

## Lumber Grading

Visual Grading is the most common type of grading performed on lumber in the U.S. A grade stamp on each piece of lumber as it leaves the mill. Visual grading is done based on both appearance and strength factors. The grader marks each piece of lumber according to such factors as:

Number, size, and position of knots and holes

1. Bark on edges
2. Decay
3. Checks and splits
4. Machining defects
5. Twisting, bowing, and warp
6. Species

Rules for grading are established by the U.S. Department of Commerce and maintained by the American Lumber Standards Committee. These standards are enforced by regional organizations (e.g. Western Wood Products Association, Northeastern Lumber Manufacturers Association, Southern Pine Inspection Bureau, West Coast Lumber Inspection Bureau, and others). Three years of training are required to become a grader, and in Washington each grader is required to pass the Western Lumber grading rules exam. A grader is very important to the mill because he is responsible for separating lumber products into appropriate strength categories. At the mill shown in the picture, seventy- two pieces of lumber per minute are graded by three graders. Lumber is grouped into different categories such as: dimension lumber, boards, and timbers based on the following cross-sectional dimensions.

- Boards: 1 to 1.5 inches thick, 2 inches and wider
- Dimension Lumber: 2 to 4 inches thick, 2 inches and wider
- Timbers: 5 inches and thicker, 5 inches and wider

Dimension lumber is further subdivided into five categories based on size classifications. These classes are structural joists and planks, studs, decking, light framing, and structural light framing. After the dimension lumber has been separated, the grader assigns a grade.

7. Structural light framing lumber has nominal dimensions of 2" to 4" thickness and 2" to 4" width, and typically divided into four separate grades: select structural, No. 1, No. 2, and No.3. Select Structural is the best grade in terms of strength characteristics and also the most expensive, No. 1 is the second best, and so on.
8. Light framing lumber has nominal dimensions of 2" to 4" thickness and 2" to 4" width and is divided into three separate grades: construction, standard, and utility. Construction is the best in this case.
9. Stud lumber has nominal dimensions of 2" to 4" thick and 2" to 6" wide. There is only one grade of stud lumber.
10. Decking is divided into two grades: select decking and commercial decking. Select decking is best in this case.

11. Structural joists and planks has nominal dimensions of 2" to 4" thickness and 5" or greater width, and are typically divided into four separate grades: select structural, No. 1, No. 2, and No.3.
12. Timbers are also subdivided into two groups by size classification: Beams and Stringers and Posts and Timbers. Again, after the lumber has been separated, the grader assigns a grade.
13. Visual grades of posts and timbers (nominal dimensions of 5" and thicker and width not more than 2" greater than thickness) are dense select structural, Dense No. 1, No. 1, and No. 2. Dense select structural is the best grade in terms of strength characteristics and also the most expensive, No. 1 is the second best and so on.
14. Visual grades of beams and stringers (nominal dimensions of 5" and thicker and width more than 2" greater than thickness) are dense select structural, Dense No. 1, No. 1, and No. 2. Dense Select Structural is the best grade in terms of strength characteristics and also the most expensive, No. 1 is the second best and so on.
15. Board lumber is graded by evaluating the better face of the board. Natural and manufacturing defects are considered, but strength is not a critical factor (unlike the grading of dimension lumber).
16. The highest classification of board lumber is called select grade. Select grade is further divided into three categories: B & Better, C Select, and D Select. B is the best but all of the select grades are used in demanding finishing applications.
17. The next classification is called common grade. Common grade boards generally contain more knots than the select grade. Common grade is divided numerically from 1 to 5 with 1 being the best in appearance. No. 3 and No. 4 common grades are most frequently used for such applications as sheathing or sub-flooring.