



The skylights indicate the exhibition space: the new extension of the Städel Museum is underground beneath the garden area.

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 **The New Städel Museum, Frankfurt**

## Contemporary Art-Underground

The basic idea was compelling from the very outset: the architects schneider + schumacher, who won the international design competition for the project in 2008, decided to go underground to build the extension for Frankfurt's Städel Museum. Instead of adding another overground wing to the existing ensemble, the architects dug under the garden of the existing building to create a stunning new gallery. The 3,000 square metre exhibition space, where the museum will be presenting its contemporary art collection, opened at the end of February 2012. The spectacular new building – an underground art gallery in the garden, visible from the outside with its dome-like bulge and 195 circular skylights, has sparked enormous public and media interest since it opened and brought influx of visitors to the Städel Museum.

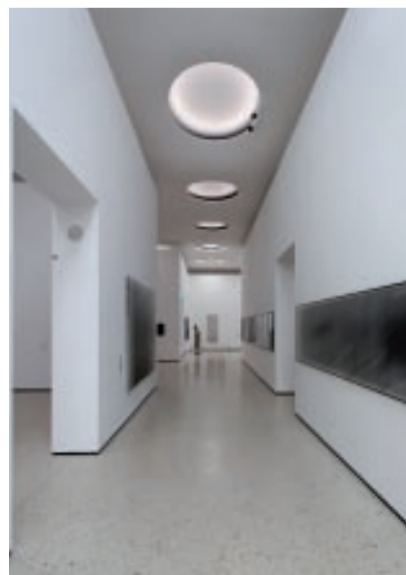
### Architecture creates a stage for art

The Städel Museum, located in a prominent position on the Museumsufer in Frankfurt, is one of the most important museums in Germany and has made a name for itself in the international art scene with its great art, inspiring exhibitions and big names. In 1815, Johann Friedrich Städel, a banker, spice trader and patron of the arts from Frankfurt, laid the foundations for the museum

*continued on page 2 >*



The insulation was laid on top of the waterproofing system.



The skylights let daylight into the galleries below.



Visitors can access the green roof, which is also a garden.



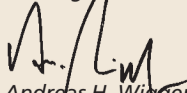
Dear Readers,

Construction specialists who are willing to work outside the box and transform bold ideas into real architectural gems enrich not only our living environment. They enable us to see things from a different perspective. Just like the new underground wing of the Städel Museum in Frankfurt am Main by the German architects schneider + schumacher. Realization of this project demanded high-quality products - problem solvers that have proven their value and effectiveness in rigorous implementations. We are proud to have been awarded the contract to waterproof the roof.

This international edition of DUCK gives you an insight into the fascinating and multifaceted waterproofing world of Kemper System. Each project demands specific aims and objectives for which we develop bespoke solutions. The high quality of our products, our extensive experience and the skill and dedication of our workforce have made Kemper System a global market leader in the liquid-applied waterproofing sector.

I hope you will enjoy reading this issue of DUCK.

Best regards,



Andreas H. Wiggenhagen  
General Manager KEMPER SYSTEM Germany

Trade fair schedule 2013  
Visit us! We look forward to meeting you in person.

 **BAU 2013**

January 14. – 19., Munich, Germany  
[www.bau-muenchen.com](http://www.bau-muenchen.com)

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[www.budma.pl](http://www.budma.pl)

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March 14. – 19., Orlando Florida, USA  
[www.rci-online.org](http://www.rci-online.org)

 **Roofex**

May 1. – 2., Coventry, UK  
[www.ukroofingshow.co.uk](http://www.ukroofingshow.co.uk)

 **R&W**

China Roofing & Waterproofing Expo  
August 28. – 30., Shanghai, China  
[www.roofexpo.cnwb.net](http://www.roofexpo.cnwb.net)

 **BATIMAT**

November 4. – 8., Paris, France  
[www.batimat.com](http://www.batimat.com)

 **CONSTRUCT CANADA**

December 4. – 6., Toronto, Canada  
[www.constructcanada.com](http://www.constructcanada.com)

> *Continued from page 1: The New Städel Museum, Frankfurt*

when he left his extensive art collection and his fortune to the citizens of Frankfurt. The museum has continued this close relationship with patrons to this day. Half of the total cost of €35 million for the new extension, which has practically unqualified public support, was funded by private benefactors. schumacher + schneider have achieved an astonishing feat. Their architectural work bows down to art and creates a truly unique space for art to shine.

**A green roof with "Eyes for Art"**

Inside, the all-white gallery rooms are dominated by the elegantly shaped dome which spans the entire exhibition space. The reinforced concrete structure, which is supported by only 12 interior columns and the outside walls, rises to a height of 8.2 metres at the highest point of the dome. The inside is

illuminated by round skylights which are evenly spaced across the entire ceiling. The skylights, which have a diameter of between 1.5 and 2.5 metres, flood the space below with natural light as well as forming a captivating pattern of light in the garden area above at night. Outside, the green, dome-like protrusions – called "Eyes for Art" by the architects and developed specially for the project – lend the Städel garden a unique look. The striking bull's-eye ceiling is a work of art in itself: the architecture serves art and manifests itself as a work of art.

The domed green roof also doubles up as a fully accessible garden. The geometry of the 195 round skylights in the roof is typically difficult to seal, which is why the architects planned to use a liquid waterproofing system from the very start. The product of choice for this project was KEMPEROL® 2K-PUR, an odourless, solvent-free system which causes no odour emissions during application.



During application: all skylights and the surfaces between them were carefully waterproofed and sealed with KEMPEROL® 2K-PUR.

