirable due to lower strength, poorer finishing qualities, and lower visual appearance than slow- grown and fine grained wood products. For structural lumber grades, rate of growth is only controlled in the Douglas Fir species group. Rate of growth is often restricted in appearance grades such as clears. The top grades of R- List clears and Industrial clears limit rate of growth to a minimum of 6 rings per inch.

生长率 — 用来描述木材纹理粗细程度的术语。在北美锯材分级中，以每英寸的年轮数量来衡量。每英寸所包含的年轮太少表示纹理粗糙，不太理想。与生长缓慢的细纹木材相比，它的强度较低、表面加工质量差、外观视觉效果差。结构锯材等级中，仅在花旗松树种组合中对生产率有所限制。在外观等级，如无缺陷材中，通常对生产率有限制。R目录无缺陷材和工业无缺陷材中的高等级要求每英寸至少有六个年轮。

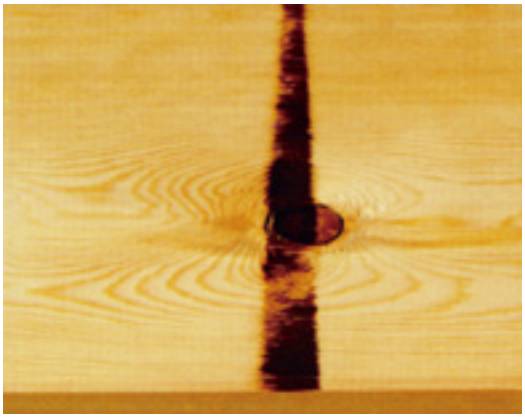
Coarse Grain
粗纹

Fine Grain
细纹

Split — Is a crack or fissure in the wood that occurs at the end of the piece. Lumber ends are more susceptible to seasoning checks due to the rapid drying which occurs where wood cells are cross- cut. To be considered a split, a crack must extend from one face into another - opposite or adjacent face. Cracks which do not extend through, are classified as end- checks. Splits are limited to some degree in all lumber grades. The lower the grade, the longer the split tolerance.

端裂 — 在锯材端头出现的裂缝。当锯材被迅速干燥时，其端头容易出现因木细胞被横切而产生的干裂。裂口必须从一面贯通延伸至另一面- 对面或相邻面- 才被视为劈裂。没有贯通的裂口，被划分为端部干裂。在所有锯材等级中，劈裂都受到一定程度的限制。等级越低，容许的劈裂越长。

Machine Burn — Is a visible friction burn on the surface of lumber caused by rapidly rotating planer knives or feed rolls. These have no impact on the lumbers structural qualities and therefore are not limited in any of the structural lumber grades. They do however, affect the woods appearance, and therefore are restricted in finished appearance grade products. Rough products which will be further dressed, are not affected. Not in China's standards.



机器灼焦 — 由快速旋转的刨刀或进料滚筒对锯材表面所造成的摩擦灼焦。对锯材结构质量没有影响，因此在所有的结构锯材等级中不受限制。但是对锯材外观确实有影响，因此在刨光的外观等级产品中有所限制。对需要进一步刨光的毛面产品，其等级划分不受机器灼焦的影响。在中国国家标准中没有定义此种缺陷类型。

Wood Characteristics
木材的缺陷

Wane is the presence of bark or lack of wood from any cause on the edge or corner of a piece of lumber.
钝棱是一块锯材的边缘端角存在树皮或由于任何原因形成的木材缺失。

Splits are similar to checks except separations of the wood extend completely through a piece, usually at the ends.
端裂与干裂类似，但木质分离贯通两个面，而且通常发生在端头。

Shake is a lengthwise separation of wood which usually occurs between or through the annual growth rings.
轮裂通常是在年轮之间、或穿过年轮的、沿着长度方向的木质分离。

Bow is a deviation from a flat plane of the wide face of a piece of lumber from end to end.
横弯为锯材宽面一端到另一端与水平面的不同。

White Speck and Honeycomb are caused by a fungus in a living tree. White Speck is small white pits or spots. Honeycomb is similar but the pits are deeper or larger. Neither is subject to further decay unless used under wet conditions.
白斑朽和蜂窝朽是在树木仍存活时由一种真菌引起的。白斑朽是小的白色凹坑和斑点。蜂窝朽与之相似，但斑点更深更大。除非在潮湿条件下，两者在使用中都不会进一步腐烂。

Crook is a deviation edgewise from a flat planes from end to end of a piece, usually the result of seasoning.
边弯为锯材窄面一端到另一端与水平面的不同，通常由干燥引起。

Decay is a disintegration of the wood substance due to action of wood destroying fungi. It also may be called dote, rot or unsound wood.
腐朽为真菌侵蚀木材导致的木质瓦解。

Twist is a deviation from the flat planes of all four faces by spiraling action, usually the result of seasoning.
扭曲为锯材所有四个表面与水平面的不同，通常由干燥产生的螺旋形作用引起。

Knots are the most frequently encountered characteristic. Illustrated here are the more common types as they appear on the lumber face in cross section:
节疤是最常见的缺陷。在此介绍是锯材横切表面最常见的种类：

Round Knot hole through 2 wide faces
圆节孔，贯穿两个宽面

Sound, encased knot through 2 wide faces
健全的包裹节，贯穿两个宽面

Sound, star- checked, intergrown knot through 2 wide faces
健全的、星裂、连生节，贯穿两个宽面

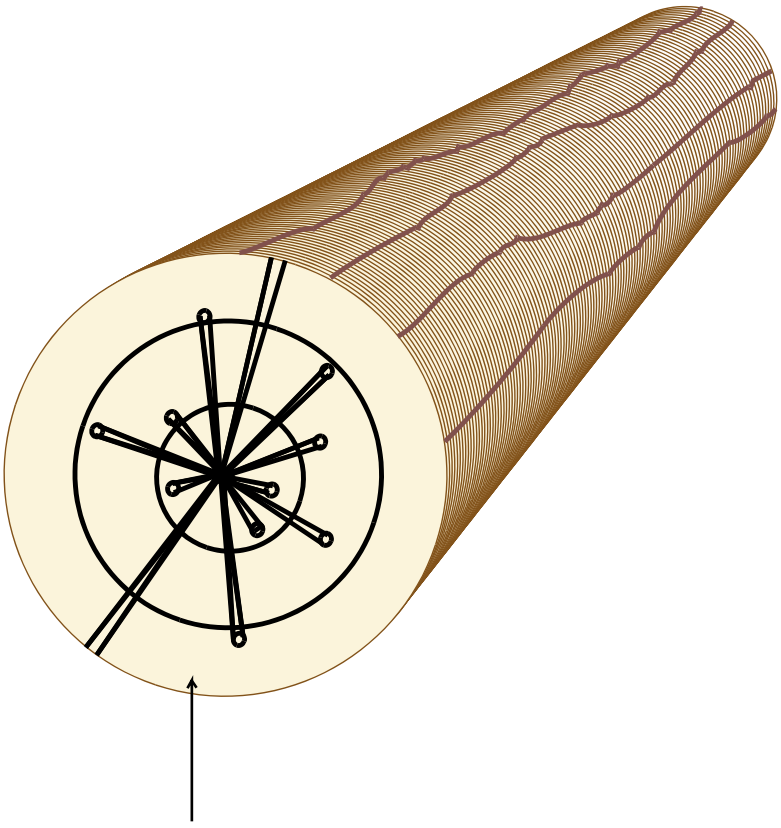
Sound, intergrown knot through 2 narrow faces
健全的、连生节，贯穿两个窄面

Sound, intergrown knot through all 4 faces
健全的、连生节，贯穿所有四个面

Sound, intergrown knot through 3 aces
健全的、连生节，贯穿三个面

NLGA GRADE RULES
NLGA分级规则

CLEARS — GRADED FOR APPEARANCE
清材(无缺陷材) — 根据外观分级



Clear Zone
清材出材区
(下列等级产自该部位)

R List Rough Green Clears
R 目录毛面潮湿清材

NLGA Industrial Clears
NLGA 工业清材

NLGA Clear Finish/Panelling/Ceiling (WR Cedar)
NLGA 清材饰面材料/镶板/天花板(西部红柏)

NLGA Para. 108 — Industrial Clears
NLGA 108款 — 工业清材

All species except WRC
适用于除西部红柏(WRC)外的所有树种

Rough or Surfaced
毛面或刨光面

2" and thinner, 3" and wider
厚度2英寸及以下，宽度3英寸及以上

Industrial Clears — This is the NLGA grade rule for clear appearance lumber. Industrial Clears are often selected from a dimension lumber run, and as a result often come in standard dimension lumber sizes (2x4, 2x6 etc) and finish (surfaced all 4 sides). The top grade of Industrial clear is B & Btr which allows no knots on the best face. The back of a B & Btr piece and all other grades allow some small knots and/or other minor defects.
工业清材 — 这是NLGA为无缺陷外观用锯材所定的等级规则。工业清材通常是在加工规格材时筛选获得，因此经常以标准规格材的尺寸(2x4, 2x6等)和四面刨光的形式出现。工业清材的最高等级为B级及以上级(B&Btr)。这一等级的最好一面不允许有节疤。B级及以上级(B&Btr)锯材的背面和其它等级允许一些小节疤和/或其它次要缺陷。

Grades
等级

There are three grades of Industrial Clears: "B and Btr (Better)", "C" and "D".
工业清材有三个等级：“B级及以上级(B&Btr)”，“C级(C)”和“D级(D)”。

Basic Size
基本尺寸

The number and size of characteristics permitted in the grades of Clear Lumber are based on a specific sized piece of lumber - a piece of lumber that is 8" wide by 12' long. This is known as the basic size. This means, larger pieces of lumber will allow more characteristics and smaller pieces will permit fewer. For example, a piece of lumber that is 4" wide x 12' long would be 1/2 the basic size and as such, would permit only half the allowed characteristics.
清材各等级所允许缺陷的数量和尺寸是基于一块特定尺寸的锯材，该锯材宽为8英寸、长为12英尺。这就是所谓的基本尺寸。也就是说，大于此尺寸的锯材将允许更多的缺陷，而小于此尺寸的锯材将允许较少的缺陷。例如，一块宽为4英寸、长为12英尺的锯材是基本尺寸的二分之一，因此，可允许的缺陷也为基本尺寸二分之一。

Basic size is expressed in surface units. Surface units are calculated by multiplying the width (in inches) by the length (in feet). Therefore, a basic sized piece of lumber equals 8 x 12 or 96 surface units.
基本尺寸以表面单位表示。将长度(英尺)乘以宽度(英寸)得出表面单位。因此，一基本尺寸锯材等于8乘以12，即96个表面单位。

The surface units in a piece of lumber then determined the number of characteristics permitted. The number of characteristics permitted in a particular piece is calculated as follows:

一块锯材的表面单位决定其允许的缺陷数量。一块锯材允许的缺陷数量用以下方式算出：

Size of the piece (in surface units) divided by
锯材尺寸(表面单位)除以

Basic Size (in surface units) — 96 surface units multiplied by
基本尺寸(表面单位)— 96表面单位，乘以

Number of characteristics allowed in Basic Size
基本尺寸所允许的缺陷数量

Example:
示例

Piece of lumber if 4" x 12', 4 characteristics permitted in a piece of lumber of basic size
4英寸 x 12英尺的锯材，基本尺寸的锯材允许四个缺陷

48/96 x 4 characteristics = 2 characteristics permitted for the piece
48/96 x 4 个缺陷 = 2个缺陷 - 即此块锯材所允许的缺陷数量

NLGA 工业清材（无缺陷材）- 厚度 2 英寸及以下　　适用于除西部红柏之外的所有树种

基本尺寸：8 英寸宽 x12 英尺长（96 个表面单位）　　目的：外观

等级 / 缺陷	B 级及以上级清材（B & Btr） 适用于除西部红柏之外的所有树种	C 级清材（C Clear） 适用于除西部红柏之外的所有树种	D 级清材（D Clear） 适用于除西部红柏之外的所有树种	
评级面	5”及更窄，最好面+2 边；6”及更宽，最好面+1 边；反面可低一个等级（所有宽度）			
生长率，最好端，数值越高年轮越密	平均每英寸 6 个年轮	无限制	无限制	
变色	无	中等，总片数的 25%	无限制	
缺陷	与基本尺寸直接有关	与基本尺寸直接有关	与基本尺寸直接有关	
节疤	无	2，小，健全坚固*	4，最大 1”	反面：5，最大 1”
针孔虫眼	3/基本尺寸	8/基本尺寸*	30/平方英尺	反面：38/平方英尺
树脂/皮囊	3，小	4，小	4，中等	反面：5，中等
树脂斑	1，小	1，小	中等	
*表示一个或另一个或等效				
干裂 仅适用于窑干 S2S 锯材	4，小	4，小	无限制	无限制
漏刨	无	非常轻微	反面：轻微	跳锯（数个，深度小于 1/16”）
钝棱	无	无		1/8 宽 x 1/4 长或等效面积，背面可增加50%
白斑朽	无	无		1/4 正面
孔洞	无	无	正面：1，1/4”	反面：2，1/2”
废料	无	无	3”，距端头 3’以上，整片长度 12’以上	

R List Clears
R 目录清材

PLIB - Export R List Para 58, 201, 301
PLIB - 出口用R目录，第58，201，301款

All Species except WRC
适用于除西部红柏以外的所有树种

Rough Green (generally)
毛面湿材(一般情形)

Under 3" thick
厚度3英寸以下

R-List Clears — Is the most common clear appearance grade exported from the Pacific Coastal region of North America. It typically is produced and sold as in a rough (not planed) and green (not dried) form. The R-list rule for Cedar is slightly different from that for the other coastal species. Even the top grade of #2 clear in Cedar, allows a few small knots. The best face of a #2 clear for the other species does not allow any knots.

R-目录 清材 — 是从北美太平洋沿海地区出口的最常见外观等级锯材。通常以毛面(非刨光)湿材(非干燥)形式生产和出售。R-目录中，西部红柏清材的分级规则与其它沿海树种清材的分级规则稍微有所不同。即使是西部红柏最高等级的2级清材也允许几个小节疤。其它树种2级清材的最好一面不允许有任何节疤。

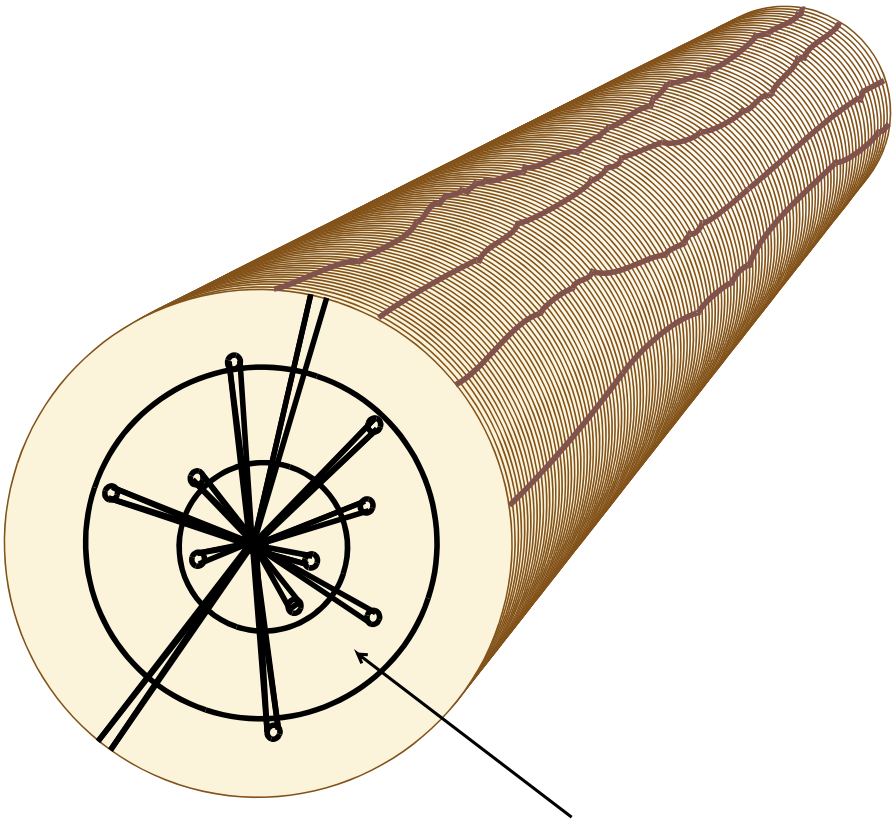
R-目录毛面潮湿清材（无缺陷材）- 厚度 3 英寸以下　　适用于除西部红柏之外的所有树种

基本尺寸：8 英寸宽 x12 英尺长（96 个表面单位）　　目的：外观

缺陷 \ 等级	2 级清材及以上级（#2 Clear & Btr） 适用于除西部红柏之外的所有树种		3 级清材（#3 Clear） 适用于除西部红柏之外的所有树种		4 级清材（#4 Clear） 适用于除西部红柏之外的所有树种	
评级面	最好面+两个 1/2 相邻边		最好面+两个 1/2 相邻边		最好面+两个 1/2 相邻边	
允许缺陷数（未标明时）	正面：3	反面：4	正面：4	反面：5	正面：5	*反面：允许缺陷尺寸和数量比正面高 25%（仅限 4 级清材）
生长率（最好端，数值越高年轮越密）	平均每英寸 6 个年轮		平均每英寸 4 个年轮		无限制	
树脂/皮囊（每基本尺寸）	3，小	反面：4，小	4，小	反面：5，小	5，小	反面：5，中等
树脂斑	等效与树脂/皮囊		等效与树脂/皮囊		散生	
节疤（每基本尺寸）	正面：无	反面：4，健全节/松动节，最大 1”	正面：4，健全节/松动节，最大 1”	反面：5，健全节/松动节，最大 1”	正面：4，任何质量节疤，最大 1”	反面：5，任何质量节疤，最大 1 1/4”
边材变色	无		25%，中等		50%，中等	
心材变色	无		25%，中等或 100%，轻度		100%，中等	
针孔虫眼（每平方英尺）	无		无		正面：15	反面：30
孔洞（每基本尺寸）	无		无		正面：1，1/4”	反面：2，1/2”
钝棱	无		无		1/8 宽 x 1/6 长或等效面积，不可大于 1/4 厚度；反面可多 50%，不可大于 3/8 厚度	
白斑朽	无		无		正面 10%，反面 25%	
废料，最多 1 块	无		无		4”，距端头 4’以上，整片长度 12’以上	

SHOP AND FACTORY LUMBER
车间和工厂等级锯材

- GRADED FOR CLEAR CUTTINGS
- 以获取较小尺寸的清材锯块为分级目的



Factory/Shop Zone
工厂/车间等级出材区
(下列等级产自该部位)

NLGA Shop
NLGA 车间级

NLGA Door Stock
NLGA 门料级

NLGA Flitches
NLGA 大料级

NLGA Para. 155 — Shop (Factory Lumber)
NLGA 155款 — 车间级(工厂级锯材)

All Species except WRC
适用于除了西部红柏以外的所有树种

Rough or Dressed
毛面或刨光面

1" and 2" thicknesses
厚度1英寸和2英寸

Shop — NLGA Shop lumber (para 155) is graded with primary consideration given to the proportion of clear lumber which can be cut-out of a piece of shop lumber. In other words defects of virtually any kind are allowed, as long as they could be cut-out by the customer, and yield the expected proportion of clear appearance cuttings. The top grade of shop lumber is Select Shop in which at least 70% of the piece must be recoverable in clear cuttings. #1 Shop must contain at least 50% clear cuttings, #2 Shop must contain at least 33% clear cuttings. The lowest shop grade - #3 Shop only requires 10% clear cuttings as long as another 30 to 50% can be recovered in lower grade and/or smaller size cuttings.

