Solutions for failing asphalt

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Introduction

Asphalt has historically been used for multi-storey car park waterproofing and surfacing. It is commonly found where car park decks are exposed or where internal decks are over occupied premises. Here, we consider the issues that car park owners and operators face as these structures age and the asphalt deteriorates.

We discuss the choices for asphalt repair, asphalt strip up and replacement, as well as a technologically advanced asphalt overlay solution to provide car park waterproofing, surfacing and protection.

Multi-storey car parks need structural protection

Protecting reinforced concrete car park structures is essential to prevent structural damage and structural failure. In reinforced concrete, the alkaline concrete itself provides protection to the steel reinforcement from corrosion via a passive layer. The primary risk to structural integrity is the corrosion of the steel due to chlorides in road salts or as a result of carbonation.

Pipers Row car park, Wolverhampton in 1997. Partial collapse attributed to carbonation and a lack of waterproofing to cracks https://www.hse.gov.uk/research/misc/index.htm

Chlorides from road salts dissolved in water are driven in and deposited by vehicles. If the concrete structure does not feature fully waterproofed coverings, these dissolved chlorides can migrate to the steel reinforcement, particularly where the concrete is cracked. When chloride ions reach the steel surface, their combination with hydrogen ions contained in the pore water, creates acids which neutralise the alkalinity of the concrete. The result is a breakdown of the passive film layer leading to localised corrosion.

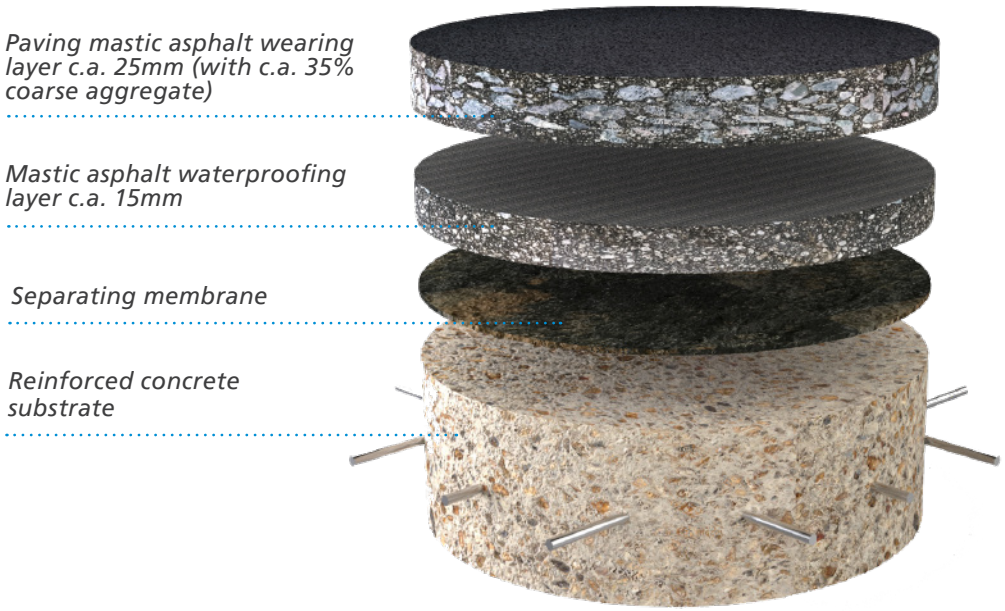
Carbonation is the process of carbon dioxide (CO_2) entering the concrete and reacting with hydrated cement paste in pore water. As this is acidic, it reduces the natural alkalinity of concrete. When the carbonation front reaches the steel reinforcement surface, the alkalinity forming the passive layer is neutralised; and in the presence of oxygen and water, corrosion occurs. Carbonation can be prevented using carbon dioxide resistant coatings to the decks and anti-carbonation coatings to the soffits and other elements.

- Chlorides from road salts carried into the structure by vehicles can lead to corrosion
- Carbonation is a threat to unprotected concrete structures
- Carbon dioxide is in the atmosphere and is forecast to increase in future
- Without structural protection, chlorides and carbonation will cause damage leading to structural failure

Asphalted car park decks

Mastic asphalt, or more simply known as asphalt, has been used as a waterproofing and protection medium for decades. In multi-storey car parks, asphalt build-ups are often found on decks and ramps exposed to the elements or internal decks over occupied premises.

What is the asphalt used on car parks?*



**Typical thicknesses based on thousands of core samples taken from asphalted car park decks by Triflex in the UK.*

Mastic asphalt consists of limestone aggregates historically bound together by Trinidad Lake asphalt, but now by bitumen, or polymer modified bitumen.

Bitumen (and therefore asphalt) is a thermoplastic which means that it is soft, pliable, and mouldable when hot, and hard when cool.

