



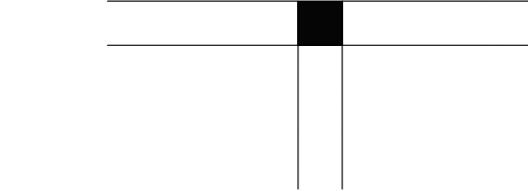
Capitello di Cemento e Legno

BB666

"In architecture, every material has its own message, its own hidden secrets. A concrete column is not merely structural; it is a declaration of truth, where its form reveals its own strength and purpose."

Angelo Mangiarotti, 1962

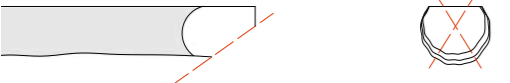
Process in 6 cuttings



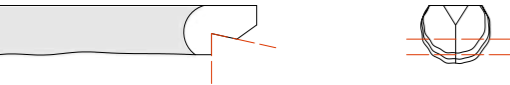
The first act is thinking a connection that involves the use of both the materials, in the best way they can be used.



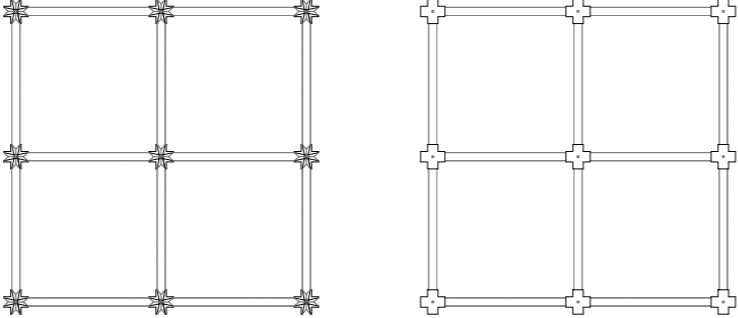
The first cut is to flatten one side of the log so that there is a common plane to get the same measurements from different logs.



Two more cuts are made to create the V-shape that can prevent both lateral and horizontal forces; this shape creates an end that is exactly the same for all different log shapes and sizes.

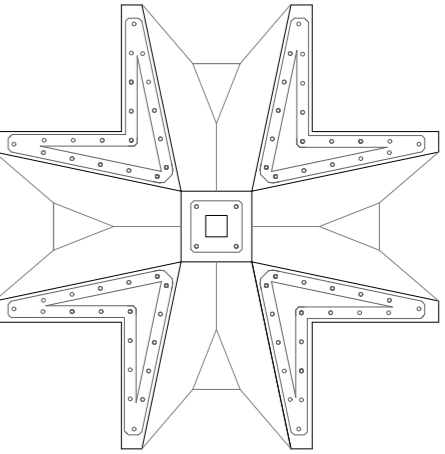
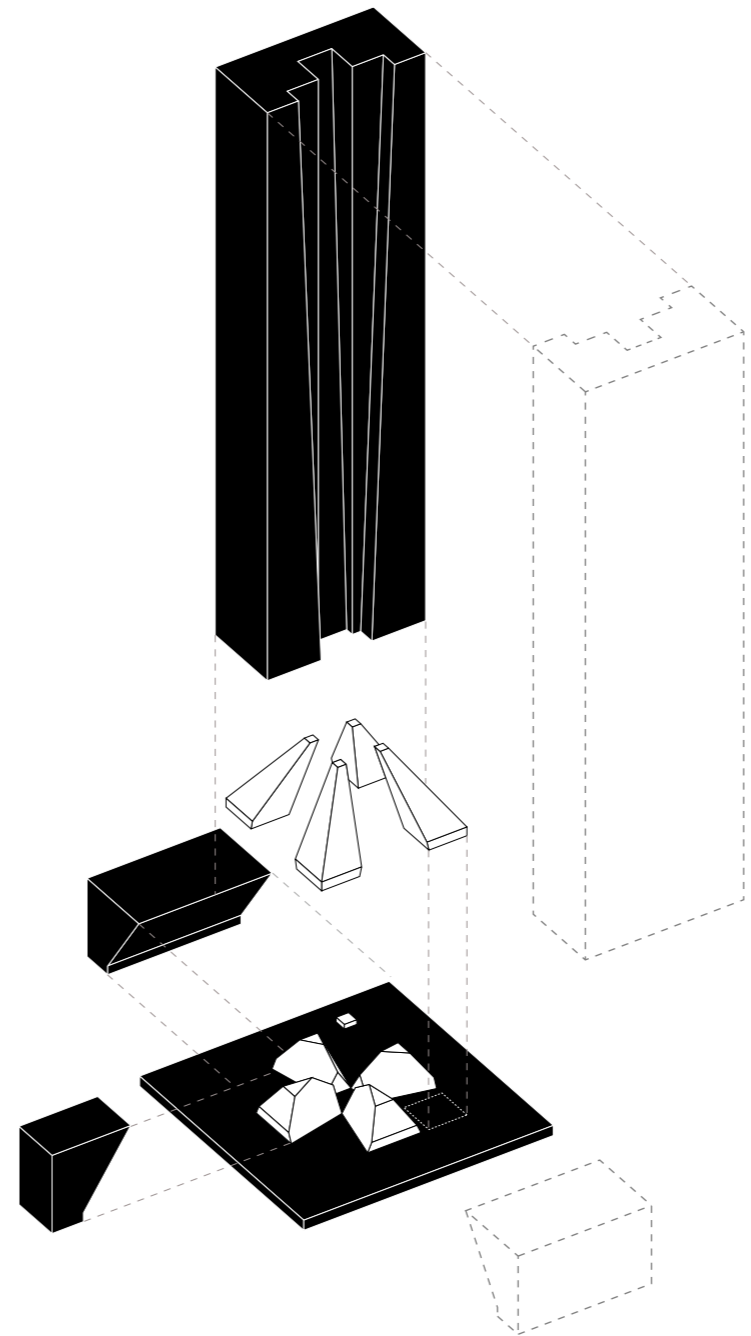
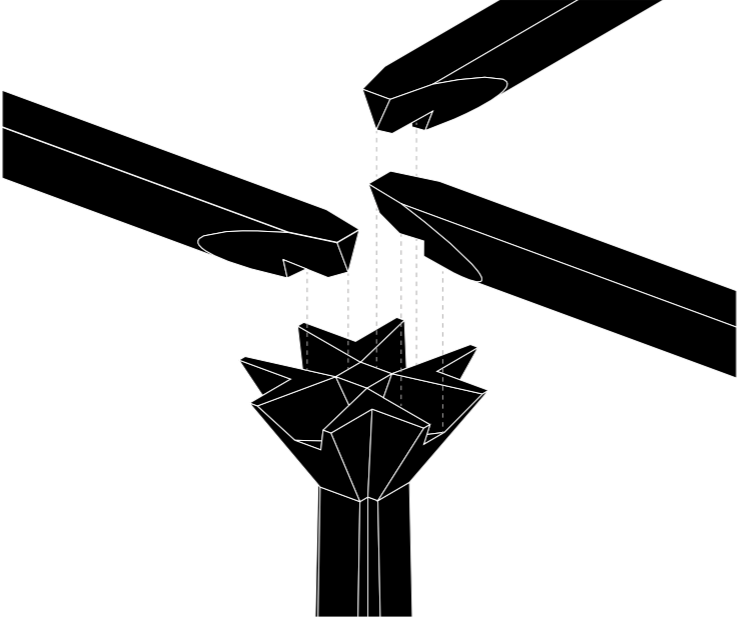


