

> PROJECT OVERVIEW

Customer: JYSK
General Contractor: DS Flexhal AS
Product: High-bay, high load floor
Usage: Automated robotic logistics warehouse
Address: Lars Larsens Vej 10, 7171 Uldum, Denmark
Casted: March, 2017
Area: 13 572 m² (146 087 ft²)
Slab thickness: 350 mm (13 in)
CO₂ savings: 203 580 kg (448 817 lb)

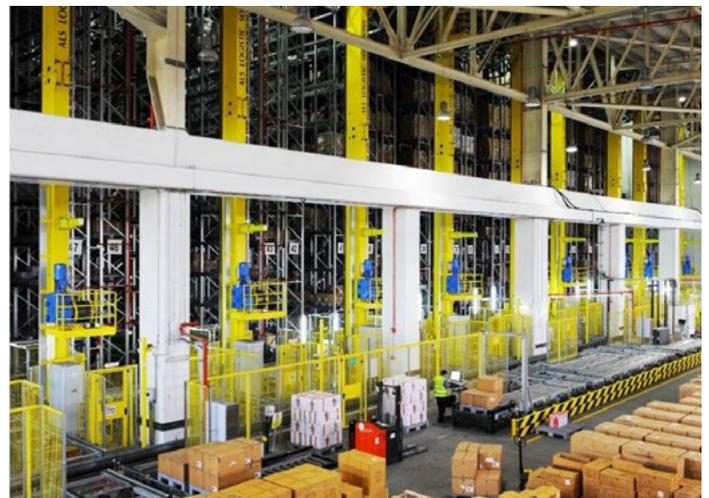
CASE STUDY

Logistics

CUSTOMER

JYSK is a global retail company that sells everything for the home. The company is owned by its founder Lars Larsen, who opened his first JYSK store in Denmark in 1979.

In total, JYSK Group currently has 2,507 stores and 21,000 employees across 48 countries with annual revenues of 3.12 billion euro. Its head office is in Brabrand, Denmark.



CHALLENGE

As JYSK continues its rapid growth, a new warehouse was needed at the company's distribution center in Uldum, Denmark. JYSK decided to build a fully automated, very high - 42m (138 ft) high-bay warehouse, with robotic systems supplied by Schaefer from Germany.

Such height means extremely high loads: bayload 315 kN; wheel load 220 kN. In addition, the robotic systems require very high flatness and structural stability demands. Additionally, the whole building including the floor was built on piles, adding to the complexity and demands on the floor.

The fast growth of JYSK demanded a very tight schedule completion.

SOLUTION

Our solution - High Performance Steel Fiber Reinforced Concrete (HPSFRC), **PrīmXComposite** floor was chosen because it has:

- very **high load bearing** capacity,
- **no joints** within daily casting area,
- **high flatness** - that stays flat,
- **and high rigidity** - meaning that even under the extreme loads of this high-performance warehouse, it has negligible deflections.



Due to heavy steel fiber reinforcement using 1700 N/mm² high strength steel fibers at a dosage rate of 50 kgs/m³ (85 lbs/cu yd) and our proprietary anti-shrinkage additives, our composite concrete is much stronger. Therefore we were able to provide a much thinner slab thickness exceeding defined loadbearing demands. Our solution was 350 mm slab (13 in) with 540 mm (21 in) perimeter beams.

As **PrīmXComposite** does not use steel bar reinforcement we were able to save weeks in construction. It took only 10 days of work casting of 570 m³/(741 cu yd) a day, using parallel work streams with two lines of fiber and admixture integration and high speed concrete pump.

During the process our online quality system, PrimeQuality was used to constantly check and monitor 21 key parameters to ensure a perfect, transparent process.



WWW.PRIMEKSS.COM

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