车间等级(Shop) — NLGA车间级(155款)分级的主要依据是，从一块车间级锯材上可以切割出的清材锯块的比率。也就是说，只要顾客可以切割出应有比例的清材，任何类型的缺陷都是允许的。车间级的最高等级是“优选车间级(Select Shop)”，每块锯材的清材锯块的出材率至少为70%。车间一级(#1 Shop)必须包含至少50%的清材锯块，车间二级(#2 Shop)必须包含至少33%的清材锯块。车间级中的最低等级 - 车间三级(#3 Shop)只要求含有10%的清材锯块，但同时要求可以获得30%至50%等级较低和/或尺寸较小的锯块。

Size of Cuttings
锯块尺寸

a) 9 1/4" or wider, 18" or longer
9 1/4英寸或更宽，18英寸或更长

b) 5" or wider, 3' or longer
5英寸或更宽，3英尺或更长

c) If stock under 5" wide, cutting must be full width and 3' and longer.
如果锯材宽度低于5英寸，有效锯块宽度必须是全部宽度，长度为3英尺或更长。

Grade of Cuttings
锯块的等级

The grade is determined from the poorest face.
等级划分根据最差的一面决定。

a) Cuttings 9 1/4" or wider and 18" or longer shall be clear on both sides - bright sapwood admitted.
宽度为9 1/4英寸或更宽，长度为18英寸或更长的产品的两面均应为清材，允许光亮的边材。

b) All other cuttings other than sash shall have a face equal to "B and Better" Industrial.
除了窗扇料之外的所有其它锯块，至少有一面等同于“B级及以上(B and Better)清材”。

c) Sash cuttings — 2 1/2", 3 1/2" and 4 1/2" wide by 28" and longer in length.
窗扇料锯块 — 宽为2 1/2英寸、3 1/2英寸和4 1/2英寸，长度为28英寸和更长。

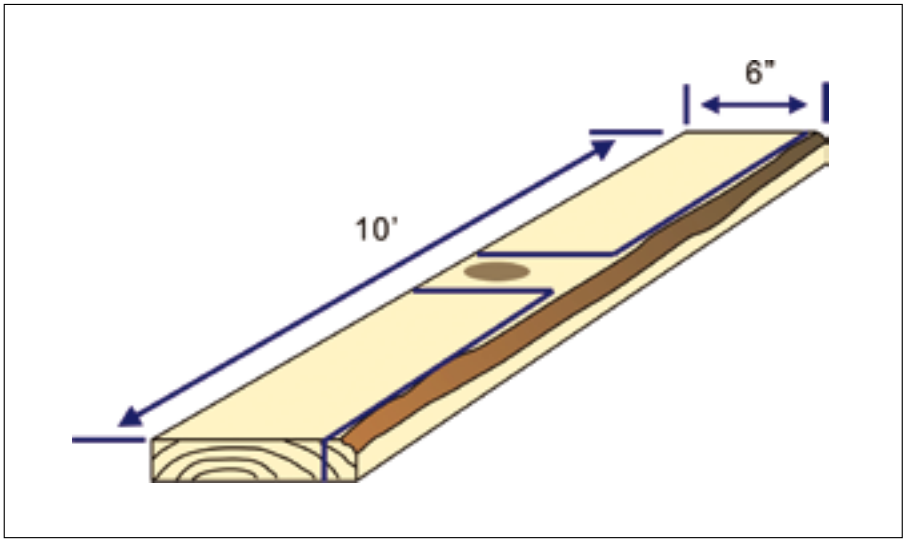
NLGA 车间级- 厚度 1 英寸 – 2 英寸　　适用于除西部红柏之外的所有树种

目的：锯块质量

等级	优选车间级（Select Shop）	车间 1 级（#1 Shop）	车间 2 级（#2 Shop）	车间 3 级（#3 Shop）
评级面	最差面 翻转木料，考虑所有缺陷	最差面 翻转木料，考虑所有缺陷	最差面 翻转木料，考虑所有缺陷	最差面 翻转木料，考虑所有缺陷
清材出材率	70%及以上	50%	33-1/3%	50%，全部为窗扇料 或组合 30%以上窗扇料锯块 ＋10% 以上 A 级或 B 级锯块
	宽锯块	中等锯块	全宽锯块	窗扇料锯块
锯块尺寸	9 1/4”或更宽 18”或更长	5”或更宽 3’或更长	如果整片宽度 小于 5”，锯块必须为全宽 3’或更长（不允许钝棱）	仅允许宽度为 2 1/2”、3 1/2”、或 4 1/2” 28”或更长
锯块质量	在优选车间级、车间 1 级和车间 2 级中，所有锯块必须为几乎无任何缺陷的清材。窗扇料锯块允许稍多的缺陷。			

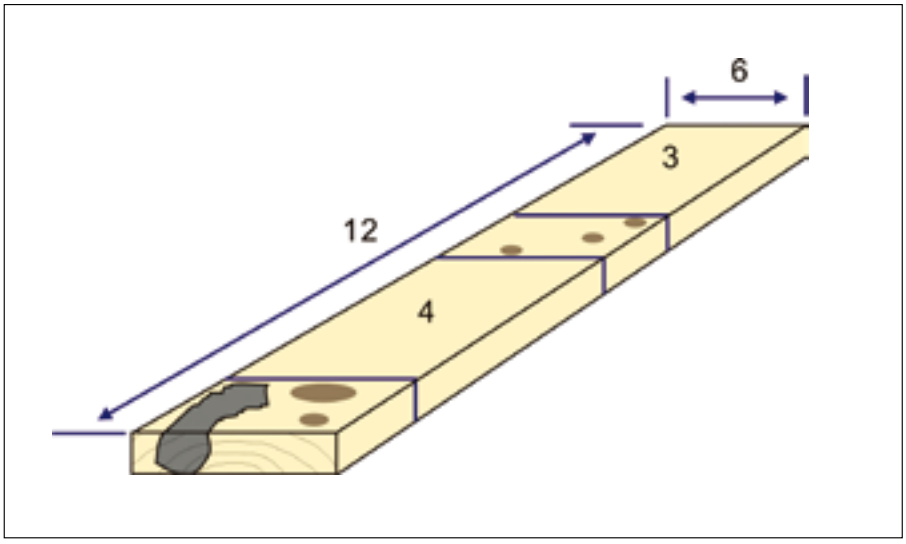
NLGA Shop Example
NLGA 车间级示例

Select Shop — > 70% Clear Cuttings
优选车间级(Select Shop) — 清材锯块出材率大于70%



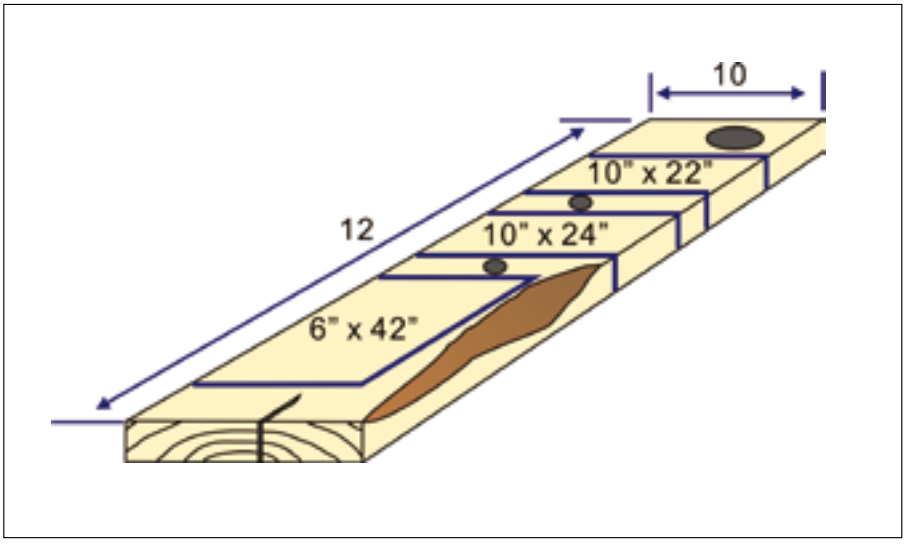
NLGA Shop Example
NLGA 车间级示例

#1 Shop — > 50% Clear Cuttings
车间一级(#1 Shop) — 清材锯块出材率大于50%



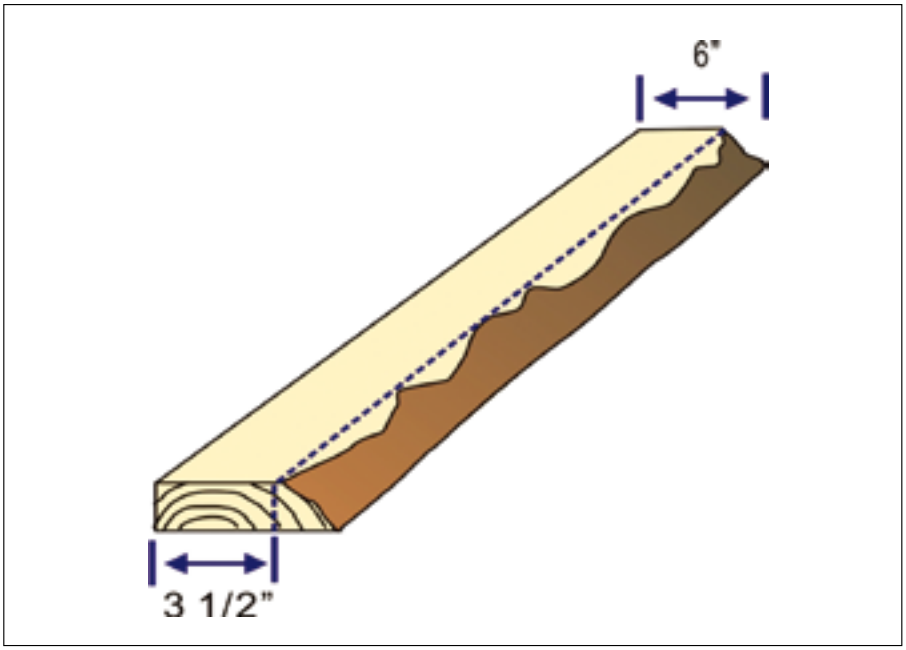
NLGA Shop Example
NLGA 车间级示例

#2 Shop — > 33 1/3% Clear Cuttings
车间二级(#2 Shop) — 清材锯块出材率大于33 1/3%



NLGA Shop Example
NLGA 车间级示例

#3 Shop
车间三级(#3 Shop)



NLGA Para 156 — Door Stock (Factory Lumber)
NLGA 156款 — 门料级(工厂级锯材)

Rough or Dressed
毛面或刨光面

2" thicknesses
厚度 2英寸

Door Stock — Is a type of shop (factory) lumber in which the size of the clear cuttings is specifically tailored to the solid wood door industry. Therefore the cuttings are referred to as the door components for which they will be used, eg stiles or muntins etc. Door Stock is generally supplied Vertical Grain (VG).
门料级 — 是一种车间级(工厂级)锯材，其清材锯块的尺寸是特别为实木门行业而拟定的。因此锯块常对应于相应的门部件，例如边框或中梃等。门料一般以直纹供应。

Solid wood doors, require relatively long components (stiles) to form the upright portions of the door frame. Therefore door stock has a requirement for long clear cuttings (7') to be used for door stiles.
实木门需要相对较长的部件(边框)以构成门框架的垂直部分。因此门料需要较长的清材锯块(7英尺)用于边框。

Door Cuttings — lengths and widths
门料锯块 — 长度和宽度

Stiles shall be figured as 4" to 6" wide by 6'8" to 7'7".
边框应为4英寸至6英寸宽，6英尺8英寸至7英尺7英寸长。

Top Rails, 4" to 6" wide and Bottom Rails, 8" to 12" wide, shall be figured in lengths from 23" to 37".
顶档为4英寸至6英寸宽，底档为8英寸至12英寸宽，长度均应为23英寸至37英寸。

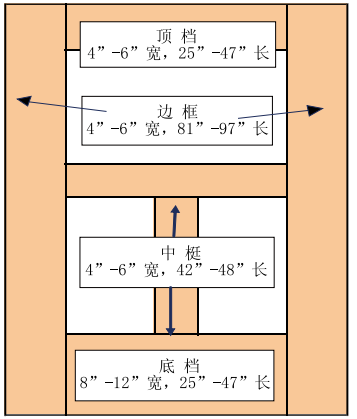
Muntins shall be 4" to 6" wide and 3'6" to 4' in length.
中梃应为4英寸至6英寸宽，3英尺6英寸至4英尺长。

NLGA 直纹门料 - 厚度 2 英寸　　适用于所有树种

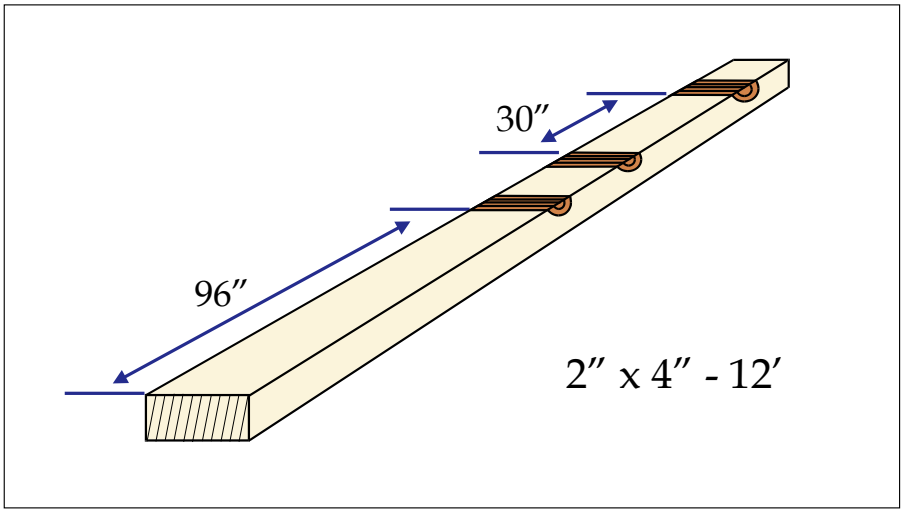
目的：锯块质量

等级	优选工厂级（Select Factory）	车间 1 级（#1 Shop）	车间 2 级（#2 Shop）	车间 3 级（#3 Shop）
出材率	70%及以上，1 级锯块	50%及以上，门料锯块	25%及以上 1 级锯块，或 33-1/3%，1 级和 2 级锯块，或 40%，2 级锯块，或 60%，3 级锯块	40%，3 级锯块，或 10%任何等级锯块（窗扇料除外） +30%窗扇料锯块，或 50%，全部为窗扇料锯块
门边框	必须含一块边框（4”-6”宽）	必须含一块边框（4”-6”宽）	非必须	无限制
门底档	无限制	无限制	无限制	无限制
门顶档	仅计算 1 块	2 块顶档或中梃，最多计算 2 块	无限制	无限制
门中梃	无	2 块顶档或中梃，最多计算 2 块	+	无限制
窗扇料	无	无	无	无限制

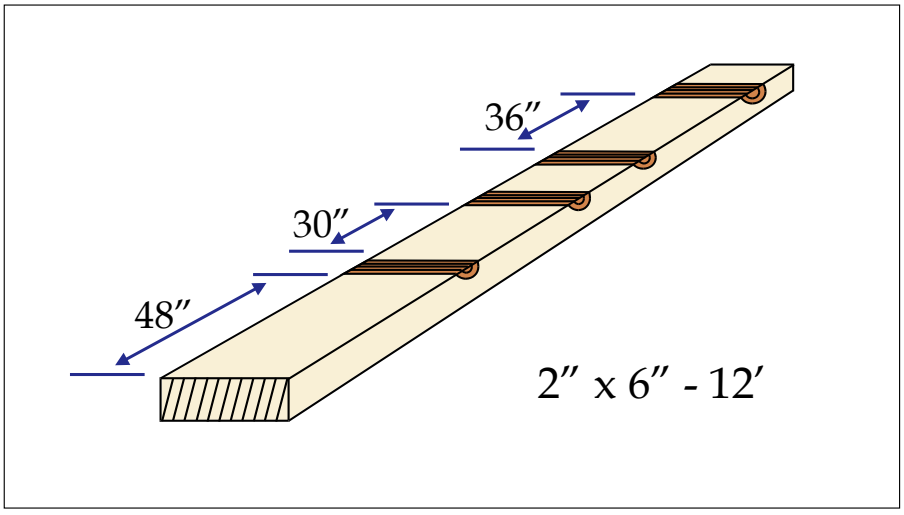
锯块等级	1 级锯块（No.1 Cutting）	2 级锯块（No.2 Cutting）	3 锯块（No.3 Cutting）
评级面	最差面	最差面	最差面
生长率	每英寸 8 个年轮	每英寸 6 个年轮	无限制
纹理斜率	1/8	1/8	无限制
变色	无	无限制	无限制
树脂/皮囊	1，小，非贯通	**仅允许下列之一：** 1，小，非贯通，或 在边框中，2，小，非贯通	**仅允许下列之一：** 每 20”长度内，1，6”，非贯通
节疤	无	无	1，5/8”，健全固定
树脂斑	无	仅轻度	中度
针孔虫眼	无	无	每平方英尺最多 15



Factory Select — > 70% Clear Cuttings (including a Stile - which must be over 81" long) - (4" - 6" stock must contain a Stile)
优选工厂级 — 清材锯块出材率大于70% (必须含一块长度大于81英寸的边框) — (4英寸- 6英寸宽门料必需包含一块边框)



#2 Shop — > 33 1/3% Clear Cuttings (no Stile required)
车间二级(#2 Shop) — 清材锯块出材率大于33 1/3% (不要求含边框料)



NLGA Para. 150 Flitches for Remanufacture (Factory Lumber)
NLGA 150款 供再加工的大料级(工厂级锯材)

All Species
适用于所有树种

Dressing — not specified
刨光情况 — 无明确要求

Size — not specified
尺寸 — 无明确要求

Flitches — Are another type of shop (factory) lumber in which the clear cuttings are specifically expected to be recovered in 1" wide strips, when the flitch is resawn.
大料 — 是另外一类车间级(工厂级)锯材，通常假定大料将被细锯成1英寸宽的条形材料，进而可以从中获得清材锯块。

Flitches are generally flat grain, so that when the flitch is resawn into multiple 1" wide pieces, the resulting board has a vertical grain face, which is defect free.
大料通常为平纹，因此当其被锯成多块1英寸宽的板条时，锯成的板条正面呈直纹、无缺陷。

Factory Flitches
工厂级大料

Each flitch must produce, on remanufacture, a minimum of 80% of clear cuttings 2' and longer.
通过再加工，每块大料必须产出至少80%的2英尺以上的清材锯块。

Characteristics allowed are those that can be entirely removed in the process of (1) resawing, (2) ripping and/or (3) cross- cutting and include:
大料级中允许存在可在生产过程中通过 (1) 平锯，(2) 纵锯和/或 (3) 横锯等方式整个去除的缺陷，这些缺陷包括：

- knots (spike, large soft, loose)
  节疤(条状节，大而腐朽的节，松动节)
- holes
  孔洞
- wane on corners
  端角钝棱

The resulting clear piece cannot be less than 2' long (after allowing not more than 20% waste in the flitch).
获得的清材锯块的长度不能低于2英尺(大料中的废料不超过20%)

If a flitch or board is 12' and longer at least 1/2 of the required cuttings are required to be 7' or longer.
如果大料或木板长度在12英尺以上，至少二分之一的锯块的长度必须达到7英尺以上。

Shop Flitches
车间级大料

Flitches of this grade give a lower return of clear cuttings than Factory Flitches, but will be satisfactory for use in many areas where clear cuttings of shorter length are required. Each flitch must produce, on remanufacture, a minimum of 60% of clear cuttings 2' and longer.

这一等级的大料与工厂级相比，清材锯块的出材率要低。但在许多需要较短清材锯块的场合，依然可以达到满意的效果。通过再加工，每块大料必须产出至少60%长度为2英尺以上的清材锯块。

NLGA 加工用大料　　适用于所有树种

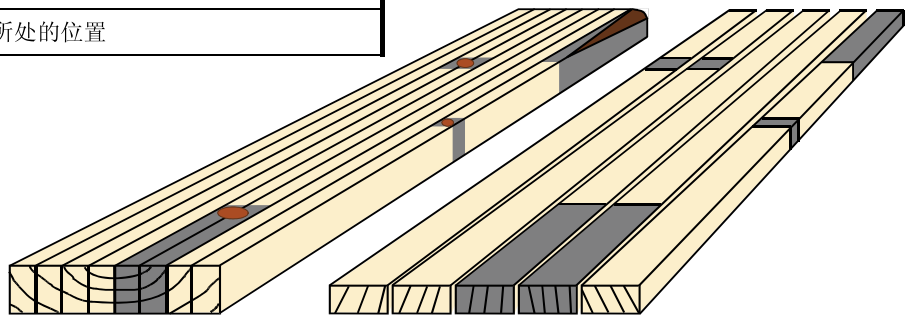
目的：锯块质量

等级	工厂级大料（Factory Flitch）	车间级大料（Shop Flitch）
评级面	最差面	最差面
废料率	20%	40%
锯块尺寸	2’或更长	2’或更长
7’锯块	仅对 12’或更长木料，剖开的条料40%必须能锯出 7’或更长的锯块	不要求

锯块	
质量	锯块必须为质地良好的清材
生长率	每英寸 6 个年轮
纹理斜率	1/8
节疤-测量	量至节疤或节孔周围木纹变形处
节疤-直纹	出现在窄面、而没有在宽面上出露的节疤，应被视为穿透整个木料
节疤-平纹	“检查木纹”，以判断其在未出露面上所处的位置

反复纵锯，全部锯成 1”厚的材料

最小长度，2’或更长



120. Canadian National Grading Rule for Dimension Lumber
120. 加拿大国家分级规则 — 规格材

Para. 120A Introduction
120A款 介绍

Canadian Lumber Standards Accreditation Board regulations provide that grading rules of an agency may only be certified as conforming to Canadian Lumber Standards if the dimension rules therein conform to the National Grading Rule for Dimension Lumber. The National Grading Rule applies to all species or combinations of species which are covered by grading rules developed and approved under CSA Standard 0141.

