



Image courtesy of Santiago Calatrava and Festina Lente Services, Inc. Copyright 2012. All rights reserved.

 Florida Polytechnic University, Lakeland, Florida (USA)

## University design captures heart, mind, soul

At the new university in central Florida, the 120,000-square-foot Innovation, Science and Technology Building is the centerpiece of the campus master plan by visionary architect Santiago Calatrava. The sloped glazing roof features 94 operable louver arms that open and close to allow natural sunlight in. The first phase of the waterproofing application began in spring 2013. The building is scheduled for completion in 2014.

### A conversation about the Florida Polytechnic project with Chuck Jablon, operations VP, Skanska Building USA

Chuck Jablon, operations VP, Skanska Building USA, strongly recommended KEMPEROL® 2K-PUR to the architects for the special challenges of Florida Polytechnic University based on his previous experience working with KEMPER SYSTEM America. He also knew that the Atlanta-based Skanska team utilized the same system with proven success on the High Museum of Art project. The roof of the Atlanta museum includes hundreds of skylights.

#### Q. What were the primary challenges you faced on the waterproofing?

Two of the most important components on this project are the aesthetic value of the building skin and the functionality of the building envelope, as it includes many different components (glass, concrete and penetrations). Quite frankly, we were looking for a single quality product that would resolve our concern for waterproofing the many different components and would complement the visual aesthetic of the project in the end.

All three roof surfaces have multiple components/penetrations to consider,



including: electric, plumbing, HVAC, architectural/structural features, operating arms with hydraulic pistons, etc. In addition to these elements, waterproofing the skylights was a big issue, as the entire main roof deck is glass and concrete, and all first-level classrooms are below a walkable concrete terrace deck that needed to be waterproofed. It was a huge concern that the waterproofing/roof system be impeccable, as leaks open the door to future risks.

#### Q. What about from a project management point of view?

Everything about this project requires special attention. All the trades are required to work on rotation, as the

building is radial by design, and most of the detailed work must be done by hand. With the KEMPER SYSTEM, the applicator (TarHeel Corp.) was able to work in one area at a time. This allowed other trades to access adjacent areas and maintain schedule deadlines.

Among Florida Polytechnic's 48 individual subcontractors are trades ranging from technology/security, HVAC, electric, sloped glazing, finish cabinetry and concrete, working inside and out and in every area of the building. So it is very important for the management team to ensure that the product protecting the building from water is best suited for all project circumstances. Above all, the most important, the building cannot leak.

#### Q. Was there anything else about the KEMPER SYSTEM?

Not many architectural designs actually capture your mind, your heart, and then your soul. Calatrava's design is unique and also highly visible. This was one of the reasons KEMPER SYSTEM America was chosen.

The final appearance was critical for the project, and the KEMPER SYSTEM provided the solution. KEMPEROL® is a self-terminating membrane system\* that eliminates the need for metal flashings, and with its cool white reflective coating it provides a look of continuity and consistency as it is one material throughout (flashing and roof field). This flexibility and aesthetic value was important to the design, as the desired result was to have a glass roof, encompassed in a sea of white.

#### \* Please note:

KEMPER SYSTEM recommends the use of a suitable chase or termination bar when terminating the KEMPEROL® liquid waterproofing system on porous materials; to prevent ingress caused by water bypassing the membrane as a result of the porous nature of the substrate underneath.

Joey Ottman, project architect, Alfonso Architects: "What we liked about the KEMPER SYSTEM for this project was that it solved a large portion of our flashing issues – from parapet flashings, to roof penetration flashings, to the flashings at the operable louver arm

lockdown feet and stanchions – anything that projected through the roof. Normally, we would have to counter-flash or use some sort of boot. On a typical parapet wall, most building officials require 12 – 16 inches of roof membrane height up to the counter flashing. We didn't have to do any counterflashing with the KEMPER SYSTEM. The liquid membrane is self-terminating\*, so it only required us to flash up an average of 8 – 10 inches."

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### Challenge:

Fulfill the breathtaking vision of world-renowned architect Santiago Calatrava for this new four-year university. The building design includes cold bent glass and heat bent glass on the first, second and clear story elevations. Operable louver arms move to allow natural sunlight into the building at the sloped glazing areas at the roof elevations and allow for shading when required. Rooftop terraces and sweeping main roofs must be waterproofed to protect classrooms and other interiors from all four seasons of Florida's sometimes fierce weather. At the same time, waterproofing must be all white and seal around numerous (all-white) penetrations, including stanchions and pistons for the louvers.