**Waterproofing in sub-zero temperatures**

PB Flachdachbau, a long-standing, experienced KEMPEROL® partner, was contracted to provide waterproofing and sealing. Work lasted from September

2010 until September 2011. Company owner Jürgen Bartmuß refused to be deterred by set-backs in the overall planning: due to delays, work on sealing the round skylights was not able to start until mid-December 2010 and ran until the beginning of April 2011. In keeping with the motto of all outdoor fans that there is no bad weather, only unsuitable clothing, Jürgen Bartmuß shrugged off this challenge and had the Städel construction site "dressed" in waterproofs and heated tents installed. While the temperatures outside dipped far below zero, even going as far down as -15° C, the team inside worked their way forward gradually despite the adverse weather conditions.

In the first step the substrate between the square skylight flanges was either sanded or blasted, depending on its condition. The contractors applied solvent-free KEMPERTEC® EP5 primer over the entire concrete substrate. This product, which is based on epoxy resin, can be applied in ambient temperatures as low as 5° C. Like with all KEMPERTEC® primers, residual moisture in the concrete substrate must not exceed 5% in the top 2 centimetres. To avoid a film forming on the surface, care must be taken not to go below the dew point. When the product is applied the surface temperature must be 3K above the dew point.

KEMPEROL® 2K-PUR waterproofing is an odourless, solvent-free liquid applied waterproofing system based on reaction resins which were specially developed for the most demanding waterproofing projects. The product can even be used in sensitive areas that remain open to the public as no 'chemical odour emissions' are generated. The waterproofing system is tested according to ETAG 005 and has W3 certification with a service life of 25 years. KEMPEROL® 2K-PUR has long-term resistance to roots in compliance with FLL standards.

While the new extension was being built, comprehensive renovation work was also carried out on the existing buildings. To ensure complete, enduring safety all joints and details were also waterproofed with KEMPEROL®.

**Facts and figures**

Project:	Approx. 3,000 m <sup>2</sup> green roof including 195 skylights
Client:	Städel Museum, Frankfurt
Architects:	schneider + schumacher, Frankfurt
Material:	KEMPERTEC® EP5 primer KEMPEROL® 2K-PUR waterproofing
KEMPER SYSTEM contractor:	PB Flachdachbau GmbH, Borchon



The architects' product of choice for waterproofing the roof area and the 195 skylights was KEMPEROL®.

 **Roof of The Leela Hotel, Goa**  
**Five Star Waterproofing**

Five-star hotels distinguish themselves by the reception they give to guests. Perfect 24/7 service and tactful attentiveness in interpersonal exchanges are just a few of the things that make a luxury hotel's capital so priceless. People place great demands on hotels - a luxurious ambience, large, bright rooms, attractive fitness and wellness areas.

Water in a wellness facility's swimming pool is one of the most pleasant things in life. But water becomes a nuisance if it causes damage in wet rooms as a result of leaking seals. Roofs, balconies and terraces, kitchens, bathrooms, wellness

areas, technical equipment rooms – all need different types of professional waterproofing and floor coatings.

The Leela Hotel, situated in the stunning south-western Indian state of Goa, profited from the expertise of KEMPER SYSTEM when waterproofing its roof. The five-star resort, which opened in 1991, boasts a private beach and nestles within acres of lush grounds. Luxurious bungalows are grouped around an attractive main building. During renovation work, the leaky 4,000 m<sup>2</sup> bitumen coated roof of the main building was refurbished with KEMPEROL® V 210. This



The Leela Hotel, a five-star resort, which opened in 1991, profited from the expertise of KEMPER SYSTEM when waterproofing its roof.

type of liquid-applied waterproofing has been a firm favourite with customers ever since its launch almost 50 years ago. During this time KEMPEROL® V 210 has been demonstrating its capability worldwide.

The waterproofing is applied directly onto the failed material easily and quickly. This was one of the reasons why the client decided to subsequently liquid waterproof the roofs of the 34 bungalows (a total surface area of more than

5,000 m<sup>2</sup>) with KEMPEROL®. As a result, the re-waterproofing was completed without the need for demolition work and waste removal. And because the liquid material is completely cold applied without a naked flame there was no risk of fire. Most of the hotel's guests hardly realised that renovation work was being carried out. Furthermore, the peace and tranquillity of the resort was not disturbed.

