

LUMBER GRADING



The Lumber Grade – Your Guarantee of Quality Building Products

The grade stamp is seen on every piece of lumber produced in North America, but what does it mean?

In a nutshell, a lumber grade is the quality control standard and has been since it was instituted in 1960 following a revision to Canadian and U.S. building codes requiring graded, stamped lumber to be used in all wooden buildings.

A lumber grade is a *minimum* standard describing the characteristics allowed in a piece of lumber. Each piece of lumber is assigned a grade based on its quality, using a rule which considers the intended use of the piece, the size of the piece, its quality, and in some cases its species. Quality is affected by the number and/or size of characteristics and the way these characteristics affect strength and appearance.

Most lumber used in house building is a No.2 grade or better. For Canadian lumber, identical design values are given for No.1 or No. 2 grade lumber for S-P-F (Spruce-Pine-Fir).

“Lumber is the only commodity in North America that is self-regulated,” said Norm Dupuis, Director of the Grade Bureau at the Alberta Forest Products Association (AFPA). “Lumber grading is linked to government regulations like building codes, safety codes and CSA standards, but skilled employees at the mill site inspect and grade each piece of lumber produced.”

¹ A.F.P.A.[®] 00

³ S-P-F NLGA

⁴ KD-HT

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The AFPA is the primary certification agency in Alberta, responsible for ensuring the quality control of each piece of stamped lumber originating from its members. To do that, one of three AFPA quality supervisors make unannounced visits to each lumber mill in the province at least 12 times a year. During these inspections, quality supervisors have the authority to examine any or all lumber at the mill site to ensure it meets the quality characteristics associated with the grade stamp.

The AFPA has been involved in lumber grading since 1960 when Cid Robinson from the Western Pine Association in the United States was contracted to set up the Alberta grading program. In March of 1960, the AFPA hired its first grade inspector, Clayton Anderson, who formally retired from the organization at the annual general meeting held in October 2003 – a career of 43 years!

In 1970 the National Lumber Grades Authority (NLGA) published standard grading rules for all Canadian lumber. It remains the industry standard and is also accepted in the United States – Canada's biggest lumber importer. The Canadian Lumber Standards Accreditation Board (CLSAB) approves the NLGA rules and accredits the grading agencies in Canada.

Grading Categories

Select Structural grade is lumber primarily intended for use when high stiffness and good appearance are desired.

No. 1 and No. 2 grade lumber are the most common lumber grades and are recommended for most general construction uses. The differences between Select Structural, No. 1 and No. 2 grade lumber relate to appearance and strength characteristics.

For light framing grades, the top two grades are combined and called **Standard and Better** grade lumber. Pieces are generally of good appearance but have a somewhat reduced strength and stiffness from No. 2 lumber.

Stud grade lumber is a special purpose grade which typifies the structural characteristics necessary for use in framing walls.

Secondary manufacturing facilities use **No. 3, Utility** and **Economy** grade lumber for wood storage or crating boxes, wood pallets and bracing materials. Additionally, the secondary manufacturers look to recover stud grade lumber from these pieces.

The Lumber Grade Stamp

A grade stamp shows: (1) the registered symbol of the certified agency; (2) the mill identification number; (3) the species or species group; (4) the seasoned condition; and, (5) the grade name or number. In the illustration, this grade stamp states that the lumber is certified by the Alberta Forest Products Association, from Mill 00 (which can be found in the AFPA membership directory – this one is fictitious); is from a coniferous tree (a.k.a softwood – **Spruce-Pine-Fir**); was graded according to **National Lumber Grades Authority** rules; is kiln-dried and heat treated (19 per cent or less moisture content) and; is of #1 grade.

Lumber Grading Professionals: Value to the Public and the Industry

Grading professionals in Alberta grade lumber for use in home construction, engineered wood applications, and finger-jointed and other glued products. Even value-added re-manufacturers, do-it-yourself home repair markets, and customers as far away as Europe and Asia benefit from the skills of Alberta grading professionals. Through the skilled application of the lumber grade rules, our lumber graders provide consumers in Alberta and around the world with reliable information, which allows them to select those lumber products that will meet their specific needs.

From the perspective of the forest industry, lumber graders determine not only the suitability of a piece of lumber for many different uses, but also ultimately determine the value of that piece. After all of the hard work done by the foresters, loggers and sawmill personnel, the final arbiters of both the grade, and therefore the value, of a piece of lumber are the lumber graders. Highly skilled grading professionals make significant contributions to shareholder value in the plants in which they work by properly applying the grade rules to the lumber they handle every day.

Grade stamper



A grade stamp is put on every piece of lumber for use in Canada and the U.S.

Dimension Lumber Sizes

Standard dimension lumber sizes produced in North America are listed as surfaced dry sizes (19 percent moisture content or less) in the table below. The availability of lumber sizes varies somewhat according to the area of the country from which the raw material originates.

Lengths up to 6.1 m (20') are commonly available from western Canada and up to 4.9m (16') from eastern Canada. Longer lengths are available on special order. They are also available in the form of fingerjoined lumber.

Dimension Lumber - Sizes

Surfaced Dry (S-Dry), Size, mm	Surfaced Dry (S-Dry), Size, in. (actual)	Rough Sawn Size, in. (nom.)	Surfaced Green (S-Grn) Size, in. (actual)
38 x 38	1-1/2 x 1-1/2	2 x 2	1-9/16 x 1-9/16
x 64	x 2-1/2	x 3	x 2-9/16
x 89	x 3-1/2	x 4	x 3-9/16
x 140	x 5-1/2	x 6	x 5-5/8
x 184	x 7-1/4	x 8	x 7-1/2
x 235	x 9-1/4	x 10	x 9-1/2
x 286	x 11-1/4	x 12	x 11-1/2
64 x 64	2-1/2 x 2-1/2	3 x 3	2-9/16 x 2-9/16
x 89	x 3-1/2	x 4	x 3-9/16
x 140	x 5-1/2	x 6	x 5-5/8
x 184	x 7-1/4	x 8	x 7-1/2
x 235	x 9-1/4	x 10	x 9-1/2
x 286	x 11-1/4	x 12	x 11-1/2
89 x 89	3-1/2 x 3-1/2	4 x 4	3-9/16 x 3-9/16
x 140	x 5-1/2	x 6	x 5-5/8
x 184	x 7-1/4	x 8	x 7-1/2
x 235	x 9-1/4	x 10	x 9-1/2
x 286	x 11-1/4	x 12	x 11-1/2

Notes:

6. 38mm (2" nominal) lumber is readily available as S-Dry.
7. S-Dry lumber is surfaced at a moisture content of 19 percent or less.
8. After drying, S-Green lumber sizes will be approximately the same as S-Dry lumber.
9. Tabulated metric sizes are equivalent to Imperial S-Dry sizes rounded to the nearest millimeter.
10. S-Dry is the final size for seasoned lumber in place and is the size used in design calculations.