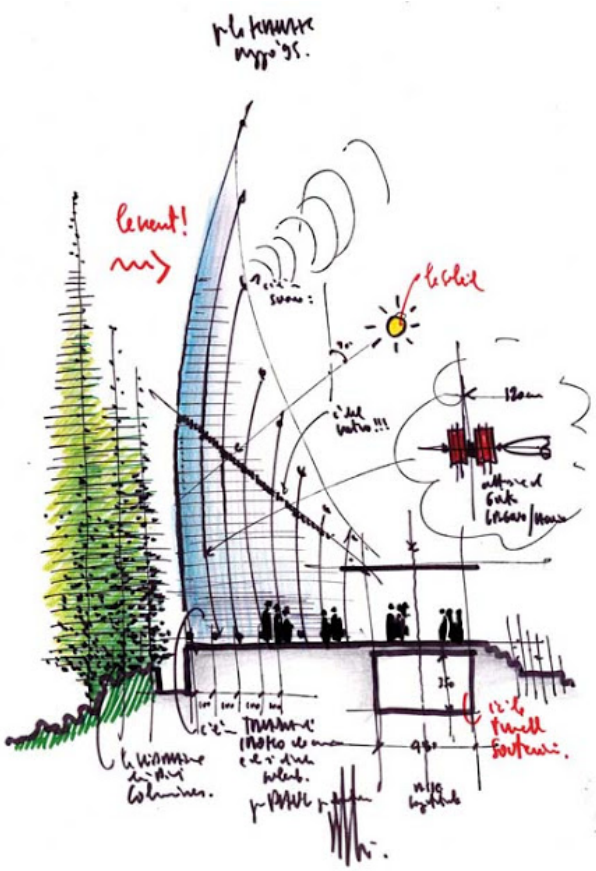
Materials for Architecture and Technological Innovation (6 CFU)

Materials Technologies for the Environment (6 CFU)

Prof. Alberto De Capua



MpA 10 LOAD-BEARING STRUCTURE

Elevation structures - horizontal and inclined elements

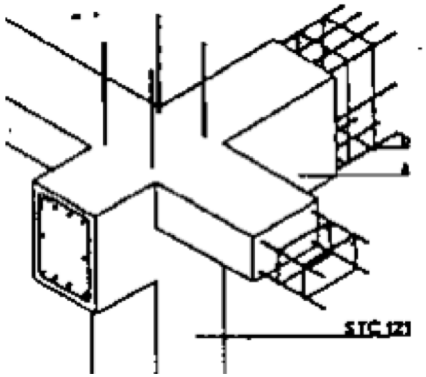
Richiamando la classificazione UNI 8290, si propone la seguente classificazione di parti strutturali;

Classi di unità tecnologiche	*Unità tecnologiche*	*Classi di elementi tecnici*	*Elementi tecnici*
STRUTTURA PORTANTE	STRUTTURA DI FONDAZIONE	FONDAZIONI DIRETTE	FONDAZ. CONTINUE FONDAZ. DISCONTIN.
		FONDAZIONI INDIRETTE	PALI INFISSI GETTATI IN OPERA
	STRUTTURA DI ELEVAZIONE	ELEMENTI VERTICALI	MURATURA PUNTIFORME IN C.A. IN ACCIAIO IN LEGNO SISTEMIO MISTI
		ELEMENTI ORIZZONTALI E INCLINATI	TRAVI, ARCHI CAPRIATA, SOLAIO IN C.A, IN ACCIAIO IN LEGNO
		ELEMENTI SPAZIALI	PARETI / SOLAIO
	STRUTTURA DI CONTENIMENTO	ELEMENTI DI CONTENIMENTO VERTICALI	MURI A GRAVITA' MURI A SBALZO OPERE SPECIALI
		ELEMENTI DI CONTENIMENTO ORIZZONTALI	MASSETTI SU VESPAIO