**Facts and figures**

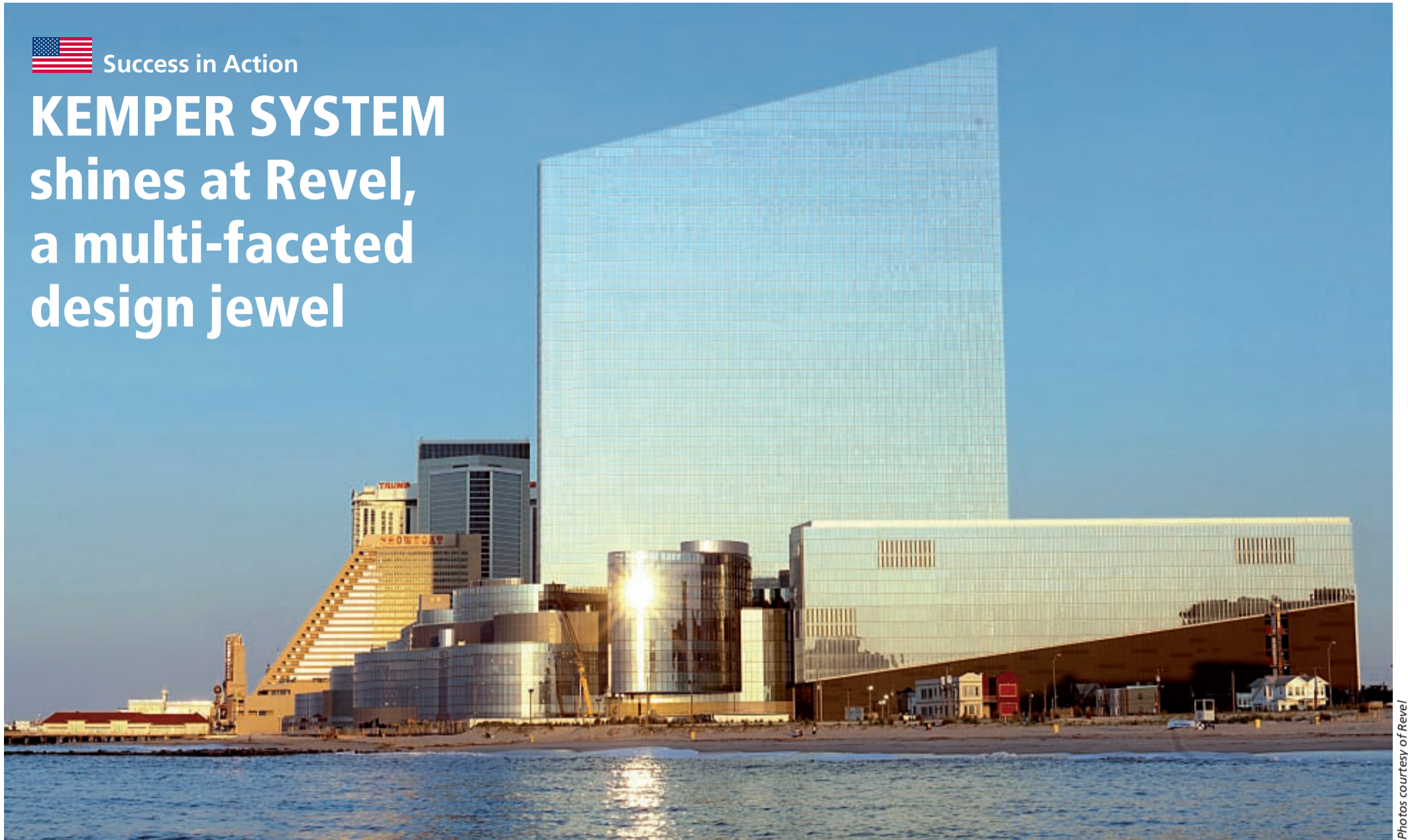
Project:	Refurbishing approx. 5,000 m <sup>2</sup> roofs of 34 bungalows
Material:	KEMPEROL® V 210 waterproofing
KEMPER SYSTEM contractor:	M/s Kavale Pressure concrete Pvt.Ltd Mumbai



The waterproofing is applied directly onto the failed material easily and quickly.

 Success in Action

# KEMPER SYSTEM shines at Revel, a multi-faceted design jewel



Photos courtesy of Revel

The spectacular Revel previewed in April with the premiere on May 25, 2012 in Atlantic City. The \$2.4 billion resort, with 1,898 hotel rooms in a 47-story tower, represents a stunning architectural achievement, and KEMPER SYSTEM is proud to be a part of it.

Jeff Younger of Younger2 introduced KEMPER SYSTEM to the project five years ago – with an innovative approach, coupled with hard work and technical expertise. After a presentation on the advantages of cold, liquid-applied waterproofing membranes, BLT Architects (Philadelphia, PA) specified KEMPER SYSTEM V 210 polyester resin with fleece reinforcement for the occupied roof and outdoor areas at two elevations.

KEMPEROL® membrane was specified to waterproof below the seating area surrounding the outdoor living wall which is visible from the lobby, with sweeping exterior glass. The curved exterior throughout the resort offers views of the sand and surf along the Jersey Shore.

“Creating a continuous indoor/outdoor experience was a critical part of our work at Revel, and KEMPER SYSTEM enabled us to deliver that experience



The 114 ft. elevation which includes the Sky Garden is a tapestry of surfaces protected by KEMPER SYSTEM waterproofing from below: Landscaped areas, decorative concrete, pedestal pavers, flagstone, and pebble tile. The liquid-applied membrane was ideal for sealing around penetrations.

while keeping water where it belongs,” said BLT associate and project manager for Revel, Nicole M. Dress, AIA, LEED AP. “KEMPER SYSTEM provided an excellent roofing system that was simultaneously thin and durable for use on Revel’s occupied decks, including the two-acre Sky Garden, a distinguishing feature of Revel.”

Long-term performance was a prime concern on this beachfront property to protect critical areas below, so a double

layer of the resin-fleece system was specified. With reputations on the line, this “double-duty” protection provided the best value and logistics over any other waterproofing solution.

## Thomas Company takes no gamble on waterproofing Revel

Beachfront property in New Jersey is subject to hurricane force winds and rain, as well as annual snowstorms and temperature swings. To protect the casino and indoor areas below, Thomas Co. applied two layers of the KEMPEROL® V 210 cold-fluid applied (CFA) resin membrane system to the occupied and landscaped outdoor areas.

water testing before the overburden went on,” says Michael Thomas, Sr.

The flowing architectural landscape includes extensive concrete curbs to separate walkways from gardens. Thomas Co. sealed, up the face and over the top of the curbs for added protection against wind-driven rain. Waterproofing and drainage layers were applied over the slab in two phases: Top layer application is shown below.