加拿大锯材标准认证理事会的规定指出：如果某一机构的分级规则符合国家规格材分级规则时，才会被认定为符合加拿大锯材标准。国家分级规则适用于所有树种或树种组合，这些树种或树种组合由根据CSA标准0141所制订和批准的分级规则所涵盖。

Similarly, in the US dimension lumber grade rules must conform to the - Product Standard 210 American Softwood Lumber Standard published by the U.S. Department of Commerce, and the National Grading Rule for dimension lumber - section 11 of ALS product standard (PS) 20.

与此相似，在美国，规格材分级规则必须符合美国商务部出版的 — 产品标准210美国针叶木锯材标准和规格材国家分级规则(ALS产品标准(PS)20的11章节)。

Para. 120B Scope
120B款 范围

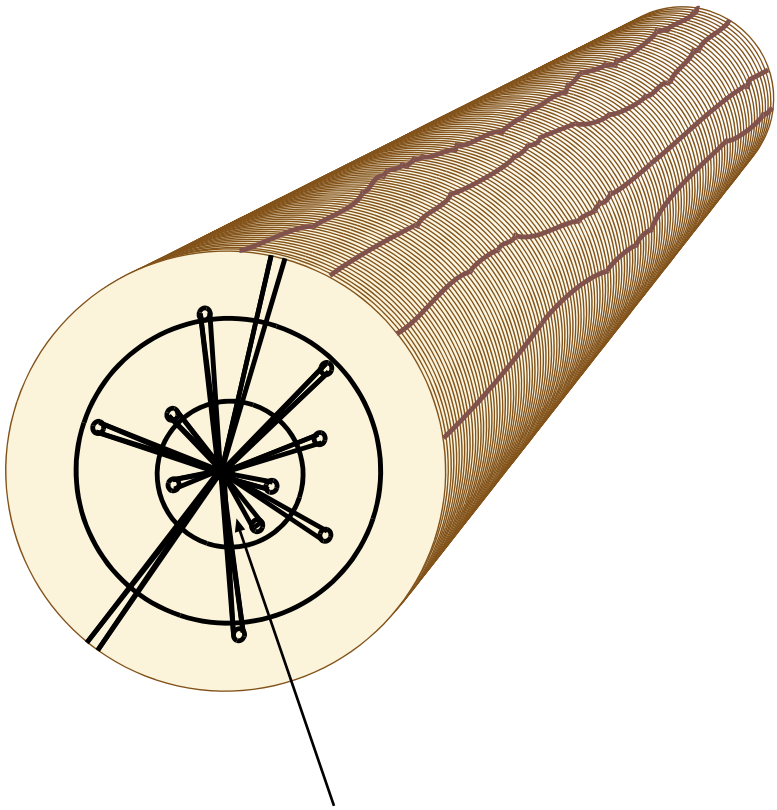
For purposes of the National Grading Rule for Dimension Lumber, 'dimension lumber' is limited to surfaced softwood lumber of nominal thicknesses from 2" through 4 inches and nominal widths 2 inches and wider; and which is designed for use as framing members such as joists, planks, rafters and studs. It does not apply to those grades that are segregated for special uses but which are sometimes manufactured to the 'dimension' sizes provided that descriptions for such special grades are included in the applicable agency grading rules.

根据国家规格材分级规则的适用目标，“规格材”只限于刨光的、名义厚度为2英寸至4英寸、名义宽度为为2英寸和更宽的针叶木锯材，被设计用于作为房屋框架部件如托梁、平铺楼板，椽和墙柱。该规则不适用于那些被分开用于特殊用途、但有时被加工成“规格”尺寸的等级，只要相关机构的分级规则包括了对这些特别等级的说明。

Lumber grades provide standard specifications for segregating the lumber cut from logs into appropriate use categories. Use categories may be developed based on appearance, structural capacity, suitability for secondary manufacturing, or a combination of these. The grade specifications in the National Grading Rule for dimension lumber are based primarily on structural performance. Limitations for appearance characteristics are established principally to ensure good suitability and utility of the material in covered structural or industrial framing uses.

锯材等级提供的规定标准是用来将从原木加工得来的锯材按照相关的使用范畴进行分类。使用范畴的划分是基于外观、结构性能、二次加工的适宜性，或者综合这几个因素加以考虑。国家规格材分级规则的等级标准主要基于结构性能。对外观缺陷的限制主要是为了保证在用于结构和工业建筑框架时，材料有好的适宜性和实用性。

DIMENSION LUMBER — FOR STRUCTURAL USE
规格材 — 结构用途



Construction/Dimension Lumber Zone	建筑/规格材出材区 (下列等级产自该部位)
NLGA Studs	墙柱等级
NLGA Light Framing	轻型框架等级
NLGA Structural Light Framing	结构轻型框架等级
NLGA Structural Joists & Planks	结构托梁和平铺楼板
NLGA Commons	普通等级
NLGA Boards	板材等级
NLGA Knotty Panelling/Siding (WR Cedar)	有节型墙板/挂板 (西部红柏)
NLGA Knotty Bevel Siding (WR Cedar)	有节型斜面外墙挂板 (西部红柏)
NLGA Patio Decking (WR Cedar)	露台铺板 (西部红柏)

NLGA Para. 121 — Studs
NLGA 121款 — 墙柱

All Species
适用于所有树种

Generally dressed all 4 sides (S4S)
通常四面刨光(S4S)

2" to 4" thick, 2" and wider — for vertical use
厚度2英寸至4英寸，宽度2英寸及更宽 — 供垂直用途

Stud — Lumber graded under Stud rules is intended to be used in a vertical application. Therefore its primary strength is the "compression perpendicular to grain" design value. It must also be able to sustain short term wind loading on edge, and as a result, edge knot sizes are restricted more than centerline knot sizes. The Stud grade rule also takes into account serviceability. In other words, stud lumber is intended to be used as is, with no need for further trimming or reworking. For this reason, stud lumber comes pre-trimmed to the actual length that is required in construction. Stud lumber is full width, allowing very little skip or wane on edge, in order to ensure good connectivity when gypsum wallboard or other sheathing is attached. Similarly it restricts warp to ensure a relatively straight piece. Other than these characteristics, Stud lumber is in many ways very similar in grade to a #3 Structural or Utility grade.

墙柱 — 按照墙柱规则分级的锯材应当垂直使用。因此它的主要强度设计值是“垂直于纹理的压力”。它的边缘必须能够抵抗短暂风力，因此，边缘节疤尺寸比中心节疤尺寸受到更大限制。墙柱等级规则也考虑其使用性。也就是说，墙柱应以出厂状态使用，不需要进一步截齐和再加工。正因为这样，墙柱已加工为建筑所要求的实际长度。墙柱锯材必须达到规定宽度，边缘只允许很少漏刨和钝棱，以保证与石膏墙板或其它封墙材料的连接良好。同样地，它限制弯曲以保证其相对通直。除了这些特性，墙柱级锯材在许多方面与3级结构材或实用级相似。

There are two grades for Studs: Stud and Economy.
墙柱有两个等级：墙柱级和经济级。

NLGA 墙柱 - 2 英寸至 4 英寸厚，2 英寸及更宽　　适用于所有树种

目的：强度

等级 / 缺陷		墙柱材（Stud）			经济墙柱材（Economy Stud）
白斑朽		无限制			无限制
蜂窝朽		紧实，100%			100%
腐朽		最大为横切面的 1/3			最大为横切面的 3/4
轮裂和干裂		非贯通-全长 贯通-最大为 1/3 长度 3 面贯通-最大为 1/3 长度			无限制
漏刨		跳锯 严重漏刨只允许出现在宽面上 窄面上不允许出现严重漏刨			1/4”缺损
纹理斜率		1/4			无限制
劈裂		名义宽度的 2 倍			长度的 1/3
钝棱		1/3 厚度 x 1/2 宽度，或等效 最大 1/2 厚度 x 3/4 宽度 x 2’长度			3/4 宽度、全长，或等效于孔洞 整个表面中，缺损深度 1/4”者不超过 1/2 宽度、1/3 长度
翘曲		1/2 ，中等			无限制
节疤（测量自边缘平行线的间距）	名义宽度	任何质量，边缘节疤	任何质量，中心线节疤	孔洞，每英尺长度 1 个，或较小的等效	任何任何质量的节疤和孔洞，3/4 横切面
	3”	1 1/4”	1 1/4”	1 1/4”	
	4”	1 3/4”	2 1/2”	1 1/2”	
	6”	2 3/4”	3 3/4”	2”	

NLGA Para. 122 — Light Framing — for use on flat
NLGA122款 — 轻型框架 — 供平面使用

All Species
适用于所有树种

Generally dressed on all 4 sides (S4S)
通常四面刨光(S4S)

2" to 4" thick, 2" to 4" wide
厚度2英寸至4英寸，宽度2英寸至4英寸

Light Framing — This rule can only be applied to lumber that is 2" to 4" thick and 2" to 4" inches wide. The most common sizes to be graded under this rule are 2x4 and 4x4.
轻型框架级 — 这一规则只适用于2至4英寸厚和2至4英寸宽的锯材。在此规则下进行分级的最常见尺寸为2x4和4x4。

Lumber graded under light framing rules is intended to be used "on-flat" only, and therefore characteristics such as knots are not limited as to where they occur on the piece.
In other words, the knot size is consistent across the piece, whether a knot occurs near the edge or the centerline of the lumber.
以轻型框架规则分级的锯材只适合“平置”使用，因此，诸如节疤等缺陷在锯材上所处的位置不作限制。也就是说，无论它所处的位置在锯材边缘或锯材中心线，对节疤尺寸的标准是一致的。

- Construction — Not commonly graded out in North America; it is more often included in lumber stamped "Standard & better". It is the highest Light framing grade, and therefore has the best strength attributes of the Light Framing products. Knot sizes are restricted to 43% displacement. Construction does not allow any "through shake" or any form of decay, and unsound and loose knots are more restricted than good quality knots. Wane can occupy 1/4 of edge or face.
  建筑级 — 此等级在北美通常不单独分出，常常被包括在“标准级&以上”("Standard & better")等级中。它是轻型框架中的最高等级，因此具有轻型框架产品等级的最好强度品质。节疤尺寸限于宽度的43%。建筑等级不允许任何“贯通轮裂”或者任何形式腐朽，腐朽节和松动节比质量良好的节疤受到更多的限制。边缘和表面的钝棱可以占到1/4。

- Standard — Lumber of this grade is often stamped as Standard & better when some higher grade material is included. This is the most commonly applied light framing grade. It provided adequate strength properties, while allowing substantial defects. Knot sizes are restricted to 57% displacement. All knot qualities are treated the same (unsound, loose, etc). Shake is permitted to be "through" and a limited amount of decay is allowed (whitespeck, honeycomb). Wane can occupy 1/3 of edge or face.
  标准级 — 当一些更高等级的材料包含其中时，这种等级的锯材经常被盖上标准级及以上(Standard & better)的等级章。这是最常用的轻型框架的等级。它提供了充分的强度性能，同时允许相当数量的缺陷。节疤尺寸限于宽度的57%。所有质量的节疤同等对待(腐朽节、松动节等等)。轮裂可以是“贯通”的，允许一定数量的腐朽(白斑朽、蜂窝朽)。边缘和表面的钝棱可以占到1/3。

- Utility — Limited use in North American construction due to low strength values. Knot sizes are allowed up to 71% displacement. Substantial occurrence of all decays is allowed. Wane can occupy 1/2

of edge or face. It is a much less visually attractive product to view, and is often used in non-structural applications such as formwork, bracing, and wood packaging.

实用级 — 由于其强度值较低，在北美建筑市场用途有限。允许节疤尺寸可达宽度的71%。对各种形式的腐朽有相当程度的允许。边缘和表面的钝棱可以占1/2。该等级外观较差，常用于非结构用途如建筑模板、支撑和木包装等。

- Economy — Lumber graded as Economy is not "stress-rated". In other words there are no published design values, as its strength properties are too low. For this reason Economy lumber is not grade stamped. All defects are allowed in large size, and substantial occurrence. Economy lumber is not used structurally, and is commonly used in wood packaging.

  经济级 — 经济级锯材不是按应力来分级的。也就是说，因为强度特性太低，它没有公布的设计值。正因为如此，经济级锯材没有等级章。允许各种缺陷以较大尺寸和相当多的数量出现。经济等级锯材不作为结构材料使用，通常被用做木包装材料。

NLGA 轻型框架 - 2 英寸至 4 英寸厚，2 英寸至 4 英寸宽　适用于所有树种

目的：强度

缺陷 \ 等级		建筑级（Construction）		标准级（Standard）		实用级（Utiltiy）		经济级（Economy）
评级面		所有 4 个面及 2 端（最严重的缺陷决定等级）						
轮裂和干裂		仅限非贯通，最长 2’		贯通-最长 2’ 非贯通-不超过 3’或全长 1/3（两者之间较大者）		非贯通-全长 贯通，数个-最大为 1/3 长度 3 面贯通-最大为 1/6 长度		无限制
漏刨（仅限于四面刨光材）		跳刨，1/16”深 x 4’长		漏刨，1/16”深 、全长或 严重漏刨，1/8”深 x 2’		严重漏刨，1/8”深 、全长（一面或一边，不可兼有）		1/4”缺损 、全长（可在厚度和宽度上）
劈裂		短，锯材宽度		1.5 倍宽度		1/6 长度		1/3 长度
纹理斜率		1/6		1/4		1/4		无限制
钝棱		平均 1/4 厚度 x 1/4 宽度、全长，最大 1/2 厚度 x 1/3 宽度		平均 1/3 厚度 x 1/3 宽度、全长，最大 2/3 厚度 x 1/2 宽度		平均 1/2 厚度 x 1/2 宽度、全长，最大 7/8 厚度 x 3/4 宽度		3/4 宽度、全长，或 整个表面中，缺损深度 1/4”者不超过 1/2 宽度、1/3 长度
白斑朽		无		1/3 体积		100%		100%
腐朽		无		最大面积，1/12 实际宽度、2”长或 等效较小斑块		最大 1/3 横切面		最大 3/4 横切面
节疤（测量自边缘平行线的间距）	名义宽度	紧密固定	腐朽/松动/孔洞	任何质量	孔洞	任何质量	孔洞	最大 3/4 横切面
	3”	1 1/4”	3/4”	1 1/2”	1”	2”	1 1/4”	
	4”	1 1/2”	1”	2”	1 1/4”	2 1/2”	1 1/2”	
		1 个孔洞/3’长度或等效		1 个孔洞/2’长度或等效		1 个孔洞/1’长度或等效		

(Structural Lumber — for use on edge)
(结构材 — 边立使用)

All Species
适用于所有树种

Generally dressed all 4 sides (S4S)
通常四面刨光(S4S)

2" to 4" thick (Structural Light Framing/Structural Joists & Planks)
厚度2英寸至4英寸(结构轻型框架和结构托梁及平铺楼板)

2" to 4" wide (Structural Light Framing only)
宽度2英寸至4英寸(仅为结构轻型框架)

5" & wider (Structural Joists & Planks)
5英寸及更宽(结构托梁及平铺楼板)

Structural Light Framing & Joists and Planks — Products graded under these rules are intended for use on edge. For this reason, defects (edge knots, shake thru edge etc), which occur on or near the edge of the wide face are more restricted than defects that occur near the center of the wide face.
结构轻型框架和结构托梁及平铺楼板 — 在这些规则下分级的产品应当边立使用。正因为如此，出现在宽面边缘或接近边缘的缺陷(边缘节疤，贯通边缘的轮裂等等)比出现在宽面中心的缺陷受到更多的限制。

Select Structural — Highest North American dimension lumber grade commonly used. Edge knots are restricted to approximately 20% displacement. This grade will also have the highest appearance characteristics of the NLGA structural lumber grades. It is the only NLGA structural grade which restricts heart stain. Select Structural does not allow "through shake" or any form of decay. Unsound and loose knots are more restricted than good quality knots. Wane can occupy 1/4 of edge or face.
优选结构级 — 是最常用的北美规格材中的最高等级。边缘节疤限于大约20%的宽度。这一等级也拥有所有NLGA结构材等级的最高外观特征。它是唯一限制心材变色这一缺陷的NLGA结构等级锯材。优选结构级不允许“贯通轮裂” 或任何形式的腐朽。腐朽节和松动节比良好质量的节疤受到更多的限制。允许钝棱占边缘和表面的1/4。

No. 1 Structural — Similar in many respects to Select Structural, but does allow slightly larger edge knots at approximately 25% displacement. Like Select Structural it does not allow any "through shake" or any form of decay, and unsound and loose knots are more restricted than good quality knots. Wane can occupy 1/4 of edge or face.
结构一级 — 在许多方面与优选结构级相似，但是允许稍大的边缘节疤，最大可达宽度的25%。像优选结构级一样，它不允许任何“贯通轮裂”或任何形式的腐朽。腐朽节和松动节比良好质量的节疤受到更多的限制。允许钝棱占边缘和表面的1/4。

No. 2 Structural — The most commonly produced and used structural lumber grade in North America. Retains good strength properties while allowing more defects. Edge knot allowance is approximately

33% displacement. All knot qualities are treated the same (unsound, loose, etc). Shake is permitted to be "through" and a limited amount of decay is allowed (whitespeck, honeycomb). Wane can occupy 1/3 of edge or face.

结构二级 — 在北美生产和使用最多的规格材。保留良好强度性能的同时允许更多的缺陷。边缘节疤占宽度的许可程度可以达到大约33%。所有质量的节疤同样对待(腐朽节、松动节等等)。轮裂可以是“贯通”的，可以允许有限的腐朽(白斑朽、蜂窝朽)。允许钝棱占边缘和表面的1/3。

No. 3 Structural — Limited use in North American construction due to low strength values. Edge knots allowed up to 50% displacement. Substantial occurrence of all decays is allowed. Wane can occupy 1/2 of edge or face. It is a much less visually attractive product to view.

结构三级 — 由于其强度值较低，在北美建筑行业的使用受到限制。边缘节疤最大可以达到宽度的50%。允许相当数量的各种形式的腐朽。允许钝棱占边缘和表面的1/2。该等级外观较差。

There are four grades of Structural Light Framing and Structural Joists and Planks. Select Structural, #1, #2 and #3. All of these grades are stress rated.

