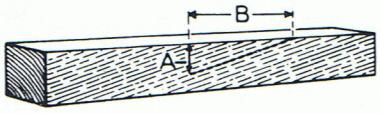
MEASUREMENT OF CHARACTERISTICS

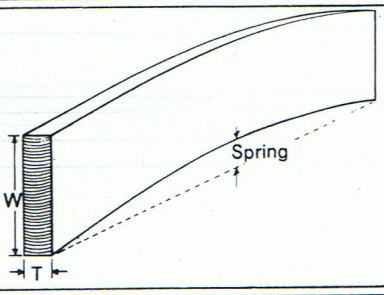
Measurement of Slope of Grain:

Slope of grain shall be measured over a distance not less than three times the width of the piece, but sufficient to determine the general slope. Local variations in slope of grain around knots shall be disregarded.



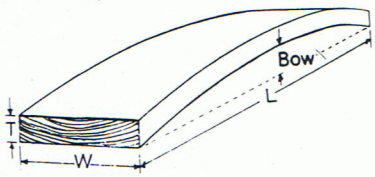
Spring:

This is a lengthwise curvature of the edge of a piece of timber away from a straight line from end to end of the piece. It shall be measured at a right angle from the straight line to the edge of the piece at the deepest part of the curve.



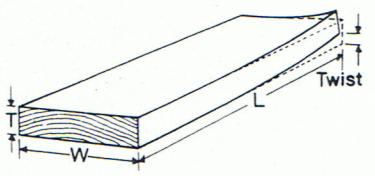
Bow:

This is a lengthwise curvature of the face of a piece of timber away from a straight line from end to end of the piece. It shall be measured at a right angle from the straight line to the face of the piece at the deepest part of the curve.



Twist:

This is a spiral distortion along the length of a piece of timber. Twist shall be measured by placing the piece on a flat surface with three of its corners in contact with the surface. The perpendicular distance of the fourth corner from the flat surface is the amount of twist in the piece.

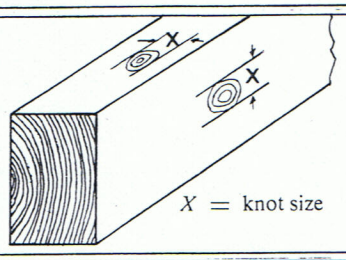


Edge knot:

A knot with its boundary contained wholly within the narrow face of the piece.

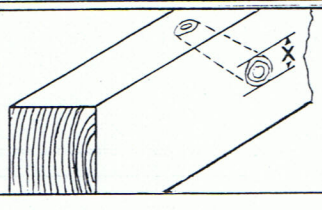
Face knot:

A knot with its boundary lying wholly within the wide face.



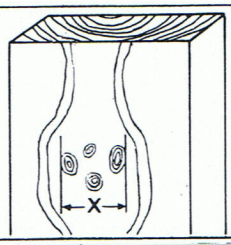
Through knot:

A knot appearing on both the edge and face of a piece, but which does not appear on the intersection of these two longitudinal surfaces.



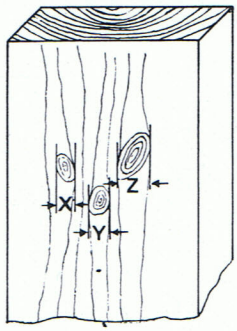
Knot cluster

Knot cluster shall be measured as the distance between two lines drawn parallel with the edges of the piece and enclosing all the knots within a length of the piece equivalent to the width of the piece.



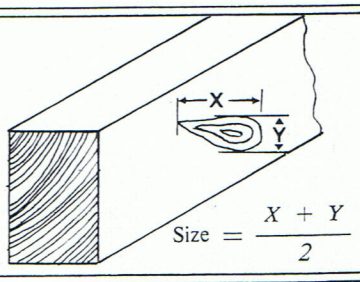
Knot group:

Knots in a group shall be measured as the sum of the distances between lines parallel with the edges of the piece and enclosing each individual knot in the group, except where two of these distances partly or wholly overlap. A knot group shall be deemed to consist of all knots occurring within a length of a piece equivalent to the width of the piece.



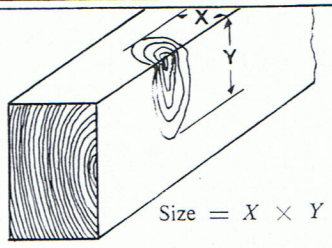
Spike knots:

The size of a spike knot shall be measured on the wide face as the average of its length and greatest width, and expressed as a fraction of the width of the face. A spike knot which cuts an arris shall be measured as an arris knot.



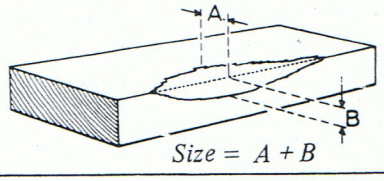
Arris knots:

The size of an arris knot shall be measured as the product of the right-angled projection of the knot on adjacent faces, and expressed as a percentage of the nominal cross-sectional area of the piece.



Wane and/or Want:

Wane and want shall be measured as the amount by which the width of the face and edge of a piece of timber is deficient.



