ADFIL
Construction Fibres

CASE STUDY

ClearWater Corporate Office Park

Boksburg, South Africa

This A-grade Office Park is located near the intersection of two major arterial roads in Boksburg South Africa. The building is one of the largest to use hollow floor planks, and the first in South Africa to incorporate Durus S400 fibres into the structural toppings.

Project owner
Krisp Properties Ltd

Product
Durus® S400

Function
Replace mesh in a structural topping

Contractor
Ludikon

Project specifications

The project consisted out of three floors, each constructed out of hollow core planks. These hollow core planks would each receive a concrete structural topping, with the bottom and middle floors each being 50mm thick and the roof/ third floor 75mm.
The total gross lettable area on the site for all buildings is 17 500 m2. Each building is approximately 2 500 m2 in size and consists of a full parking basement and two levels of offices.

Challenge

Due to the large amount of service conduits that had to be installed between the hollow core planks and the structural topping it became clear that there would not be enough space to use conventional ref 193 steel mesh reinforcement. Chryso along with Oxyfibre were asked to assist in finding a solution that would allow space to install the service conduits and prevent cracking of the topping's surface.

The floor before the Fibre Reinforced Screed was pumped in place

The concrete was pumped towards every stage of the building

Finished layer of 50mm fibre reinforced screed

Using monofilament macro fibres allow a nice finish

High strength polymer macro fibre can provide crack control

Solution

After various discussions with the client it was decided that the use of 4kg/m³ Durus S4oo fibres would allow the client to remove the ref 193 steel mesh reinforcement from the structural topping. This would leave more available space for the service conduits. The Durus S400 would likewise help in preventing cracking while at the same time enhancing the durability of the structural concrete topping.

Benefits of the solution

The use of Durus S400 fibres in the structural topping not only allowed more space for the service conduits, but saved the client time and money by eliminating the time-consuming placement of steel mesh reinforcement. Using the synthetic macro fibres helped prevent cracking of the structural topping, which meant that there was no time spent on trying to repair unnecessary cracking afterwards.

Result

Since the Durus S400 product was already added to the concrete mix at the ready-mix plant it allowed the concrete to be pumped immediately without the client having to be concerned with steel placement and on-site storage. Thus, the client could save both time and money on the laborious task of placing and cutting steel mesh.

Products used

Durus S400
A macro synthetic fibre used to reinforce concrete

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