

Lumber Grading

Who, What, & Why

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Overview

- Grading rules:
 - Where did they come from?
 - Why do we need them?
 - Who writes the rules?
 - Who 'enforces' the rules?
- How is lumber graded?
- How are new grading agencies created?
- What are the options for small-scale sawmill operators?

[The Origins of Grading Rules]

- 1922 – Secretary of commerce responds to request from lumber industry for simplification, standardization, and QA
- 1924 – R 16 *Lumber – American Lumber Standards for Softwood Lumber*
- 1969 – DOC VPS PS 20-70 *American Softwood Lumber Standard*
 - (current standard PS 20-99)

[Voluntary Product Standard PS 20-99] *American Softwood Lumber Standard*

- Establishes nationally recognized requirements for products and provides all concerned interests with a basis for common understanding of the characteristics of the products.
- Contents:
 - Terminology
 - Classification
 - Measurement and Tally
 - Lumber Sizes
 - Grading Rule Requirements
 - Grade Marking (Grade Stamping)
 - Inspection and Reinspection
 - ALSC, Board of Review, NGRC
 - References, Appendix A-D

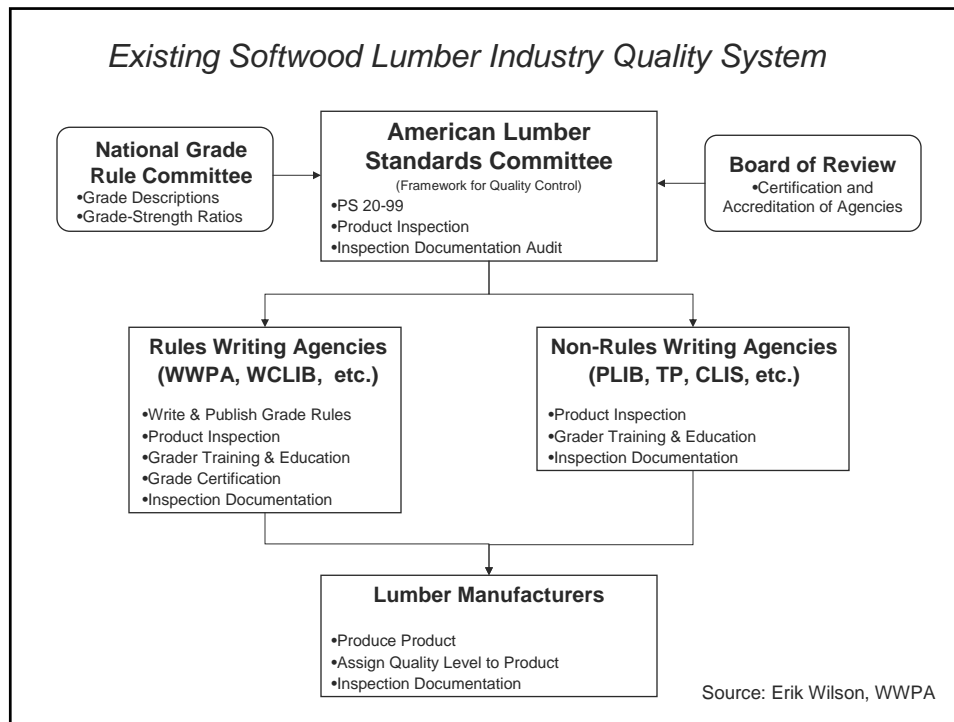
['Alphabet Soup']

DOC/ NIST/ ALSC

- U.S. Department of Commerce (DOC)
 - National Institute of Standards & Technology (NIST)
 - American Lumber Standards Committee (ALSC)
 - Board of Review
 - National Grading Rule Committee

[Roles & responsibilities]

- **DOC** – “...establish nationally recognized requirements for products and provide all concerned interests with a basis for common understanding of the characteristics of the products.”
- **NIST** – acts as unbiased coordinator in the development of standards; **non-regulatory** (however standards become “trade customs”)