Stud Grades

Timber for studs shall generally comply with grade descriptions except as follows

i) Heart shakes — not exceeding 3 mm wide and not face to face or face to edge

ii) Spring — 6 mm for 2.4 m length
— 8 mm for 2.7 m length
— 10 mm for 3 m length

iii) Twist — not exceeding 8 mm per 100 mm width

TABLE 1

Maximum permissible spring or bow (mm)

Length L (m)	Width W (for Spring) or Thickness T (for Bow) (mm)					
	38	50	100	150	200	250
1·8	13	10	5	3	2	2
2·4	22	17	8	5	3	3
3·0	35	27	13	8	6	5
3·6	50	38	19	12	10	8
4·2	70	52	25	17	12	11
4·8	90	68	33	22	17	14
5·4	114	86	43	24	21	16
6·0	141	105	52	35	27	21

TABLE 2

Maximum permissible twist (mm) per 100 mm width of piece

Length L (m)	Thickness T (mm)					
	38	50	75	100	125	150
1·8	6	5	3	3	2	2
2·4	8	6	4	3	3	2
3·0	10	8	5	4	3	3
3·6	12	9	6	5	4	3
4·2	14	10	7	5	5	4
4·8	16	12	8	6	5	4
5·4	18	14	9	7	6	5
6·0	20	15	10	8	6	5

VISUALLY STRESS GRADED CYPRESS PINE FOR STRUCTURAL PURPOSES

(Conforms to Australian Standard 1648-1974)

DEFINITIONS

STRESS GRADE – a value assigned to a piece of structural timber to indicate primarily the basic working stress in bending under long duration loadings used in engineering design. The stress grades for the timber described below are F4, F5 and F7.

ABBREVIATIONS

T = the thickness or edge dimension of the piece of timber.
W = the width or face dimension of a piece of timber.

TOLERANCES

At the time of grading, the actual width and thickness of any piece of timber shall not differ from the nominal width and thickness by more than 3 mm.

COMBINATION OF CHARACTERISTICS

A combination of two or more characteristics of different permissible types occurring within a distance of each other not exceeding twice the width of the face shall be permitted provided the cumulative effect of the combination does not exceed the effect of a single characteristic of maximum permissible size for the grade of timber.

BASIS OF GRADING

The basis of a grade of construction timber is the effect on the strength of the piece of the worst permissible characteristic. All pieces except studs may be cut to shorter lengths without affecting adversely the original grading. All pieces resawn longitudinally shall be subsequently regraded.

GRADE LIMITS AND INSPECTION

Each grade description describes material on the lower limit of the grade. Each parcel supplied shall include a distribution of material of quality ranging above the lower limit of the grade.

As only the general features of a grade can be described, a variation of up to 5 percent of a parcel between the gradings of individual inspectors shall be accepted.

This specification is based on unseasoned material. If the timber is inspected a considerable time after sawing, reasonable allowance shall be made for shrinkage and other changes that normally take place during seasoning. Changes that are due to poor storage or handling shall be cause for rejection.

GRADE DESCRIPTIONS

CHARACTERISTICS	MAXIMUM PERMISSIBLE LIMITS		
	F7 (SELECT) GRADE	F5 (STANDARD) GRADE	F4 (BUILDING) GRADE
SLOPING GRAIN	1 in 8	1 in 6	1 in 6
KNOTS			
Face	3/10 face	2/5 face	1/2 face
Edge	1/2 edge	3/5 edge	2/3 edge
Through	As for face or edge	As for face or edge	As for face or edge
In Groups a) On Face – Group Single b) On Edge –	 1/2 width 1/5 width 1/2 thickness	 3/5 width 1/5 width 3/5 thickness	 2/3 width 1/4 width 2/3 thickness
Arris Sections less than 75 x 50 mm Sections 75 x 50 mm or over	 Not permitted Not permitted	 Not permitted 1/2 of cross section	 Unlimited Unlimited
HOLES	As for knots	As for knots	As for knots
BORER HOLES (per 100 x 100 mm) a) Up to 3mm b) Over 3 mm c) Over 6 mm d) Over 13 x 20 mm. (See Borer Galleries.)	 2 holes 2 holes 1 hole	 4 holes 3 holes 2 holes	 8 holes 6 holes
BORER GALLERIES a) Individually – width – depth – length b) Aggregate width	 6 mm 6 mm 100 mm 1/4 width of surface	 13 mm 6 mm 100 mm 1/4 width of surface	 13 mm 6 mm 250 mm 1/4 width of surface
HEART SHAKES Not surface to surface	2 mm Wide	3 mm Wide	3 mm Wide
WANT AND/OR WANE a) In pieces up to 38 mm thick b) In pieces over 38 mm thick On Fixing Face Not exceeding	 Not Permitted 1/3 (width + thickness) 1/3 Thickness 1/2 Width	 Not Permitted As for Select Grade	 Not Permitted As for Select Grade
PITH AND SOUND HEART	Not Permitted	Unlimited	Unlimited
STAIN	Unlimited	Unlimited	Unlimited
DOZE	Not Permitted	1/4 width of surface or 25 mm x 6 mm deep	As for Standard Grade
END SPLITS (aggregate length)	Not Permitted	100 mm	150 mm
SAPWOOD	Unlimited	Unlimited	Unlimited
OVERGROWTH OF INJURY a) Tight Blotch b) Other up to 3 mm wide over 3 mm wide	 Not permitted	 Not extending edge to edge Not extending face to face 1/2 length of piece 450 mm long	 As for Standard Grade As for Standard Grade As for Standard Grade As for Standard Grade
RESIN & BARK POCKETS	12 mm wide x 150 mm long or equivalent area	As for Select Grade	20 mm wide x 150 mm long, or equivalent area.
BOW 3m x 50 mm thick	27 mm. Other sizes see Table 1.	As for Select Grade	As for Select Grade
SPRING 3 m x 100 mm width	13 mm. Other sizes see Table 1.	As for Select Grade	As for Select Grade
TWIST 3 m x 50 mm thick	8 mm per 100 mm of width.	As for Select Grade	As for Select Grade