SUBISSATI®

MOST POPULAR CONSTRUCTION SYSTEMS: COMPARISON

		PLATFORM FRAME	acceptable	good	very good	excellent	XLAM	acceptable	good	very good	excellent
A	Historic dissemination and use of the construction technology	**Worldwide since 1750**	★	★	★	★	**In Europe since 2000**	★	★	★	★
B	Number of buildings constructed	**Millions of examples worldwide**	★	★	★	★	**A few thousand in Europe**	★	★	★	★
C	EUROCODE 5 design code (Wooden structure design)	**Present**	★	★	★	★	**Absent**	★	★	★	★
D	Dissipation capacity (resistance to withstand seismic action) assessed by means of the structural factor q0	**High (q0 = 5)**	★	★	★	★	**Low (q0 = 2)**	★	★	★	★
E	Construction time	**Fast**	★	★	★	★	**Fast**	★	★	★	★
F	Wooden structure fire resistance	**Fast**	★	★	★	★	**Fast**	★	★	★	★
G	Transmittance (W/m²K) of our walls with equal thickness	**W/m²K < 0.16**	★	★	★	★	**W/m²K < 0.26**	★	★	★	★
H	Shift with equal thickness of our walls	**> 12 hours**	★	★	★	★	**> 15 hours**	★	★	★	★
I	Possibility of making changes when construction is complete or during construction	**Easy**	★	★	★	★	**Difficult**	★	★	★	★
I.	Pressurised impregnation treatment in autoclave of the wooden support structure	**YES**	★	★	★	★	**NO**	★	★	★	★
M	Use of service class 2 structure (structural service humidity < 20%)	**YES**	★	★	★	★	**YES**	★	★	★	★
N	Use of service class 3 structure (structural service humidity > 20%)	**YES**	★	★	★	★	**NO**	★	★	★	★
O	Air seal		★	★	★	★		★	★	★	★
P	Multi-storey buildings		★	★	★	★	*	★	★	★	
Q	Price	**IDENTICAL**	★	★	★		**IDENTICAL**	★	★	★	

Keyword2

The images included in the document

SUBISSATI®

MOST POPULAR CONSTRUCTION SYSTEMS: MORE INFORMATION

A. HISTORIC DISSEMINATION AND USE OF THE CONSTRUCTION TECHNOLOGY

The X-Lam system was first used in the early 2000s but only began to become more widespread in Italy with the post-earthquake reconstructions in Abruzzo in 2009. The Platform Frame system, the industrial evolution of the Balloon Frame system, was developed in America in around 1750.

B. NUMBER OF BUILDINGS CONSTRUCTED

Precisely because the historical dissemination of the construction systems differs so greatly, only a few thousand buildings have been constructed in Europe using the X-Lam system, whereas there are million of examples of Platform Frame technology worldwide.

C. EUROCODE 5 DESIGN CODE

Given the recent dissemination of the X-Lam construction system, unfortunately at present there are no legislative references laying down guidelines for correct structural design.

D. DISSIPATION CAPACITY (resistance to withstand seismic action)

Currently as envisaged by Ministerial Decree of 14.01.2008 (NTC. 2008), the X-Lam system is attributed a maximum structural factor value of q=2, which corresponds to low seismic ductility due to the little use of connections. The Platform Frame system, on the other hand, is attributed a maximum structural factor value of q=5 and therefore boasts excellent seismic ductility. The q value indicates the seismic dissipation capacity of the construction system and, therefore, its resistance.

E. CONSTRUCTION TIME

Both technologies are very quick to install, only as long as the walls of the Platform Frame system are prefabricated in a plant, as carried out by our company.

F. WOODEN STRUCTURE FIRE RESISTANCE

Differently to as may otherwise be thought, wooden buildings have significant fire resistance; indeed this characteristic is tested according to the use of shielding and fireproof materials used for the entire package. Therefore, one system may be superior to the other depending on the types of materials used.

G. TRASMITTANZA W/m^{2}K DELLE NOSTRE PARETI (a paritá di spessore)

Generally speaking, the transmittance value (behaviour of the structures in the winter) is superior in constructions with the Platform Frame system.

H. SHIFT OF OUR WALLS (with equal thickness)

Generally speaking, the shift value (behaviour of the structures in the summer) is superior in constructions with the X-Lam system.

I. POSSIBILITY OF MAKING CHANGES ONCE THE STRUCTURE IS COMPLETE OR DURING WORKS As a rule, making changes during work or when the construction is complete is easier in Platform Frame constructions as, very simply, lamellar wood beams can be changed, moved or added.

L. PRESSURISED IMPREGNATION TREATMENT IN AUTOCLAVE OF THE WOODEN SUPPORT STRUCTURE

Given the large size of the X-Lam panels, it is unfortunately not possible to carry out the impregnation treatment in autoclave of the support structures; this treatment is instead carried out within our company on the lamellar beams used to form the support structures of the Platform Frame system.

M. USE OF SERVICE CLASS 2 STRUCTURE

Structural service humidity <20%

Service class 2 corresponds to structures positioned outside and protected from the elements
(e.g. covered wooden elements). Both technologies (Platform Frame – X-Lam) can be used in this service class.

N. USE OF SERVICE CLASS 3 STRUCTURE

Structural service humidity >20%

Service class 3 corresponds to structures positioned outside and not protected from the elements (e.g. wooden elements without covering). Although we do not recommend it, only lamellar beams can be used in this service class; X-Lam panels are not suitably certified for service class 3.

O. AIR SEAL

For both systems, the eye for detail is key. As a rule, optimum results can be obtained in the X-Lam system but excellent results can also be obtained with the Platform Frame system, as shown by the various Blowerdoor Tests carried out on our constructions. The first blowerdoor test carried out in March 2010 in a residential building constructed in 2007. The test certified values that were far below the limit value required. This construction was the first wooden home in the Marche to be certified as “Gold” Energy Efficiency class by the CasaClima agency of Bolzano.

P. MULTI-STOREY BUILDINGS

It tends to be best to use the X-Lam system for buildings in excess of three storeys: the thickness of the support walls can be reduced on the upper floors. The construction system proposed by SUBISSATI srl, as described in the following paragraphs, can be used for buildings of up to three storeys. For constructions with more than three storeys, a specific study of the case at hand, will be required.

Q. PRICE

The costs in developing a building using the PLATFORM FRAME or X-LAM systems are identical, as long as the reference frame is SUBISSATI.