



**COSTANTINI**

**SISTEMA LEGNO**

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# L.A.COST

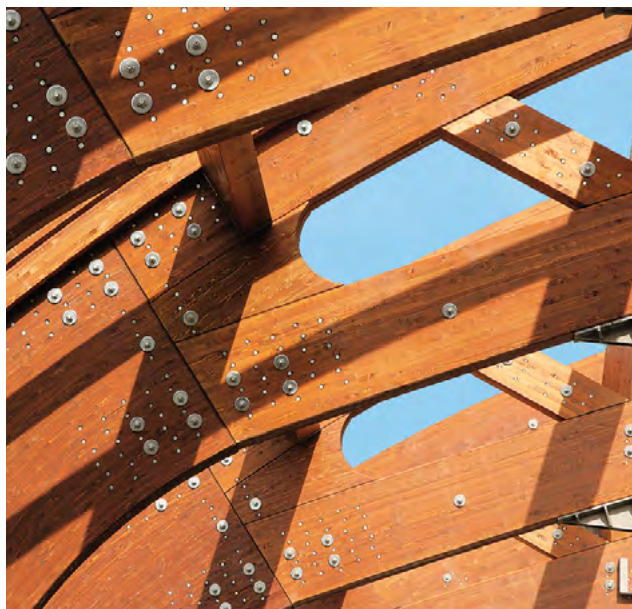
## COMPANY PROFILE

# ABOUT US

**L.A. COST SISTEMA LEGNO** has always guaranteed quality and reliability in its structures with extreme attention to detail in observance of standards and respect for the environment.

We follow an integrated supply chain that combines the passion and skills of qualified personnel with the production and versatility of cutting-edge operating machines. Each individual construction element is created beginning with a simple board, guaranteeing constant control of the **selection, production** and **processing cycle**.

Our structures are the result of know-how acquired over the years and manifested within the Bettona (PG) industrial plant.



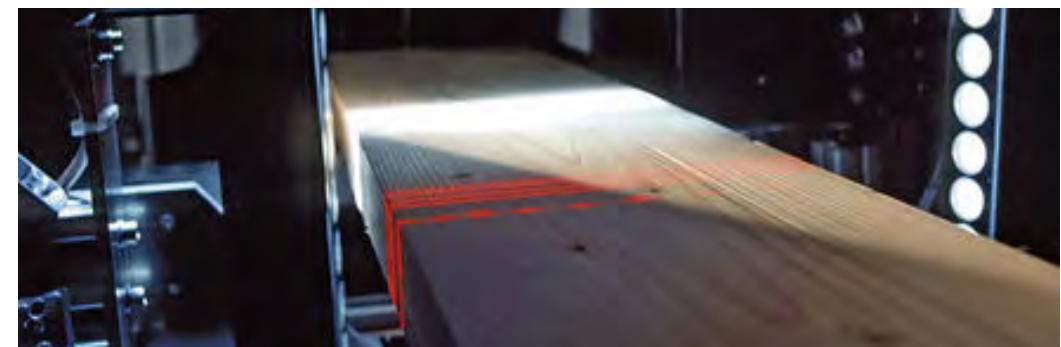




In its floor space of more than **20,000.00 m<sup>2</sup>**, L.A. COST produces straight and special **laminated timber beams**, as well as top quality **cross-layered CLT panels**.



Reliability of the products is guaranteed by constant control of the processing cycle and the careful selection of raw material, ensured by high technology control systems such as scanners and RX, supported by personnel with proven experience and skills. The high frequency gluing press guarantees the high production of the system.

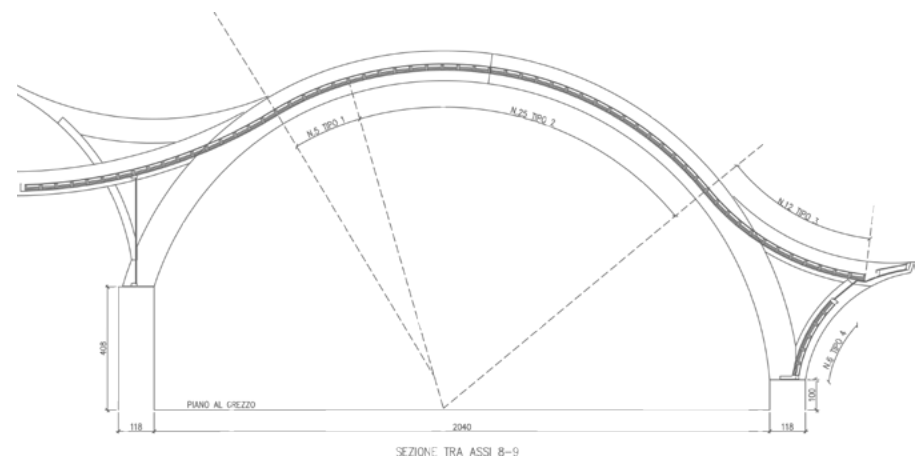






We also have three **CNC work centres**, including one with specific technology for processing CLT panels and special, large curved beams. L.A. COST is able to reach production levels of about 800/1,000 m<sup>2</sup> of **CLT panels** per day.