American Lumber Standards Committee, Inc. (ALSC)

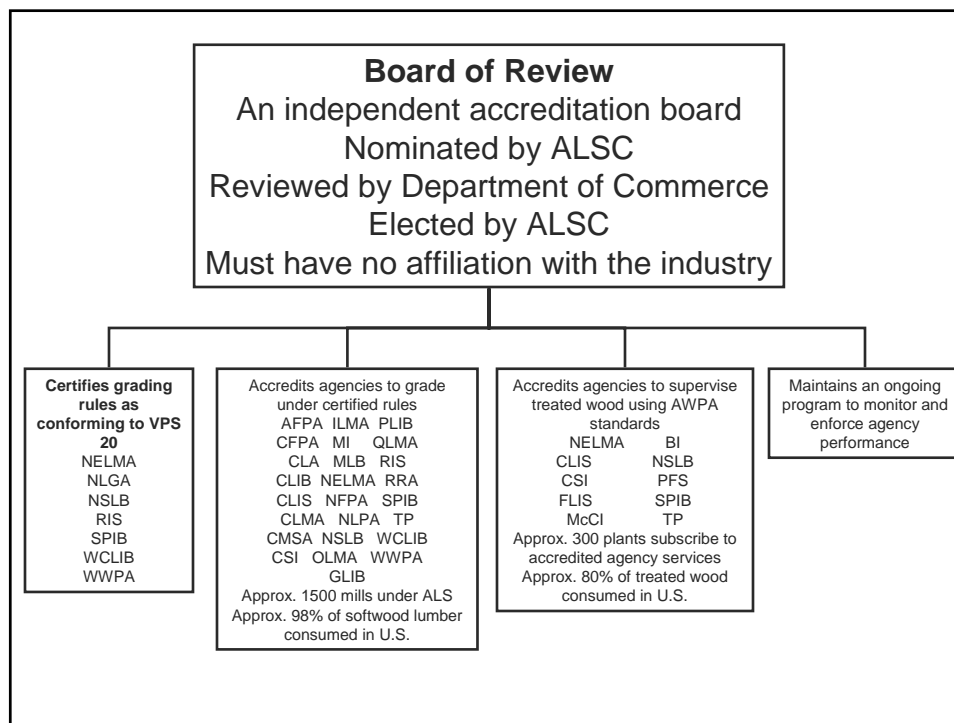
- Function: Establish and maintain suitable standards by which any system of inspecting, grading and marking lumber might be judged impartial and unbiased.
 - Membership appointment by Secretary of Commerce every 5 years.
 - Prepares policies to implement the Standard system and enforcement regulations for use by accreditation board (Board of Review).

Source: Erik Wilson, WWPA

Board of Review

- Function: Evaluate and certify that any grading rules published by an agency do not conflict with any other rules and conform to the ALS.
 - Comprised of three members elected by the ALSC.
 - Board of Review judges and certifies the competency, reliability and adequacy of facilities of an agency seeking accreditation to perform grade marking using approved rules, and the procedures proposed by the agency by which mills become authorized to grade mark.

Source: Erik Wilson, WWPA



[National Grade Rule Committee (NGRC)]

- Function: Establish and maintain grade-strength ratios, nomenclature and grade descriptions for Dimension lumber under NGR.

Source: Erik Wilson, WWPA

[How is lumber graded?]

- Visual inspection
- Mechanical inspection
 - An opportunity for a co-op owned MSR machine?