### Double-duty protection: Two lines of defense

#### Phase 1

- CFA Waterproofing membrane (KEMPEROL® EP Primer and KEMPEROL® V 210 resin with full fleece reinforcement)
- Drainage mat (geo-textile filter fabric)
- Slope-to-drain (tapered EPS – 60 psi expanded polystyrene)
- 4-inch concrete topping slab

#### Phase 2

- CFA Waterproofing
- Drainage mat at landscape areas only

#### Total application surface:

Exterior: 200,000 sq. ft. (61,000 m<sup>2</sup>) of surfacing (including walls and curbs) x 2 layers = 400,000 sq. ft. (122,000 m<sup>2</sup>)  
Interior: 20,000 sq. ft. (6,000 m<sup>2</sup>) indoor pool areas

**114 ft. elevation:** KEMPER SYSTEM protects 150,000 sq. ft. (46,000 m<sup>2</sup>) of roof and active outdoor living areas, including the green roof Sky Garden (above) with landscaped plant beds, paver walkways, and deck systems as well as around exterior pool decks, planters and fountains. Long, straight “viewing corridors” give an unobstructed view of the Atlantic from inside the hotel lobby.

**87 ft. elevation:** KEMPER SYSTEM protects a 50,000 sq. ft. (15,000 m<sup>2</sup>) cabana and private outdoor area finished with pedestal pavers and IPE wood decking to simulate the boardwalk below.

**Indoors:** The odor-free KEMPEROL® 2K-PUR waterproofs 20,000 sq. ft. (6,000 m<sup>2</sup>) around indoor pool areas and live planters.



Architural details, from decking to beveled pavers, needed to meet wind uplift requirements, simulating hurricane force winds. The high-density IPE walkway decking system, the planters, and even the tall trees within required special anchors with threaded stainless-steel mating bolts protruding up through the concrete.

“There were so many penetrations on this job, I don’t know how we could have done it without the KEMPER SYSTEM. The liquid-applied resin is ideal. We’ve worked with KEMPER SYSTEM before, and we trust them. They were there for us on site with the inspections and the

layer of the resin-fleece system was specified. With reputations on the line, this “double-duty” protection provided the best value and logistics over any other waterproofing solution.

Critical to the project timeline, with proper storage and deck protection the liquid-resin membrane system could be applied cold, at temperatures below freezing. “If the application temperature had to be 45 degrees and rising, it would have moved the schedule out way too far,” says Michael Thomas, Sr., president of Thomas Company in Egg Harbor Twp., NJ. Based in the Atlantic City area since 1920, the waterproofing company



Sealing the View: The top layer of CFA resin is rolled out over the fleece membrane on a sweeping walkway to be topped with pedestal pavers. Along the outside curbs, special tempered glass maintains the view, and on each sheet of (inside) guard rail, the four anchor bolts were field flashed with the KEMPER SYSTEM.




**Waterproofing a canteen in Hamburg**

# Clean, safe and completely invisible

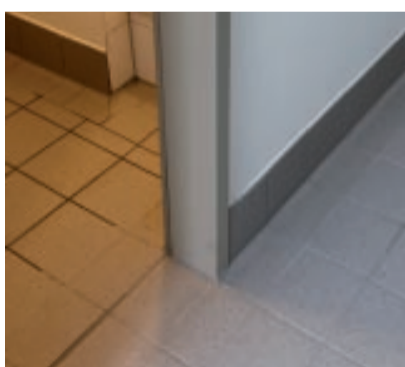


Light, pleasant and spic and span; the new canteen is ready to receive guests.

The task of a waterproofing membrane is to shield the building fabric against the permeation of moisture and thus to protect it against long-term damage. Waterproofing systems for kitchens and canteens have to comply with especially rigorous requirements. The floors and walls are regularly washed with water and disinfectant to ensure complete hygiene; as a result, canteen kitchens need floor drains and that should always be waterproofed, even if the floors and walls are tiled. Dealing with the fatty acids that coat most surfaces is a particular challenge: these acids attack cementitious materials such as concrete as well as steel reinforcements, thus in the long term potentially causing expensive damage to the building.



Because the waterproofing is applied as a liquid, all joints, pipes and drains can be seamlessly incorporated in the homogenous membrane.



All joints were waterproofed before the surfaces were coated. The primed substrate was gritted with natural quartz to enhance the adhesion of the waterproofing membrane.

## Waterproofing and tiling in one go

In a newly installed canteen in Hamburg 600 m<sup>2</sup> of floor and wall areas were waterproofed with KEMPEROL® 2K-PUR. Work was carried out in conjunction with tiling. The system used in this project has received a general test certificate (AbP) by Polymer Institut, Flörsheim. The odourless KEMPEROL® 2K-PUR is solvent-free and can be used indoors in well ventilated areas. Because it is applied cold and in liquid form, all critical joints and details – such as the existing water pipes and drains and all other details – are homogeneously and seamlessly incorporated in the waterproofing membrane.

## A system with a test certificate

The first step was to prime the concrete floor with KEMPERTEC® EP Primer, which was then covered with a layer of KEMPERTEC® Natural Quartz NQ 0408.

The primer optimises the bond between the substrate and the waterproofing system on absorbent substrates. As the system has only limited alkaline resistance, the cured surface was again coated with a primer gritted with natural quartz. This essential alkaline protection prevents the waterproofing being damaged and worn away by alkaline substances. To optimise the protective function of the permanently elastic membrane in the critical joints around the drains and upstands, a double layer



There's no sign of the KEMPEROL® waterproofing after the work had been completed: it provides invisible protection in the background.



Both floors and walls were waterproofed with KEMPEROL®.



All gutters were seamlessly incorporated into the waterproof membrane.



of reinforcing fleece was incorporated in the waterproofing. After the waterproofing had cured the tilers applied a levelling layer based on KEMPERTEC® MT tiling adhesive into which the tiles were then embedded.

