lignum
strand

TABSAL SCL

The Company

Although Tabsal is only 20 years old, the company was built from a success story that began in 1952. In this year Carpintería Saldise was born, who would become the founder of an important manufacturing company of interior doors called Industrias Carsal, a pioneer in Spain, manufacturing hidden edge doors in the 60's, moulded doors in the 80's, lacquered doors in the 90's and finally technical doors, both fire resistant and acoustic in the early years of this century. Tabsal was born in 1999, launched as a new initiative from Carsal, tasked with the technological challenge of replacing quality solid wood with a product composed of wood that solves the great and historical problems of its use, stability.
As a result of an internal R+D+I process developed in Carsal, the LIGNUMSTRAND product
was finally born, and with it Tabsal .
Currently, the third generation of this family is in charge of the company.

Environmental Commitment

TABSAL SCL SL assumes a responsibility and a commitment to the environment and sustainable development, which begins with its raw materials, buying and selling products with PEFC certification, thus ensuring its sustainability and its role as a CO_2 sink.
It is also important to note that the wood with which **Lignumstrand** is manufactured comes from within a perimeter of 200 km from the factory, which makes our product local, minimizing transport and thus avoiding large amounts of emissions into the atmosphere.
The waste wood from the process is reused, some for energy production in the same process plant, and some for energy production in processing plants in the surrounding area.

PEFC™
PEFC/14-35-00022

Commitment to Innovation and Quality

TABSAL SCL is a company where innovation is not only based on developing new products, it is also promoting new business models, offering new services and improving processes to be able to offer the customer the right product .
The vision of TABSAL SCL is always to achieve the very best end result, hence our collaborative spirit in all areas of the business: with customers, suppliers, technical partners and organizations ...

LIGNUMSTRAND THE NEW TIMBER

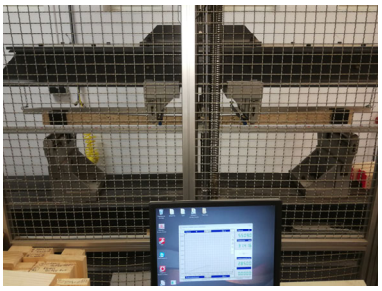
LIGNUMSTRAND is the trademark of a product whose generic name is LSL (Laminated Strand Lumber). It belongs to the large family of structural wood composite products, better known as EWP (Engineered Wood Product); it is a macro plank (8200*620 with a thickness between 30-100 mm) with mechanical characteristics similar or even better than solid wood itself.
LIGNUMSTRAND is manufactured from mainly poplar wood, certified to be grown locally, which is converted into chips that are dried and bonded with polyurethane resins, free of formaldehyde and phenol. Once oriented and stacked, these are introduced into a press that, by means of pressure and steam injection, makes a board whose density profile is homogeneous across the thickness.
LIGNUMSTRAND is available in two types, Industrial and Structural. The fundamental difference between them is that the Industrial product is not subject to external control, whilst the Structural product is CE marked and consequently has the control that this type of product requires according to its System. A version with higher fire resistance is also manufactured by adding fire retardants in the process, achieving a classification of C s1 d0 and surprising charring times

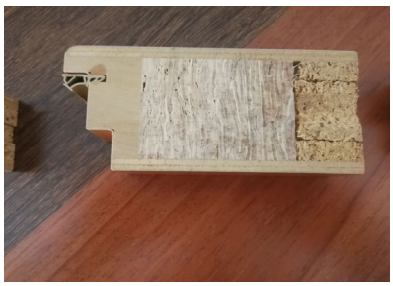
LIGNUMSTRAND INDUSTRIAL

LIGNUMSTRAND manufactured in a dedicated version for industrial use in many different areas, from quality packaging to billiard table structures, technical and special door frames, as well as upholstered furniture structures, countertops, stair treads, extra strong shelves for commercial and industrial shelving, etc.

The two main qualities that promote these and other uses are resistance and stability.
Thanks to its special composition and process, **LIGNUMSTRAND** offers exceptional stability qualities that ensure the lack of movement, so frequent in solid wood, for life. It also offers stress-breakage values as high or more than most typical European hardwoods such as oak, beech, chestnut, etc.