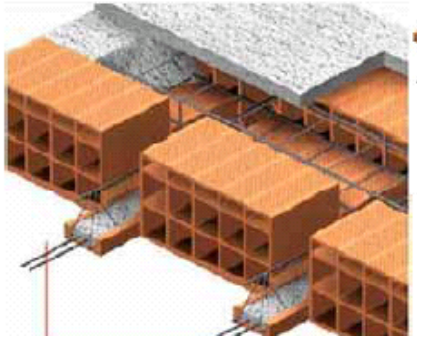
Horizontal and inclined elements

Si distinguono: travi, archi, capriate, solai.

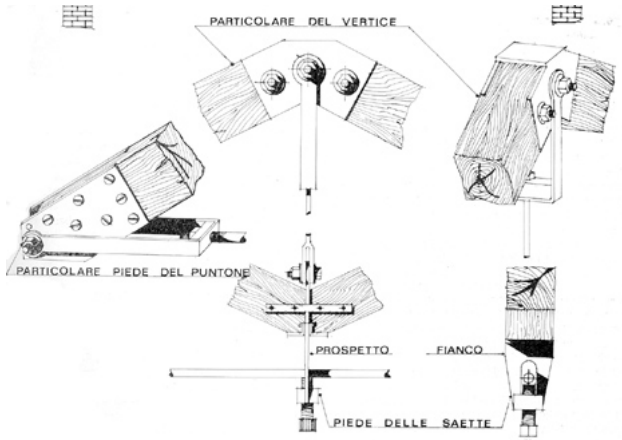
The beam has a double function, the load-bearing function and the secondary function of connecting and stiffening the frames in succession. It can be:
cast in place
prefabricated in reinforced concrete or steel



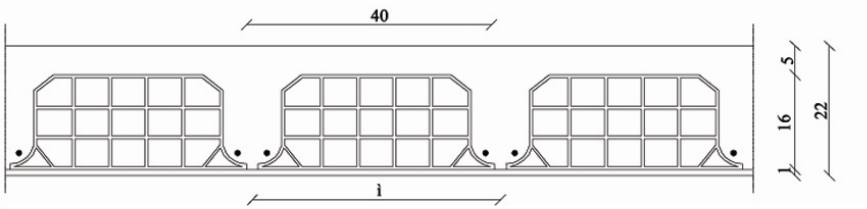
The floors have both a structural and a spatial function as they separate horizontally the space in the OE. They can be made on site or by assembling construction elements in different materials.



The trusses are elements traditionally made of wood formed by a flat truss placed vertically and used as a basic element of a pitched roof.

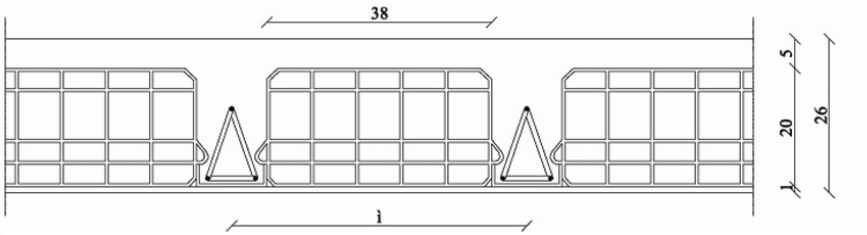


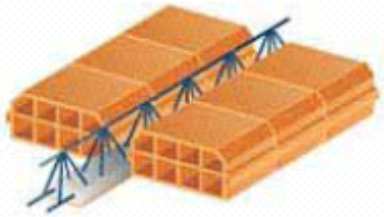
Horizontal elements of brick floor - cement

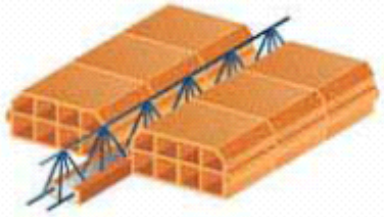


The beams are thrown into the work. The shape of the pignatas provides a formwork for the casting. The plaster on the intrados of the floor has a continuous and homogeneous support.