The use of KEMPEROL® 2K-PUR in combination with KEMPERTEC® EP Primer and KEMPERTEC® MT Tile Adhesive has received a general appraisal certificate as "Composite Waterproofing".

## Facts and figures

Project: 600 m<sup>2</sup> walls and floor areas, waterproofing in conjunction with tiling  
 Products: KEMPERTEC® EP Primer; KEMPERTEC® Natural Quartz; KEMPEROL® 2K-PUR waterproofing system KEMPERTEC® MT Tile Adhesive

KEMPER SYSTEM contractor: B. Schlichter GmbH & Co. KG, Barsbüttel, as subcontractor for Grabowski GmbH, Bad Bevensen (tiler)



The tilers applied a levelling layer before gluing the tiles in place.



All the phases can be seen in this photo: the waterproofing in the corridor, the levelling layer and the tiles on the wall.



The finished passageway.



## THE DUCK

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Guildhall has been used as a town hall for several hundred years, and is still the ceremonial and administrative centre of the City of London and its Corporation (Foto © Maynard Case, Shutterstock).

 Guildhall, London

# Guildhall Roof goes solvent-free with KEMPEROL® 2K-PUR

The City of London has specified KEMPER SYSTEM's KEMPEROL® 2K-PUR solvent-free, wet-on-wet waterproofing system for the refurbishment of the historic Guildhall's west wing.

At London's Guildhall, refurbishment of the west wing roof required a specification that would take into account a number of factors. The area in question sits above function rooms and high ranking councillors' accommodation and this section of the building had to remain operational throughout the roofing project. The roof itself is complex with significant amounts of detailing and numerous service units, demanding a solution that could be fitted accurately to the exact contours of the structure without the risk of leaks. Finally, the specified system had to deliver best

value, which meant using a waterproof membrane that could be laid quickly, with proven longevity and a reliable warranty. To address all of these requirements The Corporation of London specified solvent-free KEMPEROL® 2K-PUR, a cold applied liquid waterproofing membrane.

### Business as usual

Explains Michael Coleman from The Corporation of London: "Choosing a solvent free cold liquid applied system meant that we could continue on a business as usual footing without having to worry about fumes or the hazardous equipment used for hot-applied systems. What's more, thanks to the 20-year warranty and exceptional service life offered by the KEMPER SYSTEM waterproofing

we can be confident that our investment in refurbishing the roof now will pay dividends for many years to come."

The 1,200 m<sup>2</sup> section of roof was refurbished by specialist contractor, Concept Roofing & Cladding, in a 10 week programme beginning at the end of September.

The KEMPEROL® 2K-PUR membrane bonded directly on top of the existing Veral Aluminium (foil faced modified bitumen composite) which was cleaned and primed by Concept prior to the application of the membrane.

### Save time and money


Explains Steve Webb from Concept: "Being able to apply the new waterproofing membrane over the existing substrate saves time on site and means that very little if anything has to go to landfill. However, it's important that the existing substrate is as clean and even as possible to ensure a secure bond and good finish, so we carry out thorough preparation works first."

With the roof primed and ready, Concept systematically applied specific amounts of the liquid resin to the substrate, spreading it out evenly before immediately laying a durable, flexible non-woven fleece reinforcement directly onto the wet resin. More resin is then poured and rolled out on top of the fleece, whilst pressing it down to ensure complete saturation of the fleece with the resin in a single process, removing any folds, creases or bubbles. Once fully cured, the fleece reinforced liquid membrane becomes a single, seamless waterproof surface which forms a strong, but flexible bond with the roof that will not delaminate.

KEMPEROL® 2K-PUR has an 80% resin content derived from the seeds of the tropical Castor plant (*Ricinus communis*) a renewable resource. The fleece is made from 25% recycled plastic bottles and can be cut to size and shape quickly and easily on site. This enabled Concept to cut it to fit the many complex shapes and angles in the roof.

The successful roofing project formed part of a wider upgrade to Guildhall's west wing, which also included cleaning of the external stonework.

### Facts and figures

- Project: West Wing, Guildhall 1,200 m<sup>2</sup>
- Client: The City of London
- Materials: KEMPERTEC® D-Primer; KEMPEROL® 2K-PUR waterproofing system
- KEMPER SYSTEM Contractor: Concept Roofing & Cladding Limited 



The complex roof of the Guildhall



Deep drainage channels extending out from the central spine of the roof

## Choosing Eco Solutions that can perform under pressure

For those who look back nostalgically on buildings that were 'built to last', the fact that the environmental performance of many of our heritage buildings makes them as much a liability as a treasure is a minor detail. For those of us at the rock face of developing building products, however, the importance of creating solutions that will both address the need for durability and answer the environmental imperative has never been greater. Only then can architects prolong the life of existing buildings and answer the challenges of the 21st century built environment.

For the specifier, finding products that can genuinely offer both environmental and technical performance can be tough. The difficulty is that so

many building products with 'eco' credentials may meet the low carbon, recycled / recyclable, 'sustainability' agenda... but they fail to address sustainability in its broadest sense: that of making the best use of the available resources for the longest time.



All too often 'eco' building products are specified to tick the boxes of a building's environmental checklist but, if their specified performance life is too short, the long-term environmental impact of repairs and additional raw materials can be significant. That's why interrogating a product's performance and track record first is so important... only when this meets the project's requirements can eco credentials really deliver sustainability. Welcome to KEMPER SYSTEM.



Ball Packaging, Wrexham

## Packaging Factory refurb in the bag



Ball Corporation, founded in 1880, employs over 14,500 people in over 90 locations worldwide



Ball Packaging has carried out a successful roof refurbishment project without stripping out the existing roof, thanks to KEMPEROL® V 210 from KEMPER SYSTEM.

