

Structural Pine

C/C - C/D

CD P & TS

Underlayment T&G

Veneer & Plywood
TULSA
Tulipas & Contrachapados

Technical Specs

- *Excellent for construction use.*
- *Strength and stiffness.*
- *Exceptional resistance to moisture.*
- *High thermal and acoustic insulation.*
- *Optional results for exterior and interior uses.*

TECHNICAL PROPOSAL FOR ITS USE

This **Panel** has great strength and structural stability and is ideal for many interior and exterior uses. Faces and backs are not sanded and accept open defects (open knots and cracks according to the international grading standards). Faces are always of a higher quality than backs.

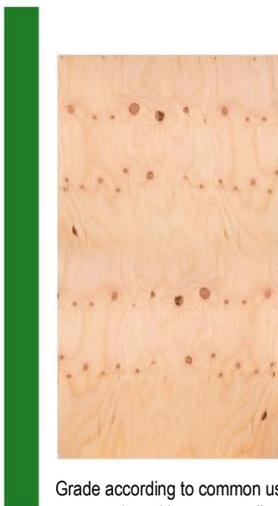
CHARACTERISTIC

Tulsa **Pine Plywood** is constructed using 100% plantation Radiata Pine veneers that have been sorted according to the following American PS 1-95 standard face grades.

Panels are constructed by gluing veneers together perpendicularly, with the face grain always being in the long direction. Tulsa always uses uneven numbers of plies to reach the best stability and strength resistance.

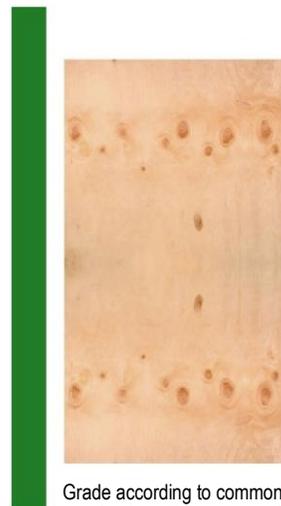
The grade used for face/backs: **C/C - C/D** **CD P & TS** **Underlayment T&G**

Grade C



Grade according to common use for construction with some small open defects.

Grade D



Grade according to common use for construction, Packaging, with some open and tight knots.

Grade P&TS



Grade according to common use for construction with sanded faces and without some open, tight knots and some small open defects synthetically repaired, and / or with wood in its faces.

Grade Underlayment T&G



Appropriate for the use in floor underlayment and packaging with sanded faces, tight knot with defects synthetically repaired and / or wood in its faces.

SIZES

Thickness:

- 9 mm = 11 / 32"
- 12 mm = 15 / 32"
- 15 mm = 19/32"
- 18 mm = 23 / 32"

Dimensions:

- Width 1,22 mt = 4'
- Length 2,44 mt = 8'

RECOMMENDED USES

- Exterior Siding
- Roof and Wall sheathing
- Floors underlayment
- Packing

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HUMIDITY

During manufacturing, panel humidity is controlled and stabilized between 8% to 12%.

THERMAL INSULATION

Tulsa **Pine Plywood** are excellent for use as exterior sheathing or for interior panels due to their low thermal conductivity coefficient ($k=10/\text{cal-m/m}^2 \text{ h}^\circ \text{C}$).

QUALITY CERTIFICATION

Tulsa **Pine Panels** are certified by the American company **TP Timber Products Inspection** and fulfill the standards set in American **PS 1-09** norm.

The controls of the board production process of Tulsa Standard Film are certificated under the standards of the **European Community ENE 13986:2004**.

ADHESIVES

Tulsa **Pine Panels** are produced using phenolic resins with low polluting emission in accordance to European **E-1** norm. This allows outdoor uses with an exceptional resistance to moisture without causing environmental pollution when used in interior applications.

FSC

Tulsa boards are certified for Chain of Custody **FSC Mix**, registration code SA - COC - 002117. This certification must be requested at the time of quotation.

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Panel Sizes and Tolerance

Format		Tolerance	
Length	2.44 mm - 8"	+ 0; - 1,6 mm	
Width	1.22 mm - 4"	+ 0; - 1,6 mm	
Thickness	9 a 25 mm - 11/32" a 1"	Sanded	$\pm 0; 4 \text{ mm} \leq 19 \text{ mm}$
			$\pm 3.0 \% > 19 \text{ mm}$
		Not Sanded	$\pm 0,8 \text{ mm} < 20,5 \text{ mm}$
			$\pm 5 \% \geq 20,6 \text{ mm}$

General Information

Thickness	N° plies	N° panels/bundle	Weight Panel Kg	Density Kg/m ³ (1)	Make up of product	Type of facing material
9 mm - 11/32"	3	108	14,6	544	Radiata Pine Veneers	Radiata Pine Veneers
12 mm - 15/32"	5	80	19,6	550		
15 mm - 19/32"	5	65	22,9	515		
18 mm - 23/32"	7	54	29,1	543		

Source: (1) Data obtained from Tulsa boards in tests done by TECO USA year 2006. Density Tolerance +/- 10%.

Physical - Mechanical Properties

Thickness	Bending Stiffness MOR II kN · m ² /m (2)	Bending Strength MOE II kN · m/m (2)	Shear Through Thickness Strength kN/m (2)	Planar Shear Strength kN/m (2)
9 mm - 11/32"	0,35	0,137	22,8	5,1
12 mm - 15/32"	1,22	0,313	33,3	7,7
15 mm - 19/32"	2,17	0,463	43,8	10,1
18 mm - 23-32"	3,34	0,575	44,7	12,2

Source: (2) Data are criteria of tests of American Standard TECO PS 1 -09 for Group 1

Physical - Mechanical Properties

Thickness	MOR \parallel N/mm ²	MOR \perp N/mm ²	MOE \parallel N/mm ²	MOE \perp N/mm ²
9 mm - 11/32"	45	15	5.000	500
12 mm - 15/32"	60	23	5.000	1.500
15 mm - 19/32"	38	23	4.000	2.000
18 mm - 23/32"	38	23	5.000	2.000
21 mm - 53/64"	30	10	4.000	2.000

Source: (2) Data are results with the Standard UNE- ENE 310



Allowable live loads / Spacing of supports center to center

