

Building in precast

The Greater Giyani Municipality will soon take ownership of its new, modern administration offices, with the second and final phase of the development now nearing completion.

By February this year, HBC Construction and its team of subcontractors were making steady progress on the outfitting of the superstructure, which is built entirely using a modular precast concrete system.

Corestruc designed, manufactured and installed the 1 000 t of precast concrete elements, including 190 columns and beams, as well as the 2 900 m² of floor and roof slabs that make up the new administration block. A 160 t crane was deployed to lift and place each precast concrete element.

As Corestruc's Russell Hobbs explains, one of the key benefits of precast concrete structures is that they can be assembled swiftly by small teams. This highly efficient building method also does away with the need for the erection of scaffolding and propping, and the assembly of shuttering and formwork, since there are no in situ casting requirements.

The columns were installed according to a template, which is placed on top of the building's foundations and then aligned to achieve the required dimensional accuracy ahead of the installation of the precast concrete beams and floor slabs.

By this stage of the build, a stable construction sequence had been established, and the process was repeated all the way to the fourth floor, ending with the placement of the roof slabs. The floor and roof slabs were then filled with a specially designed non-shrinking grout to provide high weather-proofing properties.

Council chamber extension

For the final construction phase, Corestruc was also invited to extend the existing council chambers in line with later amendments made to the original design. Here, the scope of work entailed the installation of 18 additional precast concrete wall panels to lengthen the existing curved wall. Each 5.4 t panel is 9.7 m high, 1 m wide and 200 mm thick, and they are joined with Bartec-type couplers.

This modular approach provides a fast and efficient alternative to conventional in situ techniques.

Again, Corestruc's teams made quick work of this stage of the programme. They completed the installation of the additional panels in four shifts using a team comprising seven people, including a supervisor.

The wall panels were placed and the connections then grouted ahead of completion of the second-stage in situ concrete foundations.

"Once the panels were securely supported and attached to the existing structure, the 320 mm thick hollow-core roof slabs, with spans of 11.6 m, were installed in a day. A 100 mm thick reinforced in situ structural topping layer was then placed over the precast roof elements to complete the extension,"

Hobbs adds. **35**

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