



Load Lock™

Case Studies



TRANSFORMING
HARDSCAPES

TRANSFORMING WATERFRONT WITH LOAD LOCK™

The silhouette of Kiel is traditionally characterized by large ships and imposing shipyard cranes. With the realization of the project, there is now even more maritime flair in the city center of Kiel.

"With this, we are connecting to the history of this place," explains Dipl.-Ing. Jens Neunert, project manager from the Department of Civil Engineering of the state capital Kiel.

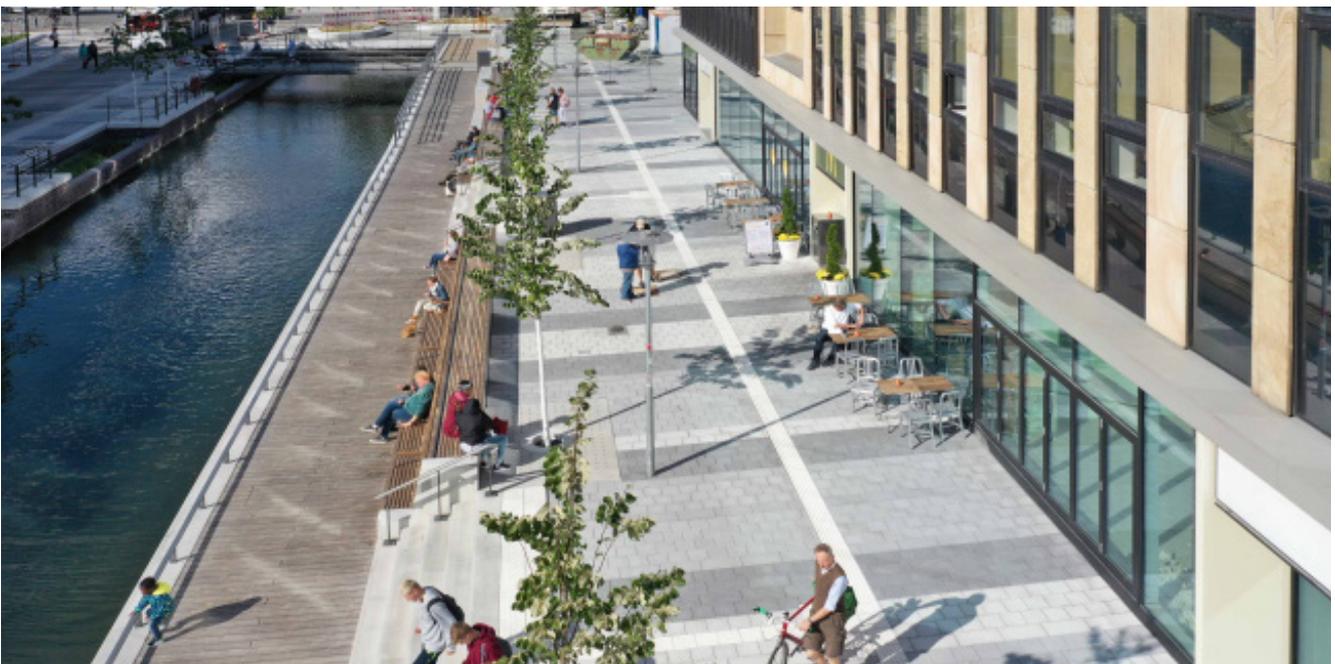
"Originally, the old town was surrounded by water like a peninsula because until the beginning of the last century, a canal connected the so-called Boat Harbor directly to the fjord and the Kleiner Kiel, a freshwater lake on the edge of the old town. However, this was filled in as part of the city's development. For many years, until the start of the renovation work, a six-lane road ran here, with a bus hub in the middle," says Neunert.

URBAN SPACE BECOMES AN OASIS

With the "Holstenfleet" project, this has now been reversed. Between the old town and the suburbs, where the city's main shopping areas are located, a series of water basins has been created in place of the former thoroughfare.

The urban space designed by the BGMR landscape architects from Berlin has evolved into an oasis in the middle of the city: with reed filtration, rows of Hungarian lime trees and swamp oaks, as well as large beds of grasses and perennials in large planters. Wooden benches and other seating options along the banks invite you to linger.

Water features and islands allow for active use of the new facility. In the evenings, the new space is bathed in subtle indirect light with lights under the benches and on the bridge railings.