[Grading Rule Requirements]

- General Concepts
 - Grading parameters, minimum grade requirements, grade characteristics, special provisions, mixed grades, nonstandard grades.
- Seasoning Provisions
 - General, grading rules, dry size req., shrinkage (Grn & Dry), size differentials, green size req., grade marking.
- Visual Grading Classification Provisions
 - Yard lumber, Factory and Shop lumber, Structural lumber



Grade Marking (Grade Stamping)

- Agency Procedures
 - Agency submits grade mark procedures to Board for approval
- Agency Symbol
 - Mills authorized to use the **agency's symbol** will be inspected regularly
- The Grade Mark
 - Grade marking provisions: signifies the size, grade and seasoning, agency registered trademark, producing mill (**requirement for a fixed address?**), mixed grades, species, remanufacturing, additional requirements

Grading – An Example

Characteristics and limitations for lumber meeting the requirements for No. 1 Structural Light Framing (WWPA rules)

- **No. 1** 2" to 4" thick, 2" to 4" wide
- **Checks** – Surface seasoning checks, not limited. Through checks at ends are limited as splits,
- **Grain** – Medium

[Grading – An Example]

- **Knots** – Sound, firm encased, and pith knots, if tight and well spaced, are permitted in sizes not to exceed the following, or equivalent displacement:

Nominal Width	At Edge Wide Face	Centerline Wide Face	Unsound or Loose Knots & Holes
2"	½"	½"	½"
3"	¾"	¾"	¾"
4"	1"	1½"	1"

- **Manufacture** – Standard “E”
- **Pitch and pitch streaks** – Not limited
- **Pockets, pitch or bark** – Not limited

[Grading – An Example]

- **Shake** – If through at ends, limited as splits. Surface shakes up to 2' long
- **Skips** – Hit and miss skips in a maximum of 10% of the pieces
- **Slope of grain** – 1 in 10
- **Splits** – Equal in length to the width of the piece
- **Stain** – Stained sapwood. Firm heart stain of firm red heart
- **Wane** – ¼ the thickness and ¼ the width full length, or equivalent on each face, provided that the wane not exceed ½ the thickness or 1/3 the width for up to ¼ the length
- **Warp** – ½ of medium

Inspection & Reinspection

Inspection

- Agency Certification & Supervision
 - ALS grade marked lumber shall be under direction of accredited agency
- Delegation of Grading Authority
 - Board accredited agencies may delegate permission to grade mark to mills demonstrating ability and conformance to grade rules. Mills agree to submit lumber to inspection (**monthly**) at mill and destination
- Payment – Certificate Costs
 - Cost of certificate borne by requesting party
- Service
 - Inspection of grades not described in rules when written detailed specifications accompany request for such inspection

Reinspection – resolution of buyer-seller disputes

Formation of new agencies

- Accreditation – PS 20-99, Section 10.3
 - “Upon application, the Board shall examine and accredit... agencies as conforming to the requirements of this Standard...
 - “The competency, reliability, and adequacy of the facilities provided by agencies participating in this program for the purposes of lumber certification, inspection, reinspection, or supervision of grade marking”
 - The adequacy of the procedure followed...
 - The continuing conformance & continuing competency...

[Formation of new agencies]

- Accreditation – PS 20-99, Section 10.7
 - “The Board shall not accredit any inspection agency that is controlled by any person or firm whose own products are subject to its inspection and certification, and the Board shall not accredit inspection services furnished by buyers and users for inspection of their own purchases.”

[Options for small-scale mills]

- Join one of the established agencies
 - WWPA - \$300-400/ month*
 - WCLIB - \$330/ month*
 - TP - \$200-250/ month*
- Pay for transient grading services
 - E.g., WCLIB (~\$300-\$500/day plus expenses)
- Co-op owned MSR machine

* Costs cited in 2003 report: *Feasibility of Grading Lumber Produced by Independent Mills in the Interior West*, R. Anthony

[Options for small-scale mills]

- Co-op dry kiln/ planer site that provides grading services
 - Add brokering as service?
- Take grading course (e.g., via TP) and work with building inspectors
- Work with association like NWPA or Sustainable NW to negotiate contract with WWPA (Alaska model)
- Other ideas???

Source: Anthony, R. 2003. *Feasibility of Grading Lumber Produced by Independent Mills in the Interior West*

[Other questions]

- Do you **need** to get the lumber stamped?
 - What are Oregon building code requirements?