### Solution:

KEMPEROL® was specified as the best overall fit for roofing, waterproofing and surfacing system for this application, versatile enough to deftly handle the varied demands of the project while providing long-term service warranties. The cold liquid-applied resin membrane system bonds to surfaces and is both self-terminating and self-flashing\* (> see "please note" on page 1), thus eliminating the most common source of leaks. Multiple penetrations are flashed with the same reinforced liquid-membrane system, with the membrane tailored for specific shapes. The KEMPEROL® 165 fleece reinforcement rolls out over the "spine," and the special resin is brush-applied to wrap the surface in a protective shell. A high-white finish is applied to the monolithic main roofs. Terraces and other pedestrian surfaces are also broadcast with white quartz.

 NY Resorts World & Casino, NY (USA)

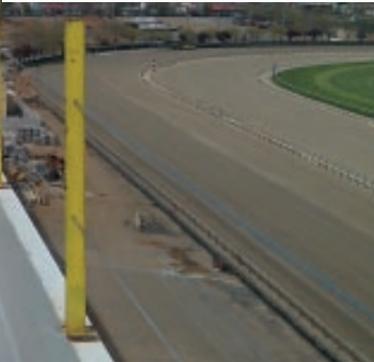
## Finish "in the money" at NY Resorts World

No contractor can count on the weather. But a worst winter in the New York area in decades put The Jobin Organization, Inc. (Farmingdale, NY) to the test in meeting installation deadlines for NY Resorts World & Casino.

KEMPEROL® V210 was specified for over 90,000 sq. ft. stadium roof deck restoration above a spectator area of Aqueduct Raceway, now part of the combined raceway/casino complex. The self-sealing liquid-applied membrane was ideal for flowing around the many difficult penetrations, from steel support beams and angled curves to electrical raceways and conduits. Plus, the KEMPEROL® V210 could be applied in cold weather, which

was good news. But the endless snow was not.

The job was originally scheduled to begin in early January with a late June finish date. However, a record number of snowstorms pushed the actual start date for roofing into March. Penalties loomed for late completion, yet with reputations on the line, there was no room for compromise.



"Both the scheduling and logistics were challenging. At one time, we had as many as 50 – 100 people on the site. We had to crane materials up to one roof, and then used mechanical ladders & conveyors to get material up & down," recalls TJO General Superintendent Steve Guarino. "We were dealing with winter weather, ripping the old roof off, and keeping a waterproof system every day."

Quality waterproofing materials are always important, but optimal protection also depends on a quality installation. The Jobin Organization's highly-skilled team of roof mechanics – all trained in the KEMPER SYSTEM – met the challenge. The team satisfied all job specifications, often working two shifts, with KEMPER SYSTEM inspectors on site daily and working closely with Jobin Foreman John Esposito.

The job finished not just "on the money," but in it – and ahead of schedule.

 The Leela Palace New Delhi (India)

## One of the world's best hotels

Right at home among the grand landmarks of the New Delhi's Diplomatic Enclave, the Leela Palace New Delhi makes a significant statement in terms of architecture and intent. The palace style hotel architecture is inspired by Lutyens.

2012 The Leela Palace New Delhi was the only hotel in India to be named among the "Best of the Best" hotels in the world by Robb Report, which is a definitive authority on the most prestigious luxury brands around the globe. Culminating an entire year's search for the most exceptional new products and services on earth, Robb Report's 24th annual "Best of the Best" Hotels 2012, hand-picked The Leela Palace New Delhi for offering the finest in luxury, placing the hotel amongst the most elite in the world.



Commenting on the recognition, Capt. C.P. Krishnan Nair, chairman and founder of The Leela Palaces Hotels and Resorts said, "Building a modern Palace hotel in the heart of India's capital city was a dream come true for me. My two sons – Vivek and Dinesh – and I are proud to have created the only hotel in India now recognized as one of the world's best. We built this hotel against all odds and this prestigious honour reaffirms our commitment towards serving the most discerning travellers and leisure seekers. With just one year of operation amongst the world's best and this is just the beginning."

amongst the world's best and this is just the beginning."

KEMPEROL was used in wet rooms like bathrooms and sanitary facilities. KEMPEROL® 022 is a system of highest quality to waterproof wet room floors and walls with direct or indirect load. The solvent free product was developed especially for indoor applications underneath tiles. KEMPEROL® 022 has full surface adhesion to the substrate and forms a barrier coat underneath the tiling, which prevents the ingress of moisture into the building fabric.



1 Easy handling: the liquid waterproofing system is applied with a roller.



2 Safety features: because the waterproofing system bonds with the substrate there is no risk of moisture seeping into the walls and floors.



3 Reinforcement fleece covers all small cracks...



4 ...a second layer is applied.

**In the heart of Rouen (France)**  
**KEMPEROL® revives**  
**roof terrace**

KEMPER SYSTEM's fleece-reinforced liquid-applied waterproofing system, KEMPEROL® has been used in a major renovation project on the pedestrian terrace of the Residence "Le Parnasse" in the heart of Rouen. Located in the centre of Rouen, the terrace is only a hundred meters from Notre Dame Cathedral the most prestigious historical building in the city.



