

RESERVOIR Roofing System



Corestruc is a leader in the design and construction of precast concrete reservoir roof structures. We have been refining the design of our system since 2009, when we first entered this market to help government bodies and their professional teams significantly accelerate the delivery of this critical infrastructure. By using our system, they have shaved months off the overall construction programme to ensure timely delivery and a high quality build.



Construction of Concrete Pre-Cast Structures

The system comprises precast concrete columns, beams and hollow-core slabs.

We start manufacturing the structure at our factory while the main contractor completes the ground work and footings of the structure.

Our team then installs a column-fixing assembly on to the blinding and the contractors fix their reinforcing for the footing before it is cast.

The columns are placed using a mobile crane and they can immediately support the pre-cast beams.

Nuts are connected to the plum, and the tolerance gap between the footing and the columns filled with a grout.

Beams are installed on to a bearing pad on top of the columns and connected with a dowel that protrudes from the precast concrete column.

Beams are tightened to the column with a nut and washer and the dowels are then grouted.

Installation of the hollow-core slabs then commence, followed by the fixing of tie steel into the slab core and the protruding stirrups by the main contractor.



ACCELERATED CONSTRUCTION TIMES

The system can be installed without the need to erect, dismantle and remove tons of supporting scaffolding, while the precast system can be programmed concurrently with other activities and, therefore, does not restrict multiple activities on the site.



ROBUST AND DURABLE BUILD

All the elements are manufactured from a 55 MPa concrete – 40 MPa specification of in-situ material. This contributes to the overall long-term performance of the asset while reducing maintenance requirements of the structure.

SAFER CONSTRUCTION

Installation of the system is undertaken by a skilled team, including a seasoned foreman, as well as crane operator and rigger. Meanwhile, all of the precast concrete elements are manufactured off-site by trained and competent people working at ground level in a controlled environment.

GREENER INFRASTRUCTURE

The use of silica fume, an industrial residue, in our concrete mixes has helped reduce the overall embodied energy of the structure, in addition to providing a higher quality concrete material.



OPTIMAL DESIGN

Corestruc works closely with engineering teams in the early design phases. Its expertise spans the optimal use of the precast concrete system through to the selection of connection systems that are both affordable and practical. No detail is spared during these early phases that ensure an optimal production rate once installation commences on site.

QUALITY MANUFACTURE

Strict standards are adhered to at our factory to ensure the highest quality of each precast concrete element.

Only washed aggregates and sand from reputable suppliers enter the production cycle, while silica fume supplements some of the cement content to create a denser micro-structure of the concrete.

Sensors constantly monitor the temperature and moisture content of the concrete mix, which is poured into specialised forms and moulds that guarantee accurate casting. A separate steel-fixing yard facilitates accuracy and, therefore, a high quality reinforcing in the concrete casing.



RAPID INSTALLATION

Corestruc's team is able to install up to 12 columns and 20 beams in a single shift. Tight tolerances of between about 20 mm are achieved at heights of 15 m on site, where the installation team is supported by a seasoned surveyor equipped with a state-of-the-art total station theodolite.

LIFTING AND TRANSPORT

We have our own transport, as well as lifting and rigging capabilities. This ensures the just-in-time delivery, in addition to the safe and efficient lifting, as well as placement of the various precast concrete elements.

COMPLEMENTING LABOUR-BASED CONSTRUCTION METHODS

Corestruc's teams also continue to work alongside emerging contractors on smaller reservoir projects. By harnessing the efficiencies of precast concrete technologies, client bodies have been able to fast-track infrastructure delivery in line with government's employment and skills development agendas. Moreover, our factory is extremely labour intensive, providing many jobs and opportunities for skills development in the larger construction sector. Our employees also enjoy the security of long-term employment and work in a secure and safe environment.

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