

NURSERY SCHOOL - CASTELFRANCO EMILIA (MODENA, ITALY)

THE SCHOOL OF THE FUTURE: MADE IN JUST 3 MONTHS, DESIGNED TO STAY LONG

This **nursery school** was created to address the need to provide a modern day care service with innovative characteristics, as required by the **Castelfranco Emilia municipal authorities**, both in relation to the construction system and to the subsequent methods of use. **Wood** is the predominant material used in the nursery school project, both for the structural parts and for the finishes and furniture, reflecting the desire to create a domestic style atmosphere in a space developed using advanced construction technology. **Eco-sustainable and Eco-compatible** Apart from its potential for significant savings in energy usage, this construction project also benefited from very short construction times and economical costs. Assembly of the engineered components produced in the factory reduced site working times and allowed this building to be completed in just **3 months**. The timber structure, which is composed entirely of wood sourced from **sustainably managed forests** in compliance with the **PEFC/FCS protocols**, is engineered in compliance with green building practices and criteria. The sector of low environmental impact timber building construction certainly represents the future of the industry, and when speaking of education and children, the importance of the word “future” cannot be over-emphasised. **A structure that merges living comfort and safety** Supplied in a turnkey formula by **Sistem Costruzioni**, the building is developed around a **laminated timber frame**. Selected specifically for its ability to guarantee living comfort, **laminated wood** is a composite structural material consisting of natural wood and retaining its qualities such as outstanding mechanical strength in relation to weight and good flame retardancy, but it is also a product associated with exceptional flexibility and freedom for processing requirements. Laminated wood is extraordinarily flexible so it can reconcile the technical needs of the designer and the requirements of the customer.

PRODUCT SPECIFICATION

School

Localization: Castelfranco Emilia (MO)