### No disruption

As part of any refurbishment project the client usually expects that there will be some level of disruption while works are carried out. But for leading packaging manufacturer, Ball Packaging, any business interruption during the roof refurbishment at its Wrexham manufacturing plant was out of the question. As a result, contractor, Granflex Roofing, had to provide a solution that was fast, durable and would allow production to continue while work was carried out. In addition, because Ball Packaging is an American-owned company, they chose

FM Approval as one of the benchmarks to suitability. The system also had to be cost effective, resistant to the acidic chemicals used in the production process, that were corroding the original roof, and the use of hot-works was also ruled out. Only one system met all of the stringent criteria.

### Minimal weight gain

The roofing system chosen for the roof refurbishment at the plant was KEMPEROL® V 210, a cold liquid-applied waterproofing membrane from KEMPER SYSTEM. Installed in a single process to the prepared substrate KEMPEROL® V 210 combines a liquid resin with a non-woven flexible fleece which cures to form a single waterproof membrane that is both hardwearing and flexible and which will not delaminate. The system not only provides reliable waterproofing, the finished membrane is lightweight, ensuring that even when it was applied on top of the existing roof, the weight gain is minimal.

Explains Phil Kelly from Granflex: "The client's production facility in Wrexham manufactures packaging for the food industry and therefore has to adhere to strict food certification rules on cleanliness and hygiene. By selecting a roofing system that can be applied on top of the existing substrate with no strip out and

very little preparation, we were able not only to minimise the programme but also to avoid dust and debris that could present contamination issues in a food certified environment."

The existing 16,000 m<sup>2</sup> aluminium standing seam roof at the Wrexham facility was around 18-years old and had started to show signs of wear and tear, presenting a risk of leaks. The roof has numerous complex features thanks to the varied service units and air extraction equipment required to maintain a fully compliant, hygienic environment within the production facility. So KEMPEROL® V 210 was chosen to address the need to mould seamlessly to all the awkward angles and upright features on the roof while offering a durable solution that would withstand footfall from maintenance operatives.

Phil Kelly continues: "Only a liquid applied system could really address the need to provide permanent protection against water ingress around the service units and upstands on the roof. KEMPEROL® V 210 is a viscous liquid that is easy to apply but clings even to vertical surfaces and, once cured, it is flexible enough to withstand building movement but has sufficient tensile strength to resist puncturing and wear and tear from footfall."

Granflex began work on site in October 2011 with cleaning of the production plant roof. The contractor then applied KEMPER SYSTEM's primer directly onto the existing roof substrate before beginning application of the KEMPEROL® V 210 waterproofing membrane. On the long expanses of roof seam, the reinforcement fleece was pre-saturated in the cold liquid resin, before being laid. The fleece for the area between the seams was pre-cut to order to suit the width of the roof profile. The fleece for the details was cut to suit on-site. Each piece of fleece was laid with a 50mm overlap with the adjacent piece to ensure seamless waterproofing integrity. After each section of membrane was laid, it was rolled to ensure complete saturation of the fleece and contact with the substrate beneath. The waterproofing is installed in a single process with no delay required for drying, and curing begins immediately.

### Complete encapsulation

Explains technical director of KEMPER SYSTEM, Mark Bruchez: "The installation methodology behind KEMPEROL® allows for a fully bonded tailored fit to



Applying KEMPEROL® V 210 to the metal standing seam roof



A view of the expansive 16,000 m<sup>2</sup> roof of Ball Packaging

the roof giving complete and proper encapsulation and termination. But it is the resulting physical properties of the cured reinforced membrane that gives KEMPEROL® its crack-bridging capabilities and with this, its long-term ability to resist stress and failure resulting from persistent thermal movement of the underlying substrate. This is why we are witnessing continued performance and protection of roofs coated with KEMPEROL® V 210 from as far back as 1977 in the UK". Mark adds: "The KEMPEROL® V 210 system bonds directly to the substrate and cures in around eight hours, so each area of refurbished roof is fully weatherproof very quickly. Once cured, the roof is not only waterproof, it is also UV stable and the fully-bonded membrane will not delaminate so it can provide a service life of 25 years."

### Facts and figures

Project: Production Plant, Wrexham  
16,000 m<sup>2</sup>  
Client: Ball Packaging  
Materials: KEMPERTEC® D-Primer;  
KEMPEROL® V 210  
waterproofing system  
KEMPER SYSTEM Contractor:  
Granflex



 Roof renovation Buma Square Business Park, Krakow

# Guaranteed waterproofing despite air conditioning system



The roof of the Buma Square Business Park in Krakow was waterproofed using odourless KEMPEROL® 2K-PUR.

Krakow is synonymous with culture. The former capital of Poland has been a key cultural and educational centre in Central Europe for hundreds of years. The historic centre of Krakow and the Royal Wawel have been declared UNESCO World Heritage Sites. Less well known is that Poland's second largest city and the surrounding area have developed into one of the country's most important regions in terms of technology and business since the middle of the 1990s. Today, Krakow has been transformed into a city whose office market is only second to Warsaw.

The Buma Group is one of the 50 largest office developers in Central and Eastern Europe and is the fifth largest provider in this investment segment in Poland. In 2006, the Buma Square Business Park – one of the first large projects in Krakow – was completed after five years of



A special challenge was the application of liquid waterproofing underneath the air conditioning system. The installation height was just 15 cm.

