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# Picea glauca (Moench) Voss
# Family: Pinaceae
# White Spruce

The genus Picea is composed of about 30 species native to North America [12] and Eurasia [20]. The word *picea* comes from the ancient Latin name (*pix, picis* = pitch) of a pitchy pine, probably Scotch pine (*Pinus sylvestris* L.). The word *glauca* means glaucous, or covered with a bloom, referring to the blue green foliage.

**Other Common Names:** Adirondack spruce, Alberta spar, Alberta spruce, Alberta white spruce, Alberta-gran, Black Hills spruce, blue spruce, bog spruce, Canadese spar, Canadese witte spar, Canadian spruce, cat spruce, double spruce, eastern blue spruce, eastern Canadian spruce, eastern spruce, epicea canadien, epinette a biere, epinette blanche, epinette grise, epinette jaune, he-balsam, juniper, labrador spruce, Maritime spruce, New Brunswick spruce, northern spruce, Nova Scotia spruce, picea canadese, picea de Alberta, picea de Canada, picea del Canada, picea di Alberta, pine, Porsild spruce, Quebec spruce, sapin blanc, sapin de Normandie, sapinette blanche, sapinette d'Alberta, single spruce, skunk spruce, spruce pine, spruces d'america, St. John's spruce, transcontinental spruce, vit-gran, water spruce, western white spruce, white spruce, wit-spar, yew pine.

**Distribution:** White spruce is native to widespread areas across northern North America near the northern limit of trees, from Newfoundland, Labrador and northern Quebec, west to the Hudson Bay, northwest Mackinaw and northwestern and southwestern Alaska, south to southern British Columbia, southern Alberta and northwestern Montana, east to southern Manitoba, central Minnesota, central Michigan, southern Ontario, northern New York and Maine. Also locally in the Black Hills of South Dakota and Wyoming.

**The Tree:** White spruce trees reach heights of 110 feet, with diameters of 2 feet. Exceptionally large trees have been reported with a height of 150 feet and a diameter of 4 feet.

**General Wood Characteristics:** The wood dries easily and is stable after drying, is moderately light in weight and easily worked, has moderate shrinkage, and is moderately strong, stiff, tough, and hard. It is straight, even grained, soft and finishes with a satin like surface. The wood is creamy white or straw colored, and there is little difference between the heartwood and sapwood.

Mechanical Properties (2-inch standard)

| | Specific gravity | MOE x10$^6$ lbf/in$^2$ | MOR lbf/in$^2$ | Compression | | WML[a] in-lbf/in$^3$ | Hardness lbf | Shear lbf/in$^2$ |
|---|---|---|---|---|---|---|---|---|
| | | | | Parallel lbf/in$^2$ | Perpendicular lbf/in$^2$ | | | |
| Green | 0.33 | 1.14 | 5000 | 2350 | 210 | 6.0 | 320 | 640 |
| Dry | 0.45 | 1.43 | 9400 | 5180 | 430 | 7.7 | 480 | 970 |

[a]WML = Work to maximum load.
Reference (56).

Drying and Shrinkage

| | Percentage of shrinkage (green to final moisture content) | | |
|---|---|---|---|
| Type of shrinkage | 0% MC | 6% MC | 20% MC |

| | | | |
|---|---|---|---|
| Tangential | 8.2 | NA | NA |
| Radial | 4.7 | NA | NA |
| Volumetric | 13.7 | NA | NA |

References: (192).

## Kiln Drying Schedules[a]

Conventional temperature/moisture content-controlled schedules[a]

| Condition | 4/4, 5/4 stock | 6/4 stock | 8/4 stock | 10/4 stock | 12/4 stock | British schedule 4/4 stock |
|---|---|---|---|---|---|---|
| Standard | T11-B4 | NA | T10-B3 | T5-A2 | T5-A2 | K |

[a]Reference (28, 185, 73)

Conventional temperature/time-controlled schedules[a]

| | Lower grades | | | Upper grades | | | |
|---|---|---|---|---|---|---|---|
| Condition | 4/4, 5/4 stock | 6/4 stock | 8/4 stock | 4/4, 5/4 stock | 6/4 stock | 8/4 stock | 12/4, 16/4 stock |
| Standard | 291 | 291 | 291 | 291 | 289 | 289 | 288 |

[a]References (28, 185)

High temperature[a]

| Condition | 4/4, 5/4 stock | 6/4 stock | 8/4 stock | Other products |
|---|---|---|---|---|
| Standard | 400 | 400 | 400 | Studs/412 |

[a]References (28, 185)

**Working Properties:** White spruce is easily worked.

**Durability:** Spruces are rated as slightly or nonresistant to heartwood decay (12).

**Preservation:** White spruce is rated as resistant to preservative treatment (6).

**Uses:** The largest use of eastern spruce is for pulpwood. It is also used for framing material, general millwork, boxes and crates, and piano sounding boards.

**Toxicity:** Working with fresh spruce wood may cause dermatitis, or other contact sensitivity (5,8&13).

## Additional Reading and References Cited (in parentheses)


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