

DPD Distribution Centre

Hinckley, United Kingdom

DPD is one of the largest distribution and logistics companies in the UK and worldwide. At Hinckley Commercial Park, a new 31,000 m² DPD parcel distribution centre was constructed in 2015. The external concrete paving was enhanced with Fibrin XT construction fibres to give it improved durability.



Project owner
DPD

Product
Fibrin XT

Function
Improving durability of external concrete paving

Contractor
Wates

Volume
0.91 kg/m³ ; 17,000 m³ C40/50 concrete

Challenge

The distribution centre has 100 docking bays which means that the external concrete paving will be heavily trafficked with an estimated 1000 truck movements per day. This high volume of vehicle movements with mostly loaded articulated lorries, means that the concrete will be susceptible to heavy wear and tear. Furthermore, the concrete slab will be subject to freeze/thaw cycles that can cause concrete failure. Providing a very durable concrete was the main challenge. In addition, de-icing salts dropped onto the paved area from the trucks can have a major

negative impact on the long term serviceability of the concrete hardstanding.

Solution

Fibrin XT answered the challenge as this fibre has been used in many similar projects for over 15 years. The British Board of Agrément confirms the following performance criteria.:

- Resistance to plastic shrinkage cracks
- Increased abrasion resistance
- Increased impact resistance



DPD's new distribution centre at Hinckley

- Improved resistance to freeze/thaw damage
- An alternative solution to air entraining agents (AEA)

Benefits of the solution

With the use of Fibrin XT, the air entraining agent is no longer required. Consequently the concrete can have a lower cement content which in turn leads to fewer long term drying issues. Furthermore, it means that the durability of the fibre enhanced concrete is much higher because the fibres are dispersed throughout the whole concrete matrix.

The use of Fibrin XT over AEA in concrete results in a more uniform concrete mix which is not affected by the many variables when producing air entrained concrete.

These variables include one or a combination of the following:

- Type of cement and aggregate
- Concrete workability
- Ambient temperatures

- Mixing and transportation of the concrete
- Placing, compacting and finishing of the concrete on site

Result

The result is a harder wearing concrete slab that will be more durable than when using an alternative solution with an AEA concrete mix.

Products used



Fibrin XT

Monofilament fibres made from 100% virgin polypropylene.