Another 4,000.00 m<sup>2</sup> of floor space is used for assembly, storage and special processing.





# CERTIFICATIONS

**UNI EN ISO 9001 Quality certification** attests to the fact that the management procedures L.A. COST follows for design, production and construction comply with a standard of excellence.

In accordance with the Ministerial Decree for Infrastructures of 14 Jan 2008 on the new "Technical Standards on Construction", L.A. COST guarantees the quality of their structural products: **Laminated Timber with Certificate of EC conformity** issued by the external supervisory body **Materialprüfungsanstalt der Universität Stuttgart – MPA Stuttgart-Otto-Graf-Institut (FMPA)**, which attests to the conformity of laminated timber production in accordance with the requirements set forth by the European harmonized standard EN 14080 of 2013 (in force since August 2015).

For the CLT cross-fibre panels, **ETA-12/0318** certified for conformity of the production in accordance with CUAP 03.04/2006 for products in cross-laminated timber (XLAM) and **Certificate of Constancy of Performance 0809-CPR-1093**. The external supervisory body that issues ETA certification is: VTT Technical Research Centre of Finland, Metallimiehenkuja 2 (Espoo), P.O. Box 1000, Finland.

**L.A. COST guarantees the careful selection** of the various classes of resistance of the TIMBER with the use of the **Microtec Golden Eye 702 system**, capable of conducting certified classification of the boards based on the UNI EN 14081 standard.

L.A. COST guarantees compliance with the compulsory qualification procedures and acceptance of the characteristics of wood products for structural use, as per Art. 11.7.10 of Ministerial Decree 14/01/2008, through possession of the **Certificate of authorization for processing structural elements in wood**, cutting, working and transformation of wood and wood-based products for structural use issued by the **"Central Technical Service of the Higher Council of Public Works"**.





# WOOD ROOFS

We Thanks to advancements in construction technologies and the search for environmentally friendly materials, making a roof today means meeting the needs of dwelling comfort, health and wellness, so it is no longer a matter of constructing a simple roof. A wood roof is lightweight, well insulated, natural and it has a high visual impact, so it represents a great additional value for your home.

The roof is the most exposed surface of the house and it is the one that requires the most painstaking attention to the details that make it up, beginning from its insulation and going all the way to the aesthetic design.

L.A. COST wood roofs offer total freedom in personalization, giving your home PRESTIGE, ELEGANCE and UNIQUENESS.



# PROPERTIES OF WOOD

## COMFORT AND ENERGY SAVINGS

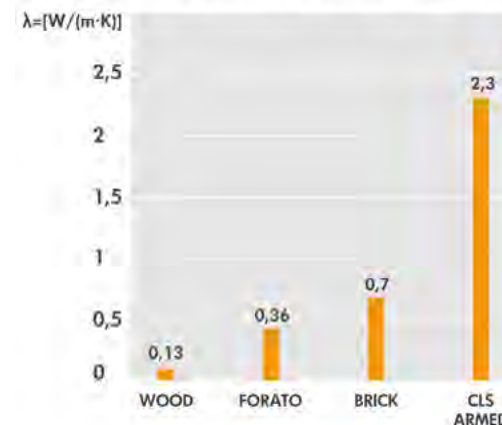
**Thermal insulation and energy savings** Wood has excellent insulating capacity. In fact, its thermal conductivity, at the same thickness is one third of that of bricks and one tenth of that of cement. Therefore, since thermal bridges are not created, which would generate condensation and dispersion, the energy performance and dwelling comfort of the structure improve significantly.

\*thermal conductivity: the capacity of a material to conduct heat.

**Sound insulation** Thanks to their elasticity and the intrinsic porous nature of the material, wood beams transmit less vibrations to the structure than cement and steel, thereby reducing the diffusion of sound waves..

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## THERMAL CONDUCTIVITY



## ECONOMIC SAVINGS

**Economic savings and quick completion** A laminated timber roof, being a structure prefabricated in the plant, significantly reduces job site times. In fact, processing and treatment of each element is already completed in the plant and therefore no further finishing will be required after installation.

**Ideal for renovations** Once installed, the structure is immediately able to support the operating load, without any maturing times. This allows the subsequent job site phases to continue, namely the assembly of the thermal package, the waterproofing and the covering. This makes it an ideal technology for renovation operations because it limits the exposure of the structures below to foul weather.

Renovation is also extremely facilitated by the light weight of wood which, greatly limiting the permanent load of the structure, makes reinforcing works on the existing structures simpler and less expensive.