Mastic asphalt in car parks is applied under extremely high and very strict temperature controls for the best performance. The molten asphalt is laid by hand onto a separating membrane / tissue, with all layers of the build-up applied concurrently to minimise the risk of contamination and critically, moisture between the layers.

In the UK, the types and quality of asphalt encountered vary depending on the age of car park.

3 key drivers for action

Car park owners, operators and facility managers face many challenges as part of their car park life-care planning*. In asphalted car parks, there will come a time when the asphalt has deteriorated to such an extent that action needs to be taken. There are three key drivers for action:

Waterproofing failure

- Ingress of chlorides, carbonation and structural damage (corrosion)
- Water ingress and damage to property below
- Damage to vehicles below
- Poor conditions leading to reduced footfall
- Reputational damage for those served by the car park

Loss of structural protection

- Reinforcement corrosion
- Concrete deterioration
- Concrete spalling
- Concrete cracking
- Long term structural damage

Health and safety concerns

- Risk of skidding and slips from water in ponded areas; especially when frozen
- Skid risk and slip hazard with worn, polished asphalt; particularly when wet
- Falling debris e.g. spalling concrete
- Surface trip hazards

*Ref: https://www.britishparking.co.uk/write/Documents/SPS/GuidelinesResources/Park_Mark_LifeCarePlansLeaflet_2011_-_page_for_web_-_small_version.pdf

9 asphalt failures that you cannot ignore

The outward appearance of the asphalt surface and visual presentation of faults are indicators of potential issues. Listed here are the main problems that pose the biggest risks to waterproofing, structural integrity or the safety of car park users:

1. Asphalt cracking

Cracks in the waterproofing allow a direct path for water and chloride ingress as well as carbonation. They most commonly occur in the weaker asphalt day joints or at upstands and interface details. Large car park structures will have numerous asphalt day joints and details creating a significant number of high risk zones.

Cracks are also found in the asphalt surface, where aged asphalt has shrunk. As the flux oils and other volatiles are lost from asphalt, it becomes less flexible and shrinks due to loss of mass.

Alternatively, if the separating tissue between the asphalt and underlying concrete is damaged or missing, the asphalt may stick to the concrete. As the asphalt is designed to allow movement during temperature changes, it may tear and crack if adhered to the substrate. Similarly, cracking and movement in the underlying concrete transfers directly into the asphalt, resulting in crack formation in the asphalt.

Cracks are aggravated by standing water and freeze-thaw cycling during cold weather. Ice expansion will force cracks to open wider, with general trafficking causing further damage, i.e. a small crack in the summer can be significantly larger in the winter. Cracks can also present a trip hazard to users, encourage vegetation growth and continue to grow in width, but fundamentally can compromise the waterproofing and protection of the structure.

2. Asphalt details and interfaces

Roofing grade mastic asphalt is used to form interfaces with other details. All of these details whether upstands, drainage outlets, channels, posts, or plinths etc. are potential failure points for asphalt waterproofing.

These areas are vulnerable because the asphalt to the main area is de-bonded and can move freely, whereas the asphalt details are bonded. Structural movement, as well as thermal expansion and contraction will place significant stress on the asphalt at these interfaces, particularly during cold weather when the thermoplastic asphalt is most brittle.

These issues can manifest in the form of tears and cracks at the interfaces allowing a direct path for water, chlorides and carbonation.

3. Blisters in asphalt

Blisters are caused by trapped moisture and air heating up to create a vapour pressure. This moisture may be in the substrate beneath the asphalt or between the asphalt layers (interstitial) in multi-layer systems found in car parks. The blistering can occur soon after installation, or in some cases, take many years to form. The blisters can also continue to expand progressively due to a cyclical pumping action.

Evident as raised or domed areas, blisters vary from a few centimetres across to a few metres or more. They can occur singularly but are commonly found in clusters, particularly on ramps where the asphalt is fully bonded. Besides being a trip hazard, blisters need repair. Left alone they may collapse and compromise the waterproofing integrity, risking structural damage.

4. Surface ponding

It is recommended that falls in car park decks should be a minimum of 1:60. Unfortunately, the designed and as-built construction do not always match, and ponding is common on asphalted car parks. Causes include poor construction, deflection within the structure, insufficiently designed falls and a lack of or poorly located drainage outlets.

Mainly considered as an inconvenience, ponding water is avoided by pedestrians who want to keep their feet dry. However, frozen ponded water presents a severe health and safety slip hazard for pedestrians and in extreme circumstances, vehicles. The reason this often gets left untreated is that asphalt cannot be laid to falls to correct inherent issues, and cannot be laid on top of existing asphalt once the issue has appeared.