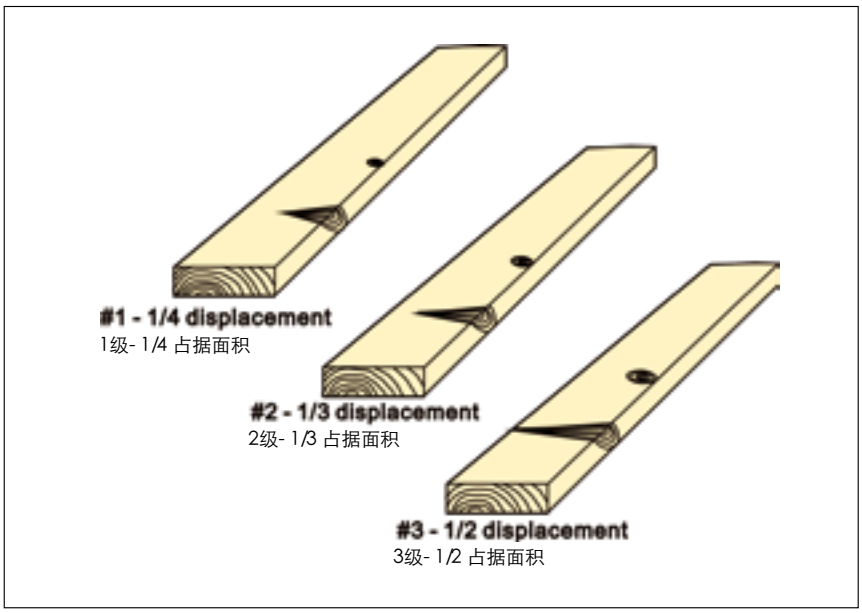
结构轻型框架和结构托梁及平铺楼板类型分为四个等级，分别为优选结构级、结构一级、结构二级和结构三级。所有这些等级都是按应力分级的。

NLGA 结构托梁及平铺楼板轻型框架 - 2 英寸至 4 英寸厚，5 英寸及更宽　　适用于所有树种

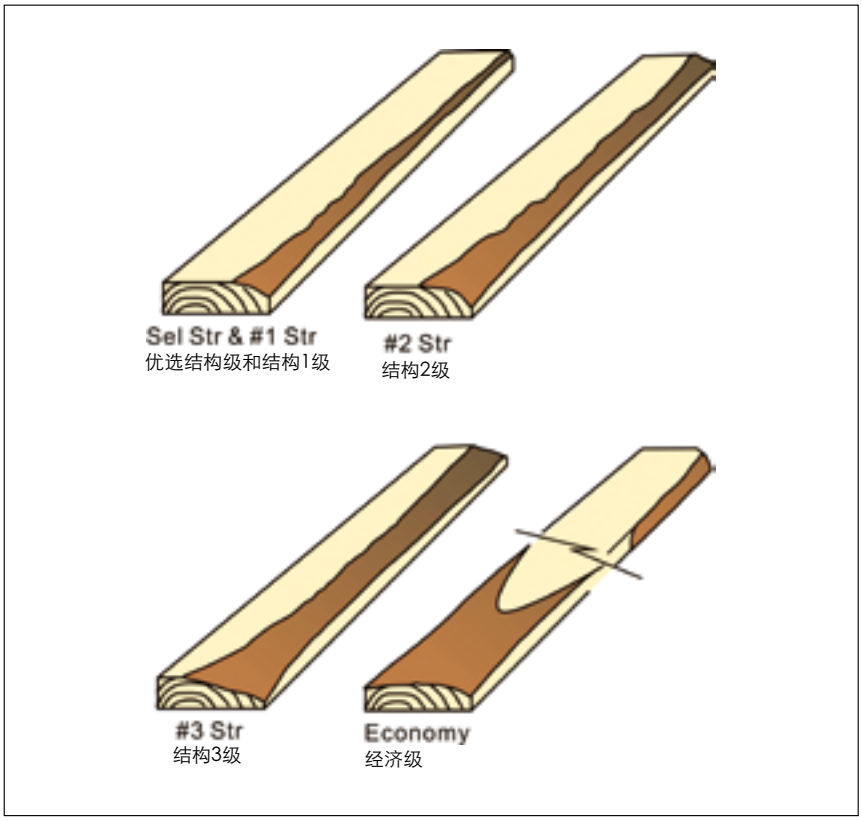
目的：强度

缺陷 \ 等级		优选结构级（Select Structural）			结构 1 级（#1 Structural）			结构 2 级（#2 Structural）			结构 3 级（#3 Structural）			经济级（Economy）
评级面		所有 4 个面及 2 端（最严重的缺陷决定等级）												
轮裂和干裂		仅限非贯通，最长 2’			仅限非贯通，最长2’			非贯通-不超过 3’或全长 1/4（两者之间较大者）贯通-最长 2’			非贯通-全长贯通，数个-最大为 1/3 长度 3 面贯通-最大为 1/6 长度			无限制
漏刨（仅限于四面刨光材）		跳刨			跳刨			漏刨，或严重漏刨，1/8”深 x 2’			严重漏刨，1/8”深 、全长（一面或一边，不可兼有）			1/4”缺损
劈裂		短，锯材宽度			短，锯材宽度			1.5 倍宽度			1/6 长度			1/3 长度
纹理斜率		1/12			1/10			1/8			1/4			无限制
钝棱		平均 1/4 厚度 x ¼宽度、全长，最大 1/2 厚度 x 1/3 宽度			平均 1/4 厚度 x ¼宽度、全长，最大 1/2 厚度 x 1/3 宽度			平均 1/3 厚度 x 1/3 宽度、全长，最大 2/3 厚度 x 1/2 宽度			平均 1/2 厚度 x 1/2 宽度、全长，最大 7/8 厚度 x 3/4 宽度			¾宽度、全长，或整个表面中，缺损深度 1/4”者不超过 1/2 宽度、1/3 长度
白斑朽		无			无			1/3 体积			100%			100%
腐朽		无			无			最多一块，1/12 宽度、2”长或等效较小斑块(仅2”板材)			最大 1/3 横切面			最大 3/4 横切面
节疤	名义宽度	紧密固定边缘	紧密固定中心	腐朽/松动/孔洞	紧密固定边缘	紧密固定中心	腐朽/松动/孔洞	任何质量边缘	任何质量中心	孔洞	任何质量，边缘	任何质量，中心	孔洞	节疤或孔洞 3/4 横切面
	4”	3/4 ”	7/8 ”	3/4 ”	1”	1 1/2”	1”	1 1/4”	2”	1 1/4”	1 3/4”	2 1/2”	1 3/4”	
	6”	1 1/8”	1 7/8”	1”	1 1/2”	2 1/4”	1 1/4”	1 7/8”	2 7/8”	1 1/2”	2 3/4”	2 3/4”	2”	
	8”	1 1/2”	2 1/4”	1 1/4”	2”	2 3/4”	1 1/2”	2 1/2 ”	3 1/2”	2”	3 1/2”	4 1/2”	2 1/2”	
	10”	1 7/8”	2 5/8”	1 1/4”	2 1/2”	3 1/4”	1 1/2”	3 1/4”	4 1/4”	2 1/2”	4 1/2”	5 1/2”	3”	
		1 个孔洞 /4’ 长度或等效			1 个孔洞 /3’ 长度或等效			1 个孔洞 /2’ 长度或等效			1 个孔洞 /1’ 长度或等效			

Maximum K not Sizein Joists and Planks
托梁及平铺楼板的最大节疤尺寸



Maximum K not Sizein Joists and Planks
托梁及平铺楼板的钝棱



BOARDS — NOMINAL 1" THICK LUMBER
板材 — 名义厚度为1英寸的锯材

NLGA Para. 113 — Commons (Appearance Grade Boards)
NLGA 113款 — 普通级(外观分级板材)

All Species
适用于所有树种

Rough or Surfaced
毛面或刨光面

All Widths, All Thicknesses
适用于所有宽度、所有厚度

Boards — In North American lumber grading the term "board" refers to lumber under 1" thick. Board lumber is non-structural.
板材 — 在北美锯材分级中“板材”指的是厚度低于1英寸的锯材。板材为非结构性等级。

The five Common grades are #1 Common, #2 Common, #3 Common, #4 Common and #5 Common; #1 Common is generally not selected, #2 Common & Better is commonly the top grade.
五种普通级为普通一级、普通二级、普通三级、普通四级和普通五级。普通一级通常不单独挑出，所以普通二级及以上通常是最高等级。

Certain characteristics found in Board lumber are difficult to evaluate to an exact degree because of the nature of the portion of the log from which Boards are produced. Some limiting characteristics must be evaluated by applying sound judgment and all characteristics must be considered in determining the grade. Any piece judged to contain a serious combination of the listed characteristics even though some of the characteristics may not be limiting by themselves, is excluded from the grade. Likewise, an otherwise 'high line' piece may be placed in a grade even though one or two of its characteristics may slightly exceed the limitation described in the rules. Such pieces will be of exceptional quality otherwise and might grade one or more grades higher, except for such characteristics. Therefore, each individual piece is considered in its entirety in determining the grade.
由于板材是从原木特定部位生产出来的，原木部位的的一些特征使得对板材的某些缺陷作出明确的评估比较困难。在评定等级时，一些限制性的缺陷必须得到认真的分析判断、而且是对所有的缺陷综合考虑后才能确定等级。当评估某块板材时，如果它的缺陷组合很严重，即使其中单个缺陷没有达到极限，这块锯材也会被从该等级中剔除。同样，一块“高档”的板材，也许它含有一至两项稍微超过某一等级规则的缺陷，它也可以被划分为该等级。此类板材除了这些缺陷外，在其它方面质量卓越，可能被划分为高一个至多个等级。因此，在决定等级时，要考虑每块木板的整体性。

When characteristics are listed as applying to a specific size piece (such as 1" x 8" x 12') the number and extent of the same characteristics in larger and smaller pieces may vary in proportion to the size of the piece.
允许的缺陷是按照特定的尺寸拟定的(例如1英寸x8英寸x12英尺)，在较大和较小板材上，同样的缺陷，其数量和程度将根据板材的尺寸按比例变化。

NLGA 113 款 – 板材　　适用于所有树种

目的：外观

等级 / 缺陷		普通 2 级（#2 Common）			普通 3 级（#3 Common）				普通 4 级（#4 Common）			普通 5 级（#5 Common）
评级面		最好面，反面可低一个等级（除非有明确规定），两个边作为背面的一部分										
		等级规定以 1”厚 x 8”宽 x 2’长的板材为准(基本尺寸)										
变色		中等			中等到严重				严重			无限制
树脂/皮囊		3，小，干			中等				大			无限制
劈裂		短			1/6 长度				1/3 长度			1/2 长度
轮裂		轻，1/6 长度			轻到中等，散布，全长				严重			无限制
漏刨（仅限于四面刨光材）		表面-无 背面-中等，1/4 长度 边-中等，1/3 长度			表面-中等漏刨 背面-跳刨 边-中等，全长				表面-跳刨 边-1/8”窄，全长			厚度 1/8”缺损 、全长 宽度 1/2”缺损 、全长上
钝棱		表面无，背面 1/2 厚度 x 1/6 宽度 x 1/3 长度，或等效			表面无，背面 2/3 厚度 x 1/4 宽度 x 1/2 长度，或等效				表面 1/2 厚度 x 1/8 宽度 x 1/6 长度，背面严重			严重
撕破纹理		轻（1/32”）			中等（1/16”）				严重（1/8”）			无限制
节疤（测量自边缘平行线的间距）	名义尺寸	健全固定节，红色	健全固定节，黑色	固着节	健全固定节，红色	黑节**	固着节**	腐朽/松动/孔洞*	紧密固定节	松动节**	孔洞**	任何质量节疤或孔洞 3/4 横切面
	4”	1 1/4”	1 1/4”	1 1/4”	1 1/4”	1 1/4”	1 1/4”	1 1/4”	1 1/4”	1 1/4”	1 1/4”	
	6”	1 1/2”	1 1/2”	1 1/2”	1 1/2”	1 1/2”	1 1/2”	1 1/2”	1 1/2”	1 1/2”	1 1/2”	
	8”	1 1/4”	1 1/4”	1 1/4”	1 1/4”	1 1/4”	1 1/4”	1 1/4”	1 1/4”	1 1/4”	1 1/4”	
	10”	1 1/4”	1 1/4”	1 1/4”	1 1/4”	1 1/4”	1 1/4”	1 1/4”	1 1/4”	1 1/4”	1 1/4”	
	12”	1 1/2”	1 1/2”	1 1/2”	1 1/2”	1 1/2”	1 1/2”	1 1/2”	1 1/2”	1 1/2”	1 1/2”	
					*每片 1 个；或等效 2 个小尺寸（如果分布良好）；**每 12’长度 2 个				**每 12’长度 3 个；或等效小尺寸			

NLGA Para. 114 — Boards (Sheathing and Form Lumber)
NLGA 114款 — 板材(外墙封板和模板锯材)

Rough or Surfaced
毛面或刨光面

Shiplapped or Tongued & Grooved
上下平搭口或企口

Under 2" in Thickness and 2" & wider
厚度2英寸以下，宽度2英寸及以上

Boards are graded from the face or better side. The reverse side may have characteristics approximately one grade lower than the face.
板材依据正面或较好一面进行分级。另外一面的缺陷大约比正面低一个等级。

Boards graded under NLGA paragraph 114, are intended for bracing, fencing, or formwork applications. These boards are graded with primary consideration given to serviceability in their intended application. Para 114 boards are not graded to be visually attracted.
按照NLGA114款分级的板材，目的是用于支撑、栅栏和建筑模板。这些板材分级的主要考虑因素在于它们在特定用途范围内是否耐用。114款的板材不是按照外观进行分级的。

There are five grades of Boards: "Select Merchantable", "Construction", "Standard", "Utility" and "Economy".
板材有五个等级：“优选商业级”、“建筑级”、“标准级”、“实用级”和“经济级”。

NLGA114 款 板材　　适用于所有树种

目的：建筑，封板或模板

缺陷 \ 等级		优选商品级（Select Merch）			建筑级（Construction）			标准级（Standard）			实用级（Utility）			经济级（Economy）
评级面		最好面，反面可低一个等级（除非有明确规定），两个边作为背面的一部分												
劈裂		短，锯材宽度			短			1/6 长度			1/4 长度			1/3 长度
轮裂		无			无			短-紧，贯通，全长 1/4			不严重，松，开口，全长			不严重，只要锯材能不散开，任何数量
白斑朽		无			无			1/3 面积			100%			100%
蜂窝朽		无			无			*表面不允许，仅允许出现在背面			紧实，100%			100%
腐朽		无			无			*表面不允许，仅允许出现在背面			数个小斑			3/4 横切面
钝棱		无			1/8 宽度、全长，或等效；最大 1/2 厚度			1/6 宽度、全长，或等效；正面最大 1/2 厚度，反面最大 3/4 厚度			1/4 宽度、全长，或等效；如为非透过，可大于 3/4 厚度，全长			1/2 宽度、全长，或等效；如横跨表面，等效于漏刨；如透过，等效于孔洞
节疤 1.找出最大节疤 2.测量平均直径 3.评价节疤质量 4.确定等级	名义宽度	健全固定节	松动节	孔洞	紧密固定节	松动节	孔洞*	紧密固定节	松动节	孔洞*	紧密固定节	松动节	孔洞	3/4 横切面
	3”	1 1/4”	-	-	1 1/4”	5/8”	5/8”	1 1/2”	1”	1”	2”	1 1/4”	1 1/4”	
	4”	1 1/2”	-	-	1 3/4”	7/8”	7/8”	2 1/2”	1 1/4”	1 1/4”	3”	1 1/2”	1 1/2”	
	6”	2”	-	-	2”	1”	1”	3”	1 1/2”	1 1/2”	3 1/2”	2”	2”	
	8”	2 1/2”	-	-	2 1/2”	1 1/4”	1 1/4”	3 1/2”	1 3/4”	1 3/4”	2/3 W	2 1/2”	2 1/2”	
	10”	3”	-	-	3”	1 1/2”	1 1/4”	4”	2”	2”	2/3 W	3”	3”	
	12”	3 1/2”	-	-	3 1/2”	1 3/4”	1 1/4”	4 1/2”	2 1/2”	2 1/2”	2/3 W	3 1/2”	3 1/2”	
		1 边缘节疤 / 12’			2 个孔洞 / 12’ 长度或等效小尺寸孔洞			2 个孔洞 / 12’ 长度或等效小尺寸孔洞			1 个孔洞 / 1’ 长度，或等效小尺寸孔洞			

NLGA Para 200 — Finish, Panelling, Ceiling and Drop Siding, K.D.
NLGA 200款 — 饰面板、内墙板、天花板和外墙板，窑干

Western Red Cedar
西部红柏

2" & Thinner, 2" & Wider
厚度2英寸及以下，宽度2英寸及以上

Western Red Cedar Finish is customarily shipped kiln dried and surfaced four sides.
西部红柏饰面板通常窑干和四面刨光后出售。

Grade descriptions for Finish and Panelling are based on a piece 8" wide and 12' long. Grade descriptions for Ceiling and Drop Siding are based on a piece 4" wide and 12' long. The number of characteristics in larger or smaller pieces may vary in proportion to the size of the piece.
饰面板和内墙板的等级描述是基于8英寸宽和12英尺长的规格。天花板和外墙板的等级描述是基于4英寸宽和12英尺长的规格。对于较大或较小的锯材，其允许的缺陷数量按比例变化。

Pieces of Finish 5" and narrower are graded from the best face and both edges. Pieces 6" and wider are graded from the best face and one edge.
饰面板中，宽度5英寸及以下的木板以最好一面和两边来分级。宽度6英寸及以上的以最好一面和一边来分级。

Pieces of Panelling, Drop Siding and Ceiling run to pattern may be partially surfaced or hollow or scratched back.
已制成型材的内墙板、外墙板和天花板，其背面可以是半刨光、中空或沟槽型的。

"Saw Texture" is available in all grades of Western Red Cedar and, as the name implies, is a rough finish put on the face of a piece to give it a textured finish. Material supplied with this finish shall in all ways adhere to the grades, sizes and patterns as specified, except that it shall be graded from the textured face.
锯纹理 — 所有西部红柏的等级都可以这一表面加工方式供货。正如其名称所标明的，这类产品的表面是毛面，以使它具有特殊质地的外观。以这种外观供货的产品，除了是根据锯纹理面进行分级外，它仍然必须符合所指定的等级、尺寸和式样要求。

There are three grades of Western Red Cedar Finish, Panelling and Ceiling: Clear Heart, A and B.
西部红柏饰面板、内墙板和天花板有三个等级：无缺陷心材，A级和B级。

If F.G. or V.G. only is desired, it must be so specified.
如果仅需要平纹或直纹，必须特别指明。

清材（无缺陷材）饰面板　　适用于西部红柏

基本尺寸：8 英寸宽 x 12 英尺长（96 个表面单位）　　目的：外观

缺陷 \ 等级	全心材清材（Clear Heart） 适用于西部红柏		A 级（A） 适用于西部红柏	B 级（B） 适用于西部红柏	
评级面	5”及更窄，最好面+2 边；6”及更宽，最好面+1 边；反面可低一个等级（所有宽度）				
边材	无		无限制；如有变色，仅限中等	无限制，有变色亦不限	
节疤	无		*3，健全坚固，最大 3/4”	正面，4 固着节，最大 1”	反面：5 固着节，最大 1 1/4”
*表示一种或其它等效缺陷			*如果集中分布，而且表面的其它区域较佳，允许在集中区的数量多 25%		
干燥裂缝 仅适用于窑干 S2S 锯材	无		每基本尺寸 4 个	无限制	无限制
孔洞	无		无	正面：1，1/4”	反面：2，1/2”
撕破纹理	很轻		轻度	无限制	
漏刨	正面：无	反面：很轻	偶尔，边及反面，轻度	跳锯（深度小于 1/16”）	
钝棱	无		无	1/8 宽 x 1/4 长或等效面积	
废料	无		无	3”，距端头 3’以上，整片长度 12’以上	

清材内墙板　　适用于西部红柏

基本尺寸：8 英寸宽 x 12 英尺长（96 个表面单位）　　目的：外观

等级 / 缺陷	全心材清材（Clear Heart） 适用于西部红柏	A 级（A） 适用于西部红柏	B 级（B） 适用于西部红柏
评级面	正面或造型面；只要不影响使用，反面可含任何缺陷		
边材	无	无限制；如有变色，仅限中等	无限制，有变色亦不限
节疤	无	*3，健全坚固，最大 3/4”	正面，4 固着节，最大 1”
*表示一种或其它等效缺陷		*如果集中分布，而且表面的其它区域较佳，允许在集中区的数量多 25%	
干燥裂缝 仅适用于窑干 S2S 锯材	无	每基本尺寸 4 个	无限制
孔洞	无	无	正面：1，1/4”
撕破纹理	很轻，1/64”深	轻度，1/32”深，有刮手的感觉	无限制
漏刨	无	无	跳锯（深度小于 1/16”）
钝棱	无	无	1/8 宽 x 1/4 长或等效面积
废料	无	无	3”，距端头 3’以上，整片长度 12’以上

清材天花板　　适用于西部红柏

基本尺寸：4 英寸宽 x 12 英尺长（48 个表面单位）　　目的：外观

等级 / 缺陷	全心材清材（Clear Heart） 适用于西部红柏	A 级（A） 适用于西部红柏	B 级（B） 适用于西部红柏
评级面	正面或造型面；只要不影响使用，反面可含任何缺陷		
边材	无	无限制；如有变色，仅限中等	无限制，有变色亦不限
节疤	无	*3，健全坚固，最大 3/4”	正面，4 固着节，最大 1”
*表示一种或其它等效缺陷	*如果集中分布，而且表面的其它区域较佳，允许在集中区的数量多 25%		
干燥裂缝 仅适用于窑干 S2S 锯材	无	每基本尺寸 4 个	无限制
孔洞	无	无	正面：1，1/4”
撕破纹理	很轻，1/64”深	轻度，1/32”深，有刮手的感觉	无限制
漏刨	无	无	跳锯（深度小于 1/16”）
钝棱	无	无	1/8 宽 x 1/4 长或等效面积
废料	无	无	3”，距端头 3’以上，整片长度 12’以上

Western Red Cedar
西部红柏

Industrial Clears — This is the NLGA grade rule for clear appearance lumber. Industrial Clears are often selected from a dimension lumber run, and as a result often come in standard dimension lumber sizes (2x4, 2x6 etc) and finish (surfaced all 4 sides). The top grade of Industrial clear is B & Btr which allows no knots on the best face. The back of a B & Btr piece and all other grades allow some small knots and/or other minor defects.
工业清材 — 这是NLGA关于无缺陷外观锯材的等级规则。工业清材通常选自批量生产的规格锯材产品，因此通常是标准规格锯材尺寸(2x4，2x6等等)和饰面板(所有四面均刨光)。工业清材的最高级别是B级及以上(B&Btr)，其最好面不允许节疤。B级及以上(B&Btr)的背面及所有其它等级允许一些小节疤和／或其它次要缺陷。

