

# COMPARING WOOD SPECIES



UNIT	SPF-INTERIOR SPRUCE <small>{Picea glauca}</small>	SPF-LODGEPOLE PINE <small>{Pinus contorta}</small>	SPF-ALPINE FIR <small>{Abies lasiocarpa}</small>	WESTERN HEMLOCK <small>{Tsuga heterophylla}</small>	DOUGLAS FIR <small>{Pseudotsuga menziesii}</small>	YELLOW CEDAR <small>{Cupressus nootkatensis}</small>	WESTERN RED CEDAR <small>{Thuja plicata}</small>	DARK RED MERRANTI <small>{Shorea spp.}</small>	EUROPEAN BEECH <small>{Fagus sylvatica}</small>	TEAK <small>{Tectona grandis}</small>	AMERICAN WHITE OAK <small>{Quercus alba}</small>	AMERICAN WHITE ASH <small>{Fraxinus americana}</small>
------	--	---	---	--	---	---	---	---	--	--	---	---

## WOOD PROPERTIES

DENSITY (AT 12% MC)	KG/M3	380	430	351	429	540	431	339	675	710	650	755	673
MOR/ STRENGTH	MPA	63	76	56	81	85	80	54	87.7	110	100.7	102.3	103.4
MOE /STIFFNESS	MPA	10000	10900	10200	12300	13440	11000	8200	12020	14310	10700	12150	11997
HARDNESS	N	1880	2190	1560	2740	3158	2510	1470	3570	6460	4400	5990	5871
SEASONING		GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	DIFFICULT	DIFFICULT	GOOD	DIFFICULT	GOOD
DURABILITY		POOR	POOR	POOR	POOR	GOOD	VERY GOOD	VERY GOOD	GOOD	POOR	VERY GOOD	GOOD	POOR
TREATABILITY		MODERATE	GOOD	DIFFICULT	GOOD	GOOD	DIFFICULT	DIFFICULT	DIFFICULT	GOOD	DIFFICULT	VERY DIFFICULT	GOOD
PLANING		VERY GOOD	EXCELLENT	VERY GOOD	VERY GOOD	VERY GOOD	EXCELLENT	VERY GOOD	VERY GOOD	VERY GOOD	GOOD	GOOD	GOOD
TURNING		GOOD	GOOD	GOOD	VERY GOOD	EXCELLENT	VERY GOOD	GOOD	VERY GOOD	EXCELLENT	VERY GOOD	GOOD	EXCELLENT
MORTISING		VERY GOOD	VERY GOOD	GOOD	VERY GOOD	EXCELLENT	EXCELLENT	GOOD	VERY GOOD	VERY GOOD	VERY GOOD	GOOD	GOOD
NAILING		VERY GOOD	MODERATE	MODERATE	VERY GOOD	VERY GOOD	VERY GOOD	MODERATE	MODERATE	VERY GOOD	GOOD	GOOD	GOOD

# COMPARING WOOD SPECIES

UNIT	SPF-INTERIOR SPRUCE <small>{Picea glauca}</small>	SPF-LODGEPOLE PINE <small>{Pinus contorta}</small>	SPF-ALPINE FIR <small>{Abies lasiocarpa}</small>	WESTERN HEMLOCK <small>{Tsuga heterophylla}</small>	DOUGLAS FIR <small>{Pseudotsuga menziesii}</small>	YELLOW CEDAR <small>{Cupressus nootkatensis}</small>	WESTERN RED CEDAR <small>{Thuja plicata}</small>	DARK RED MERRANTI <small>{Shorea spp.}</small>	EUROPEAN BEECH <small>{Fagus sylvatica}</small>	TEAK <small>{Tectona grandis}</small>	AMERICAN WHITE OAK <small>{Quercus alba}</small>	AMERICAN WHITE ASH <small>{Fraxinus americana}</small>
------	--	---	---	--	---	---	---	---	--	--	---	---

## WOOD PROPERTIES

SCREW HOLDING		GOOD	MODERATE	MODERATE	GOOD	VERY GOOD	GOOD	MODERATE*	MODERATE	VERY GOOD	VERY GOOD	GOOD	GOOD
STAINING		VERY GOOD	VERY GOOD	VERY GOOD	VERY GOOD	EXCELLENT	VERY GOOD	EXCELLENT	VERY GOOD	GOOD	VERY GOOD	EXCELLENT	EXCELLENT
VOLUMETRIC SHRINKAGE (GREEN TO 12% MC)	%	13.7	11.1	9.4	12.4	12.4	9.2	6.8	13.1	17.3	7	16.3	13.3
T/R RATIO		1.7	1.6	2.8	1.9	1.6	2.1	2.1	2.1	2	2.3	1.9	1.6
SHRINKAGE- RADIAL	%	4.7	4.3	2.6	4.2	4.8	2.8	2.4	3.8	5.7	2.5	5.6	4.9
SHRINKAGE-TANGENTIAL	%	8.2	6.7	7.4	7.8	7.6	6	5	7.9	11.6	5.8	10.5	7.8

\*SS wood screws allowing minimum 1" penetration or 1.25" penetration in structural application.

### References

- 1) Wood Handbook- Wood as an engineering material, 2010, centennial edition, Forest Products Laboratory, USA
- 2) <http://www.wood-database.com>
- 3) Sustainable American hardwoods: a guide to species [www.americanhardwood.org](http://www.americanhardwood.org)
- 4) Trada Technology, UK. [www.trada.co.uk/wood-species](http://www.trada.co.uk/wood-species)
- 5) Technology transfer factsheets, Forest Products Laboratory, USA  
[https://www.fpl.fs.fed.us/research/centers/woodanatomy/techsheets\\_display.php?geo\\_category\\_id=3&genus\\_commonname\\_criteria=c&sorting\\_rule=1a](https://www.fpl.fs.fed.us/research/centers/woodanatomy/techsheets_display.php?geo_category_id=3&genus_commonname_criteria=c&sorting_rule=1a)

### Scale From 1-10

10	= Excellent
8 & 9	= Very Good
7	= Good
5 & 6	= Moderate
less than 5	= Poor