Sezione A-A' (Tipologia 2)

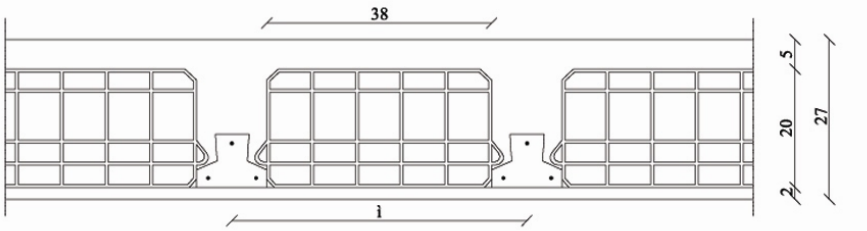




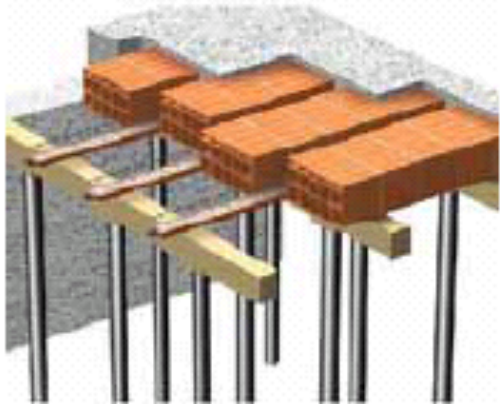


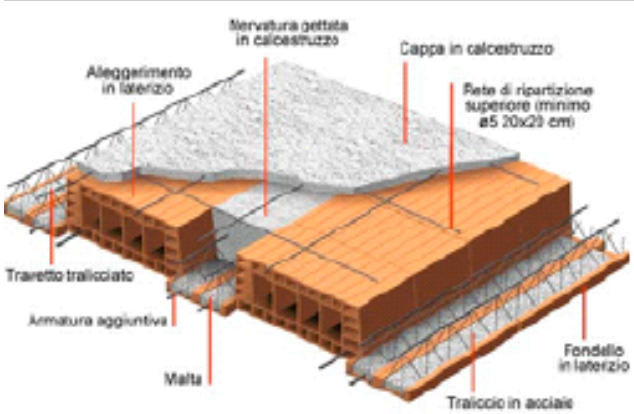
The prefabricated rafters support the piñatas. The behaviour of the plaster at the intrados will change depending on the material used to make up the rafters..

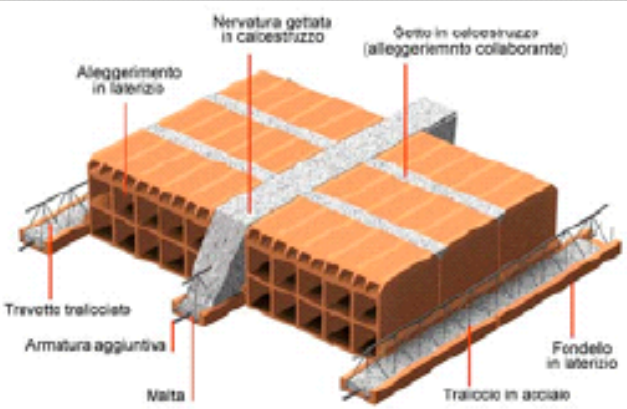
Sezione A-A' (Tipologia 3)

