Structural Wood Products

- Sawn Lumber
- Structural Glued-Laminated Timber
- Structural Panel Products
- Structural Composite Lumber
- Wood I-joists
Sawn Lumber

- Sawn lumber is sold in **species groups**
  examples:
  - southern pine
  - Douglas fir-larch
  - spruce-pine-fir

Sawn Lumber

- **Dimension Lumber**: 2 - 4 in. thick, > 2 in. wide (e.g. 2x6)
- **Beams and Stringers**: > 5 in. thick, width > thickness + 2 in. (e.g. 6x10)
- **Posts and Timbers**: > 5 in. thick, width ≤ thickness + 2 in. (e.g. 6x6)
Sawn Lumber

- **Nominal dimensions**: e.g. 2x6
- **Actual dimensions**: e.g. 1.5 x 5.5
- Dressed lumber is surfaced on 4 sides (S4S)
- Rough sawn lumber is also available (actual size is 1/8 in. larger than dressed sizes).
- See notes, NDS, or LRFD Manual for actual sizes

Sawn Lumber Grades

- **Visual Stress Rating**
  - certified lumber graders examine each piece and assign grade based on visual characteristics
    - Select Structural, No. 1, No. 2, No. 3, Stud, Construction, Utility
  - each grade denotes design strength and stiffness values that are found in design specifications (NDS and LRFD Manual)
Sample Grade Stamp for Visually Graded Lumber

Grading Agency (Southern Pine Inspection Bureau)

Extra logo for Southern Forest Products Association

Kiln Dried to 19% MC

Lumber Grade (No. 1)

Mill Number
Sawn Lumber Grades

• Machine Stress Rating (MSR)
  • lumber is sorted based on non-destructive measurement of lumber stiffness (MOE) and visual characteristics
  • MSR lumber has lower variability in strength properties
  • MSR lumber properties are species independent

Machine Stress Rating Process

1. Lumber enters machine and is flexed by rollers
2. Load Cells measure resistance to bending forces
3. Computer system assigns grade to lumber and sends signal to stamp piece
Sawn Lumber Grades

- Machine Evaluated Lumber (MEL)
  - lumber is sorted based on non-destructive measurement of lumber properties (e.g. density measurement by X-ray)
  - MEL lumber has lower variability in strength properties
  - MSR lumber properties are species independent
Sample Grade Stamp for Machine Evaluated Lumber (MEL)

- Grading Agency
- Design Bending Strength (2400 psi)
- Design Modulus of Elasticity (1.8 million psi)
- Lumber Grade
- Kiln Dried to 19% MC
- Design Tension Strength Parallel to Grain (1900 psi)
- Design Compression Strength Parallel to Grain (2000 psi)
- Mill Number

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