Grades
等级

There are three grades of Industrial Clears: "B and Btr (Better)", "C" and "D".
工业清材有三个等级：B级及以上(B and Btr)，C级和D级。

Grade descriptions are based on a piece of 8" wide and 12' long.
等级描述是基于8英寸宽和12英尺长的锯材。

Basic Size
基本尺寸

The number and size of characteristics permitted in the grades of Clear Lumber are based on a specific sized piece of lumber - a piece of lumber that is 8" wide by 12' long. This is known as the basic size. This means, larger pieces of lumber will allow more characteristics and smaller pieces will permit fewer. For example, a piece of lumber that is 4" wide x 12' long would be 1/2 the basic size and as such, would permit only half the allowed characteristics.
清材等级的可允许缺陷的数量和尺寸是根据一块8英寸宽和12英尺长的特定尺寸的锯材为基础的。这就是所谓的基本尺寸。这意味着，较大尺寸的锯材将允许更多的缺陷，而较小的锯材允许较少的缺陷。例如，一块4英寸宽和12英尺长的锯材为基本尺寸的1/2，因此，因此只允许一半数量的缺陷。

Basic size is expressed in surface units. Surface units are calculated by multiplying the width (in inches) by the length (in feet). Therefore, a basic sized piece of lumber equals 8 x 12 or 96 surface units.
基本尺寸以表面单位表示。表面单位是将宽(英寸)乘以长(英尺)算出。因此，一个基本尺寸锯材等于8 x 12或者96个表面单位。

The surface units in a piece of lumber then determined the number of characteristics permitted. The number of characteristics permitted in a particular piece is calculated as follows:
因此，某块锯材的表面单位数决定其所允许的缺陷数量。某一锯材所允许的缺陷数量按以下方法算出：

Size of the piece (in surface units) *divided by*
锯材的尺寸(表面单位) *除以*

Basic Size (in surface units) - 96 surface units *multiplied by*
基本尺寸(表面单位)- 96表面单位 *乘以*

Number of characteristics allowed in Basic Size
基本尺寸所允许的缺陷数量

Example:
示例:

Piece of lumber if 4" x 12', 4 characteristics permitted in Basic Size
4英寸 x 12英尺的一块锯材，基本尺寸中允许4个缺陷

48 / 96 x 4 characteristics = 2 characteristics permitted for the piece
48 / 96 x 4 = 2 - 即此块锯材中所允许的缺陷数量

NLGA 工业清材（无缺陷材）- 2 英寸及更薄　　适用于西部红柏

基本尺寸：8 英寸宽 x12 英尺长（96 个表面单位）　　目的：外观

等级 / 缺陷	B 级及以上级清材（B & Btr） 适用于西部红柏	C 级清材（C Clear） 适用于西部红柏	D 级清材（D Clear） 适用于西部红柏
评级面	5”及更窄，最好面+2 边；6”及更宽，最好面+1 边；反面可低一个等级（所有宽度）		
边材变色	无	中等，总片数的 25%	无限制
缺陷	与基本尺寸直接有关	与基本尺寸直接有关	与基本尺寸直接有关
节疤	仅可出现在反面，*3，3/4”，健全固定节	*3，1”，健全坚固节；如为松动节/腐朽节，4，1/2”	正面：8，最大 1” 反面：10，最大 1 1/4”
针孔虫眼	3/基本尺寸*	8/基本尺寸*	正面：30/平方英尺 反面：38/平方英尺
树脂斑	1，小，或等效	1，小，或等效	中等
*表示一个或另一个或等效缺陷			
干燥裂缝	4/基本尺寸	4/基本尺寸	无限制 无限制
撕破纹理	很轻	轻度	无限制
漏刨	无	正面：1，非常轻微 反面：轻度	跳锯（数个，深度小于 1/16”）
钝棱	无	无	1/8 宽 x 1/4 长或等效面积
孔洞	无	无	正面：1，1/4” 反面：2，1/2”
废料	无	3”，距端头 3’以上，整片长度 12’以上	3”，距端头 3’以上，整片长度 12’以上

NLGA Para 204 — Tight Knotted Stock Rough or Dressed Knotty Panelling and Siding
NLGA204款 — 紧节型材料、毛面或刨光面、有节型内墙板和外墙板

1" & Thicker, 4" & Wider
厚度1英寸及以上，宽度4英寸及以上

Cedar Panelling is intended to be used as a visually pleasing interior wall finish. It is produced in a smooth finish or a rough finish for rustic appearance.
西部红柏内墙板被用于力求视觉美观的内墙表面装修。它被生产成光滑表面、或粗糙表面以求具有乡村情调的外观。

Knot quality is important, with sound & tight knots only allowed in the top grade & only an occasional unsound or NFF knot allowed in the second grade.
节疤质量非常重要，在最高等级中仅允许健全的紧节，在二级中允许少量腐朽节或松动节。

There are two grades of Tight Knotted Stock: Select Knotty and Quality Knotty.
紧节型材料有两个等级：优选有节型和优质有节型。

固定节材料，有节型内墙板
毛面或刨光面

适用于西部红柏

目的：外观

等级	优选级（Select）	优质级（Quality）
评级面	最好面或造型面；只要不影响使用，反面可含任何缺陷	最好面或造型面；只要不影响使用，反面可含任何缺陷
干裂	1/32” X 4”，仅限表面干裂	最大单个长度，15”，贯通
节疤（平均直径）	健全固定节，星裂，可轻度缺损至 1/8”深度	健全固定节，星裂，可轻度缺损至 1/4”深度；1”松动节或腐朽节，每 12”长度 2 个，或等效
条状节	约 1/2 实际宽度	等效
轮裂	无限制	等效与干裂
漏刨	背面，轻微	轻微
劈裂	材料宽度	材料宽度
撕破纹理	轻度	中等
废料	无限制	3”，距端头 3’以上，整片长度 12’以上

NLGA Para. 205 — Knotty Bevel Siding
NLGA205款 — 有节斜坡型外墙板

Knotty Bevel Siding is designed to be an attractive and weather-proof exterior siding, where the presence of knots is desirable.
有节斜坡型外墙板被设计用于美观的、防气候侵蚀的外墙挂板，在这种用途下，节疤是受欢迎的。

Knots and other natural markings shall form the major characteristics of these grades. Imperfections will be permitted if they are covered when the bevel siding is laid.
节疤和其它自然痕迹是这些等级中的主要特征。只要在安装时可以被掩盖，缺陷是允许的。

There are two grades of Knotty Bevel Siding: Select Knotty and Qudity Knotty.
有节斜坡型外墙板有两个等级：优选有节型和优质有节型。

有节型斜坡型外墙板　　适用于西部红柏

目的：外观

等级	优选级（Select）	优质级（Quality）
评级面	最好面或造型面；只要不影响使用，反面可含任何缺陷	最好面或造型面；只要不影响使用，反面可含任何缺陷
干裂	仅限表面干裂	无限制
节孔	无	小，1/4”，每英尺长度内 1 个，可集中分布于某一区域
节疤（平均直径）	健全固定节，6”宽材料允许2”节疤，12”宽材料允许3 1/2”节疤，可星裂，可轻度缺损至 1/8”深度	健全固定节，星裂，可轻度缺损至 1/4”深度
条状节	约 1/2 实际宽度，以边缘平行线测量	无限制
针孔虫眼	无	*每平方英尺 15 个（最差区域每平方英尺 19 个）
	*如果集中分布，而且表面的总量不超标，允许在集中区的数量多 25%	
轮裂	无	紧密，贯通
边材变色	无	无限制
劈裂	材料宽度	材料宽度
锯割偏差	1/16”厚度	1/16”厚度
撕破纹理	仅针对已刨光材料，中等 1/16”深	仅针对已刨光材料，严重 1/8”深
翘曲	轻度	中等
废料	无	长度的 10%，最短锯块 30” 6’-9’，1 块 10’-16’，2 块 16’以上，3 块

NLGA Para. 126 — Patio Decking (for flatwise load applications)
NLGA126款 — 露台板(应用于水平受力场合)

Rough or Surfaced
毛面或刨光面

5/4" to 2" thicknesses, 4" & wider
厚度5/4英寸至 2英寸，宽度4英寸及以上

Manufactured to provide a desirable outdoor floor surface. It is designed to be visually pleasing, structurally sound, and provide a smooth walking surface.
生产用来提供理想的户外地板。它的设计要求是美观、结构牢固，同时提供光滑的步行表面。

When grading decking the emphasis is placed on having one good face, the poorer face can be oriented down (out of sight when in use).
在评定露台板等级时，重点是考虑锯材较好的一面，较差一面可以面朝下放置(使用中不可见)。

Knot quality (sound vs. unsound) often determines the grade.
节疤质量(健全节或腐朽节)通常决定等级。

NLGA 室外露台板　　适用于西部红柏

目的：强度及外观

等级	优选级（Select）		商业级（Commercial）	
评级面	最好面，除非另行标明；反面可低一个等级，两个边视为背面		最好面，除非另行标明；反面可低一个等级，两个边视为背面	
干裂	1/16” X 10”长		无限制	
树脂/皮囊	中等，1/16” X 12”长，或等效		大，面积不超过 4 平方英寸	
轮裂	无		紧密，贯通	
漏刨	正面：小于 1/64” X 12”长，每 12’一个 反面/边：小于 1/32” X 12”长		正面：小于 1/32” X 12”长，每 12’两个 反面：跳锯，小于 1/32” 边：小于 1/16” X 2”长	
劈裂	材料宽度		材料宽度的两倍	
钝棱	限出现在反面，1/2 厚度 X1/3 长度，全长		限出现在反面，1/2 厚度 X1/3 长度，全长；或等效	
袋状朽	限出现在反面，1/6 宽度		限出现在反面，1/3 宽度	
腐朽	无		无	
节疤	健全固定节	腐朽节/松动节/孔洞	健全固定节	腐朽节/松动节/孔洞
4”	1 1/2”	无	2”*	3/4”
6”	2 1/2”	无	3”*	1 1/4”
8”	3”	无	3 1/2”*	1 1/2”
12”	3 1/2”	无	3”*	1 3/4”
			在背面可大 25%	孔洞，每 12’一个或等效

PLIB - R List Para 401 — Clears (Western Red Cedar)
PLIB - R 目录 401款 — 清材(西部红柏)

Rough Green (generally)
毛面湿材(一般)

Under 3" thick
厚度小于3英寸

R-List Clears — Is the most common clear appearance grade exported from the Pacific Coastal region of North America. It typically is produced and sold as in a rough (not planed) and green (not dried) form. The R-list rule for Cedar is slightly different from that for the other coastal species. Even the top grade of #2 clear in Cedar, allows a few small knots. The best face of a #2 clear for the other species does not allow any knots.

R-目录清材 — 是从北美太平洋沿海地区出口的最常见的外观等级。通常以毛面(不刨光)、湿材(不干燥)的形式被生产和出售。R-目录对西部红柏的分级规则与其它沿海树种稍有不同。即使是最高等级的二级清材中，西部红柏也允许少量小节疤。其它树种的二级清材的最好一面不允许有任何节疤。

R-目录毛面潮湿清材（无缺陷材）- 厚度 3 英寸以下　　适用于西部红柏

基本尺寸：8 英寸宽 x12 英尺长（96 个表面单位）　　目的：外观

等级 / 缺陷	2 级清材及以上级（#2 Clear & Btr） 适用于西部红柏，包括 15%规则		4 级清材（#4 Clear） 适用于所有树种，包括西部红柏	
评级面	最好面+两个 1/2 相邻边		最好面+两个 1/2 相邻边	
允许缺陷数（未标明时）	正面：4	反面：4	正面：所有列出的缺陷均可在同一基本尺寸中出现，最大数量和尺寸	*反面：允许缺陷尺寸和数量比正面高 25%（仅限 4 级清材）
生长率（最好端）	平均每英寸 6 个年轮		无限制	
树脂/皮囊（每基本尺寸）	正面：3	反面：4	正面：5，小	反面：5，中等
节疤 （平均直径/每基本尺寸）	正面：4，健全固定节，最大 1/2”；如为松软节，最大 1/4”	反面：4，健全固定节，最大 3/4”；如为松软节，最大 3/8”	正面：4，任何质量节疤，最大 1”	反面：5，任何质量节疤，最大 1 1/4”
针孔虫眼，基于每平方英尺 每平方英尺=144/宽度	无		正面：15/每平方英尺（最差区域 19/每平方英尺）	反面：30（最差区域 38/每平方英尺）
孔洞	无		正面：1，1/4”，每基本尺寸	反面：2，1/2”，每基本尺寸
钝棱	无		1/8 宽 x 1/6 长或等效面积，不可大于 1/4 厚度；反面可多 50%，不可大于 3/8 厚度	
白斑朽	无		正面 10%，反面 25%	
废料，最多 1 块	无		4”，距端头 4’以上，只允许在整片长度 12’以上的锯材中	

GLOSSARY
专业术语

Words and terms commonly used in lumber grading and grade rules.
锯材分级和等级规则中常用的词汇和术语。

Checks — A separation of the wood normally occurring across or through the rings of annual growth and usually as a result of seasoning.
干裂 — 通常为横过和穿过年轮的一种木材组织分离现象，通常为干燥的结果。

a) A Surface check occurs on a face of a piece.
表面干裂出现在木材的表面。

b) A Through check extends from one surface of a piece to the opposite or adjoining surface.
贯通干裂从木材的一个表面延伸到反面或相邻表面。

c) Small checks are not over 1/32" wide or 4" long.
小干裂不超过1/32英寸宽或4英寸长。

d) Medium checks are not over 1/32" wide or 10" long.
中等干裂不超过1/32英寸宽或10英寸长。

e) Large checks are more than 1/32" wide or longer than 10" or both.
大干裂超过1/32英寸宽或长度超过10英寸或两者兼有。

f) A roller check is a crack in the wood structure caused by a piece of cupped lumber being flattened in passing between the machine rollers.
卷压裂缝是瓦弯木材被放置在机器卷轴之间压平时，在其木材结构中所引起的裂缝。

Close Grain — means an average of approximately 6, but not more than approximately 30, annual rings per inch on either one end or the other of a piece. In Douglas Fir and Larch, pieces averaging 5 rings or more than 30 rings per inch, are accepted as close grain if averaging 1/3 or more summerwood.
密集纹 — 在锯材两端中的任何一端每英寸大约含有平均6个、但是不超过30个年轮。对花旗松和落叶松而言，每英寸平均5个或超过30个年轮，而且平均1/3或更多为晚材，就被认为是密集纹。

Compression Wood — Abnormal wood that forms on the under side of leaning and crooked coniferous trees. It is characterized, aside from its distinguishing color, be being hard and brittle and by its relatively lifeless appearance. Compression wood shall be limited in effect to other appearance or strength reducing characteristics permitted in the grade.
应压木 — 形成于倾斜和弯曲针叶树向下一面的不正常木材。除了独特的颜色、硬而脆的特点外，它的另一特征就是其僵硬呆板的外观。根据其影响程度，应压木受到与相应等级中其它外观和强度缺陷同样的限制。

Decay — A disintegration of the wood substance due to action of wood- destroying fungi, and is also known as dote or rot. Some examples are as follows:

腐朽 — 由于蛀蚀木材的真菌所造成木质的瓦解，也称为溃烂或腐烂。举例如下：

a) Heart Centre decay — is a localized decay developing along the pith in some species and is detected by visual inspection. The limitation for heart centre decay applies to Southern Pine. Heart centre decay develops in the living tree and does not progress further after the tree is cut. (not found in Canadian species).

中心腐朽 — 是一种位置相对固定的、沿着一些树种的髓心发展的腐朽，可目测。对中心腐朽的限制适用于南方松。中心腐朽只在活树中发展，一旦树木被砍伐后即停止发展。(在加拿大树种中没有发现)。

b) Honeycomb — is similar to white speck but the pockets are larger. Where permitted in the Rules it is so limited that is has no more effect on the intended use of the piece than other characteristics permitted in the same grade. Pieces containing honeycomb are no more subject to decay than pieces which do not contain it. Note: Firm in relation to honeycomb infers that it will not crumble readily under thumb pressure and cannot be easily picked out.

蜂窝朽 — 与白斑朽相似，但是孔洞更大。当规则中允许蜂窝朽时，就其对某一等级的目标用途的影响而言，它受到的限制与同级可允许的其它缺陷相似。包含蜂窝朽的锯材不会比没有蜂窝朽的锯材更容易腐朽。注：坚实的蜂窝朽指的是用手指压力下不容易破碎、不可被轻易剔起。

c) Incipient decay — is an early stage of decay in which disintegration of the wood fibres has not proceeded far enough to soften or otherwise change the hardness of the wood perceptibly. It is usually accompanied by a slight discoloration or bleaching of the wood.

早期腐朽 — 处于早期阶段的腐朽，木纤维的瓦解没有发展到足以软化、或明显改变木材硬度的程度。通常伴随着木材的轻微变色或褪色。

d) Peck — is channeled or pitted areas or pockets found in Cedar and Cypress. Wood tissue between pecky areas remains unaffected in appearance and strength. All further growth of the fungus causing peckiness ceases after the trees are felled.

袋状朽 — 在西部红柏和黄柏中可见的条状凹形或囊状腐朽。处于几个袋状朽之间的木材组织的外观和强度不受影响。在树被砍伐后，引起袋状朽的真菌会停止进一步发展。

e) White Specks — are small white or brown pits or spots in wood caused by the fungus "fomes pini". It develops in the living tree and does not develop further in wood in service. Where permitted in these rules it is so limited that it has no more effect on the intended use of the pieces than other characteristics permitted in the same grade. Pieces containing white speck are no more subject to decay than pieces which do not contain it. Note: firm in relation to white speck infers that it will not crumble readily under thumb pressure and cannot be easily picked out.

白斑朽 — 是由真菌引起的白色或黄色小坑或斑点。它形成于正在生长的树中，而在使用中的木材中它不再继续发展。当规则中允许白斑朽时，就其对某一等级的目标用途的影响而言，它受到的限制与同级可允许的其它缺陷相似。包含白斑朽的锯材不会比没有白斑朽的锯材更容易腐朽。注：坚实的白斑朽指的是用手指压力下不容易破碎、不可被轻易剔起。

Grain — The fibres in wood and their direction, size, arrangements, appearance or quality.

