



WATERPROOFING CAR PARKS: ADVICE AND BEST PRACTICE

Sarah Spink, CEO of the Liquid Roofing and Waterproofing Association (LRWA), discusses the challenges of waterproofing car parks and offers guidance from the LRWA's Code of Practice

Whether multi-storey, underground or over an occupied space, car parks can be difficult to both build and maintain. Vulnerable to attack from water, chemicals, chlorides and UV radiation, car parks are also exposed to de-icing salts and exhaust fumes that can further accelerate the deterioration process.

Failed deck joints and surface waterproofing can cause severe maintenance problems and lead to surface water leaking to the decks below. This in turn causes corrosion of the steel reinforcement and compromises the integrity of the structure.

To help overcome these challenges, liquid applied waterproofing systems are regularly specified for car parks as they provide a tough, elastomeric, seamless and decorative finish. Furthermore, the speed of application and quick curing times are essential benefits when refurbishing structures which have to remain partially open to the public.

To help contractors who are responsible for waterproofing car parks, the LRWA has produced a Code of Practice which shares best practice and knowledge:

Preliminary inspection

Prior to specifying a liquid applied waterproofing system, contractors should carry out a full inspection of the structure to establish the most appropriate product and to check for any remedial work required as well as potential issues.

Car parks can be constructed using several different techniques, some of which can increase the risk of issues such as movement and deflection, so understanding how it has been built is essential.

An inspection should take into account the condition of the supports, structural decks, parapets and safety barriers, existing waterproofing, any expansion joints and the drainage system.

If any deck can't be inspected from below, core samples should be taken from the external surface through to the deck to assess the condition.

Substrate suitability

To enable the liquid waterproofing system to be installed effectively, there must be a suitable substrate.

Vehicles braking and accelerating on a surface exert a considerable amount of force on the waterproofing system. It is therefore essential that there is good adhesion and cohesive strength within the surface of the substrate.

Surface coating treatments should only be carried out on substrates that are structurally sound. Care should be taken to ensure that the application of a new decorative coating is not masking a deterioration problem within the substrate that could go undetected.

Concrete finishes

For construction of new car parks, the surface finish should be specified by the manufacturer of the liquid waterproofing system to minimise the need for additional surface preparation.

Unformed concrete surface finishes can be placed, finished and cured in a variety of ways that can significantly affect surface strength, regularity and texture. The concrete specification can define the method used to finish the concrete and achieve the surface characteristics.

Asphalt substrates

Asphalt substrates will generally be found on existing car parks where the client requires a new liquid waterproofing system. Overlaying the existing asphalt surface can reduce disruption, save costs and minimise loss of revenue for the client.

There are three main types of hot asphalt: Hot Rolled Asphalt (HRA), asphalt concrete, and mastic asphalt, which is used for waterproofing and wearing courses on trafficked decks.

Mastic asphalt has historically, been most widely used on car park decks. When considering if this is suitable for an overlay, consider the possibility that some water or moisture may be trapped between the asphalt and the structural deck beneath. Typically, if this is the case, the asphalt will already show significant signs of blistering.

Preparing the roof

Before applying the liquid waterproofing system, the substrate must be clean, uncontaminated and stable.

When cleaning, it is important to ensure that debris doesn't block the rain down pipes and other drainage. Drainage gullies are commonly found on parking decks, so they should be plugged before preparation works begin to prevent blockages.

Rain water gullies should, where possible, be prepared into the throat of the drainage pipe so that the liquid waterproofing system can be continued well into the gully detail to ensure a watertight seal in this vulnerable area.

Metal flashings should be lifted or removed to allow the system to be installed on upstands. Flashings should then be replaced if required or alternatively the manufacturer should recommend a suitable detail which may avoid the need to replace the flashings.

Where an existing chase is present in the upstand, any existing filler should be removed to allow the membrane to be dressed in. The chase should then be re-pointed with a suitable mastic/filler in accordance with the manufacturer's instructions.

Traffic management

It is common to carry out repairs and preparation work on a phased basis in live car parks and it is therefore extremely important to consider traffic management and the safety of the general public. These considerations should be covered in health and safety method statements.

Contractors should make the client aware of cure periods during which the liquid waterproofing area must not be trafficked either by the public or vehicles. Access should be prohibited with suitable traffic and pedestrian management.

Prior to opening up the area, contractors should carry out a joint inspection with the client to sign off the deck ready for trafficking.

Training

All contractors involved in applying liquid coatings on car park decks must have had the appropriate training not only so they can apply the waterproofing effectively but so they can identify potential problems with the materials to be used, how laying conditions may affect the end product, and how the substrate should be prepared prior to applying materials.

To access the full Code of Practice for car parks, visit the 'Downloads' section at www.lrwa.org.uk.

For more information or advice, please contact us at technical@lrwa.org.uk