



## CASE STUDY

### HEMA NATIONAL DISTRIBUTION CENTRE

# HEMA

HEMA chose C-Fix as the perfect solution for their heavily used access at their national distribution centre near Utrecht.



#### About the project of HEMA Distribution Center:

In the centre of The Netherlands near Utrecht, we find the central distribution centre for HEMA. From this distribution centre some 320 HEMA stores are supplied with non-food products (up to four times a week), depending on the size of the store. At the access road to the distribution centre, there are security barriers on both sides of the road. The continuous and intense stream of loaded freight trucks slow down in front of the gate, pause for a while to report their cargo to the gatekeepers and afterwards accelerate.

#### Needs and requirements of the HEMA?

The HEMA Distribution Centre was looking for a longer lasting and hardwearing solution for their existing pavement at the access to the area. At this point, much track and groove shaping had occurred due to the continuous intense and heavily loaded traffic. The area is approximately 120 meter long by 8 meter wide and has to cope with, on average, 120 lorry movements per day. Because HEMA is a busy company with a non-stop business, the application of the new construction had to be done quickly, preferably within one weekend.

#### Original construction composition:

Originally the project was made from asphalt, which deformed. In a later stage, HEMA tried to take the asphalt out in parts and replace or improve the area with concrete pavers, but this didn't improve the situation or enhance the appearance of the site.

#### Problem definitions for Hema:

The conventional deck layer was seen to be too soft and deformed due to the daily traffic (track and groove shaping). Deformations were caused by the slowing, standing still and acceleration of the heavy freight trucks (a weight of 30



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tons or more) on the same spot for the barriers. "Due to our uniform fleet of freight trucks with equal wheelbase, gauge and wheel size, the trucks all landed with all their wheels in the same hole.", said Edwin Croese, Head of Facilitative services of the HEMA distribution centre. "This certainly became worse due to the fact that the trucks had frequently driven long distances, and therefore had to slow down and stop with hot tires. This resulted in more deformations in the asphalt."

A replacement for the area was necessary. "That particular area of our distribution centre became a bit of a patchwork with a combination of asphalt and concrete pavers", explains Tom van Santen, the director of the construction company Gebr. Van Santen at Culemborg, which has carried out this project in collaboration with KWS/Van Kessel, the executing contractor. "The situation of the barriers at the entrance gates had been moved several times in the past, but that did not work out well. This time we looked for a more definite and better solution", says Ton van Santen.

### Considerations for Hema:

A new, stronger construction was necessary. To apply ordinary asphalt again was therefore not a viable option.

Besides the requirements resulting from the problem definition, important considerations included:

- The application of the new construction had to be as fast as possible, so that the area was quickly useable again; the new construction had to be ready within one weekend.
- The support and level of confidence Gebr. Van Santen and KWS/Van Kessel could give to Hema.

Hema considered two possible solutions for their floor:

- Combideck layer.
- Carbon concrete/C-Fix.

### The solution for the access area:

A highly stable, seamless and strong surface layer with C-Fix/carbon asphalt concrete.

#### Mix and construction design:

Mixture type: SMA 0-11, ca. 5 cm thick. High Torsion variant, applied without joints. The bottom layers have also been replaced with high stable asphalt

### The advantages for HEMA Distribution Center:

- An aesthetical, highly stable surface, eliminating rutting/deformations due to the heavy trucks. "The company ground looks very sharp and beautiful", Jan Elfring claims. Jan is Head of the Department Inspection and Advice at KWS/Van Kessel. "It looks sharp and beautiful black, it is an eye catcher compared to other ways" (Hema staff).
- Very quickly usable after application (after cooling C-Fix is ready to use). The area needed to be empty for a shorter period.
- CO<sub>2</sub>-emission reduction and the fact that C-Fix is 100% recyclable are extra plus points.
- An additional advantage: "The gatekeepers now no longer tremble in their small service houses, due to the more stable floor", Edwin Croese, Head of the Facility Services of HEMA distribution centre.



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### **Information about the customer, HEMA Distribution Centre:**

Hema is an international retail organization with over 290 stores in the Netherlands, more than 40 stores in Belgium and 3 in Germany. HEMA's distribution centre in Utrecht is the size of thirteen football pitches. From there 500,000 pallets pass through the warehouse on an annual basis and 250 million articles are transported to the HEMA stores on an annual basis. HEMA has their own truck fleet of 66 freight carriages, 58 partisans and semi-trailers and 160 swap carriages.

### **Information about the contractor, Gebr. Van Kessel:**

Gebr. Van Kessel B.V. is a nationwide contractor in the area of civil and hydraulic engineering, industrial building, non-residential building and road building. Since November 2001 Gebr. Van Kessel is part of the Royal Volker Wessels Stevin N.V. Gebr. Van Kessel has regional establishments in Dordrecht, Tilburg and Geldermalsen, asphalt plants in Hoogblokland and Staphorst. In their own laboratory in Hoogblokland they develop and test new developments as carbon concrete (C-Fix). This is also the place where they developed a Stone Mastic Asphalt variant (also known as High Torsion asphalt). Gebr. Van Kessel has successfully completed many projects with C-Fix or carbon concrete.

Other projects of KWS/Van Kessel with C-Fix/carbon concrete include:

- Stuartweg in Vianen, industrial road of ca. 1 km.
- Crossroads N214/N216, Province South Holland.
- Milieustraat Ossendrecht (municipal waste area).
- Kemira, transshipment and docking station for chemicals.
- Flowers Auction Aalsmeer, indoor floor.
- Aluchemie.
- Container terminal 'Westbroek'.
- Crossroads Haarlem (by IKEA).
- Sita Amsterdam, waste recycling, inside and outside floors.
- Material depot of the Ministry of Waterways and Public Works in Houten.
- Container terminal 'Unipoort' in Rotterdam.
- 'Kop van Zuid', Wilhelminahoofd Rotterdam: an aesthetical, polished C-Fix outdoor floor with corrosion free blocks in the C-Fix layer in the shape of steel letters with the name.
- See also: [www.kws.nl](http://www.kws.nl)

### ***This case study could not have been made without:***

- Dirk Brons, Rogier Schaart and Edwin Croese of HEMA distribution centre.
- Ton van Santen of construction company Gebr. Van Santen.
- Jan Elfring of KWS/Van Kessel.
- Peter van Wanrooy of KWS/Van Kessel.