纹理 — 木纤维及其方向、尺寸、排列、外观和质量。

a) Slope of Grain is the deviation of the line of fibres from a straight line parallel to the sides of the piece.
纹理斜率是木纤维与和边缘平行的直线之间的偏差。

b) Summer wood is the portion of the annual growth ring formed during the latter part of the yearly growth ring. It is darker in color, more dense, and stronger mechanically than springwood.
晚材是在年轮生长后期形成的部分，颜色较暗，密度较大，与早材相比机械性能更强。

c) Springwood is the portion of the annual growth formed during the early part of the yearly growth period. It is lighter in color, less dense and not as strong mechanically as summerwood.
早材是在年轮生长前期形成的部分，颜色较浅，密度较小，机械性能没有晚材强。

d) Vertical Grain (Edge Grain / Rift Grain) lumber is a piece or pieces sawn at approximately right angles to the annual growth rings so that the rings form an angle of 45 degrees or more with the surface of the piece.
直纹(边缘纹/径面纹)当木材被以与年轮方向成大致直角锯开时形成，此时年轮与锯材表面形成大于45度的角度。

e) Flat Grain (Slash Grain) lumber is a piece or pieces sawn approximately parallel to the annual growth rings so that all or some of the rings form an angle of less than 45 degrees with the surface of the piece.
平纹(弦面纹)当木材被以与年轮大约平行方向锯开时形成，此时所有或部分年轮与锯材表面形成小于45的度角。

f) Mixed Grain lumber includes either or both vertical and flat grained pieces.
混合纹同一批锯材中同时包括直纹或/和平纹的锯材。

Heart (Heartwood) — inner core of the tree trunk comprising the annual rings containing non- living elements. In some species, heartwood has a prominent colour different from sapwood.
心(心材) — 树干的内核，由包含无生命成分的年轮组成。在一些树种，心材有着与边材颜色有显著不同。

a) Boxed heart means with the pith enclosed in the piece.
髓心材是指树木髓心被包括在其中的锯材。

b) Heart centre is the pith or centre core of the log.
树心是指原木的髓心或中心核。

c) Free of Heart Centres (FOHC) means without pith (side cut). An occasional piece (see para. 726) when showing pith for not more than 1/4 the length on the surface shall be accepted.
无树心材是指不含髓心的锯材(边锯材)。偶尔某块锯材表面出现不超过1/4长度的髓心应被接受(见726款)。

d) Heartwood and Sapwood of equivalent character are of equal strength. No requirement of heartwood is made when strength alone is the governing factor.
缺陷相同的心材和边材具有同等的强度。当强度为主要评级因素时，通常不要求必须是心材。

e) Heartwood is more durable than sapwood. When wood is to be exposed to decay-producing conditions without preservative treatment, it shall be permitted to specify the minimum percentage of heartwood to be present in all pieces in a shipment.
心材比边材更耐用。当未经防腐处理的木材被用于易造成腐朽的环境下时，应允许明确要求在一批产品中心材所占的最低百分比。

f) Sapwood takes preservative treatment more readily than heartwood.
边材比心材更易接受防腐处理。

Holes — Holes either extend partially or wholly through the piece. An alternate designation for holes which extend only partially through the piece is surface pits. Unless otherwise specified, holes are measured the same as knots. Holes are classified by size as follows:
孔洞 — 孔洞可能贯穿或未完全贯穿锯材。未完全贯穿锯材的孔洞的另外一个名称为表面凹坑。除非特别说明，孔洞的测量方法与节疤相同。孔洞的尺寸划分如下：

a) a pin hole is not over 1/16" in diameter.
针孔直径不超过1/16英寸。

b) a medium (small) hole is not over 1/4" in diameter.
中(小)孔直径不超过1/4英寸。

c) a large hole is not over 1" in diameter.
大孔直径不超过1英寸。

d) a very large hole is over 1" in diameter.
特大孔直径超过1英寸。

e) a slough knot is a corner knot running from one wide face into the adjoining narrow face and measured by taking the average of its measurements on the wide face.
边缘脱节是指从宽面延伸到相邻窄面的边缘节疤，其尺寸是其在宽面上测量值的平均值。

Kiln Dried — means dried in a closed chamber in which the required moisture content is obtained by artificial heat and/or humidity control.
窑干 — 指的是在封闭烘干窑内进行干燥，通过人工加温和/或湿度控制达到所要求的含水率。

Knots — a portion of a branch or limb has become incorporated in a piece of lumber. In lumber, knots are classified as to form, size, quality and occurrence. A red knot is one that results from a live branch growth in the tree and is intergrown with the surrounding wood. A black knot is one that results from a dead branch which the wood growth of the tree has surrounded.
节疤 — 部分树枝被包埋于锯材之中。在锯材中，节疤按照其形状、尺寸、质量和分布来分类。红节疤是由活树枝与周围木交互生长的结果。黑节疤是树木环绕死树枝生长的结果。

a) a round knot is produced when the limb is cut at approximately a right angle to its long axis
圆节是当枝条被以大约与其长轴成直角方向锯开后的结果。

b) an oval knot is produced when the limb is cut at slightly more than right angles to its long axis
椭圆节是当枝条被以大约与其长轴成斜角方向锯开后的结果。

c) a spike knot is produced when the limb is cut either lengthwise or diagonally
条状节是当枝条被沿长度或对角方向锯开后的结果。

d) a pin knot is not over 1/2".
针节疤不超过1/2英寸。

e) a small knot is not over 3/4".
小节疤不超过3/4英寸。

f) a medium knot is not over 1 1/2".
中节疤不超过1 1/2英寸。

g) a large knot is over 1 1/2".
大节疤超过1 1/2英寸。

h) a sound knot contains no decay.
健全节不含有任何腐朽。

i) an unsound knot contains decay.
腐朽节包含腐朽。

j) a firm knot is solid across its face but contains incipient decay.
紧密节表面坚固但是包含早期腐朽。

k) a tight knot is so fixed by growth, shape or position that it retains its place in the piece.
固定节由于生长、形状和位置的原因被固定在其所在位置。

l) an intergrown knot is one whose growth rings are partially or completely intergrown on one or more faces with the growth rings of the surrounding wood.
连生节的年轮部分或全部与周围木质部分的年轮在一个或多个表面交互生长。

m) an encased knot is one which is not intergrown with the growth rings of the surrounding knot.
包裹节与周围木的生长年轮没有交互生长。

n) a loose or not firmly fixed knot is one not held tightly in place by growth, shape or position.
松动节或非紧密固定节(NFF)由于其生长、形状和位置的原因没有被固定在其所在位置。

o) a fixed knot will retain its place in dry lumber under ordinary conditions but is movable under pressure though not easily pushed out.
固定节在干材正常条件下会保持在所在位置，在压力下可移动，但不易推出。

p) a knot cluster is two or more knots grouped together as a unit with the fibres of the wood deflected around the entire unit. A group of single knots is not a knot cluster.
丛生节是两个或多个节疤组合成一个整体，其周围的木纤维围绕整个节疤整体偏转。一组独立的节疤不能被视为丛生节。

q) a star checked knot has radial checks.
星裂节有辐射状裂缝。

r) Well scattered knots are not in clusters and each knot is separated from any other by a distance at least equal to the diameter of the smaller of the two.
散生节是节疤不以丛生节的方式存在，每个节疤均与另外的节疤分开，其间距至少等于两节疤中较小节疤的直径。

s) Well spaced knots means that the sum of the sizes of all knots in any 6" of length of a piece must not exceed twice the size of the largest knot permitted. More than one knot of maximum permissible size must not be in the same 6" of length and the combination of knots must not be serious.
适当间隔节是指在一块锯材的任意6英寸长度内的节疤尺寸总和必须小于可允许最大节疤尺寸的两倍。在同一个6英寸长度内，不可以出现一个以上的尺寸为最大允许尺寸的节疤，节疤的组合必须不严重。

Medium Grain — means an average of approximately 4 or more annual rings per inch on either one end or the other of a piece. In Douglas Fir and Larch, pieces averaging less than 4 rings per inch are accepted if averaging 1/3 or more summerwood - the dark portion of the annual ring.
中等纹 — 指的是在锯材两端中的任何一端平均每英寸含大约4个或更多个年轮。在花旗松和落叶松，如果平均1/3或更多为晚材(年轮深色部分)，平均每英寸少于4个年轮也可以接受。

Moisture Content — the weight of the water in wood expressed in percentage of the weight of the oven- dry wood.
含水率 — 木材中所含水分的重量与窑干后木材重量之百分比。

Occasional Pieces — means not more than 10% of the pieces in a parcel or shipment.
偶尔出现的件数 — 指的是某包装或某批货物中不超过10%的部分。

Pitch Streak — is a well- defined accumulation of pitch in the wood cells in a streak. Pitch streaks are described as follows, with equivalent areas being permissible:
树脂斑 — 木细胞所分泌树脂积累成轮廓清晰的条纹状。树脂斑以可允许对等面积描述如下：

a) a very small pitch streak is 3/8" in width and 15" in length.
非常小树脂斑宽为3/8英寸，长为15英寸。

b) a small pitch streak is 1/12 the width and 1/6 the length of the piece.
小树脂斑宽为锯材1/12，长为锯材1/6。

c) a medium pitch streak is 1/6 the width and 1/3 the length of the piece.
中等树脂斑宽为锯材1/6，长为锯材1/3。

d) a large pitch streck is not over 1/4 the width by 1/2 the length of the surface.
大树脂斑宽不超过锯材宽度1/4，长为锯材表面长度1/2。

e) a very large pitch streck is over 1/4 the width by 1/2 the length of the surface.
非常大树脂斑宽不超过锯材宽度1/4，长为锯材表面长度1/2。

f) a pitch seam is a shake or check which contains pitch.
树脂缝为包含树脂的裂缝。

Pocket — a well defined opening between the rings of annual growth which develops during the growth of the tree. It usually contains pitch or bark. Pockets are described as follows with equivalent areas being permissible:
树囊 — 在树木生长时形成的年轮之间轮廓清晰的开口。通常包含树脂或树皮。树囊以可允许等效面积描述如下：

a) a very small pocket is 1/16" in width and 3" in length or 1/8" in width and 2" in length
非常小树囊宽为1/16英寸，长为3英寸或者宽1/8英寸，长为2英寸。

b) a small pocket is 1/16" in width and 6" in length, or 1/8" in width and 4" in length, or 1/4" in width and 2" in length.
小树囊宽为1/16英寸，长为6英寸，或者宽1/8英寸，长为4英寸，或者宽为1/4英寸，长为2英寸。

c) a medium pocket is 1/16" in width and 12" in length, or 1/8" in width and 8" in length, or 3/8" in width and 4" in length
中树囊宽为1/16英寸，长为12英寸，或者宽1/8英寸，长为8英寸，或者宽为3/8英寸，长为4英寸。

d) a large pocket is not over 4 square inches in area
大树囊在面积上不超过4平方英寸。

e) a very large pocket is over 4 square inches in area
非常大树囊在面积上超过4平方英寸。

f) a closed pocket has an opening on one surface only.
封闭树囊仅在一个表面有开口。

g) a through or open pocket has an opening on opposite surfaces, and the through opening is considered the same as a through hole of equal size..
贯通或开口树囊在相对的两个表面有开口，贯通开口按照同尺寸的孔洞对待。

Resawn — lumber which has been further manufactured by cutting through the thickness from edge to edge, resulting in two or more pieces retaining the original width but each piece being less (thinner) in thickness than the original thickness.
再锯 — 从一边到另一边、从厚度上将锯材剖开的再加工，其结果是得到两块或多块宽度不变、但厚度较小(较薄)的产品。

Ripped — lumber which has been further manufactured by cutting through the thickness from face to face, resulting in two or more pieces retaining the original thickness, but each piece being of a narrower width than the original width.
纵锯 — 从一面到另一面，从宽度上将锯材剖开的再加工，其结果是得到两块或多块厚度不变、但宽度较小的产品。

Shake — a lengthwise separation of the wood which occurs between or through the rings of annual growth.
轮裂 — 在年轮之间或穿过年轮的、沿长度方向的木材组织分离。

a) a light shake is not over 1/32" wide.
轻微轮裂不超过1/32英寸宽。

b) a medium shake is not over 1/8" wide.
中等轮裂不超过1/8英寸宽。

c) a surface shake occurs on only one surface of a piece.
表面轮裂出现在仅一个表面。

d) a through shake extends from one surface of a piece to the opposite or to an adjoining surface.
贯通轮裂从锯材的一个表面延伸到对面或相邻表面。

e) a pith shake (or heart shake or heart check) extends through the growth rings from or through the pith towards the surface of a piece, and is distinguished from a seasoning check by the fact that its greatest width is nearest the pitch whereas the greatest width of a season check in a pith- centred piece is farthest from the pith.
髓心轮裂(或心材轮裂)始于或穿过髓心、并穿过年轮延伸至表面。与干燥裂缝显然不同的是，髓心轮裂的最宽处接近髓心，而干燥裂缝的最宽处在含髓心的锯材上离髓心最远。

f) a ring shake occurs between the growth rings to partially or wholly encircle the pith.
环型轮裂出现在年轮之间、部分或全部环绕髓心。

g) longitudinal resinous or bark seams should not be confused with shake unless showing a separation.
纵向树脂缝或树皮缝不应与轮裂混淆，除非出现木材组织分离。

Splits — a separation of the wood through the piece to the opposite surface or to an adjoining surface due to the tearing apart of the wood cells.
劈裂 — 由于木细胞撕裂而造成的木材组织的分离，通常从锯材的一面穿透到对面或相邻面。

a) a very short split is equal in length to 1/2 the width of the piece.
极短劈裂的长度等同锯材宽度的1/2。

b) a short split is equal in length to the width of the piece and in no case exceeds 1/6 the length.
短劈裂的长度等同锯材宽度，但不可超过长度的1/6。

c) a medium split is equal in length to twice the width of the piece and in no case exceeds 1/6 the length.
中等劈裂的长度是锯材宽度的两倍，但不可超过锯材长度的1/6。

d) a long split is longer than a medium split.
长劈裂是长度大于中等劈裂的劈裂。

Stained Wood
变色木材

a) Stained heartwood or Firm Red Heart is a marked variation from the natural colour (Note: it ranges from pink to brown). It is not to be confused with natural red heart. Natural colour is usually uniformly distributed through certain annual rings, whereas stains are usually in irregular patches. In grades where it is permitted, it has no more effect on the intended use of the piece than other characteristics permitted in the grade
变色心材或紧实红色心材与自然颜色显著不同(注：颜色从粉红到褐色不等)。不应与自然红心混淆。自然颜色通常在一些年轮中均匀分布，而变色通常分布不规律。在允许变色心材的等级中，它对该锯材使用性能的影响不会比该等级所允许的其它缺陷更大。

b) Stained sapwood similarly has no effect on the intended use of the pieces in which it is permitted but affects appearance in varying degrees.
变色边材同样，在允许变色边材的等级中不会影响锯材的用途，但对外观有不同程度的影响。

— Light stained sapwood is so slightly discolored that it does not affect natural finishes
— 轻微变色边材的变色很轻微，对自然刨光表面没有影响。

— Medium stained sapwood has a pronounced difference in coloring. Note: sometimes the usefulness for natural finishes but not for paint fishes is affected.
— 中等变色边材在颜色上显著不同。注：有时对自然刨光表面有影响，但对油漆表面不会有影响。
— Heavy stained sapwood has so pronounced a difference in color as to obscure the grain of the wood but the lumber containing it is acceptable for paint finishes.
— 严重变色边材在颜色上有显著不同，使得木纹变得模糊，但经油漆表面后尚可接受。

c) Discoloration through exposure to the elements is admitted in all grades of framing and sheathing lumber.
暴露于气候因素引起的变色在所有轻型框架和覆盖用锯材等级的都是允许的。

Stress Grades — lumber grades having assigned working stress and modules of elasticity values in accordance with accepted basic principles of strength grading.
应力等级 — 按照公认的强度分级基本原则，已被赋于一定工作应力和弹性模数值的锯材等级。

In Canada and countries other than the United States, specified strength values may be used in place of working stress values.
在加拿大和美国以外的国家，标定的强度值可以代替工作应力值。

Trim — Trimming of lumber is the act of cross- cutting a piece to a given length.
截锯 — 锯材的截锯是按照指定长度横切锯材的行为。

Double End Trimmed (DET). Note: It is intended that DET lumber be trimmed square on both ends. The out of square tolerance is limited to 1/16" for each minimal 1" of thickness or width.
两端截齐 — 注：按照要求，经两端截齐的锯材，其两端应成正方形。每1英寸厚度或宽度，不成正方形的容许值为1/16英寸。

Precision end Trimmed (PET) lumber is trimmed square on both ends to uniform lengths with a manufacturing tolerance of 1/16" over or under in length in 20% of the pieces.
精确端头截齐 — 锯材的两端被修整成正方形，长度相同，长度加工的正负误差小于1/16英寸，出现误差的片数低于20%。

Square end Trimmed (SET) lumber is trimmed square having a manufacturing tolerance of 1/64" for each nominal 2" of thickness or width.
正方形端头截齐 — 锯材的两端被修整成正方形。每2英寸名义厚度或宽度，加工的允许误差为1/64英寸。

Wane — Bark or lack of wood from any cause, except eased edges, on the edge or corner of a piece of lumber.
钝棱 — 在锯材的边缘和角落带有树皮或因任何原因造成的木材缺损(人为导角除外)。

Para. 750 Wane
750款 钝棱

Wane away from ends extending partially or completely across any face is permitted for one foot if no more serious than skips in dressing allowed or across a narrow face if no more damaging than the knot hole allowed (not to exceed in length twice the diameter of the maximum knot hole allowed in the grade) and is limited to one occurrence in each piece. These variations shall not be allowed in more than 5% of the pieces.
对于锯材任一表面上、远离两端的、部分或全部覆盖该表面的钝棱，如果它不比可允许的漏刨更严重，其允许长度为1英尺；对于窄面上的钝棱，如果它的损害不比可允许的节孔更严重(在长度上不超过该等级所允许最大节疤直径的两倍)，也可以允许。这类钝棱在每根锯材中只允许出现一次。一批锯材中出现这类特殊钝棱的根数不能超过5%。

Warp — Any deviation from a true or plane surface including bow, crook, cup and twist or any combination thereof. Warp restrictions are based on the average form of warp as it occurs normally, and any variation from this average form, such as short kinks, shall be appraised according to its equivalent effect. Pieces containing two or more forms shall be appraised according to the combined effect in determining the amount permissible. In these rules warp is classified as very light, light, medium and heavy, and applied to each width and length as set forth in the various grades in accordance with the following provisions and tables:
翘曲 — 任何与真实或平整表面的偏差，包括弓弯、边弯、瓦变和扭曲或它们的组合。对翘曲的限制是根据正常状态下翘曲的平均形态所制定的；如果出现任何与平均形态不同的情况，例如短扭结，应按照等效原则对其进行评估。包含两个或多个翘曲形态的，应按照它们的综合效果进行评估，从而确定可允许的量。在这些规则(如下列规定和表格)中，根据每个宽度和长度，翘曲被分成非常轻微、轻微、中等和严重等几类，适用于不同的等级。

a) Bow is a deviation flat wise from a straight line drawn from end to end of a piece. It is measured at the point of greatest distance from the straight line. The maximum amount of bow allowed in a grade is as follows:

平弯是与从一端至另一端所划直线的水平方向的偏差。平弯的测定是以离直线最远的点计算。各等级所允许弓弯的最大量如下：

if under 2" thick, three times as much as crook for 2" faces;

如果厚度小于2英寸，表面宽度为2英寸，可以是边弯的三倍；

if 2" thick and under 3" thick, twice as much as crook for 2" faces

如果厚度为2英寸和小于3英寸厚，表面宽度为2英寸，可以是边弯的两倍；

if 3" thick and over, the same as the amount of crook for that thickness

如果厚度为3英寸及以上，与边弯量同等。

b) Crook is a deviation edgewise from a straight line drawn from end to end of a piece. It is measured at the point of greatest distance from the straight line. The maximum amount of crook allowed shall be that shown in Table 1.

边弯是与从一端至另一端所划直线的沿边缘方向的偏差。边弯的测定是以离直线最远的点计算。所允许的最大边弯量列在NLGA的“加拿大锯材标准分级规则(Standard Grading Rules for Canadian Lumber)” 表810a、810b、810c中。

c) Cup is a deviation in the face of a piece form a straight line drawn from edge to edge of a piece. It is measured at the point of greatest distance from the straight line. The maximum amount of cup allowed shall be that shown in the cup table.

瓦弯是锯材表面与从一边至另一边所划直线的偏差。边弯的测定是以离直线最远的点计算。所允许瓦弯的最大量在瓦弯表中列出。

Cup Table - Face Width
瓦弯表- 表面宽度

	2” 和 3”	4”	5” 和 6”	8”	10”	12”	14” 以上
非常轻微 Very light	1/32”	1/32”	1/32”	1/16”	3/32”	1/8”	按比例增加
轻微 Light	1/32”	1/32”	1/16”	1/8”	3/16”	1/4”	按比例增加
中等 Medium	1/32”	1/16”	1/8”	3/16”	1/4”	3/8”	按比例增加
严重 Heavy	1/16”	1/8”	3/16”	1/4”	3/8”	1/2”	按比例增加

d) Twist is a deviation flatwise, or a combination of flatwise and edgewise, in the form of a curl or spiral, and the amount is the distance an edge of a piece at one end is raised above a flat surface against which both edges at the opposite end are resting snugly. The maximum amount of twist allowed shall be that shown in Table 2.

扭曲是水平偏差、或水平偏差和边缘偏差的组合，以卷曲或螺旋形态出现。，扭曲量是指一个端顶的两边均贴地平放时，另一端的边缘离开水平面的距离。可允许最大扭曲量在NLGA的“加拿大锯材标准分级规则(Standard Grading Rules for Canadian Lumber)”表810d中列出。

Combination Grades
组合等级

Product Standard PS 20 permits grouping the highest two grades in a grade category, and grade marking the combination as an "& Better" grade. The combined grade is assigned the allowable property values of the lower grade unless allowable property values have been assigned in the combination.

产品标准 PS 20 允许将最高的两个等级组合成一个等级类别，并将这一混合等级标为“及以上”等级。这些混合等级的各类性能数值以其中较低等级的允许值为准，除非该混合等级自己的允许性能值已被确定。

In the case of No. 1 & Better", data was collected for Douglas Fir-larch (N) and Hem Fir (N) during the ingrade testing program to permit the development of allowable property values specific to this combination grade. When the "No. 1 & Better" grade combination is assigned specific allowable properties, such as for Douglas Fir-larch (N), and Hem Fir (N), the material is required to be stamped with a "No. 1 & Better" grade stamp. If the lumber is grade stamped as "Select Structural" and "No. 1" rather than "No. 1 & Better", the values assigned to the individual grades apply. When "No. 1 & Better" grade stamps are applied, it is not permissible to simultaneously use the grade stamp of any grade with a higher design value (such as Select Structural) on that item.

