

# UNI-GROUP U.S.A.

## Specialized Installations

### Overview

As with standard installation of interlocking concrete pavers, the information shown here provides general guidelines for the types of applications shown. Contact your local UNI<sup>®</sup> Manufacturer for detailed information and assistance on these types of pavement installations.

It is recommended that installation be performed by experienced interlocking concrete paver contractors. Pavement design and installation varies with climate, available construction materials, design methods, soil conditions, and traffic loads. A qualified engineer, architect, and/or landscape architect should be consulted in these types of concrete paver applications.

### Pavement Overlay/Inlay

Existing asphalt or concrete pavements can be overlaid or inlaid with UNI<sup>®</sup> Interlocking Concrete Pavers. The surface of the existing pavement can be milled out and replaced with bedding sand and the pavers.

Drainage of excess moisture in the bedding sand should be considered during the early life of the pavement. Drill or cast vertical holes at the lowest elevations of the pavement, or direct drain holes to catch basins. Drainage openings should be covered with geotextile to prevent loss of bedding sand. It may also need to be applied at pavement joints and cracks. Any cracks 3/8 inch (10 mm) or larger should be patched prior to placing geotextile, bedding sand, and pavers.

### Parking Decks & Roof Plazas

UNI<sup>®</sup> Concrete Paving Stones can be utilized on parking garage decks and on pedestrian roof deck applications. They provide ballast for water-proof membranes and as a heat sink, they reduce thermal stress on the membrane. The roof structure should be waterproofed, designed to withstand loads, and be sloped to at least 2% to drain. Protection boards should be used according to the waterproof membrane manufacturer's instructions. Geotextile is applied around roof drains to prevent migration of bedding sand. The drains should have holes at the level of the waterproof membrane to allow for removal of subsurface water.

### Embankments and Slopes

UNI<sup>®</sup> Pavers can also be used for soil erosion control of embankments (with the exception of UNI Eco-Stone<sup>®</sup> pavers). A backfill of open-graded aggregate with drains at the bottom of the slope is suggested to relieve hydrostatic pressure.

Pavers that are restrained at the sides and top of the slope should have adjacent areas graded and sloped so that water runs away from the restraints. Vehicular pavements with slopes between 8% and 12% may require concrete header beams. For slopes 12% to 15%, the recommended maximum spacing for header beams is 100 ft (30 m). The maximum spacing of headers for slopes between 15% and 20% should be 65 ft (20 m). Slopes of 20% to 25% should have beams spaced no further apart than 50 ft (15 m).

Drainage of water in the bedding sand layer and base is essential along the upslope side of the concrete headers. When an aggregate base is used, water can be removed by prefabricated geocomposite drains. When the pavers and sand are installed over asphalt or concrete, several geotextile-covered drain holes should be in these pavements on the upside slope of the header. Water collected by either of these methods should be directed beyond the edge restraints of the pavements.

The overall dimensions and steel reinforcement within the concrete headers will depend upon traffic loads and on base design. Minimum recommended dimensions are 6 inches (150 mm) wide and 12 inches (300 mm) deep. The crossfall of the pavement should be at least 2% from the center.

The joint sand between the pavers should be stabilized with a sealer to prevent washout. Please see our Kansas Interstate Highway 35 Slope Case Study for more information.

## **Pool Decks**

UNI® Concrete Paving Stones are ideal for residential and commercial swimming pool decks, as they are slip-resistant and can allow drainage of water. The base can be either compacted aggregate or existing concrete. An application over existing concrete would require drain holes at the lowest elevations to remove excess moisture in the bedding sand layer. A neoprene sealant and backer rod should be placed between the pavers and the pool coping.

## **Rigid Pavements**

Interlocking concrete pavements work best as a flexible pavement system. The many advantages and benefits of concrete pavers may be minimized with installation as a rigid pavement system. Concrete pavers can be set in a mortar or asphalt setting bed if specifically required. Joints are still filled with sand, and may occasionally be filled with cement-stabilized sand.

Bitumen-set pavers can be placed in vehicular areas, with accommodation made for draining excess water from the base supporting the bitumen bedding layer. Pavers mortared directly to a concrete base using an acrylic fortified mortar should only be used in non-freeze-thaw areas. There are also specially formulated adhesives for adhering concrete pavers to concrete that will not stain the surface of the pavers with mortar, and they can be used in cold climates. It is recommended that mortared pavers and adhesive-set pavers not be used for vehicular applications.

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