



CASE STUDY

HEINEKEN, INDUSTRIAL FLOORS

Heineken
Nederlands Beheer

Heineken Brewery Zoeterwoude selected a C-Fix based solution for their indoor storage floor. C-Fix was chosen for its heavy load bearing qualities in combination with a very smooth surface and dust prevention. Heineken also selected C-Fix for two heavy duty outside storage areas.



Projects at Heineken, Zoeterwoude:

The Heineken project was executed in 2005 and consists of a total of three floors:

1. Indoor storage area for beer crates; size approximately 2,500 m². This floor is loaded with pallets of beer crates – each pallet with 70 beer crates weighs 1,100 kgs – and transport of crates using heavy vehicles including forklifts. These crates are often transported with 2 or 3 at the same time. Crates are stackable to a maximum of 3 layers, average stock 5 million beer crates.
2. Barrel square, also known as 'Fustenplein'; size ca. 5,900 m². This is an outside area for the storage and transport of empty 30 or 50 liter barrels on pallets. It is a very heavy load, and they are sometimes stacked up to 9 layers.
3. Track square, also known as 'Spoorplein'; size 4,500 m². This is an outside area for the storage and transport of so-called EVM (single use packing materials), with full export beer bottles stacked on pallets. The bottles can be stacked to 30 'floors'.

Heineken's needs and requirements?

- A new floor that retains its shape and limits dust levels for a heavy load warehouse.
- A new floor that retains its shape for a heavy load barrel shipment/loading area.
- A new floor that retains its shape for the outside area for storage and transport of pallets and packing material.
- After the application of the new construction all floors needed to be ready for use as quickly as possible.

The following is a detailed description of each of these three floors.

1. Indoor storage for beer crates

Original construction composition:

Originally the construction involved a conventional asphalt layer.

C-Fix B.V. has attempted to summarize the information in this document, which is mostly provided by third parties, as carefully, completely and objectively as possible. However, C-Fix B.V. explicitly provides no guarantees with respect to this information, nor does it provide a guarantee with respect to the marketability or suitability of the product for certain applications. Therefore C-Fix B.V. does not accept any liability whatsoever for any damages as a result of the use of the data provided in this document.



CASE STUDY

Problem definition for Heineken's indoor floor:

The conventional deck layer was seen to be too soft and deformed due to the daily traffic (24 hour business) with heavy forklifts. The small wheels with solid tires (because of breaking glass hazard) left tracks; the asphalt was also deformed because of the need for forklift trucks to pause during the normal processes of moving and transporting beer crates. "That was always on the same place on the floor" says Hans Wesselingh, Coordinator Building Maintenance Bureau Heineken Netherlands Supply in Zoeterwoude. Personnel suffered from back problems due to the forklifts driving over these deformations in the floor causing shock to the legs and back. Also, if the heavy forklifts put the clamp down, they easily damage the floor.

Other issues Heineken had with the previous floor include:

- The beer crates were stacked high on pallets and the load made imprints on the floor.
- The floor caused too much dust on the bottles and crates. The products for export needs to go to the customer dust free, otherwise shipments are returned, leading to high costs.
- Quick application of the new layer. The area had to be ready for use very quickly this is because Heineken is a 24-hour a day multinational.

Assessments for Heineken:

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

- Consistency was important to avoid tracks.
- Available time and space for the application: the nature of the business does not allow for long out-of-business time.
- Financial resources, i.e. the cost price of the material

Heineken considered a range of possible solutions for their floor:

- Combination deck layer (e.g. Densiphalt);
- Concrete;
- Modified asphalt;
- C-Fix/ Carbon Asphalt Concrete.

The solution for the indoor storage area?

Based on these assessments C-Fix provided the cheapest, quickest and concrete strength solution. C-Fix also provided, without additional coatings, the low-level dust solution Heineken needed. Frits Geijsendorpher, Head of Technology Department of BAM West (the executing contractor): "The main disadvantage of concrete is the cost price and the longer curing time".

Mix and construction design:

Mixture type: dense asphalt concrete (DAB) 0-11, 5 cm thick. C-Fix was applied in phases.