在“一级及以上”的情形下，在为花旗松-落叶松和铁杉-冷杉混合等级起草允许性能值的等级检测项目中，已收集了这两个混合等级的数据。当“一级及以上”混合等级已有明确的允许性能值时，如在花旗松-落叶松和铁杉-冷杉混合等级中，锯材的等级章必须标识为“一级及以上”。如果锯材的等级章标为“优选结构级”和“一级”而不是“一级及以上”，各等级的性能值适用与各自的等级。在某些锯材上使用“一级及以上”等级章时，不允许同时在该锯材上使用具有较高设计值的任何等级章(如优选结构级)。

INTERPRETATIONS
解 释

KNOT MEASUREMENT
节疤测量

Grading is the visual analysis of lumber (by inspection). Knot size is only one of the characteristics that may determine the grade of a piece.

分级是对锯材的视觉分析(通过检验)。节疤尺寸只是可能决定锯材等级的特征之一。

Equivalence is one of the cornerstone concepts of lumber grading. To become a competent grader, requires that knots (and other characteristics) which appear in a piece be evaluated against the sizes allowed. The sizes of knots stated for each grade are based on round knots as illustrated below. Knots other than these must be evaluated as equivalent in effect to permitted round knots.

在锯材分级中，缺陷的等效性上是很重要的基准概念之一。要成为称职的分级员，要求能按照可允许的尺寸来评定某块锯材上出现的节疤(和其它特征)。以下段落中列出的各等级所允许的节疤尺寸均以圆节疤为基础。其它类型的节疤均须换算成效果等效的圆节疤。

Paragraph 718 — Knots

718款 — 节疤

Knots in grades other than stress grades are measured by their average dimensions on one face. This is done by boxing the knot into a rectangle of the smallest size which will contain the knot (and any surrounding bark or pitch). The knot's size is the average dimension of this rectangle.

在应力等级以外的等级中，节疤是以其在锯材一面的平均尺寸来衡量的。将节疤套进一个虚拟的、能包含该节疤(连同周边树皮和树脂)的最小长方形内，其尺寸就是此长方形的平均尺寸。

Stress Grades — Dimension Lumber — Paragraph 320

应力等级 — 规格锯材 — 320款

Knots on the wide face are measured between lines parallel to the edge of the piece and the knot size is the average of the measurement on both wide faces. Bark occurring around knots (other than pockets and wane) must be included in the measurement when determining the knot size.

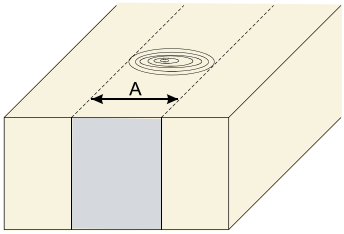
锯材宽面的节疤从与锯材边缘平行的节疤边线之间的距离测得。节疤尺寸是两个宽面上测量值的平均数。在确定节疤尺寸时，必须将节疤周围的树皮(树脂囊和钝棱除外)包括在内。

Knot Measurement Formula
节疤计算公式

The knot measurement formula used for measuring round knots in dimension lumber is (A + B)/2. Three easy steps will determine the accurate size of the knot.

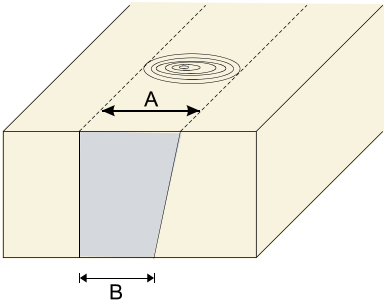
测量规格材圆节的节疤测量公式为(A + B)/2。通过三步简单的步骤就可以精确地确定节疤的尺寸。

Step 1 — Measure Side A
第一步 — 测量A面



$\frac{A+B}{2}$=节疤尺寸

Step 2 — Measure Size B
第二步 — 测量B面



Spike or Narrow Face Knots (Round Knot Equivalents)
条状节疤或窄面节疤(与圆节对等换算)

Spike knots, or narrow face knots, usually appear on one or both narrow faces and may appear on the wide face too. In dimension lumber, spike knots are measured as "equivalent to round knot size". The purpose of this exercise is to calculate the equivalent round knot size of each spike knot.
条状节或窄面节疤，通常出现在锯材一个或两个窄面上，也可能出现在宽面上。在规格材中，条状节被当作“与圆节对等的缺陷”来测量。这种做法的目的是算出每个条状节所对等的圆节的尺寸。

But for North American dimension lumber, the formula can be simplified as follows:
而在北美规格材中，计算公式可以简化如下：

Fig. 1 — One Edge Spike Knot
图1 — 单边出现的条状节

Knot Size节疤尺寸 = T x W x 1/3

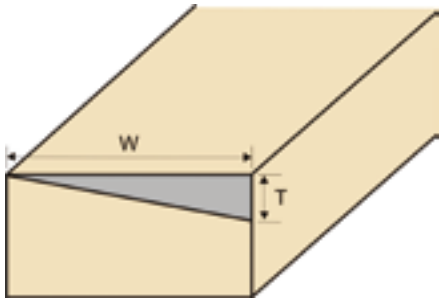
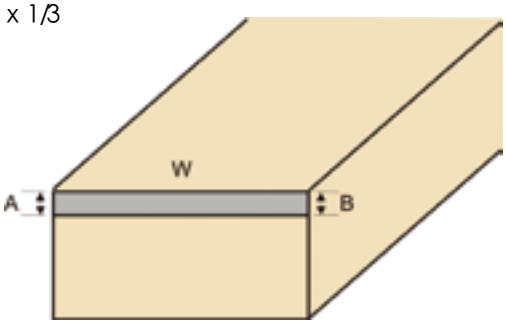


Fig. 2 — Two-Edge Spike Knot
图2 — 两边出现的条状节

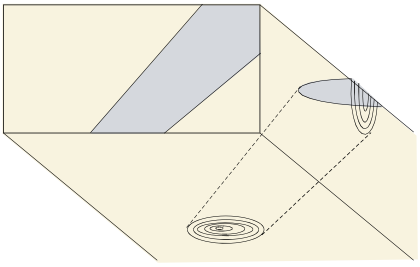
Knot Size 节疤尺寸 = (A + B) x W x 1/3



Three and Four Face Knots in Dimension Lumber
规格材中三面和四面出现的节疤

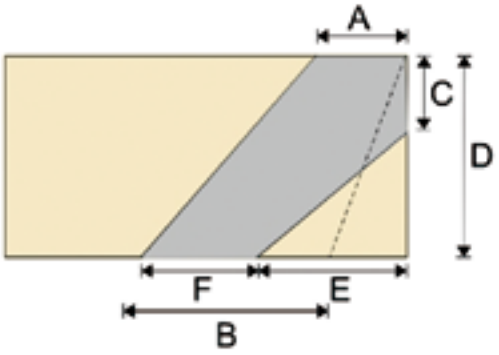
Three Face Knots are evaluated by making them geometrically equivalent to Wide-Face-Only-Knots. The knot is on both wide faces and occupies a fraction of the narrow face.
三面节疤的度量是通过将其换算成与其几何对等的“只在宽面出现的节疤”实现的。这类节疤出现在两个宽面，只占有窄面的一部分。

Three Face Knot
三面节疤

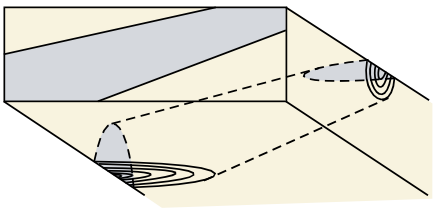


Formula
公式

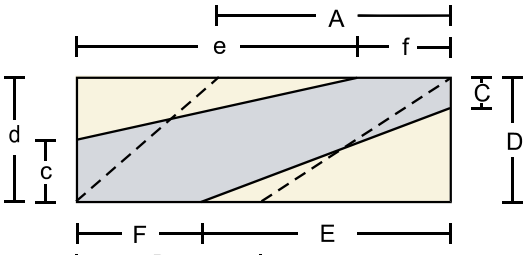
Knot Size 节疤尺寸 = A + B / 2
Where 其中 B = ((C/D) x E) + F



Four Face Knot
四面节疤



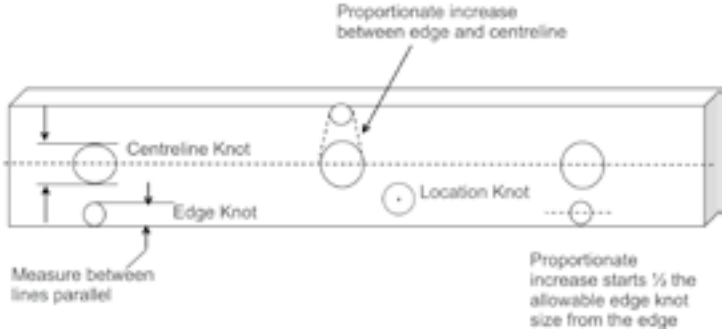
Formula
公式



Knot Size节疤尺寸 = A + B /2
Where其中 A = ((c/d) x e) + f
and和
Where其中 B = ((C/D x E) + F

Knots in Structural Light Framing, Joists & Planks and Stud
结构轻型框架、托梁和平铺木板等级以及墙柱等级中的节疤

Knot sizes are specified for the edge of the wide face and for the centreline. For knots between the edge and the centerline called location knots, a proportionate increase must be calculated, based on the location of the knot.
节疤尺寸是依据宽面的边缘和中心线确定的。位于边缘和中心线之间的节疤被称为位置节疤，根据节疤的位置，允许的节疤尺寸按比例增加。

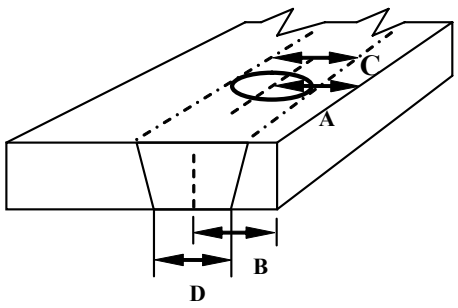


Knot Location
节疤位置

Wide face knots appearing away from the edge may increase proportionately from the size permitted at the edge of the wide face to the size permitted along the centreline. The increase shall start at a distance from the edge equal to 1/2 the diameter of the allowable edge knot.
在锯材的宽面，从边缘到中心线，允许的节疤尺寸可以按比例增加。这种增加从距边缘相当于可允许节疤直径的1/2处开始。

Location Knot
位置节疤

Fig. 3
图三



Location Knot Calculation
位置节疤计算

A knot's location is considered as the average distance that the center of the knot is away from the edge on both wide faces. (Fig. 3)
在锯材的两个宽面上，节疤的中心距边缘的平均距离(图三)为节疤的位置。

To determine the grade of a piece of lumber with a location knot in it, the first step is to find the average location of a knot in the cross section of the piece by doing the following:
要评定一块有位置节疤的锯材的等级，第一步是通过以下步骤找出锯材横切面上节疤的平均位置：

1. Measure from the edge of wide face nearest the knot to the geographical centre of the knot (not the pith). (A)
   量出从最接近节疤的宽面边缘到节疤的几何中心(不是髓心)的距离。(A)

2. Do the same on the reverse side from the same edge. (B)
   在锯材反面的同一边缘用同样方法测量。(B)

3. Add the two measurements together and divide the sum by 2.
   将A和B相加再除以二。

4. This will give the approximate mean location of the knot for the allowable size increase between the edge and centreline.
   这将得出节疤的大约平均位置，据此可得出边缘和中心线之间的可允许增加的节疤尺寸。

5. The next step is to determine the average knot size.
   下一步是确定平均节疤尺寸。

6. Measure knot between lines parallel to edges of both faces (C & D) and divide by 2.
   以平行与锯材边缘的节疤边线为准，从锯材两面(C和D)量出节疤尺寸再除以2。

Edge Knots
边缘节疤

The following are to be considered as edge knots:
以下被认为是边缘节疤：

- Round knots situated right on the edge
  正好位于边缘的圆节疤

- Spike knots (dl)
  条状节疤(所有)

- 3- face knots where the knot occupies more than 1/2 of the edge
  节疤占有超过1/2边缘的三面节疤

- 4- face knots (dl)
  四面节疤(所有)

Large Spike Knots in SLF, J&P & Stud
在SLF、J&P和墙柱中的大型条状节疤

Convert the spike knot to a round knot, and use the "edge knot size" to determine the grade of the piece of lumber.
将条状节疤转换成圆节疤，使用“边缘节疤尺寸”决定某块锯材的等级。

Spacing of Knots in Structural and Stud Grades:
结构和墙柱等级中节疤的空间分布：

Knots in clusters are measured as one large knot.
丛生节当作一个大节疤度量。

Knots must be "well- spaced" in the structurd grades. The spacing of knots refers to the combinations of knot sizes in any 6" length.
在结构等级中节疤必须有“良好的空间分布”。节疤的分布是指任意6英寸长度内上节疤尺寸的总和。

These rules apply to well spaced knots:
这些规则适用于空间分布良好的节疤：

1) The sum of the sizes of dl knots occurring in any 6" length must not exceed twice the size of the centerline knot permitted.
   在任意6英寸长度内的所有节疤的尺寸总和必须不超过允许中心线节疤尺寸的两倍。

2) Two centerline knots of the maximum size are not permitted in the same 6" of length. A practically impossible condition.

最大尺寸的两个中心线节疤不允许出现在同一个6英寸长度范围内。这是一个实际上不可能发生的情况。

Example 2 x 8 Structural
示例 2x8 结构

Knots in the Same Cross-Section (Opposite Knots)
同一横切面的节疤(对位节疤)

The sum of the sizes of all knots in the same cross-section must be less than or equal to the "centerline knot size" permitted (Fig. 4). Knots are considered to be in the same cross-section, if the edges of the smaller knot(s) are within the cross-section bounded by the edges of the largest knot (Fig. 5). N.L.G.A. refers to a "serious" combination of knots. This is interpreted as knots in the same cross-section whose combined size is greater than the centerline knot permitted.
同一横切面上的所有节疤尺寸总和必须少于或等于可允许的“中心线节疤尺寸”(图四)。如果较小节疤的边缘位于以较大节疤的边缘线构成的切面之中，则认为这些节疤处于同一横切面(图五)。N.L.G.A. 把这种情况定义为“严重的”节疤组合现象。这可解释为位于同一横切面的节疤的组合尺寸大于可允许的中心线节疤。

Fig. 4 图四

A - maximum centerline knot
A-最大中心线节疤

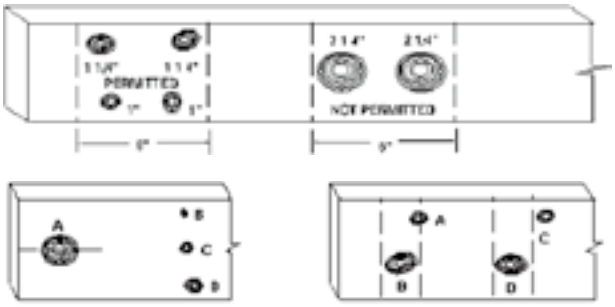


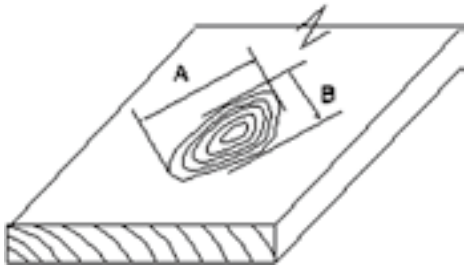
Fig. 5 图五

A/B directly opposite (within same cross section)
A/B直接对应(位于同一切面)

Knots — size measurement in non-structural lumber
节疤 — 在非结构材的尺寸测量

(eg Boards, Industrial Clears)
(例如板材，工业无缺陷等级)

Knots are measured as the average of their largest and smallest diameter and the size is determined for each face separately. In Economy, knots are measured by their cross-section only.
以最大和最小直径的平均数得出节疤尺寸，每面的节疤尺寸分别测量。在经济级中，节疤是从它们的横切面上量得。

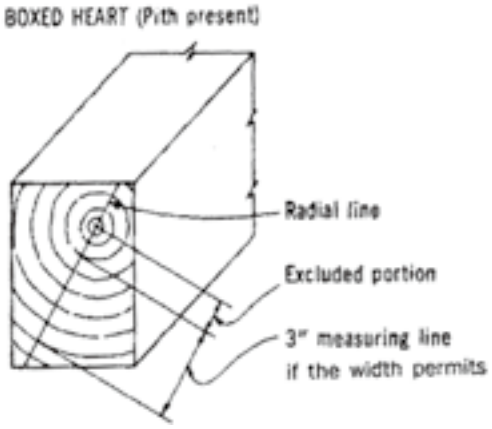


$\frac{A+B}{2}$=节疤尺寸

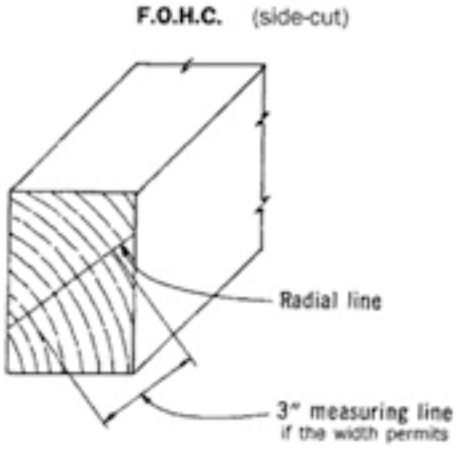
Measuring Average Rate of Growth
平均生长率的计算

i) Average rate of growth is measured on a line at a right angle to the rings in an area representative of the average growth in the cross section at either one end or the other. If the size of the piece permits, the measuring line should be 3" long.
平均生长率的度量方法是：在锯材的任意一端、选择一条与年轮垂直的、最能代表平均生长速度的直线上量取。如果锯材允许，直线长度应为3英寸。

ii) In boxed heart (pith present) pieces the measurement may exclude an inner portion of the radius amounting to approximately one quarter of the least dimension.
在含树芯(有髓心)锯材中，可将大约相当于最小尺寸四分之一的髓心部分不包括在测量范围内。

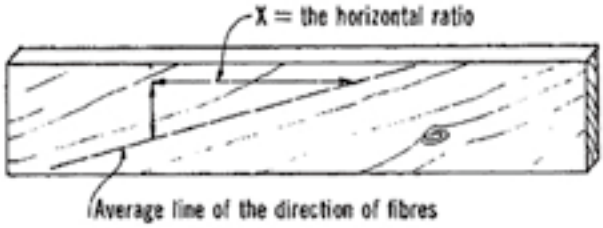


iii) In F.O.H.C. (side cut) pieces the length shall be centrally located.
在无树芯(边切材)锯材中测量线应居中。



Slope of Grain
纹理斜率

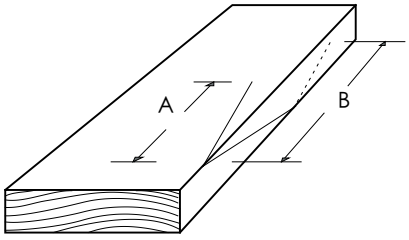
The deviation of the wood fibre from a line parallel to the edges of a piece. The deviation is expressed as a ratio such as a slope of grain of 1 in 8, 1 in 10, 1 in 12 and 1 in 15.
木材纤维和与边缘平行线之间的偏差。这种偏差以比例的方式来表示，如纹理斜率为1/8, 1/10, 1/12和1/15。



Shake — Dimension Lumber
轮裂 — 规格材

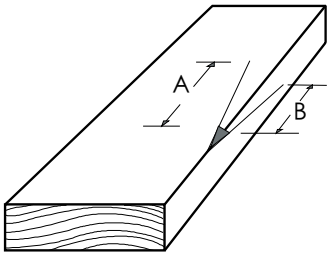
No. 3 / Utility / Stud permits through (3- face) shake. If shake is 'not through', a single shake can be full length of the piece.
三级/实用级/墙柱级允许贯通(三面)轮裂。如果轮裂“不贯通”，允许轮裂长达锯材的整个长度。

3 face shake
三面轮裂



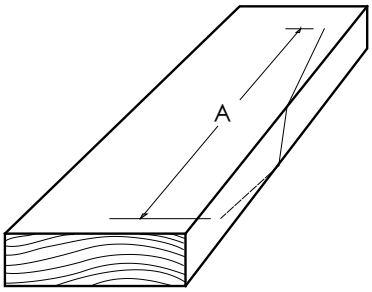
$$\frac{\text{length长度A} + \text{length长度B}}{2}$$

2 face shake
两面轮裂



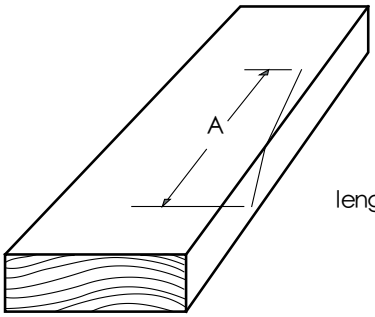
$$\frac{\text{length长度A} + \text{length长度B}}{2}$$