 KEMPER SYSTEM continues to grow

## New subsidiary in Poland



Jaroslaw Stankiewicz, General Manager KEMPER SYSTEM Poland,

KEMPER SYSTEM Polska launched in 2012. The new subsidiary is headquartered in Janki K/Warszawy, a town close to Warsaw. Jaroslaw Stankiewicz, the Managing Director of the new subsidiary, has worked in the construction industry for many years. He is also deeply familiar with the Polish market and can share this expertise with his German colleagues, as the 40-year-old has degrees in both marketing and German.

Andreas H. Wiggenhagen, Managing Director of the KEMPER SYSTEM Group: "In Poland and Eastern

Europe as a whole the economy is really on the move. The developments that have taken place here in the past few years are quite remarkable. People are highly motivated and are interested in everything new." Within Europe, Poland is one of the few countries that has experienced a positive economic development in spite of the Europe-wide financial crisis. The construction sector in particular continues to report very satisfactory figures, which are further bolstered by EU subsidies.



At Budma 2012 in Poznan, the biggest construction fair in Poland and one of the most important construction exhibitions in central and eastern Europe, Jaroslaw Stankiewicz took the opportunity to demonstrate the advantages of KEMPEROL® waterproofing to prospective customers.

construction. The office complex, offering 28,000 m<sup>2</sup> of rentable office space and several hundred parking spaces on-site, is home to numerous service providers. In 2009, the British investor Carmel Investments bought the building.

 Glass roof, St. Malo

## Danger! Shooting Gallery

The French Army has called KEMPER SYSTEM into service to supply a liquid applied waterproofing system to protect and rejuvenate the glass roof of a shooting gallery near St Malo.

The glass roof was in need of renovation and a solution was needed to solve three major problems: making the roof watertight, reducing glare and encapsulating the glass to prevent breakage and reduce splinters.

From the outside the glass was waterproofed with COETRANS transparent with KEMPEROL® 2K-PUR used for the flashings and between the glass pads of the roof.



The Buma Square Business Park offers 28,000 m<sup>2</sup> of rentable office space and several hundred parking spaces on-site.

### Impressive product and system advantages

One of the first contracts secured in 2012 by the newly founded Polish subsidiary of KEMPER SYSTEM was for the renovation of the 2,500 m<sup>2</sup> roof of the Business Park. Managing Director Jaroslaw Stankiewicz explains: "The client was totally impressed with the advantages provided by the product and system. We were awarded the contract even though we were at the higher end of the price range."

The eight-year-old PVC waterproofing installed on mineral wool insulation had always been a problem. Renovation work became inevitable once water damage appeared in the offices directly below the roof. To ensure the day-to-day business of the occupants was not impaired by the building work, the client required a material that

- a) guaranteed long-term waterproofing
- b) had been used and proved in practical applications
- c) can be laid directly on the existing substrate, i.e. without removing the old roof finishes
- d) can be applied without having to dismantle the air conditioning system) in an ideal case can be applied without even having to disconnect the air conditioning system
- f) can be laid without the use of naked flames to eliminate any risk of fire.

The decision in favour of the solvent-free, liquid waterproofing KEMPEROL® 2K-PUR was based on the requirement profile, as the material is odourless and can be applied even with the air conditioning system running. There are no unpleasant odours that could enter the building and inconvenience the tenants. The main challenge of this particular project for the contractor was to also apply the liquid waterproofing

underneath the air conditioning equipment. A 12-metre long and almost 5-metre wide air conditioning system with an installation height of just 15 cm is installed on the roof.

### Creative application

The waterproofing specialists mastered the low installation height with lots of creativity and a solution-based technique. Usually an initial layer of KEMPEROL® is applied before the fleece is embedded and soaked with a second coat of waterproofing wet-on-wet. In Krakow, however, the contractor soaked the fleece with KEMPEROL® before clamping it into a specially constructed rail system, which was subsequently positioned underneath the air conditioning system. The fleece was then pulled underneath the system in a manner resembling a taut washing line. A second layer was then applied from both sides using rollers with elongated handles.

Termatex, a renowned specialist for all roofing works in Poland, has given its client a 10-year warranty on the Buma project. This aspect was an important factor when the contract was awarded.

### Facts and figures

- Project: 2,500 m<sup>2</sup> roof, application underneath air conditioning equipment
- Owner: Carmel Investments Ltd.
- Products: KEMPERTEC® D Primer; KEMPEROL® 2K-PUR waterproofing system
- KEMPER SYSTEM contractor: Termatex, Suchedniow



Before the work could start, protective sheeting was stretched under the glass roof inside the building as a precaution against any broken glass falling.

High-intensity impact noise produced by guns firing on the range was damaging the glass pads which were prone to bursting into splinters. Inside it was therefore necessary to apply COETRANS transparent to the underside of the glass to protect and repair the glass pads and to provide impact resistance from the noise generated from the firing range.



The use of products supplied by KEMPER SYSTEM allowed the work to be carried out sympathetically without altering the architecture or changing the spirit of the building.

 School roof in Villeneuve d'Ascq

## Domescape waterproofed



KEMPEROL® 2K-PUR is odourless and solvent free; ideal for application on sensitive project areas such as schools and hospitals.

It's the architecture of the primary school in Villeneuve d'Ascq that really catches the eye. The roofscape consists of a number of separate domes, one for each different part of the school. Wide gutters link the individual roofs together to form a unified whole.

The original bitumen waterproofing was no longer functioning properly and so KEMPER SYSTEM France recommended a liquid applied solution. The local authority of this town in northern France decided for various reasons that new waterproofing in the shape of KEMPEROL® 2K-PUR would be the answer:

- The liquid polymer can be applied directly to the bitumen substrate. It is not necessary to remove existing roof finishes and provide a temporary roof during the work. That saves the cost of removing the old finishes and disposing of them.
- The shape of the roof underneath is unimportant: curved or angular, minimal falls or steep pitch – KEMPEROL® liquid waterproofing fits around any roof form like a tailor-made protective coating and forms a full bond with the substrate. There are none of the typical weaknesses such as seams or joints – neither on the surfaces nor at the details.
- To eliminate any risk of fire, the waterproofing system should be laid without the use of naked flames.