The 1300 m<sup>2</sup> terrace was built in the 1950s and needed a complete renovation with a waterproof, efficient, modern, walkable and aesthetically pleasing material.

The residents selected KEMPEROL® for its ease of application, its effectiveness and the technical solution it provided. The KEMPEROL® waterproofing system is the only one in France that allows terrace renovation while maintaining the existing substrate.

A survey of the substrate identified the construction build-up used in the 50's:

1. Prestressed beam (convex) and slabs,
2. a concrete screed above (=carrying element)
3. the existing waterproofing system made of bitumen and pitch
4. a sandwich panel (cement screed) 2./3./4. make the ground floor flat.

The substrate was then covered by a pavement made of stone tiles and gravels.

Since KEMPEROL® is directly applied to the substrate (cement screed + existing waterproofing system), the load on the carrying element is not changed and therefore any risks to weaken the existing structures disappears. Furthermore, KEMPEROL® is a lightweight solution (2.5 kg/m<sup>2</sup>). This ensures the structure is not overloaded.

This solution significantly reduces the length of the renovation as well as the noise: there is no need to eliminate the carrying element with a jackhammer. It also helped reduce the production of rubble on this project by nearly 70%; also avoiding the need to transport the waste away from the site.

Another reason for choosing KEMPEROL® was its performance, its



resistance (to wear, cracks and temperature) and its long-lasting life (W3 according to the European Technical Agreement scale).

Once waterproofed, KEMPER SYSTEM was able to offer a wide range of pedestrian surface options that combined with the performance of the KEMPEROL® waterproofing to give an aesthetic finish.

The residential inhabitants armed with an understanding of what could be achieved with the materials available enjoyed designing their own terrace

patterns, using their creativity to give character to the terrace.

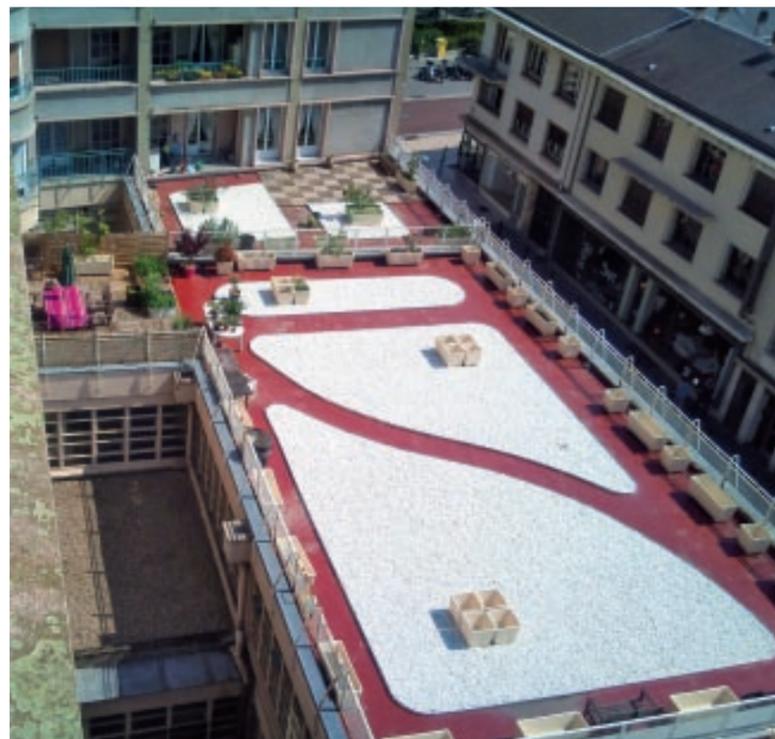
The combination of white pebbles and red KEMPERDUR® AC Finish created a walking path through numerous planters with areas selected for wooden terraces within which the sit.

By choosing KEMPEROL® and its numerous coating solutions, Le Parnasse inhabitants have enhanced their property's heritage, but have also breathed new life into the grey roof view common in this area of France.

To have a look at it, just google "rue du bac, Rouen, France"!

**Contractor**

EMAT, a contractor certified in waterproofing "Qualibat 3242" (Qualibat is the name for the certification of all companies in the construction field / 3242 corresponds to the waterproofing certification)



 The EHPAD\* in Nantes chooses KEMPEROL® 2K-PUR (France)

## Conform to "Haute Qualité Environnementale (HQE\*\*)"

The 1100 m<sup>2</sup> flat roof refurbishment of EHPAD's "Les Hauts de Saint Aignan" in Nantes is the main element of a complete renovation plan.

Solvent-free KEMPEROL® 2K-PUR was selected for its ability to meet environmental requirements and to comply with the constraints of working in an occupied area, known as "EPR" building receiving people / public buildings.

The existing bituminous layers on the roof had failed leading to leaks in the living accommodation as well as heat loss from the building. Facing these problems the AIMR, a local association for EHPAD – which owns and manages eight housing accommodations for elderly people in Nantes and its surroundings, called SNA Ouest, a company which specializes in waterproofing applications.



