ITI Australia
Innovative Timber Ideas

SPECIES FACT SHEET

American Red Oak – Quercus rubra

Other Names: Northern Red Oak

Region of Origin: North America

General Description

American Red Oak; also known as Northern Oak and Northern Red Oak , is a versatile hardwood sourced from North America. The sapwood ranges from white to light brown in colour, while the heartwood displays pink to reddish-brown tones. Its appearance is similar to White Oak, though with a slightly less pronounced grain figure. The timber is generally straight-grained with a coarse texture.

Main Uses

Furniture I Joinery I Mouldings I Flooring

Working Properties:

Timber takes nails and screws well, although pre-drilling is advised. Stains and polishes to a food finish.

Mechanical Properties

The wood has medium bending and crushing strengths, with low stiffness which makes it an excellent stem bending material.

Janka Hardness: 5.2 kN

MOR: 53 MPa (Unseasoned), 87 MPa (Seasoned)

MOE: 9 GPa (Unseasoned), 12 GPa (Seasoned)

Crushing Strength: 22 MPa (Unseasoned), 44 MPa (Seasoned)

Availability

Widely available as kiln dried appearance grade products used for internal applications.

Grading

Unseasoned: N/A

Seasoned: Super Prime I Prime I Select I Rustic

Density (kg/m3*):	Unseasoned: 980kg/m3 I Seasoned: 730kg/m3
Durability:	Above Ground: Non-Durable I In Ground: Non-Durable

Strength Group:	Unseasoned: S6 I Seasoned: SD6
MOR (MPa):	Unseasoned: 53 I Seasoned: 87
MOE (GPa):	Unseasoned: 9 I Seasoned: 12
JANKA (kN):	5.2

Air dry density values are indicative only and may vary. Refer to timber property tables for strength shrinkage and durability classifications.

Certification: FSC certified

FSC www.fsc.org FSC® C109057 The mark of responsible forestry

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Strength Groupings

Minimum values for strength groups (unseasoned timber)			
(units are Mpa = 145 lb/sq.inch)			
Strength group	Modulus of rupture	Modulus of elasticity	Maximum crushing strength
S1	103	16300	52
S2	76	14200	43
S3	73	12400	36
S4	62	10700	31
S5	52	9100	26
S6	43	7900	22
S7	36	6900	18

Minimum values for strength groups (seasoned timber)			
(units are Mpa = 145 lb/sq.inch)			
Strength group	Modulus of rupture	Modulus of elasticity	Maximum crushing strength
SD1	150	21500	80
SD2	130	18500	70
SD3	110	16000	61
SD4	94	14000	54
SD5	78	12500	47
SD6	65	10500	41
SD7	55	9100	36
SD8	45	7900	30

Shrinkage Classifications

Description of shrinkage	Shrinkage from Green to Oven-dry (12% MC)	
	(%) before reconditioning	
	Tangential	Radial
Very Low	0 - 3.5	0 - 2
Low	3.5 - 5.0	2 - 3
Medium	5.0 - 6.5	3 - 4
High	6.5 - 8.0	4 - 5
Very High	› 8.0	› 5

Durability Classifications

Grade of durability	Approximate service life (years)		
	Fully Protected	Above ground, exposed	In-ground, exposed
Very Durable	› 50	› 40	› 25
Durable	› 50	15 - 40	15 - 25
Moderately Durable	› 50	7 - 15	5 - 15
Non-Durable	› 50	0 - 7	0 - 5

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