5. Tyre indentations

Where asphalt lacks enough stone content at the surface or is soft, tyre impressions or wheel indentations commonly form. As heavier electric vehicles increase in number, and temperatures rise due to climate change, the frequency of these will increase. Asphalt surfaces are softer where the ratio of bitumen-rich material to aggregate is higher. This can be due to variations in the size or amount of aggregate in the paving grade wearing layer or a paving asphalt layer which is applied too hot.

A bitumen-rich surface becomes even softer in high temperatures or when heat load dissipates from a vehicle, due to the bitumen's thermoplastic properties. Indentations are often worsened by the displacement of asphalt to the perimeter. The resulting lip can lead to localised ponding, a trip hazard or icy patches in winter, directly where vehicles are designed to stop.

6. Skid risk from worn asphalt

As asphalt ages and is trafficked extensively, the paving asphalt can wear and polish to a hazardous state. Crimped finishes and wearing layers are worn to a flat, smooth, shiny surface that is slippery when wet.

Ramps, ramp aprons and turning areas are especially susceptible due to the heavy shear forces from vehicle tyres. With virtually no anti-skid, traction is compromised causing a significant skid risk to vehicles and a slip risk for pedestrians.

With significant liabilities for owners and operators arising from any form of slip or accident, the maintenance of adequate slip resistance measured as pendulum test values (PTV) is a must.

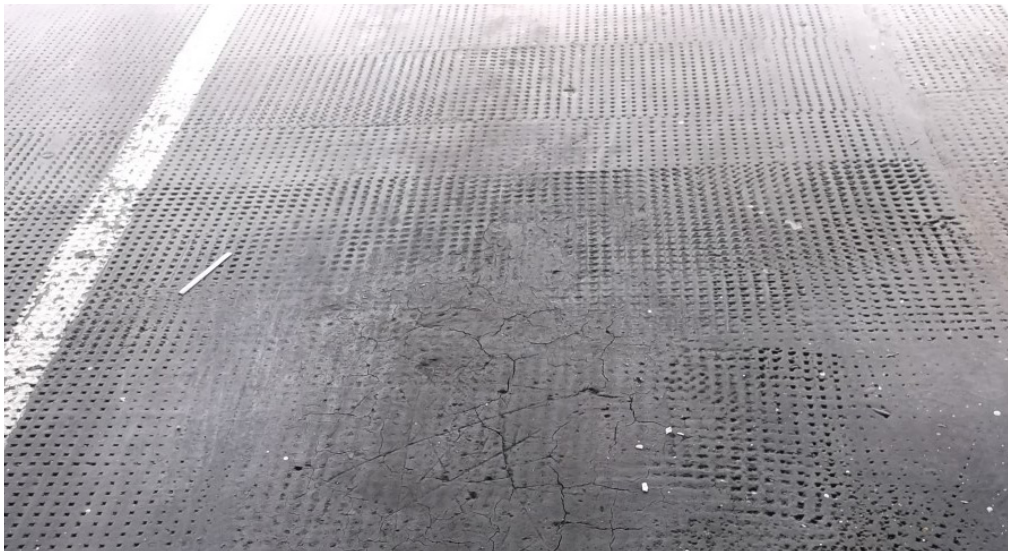
7. Slumping

High thermal loads cause thermoplastic asphalt to soften, particularly the roofing grade mastic asphalt exposed at details. South facing aspects, or surfaces where heat or sunlight is reflected from buildings are especially vulnerable. Softened asphalt becomes mobile and will slump, especially on vertical details such as upstands and stair risers.

This slumping can occur to such an extent that the asphalt falls off the detail or tears under its own weight. Both can compromise the waterproofing integrity and create a dangerous trip hazard on stairs.

Any such failure will facilitate chloride and carbonation ingress.

8. Asphalt contamination



Fuel, oil deposits and other contaminants can attack the bitumen- based asphalt. This causes it to lose its physical and mechanical properties leading to degradation and even break up.

The asphalt's reduced strength is prone to accelerated wear and left untreated, will prematurely fail.

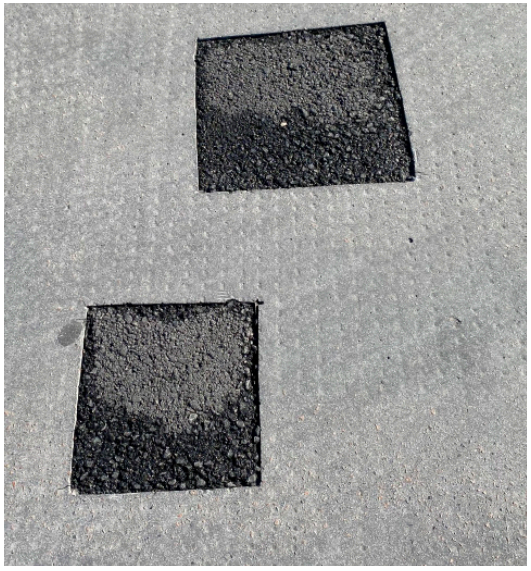
9. Asphalt repairs

Patch repairs are commonly seen in asphalt substrates and although there are complex methodologies for such repairs, these seem rarely followed. Shrinkage related failures regularly occur with cracks opening at the perimeter of the repair, allowing water ingress.