**The EHPAD\* in Nantes chooses KEMPEROL® 2K-PUR, the liquid-applied waterproofing solution for HQE\*\* conformity for the renovation of an 1100 m<sup>2</sup> flat roof on a sensitive residential development**

Explains Managing Director of SNA Ouest, Denis Houssais: "We opted for KEMPEROL® 2K-PUR because it combines ease of installation and technical performance. Those characteristics were absolutely necessary for such a complex project."

The EHPAD flat roof is characterized by the existence of pipes, ventilation systems and of course many roof details. Since KEMPEROL® is a reinforced liquid it was the ideal solution as it adapts to all kinds of shapes and allows the seamless waterproofing of details with no joints or mechanical fastenings. It bonds



\*EHPAD – French abbreviation for housing accommodation for elderly people.

\*\*HQE – "Haute Qualité Environnementale" is the French equivalent to the German DGNB, English BREEAM and American LEED certification systems.

HQE targets	KEMPEROL® 2K-PUR correspondence
Integrated choice of construction methods	Compatible on any substrate, any slope and shape / easy application
Low nuisance construction site	No need to remove the existing substrate / few tools needed / solvent-free
Waste management	Complete use of the product
Maintenance	No waterproofing membrane maintenance / sustainable / classified W3
Olfactory comfort	Solvent-free: no odour release
Air quality	Cured membrane: no release of harmful substances in air / A+ classification obtained (no emission of VOC)
Water quality	Cured membrane: no release of harmful substances in water

KEMPEROL® 2K-PUR compliance with 7 out of 14 HQE targets.

directly to the substrate to give a complete and proper encapsulation.

KEMPEROL® being solvent-free and with a minimum certified service life of 25 years was proposed as a long-term solution by Denis Houssais from SNA Ouest and satisfied the requirements of architect Laurent Janneau and building owner AIMR.

### KEMPER SYSTEM meets the requirements for a sensitive project

The AIMR decided to commission a complete refurbishment programme. Explains Aline Wissen, General Manager of AIMR: "The repair of the flat roof waterproofing is the starting point of a vast EHPAD renovation project which will allow a better control of energy consumption while improving the residents' comfort."

The cold application of KEMPEROL® 2K-PUR directly onto the existing bitumen requires neither flame nor removal of the existing bituminous waterproofing system. It therefore eliminates all fire risks and any noise that would be generated by substrate removal.

Its solvent-free characteristic ensures an odorless installation; this allows the air ventilation system to keep functioning. It perfectly meets the requirements of renovation issues in occupied buildings.

Says Aline Wissen: "The KEMPER SYSTEM solution has the advantage of not disturbing the EHPAD building which has to function normally during renovation. By functioning, I mean it both in terms of safety and comfort of residents."

### KEMPEROL® 2K-PUR liquid-applied waterproofing with HQE approval

Roughly 80% of the applied polyols (resins) in KEMPEROL® 2K-PUR are obtained from the seeds of the tropical Castor plant a renewable resource: The reinforcement fleece used in KEMPEROL® 2K-PUR contains up to 25% recycled material. These elements ensure KEMPEROL® 2K-PUR to be in line with 7 targets of a HQE building approach.

Furthermore, KEMPEROL® 2K-PUR is registered in the GREENBUILDING products database and is suitable for use by architects and building owners who want to obtain LEED points for construction-Leadership in Energy and Environmental Design Construction.



### Contractor

SNA (Mr. Houssais, director) a contractor certified in waterproofing "Qualibat 3242" (Qualibat is the name for the certification of all companies in the construction field / 3242 corresponds to the waterproofing certification). It has a special mention: "energy efficiency".

 Claye Souilly (France)

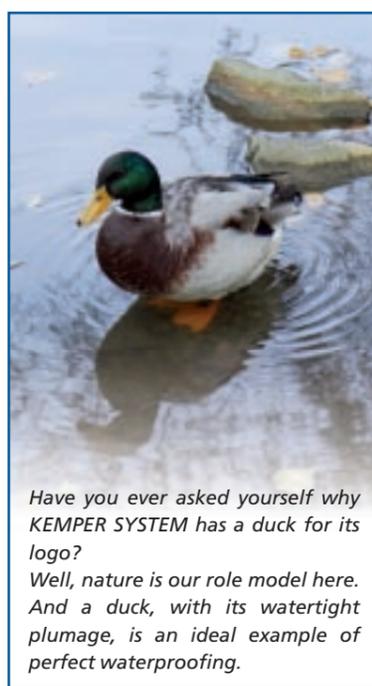
## A wink to KEMPER SYSTEM



In Claye-Souilly, the shopping centre built in 1972 has been extended in a project inspired by nature. Indeed, the architectural firm CVZ was inspired by the regional forest from Claye Souilly which is nearby. The architect proposed a building with wooden colors such as white, brown or beige. This hint of nature is reinforced by the creation and installation of big animals specially made by a form artist and sculptor.