Intended use: Schools

Architetural and structural design: Architect Grillenzoni

Total area: 383ft

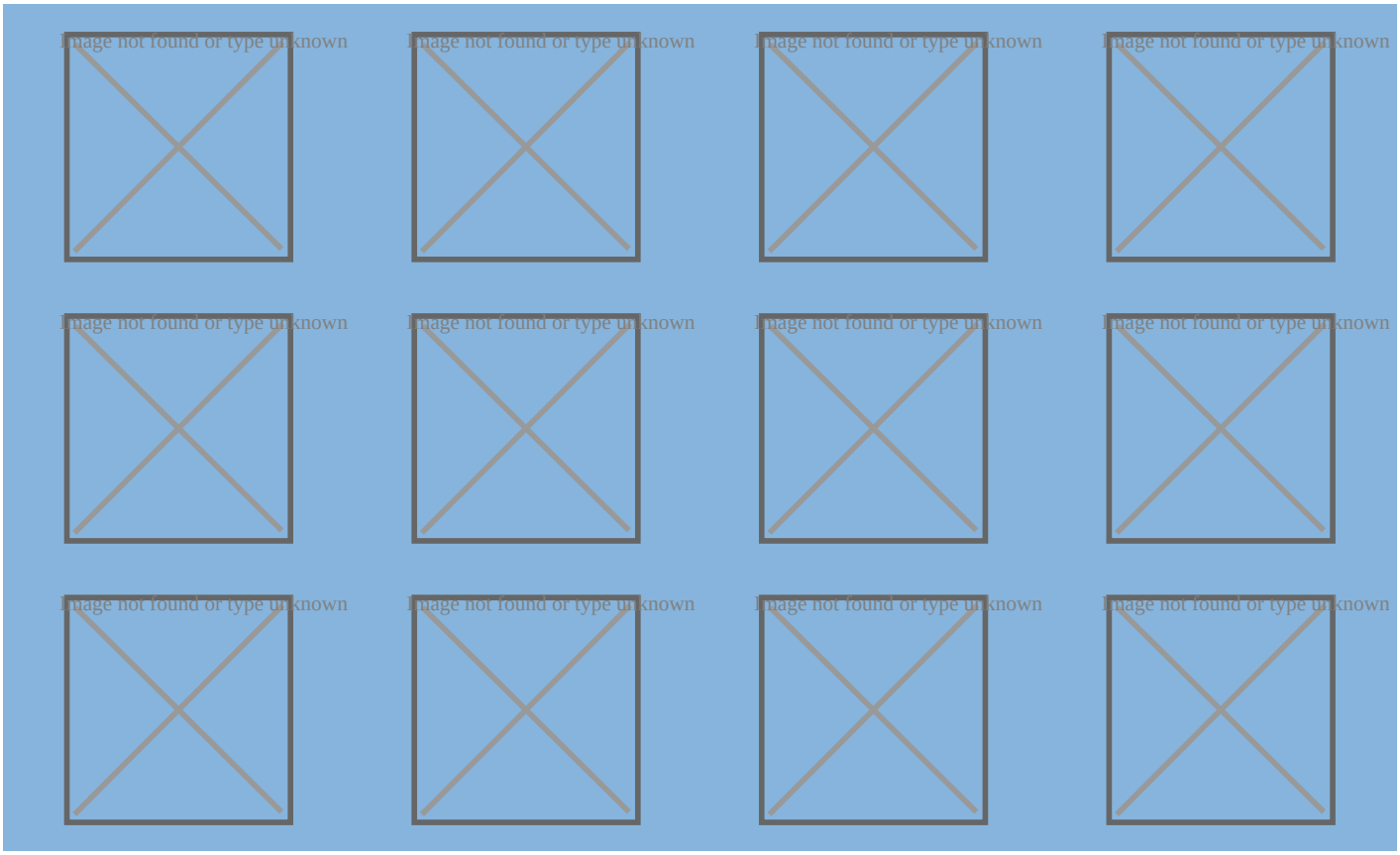


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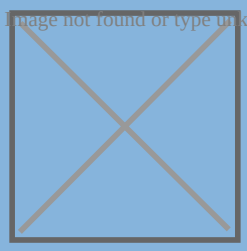


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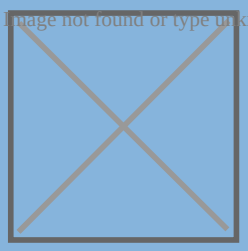
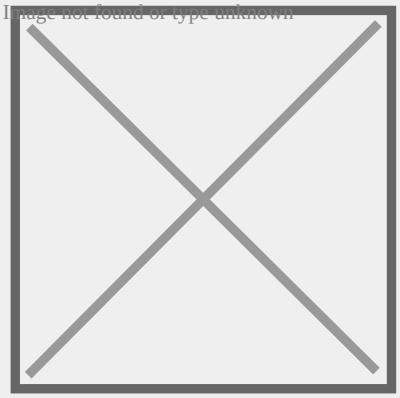


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BUILDING SYSTEM

Post & beam



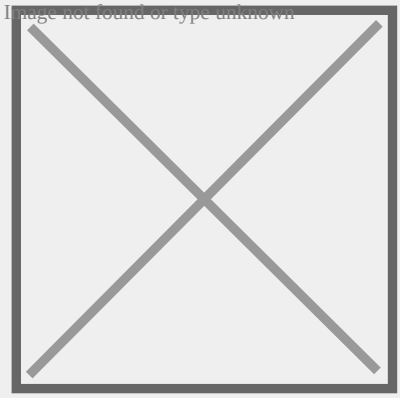
The frame of the timber house – a solid, eco-sustainable and versatile load-bearing structure

The post & beam construction system uses **laminated wood columns** (vertical members) **and beams** (horizontal members) **to** create the building's load-bearing structure. These loading elements are arranged in such a way as to guarantee **total flexibility for the design of the facades and internal partition walls**. The strengths of this construction technology, which is perfect for multi-storey buildings, lie in the **freedom for distribution of the interior walls and the facility to reposition them also at a later date**, the **architectural flexibility in the design of the facades,** and the **low incidence of cubic metres of timber per square metre of building space**.

A timber building with high seismic resistance

The functions of stiffening and bracing to withstand seismic loads are performed by diagonal braces made of timber or steel, or alternatively by column-beam nodes designed as interlocking or semi-interlocking joints.

Laminated and Solid



Reasons for choosing the Laminated and Solid system

This construction system guarantees **the creation of timber roofs of various sizes and of different levels of complexity** in compliance with specific static loading calculations and transferring vertical and horizontal loads to the foundations by means of conventional building elements, in certain cases.

A durable and versatile timber roof

The unique characteristic of laminated wood and the connections between the various elements make it possible to create roof spans of more than 30 metres and **to build roofs of very large surface areas without having to break up the ground plan of the building with awkward intermediate pillars.**

High levels of insulation and strength

Depending on the thermal requirements, the **roof** can be completed with an insulating package and outer covering. The joists of the web roof structure can be designed in accordance with a very diverse range of geometries: the ridge beam establishes the shape of the roof while the wall plate beam can be adapted to match architectural, static or application requirements. The nodes of the web support structure can be created with metal plates fastened to the wood with screws and pins, with wood to wood joints, or by means of direct fastening with normal screws or full-threaded screws. Because they are extremely slender elements, timber joists or rafters must be braced with timber or steel elements designed to prevent the occurrence of lateral out-of-plane instability.

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