Incompatible materials such as tarmac, cold asphalt type solutions or even concrete are frequently used. These not only fail to provide a long-term solution but are not waterproof. Use of these materials allows water and chloride ingress which can cause structural issues and accelerate the failure of the original asphalt.

What to do with failing asphalt?

Car park owners, operators and facility managers face several choices to address the asphalt problems that pose risks to their structures and those that use them:

1. Repair asphalt for a temporary solution	2. Completely remove asphalt and replace with new asphalt	3. Completely remove asphalt and replace with a liquid applied membrane	4. Overlay in situ asphalt with liquid applied PMMA waterproofing
			

1. Repair asphalt for a temporary solution

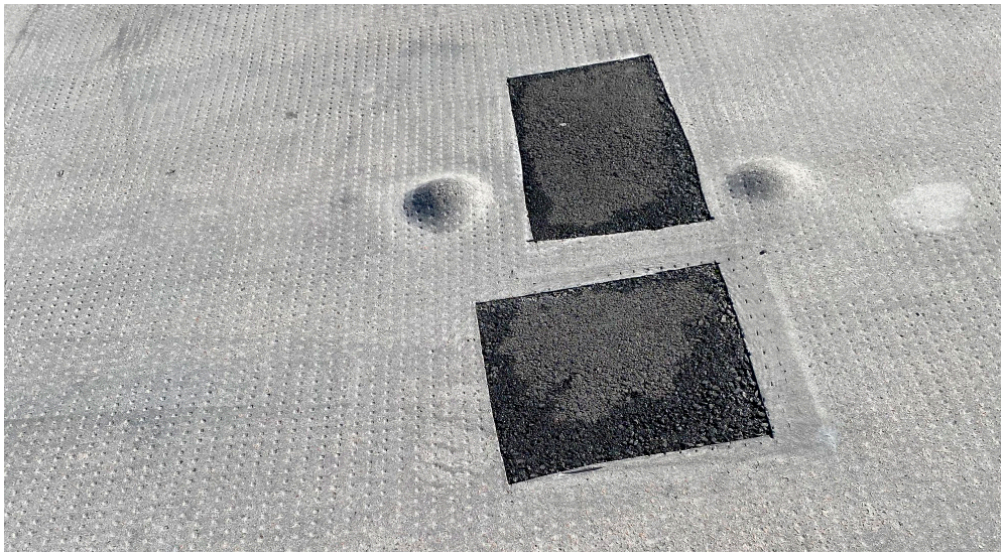
Temporary or patch repairs can be appealing financially. However, using asphalt as a repair material for failed asphalt can be problematic.

Patch preparation requires cutting an area with vertical sides to ensure a neat edge. The patch repair then requires a staggered joint to maintain waterproofing integrity, ideally with the stagger at the interface between the paving and mastic asphalt layers. Unfortunately, as these layers are fully bonded, creation of this staggered joint is difficult and therefore very rarely undertaken.

Cutting the asphalt releases tension in the existing material which will tend to shrink away from the repair over time. As the new asphalt ages, it will also shrink. Shrinkage of both the old and new materials will place tension on the perimeter of the repair. As both sides of the repair pull away from each other it is common to see cracking around asphalt repairs in asphalt. Any full system cracking around the repair will allow water and chloride ingress as well as a path for carbonation. Subsequent freeze thaw cycles will further increase the width of the cracks.

Using hot asphalt for car park repairs requires zones to close to allow access for machinery and ensure the safety of car park users. Opening the surface for patch repair also introduces a risk of water ingress during the works, with a period of dry weather required.

Cold mix asphalts may be suitable for short term emergency patches to mitigate health and safety risks but only offer a limited solution as they will not reinstate the waterproofing.



Issues with asphalt as a repair material:

- Staggered joints are required for waterproofing integrity
- Staggered joints are difficult and time-consuming to form
- Asphalt shrinkage of old and new materials often causes cracks to the perimeter of repairs
- Hot asphalt repairs require specialist installers and closures due to hot works
- Due to mobilisation costs, small scale repairs are not economical
- Failures at details are difficult to successfully repair with asphalt
- Cold mix asphalt repairs are only temporary, will typically fail quickly and are not waterproof
- The repairs will be subject to the same failure mechanisms as the original asphalt
- The failure of the waterproofing because of the repair may be worse than the original failure being treated

2. Completely remove asphalt and replace with new asphalt

The removal of asphalt is a major undertaking given the sheer weight and volume of material. Methods of removal are dictated by the site conditions, as well as the size and ease of access for any associated plant machinery for mechanical removal. Great care must be taken to avoid the risk of damage to the substrate by these methods. The broken asphalt is disposed of via chutes, skips or similar means.