As the shopping mall expands, so does its outside. And for the reception of visitors, a large fountain has been built to make the connection between the car-parks and its entrance.

The cold liquid applied waterproofing system, KEMPEROL® 2K-PUR with its environmental approach, fits naturally in this project which was certified BREEAM "very good" level. Moreover, the requirements were a direct application of the waterproofing membrane onto the substrate, a dark colour and a waterproofing that can remain visible. KEMPEROL® meets all these criteria; it is indeed a liquid resin which is self-coloured and offers various colors, including a dark grey. And a funny fact, the animals added to the pond are ... ducks; a nice wink to KEMPER SYSTEM!



*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.*

### THE DUCK

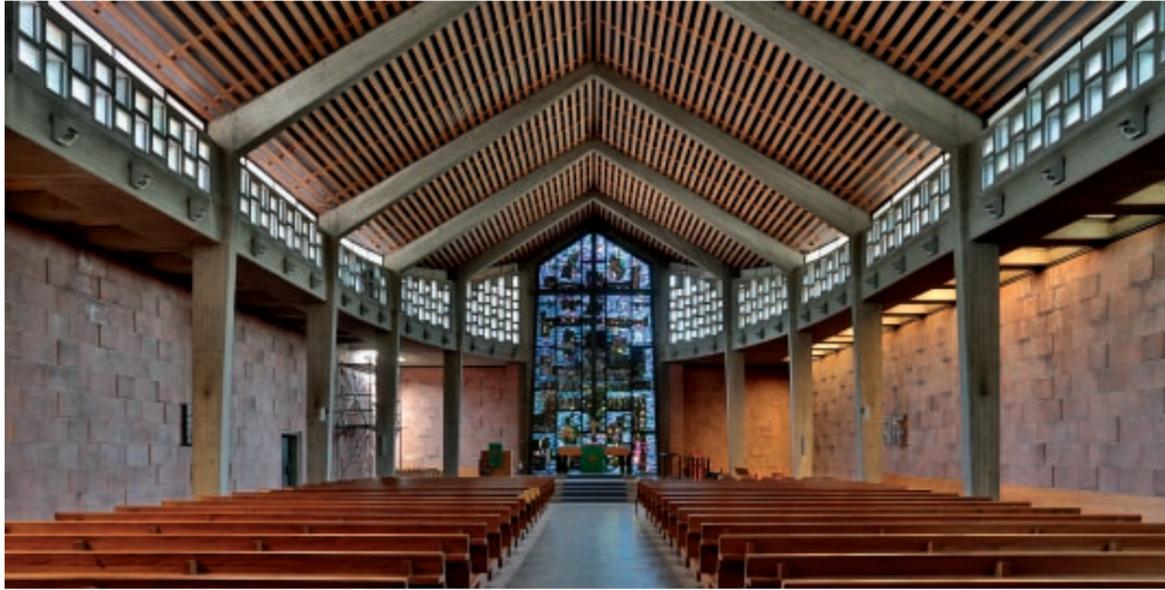
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The interior of St. Thomas Church in Karlsruhe, Germany. The light in the side aisles enters the church through the skylight domes.

**Renovating the roof of St. Thomas Church, Karlsruhe (Germany)**

# KEMPEROL® FALLSTOP: Let there be light. Certainly!

Forty-four skylight domes positioned at approx. 40 cm intervals on a roof measuring just 200 sqm – this was the almost ideal scenario for liquid-applied waterproofing on the roof of St. Thomas Church in Karlsruhe, Germany. Since all 44 skylight domes had to be replaced, Stripfel Bedachungs GmbH used this opportunity to use KEMPEROL® products not only for waterproofing but also to enhance safety. KEMPEROL® FALLSTOP was chosen to ensure site safety and to prevent occupational injuries. The skilled team applied the transparent coating on the new skylight domes to guarantee fall-through protection. The product has been tested to GS BAU 18.

### Historic ecclesiastical architecture

The St. Thomas Church in Karlsruhe Daxlanden, constructed between 1958 and 1960, was designed by Otto Bartning, who is regarded as one of the most prominent Protestant church architects of the 20th century. As a prime example of Protestant architecture, St. Thomas Church is today listed as a building of special historical interest. The bell tower next to the entrance towers over a plain three-nave, basilican structure with seating for 600 worshippers. A striking feature is the visible combination of various materials, such as concrete, steel, glass, timber, natural stone and brick.

Based on the model of a basilica, Otto Bartning equipped the church with a higher central nave and two very narrow side aisles. The steep-roofed central nave is limited by two symmetrical side aisles whose concrete roof construction is designed as a flat roof. To allow sufficient light to enter the room below, the roof surface boasts a total of 44 skylight domes (22 on each side). The distance between the individual light openings is just approx. 40 cm.