As the building to be refurbished was a school, it was not just the general



Fabricated on site: The liquid resin adapts to every substrate and structural detail.



Waterproofed curvature: KEMPEROL protects the structure of buildings long-term.

advantages of a liquid synthetic waterproofing material that were important here, but rather the special features of this specific liquid solution. KEMPEROL® 2K-PUR is a solvent-free product and, more than anything else, odourless. Avoiding subjecting pupils and teachers to chemical smells in their classrooms was certainly one of the main considerations of the authorities.

### Facts and figures

Client: Villeneuve d'Ascq local authority  
Material: KEMPEROL® 2K-PUR waterproofing system  
Contractor: SMAC, France

 Mercedes-Benz and VW rely on KEMPEROL®

## German quality

The story of KEMPEROL® liquid-applied waterproofing began at VW in Kassel (Germany) in the middle of 1960s. To find a solution to the large-scale problem of leaky roofs at that time, Dr Kemper developed the first ever liquid-applied waterproofing and applied it to buildings owned by the German car giant. KEMPEROL® has since become an internationally successful brand in the waterproofing sector and really is a state-of-the-art product.

### Economic region Pune

The Volkswagen subsidiary Volkswagen India has been selling cars in India since 2001. The headquarters are located in the west Indian city of Pune, one of the ten largest cities in the country. Volkswagen has invested €580 million in the Chakan Industrial Park and inaugurated one of the Group's most modern production sites in 2009. In order to ensure complete protection, KEMPER SYSTEM was commissioned to waterproof junctions and architectural details, gutters and joints on the roof of the prestige project using KEMPEROL® V 210.



Mercedes-Benz has been established in the Indian market since 1994. The company's largest research and development centre outside Germany was founded in Bangalore back in 1996. The brand is considered to be extremely reliable and won the Best Brand Award by Auto India Best Brand Awards 2011. In the spring of 2009, Mercedes-Benz opened its new production plant – just like Volkswagen – at the Chakan Industrial Park in Pune. The flat roof of the paint shop with its numerous architectural details, such as light domes, roof openings, cable entries and cooling towers, was waterproofed securely with KEMPEROL®.

### Mercedes-Benz India

Project: Roof surface of 2,500 m<sup>2</sup>  
Owner: Mercedes-Benz India Pvt. Ltd., A Daimler Company  
Architect: Chaugule Sant & Associates, Pune  
Products: KEMPERTEC® EP Primer  
KEMPEROL® V 210 waterproofing system  
KEMPER SYSTEM contractor: JNR Hitech Systems Pvt. Ltd. Pune

### Volkswagen India

Project: 6,000 m<sup>2</sup>, roof junctions and details  
Owner: Volkswagen India Pvt Ltd.  
Architect: Venkataraman Associates  
Products: KEMPERTEC® EP Primer  
KEMPEROL® V 210 waterproofing system  
KEMPER SYSTEM contractor: Kalinga Coatings, Pune

Have you ever asked yourself why KEMPER SYSTEM has a duck for its logo? Well, nature is our role model here. And a duck, with its watertight plumage, is an ideal example of perfect waterproofing.



Photo © Helmut-Kaltenleitner/Pixelio.de



6,000 m<sup>2</sup> roof at Nanjing MeiRui Pharma was waterproofed using KEMPEROL® V 210.

 Leak-proof roof for Nanjing MeiRui Pharma

## Rapid help in an emergency

In just a few years, China has become one of the world's leading industrial nations. Thanks to its enormous potential for development, the emerging nation is seen as a key future market. This fact has not escaped major companies, which all have subsidiaries in the People's Republic. The same goes for GlaxoSmithKline (GSK). In 2010, the British pharmaceutical company, among the top ten in the industry, acquired the Nanjing MeiRui Pharmaceutical Co. Ltd for around \$70 million. The Chinese company specializes in urology and allergy products and boasts its own production facility in Nanjing City, the second largest city in the east of the country.

GSK, at that time trading under a different business name, decided in favour of liquid-applied waterproofing from KEMPER SYSTEM 20 years ago.

KEMPEROL® was installed for the first time on the roof of one of its production facilities in England back in 1993. So when the roof of a building belonging to MeiRui in Nanjing needed repairing in the spring of 2012 KEMPEROL® was the first choice.

### Protected production

The old material had failed due to structural movement. Large-scale renovation work was undertaken on the 6,000 m<sup>2</sup> roof to limit moisture damage and to ensure that the leakages did not threaten production. Seeing as KEMPEROL® V 210 achieves exceptional adhesion with the failed material, the work was carried out without having to demolish the original roof system. The crack bridging (up to 2 mm) liquid synthetic material is permanently elastic at temperatures of – 30°C to + 90°C and

accommodates structural movement. Typical weak points, such as junctions, vertical parts or roof penetrations, are seamlessly incorporated into the surface waterproofing due to its liquid application. A homogenous, smooth surface forms during the curing process which is UV resistant without additional protective coating.

### Facts and figures

Project: Roof surface of 6,000 m<sup>2</sup>  
Owner: GlaxoSmithKline Nanjing MeiRui Pharmaceutical Co. Ltd.  
Products: KEMPERTEC® EP Primer; KEMPEROL® V 210 waterproofing system  
KEMPER SYSTEM contractor: Sowa Engineering Coating & Sealing Co.