The last cuts were designed to create a hook to prevent horizontal forces parallel to the trunk; this cutting is for the safety of the structure, and to connect better the trunk with the column.

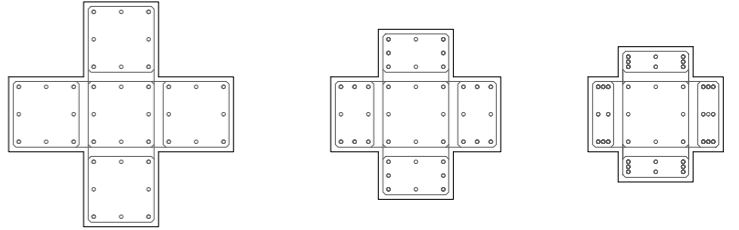


Starting from the premise that wood in nature often exhibits a circular cross-sectional shape, while concrete lacks a defined form and is akin to a liquid stone, we can leverage these characteristics to enhance sustainability in our built environment. To achieve this, we can minimize the cutting of wood to preserve its structural integrity against lateral forces. Meanwhile, for concrete, we can utilize mass production techniques facilitated by molds to create complex columns efficiently.

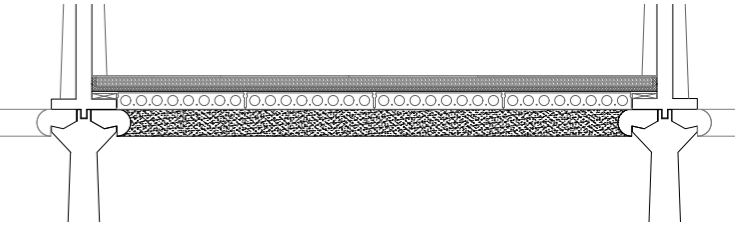
The result is a symbiotic relationship between intricately designed concrete columns and the ruggedness of wooden beams. This harmonious balance honors the unique qualities of both construction materials, culminating in a more sustainable built environment.



The flower shape is used to create a V-shape that can prevent movement of the beam on the x-axis and z-axis of forces. The inverse shape is applied to the wooden beams with respect to the column recess in order to have a precise connection without the use of adhesives. The actual shape of the capital with a width of 70 cm and a height of 40 cm is the result of a numerous series of attempts on a shape that can at the same time be statically stable and use as little matter as possible. The square in the center is a recess in which a concrete plate is placed in compression to hold the wooden beams below in place.



The column starting from a Greek cross shape grows along its length of 280 cm by reducing the size of the laterals but maintaining the same number of reinforcements, so that decreasing in size also reinforces stability to possible lateral and compressive forces. From a size of 45 cm it grows by tightening to a size of 27 cm. The colonnade is inspired by the structures for the Palazzo delle esposizioni in Turin designed by Pier Luigi Nervi, which shows how this reinforced concrete system can support huge amounts of matter.



The system of the floor is bi-directional, a prefabricated floor slab of perforated concrete connected with a screed pour on site is laid on top of the rough wooden beams, the insulation, the anti-footing and a screed made of gravel. The system also includes the base of the upper column that is therefore not visible once the building is finished. The size of the beams (5 m) is related to the possibility of connecting four pieces of prefabricated slab next to each other. The system can be used with different sizes.