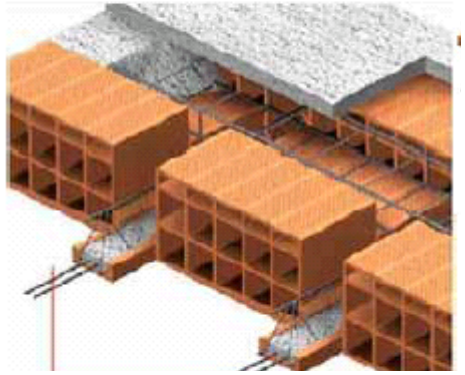


Horizontal elements of brick floor - cement

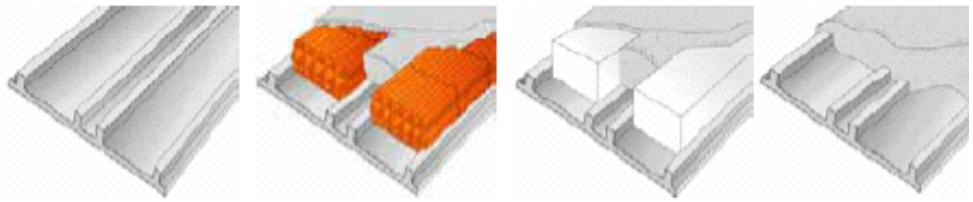








Horizontal floor elements with prefabricated elements

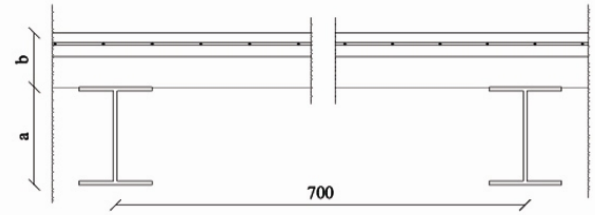


Lastra Celerpan N2

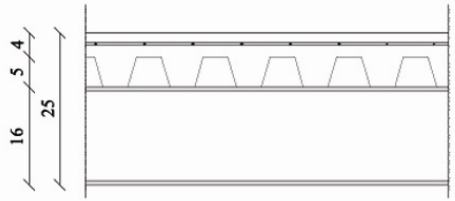
Horizontal steel floor elements

The choice of construction will influence the thickness of the deck and the view of the soffit.

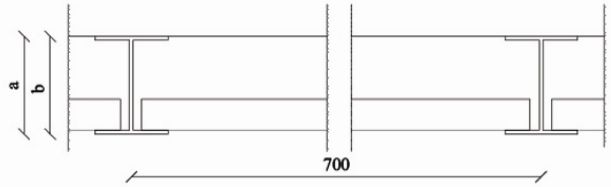
Sezione trasversale (Tipologia 4)



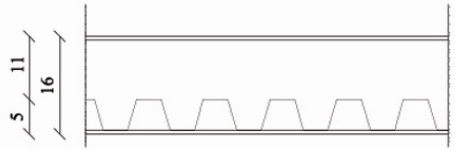
Sezione longitudinale (Tipologia 4)

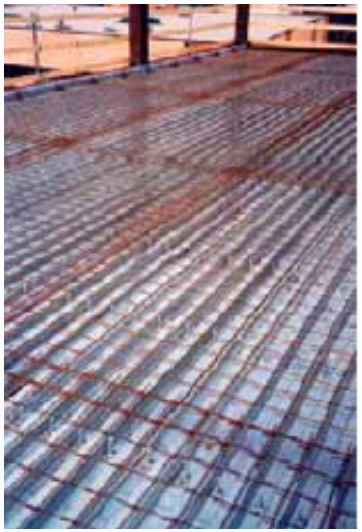


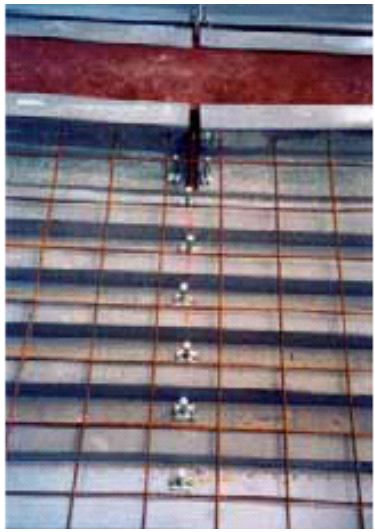
Sezione trasversale (Tipologia 5)