3 face shake
三面轮裂

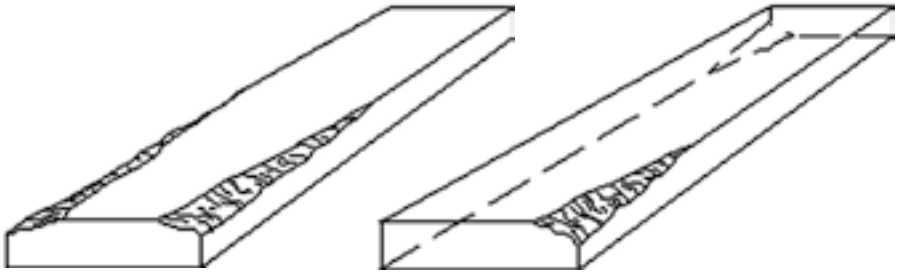


length长度A

Through shake
贯通轮裂



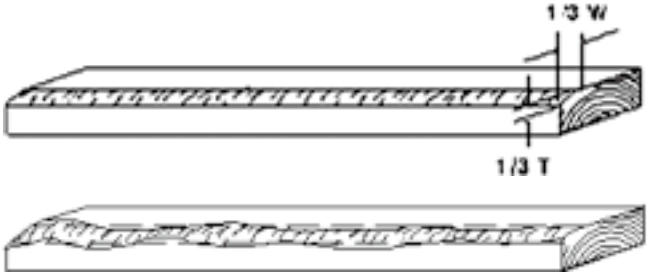
Wane
钝棱



Each face may have the maximum allowance permitted without reference to any other face.
无须考虑任何其它面，每一面均可以含有规则允许的最大程度的钝棱。

Wane in Light Framing, Structural Light Framing and Joists & Planks is permitted full length in the amount considered basic wane. The rule makes allowance for wane to be deeper or wider for the respective grades, but the total wane on any piece must be equivalent to the basic full length wane allowance.
在轻型框架、结构轻型框架和托梁及平铺木板等级中，如果是规则认可的基本钝棱，允许其长度达到该锯材的全长。各相关等级中，允许钝棱比规定更深或更宽，但是该锯材的钝棱总量必须等效于全长基本钝棱。

#2 Wane - 1/3T x 1/3W full length or equivalent
二级材钝棱 - 1/3厚x1/3宽全长或等效



STANDARD SIZES (Seasoned and Unseasoned)
标准尺寸（干燥和非干燥）

Table 3a
表 3a

Product 产品	Thickness 厚度					Width 宽度				
	Nom. 名义尺寸	Dry 干材		Green 湿材		Nom. 名义尺寸	Dry 干材		Green 湿材	
		英寸	毫米	英寸	毫米		英寸	毫米	英寸	毫米
Boards 板材	3/8”	5/16”	8	11/32”	9	2	1 1/2”	38	1 9/16”	40
	1/2”	7/16”	11	15/32”	12	3	2 1/2”	64	2 9/16”	65
	5/8”	9/16”	14	19/32”	15	4	3 1/2”	89	3 9/16”	90
	3/4”	5/8”	16	11/16”	17	5	4 1/2”	114	4 5/8”	117
	1”	3/4”	19	25/32”	20	6	5 1/2”	140	5 5/8”	143
	1 1/4”	1”	25	1 1/32”	26	7	6 1/2”	165	6 5/8”	168
	1 1/2”	1 1/4”	32	1 9/32”	33	8	7 1/4”	184	7 1/2”	190

Product 产品	Thickness 厚度					Width 宽度				
	Nom. 名义尺寸	Dry 干材		Green 湿材		Nom. 名义尺寸	Dry 干材		Green 湿材	
		英寸	毫米	英寸	毫米		英寸	毫米	英寸	毫米
Dimension 规格材	2”	1 1/2”	38	1 9/16”	40	2	1 1/2”	38	1 9/16”	40
Studs, Light Framing, Structural Light Framing, Joists & Planks, Patio Decking, Machine Graded Lumber, Glued Lumber	2 1/2”	2”	51	2 1/16”	52	3	2 1/2”	64	2 9/16”	65
	3”	2 1/2”	64	2 9/16”	65	4	3 1/2”	89	3 9/16”	90
	3 1/2”	3”	76	3 1/16”	78	5	4 1/2”	114	4 5/8”	117
	4”	3 1/2”	89	3 9/16”	90	6	5 1/2”	140	5 5/8”	143
	4 1/2”	4”	102	4 1/16”	103	7	6 1/2”	165	6 5/8”	168
						8	7 1/4”	184	7 1/2”	190
						9	8 1/4”	210	8 1/2”	216
						10	9 1/4”	235	9 1/2”	241
						11	10 1/4”	260	10 1/2”	267
						12	11 1/4”	286	11 1/2”	292

* In WR Cedar and East W Cedar only minimum green sizes are: 仅适用于西部红柏和东部白柏，最小湿材尺寸为：5" - 4 9/16"; 6" - 5 9/16"; 7" - 6 9/16"; 8" - 7 3/8"; 9" - 8 3/8"; 10" - 9 3/8"; 11" - 10 3/8"; 12" - 11 3/8"

Table 3c
表 3c

Product 产品	Thickness 厚度					Width 宽度				
	Nom. 名义尺寸	Dry 干材		Green 湿材		Nom. 名义尺寸	Dry 干材		Green 湿材	
		英寸	毫米	英寸	毫米		英寸	毫米	英寸	毫米
Industrial Clears 工业清材	1”	3/4”	19	25/32”	20	2	1 1/2”	38	1 9/16”	40
	1 1/4”	1”	25	1 1/32”	26	3	2 1/2”	64	2 9/16”	65
	1 1/2”	1 1/4”	32	1 9/32”	33	4	3 1/2”	89	3 9/16”	90
	2”	1 1/2”	38	1 9/16”	40	5	4 1/2”	114	4 5/8”	117
	2 1/2”	2”	51	2 1/16”	52	6	5 1/2”	140	5 5/8”	143
	3”	2 1/2”	64	2 9/16”	65	7	6 1/2”	165	6 5/8”	168
	3 1/2”	3”	76	3 1/16”	78	8	7 1/4”	184	7 1/2”	190
	4”	3 1/2”	89	3 9/16”	90	9	8 1/4”	210	8 1/2”	216
						10	9 1/4”	235	9 1/2”	241
						11	10 1/4”	260	10 1/2”	267
						12	11 1/4”	286	11 1/2”	292

*Size 5" and thinker are surfaced 1/2" off in both thickness and width.
*尺寸 为5" 及以上的，在刨光后，厚度和宽度均减小 1/2" 。

HOW TO READ A GRADE STAMP
怎样阅读等级章

等级认证机构标志/认证符号
在此为加拿大林业服务协会

锯材等级
锯材目测分级的常规等级包括:
SEL STR
No1, No2, No3
Stud/Stand&btr/Util

卫生处理:
HT(按照国际标准进行热处理，保证内核达到一定温度和时间，足以杀死害虫和真菌)

(这经常和锯材窑干结合，以符合'KD-HT'的等级章)

锯木厂标识
锯木厂数字
这可以使追溯锯材产地成为可能。

分级规则
当锯材是按照加拿大国家锯材分级委员会的规则进行分级时，等级章中含有"NLGA"。

干燥和含水量
这些可能包括:
KD(窑干至最大含水量为19%-也可能包括较少含水量数字，例如KD-15)
S-DRY(刨光干材最大含水量19%)
S-GRN(刨光湿材，最大含水量超过19%)

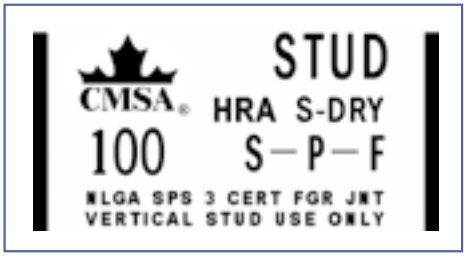
树种或树种组合
There are stamp identifications for 28 separate species, and 8 species combinations. For specifics of species combinations, see NLGA's Standard Grading Rules. Common designations are:
等级标识中有28个单个树种和8个树种组合。树种组合的具体细节，查阅NLGA的标准分级规则。常规名称如下:
S-P-F(云杉-松木-冷杉)
Hem-Fir(N)(西部铁杉-太平洋银冷杉)
D.Fir-L(N)(花旗松-西部落叶松)
N. Species(北方树种，包括红柏和某些松树、香脂冷杉、杨树)

注: 加拿大和美国可能有不同的树种组合，不同的结构等级。'S'表明美国树种组合,而'N'表明加拿大组合。

Grade Stamp Facsimiles
等级章样本

COFI

CMS A



AFPA

DESIGN VALUES
设计值

Table 4a
表 4a

Structural Light Framing (2" to 4" Thick, 2" to 4" Wide) & Joist And Planks (2" to 4" Thick, 5" & Wider) (Para. 124)

结构轻型框架(2英寸至4英寸厚，2英寸至 4英寸宽)，拖梁和平铺木板(2英寸至4英寸厚，5英寸及更宽) (124款)

Species Group 树种组合	Grade 等级	Extreme Fibre in Bending 弯曲时极限纤维 F_b	Tension Parallel to Grain 与木纹平行的张力 F_t	Horizontal Shear 水平剪切力 F_v	Compression 压力		Modulus of elastisity (million psi) 弹性模数 (百万psi)E
					Parallel to grain 与木纹平行 F_c*	Per. to grain 与木纹垂直 F_c	
D Fir-L (N) 花旗松 - 落叶松	Select structural 优选结构级	1350	825	180	1900	625	1.9
	No.1 & Btr	1150	750		1800		1.8
	No.1	850	500		1400		1.6
	No.2	850	500		1400		1.6
	No.3	475	300		825		1.4
Hem-Fir (N) 铁杉 - 冷杉	Select structural 优选结构级	1300	775	145	1700	405	1.7
	No.1 & Btr	1200	725		1550		1.7
	No.1	1000	575		1450		1.6
	No.2	1000	575		1450		1.6
	No.3	575	325		850		1.4
SPF 云杉 - 松木 - 冷杉	Select structural 优选结构级	1250	700	135	1400	425	1.5
	No.1	875	450		1150		1.4
	No.2	875	450		1150		1.4
	No.3	500	250		650		1.2
Northern Species 北方树种	Select structural 优选结构级	975	425	110	1100	350	1.1
	No.1	625	275		850		1.1
	No.2	625	275		850		1.1
	No.3	350	150		500		1.0

Table 4b
表 4b

Structural Light Framing (2" to 4" Thick, 2" to 4" Wide) & Joist And Planks (2" to 4" Thick, 5" & Wider) (Para. 124)
结构轻型框架(2英寸至4英寸厚，2英寸至4英寸宽)，拖梁和平铺木板(2英寸至4英寸厚，5英寸及更宽) (124款)

Species Group 树种群	Grade 等级	Extreme Fibre in Bending 弯曲时极限纤维 F_b	Tension Parallel to Grain 与木纹平行之张力 F_t	Horizontal Shear 水平剪切力 F_v	Compression 压力		Modulus of elastisity (million psi)E 弹性模数 (百万 psi)E
					Parallel to Grain 与木纹平行 Fc*	Perp. To Grain 与木纹垂直 Fc	
Cedar (N) 黄柏	Select structural 优选结构级	1200	725	175	1200	540	1.6
	No.1	800	475		1000		1.4
	No.2	800	475		1000		1.4
	No.3	475	275		575		1.3
C Sitka 锡特加云杉	Select structural 优选结构级	1300	950	125	1200	455	1.7
	No.1	925	550		1100		1.5
	No.2	925	550		1100		1.5
	No.3	525	325		625		1.4

Table 4c
表 4c

Light Framing (2" to 4" Thick, 2" to 4" Wide) (Para. 122)
轻型框架(2英寸至4英寸厚，2英寸至4英寸宽) (122款)

Species Group 树种群	Grade 等级	Extreme Fibre in Bending 弯曲时极限纤维	Tension Parallel to Grain 与木纹平行之张力	Horizontal Shear 水平剪切力 F_v	Compression 压力		Modulus of Elasticity (million psi)E 弹性模数(百万psi)E
					Parallel to Grain 与木纹平行 Fc*	Perp. To Grain 与木纹垂直 Fc	
D Fir-L (N) 花旗松 - 落叶松	Construction 建筑级	950	575	180	1800	625	1.5
	Standard 标准级	525	325		1450		1.4
	Utility 实用级	250	150		950		1.3
Hem-Fir (N) 铁杉 - 冷杉	Construction 建筑级	1150	650	145	1750	405	1.5
	Standard 标准级	650	350		1500		1.4
	Utility 实用级	300	175		975		1.3
SPF 云杉 - 松木 - 冷杉	Construction 建筑级	1000	500	135	1400	425	1.3
	Standard 标准级	550	275		1150		1.2
	Utility 实用级	275	125		750		1.1

Table 4d
表 4d

Light Framing (2" to 4" Thick, 2" to 4" Wide) (Para. 122)
轻型框架(2英寸至4英寸厚，2英寸至4英寸宽) (122款)

Species Group 树种群	**Grade** 等级	**Extreme Fibre in Bending** 弯曲时极限纤维 F_b	**Tension Parallel to Grain** 与木纹平行之张力 F_t	**Horizontal Shear** 水平剪切力 F_v	**Compression** 压力		**Modulus of Elasticity (million psi)E** 弹性模数 (百万psi)E
					Parallel to Grain 与木纹平行 **Fc***	**Perp. To Grain** 与木纹垂直 **Fc**	
Northern Species 北方树种	Construction 建筑级	700	325	110	1050	350	1.0
	Standard 标准级	400	175		875		0.9
	Utility 实用级	175	75		575		0.9
Y Cedar 黄柏	Construction 建筑级	925	550	175	1200	540	1.3
	Standard 标准级	525	300		1050		1.2
	Utility 实用级	250	150		675		1.1
C Sitka 锡特加云杉	Construction 建筑级	1050	650	125	1300	455	1.4
	Standard 标准级	600	350		1100		1.3
	Utility 实用级	275	175		725		1.2

注: 实用等级的设计值只适用2英寸x4英寸锯材。

ADJUSTMENT FACTOR FOR WIDTH
宽度调整系数

I) Tabulated design values for dimension lumber apply to 12" width for Structural Joists and Planks, and Structural Light Framing. For all other sizes of these grades, use the following adjustment factors:
结构托梁和平铺木板、及结构轻型框架规格材表格中的设计值适用于12英寸宽的锯材。这些等级的其它尺寸，使用下表中的调整系数。

Width (Depth) 宽度 (深度)	Bending 弯曲		Tension Parallel to Grain 与木纹平行的张力	Compression Parallel to Grain 与木纹平行的压力	All Other 所有其他
	<4" thick <4"厚	4" thick 4"厚			
<4"	1.5	1.5	1.5	1.15	1.0
5"	1.4	1.4	1.4	1.1	1.0
6"	1.3	1.3	1.3	1.1	1.0
8"	1.2	1.3	1.2	1.05	1.0
10"	1.1	1.2	1.1	1.0	1.0
12"	1.0	1.1	1.0	1.0	1.0
>14"	0.9	1.0	0.9	0.9	1.0

II) Tabulated values for Light Framing grades (Construction, Standard, Utility) apply to 4" and narrower lumber, except that values for Utility grade apply only to 2" by 4" lumber.
轻型框架规格材表格中的设计值(建筑级、标准级和实用级)适用4英寸和更窄的锯材，实用级的设计值只适用 2英寸x4英寸锯材。

III) Tabulated design values for Stud grade apply to 5" and 6" widths. For 6" and narrower Stud grade, use the factors listed below. For Stud grade lumber wider than 6", use the property values for No.3 grade and width adjustment factors as listed in above table.
墙柱表格中等级的设计值适用宽度5英寸和6英寸的锯材。对6英寸和更窄的墙柱等级，采用下表所列数据。对于超过6英寸的墙柱等级锯材，采用3级结构材的性能值以及上面表格中所列的宽度调整数据：

Width (Depth) 宽度(深度)	Bending 弯曲	Tension Parallel to Grain 与木纹平行的张力	Compression Parallel to Grain 与木纹平行的压力	All Other 所有其他
<4"	1.1	1.1	1.05	1.0
5" to 6"	1.0	1.0	1.0	1.0

ABBREVIATIONS
缩 写

AD	Air Dried 空气干燥
ALS	American Lumber Standard 美国锯材标准
ALSC	American Lumber Standard Committee Incorporated 美国锯材标准委员会公司
APP	Appearance 外观材 (级)
ASTM	American Society of Testing and Materials 美国检测和材料协会
Avg	Average 平均
B&Btr	B and Better B级及以上
Bd	Board 板材
Bd Ft	Board Feet 板尺
Bev	Bevelled 斜切的 (坡形面的)
BH	Boxed Heart 含树芯
B/L	Bill of lading 提货单
BM	Board Measure 板尺度量
CERT FGR JNT	Certified Finger Joined 认可指接
CIF	Cost, insurance and freight 成本、保险和运费
Clr	Clear 无缺陷材，清材
CLS AB or CLS	Canadian Standards Accreditation Board 加拿大标准认可局
Cmrl	Commercial 商业级
Com	Common 普通级
Const	Construction 建筑级
CSA	Canadian Standards Association 加拿大标准协会
Cu Ft	Cubic Foot 立方英尺
DET	Double end trimmed 两端截齐
Dim	Dimension 规格 (尺寸)
Dkg	Decking 露台
E	Edge 边缘、边角、侧面
ECON	Economy 经济级
EE	Eased Edges 光滑边角，导角
EG	Edge (vertical) grain 边缘 (垂直) 木纹，简称边纹或直纹
Fac	Factory 工厂级
FAS	Free alongside (vessel) 船边交货
FBM	Feet board measure 板尺度量
Fb	Allowable stress in bending in lbs per sq. inch 每平方英寸可允许弯曲压力的磅数
FG	Flat (or slash) grain 平纹

FJ	Fingerjoined 指接
FOB	Free on board (named point) 离岸价 (指定地点)
FOHC	Free of heart centre 无树芯
Ft	Foot or feet 英尺
G	Grain 木纹
GRN	Green 湿
G/S	Grade Stamp 等级章
H&M	Hit and miss 连刨和漏刨
H or M	Hit or miss 连刨或漏刨
HT	Heat- treated 热处理
IN	Inch or inches 英寸
J&P	Joists and Planks (wide structural lumber) 托梁和平铺木板 (宽结构锯材)
Jnt	Joint or joined 连接
KD	Kiln- dried 窑干
LAM	Lamination 层积
Lbr	Lumber 锯材
Lgth	Length 长度
Lin	Lineal or linear 直线或线性
M	Thousand 一千
m	Metre 米
MFBM	Thousand (ft.) board measure 千板尺
MC	Moisture Content 含水率
Merch	Merchantable 商品材
MG	Mixed Grain 混合纹理
MOE	Modulus of Elasticity or "E" (stiffness) 弹性模数或"E" (刚性)
MOR	Modulus of Rupture (strength) 断裂模数 (强度)
MSR	Machine Stress Rated 经机械压力分级的
NFF	Not firmly fixed (loose knots) 非紧密固定 (松动节)
No	Number 数字
Para	Paragraph 段落 (在法令、合同中又称款)
P&T	Post and Timbers 柱和方料
Pc	Piece 块，件
Pcs	Pieces 块，件 (复数)
PET	Precision end trimmed 精确端头截齐
PO	Purchase Order 购买订单

Reg	Regular 正常
Rgh	Rough 毛面
R/L	Random Lengths 不定长 或 随机长度
R/W	Random Widths 不定宽 或 随机宽度
S-DRY	Surfaced Dry 刨光面干材
S-GRN	Surfaced Green 刨光面湿材
SM	Surface Measure 表面尺寸
SPS	Special Products Standard 特殊产品标准 (NLGA Guides for Engineered Wood Products) (NLGA对工程木产品的规则)
Sq	Square 平方，方角 (意指无缺边)
SRB	Stress-Rated Boards 经压力分级的板材
Std	Standard 标准
STK	Sound and Tight knots 健全和紧固节
Str	Structural 结构
S&E	Side and Edge 宽面和窄面
S&T	Sound and Tight 健全和紧固
S4S	Surfaced four sides 四面刨光
S1S1E	Surfaced 1 side 1 edge 一个宽面和一个窄面刨光
Tbrs	Timbers 方料
T&G	Tongued and grooved 企口
Uns	Unsound 非健全的 (即腐朽的)
Util	Utility 实用级
VERT	Vertical 垂直
VG	Vertical (edge) grain 垂直 (边缘) 木纹
Wdr	Wider 更宽
Wt	Weight 重量
Symbols	符号
"	Inch or inches 英寸
'	Foot or feet 英尺
X	By, as 4 x 4 乘，如 4乘4

Canada Wood
加 拿 大 木 业

加拿大木业上海总部

A：上海浦东新区红枫路425号

T：+86 21 5030112 6

北京办公室

A：北京市朝外大街乙12号昆泰国际大厦1507室

T：+86 10 59251255