2. The Barrel Square and 3. The Track Square

Original construction composition:

The Barrel square consisted of Stelcon plates and concrete pavers. The Track square was made of Stelcon plates with asphalt slag as under layer.

Problem definition for the outdoor floors at Heineken:

At these floors, loads are even heavier than in the warehouse. The Stelcon plates were uneven and that made it hard to drive over them with the forklifts, as well as caused problems with stacking pallets. "The plates were floating, rain water could not escape due to the asphalt under layer", says Hans Wesselingh.



CASE STUDY

Assessments for Heineken:

Heineken considered the same range of possible solutions for their outside floors as for their warehouse floor. In addition to the earlier assessments, further assessments were required:

- Heineken wanted a retainable and stable floor.
- The positive experience the multinational had with the warehouse.
- A stable surface layer is important for driving with the forklifts and stacking product.

The solution for the outside floors?

In both cases an extremely stable and strong surface layer with C-Fix/carbon asphalt concrete was chosen.

Advantages for Heineken by applying C-Fix:

- Resistance to deformation, heavy wearing floor.
- The fact that C-Fix is very quickly usable after application (after cooling C-Fix is ready to use) gave a time advantage. The area needed to be empty for a shorter period.
- Less investment costs compared to concrete and combideck layer.
- No maintenance/repair costs, "Until now the floor is maintenance free", according to Frits Geijsendorpher.
- Work- and space advantage: "Stacking went a lot better and more in line. We have everything under control now", according to Hans Wesselingh.
- The indoor floor is almost dust free, hardly any return shipments due to dust.
- Ergonomically advantages, less sick absence. Hans Wesselingh: "We don't have any back problems anymore, so C-Fix is good for the people". Other advantage according to Hans Wesselingh: "The drivers say they are more comfortable, it makes lesser noise".
- CO₂-emission reduction, which is important to Heineken as a social responsible company.

Mix and construction design:

Mixture type: dense asphalt concrete (DAB) 0-11, 5 cm thick. C-Fix was applied in a single layer and was laid in 2 phases.

Information about the customer, Heineken:

Heineken Zoeterwoude is the largest beer brewers in Europe and holds the fourth position worldwide. At the moment, approximately 10 millions hectoliter beer is brewed and packed at the company. The end product mainly consists of Heineken and Amstel beer for the internal market and the export market and Heineken premium Light and Amstel Light for the export market. The area in Zoeterwoude is 97 hectares large and has its own water treatment installation; therefore they also deliver and make good quality brewing water for the beer. For more information, see www.heineken.nl

Information about the contractor, BAM Wegen West:

BAM Wegen West is a part of BAM Infra of the Royal BAM Group. BAM has offices in The Hague and is responsible for the production and service in the province South-Holland. The organization has diverse equipment for the preparation and application of C-Fix, asphalt plants, asphalt sets, earth-moving machines etc. BAM Wegen West has successfully undertaken several projects for Heineken. Other projects of BAM Wegen West with carbon asphalt concrete:

- Krimpen aan de IJssel, waste recycling area.
- Barendrecht, load- and unloading dock.
- AVR Waalhaven & AVR Rozenburg, household and industrial waste collection areas.
- Boekesteijn, heavy equipment parking deck.
- Honselersdijk, load- and unloading dock.
- PCS, container terminal.

C-Fix B.V. has attempted to summarize the information in this document, which is mostly provided by third parties, as carefully, completely and objectively as possible. However, C-Fix B.V. explicitly provides no guarantees with respect to this information, nor does it provide a guarantee with respect to the marketability or suitability of the product for certain applications. Therefore C-Fix B.V. does not accept any liability whatsoever for any damages as a result of the use of the data provided in this document.



CASE STUDY

- Amersfoort, bus lanes.
- Vava, heavy equipment parking deck.
- Visitors Centre Leidsche Rijn, parking area.
- See www.bam.nl (under the chapter 'carbon asphalt concrete') for more information!

This case study could not have been made without:

- Hans Wesselingh, Heineken Zoeterwoude.
- Peter Everts, Heineken Zoeterwoude.
- Kees Groeneveld, Aannemingsbedrijf J.B. Bruins.
- Frits Geijsendorpher, BAM Wegen West.
- Frans Uhl, AAC Floors.