

Structural Design for Arch-shaped Cantilever Beams “Oshika Ring of Hope”

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Abstract

The monument is divided in four elements built of reinforced concrete: two prefabricated cantilever elements that define the semi arch and their supporting walls, raised on site. The section of the beams changes, growing in size while reaching the free edge. The slanting arch elements bring several complications for structural stability, the torque moment is an effect that has been considered in the design of the wall joints. The durability of the monument was taken into consideration too, in fact under seismic stress, the particular section of the beam is designed not to crack. Regarding the structural safety, we confirmed it by FEM analysis results(Nastran).

The inclination of the semi arch follows the position of the Sun: on the day of commemoration, the 11th of March, at 14:46, the sunrays will perfectly fit in the gap created between the cantilever beams. The sunbeams will enlighten the shadows of the arch marking the visitors souls with the memory of the tragedy.



Fig.1 Precast beams set on site



Fig.2 Construction of Precast beams



Fig.3 Connection detail



Fig.4 Gap between the cantilever beams

References

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