### Solution for protecting buildings of historical interest

The old structure above the concrete ceiling - perforated sheeting, 5 cm thick cork insulation, several layers of bitumen, glass fibre skylight domes without a frame - was completely removed. Since the church is a listed building, the



KEMPEROL® FALLSTOP can be applied quickly and easily. The surface must be cleaned thoroughly with KEMPERTEC® FALLSTOP Cleaner prior to application.



The ready-for-use KEMPEROL® FALLSTOP coating is then applied evenly and free of bubbles in four steps using a foam roller in a criss-cross fashion.



The surface is fully cured and fall-through protected after approx. seven days (at 23°C).



The first skylight dome coated with KEMPEROL® FALLSTOP was installed as a sample for final approval and waterproofed with KEMPEROL® 2K-PUR.

question arose as to how fall-through protection of the skylight domes could be achieved. Railings were out of the question for the preservationists. To ensure full use of the church rooms and to allow sufficient light to enter the building, net and mesh solutions were not an option, either. The architect Leonhard Creutz, commissioned by the Protestant Church Office, and the master roofer Tino Schlimpert from the contracted roofing company came up with the idea of applying UV and weather resistant KEMPEROL® FALLSTOP to the skylight domes, thus also eliminating the need to erect scaffolding in the church naves when carrying out roof maintenance. The church leaders and the pastor needed very little convincing. Measurements showed that the bluish transparent coating only reduced the level of light transmission by approx. 4.5%. A value that cannot be detected with the naked eye and does not result in opacity. A solution that also met with the approval of preservationists.

### Tested fall-through protection

KEMPEROL® FALLSTOP is the name of a new coating system which ensures tested fall-through protection in accordance with GS BAU 18. Skylight domes can therefore be quickly and simply coated at a later date to prevent potentially fatal accidents caused by falling through skylights. In line with statutory regulations, skylight domes must also be permanently secured against falls if they are installed on roofs which are regularly accessed. This also includes maintenance work.

### Tested to GS BAU 18



### Seamless protection

The ready-for-use, polyurethane-based coating is a user-friendly, quick and cost-effective way to secure skylight domes. Subsequent safety measures can be taken during operation. Rooms and production areas do not have to be cordoned off. After installing the skylight domes, the roof was waterproofed with KEMPEROL® 2K-PUR.



Waterproofing takes place in a confined space. The reinforcement fleece soaked in KEMPEROL® is applied directly to the sanded bitumen sheeting.



Finally, the dome coated with KEMPEROL® FALLSTOP is installed.



After installing the skylight domes, the roof was waterproofed with KEMPEROL® 2K-PUR.



Fully installed skylight domes coated with KEMPEROL® FALLSTOP. The surface of the coated skylight domes has a slightly bluish shimmer.



View of the old skylight domes before renovation.

 **Waterproofing museum plant rooms,  
Bonn (Germany)**

## Higher level of safety performance

Guaranteeing the correct temperature and relative humidity in a museum environment is a science in itself. Depending on their age and composition, the exhibits require a special and, above all else, stable room climate to protect and preserve the collections. The sensitivity of the objects to moisture basically depends on their material. Wood, for example, requires a higher level of relative humidity than metal or paper. Needless to say, the greater the historical importance of a museum's collection, the more complex the HVAC plant installed in the building.



The museum exhibition rooms below the HVAC plants are protected by KEMPEROL® waterproofing.

### One of the oldest museums in Germany

The LVR LandesMuseum Bonn, the Rhenish State Museum for archaeology, art and cultural history, is not only the largest museum of the Rhenish Regional Authority (LVR), the museum founded in Bonn in 1820 as the Rhenish-Westphalian Museum of Antiquities is also one of the oldest museums in Germany. Over the years the building has been extended and modernised many times. It re-opened as a themed museum in 2003 after extensive renovation work.

The HVAC technology, which ensures the rooms remain at 20 °C and 50% RH, is housed in three separate rooms at the top of the building. Two redundant systems, which help to condition 100,000 cm<sup>3</sup> of air an hour and are capable of controlling 15 separate climate zones, are provided for the 6,000 m<sup>2</sup> of permanent and temporary exhibition space. To prevent water penetrating the ceilings of the exhibition rooms below in the event of the HVAC systems leaking or liquid spillage during cleaning and maintenance tasks, the floor surfaces of the HVAC plants were re-waterproofed in November/December 2011.

### Professional knowledge, cost-effective solution

The installation of liquid-applied waterproofing demands a high-level of professional knowledge and practical expertise. For the architects, it was very important that the partner chosen for this complex task was reliable, experienced and highly skilled. Norbert Stuendl, branch manager of Holl in Remseck, has been using KEMPEROL® successfully for many years.