Whilst uncontaminated mastic asphalt can be recycled, the fact that the build-up comprises of both mastic and paving asphalt makes this problematic. In practice, asphalt regularly goes to landfill. Extrinsic costs such as site set up, removal costs, transport, the appropriate waste management classification and waste separation procedures all add up. Keeping the car park open is challenging in such a major construction project. In a town centre location this could include pavement closures, town centre access issues, scaffolding, and site security to prevent debris being thrown from the area.

The removal of any waterproofing also introduces significant risks of water ingress. In car parks that are over occupied spaces, there are added risks. If the substrate beneath the asphalt contains lightweight insulating concrete (Lytag or similar), it is highly likely that the removal process will cause some damage to the substrate. Any such damage will require repair prior to asphalt reinstatement. As the voids within the material act like a sponge if subjected to water, the impact of any water ingress during works is significant. Saturated materials are exceptionally difficult to de-water or dry out sufficiently to allow new asphalt installation.

Why asphalt overlay with asphalt is not typically used in car parks

The overlay of old asphalt with fresh asphalt significantly increases the dead load on the structure and creates a high risk of de-bonding and blisters. In addition, outlets, joints, and thresholds would require modification. At interface details such as upstands, cavity trays may not allow details to be raised to the minimum 150mm recommended under BS 6229.

Issues with completely removing asphalt and replacing with asphalt:

- Disruptive and time-consuming
- The amount of asphalt removed is typically only what can be replaced in the day
- Car park deck closures leading to loss of footfall and revenue
- Significant risk of water ingress during the works
- Issues for new asphalt installation where substrates retain water (lightweight insulating concrete or insulation present)
- High likelihood of surface repairs if lightweight insulating concrete is present
- Higher environmental impact

3. Remove asphalt and replace with liquid applied membrane

There are important considerations to take when removing asphalt. Firstly, the underlying, unseen substrate must be suitable for the liquid membrane and must not be lightweight insulating concrete or an unreinforced screed.

Structural loadings are calculated as part of the engineering design and specification for the car park construction. A typical 40mm asphalt build-up imposes a c.a. 100Kg/m^2 load. For a 5,000m^2 car park deck, this equates to approximately 500 tonnes.

A replacement liquid applied membrane may only weigh 10% of this, resulting in a very significant reduction in dead load. It is important to consider the impacts of removal of this weight on the structure and seek the advice of a qualified structural engineer. Structures can exhibit elastic recovery or decompression following long term dead load removal. This movement or "springing" can lead to new, unforeseen cracking in the concrete deck and a potential weakening of structural integrity.

Unfortunately, these cracks can take time to form as they may be influenced by the reintroduction of live loads (car movements) to the structure.

Removing the asphalt build-up also requires modification or replacement of various details including outlets, joints and thresholds.

Issues with stripping up asphalt and replacing with a liquid applied membrane:

- The works are disruptive
- Closure of car park decks and loss of revenue / footfall
- Significant risks of water ingress during the works
- Full assessment of suitability for a liquid applied membrane not possible until asphalt removed
- The substrate may be damaged in the asphalt removal process
- Deck "spring back" may lead to significant structural cracking
- Replacement or modification of outlets, joints, and thresholds due to a reduction in levels

4. Overlay in situ asphalt with liquid applied PMMA waterproofing

Overlaying the existing in situ asphalt with technologically advanced PMMA (Polymethyl Methacrylate) liquid coatings delivers significant advantages. Not only does this deliver minimal disruption but presents a more sustainable option.

By avoiding the need to remove the asphalt, the project moves up the waste hierarchy with solutions that reuse existing materials. Negating the removal and recycling of tonnes of asphalt also shortens the programme of works, minimises disruption and generally avoids full closures.

By overlaying existing asphalt with a proven and compatible system, waterproofing and protection is quickly and simply achieved. Furthermore, with operational disruption reduced, the car park income generation is much less compromised.

Benefits of an asphalt overlay solution:

- Less disruption to car park operation
- No costly or time-consuming strip up
- No waste management for disposal of tonnes of asphalt
- Asphalt defects such as ponding and wheel indentations can be corrected
- Cracks and other failures can be repaired with certified crack bridging materials
- Shortened programme of works
- Avoids risk of altering structural loads
- No risk of water ingress during works
- Heights of outlets, joints, thresholds etc. are maintained
- Greener credentials

Triflex PMMA systems for asphalt overlay

Overlay systems based on Triflex cold PMMA resin technology cure in minutes, even at low temperatures. The technology is also available in Triflex PMMA repair mortars enabling rapid surface repairs and levelling.