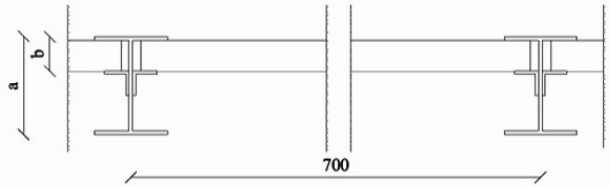
Sezione longitudinale (Tipologia 5)







Sezione trasversale (Tipologia 5)



Sezione longitudinale (Tipologia 5)

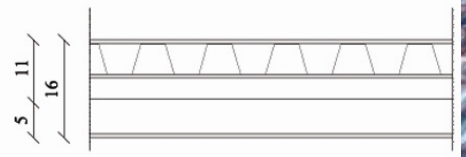


FIG. D.5.12./4 INCASTRO TRAVE-COLONNA (Passante)

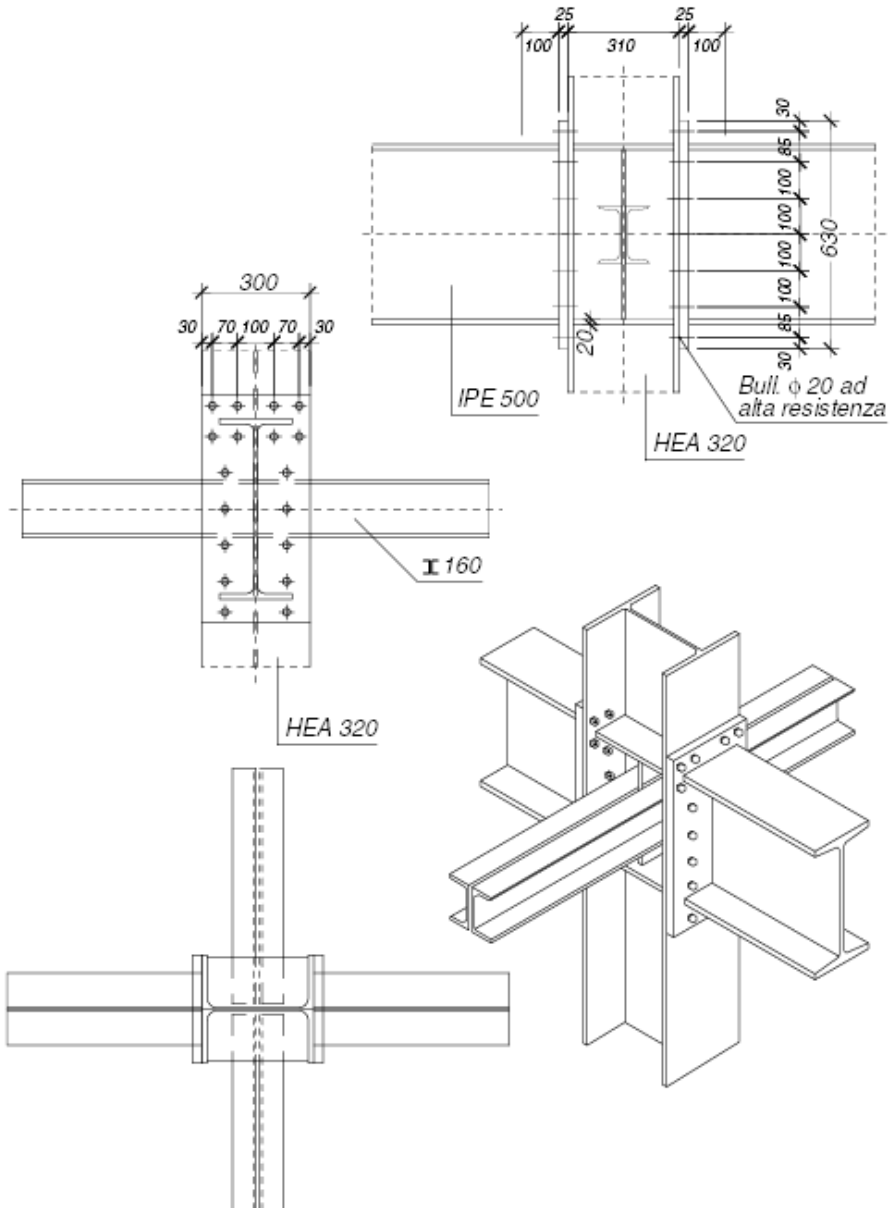
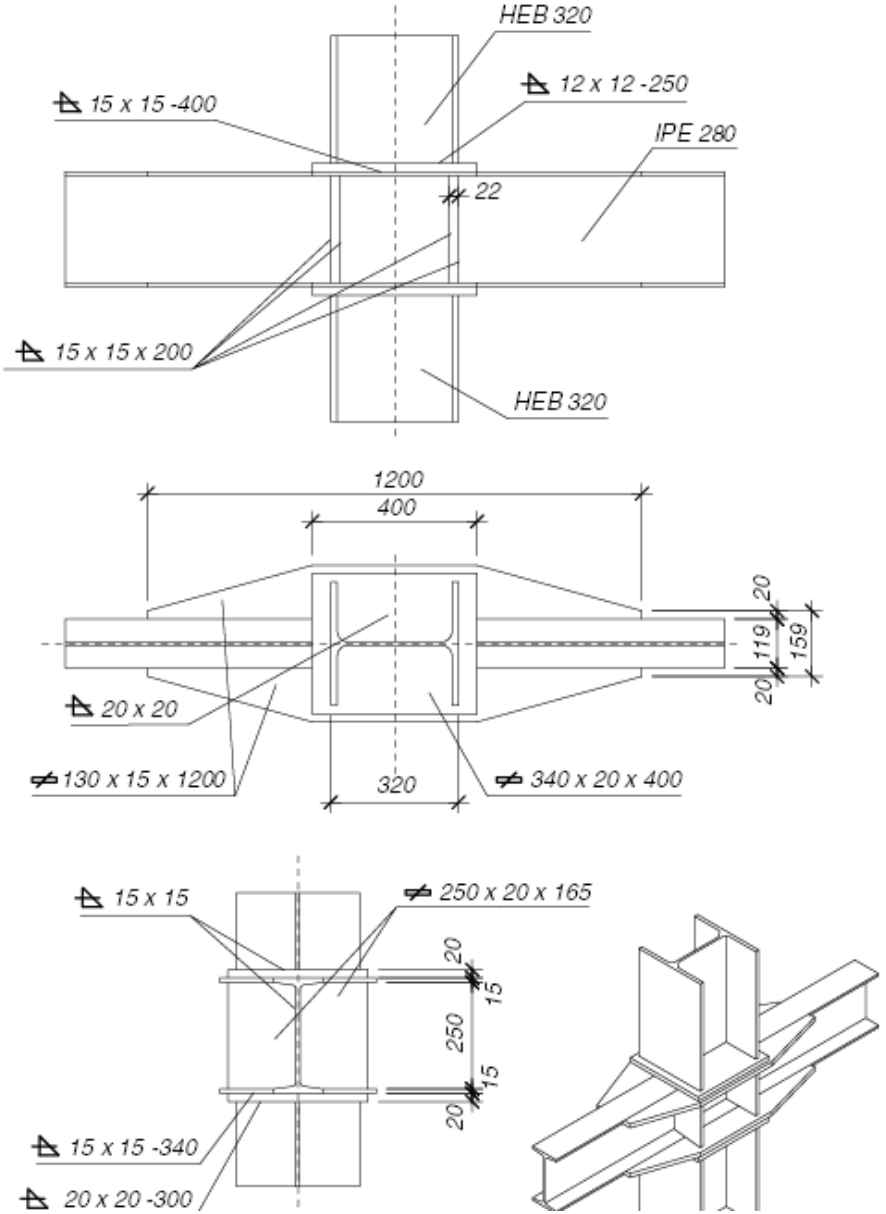


