

# Shoprite's hi-tech, world-class distribution centre completed amidst much fanfare

**Sources:** Mauro Donato, Stefanutti Stocks Building Western Cape managing director  
Mike Bradshaw, Stefanutti Stocks Building Western Cape senior contracts manager Phase 1  
James Slabbert, Stefanutti Stocks Building Western Cape contracts manager Phase 2



On 5 October 2017 Stefanutti Stocks Building Western Cape hosted a roof-wetting event at Shoprite Group's new Cilmor Distribution Centre, attended by all stakeholders in the project.

The Distribution Centre (DC), located in Brackenfell, Cape Town is described by the Shoprite Group as one of the most technologically advanced distribution centres on the African continent. "When designing the facility we applied world-class logistics practice and focused on creating solutions that would help us manage store inventories and reduce their storage requirements," says Pieter Engelbrecht, Shoprite chief executive officer. "The Cilmor DC consolidates the activities of five different distribution centres and about 500 suppliers, and it is anticipated that about 20 000 products will be stored here."

Stefanutti Stocks has previously constructed distribution centres, including for Shoprite, and was able to use their previous experience as well as innovative methods to the advantage of the project.

## Tilt-up Technology

Due to the tall columns (in excess of 20 metres) required in the construction of the distribution centre Stefanutti Stocks proposed the tilt-up route from tender stage. This entails constructing the columns on the ground and then lifting them into place with a crane, instead of the traditional way of forming them vertically with formwork. The two safety stores that were part of Phase 1's scope of work were originally designed as concrete framed structures with brick and plaster infill panels, and these were also constructed using tilt-up. "Our proposal to use this methodology at tender stage gave us an edge not only on price but also gave us a big advantage on programme and essentially simplified our lives," says Mauro Donato, Stefanutti Stocks Building Western Cape managing director.

"When I compare the speed at which we constructed the columns on this project with previous projects where we did not use the tilt-up

option, we were, on a good day working up to four-and-a-half times faster and coming in cheaper," continues Donato. Further advantages include that the methodology does not require scaffolding, thus eliminating the risk of working at heights. "The holding down bolts get cast-in on the ground, the site is less congested and there is more survey control to ensure getting the holding bolts exactly into the correct position, therefore allowing for a seamless structural steel installation, which the programme required."

## Construction Scope

### Phase 1 comprised of the construction of:

- 76 162m<sup>2</sup> dry goods warehouse;
- Two safety stores;

- 13 419m<sup>2</sup> returns centre warehouse (ERTC) and office block;
- Dispatch and receiving office;
- Truck workshop, wash and refuelling;
- Generator and transformer rooms;
- Guard house and entry facilities;
- Two retention ponds;
- Irrigation and water treatment plant;
- 40 000m<sup>2</sup> concrete hardstands;
- 42 000m<sup>2</sup> interlocking pavers;
- Extensive network of asphalt roads including two parking areas; and
- Extensive landscaping and irrigation.

### Phase 2 comprised of:

- 19 000m<sup>2</sup> refrigerated facility:
  - 2 000m<sup>2</sup> ambient temperature;
  - 14 000m<sup>2</sup> +1 deg C;
  - 3 000m<sup>2</sup> - 27 deg C;
- Double-storey perishable office;
- Triple-storey CFS office; and
- Plant building.

## Phase 1

Phase 1 commenced in January 2016 and achieved practical completion on 31 March 2017. All seven contractual dates were achieved on time and the project reached works completion only six weeks later on 19 May 2017 - which on a project of this magnitude is a substantial achievement.

The dry goods warehouse has a total of 204 columns, standing up to 21-metres high. To enable the necessary fire resistance to the safety store area its walls were constructed using 48 panels also cast on site adjacent to their final position. The returns centre includes 41 tilt-up columns with the tallest being 23-metres high.

Both facilities have high-quality, highly-accurate concrete floors. The 1 000m<sup>2</sup> fibre-reinforced surface beds panels (with imported Cosinus Joints) were cast at a daily rate of 2 000m<sup>2</sup> and at night to ensure continuity of concrete supply.

The facilities also both have large curved roofs, in some places with roof sheeting in excess of 90-metres. The phase saw a total of 100 000m<sup>2</sup> of roof sheeting installed.

"There were many highlights in this phase," says Mike Bradshaw, Stefanutti Stocks Building Western Cape senior contracts manager for Phase 1, "including our meeting each of our contractual dates, as well as achieving 1-million Lost Time Injury Free (LTIF) man hours."

## Phase 2

Phase 2 commenced in October 2016 and is on track to achieve practical completion on 25 October 2017. All three contractual dates were achieved on time.

The biggest challenge in this phase was to ensure the sub-contractor undertaking the refrigeration completed and commissioned the facility before the racking commenced. In order to commission the facility the warehouse had to be fully insulated to ensure the correct temperatures and airflows were achieved. "The greatest satisfaction of Phase 2 was that the commissioning of systems commenced on time at the end of September 2017, and the cooling down of the refrigerated facilities temperature started thereafter," says James Slabbert Stefanutti Stocks' contracts manager for Phase 2. "It's also interesting to note that the refrigeration equipment and piping equated to 25 per cent of the contract value."

### Quantities on this phase included:

- 500 tons of structural steel for the roof;
- 15 000m<sup>3</sup> of concrete;
- 40 000m<sup>2</sup> of insulated panels (equivalent to eight rugby fields);
- 60 smoke ventilators installed on the roof; and
- 38 MT cooler fans installed inside the facility.

"The on-time commissioning, combined with the fact that Shoprite is very happy with the work undertaken by Stefanutti Stocks, and that we have delivered yet another project on time, has made us very proud to be able to include the Cilmor Distribution Centre on our construction portfolio," concludes Slabbert.

### Captions:

1. A bird's eye view the Distribution Centre, Return Centre and Refrigerated Facility.
2. An overhead view of the dry goods warehouse.
3. An inside view of the dry goods warehouse - size-wise it is equal to 14 rugby fields!