TRUCK MANEUVERING ON PAVED AREAS

Jens Neunert continues: *"In the state capital Kiel, we often use the 25-grid pattern for paving public areas. Therefore, we also decided to use the formats of 25 x 25 and 25 x 50 cm for the paving of the approximately 6,000 m² concrete paving areas here. With the colors granite-white/gray, granite-natural gray, and granite-anthracite, we were able to create the desired stripe pattern.*

The surface of the pavement is water-blasted, giving it a very noble and lively appearance. In addition to the visual properties of the pavement, it was also important to us that the paved areas are durable enough to withstand the traffic loads. While the areas are primarily used by pedestrians and cyclists, the stresses generated by daily delivery traffic towards the pedestrian zone should not be underestimated.

Not to mention major events like the Kiel Week. When the fairground trucks maneuver on the areas, very high lateral forces act on the paved surfaces. For this reason, we opted for paving with a very special displacement security".

LOAD LOCK™ PAVERS

Load Lock pavers have a specific bonding technology that allows a load up to BK 3.2. Responsible for this are bonding elements arranged in pairs, in such a way that a displacement of the stones against each other is prevented. To ensure that the joint necessary for absorbing traffic loads is always maintained, this 14 cm thick pavement has the so-called D-point joint technology. This ensures that during the laying of the stones, there is only a punctual, minimal contact at the stone undersides.

Grinding installation is thus avoided, and the necessary joint for absorbing traffic loads is always maintained, ensuring optimal force transmission between the stones.

Meanwhile, the Holstenfleet has been awarded multiple times, including an award at the German Landscape Architecture Prize 2021. Even after more than a year of intensive use, the planners note that the paved areas at the Holstenfleet have passed their trial by fire.

Jens Neunert adds: *"The pavement is still in perfect condition both visually and technically - no damage to the surface is noticeable."*



COMPOSITE PAVING SYSTEM FOR EXTREME LOADS



LOAD LOCK™

Whenever high forces act on trafficked surfaces, special solutions for surface reinforcement are required. In practice, asphalt is often resorted to for extremely stressed surfaces, as many planners fear that paving systems may reach their limits under very heavy loads, potentially causing damage to the surfaces.

The example of Stöhr Logistik from Rottenacker in the Alb-Donau district demonstrates that these concerns are not always justified. Here, those responsible have been using a special composite paving system from Load Lock for years when expanding the factory areas heavily loaded by trucks.

With around 350 employees, 40,000 m² of logistics space, and 160 trucks, Stöhr Logistik GmbH is a significant logistics company in Baden-Württemberg. Since its founding in 1962, the company has continuously grown. As part of relocating its headquarters from Munderkingen to Rottenacker in 2008, a new logistics center was also built. At that time, the decision was made to surface the heavily stressed factory areas with a special composite paving system. Managing Director Erwin Stöhr remembers:

"Asphalt surfacing was never an option for us from the beginning because it often becomes soft in the height of summer due to the bitumen content and then no longer provides sufficient reinforcement. In contrast, concrete pavers perform significantly better here and also easily allow for excavations and repairs if necessary," says Stöhr.



SUITABLE FOR USE IN FREIGHT YARDS

According to the manufacturer, the Load Lock paving system is ideal for use in freight yards.

The reason for this is a special composite technology – the so-called 'D-point joint technology,' which ensures that even in the event of the stones being grinded, there is only minimal contact with the stone undersides, if at all.

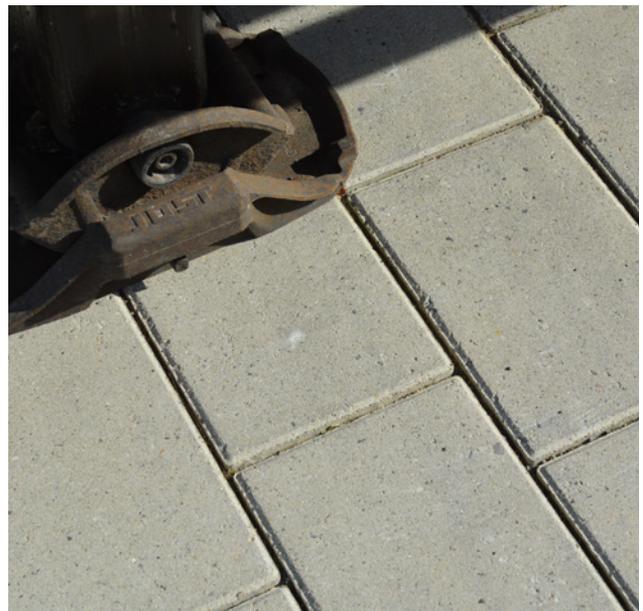
As a result, it always maintains the joint necessary to absorb traffic loads. Thus, the proportion of the area where the stones touch remains minimal. The often common grinding is thus avoided, and optimal force transmission between the stones is ensured.