The liquid-applied waterproofing is reaction resin based. A chemical reaction ensures that the waterproofing is permanently elastic and crack bridging after curing and bonds fully with the substrate across the entire surface during the curing phase. Therefore, in the event of a leak, the risk of water infiltration is fully eliminated. Any liquid collects on the surface of the waterproofing and either evaporates or is mechanically removed or drained off via an emergency drain. Liquid material is completely cold applied, i.e. without the use of a naked flame, and adapts to every shape of the substrate. Architectural details are much easier to waterproof than with traditional products.



The LVR-LandesMuseum Bonn, the Rhenish State Museum for archaeology, art and cultural history, is one of the oldest museums in Germany. All the tasks were completed successfully and on time.



One of the plant rooms before waterproofing.

And minimum system depths do not prove a problem.

### Protected exhibits

The seamless liquid waterproofing was installed as high as possible on the side walls, the concrete plinths of the HVAC plants and at all upstands and penetrations. Thanks to this "bathtub design", water can be drained off in a controlled manner via an emergency drain in the event of leakage or accidents. The cured surface is able to withstand mechanical loads and can be walked on for maintenance purposes. Since the HVAC plants are only accessed by technicians, an additional wear-resistant layer is not necessary.

Each HVAC plant in Bonn could only be switched off during an exact and tight time frame. During this period, the redundant systems were responsible for correct temperature and humidity control in the exhibition rooms. All the tasks were, however, completed successfully and on time.



The concrete plinths of the HVAC plants were also waterproofed with KEMPEROL®...



... as well as all the upstands.



Detailed view of the waterproofing.



KEMPEROL® is liquid-applied waterproofing with fleece reinforcement.

 **Dorking (UK)**

## KEMPEROL® protects National Treasures at Polesden Lacey

**KEMPER SYSTEM'S KEMPEROL® V 210 has been used to safeguard the roof of National Trust Property, Polesden Lacey, and the many priceless antiques and collections inside it.**

Located just outside Dorking, Polesden Lacey was originally constructed in the 18th Century and extensively remodelled in the Edwardian era. Not only does it boast breath taking views of the Surrey hills, it is also home to a large collection of paintings and antiques so, when a section of the house's decorative copper and lead eaves guttering began to leak, The National Trust needed to arrange for a repair quickly to prevent any damage to the house or its contents, but replacing the copper and lead would have put too big a hole in the much needed funds at their disposal.

Specialist contractor, Imperial Leadwork, was brought in to overlay the 25 m x 30 cm section of perished decorative guttering with KEMPEROL® V 210, to provide a cost effective repair with a guaranteed service life. Imperial Leadwork began by cleaning the copper and lead surface and making localised repairs before applying KEMPEROL® D-Primer. Once the primer had cured, the installation team applied the KEMPEROL® V 210 cold liquid resin. The resin saturates

a polyester reinforcement fleece and bonds directly to the substrate. Once cured the KEMPEROL® system forms a seamless, durable and flexible waterproof membrane that cannot delaminate.

Explains Peter Lane at Imperial Leadwork: "Replacing the decorative copper and lead eaves with copper and lead

would not only be more costly but would also take more time. By opting for KEMPER SYSTEM'S KEMPEROL® V 210, The National Trust has used an alternative that looks authentic, is quick and cost-effective to install and will provide a robust solution for many years to come."



 London (UK)

# KEMPEROL® 2K-PUR keeps Guildhall Library in business

KEMPER SYSTEM's KEMPEROL® 2K-PUR waterproofing system has been used on a further phase refurbishment of London's historic Guildhall, this time to provide a new roof surface for the Guildhall Business Library.

The scheme follows the recent roof refurbishment of the Guildhall's West Wing by main contractor Linbrook Services Ltd and involves overlay of a 300 m<sup>2</sup> asphalt roof featuring 56 pyramid rooflights. The brief to roofing contractor, A&L Roofing Services, was to complete the project within a six week programme, during which the library had to remain fully operational.

Guildhall selected KEMPER SYSTEM's KEMPEROL® 2K-PUR system for both projects as its solvent-free formulation enables an odour-free installation, preventing any nuisance odours affecting staff or visitors to the building. The cold liquid-applied system also made it possible to apply the waterproofing membrane precisely to the upstands and drainage channels of the 56 pyramid rooflights, which are located extremely close together in the central area of the roof, whilst seamlessly incorporating the entire roof.

The installation team began by cleaning and preparing the asphalt surface which had begun to blister and split. KEMPER SYSTEM's KEMPERTEC® primer was then applied to stabilise the substrate and provide a chemical key for the waterproofing resin. Once this had



cured, the waterproofing membrane KEMPEROL® 2K-PUR was installed onto the roof. Applied in a single process, the KEMPEROL® resin saturates a non-woven reinforcement fleece and cures to form a monolithic membrane that is UV stable, extremely tough, flexible and tear resistant, that bonds directly to the substrate.