Quickly installed, Triflex PMMA overlay solutions are completed rapidly with an efficient programme of works. Consequently, car parks are soon back to full use, minimising interruption to users and revenue generation.

Benefits of PMMA for asphalt overlay and repairs:

- Rapid curing for shorter programmes of works and minimal disruption
- Tough, durable coating with proven longevity for peace of mind
- Can be fully or partially reinforced providing solutions to a wide range of structural protection needs
- Cures in winter temperatures for all year-round project delivery
- Seamless, self-terminating liquid coating for effective, rapid installation
- Elastomeric properties even at low temperatures for year-round protection
- High levels of anti-skid retained over time for a safer environment
- Lightweight material for minimal effects on structural loading and levels
- Outstanding waterproofing properties, including treatment of all existing cracks, details and interfaces for long term structural protection
- Hydrolysis resistant for waterproofing excellence in unresolved ponded water
- Forms strong bond to asphalt and other substrates with proven compatibility
- Thermosetting plastic means lower effects of high temperatures for durability
- Totally cold solution avoiding hot works and associated risks
- Wide range of UV stable colours for individual design aesthetic
- Can be overlaid for future refresh delivering flexible design and branding

Assessing the suitability of in situ asphalt for PMMA overlay

Asphalt build-ups can vary, even within the same structure. Variables such as asphalt temperature, aggregate distribution and external conditions during the installation contribute to differences in the asphalt as laid. It is therefore important to assess the asphalt prior to overlay, in order to provide the appropriate waterproofing and protection solution, as well as identify repair and preparation methods.

The extraction of cores enables an evaluation of the asphalt condition. With often large expanses of asphalt involved, core sampling needs to be extensive and representative of the whole area. It must not only include any obvious defects, but also apparently sound material.

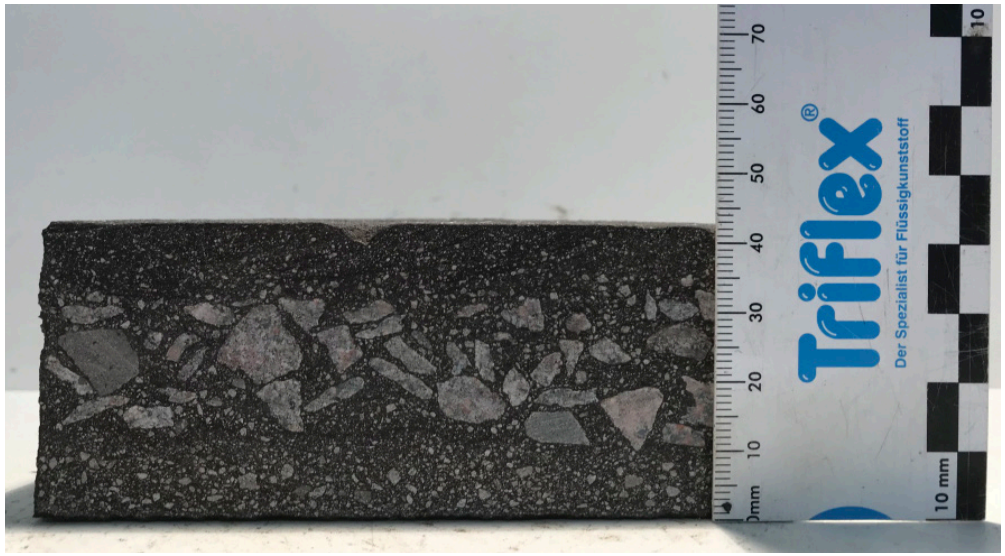
What lies beneath?

Whilst a thorough visual inspection is of value, there is nothing like getting into the build-up to really understand the underlying causes of any failures.

Core sampling shows the condition of the asphalt, thickness of the various layers, size, and distribution of aggregates, as well as any separating membrane. It can also highlight points of concern, such as where large aggregate has sunk below the surface, or the layer thicknesses are less than those expected.

Understanding the innate condition of the existing asphalt build-up ensures the correct solution. On-site services such as core sampling and adhesion testing are a precursor to meaningful warranties backed by insurance for any car park protection system.

By thoroughly characterising the asphalt not only are areas of repair identified, but the level and nature of preparation can be determined to ensure that any bespoke specification proposal meets project requirements.



The paving asphalt layer contains coarse aggregate and should be uniform all the way to the surface. In this example, the large aggregate has sunk leaving a bitumen-rich surface. This may be due to the asphalt being too hot during installation or a lack of large aggregate. This softer, bitumen-rich surface is prone to wheel indentations, displacement, ruckling and accelerated wear.

Why test?

