



## ***Tsuga canadensis* (L.) Carr.**

### **Family: Pinaceae**

### **Eastern Hemlock**

The genus *Tsuga* contains about 14 species native to North America [4] and southern and eastern Asia [10]. The word *tsuga* is the Japanese name for the native hemlocks of Japan. The word *canadensis* means “of Canada”.

**Other Common Names:** Abete del Canada, American hemlock, black hemlock, Canadese hemlock, Canadese hemlock-den, Canadian hemlock, eastern hemlock, hemlock spruce, Huron pine, kanadensisk tsuga, New England hemlock, Pennsylvania hemlock, perusse, pine, pruche de l'est, pruche prusse, red hemlock, sapin du Canada, schierlingstanne, spruce, spruce hemlock, spruce pine, tsuga canadese, tsuga del Canada, tsuga du Canada, vanlig hemlock, water hemlock, water spruce, West Virginia hemlock, white hemlock, Wisconsin white hemlock.

**Distribution:** Eastern hemlock is native to Cape Breton Islands, Nova Scotia, Prince Edward Island, New Brunswick, the Gaspé Peninsula of southern Quebec and Maine, west to southern Ontario, northern Michigan, Wisconsin, and eastern Minnesota, south to Indiana and east to Ohio, Pennsylvania, Maryland and New Jersey and south in the mountains to northwestern South Carolina, northern Georgia and northern Alabama. The production of hemlock lumber is divided fairly evenly between the New England States, the Middle Atlantic States, and the Lake States.

**The Tree:** Mature eastern Hemlock trees commonly reach heights of 100 feet, with diameters of 3 feet. A record tree was recorded at 160 feet, 7 foot diameter and an age of 988 years.

**General Wood Characteristics:** The heartwood of eastern hemlock is pale brown with a reddish hue. The sapwood is not distinctly separated from the heartwood but may be lighter in color. The wood is coarse and uneven in texture (old trees tend to have considerable shake); it is moderately light in weight, moderately hard, moderately low in strength, moderately limber, and moderately low in shock resistance.

#### Mechanical Properties (2-inch standard)

	Specific gravity	MOE x10 <sup>6</sup> lbf/in <sup>2</sup>	MOR lbf/in <sup>2</sup>	Compression		WML <sup>a</sup> in-lbf/in <sup>3</sup>	Hardness lbf	Shear lbf/in <sup>2</sup>
				Parallel lbf/in <sup>2</sup>	Perpendicular lbf/in <sup>2</sup>			
Green	0.38	1.07	6400	3080	360	6.7	400	850
Dry	0.43	1.20	8900	5410	850	6.8	500	1060
<sup>a</sup> WML = Work to maximum load. Reference (56).								

#### Drying and Shrinkage

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

Tangential	6.8	5.4	2.3
Radial	3.0	2.4	1.0
Volumetric	9.7	7.8	3.2
References: (56, 192).			

### Kiln Drying Schedules<sup>a</sup>

#### Conventional temperature/moisture content-controlled schedules<sup>a</sup>

Condition	4/4, 5/4 stock	6/4 stock	8/4 stock	10/4 stock	12/4 stock	British schedule 4/4 stock
Standard	T12-C4	NA	T11-C3	T8-A3	T8-A2	K

<sup>a</sup>Reference (28, 185).

**Working Properties:** Eastern hemlock splinters easily when worked with tools. It is low in splitting resistance and average in nail holding capacity. It also glues easily and is moderate in paint holding ability.

**Durability:** Eastern hemlock is rated as slightly or nonresistant to heartwood decay (11).

**Preservation:** It is rated as resistant to preservative treatment (7).

**Uses:** Eastern hemlock is used principally for lumber and pulpwood. The lumber is used largely in building construction for framing, sheathing, subflooring, and roof boards, and in the manufacture of boxes, pallets, and crates.

**Toxicity:** Working with eastern hemlock may cause dermatitis (6&8).

#### Additional Reading and References Cited (in parentheses)

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