

## Angelin

Family. Fabaceae

Botanical Name(s).

*Andira coriacea*

*Andira wachenheimi* (synonymous)

*Andira inermis*

*Andira jamaicensis* (synonymous)

*Andira parviflora*

*Andira p.p.*

Continent. Latin America

CITES. This species is not listed in the CITES Appendices (Washington Convention 2023).

### Description of logs

Diameter. From 60 to 90 cm

Thickness of sapwood. From 3 to 5 cm

Floats. No

Log durability. Good

### Description of wood

Colour reference. Red brown

Sapwood. Clearly demarcated

Texture. Coarse

Grain. Straight or interlocked

Interlocked grain. Slight

Notes. Pink brown to red brown, bands of light coloured parenchyma tissue give this wood a distinctive figure. Presence of internal stresses and wind shakes.

### Physics and mechanics

The properties indicated are for mature wood. These properties may vary significantly depending on the origin and growing conditions of the wood.

Property	Average value
Specific gravity <sup>1</sup>	0.86
Monnin hardness <sup>1</sup>	8.8
Coefficient of volumetric shrinkage	0.65 % per %
Total tangential shrinkage (St)	7.3 %
Total radial shrinkage (Sr)	4.6 %
Ratio St/Sr	1.6
Fibre saturation point	23 %
Thermal conductivity ( $\lambda$ )	0.28 W/(m.K)
Lower heating value	19,180 kJ/kg
Crushing strength <sup>1</sup>	72 MPa
Static bending strength <sup>1</sup>	128 MPa



Quarter sawn



Flat sawn

Modulus of elasticity <sup>1</sup>	20,170 MPa
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<sup>1</sup> At 12 % moisture content, with 1 MPa = 1 N/mm

### Natural durability and preservation

Resistance to fungi. Class 2 - durable

Resistance to dry wood borers. Class D - durable (sapwood demarcated, risk limited to sapwood)

Resistance to termites. Class D - durable

Treatability. Class 3 - poorly permeable

Use class ensured by natural durability.

Class 4 - in ground or fresh water contact

**Notes.** The species *Andira coriacea* is very resistant to decay (class 1); it naturally covers the use class 5 (wood permanently or regularly submerged in salt water, sea water or brackish water). According to the European standard NF EN 335 (2013), performance length might be modified by the intensity of end-use exposition.

### Requirement of a preservative treatment

Against dry wood borer. Does not require any preservative treatment

In case of temporary humidification. Does not require any preservative treatment

In case of permanent humidification. Does not require any preservative treatment

### Drying

Drying rate. Rapid to normal

Risk of distortion. Slight risk

Risk of casehardening. No known specific risk

Risk of checking. Slight risk

Risk of collapse. No known specific risk

Notes.

Suggested drying program.

Phases	Duration (H)	MC (%) probes	T (°C)	Rh (%)	UGL (%)
<b>Prewarm 1</b>		> 50	50	87	17.0
<b>Prewarm 2</b>	4	> 50	50	86	16.5
<b>Drying</b>		> 50	53	85	15.7
		50 - 40	53	82.0	14.6
		40 - 35	54	78.0	13.4
		35 - 30	55	77.0	12.9
		30 - 27	57	73.0	11.9
		27 - 24	58	68.0	10.7
		24 - 21	60	61.0	9.3
		21 - 18	62	52.0	7.9
		18 - 15	64	43.0	6.6
		15 - 12	65	39.0	6.0
		12 - 9	65	31.0	5.0
		9 - 6	65	28.0	4.5
<b>Conditioning</b>	8		58	(3)	(2)
<b>Cooling</b>	(1)		Stop	(3)	(2)

(1) ) Cooling: until the temperature inside the kiln no longer exceeds external temperature by more than 30 °C.

(2) UGL = final H% x 0,8 to 0,9.

(3) Subtract RH from the UGL determined in (2) and temperature, using the Hailwood-Horrobin equation.

## Sawing and machining

**Blunting effect.** Fairly high

**Sawteeth recommended.** Stellite-tipped

**Cutting tools.** Tungsten carbide

**Peeling.** Bad

**Slicing.** Good

**Notes.** It is difficult to obtain a smooth surface in planing because of the alternate bands of hard and soft wood. Splinters may cause infection.

## Assembling

**Nailing and screwing.** Good but pre-boring necessary

**Notes.** Tends to split when nailing. Gluing must be done with care (dry wood and smooth surfaces).

## Commercial grading

**Appearance grading for sawn timbers.**

According to NHLA grading rules (2015) Possible grading: FAS, Select, Common 1, Common 2, Common 3.

In French Guiana, the local name of this species is "Saint Martin Rouge". Grading is done according to local rules "Bois guyanais classés".

Possible grading: choix 1, choix 2, choix 3, choix 4

**Visual grading for structural applications**

No visual grading for structural applications

## Fire safety

**Conventional French grading.**

Thickness > 14 mm: M3 (moderately inflammable)

Thickness < 14 mm: M4 (easily inflammable)

**Euroclasses grading.** D-s2, d0

Default grading for solid wood, according to requirements of European standard EN 14081-1+A1 (August 2019).

It concerns structural graded timber in vertical uses and ceiling with mean density upper 0.35 and thickness upper 22 mm.

## End-uses

- Bridges (parts not in contact with water or ground)
- Cabinetwork (high class furniture)
- Current furniture or furniture components
- Decking
- Exterior joinery
- Exterior panelling
- Heavy carpentry
- Industrial or heavy flooring
- Interior joinery
- Sliced veneer
- Turned goods
- Vehicle or container flooring
- Wood frame house



Traditional bench made of Saint Martin rouge – Organic Collection – Design by Sous le Fromager, Kourou (French Guiana).

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### Main local names

Country	Local name
Brazil	Acapurana
Brazil	Almendro de rio
Brazil	Andira
Brazil	Andira uchi
Brazil	Angelim
Colombia	Congo
Ecuador	Moton
French Guiana	Saint martin rouge
Guyana	Bat seed
Guyana	Koraro
Mexico	Maquilla
Peru	Quinillo colorado
Suriname	Rode kabbes
Trinidad and Tobago	Angelin
Venezuela	Sarrapio montanero