CHURCH IN MEDOLLA (MODENA, ITALY)

THE PREFABRICATED WOODEN CHURCH JOINS RAPIDITY AND SEISMIC SAFETY

The new timber church in Medolla was built to provide the local community with a place of worship in the aftermath of the 2012 earthquake. Because of the long times necessary to repair the earthquake damaged original church, it was decided to replace it with a new **timber structure with a high level of flexibility to** allow a change in use at some point in the future. In fact, **thanks to its low weight, thermal inertia and easy workability, wood guarantees excellent** performance in terms of structural strength and in relation to energy efficiency, simultaneously allowing a significant reduction of construction site times.

A building made of Xlam laminated wood for strength and comfort

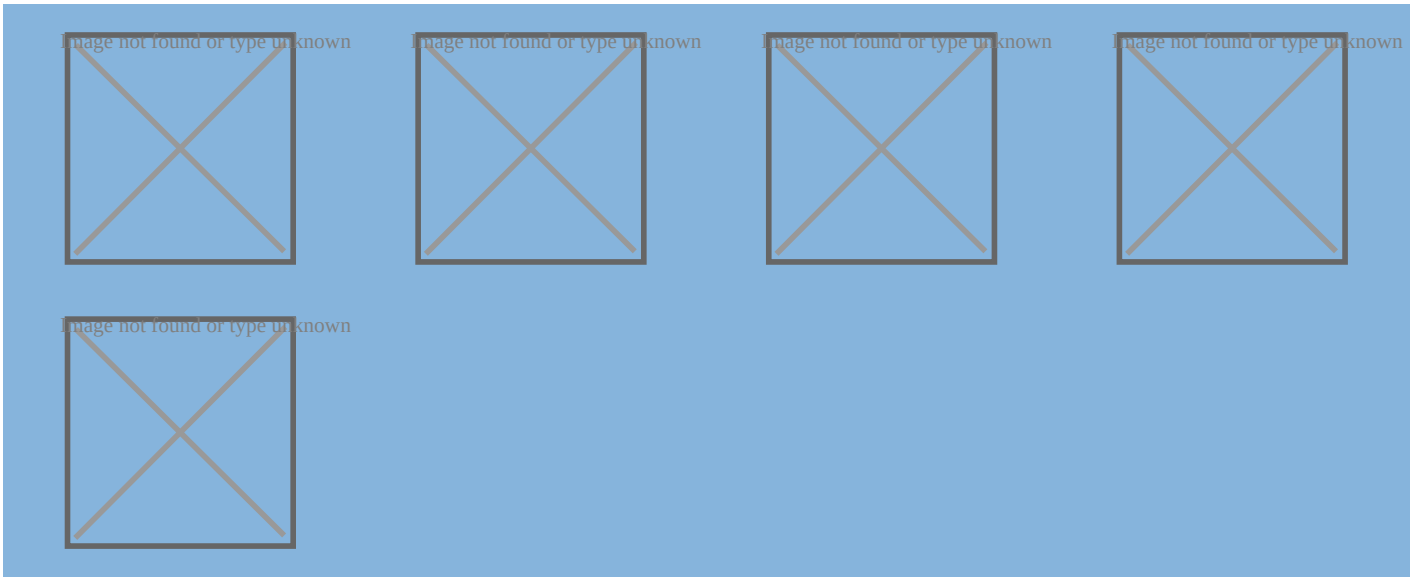
The **construction technology** is based on a completely dry system with **loading elements made of laminated wood** (portals with rigid nodes, **Xlam** walls and multibox floors), insulating layers in rock wool, cavities to accommodate technological systems and infill and finishing panels in gypsum fibre and plasterboard. A high level of attention was devoted to **interior comfort**: the church is equipped with a **climate control system** (heating, cooling, and relative humidity control) **implemented by means of under-floor radiant panels and integral dehumidifiers** in order to minimise the thermal inertia of the system.

A system designed to cancel consumption and operating costs

Heating and cooling energy is produced by two air-cooled heat pumps, whose power consumption is covered by the **photovoltaic system located on the roof**. The church is categorised in **energy class "A" with energy balance equal to zero**.

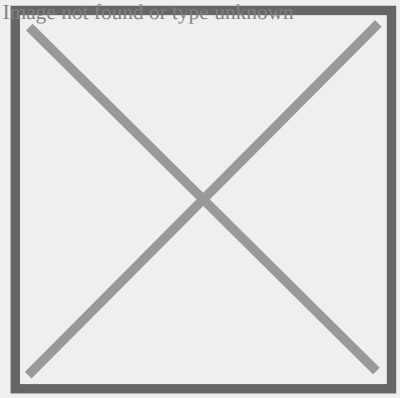
PRODUCT SPECIFICATION

Timber church
Localization: Medolla (Modena)
Intended use: Churches and places of worship
Architetural and structural design: Studio Marazzi Architetti
Total area: 650ft



BUILDING SYSTEM

XLAM



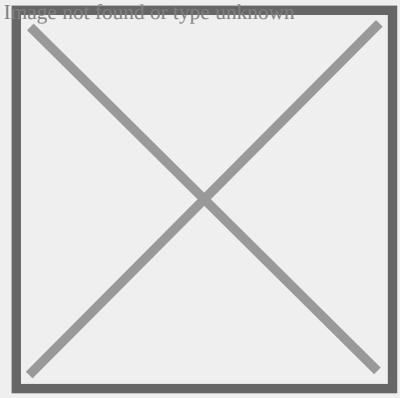
Reasons for choosing the Xlam system

The Xlam system is a technical innovation in the construction of timber homes and buildings. The system's exceptional versatility allows the creation of a wide range of architectural constructions, including multi-storey **timber buildings**. The system assures **optimal thermal insulation** and a high level **of fire resistance**, a fast drying process and exceptional **acoustic insulation**.

About the Xlam system

The Xlam panel is composed of crossed layers bonded together, making the construction system extremely **versatile**. Composed of 99.4% timber and 0.6% adhesives, Xlam is considered to be a monolithic material **capable of supporting very high loads and withstanding external stresses and seismic activity**.

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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