Properties	Norm	Unit	Symbol	Variation	CH-60	CH-65	CH-70	CH-80
Density	EN 323	Kg/m^3	ρ	+/- 7%	600	650	700	800
MOR	EN14374 (4.4.3)	N/mm^2	f_m		25	29	33	45
MOE	EN14374 (4.5.2)	N/mm^2	$E_{m.l}$		6500	8100	9300	12700
Screw withdrawal resistance. Face	UNE EN 320-1993	kN						
Screw withdrawal resistance. Edge								
Moisture content	EN 322	%	H	+/- 3%	9	9	9	9
Reaction to fire	EN13501				D	D	D	D
Formaldehyde emission	EN 717-1				E-1	E-1	E-1	E-1
Charring rate		mm/min	β_n		-	-	-	-
Dimensions tolerances	EN 14374							
Length		mm		+/- 7				
Width		mm		+/- 8				
Thickness		mm		+0,8/-0,4				



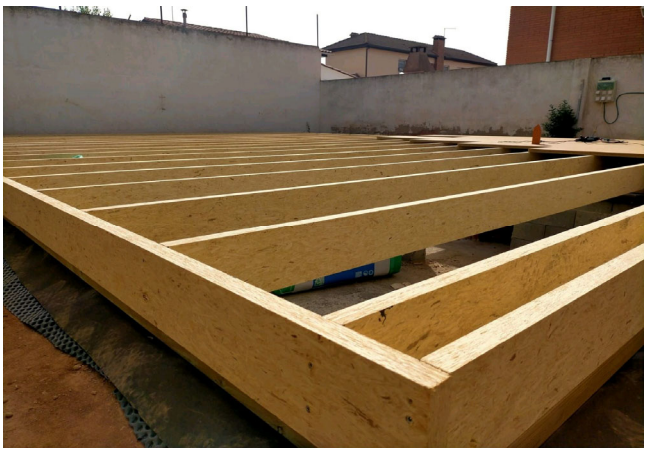


LIGNUMSTRAND ESTRUCTURAL

LIGNUMSTRAND in its structural version is extraordinarily stable and strong. Its direct use as a beam or as a component of composite beams, whether double T, box, lattice or other, or as posts, lintels, uprights, purlins, braces, boards and other structural construction elements, is the reason for its design.
Its composition is free of formaldehyde and other possible VOC-emitting compounds, as shown by the tests carried out. It obtains the highest score, A+ in the French evaluation system, making **LIGNUMSTRAND** as safe as the wood it is made of.
LIGNUMSTRAND is a structural product for protected use, service class 1 and 2, and is not suitable for unprotected outdoor use. There are two qualities as can be seen in the downloadable chart, one with a high modulus of rupture in bending parallel to the main axis (MOR), 35 at the edge and 39 N/mm2 at the face, and another that although lower this, 27 and 34, offers a "charring rate" or speed of carbonization with a really impressive Bn (0-30) = 0.54 mm / min. Values similar to those that a high density hardwood can offer.

PERFORMANCE COMPARISON WITH OTHER TIMBER PRODUCTS

Properties	*Symbols*	Units	*Lignumstrand*	Glued Lam.	Softwood		CLT(Pine Radiata C24)
			E 10,7	GL 24h	C24	C18	ETA 11/0464
Bending Strength. Edge	$f_{ml,k,edge}$	N/mm^2	35	24	24	18	24
Tensile Strenght Parallel to grain	$f_{t,0,k}$	N/mm^2	29	16,5	14	11	14
Tensile Strenght Perpendicular to Face	$f_{t,90,k,\ face}$	N/mm^2	0,66	0,4	0,4	0,3	0,4
Compressive Strenght Parallel to grain	$f_{c,0,k}$	N/mm^2	29	24	21	18	21
Compressive Strenght Perpendicular to Face	$f_{c,90,k,edge}$	N/mm^2	8,7	2,7	5,3	4,8	3,15
Shear Strenght. Edgewise. Parallel to grain	$f_{v,0,k,edge}$	N/mm^2	8,6	2,7	2,5	2	5
Density	ρ_k	Kg/m^3	670	380	350	320	490
Modulus of Elasticity of Bending Face	$E\ m_{,l\ face}$	N/mm^2	11.600	11600	11000	9000	11600
	$E_{0,k,face}$	N/mm^2	9.900	9400	7400	6000	8825
Shear Modulus Edgewise parallel to grain	$G_{0,\ edge}$	N/mm^2	2100	720	690	560	690
Charring Rate	β_n	mm/min	0,59	0,7	0,8	0,8	0,87



TABSAL/LSL/2020-EN

LIGNUMSTRAND has been CE certified as per ETA 19/0456 as of 20/4/2022 regulated specifically by EAD 130308-00-0304 for LignumStrand to qualify LignumStrand as a Structural Composite Lumber: Laminated Strand Lumber (LSL), produced by TABSAL SCL, S.L., at the comapny factory located at Uharte-Arakil, Spain.

