



Mastic Asphalt Screed and Levelling Solution

Case Studies

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BITUMINOUS MEMBRANES | COLD APPLIED LIQUIDS | HOT MELT
MASTIC ASPHALT | SINGLE-PLY | PITCHED ROOF SYSTEMS
INSULATION | STRUCTURAL WATERPROOFING & COMPOUNDS



Broadway Plaza, Birmingham

6,000m² Car Park Waterproofing Solution including IKO Permascreed

Project Description

Broadway Plaza is a multi-use facility based in Birmingham City centre; in use 24 hours a day, it houses an array of eateries, leisure and accommodation venues. The site, covers the listed Old Birmingham Children's hospital which in turn provided waterproofing challenges.

The Plaza had suffered severe water ingress through the main deck. IKO's appraisal highlighted the poor condition of the existing waterproofing system to the main plaza, walkways, balconies and car park. Established and quantified saturation of the deck and the existing waterproofing system had failed due to none dressed abutments, bonded to the substrate or bonded to the laps.

Phased work was required due to the scale of the work required and the site was to remain open to emergency vehicles. This emergency usage meant the finished project would have to handle point loading and the compressive weight of such vehicles.

Water ingress had caused fire retardant paint to peel from the metal structure in the car park, some rust to the metal structure and ad hoc guttering had been added to divert water from within some of the accommodation blocks. Insufficient drainage was noted during large downpours and corrosion was visible to door thresholds of some of the outlets.

Solution and Installation

The existing waterproofing system was stripped to the concrete substrate and new drainage channels were introduced with falls directing water to the new high level drainage. IKO Permascreed was introduced as a temporary waterproofing solution. This provided the falls that were required with the previous screed being to wet to use for this, taking years to dry out. IKO Permascreed also provided a protective layer against gases rising from this screed that may have affected the additional liquid waterproofing system. IKO Polimar FCS (Fast Curing System) Waterproofing System was introduced across the plaza terminating to brickwork, stanchions, lights and door thresholds. Exposed areas were treated with IKO FCS Balcony and Walkway System preserving the system while taking foot traffic. IKO Polimar FCS provided a feature on these details as well as a practical solution where construction provided a challenge.

The upper level of the car park's cracks and fistulas were treated to elevate further degrading. IKO Polimar Fillers and Levelling Mortar were installed to take deflections from the surface. IKO Polimar FCS Walkway System was then applied.

Escalators were removed and staircases installed with an IKO Polimar FCS finish. Damaged kerbs, gutters, expansion joints or deck/substrate's were correctly fixed to ensure satisfactory installation of the new waterproofing system.

A number of trees required removing as roots were penetrating the waterproofing as a protective layer was never installed. This area was waterproofed with IKO Polimar FCS, backfilled using IKO enertherm XPS insulation board to raise the areas to the desired level followed by a geotextile membrane, coarse and fine aggregate, completed with the final paving.

The project was delivered on time and on budget. This also included a number of locally sourced products to provide a facelift for the New Broadway Plaza. The FCS was provided in ICB containers which reduced site waste limited cost and any waste of throwing tins into landfill. Along with the carbon neutral credentials of the IKO Permascreed this provided a good news story for the multi-national insurance provider (owner) and the design team.



Contractor: Rio Asphalt

Client: CBRE Ltd

Systems

- IKO Polimar FCS Waterproofing System
- IKO Polimar FCS Balcony & Walkway System
- IKO Permascreed

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- IKO enertherm Insulation
- IKOpro Bridging Tape

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IKO Guarantee

20-Year Single Point Guarantee

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Barking Riverside, Barking and Dagenham

800m² IKO Permascreed Roof to New Urban Development

Project Description

Situated between the A13 and the river Thames within the Borough of Barking and Dagenham, Barking Riverside is to become one of the largest new mixed-use urban developments in the country.

When completed, the 443-acre development will create a sustainable community of 10,800 new mixed tenure homes, together with community facilities, and new schools, and access to two kilometres of Thames River frontage.

The development is being constructed in four stages. Stage two is a mix of riverside apartments and three/four bed houses along the Thames and includes a district centre and secondary school. Barking Riverside is a joint venture agreement between Bellway Homes and the Homes and Communities Agency.

Bellway Homes was looking for a solution to help smooth out the undulations in the structural roof decks of a number of residential properties on Stage Two of the development. These were installed on a series of 3-4 bed houses with flat roofs where precast concrete planks had been specified.

Although the planks were installed to within the manufacturers' tolerances, the step level between individual units was deemed unsuitable to receive the IKO Permaseal Waterproofing System.

It was critical that the developer did not fall behind on the construction schedule and so a fast track solution to the problem was essential. A traditional concrete screed layer wasn't suitable for this project, as the weight of the screed layer would impact the foundation design. It would also take too long to cure.



After



After



During

Solution and Installation

Whilst considering various options, IKO provided Bellway Homes with information on their asphalt based IKO Permascreed System, which was compatible with the IKO Permaseal solution to follow.

A major advantage of this type of screeding is that the laid material can be accessed and the waterproofing installed as soon as the IKO Permascreed has cooled to ambient temperature. As mastic asphalt cools rapidly, this can be a matter of hours, comparing much more favourably than conventional screed, which can take days to cure.

The application of IKO Permascreed not only ensures fast track application, but also provides a temporary waterproofing layer prior to installation of the IKO Permaseal top layer.

Once cured the IKO Permascreed layer was robust enough to accept the type of traffic and concentrated loads associated with the installation of a flat roof waterproofing system.

So far 8,000m² of IKO Permascreed has been laid on the Barking Riverside project at a thickness of 40mm, a reduction of 33% when compared with traditional screeds and this has had a bearing on the overall weight of the finished roof.

