

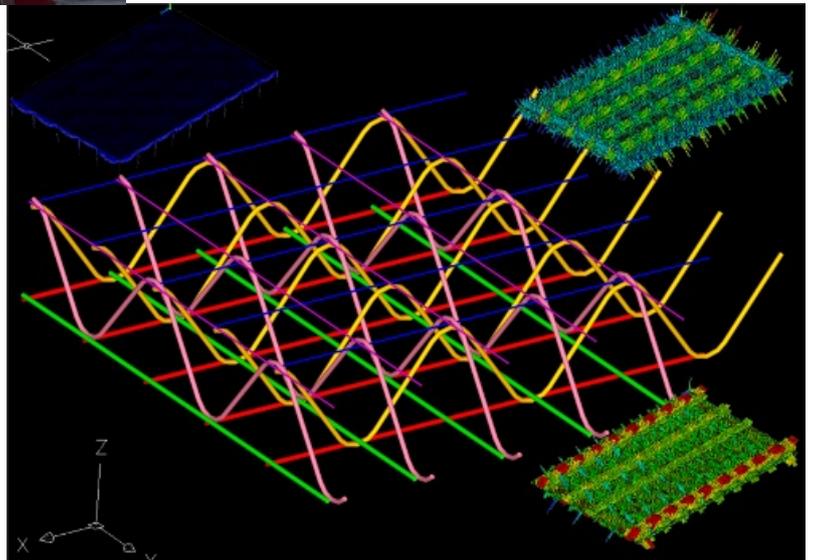
# DECK PLAZA «EL RECREO»



The poor state of the slab that supported the square of the urbanization El Recreo, located in the municipality of Móstoles, as well as the need to enable emergency vehicles, in particular fire trucks, to access to this area, led the city council to consider the solution of the problem by reinforcing this slab.

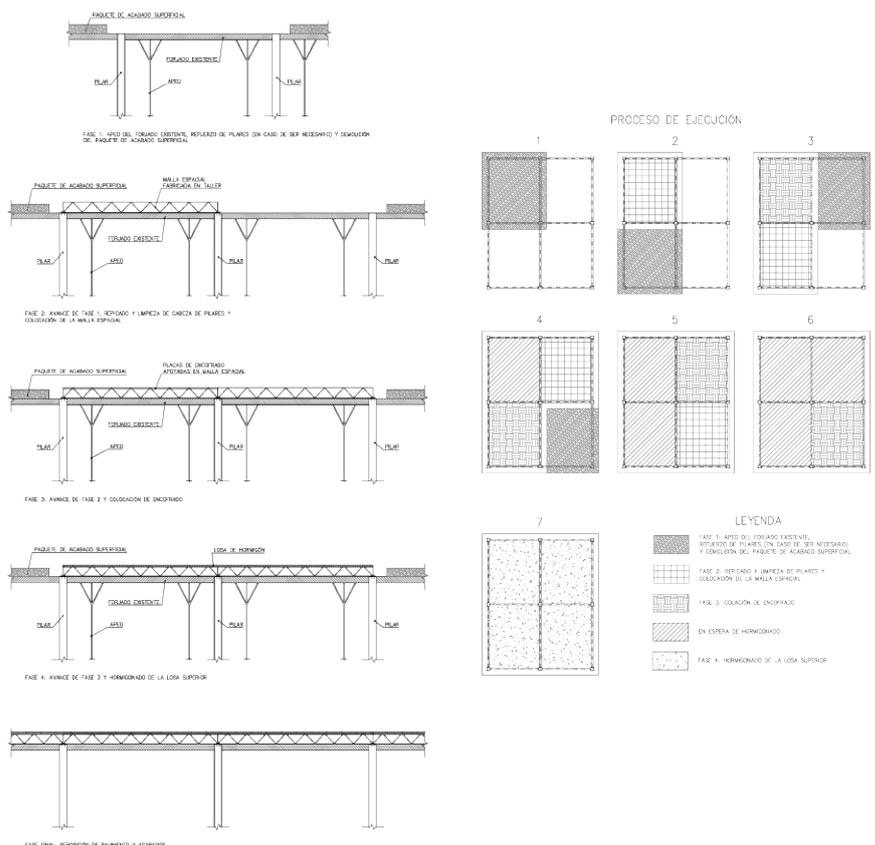
The design of the reinforcement was intended to meet two fundamental objectives:

- Give sufficient strength to the structure in order to withstand the loads prescribed by the standards.
- Minimize the affection of the works to the shopping areas located under the square and reduce as much as possible the annoyances to the neighbors.



We designed a solution that basically consisted of the construction of a new slab that rested exclusively on the heads of the columns. The slab was a self-supporting structure, formed by upper and lower steel meshes connected by diagonals, which form a square-shaped pyramid. As an element of stiffening, which also forms the surface of the square, an upper concrete slab of reduced thickness was provided.

By using this system, it was possible to withstand the required load of 20 kN/m<sup>2</sup> with very low self-weight slab of relatively little height. In addition, the use of this type of structure allowed to introduce moderate loads in the early phases of its execution, which facilitated the establishment of corridors for pedestrian transit during construction.



At the beginning of the works, the following unforeseen events were encountered:

- It was detected that the storm drain in the inner courtyard was broken, so that the solution planned for the drainage of the new slab, which consisted of draining much of the surface towards this collector, was not feasible.
- On the other hand, after consulting several steel prefabrication workshops, it was concluded that, due to the high workload that they had at that time of expansion of the construction market, the cost of preparing the metal structure designed was higher than that of other alternatives which were initially discarded because of their substantially higher use of material.

In view of these circumstances, it was decided to introduce the following modifications with respect to the original project:

- Eliminate the rain gutter that was planned to be installed and change the drainage network so that the water flows into the collector located at Pintor Velázquez Street.
- Replace the initially planned composite floor truss system by a composite deck slab with steel profile sheeting supported on composite beams.