- A visual survey only tells the story at the surface
- Often the build-up is not as it should be
- Assesses the asphalt thickness, layers, stone content and contamination
- Identifies how defects have occurred and how they should be repaired
- Identifies surface preparation requirements
- Allows creation of a bespoke project specification proposal

Triflex products and services: proven asphalt overlay

Triflex waterproofing, surfacing and protection systems have been used to overlay over 2 million m^2 of asphalt in the UK alone. Our expertise continues to serve specifiers, car park owners and operators with a range of solutions.

Triflex PMMA repair solutions

Triflex has a range of rapid curing, waterproof, repair materials for asphalt. These materials bond securely to the host asphalt. The Triflex repair materials can move sympathetically with the retained asphalt due to the elastomeric properties of PMMA combined with adhesion in excess of the cohesive strength of the asphalt. In addition, specifically designed reinforced over banding can bridge dynamic cracks and open dayjoints for a robust repair.

Thanks to the rapid curing, repairs can be trafficked within hours minimising disruption.

Triflex PMMA cold liquid applied waterproofing, surfacing and protection systems:

- Over 35 years' experience directly overlaying asphalt
- 2 million m^2 of failed asphalt overlaid in the UK alone
- All year round application (temperatures as low as -5°C at details)
- Fully reinforced waterproofing to details
- Fully and partially reinforced systems to main area
- Solvent and isocyanate free
- Rapid curing within hours
- Rainproof in 30-45 minutes
- Quickly trafficable
- Totally cold applied: zero flame
- Hydrolysis resistant: unaffected by ponding water
- Resistant to chlorides (road salts), carbon dioxide ingress, petrol, diesel, brake fluid, engine oil, battery acid, de-icing, and cleaning products
- Tried, tested, and certified to the highest industry standards including BBA, UKCA and EN 1504-2 certified systems
- Proven in the toughest environments in the UK, Europe and beyond
- Can withstand high mechanical loads
- High levels of anti-skid
- Versatile and fully adaptable to your design
- Available in a variety of colours and finishes
- Meaningful warranties backed by insurance

Summary of asphalt overlay

Asphalt can be easily and quickly overlaid with cold applied Triflex PMMA car park waterproofing and protection systems. With over 2 million m^2 of asphalt overlaid in the UK to date, Triflex systems deliver proven, outstanding waterproofing, surfacing and protection with chemical and hydrolysis resistance.

With Triflex reinforced systems, movement is accommodated negating risks of cracking and therefore water and chloride ingress, or carbonation. Asphalt overlay avoids the risks of cracking due to structural load changes encountered in asphalt removal, as well as costly waste management of tonnes of removed asphalt. By leaving the existing asphalt in situ, the underlying structure is not exposed to water damage during the programme of works, which can be especially pertinent to areas above occupied spaces.

Detailing, drainage points, upstands and interfaces are all waterproofed without the need for alteration. With quick cure times even at winter temperatures, Triflex solutions offer minimal disruption to car park operation any time of year.

Triflex support services thoroughly assess the asphalt condition. By innately understanding the build-up, we recommend the best solution and preparation, including PMMA based asphalt repair materials that will not delay a challenging programme of works. Our warrantied solutions are backed up by meaningful insurance for peace of mind and installed by our national network of trained and authorised contractors. For a proven, cost effective, sustainable solution that minimises disruption and saves time, Triflex asphalt overlay delivers warrantied waterproofing, protection, and surfacing.

Triflex asphalt overlay infographic

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Asphalt Overlay

Triflex

Our PMMA resins are rainproof in 30 minutes

30

+2,000,000m²
Amount of UK asphalt we have overlaid

We offer robust warranties backed by insurance

We overlay car parks

THE BIG 6 TYPES OF ASPHALT
Paving mastic asphalt, roofing mastic asphalt, hot rolled asphalt, stone mastic asphalt, macadam & dense bitumen macadam
AND MANY MORE!

We overlay asphalt walkways, balconies and terraces

Our systems are solvent and isocyanate free

1 HOUR

Our PMMA resins fully cure in an hour

We have solutions to waterproof and repair service decks

We have a range of marking and wayfinding systems

35 YEARS
Our experience overlaying asphalt

We have fast curing solutions to repair asphalt, from dayjoints to wheel indentations and more