"So far, we have had really good experiences with this paving system. Following the new construction in 2008, the first expansion of the logistics center took place in 2015, and the second in 2019. In total, 75,000 m² of factory areas have now been surfaced with the Load Lock paver. No damage has been recorded so far," concludes Stohr.

HANDLING OF 1000 PALLETS PER DAY

For this reason, the entrepreneur decided on the Load Lock paving system from Diephaus in Munderkingen. This not only offers the advantages mentioned but is also resistant to the high shear and thrust forces exerted by the freight vehicles on the surfaces.

"Currently, around 1,000 pallets are being handled per day. Both forklifts and heavy trucks place extreme stress on our factory areas during maneuvering. Therefore, it was particularly important to us that a paving system was used here that remains undamaged even under these loads in the long term," says Stohr.



TRANSFORMING A HIGH TRAFFIC RESIDENTIAL AREA

Over 16 years ago, the municipality of Erzhausen in the Darmstadt-Dieburg district in the southeastern part of the developed area opened up the residential area 'Rodensee II'.

During this process, the access roads were constructed with a construction road surface consisting of a 10 cm thick asphalt base layer, approximately the width of later roadways.

After almost all the plots are now built upon, the final construction of the roads began in mid-2019. According to the planners' vision, these roads were to be constructed at the same level, predominantly with a 5.50 m wide roadway and lateral sidewalks without separated side areas.

Therefore, there will be no edges or offsets between the roadways and sidewalks on the traffic areas within the residential area.

OPTICAL SEPARATION BETWEEN ROADWAY AND SIDEWALKS

It was equally important to the planners that roadways and sidewalks be visually separated: René Beyer from the Department III/Construction of the municipality of Erzhausen explains:

'The area is designated as a 30 km/h zone, with some areas even slower. Therefore, we considered how the road surface could also contribute to traffic calming.'

'The solution was to use different materials. Thus, the sidewalks were paved with relatively light-colored concrete block paving in the shell limestone shade, and the parking spaces with a dark anthracite-colored paving. In contrast, the roadways were asphalted - except for the intersection areas.'

'Here, we deliberately chose a light gray concrete block paving to create a different visual effect. By changing the surface material, we achieve a change in perception of the traffic situation among road users. The result is a reduction in speed in these sections.'



REVITALIZING HEAVY DUTY URBAN SPACES

To live, work, and enjoy leisure in cities, vibrant and livable settlements are needed. This task is addressed by urban development.

Among its areas of responsibility is urban redevelopment, which aims to eliminate urban blight in older neighborhoods and enable healthy living and working environments. In addition to buildings, the condition of streets, pathways, and squares is also a focus.

Paved areas should not only allow for safe traffic flow but also contribute to creating an attractive quality of stay. In Konstanz-Petershausen, the railway station district was renovated against this backdrop according to very specific criteria.

LOAD LOCK™ PAVERS

When choosing the concrete paving material for the approximately 1800 square meters of areas, a paving system was chosen that is particularly suitable for coping with the traffic loads without causing long-term damage to the surfaces.

The well-established Load Lock paving system from was ideally suited for this purpose. This interlocking pavement met the planners' requirements precisely because it has a particularly high load-bearing capacity.

This is due to the D-point joint technology - a special bonding technology that ensures that during installation of the stones, if at all, there is only punctual, minimal contact at the stone edges.



HOW LOAD LOCK™ PAVERS TRANSFORMED THE WELL

The Well is a bold reflection of Toronto's energy and diversity and a vibrant mixture of retail, commercial and residential space in downtown Toronto that will draw approximately 22,000 daily visitors. The design includes 1.2 million square feet of office space, 320,000 square feet of retail and food service and well as 1,700 residential units.

Award winning architectural firm CCxA wove in opportunities for fluidity, creativity and connectivity throughout the design. In particular, they gave careful consideration to selecting pavers for the areas that would need to withstand heavy vehicular traffic.

Load Lock Technology by Unilock was selected as the best solution to tackle this particular problem.

Load Lock is a patented fully-interlocking system with integrated protection against shifting. The patented jointing technology concentrates on surfaces with heavy traffic volumes and high loads.

The benefits:

- No displacement or deformation of paving elements
- No tilting or jamming of the paving edges even under the highest loads

At the Well, CCxA selected custom colors on Load Lock pavers to compliment the Series pavers, also by Unilock. These custom colors also help delineate the vehicular areas while also fostering a seamless outdoor transition between spaces. Together, they create a fluid design that's simple to navigate, enabling people to move easily throughout.

Load Lock by Unilock, installed at the Well in Toronto, provides exceptional lock-up strength to withstand even the heaviest loads.

Today, The Well offers new opportunities for eating, shopping, working, playing and living. And it's just what Toronto has been waiting for.