With today's time critical construction programmes, getting the screed laid and the roof waterproofed quickly is a huge benefit as it prevents delays to follow on trades.

This fast curing solution has provided the developer with a level surface and enabled them to keep to their construction programme on schedule.

The finished roof, including the IKO Permaseal solution provided a 20 year linked guarantee

Contractor: Bellway Homes

Client: Barking Riverside Developments

Systems

- IKO Permascreed
- IKO enertherm Insulation
- IKO Permaseal

IKO Guarantee

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The Place, London Bridge Quarter

4,000m² Innovative Commercial Development Receives Aesthetic Waterproofing

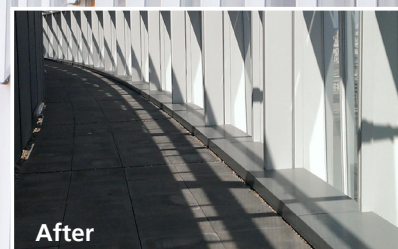
Project Description

IKO PLC have provided 4000m² of primary waterproofing for a commercial office space project to waterproof plant areas and roof terrace space.

The Place, nicknamed the “Baby Shard”, is an innovative headquarters building that makes a strong and compelling corporate statement in London’s newest commercial quarter. It will provide 40,000 square metres (428,000 square feet) of efficient office space in a prestigious seventeen-storey building of great architectural distinction.

Mace is acting as main contractor on this project, part of Sellar Group’s wider London Bridge Quarter scheme. The Place meets the most rigorous space demands of modern organisations offering large, light, open and highly-flexible floor space, with floor-plates up to 31,000 square feet.

Designed by Renzo Piano Building Architects, the building will feature natural light and outstanding views throughout, naturally-ventilated winter gardens on floors 3-12 and a landscaped roof terrace with spectacular views of London. Despite being shorter than the Shard, The Place brings its own technical and architectural challenges, including the complicated cantilever structure of the building which will require the installation of one of the largest piles of its type in London, at 2.4m diameter.



Solution and Installation

IKO’s Permatec Hot Melt System was specified for the plant area and roof terrace spaces. The works were carried out by IKO’s national approved roofing contractor, BriggsAmasco.

IKO Permascreed, an effective solution for drainage falls and levelling was used on the roof terrace areas to create a required cross fall beneath the IKO Permatec Hot Melt.

IKO Plasdrain 25 was used directly over XPS insulation board before a concrete slab was cast directly over the top.

IKO’s Polimar Seal was used as a temporary waterproofing for some plinths on the plant areas. The use of the system allowed a number of difficult details to be simplified.

Contractor: BriggsAmasco

Client: London Bridge Quarter

Systems

- IKO Pasdrain 25
- IKO Permascreed
- IKO Permatec

IKO Guarantee

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Carbon Neutral Four Squares Estate, Southwark

1,400 Tonnes of IKO Permaphalt inc. IKO Permascreed Waterproofing System

Project Description

In 2013 IKO PLC were asked to investigate issues at the Four Square Estate, Southwark, in respect of the existing access walkways that were surfaced with Mastic Asphalt, by Keepmoat and Southwark Council.

It was agreed that the Mastic Asphalt required replacing, along with screed repairs and new expansion joints. Work commenced in 2014 by Superior Roofing & Building Services Ltd and was completed by 2016.

During the works some 1,400 tonne of IKO Permaphalt was installed along with IKO Permascreed.

A 20 year guarantee was provided giving peace of mind and long term security for the sustainability of the system.

The net carbon footprint of this project is entirely offset using internationally approved carbon credits, which means for every tonne of Mastic Asphalt made, we are helping to fund environmental and humanitarian causes.

Impact Calculator: 1,400 Tonnes Mastic Asphalt = 218.4 Tonnes of CO₂ Offset

Impact Sector	Impact	Quantitative Data
Environment	Wood Saved	57 tonnes
	Area Protected	0.55 hectares
Social	Number of Stoves	22
	Time Saved	1,478 hours
	Children Impacted	68
	Elderly People Impacted	22
	Total People Impacted	119
Economic	Working Time Saved	1,478 hours
	Working Days Equivalent	185 days
Health	Likely reduced cases from project support	
	Respiratory Illness (Lower Chest / Lung)	17
	Asthma	15
	Ear, Nose and Throat Irritation	6
	Total Reduced Instances of Serious Illness Attributed to Indoor Smoke	38

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A Long Term, Bespoke Solution

Working in a large, active and fully populated housing estate with 1,400 tonnes of IKO Permaphalt and IKO Permascreed to install proved challenging.

New covering including, where required, an improvement to the falls, which was achieved using our IKO Permascreed to accommodate the large amount of foot traffic that would occur to the area.

This solution allowed the IKO Permaphalt System to be installed at the required angle needed to generate the final waterproofing solution.

Carbon Zero: <http://www.co2balance.com/>

The data from the Impacts are based on the field work carried out by CO2balance within the project locations in Kenya. The data that is gathered is in line with the requirements of the Gold Standard as part of the annual Monitoring. These Monitoring Reports are available on request. Data is then cross comparable against national averages in Kenya to ensure accuracy. Assumptions and extrapolations have been used

where relevant. The Health Data is derived from the following sources R. Perez-Padilla et al, 2010. 'Respiratory health effects of indoor air pollution' in International Journal of Tuberculosis and Lung Disease, vol. 14 no. 9, pp1079-1086. Kenya National Bureau of Statistics. (2008). Kenya Integrated Household Budget Survey. Ministry of Planning and National Development, p1-300. 3 Wood saved and

clean water supply - Calculations based on field measurements conducted by staff contracted to CO2balance and are conducted according to the requirements defined by the Gold Standard. Monitoring data is available on the Gold standard registry.

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