## EARTHQUAKE-PROOF PROPERTIES

**Earthquake-proof and Lightweight** The light weight of wood and its elasticity make it a material particularly suited for withstanding seismic events. Having a density five times lower than cement means receiving five times less seismic stress. Its elasticity, on the other hand, allows the structure to avoid damage from oscillations. In short, a wood structure is not only able to withstand the earthquake, but it also comes through it, except in particular cases, substantially unscathed and without structural damage.



# PROPERTIES OF WOOD

## FIRE RESISTANCE

The bearing structures are never a cause of fire.

It is well-known that wood is a combustible material, but that does not mean that it is not fire resistant or that wood structures are more vulnerable than steel or cement structures.

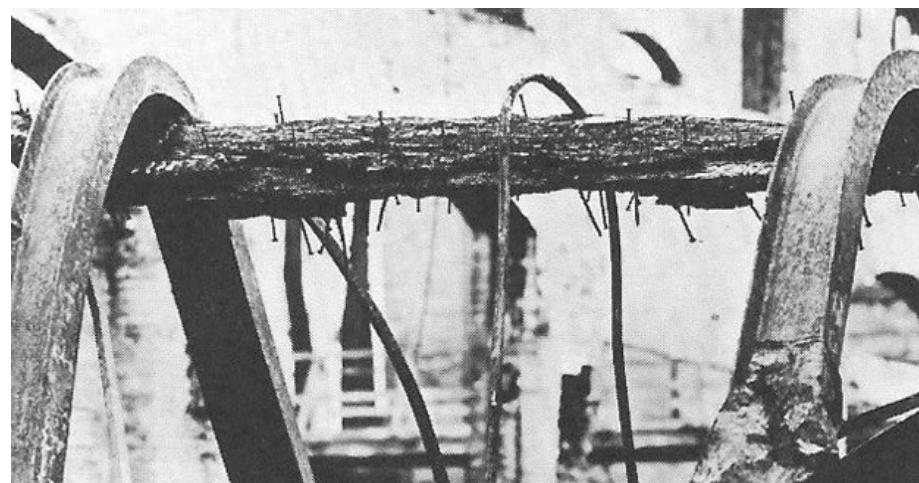
In fact, wood burns very slowly because the charring, which progresses at about 0.7 mm per minute, slows the combustion from spreading. The structure is therefore able to withstand fires well and for a prolonged period of time, notwithstanding the temperature reached.

The mechanical breakdown takes place only when the part of section not yet charred is reduced to the point of no longer being able to carry out its structural function. Furthermore, the low thermal expansion coefficient significantly limits the pressure applied on the perimeter walls and therefore the risk of collapse.

We can confirm that the loss of efficiency of a wood structure takes place due to the reduction of the section and not because of a decay of its mechanical characteristics.

If we compare the way wood behaves in a fire with the way more conventional construction materials used in our country behave, for which there are no prejudices concerning their fire resistance since they are not combustible materials, we will understand even better why wood does not start with a disadvantage, but on the contrary it can even be preferable:

- The structural elements in steel do not burn, but they suffer a rapid deterioration of mechanical properties (resistance and rigidity) depending on the temperature. Since steel is a good conductor of heat, the temperature rises quickly in the entire section. Once 500°C have been exceeded, the steel deforms, leading to a collapse of the structure within an estimated time of 5 to 10 minutes.
- In the reinforced concrete structural elements, the steel is protected by a reinforcement that can be of varying thickness and, what's worse, sometimes it is made up of a poorly compacted and rather uneven layer of concrete in some areas. These weak points, in the event of a fire, become preferential channels for the heat flow, causing a localized rise in temperature that can reach and exceed 500°C very quickly, even in the presence of relatively thick reinforcement.



*Post-fire scene: you see a wooden beam supporting two collapsed steel beams.*





# PROPERTIES OF WOOD

## DURABILITY

**Duration over time** Wood roofs guarantee long duration over time and numerous historic structures all over the world and our country are a testament to this. The latest production technologies of our times, which include a careful drying process of the wood used for structural purposes, lead to the individual piece of wood having a very low relative humidity. This determines an unfavourable habitat for moulds and insects to settle and thrive. Then, if you add the use of new antiseptic impregnation treatments, the guarantee of durability is complete.

**Low maintenance** Great durability also means reduced maintenance costs, both routine and extraordinary, which, on the other hand, are rather significant for steel structures, including corrosion inspections, anti-rust treatments and painting.

## SOLIDITY

**Resistance to traction, bending and compression** Low weight and high resistance make it an exceptional material for construction. In fact, the acceptable load of external stress compared to concrete produced in a plant, is slightly higher for compression and significantly higher for traction and bending.

The resistance values of laminated timber are very similar to those of steel, compared to which it performs better in terms of the bending point thanks to its significantly lower weight.