Essential Characteristic	Symbol	Units	Regulation	Observations	*Lignumstrand E 10,7*	*Lignumstrand ignifugo E 9,5F*
Bending strengt edge	$f_{ml,k\ Edge}$	N/mm2	EN 14374 (4.4.2) EN 408 (19)	*Characteristic*	***35***	***27,3***
Bending strengt face	$f_{ml,k\ face}$	N/mm2	EN 14374 (4.4.3) EN 408 (19)	*Characteristic*	***39,6***	***34,4***
Tensile strengt parallel to grain	$f_{t,k\ 0}$	N/mm2	EN 14374 (4.4.4) EN 408 (13)	*Characteristic*	***29,1***	***18,7***
Tensile strengt perpendicular to face	*ft,90 k face*	N/mm2	EN 14374 (4.4.5) EN 408 (16)	*Characteristic*	***0,66***	***0,38***
Compressive strength parallel to grain	$f_{c,0\ k}$	N/mm2	EN 14374 (4.4.6) EN 408 (15)	*Characteristic*	***29***	***21***
Compressive strength perpendicular to edge	*fc,90 k edge*	N/mm2	EN 14374 (4.4.7) EN 408 (16)	*Characteristic*	***8,7***	***8,2***
Compressive strength perpendicular to face	*fc,90 k face*	N/mm2	EN 14374 (4.4.7) EN 408 (16)	*Characteristic*	***10,8***	***11,2***
Shear strenght. Edgevise. Parallel to grain	*fv,0 k edge*	N/mm2	EN 14374 (4.4.8) EN 408 (18)	*Characteristic*	***8,6***	***7***
Shear strenght. Flatwise. Parallel to grain	*fv,0 k face*	N/mm2	EN 14374 (4.4.9) EN 789 (11)	*Characteristic*	***3,2***	***1,7***
Modulus of elasticity of bending edge	*Em,l edge*	N/mm2	EN 14374 (4.5.2) EN 408 (9)	Mean	**10.700**	**9.500**
Modulus of elasticity of bending face	*Em,l face*	N/mm2	EN 14374 (4.5.2) EN 408 (9)	Mean	**11.600**	**10.600**
Modulus of elasticity of tensile perpendicular to face	*Et,90 face*	N/mm2	EN 14374 (4.5.3) EN 408 (9)	Mean	**180**	**170**
Shear mudulus edgewise parallel to grain	*G0 edge*	N/mm2	EN 14374 (4.5.4) EN 408 (18)	Mean	**2100**	**1500**
Shear mudulus flatwise parallel to grain	*G0 face*	N/mm2	EN 14374 (4.5.5) EN 789 (11)	Mean	**470**	**440**
Density	ρ	Kg/m^3	EN 323	Mean *Characteristic*	**722** ***663***	**736** ***707***
Durability against biological attack: *Hylotropes bajulus.*			EN 350-2016 EN46:2016	class	DC D	DC D
Durability against biological attack: *Reticulitermes spp.*			EN 350-2016 EN117:2012	class	DC S	DC D
Durability against biological attack: *Basidiomicetes fungus*			EN 350-2016 EN113:1996 + A1:2004	class	DC 4	DC 1
Fire classification			UNE-EN 13823	class	N/D	C-s1
Charring rate. Face	$\beta_{0f(0-30)}$	mm/min	EAD 130308-00-0304 Anexe A	*Characteristic values*	*0,53*	*0,45*
Charring rate . Edge	$\beta_{0e(0-30)}$	mm/min			*0,56*	*0,52*
Nominal charring rate	$\beta_{n(0-30)}$	mm/min			*0,59*	*0,54*
Formaldehyde release		mg/m^3	EN 717-1	emission class	<0,001 E1	<0,001 E1
VOCs & VOSCs emission	EN 16516		AgBB 2018	right/wrong	rigth	rigth
			Belgian	right/wrong	rigth	rigth
			French	class	A+	A+