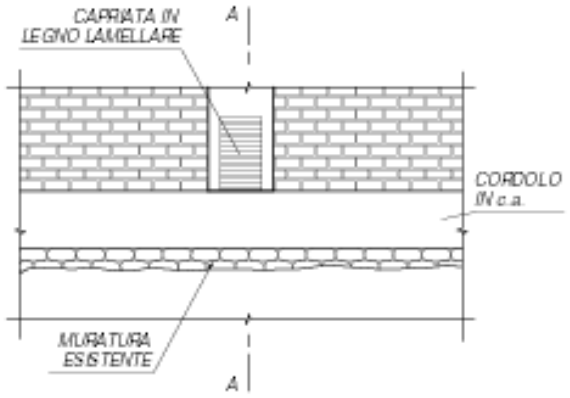
FIG. D.5.12./5 ATTACCO TRAVE (Passante) – COLONNA

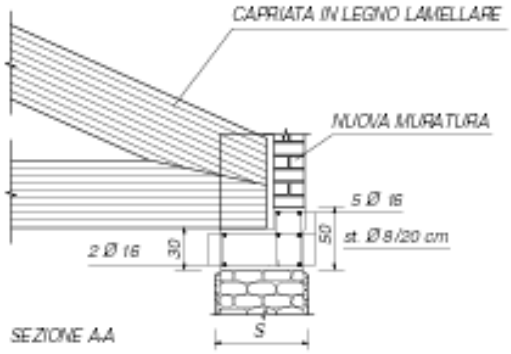


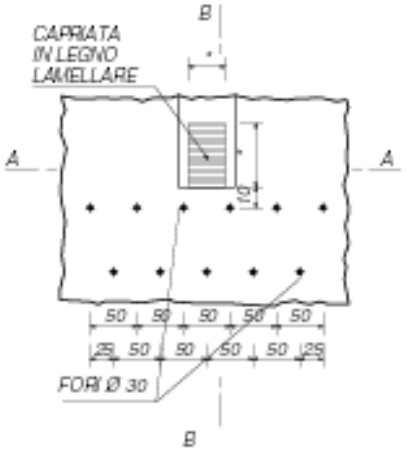
Rif. Zevi *Il nuovissimo manuale dell'architetto, 2010, Mancosu ed.*

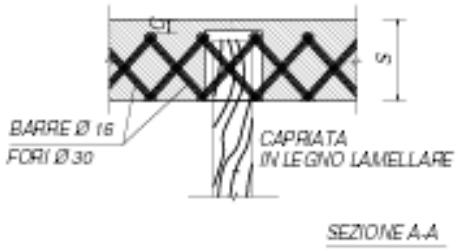
Inclined glulam timber truss elements

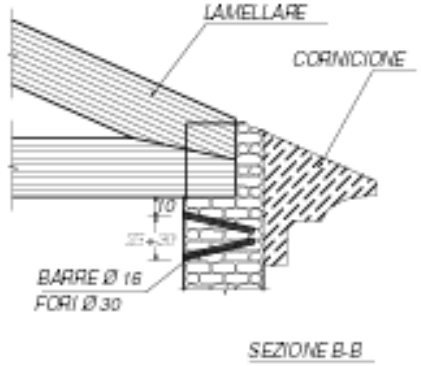
The truss has the advantage of eliminating horizontal thrusts thanks to its triangular structure in which the horizontal element chain elides the thrusts of those inclined (struts): it is therefore typically among the non-pushing structures of architecture.











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