70+

Our Research and Development team

We overlay asphalt roofs

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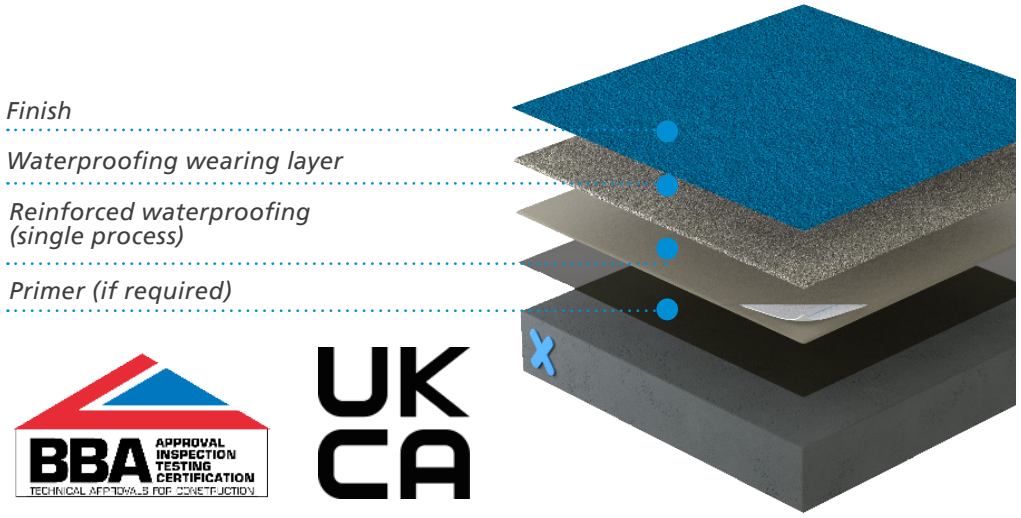
Triflex system overviews and build-ups

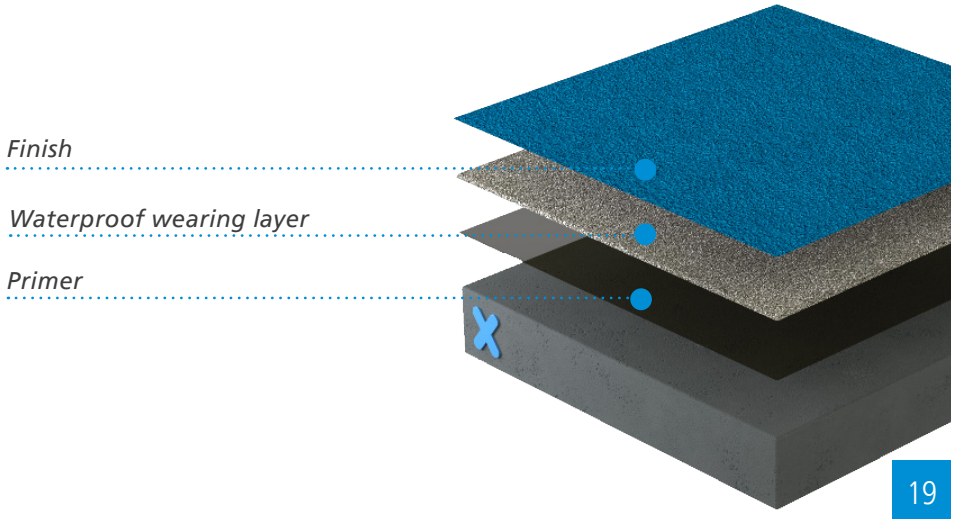
Triflex ProPark®

- Designed to overlay failed asphalt
- Fully reinforced waterproofing technology
- Totally cold applied, with no risk from hot works
- Compatible with virtually all substrates
- Dynamic crack bridging
- Exceptionally rapid curing / rainproof times, even at low temperatures
- Tough and durable protection
- High levels of anti-skid
- Certified and tested to the highest UK and European standards
- Solvent and isocyanate free
- Comes in a range of standard and bespoke colours



Triflex DeckFloor

- Designed to overlay failed asphalt
- Partially reinforced waterproofing technology
- Totally cold applied, with no risk from hot works
- Compatible with virtually all substrates
- Flexible
- Exceptionally rapid curing / rainproof times, even at low temperatures
- Tough and durable protection
- High levels of anti-skid
- Highly certified and tested
- Anti-static solutions available
- Solvent and isocyanate free
- Comes in a range of standard and bespoke colours



Triflex asphalt overlay case studies

Victoria Shopping Centre, Southend-on-Sea

The Victoria shopping centre in Southend-on-Sea required refurbishment of its existing asphalt deck which was badly cracked and worn, allowing water to ingress into the shops below.

Triflex was specified following presentation of the thorough and in-depth technical report which included a clear presentation of the test results, and detailed project specification proposal.

Click here to see the full story online.

Honeywell Technologies, Bracknell

The staff car park at Honeywell Technologies in Bracknell had been leaking for sometime and staff had reported damage to their vehicles when parked beneath certain areas of the two storey structure.

Triflex provided a full asphalt overlay solution to ensure waterproofing, surfacing and protection for years to come.

Click here to see the full story online.

Olympia car park, East Kilbride

Triflex had been recommended to provide a solution after previously installing a system within the same centre that didn't require the removal of the existing asphalt.

Working alongside our authorised contractor, we carried out extensive on-site testing to establish the various requirements for each parking level.

Click here to see the full story online.

Triflex
Delivering solutions together.

Delivering solutions together.

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Click here for more information or to register for your free condition survey

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