



## IMPORTED TIMBER

12

**Species:** *Thuja plicata* D. Don.

**Standard Trade Name:** Western red cedar.

**Common Names:** British Columbia cedar and canoe cedar.

**1. Size of tree / type of forest:** A large softwood, the largest of the North American cedars, occurring in British Columbia, Washington, Oregon, Idaho and Montana.

**2. Wood description:** Heartwood variable from pale brown to dark brown. Sapwood yellowish white and up to 2 cm wide. The texture is fine but uneven due to the prominent growth rings. The timber is straight grained and not resinous.

**3. Wood density:**

Green density (kg/m <sup>3</sup> ):	Unavailable.
Air-dry density (kg/m <sup>3</sup> ):	About 380 kg/m <sup>3</sup> .
Basic density (kg/m <sup>3</sup> ):	Unavailable.

**4. Drying and shrinkage:**

	<u>Tangential Shrinkage (%)</u>	<u>Radial Shrinkage (%)</u>
Before reconditioning:	3.0	1.5
After reconditioning:	Unavailable	Unavailable

**5. Workability:** Easy to dry and work. It is brittle and care is needed when working the end grain. The wood is soft, therefore there is a risk when dressing that the cutters may compress the softer earlywood which will later recover to produce a ridged surface. Damp wood is corrosive to iron, resulting in a black discolouration of the surrounding wood, and galvanised nails are commonly used in areas likely to experience any dampness. A yellowish colouring readily leaches from the wood so white-painted woodwork at a lower level can stain if water penetrates an unprotected surface.

**6. Durability Class:** 3 Decay      3 Decay + termites      (CSIRO revised ratings 1996).

**7. Strength Groups:** S7 and SD8.

**8. Strength Properties:**

Property	Units	Green	Dry
Modulus of Rupture	MPa	37	54
Modulus of Elasticity	MPa	7200	8300
Max Crushing Strength	MPa	19	34
Hardness	kN	1.2	1.5

**9. Uses:** Not used as a structural timber. Widely used as weather boards, fascias, external joinery, garden furniture, window sashes and frames, greenhouses, roofing shingles and shakes and internal panelling. **Less durable than previously thought.** If the water run-off from a newly installed cedar roof is to be used for drinking it should be boiled. If damp conditions are common the shingles and shakes may be subjected to soft rot attack and some form of fungicidal treatment may be needed.

**10. Availability:** Large quantities are imported into the eastern states. Limited stocks are available in Western Australia.

## BACKGROUND INFORMATION

### 1. Size of tree and type of forest

Small trees have average heights up to 15 m, medium 15 to 30 m, and large over 30 m. Types of forest are sclerophyll (with closed canopy), woodland (with scattered trees), or rain forest. Diameter breast height is stem diameter at 1.3 m above ground.

### 2. Wood description

For example, sapwood and heartwood colour, grain, figure

### 3. Wood density ( $\text{kg/m}^3$ )

Green density is the density of wood in the living tree, defined as green mass divided by green volume, and useful for estimating transport costs. It varies with season and growing conditions. Air-dry density is the average mass divided by volume at 12 per cent moisture content (this is the average environmental condition in the coastal capital cities around Australia). Basic density is oven-dry mass divided by green volume. This measure has the advantage that moisture content variations are avoided.

### 4. Drying and shrinkage

As wood dries, it shrinks more in the tangential direction (i.e. parallel to the growth rings) than it does in the radial direction (i.e. at right angles to the growth rings). The figures given are shrinkage from green to 12 per cent moisture content, before and after steam reconditioning treatment. Reconditioning recovers any cells that may have collapsed during drying, and is essential for species such as the ash-type eucalypts.

### 5. Workability

Comments are made on the comparative ease or difficulty of turning, nailing and bending, on susceptibility to splitting and other working properties.

### 6. Durability

The CSIRO Durability Classes are based on the performance in ground of outer heartwood when exposed to fungal and termite attack. Class 1 gives more than 25 years life, Class 2 gives 15 to 25 years, Class 3 gives 8 to 15 years, and Class 4 less than eight years. The ratings are not relevant to above-ground use. In late 1996, CSIRO published revised ratings, which include termite susceptibility.

### 7. Strength grouping

In grading of structural timber, each species is allocated a ranking for green timber of S1 (strongest) to S7, and for seasoned timber SD1 (strongest) to SD8.

Minimum values for strength groups for green timber (units are MPa)

Strength property	S1	S2	S3	S4	S5	S6	S7
Modulus of rupture	103	86	73	62	52	43	36
Modulus of elasticity	16300	14200	12400	10700	9100	7900	6900
Maximum crushing strength	52	43	36	31	26	22	18

Minimum values for strength groups for seasoned timber (units are MPa)

Strength property	SD1	SD2	SD3	SD4	SD5	SD6	SD7	SD8
Modulus of rupture	150	130	110	94	78	65	55	45
Modulus of elasticity	21500	18500	16000	14000	12500	10500	9100	7900
Maximum crushing strength	80	70	61	54	47	41	36	30

### 8. Strength Properties

Values are from Bootle, K.R. (1983). 'Wood in Australia. Types, properties and uses'. (McGraw-Hill)

### 9. Uses

Various past and potential uses are given, but the list is obviously not conclusive.

### 10. Availability

Timber from many species is available only near the areas that the trees grow naturally or in plantations. Imported timbers and their current availability are identified.