KEMPER SYSTEM's non-woven reinforcement fleece was cut to size and shape on site to enable the meticulous detailing and protection of the most vulnerable parts of the roof around the rooflights, outlets and upstands as well as the flat roof areas of the roof.

Lee Lane from A&L Roofing Services comments: "Keeping the library open during the six week programme meant that the old rooflights had to remain in place while the job was done before being replaced with new pyramid rooflights at the end. This made for a very challenging project which could really only be delivered by a cold-liquid applied system that can be applied accurately to the multiple facets and contours of the complex detailing. The fact that the KEMPEROL® 2K-PUR system is eco-friendly as well as odour-free was an added bonus for Guildhall, and kept the refurbishment in line with The City of London's sustainability aims."



 National Theatre, London (UK)

# KEMPEROL® takes central stage



As the National Theatre prepares to raise the curtain on its 50th anniversary season, KEMPER SYSTEM has ensured that its' Grade II listed building continues to perform by providing the waterproofing membrane for a major refurbishment project.

Famously described by Prince Charles as a 'clever way of building a nuclear power station in the middle of London without anyone objecting', the National Theatre is almost as famous for its architecture as it is for the quality of the productions it stages. Located on the South Bank of the Thames, it's a pretty hard building to overlook, whatever your opinion of its modern concrete structure, and has been Grade II listed since 1994. For the team that manages the building, therefore, there is a significant responsibility to maintain the structure as a piece of national heritage, a public building and a busy workplace.

## Operational Requirements

One of the architectural features that make the National Theatre such an unconventional design are the distinctive terraced balconies that form its rectangular concrete silhouette. These provide both public walkways and roofs

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for offices below so when their original asphalt surfaces started failing, resulting in leaks, a solution needed to be found quickly. The re-waterproofing was carried out as part of the National Theatre's £80 million refurbishment programme but one of the main specification criteria was finding a way to complete the works without any business interruption implications and specialist contractor Cobsen-Davies was brought in to advise on the best approach.

Explains Tony Ward from Cobsen-Davies London Ltd: "While the existing substrate was asphalt, the use of hot works

to replace the roof/walkway surface was out of the question as the building had to remain operational. Stripping out the existing substrate was also something we wanted to avoid as this would prolong the programme and generate waste, which adds to costs and creates logistical problems in such a central London location. A cold liquid-applied waterproofing membrane was clearly the most appropriate solution as this could be applied to the existing roof substrate on a section by section basis, ensuring that only small sections of the surface needed to be inaccessible at any given time."



minor repairs and preparation of the existing substrate to ensure a clean and even surface before beginning application of the KEMPEROL® 2K-PUR system with KEMPERTEC® primer. Once the primer had been allowed to cure, the KEMPEROL® 2K-PUR solvent-free resin was applied to each surface. The KEMPEROL® resin saturates a non-woven reinforcement fleece that is extremely tough and tear resistant. It cures to form a totally seamless monolithic membrane that is UV stable and permanently elastic with a direct bond to the substrate.

For some sections of the walkways, Cobsen-Davies London Ltd applied KEMPERDUR® Quartz Coating, a light-stable and slip-resistant protective coating that provides both an anti-slip surface and a coloured area to demarcate the designated walkway.

Kieron Lillis, head of engineering at the National Theatre adds: "The solvent-free approach was ideal for us as it meant that we could factor in our business as usual requirements and our sustainability goals while still addressing the long-term needs of maintaining the building. The use of the quartz coating also meant that we could enhance health and safety on the walkways in a single scheme, improving rather than simply repairing the structure."



**Business as Usual**

To enhance the 'business as usual' specification still further, Tony Ward recommended KEMPEROL® 2K-PUR from KEMPER SYSTEM, a solvent-free cold liquid-applied waterproofing membrane that is often specified for occupied buildings thanks to its odour-free characteristics.

Stuart Hicks from KEMPER SYSTEM comments: "While a roof refurbishment does not always impact on staff even in an occupied building, the design of the National Theatre building meant that the re-surfacing work was taking place both above and below the office and workshop windows and near public

access areas. A solvent-free product like KEMPEROL® 2K-PUR was, therefore, a big advantage as this could be installed on top of the existing substrate in a single process without any nuisance odours, while providing a high level of performance and a BBA certified service life in excess of 25 years."

**Strength & Flexibility**

The resurfacing work took place on the 4th and 5th floor terraces and inner quadrangle at the National Theatre, with Cobsen-Davies working on small sections of the affected area at a time so that access to all office and workshops could be maintained throughout the works. The installation team carried out



# Trade fairs – An international shop window

Trade fairs are an important means of presenting products and meeting (potential) customers face-to-face. KEMPER SYSTEM participates in relevant fairs throughout Europe, Asia and the U.S.A. We grasp this opportunity to showcase our products and systems, which meet all your waterproofing and coating needs and expectations, and to develop customized solutions in close cooperation with the customer.

**We look forward to meeting you at a trade fair soon!**



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