**Reduced sensitivity to temperature changes** Expansion due to temperature changes is extremely contained. In fact, actual expansion is even lower than theoretical expansion in that it is compensated by the withdrawal due to the decrease in internal humidity consequential to the rise in temperature. It is believed that wood has a linear expansion coefficient that is one third of that of steel.

## ADAPTABILITY

**The right solution for any project** The great adaptability of the material allows multiple highly complex systems and very attractive shapes to be constructed with absolute precision, both with wood-wood joints and through connections achieved using metallic elements.

## ENVIRONMENTAL IMPACT

**The right solution for any project** The great adaptability of the material allows multiple highly complex systems and very attractive shapes to be constructed with absolute precision, both with wood-wood joints and through connections achieved using metallic elements.



# VENTILATED ROOF

## VENTILATED ROOF

A ventilated roof is a system of complementary elements that work together to contribute to the roof package achieving high performance such as **"Dwelling Comfort"** and **"Energy Savings"**.

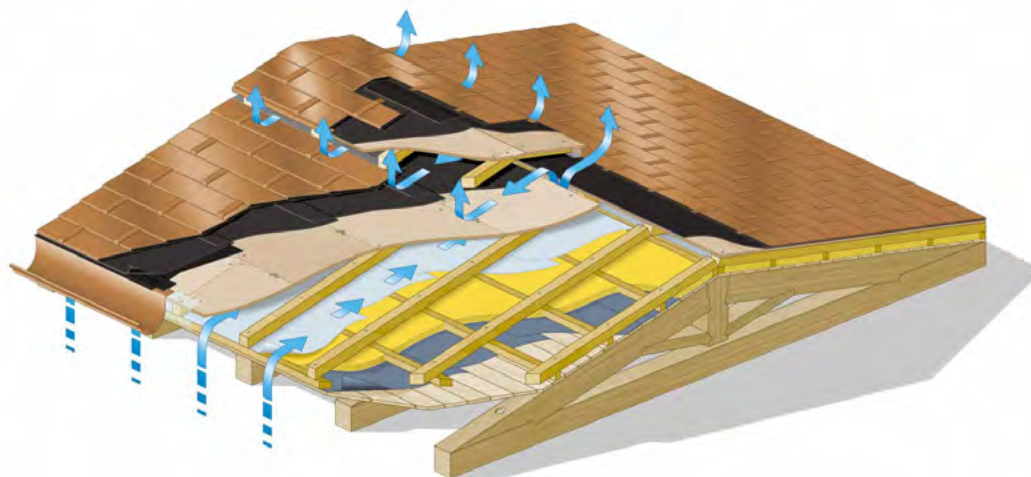
The air in the ventilation chamber starts to move thanks to the temperature difference.

**In the summer**, the temperature difference is caused by **the heating up of the roof surface and the air in the ventilation chamber** (ambient temperature).

**In the winter**, the temperature difference is generated by **the heat coming from the environment below and from the air temperature inside the ventilation chamber**.

The roof (in the summertime) and the underlying environment (in the wintertime) are the transfer sources of the heat to the air stored in the ventilation chamber.

**The air, increasing in temperature, consequently increases in volume and decreases in density.** This triggers the ascending motion (from the eaves to the ridge) of the air within the gap, **recalling cool air** from the **inlet section along the entire line of the eaves** and allowing it to exit along the section on the ridge line.



## ADVANTAGE

**In the summertime**, the ventilation chamber allows the heat to dissipate, accumulating on the roof due to solar radiation, preventing radiation from entering and thereby increasing dwelling comfort in the environments below with consequent energy savings.

**In the wintertime**, the ascending current keeps the thermal insulation dry, thereby eliminating phenomena of condensation and/or mildew in it and guaranteeing durability of the roof construction elements over time.

**In the event of snowfall**, melting takes place gradually, depending on the external temperature and preventing sliding with consequential ice accumulations on the eaves which would damage them.



# COLLABORATION AND CUSTOMERS

## COLLABORATION



**SAPIENZA**  
UNIVERSITÀ DI ROMA



UNIVERSITÀ  
DEGLI STUDI  
FIRENZE  
**DIDA**  
DIPARTIMENTO  
DI ARCHITETTURA



LABORATORIO TAM  
**TECNOLOGIE**  
per  
**L'ABITARE**  
**MEDITERRANEO**

## CUSTOMERS

**INTESA**  **SANPAOLO**



**GRUPPO**  
**MONDADORI**



BRUNELLO CUCINELLI



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**ROSI**  
**MULT**  
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associazione  
italiana



  
**Caritas**  
Italiana



eurochocolate.com







**ROOFS**



**LARGE STRUCTURES**



**WOOD HOUSES**





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Struttura realizzata per Intesa Sanpaolo progettata dal Arch. Michele De Lucchi