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Installation Manual

Installation steps include job planning, layout, excavating and preparing the soil subgrade, applying geotextiles (optional), spreading and compacting the rock sub-base and/or base aggregates, placing the bedding layer, constructing edge restraints and placing the pavers.

Job Planning

1. Prior to excavating, check with the local utility companies to ensure that digging does not damage underground pipes or wires. Many localities have one telephone number to call (811) at least two days before excavation. Mark excavation location in white.
2. Overhead clearances should be checked so that equipment does not interfere with wires.
3. Site access by vehicles and equipment should be established so that the job can be built without delays.

Layout

1. In preparing for excavation, the area to be removed should be marked with stakes. The stakes should be a slight distance away from the area to be removed so that they are not removed during excavation. The stakes should be marked to establish grades, or have string lines pulled and tied to them. Grade stakes should be checked periodically during the job to insure that they have not been disturbed.

Excavating, Drainage and Preparing the Soil Subgrade

1. During and after excavation, the soil should be inspected for organic materials or large rocks. If organic materials, roots, debris, or rocks remain, they should be removed and replaced with clean, compacted backfill material.
2. Free-standing water saturating the soil should be removed. After it is removed, low, wet areas can be stabilized with a layer of crushed stone and/or cement. Additional drainage is recommended in clay soils or other slow draining soils subject to vehicular traffic.
3. Do not compact the soil subgrade, unless stated to do so by a registered professional engineer. Monitoring soil moisture content is important to reaching the desired soil stability. The moisture content of the subgrade soil should be verified for compliance to specifications before installing geotextiles, if necessary.

Applying Geotextiles (Optional)

Geotextile fabric may be used in areas where soil remains saturated part of the year, where there is freeze and thaw, over clay and moist silty subgrade soils, or where traffic loads require additional support. When geotextiles are used, they preserve the load bearing capacity of the base over a greater length of time than placement without them.

1. As a separation layer, they prevent soil from being pressed into the aggregate base under loads, especially when saturated, thereby reducing the likelihood of rutting.
2. The minimum overlap should be at least 12 in. (300 mm).
3. When placing the fabric in the excavated area, it should continue up the sides of the opening to help wrap and contain the rock sub-base and base layers above. (A minimum of 6 to 12 inches is recommended as a wrap, over the top edges of the base, depending on over excavation.)
4. Fabric should be free of wrinkles on all sides. When the aggregate is dumped on the fabric, the tires from trucks should be kept off the fabric to prevent wrinkling.

Spreading and Compacting the Rock Sub-base and/or Base Aggregates

Rock Sub-base and/or Base Aggregates

1. The rock sub-base, if needed, should be composed of a free draining material, with gradation of 3 in. (75mm) to ¾ in. (19mm), clean crush, no fines. (ASTM No. 2 Grading Requirement.)

2. The rock base should be composed of a free draining material, with gradation of 1 ½ in. (37.5mm) to No. 8 (2.36mm), clean crush, no fines. (ASTM No. 57 Grading Requirement.)
3. The thickness of the sub-base and base is determined by traffic, soil type, subgrade soil drainage / moisture, and climate. Sidewalks, patios and pedestrian areas should have a minimum base thickness (after compaction) of 4 in. (100 mm) over well-drained soils. Residential driveways on well-drained soils should be at least 6 in. (150 mm) thick. In colder climates, continually wet or weak soils will require that bases be at least 2 in. (50mm) to 4 in. (100mm) thicker.
4. Frozen base material should not be installed, nor should material be placed over a frozen soil subgrade.
5. Adequate compaction of the base, and sub-base, if needed, is critical to minimizing settlement of the pavers. Special attention should be given to achieving compaction standards adjacent to edge restraints, catch basins and utility structures. (Generally, spread and compact in 2 to 3 inch lifts.)
6. The aggregate base should be at its optimum moisture, when spread and compacted.
7. Bases for pedestrian areas and residential driveways should be compacted a minimum 95% of standard Proctor density. While the highest percentage compaction (100%) is preferred, it may not be achievable on weak or saturated soils. Maintaining consistent lift thickness during compaction will help achieve consistent density.
8. Variation in final base surface elevations should not exceed ± 3/8 in. (±10 mm) when tested with a 10 ft. (3 m) straight edge.

Constructing Edge Restraints

Edge restraints are recommended for all Xeripave installations. By providing lateral resistance to loads, they maintain continuity among the paving units. Aluminum, steel, plastic, or concrete are typical edge restraints.

1. Edge restraints must be set at the correct level and their elevations should be checked prior to placing the pavers. Edge restraints are typically installed before the bedding layer and pavers are laid. However, some restraints can be secured into the base as the laying progresses.
2. For walkways, set one side of edging, then using a 2x4 (cut to path width) lay across stone base and set edging at other side of walk to maintain consistent spacing. (Measure a course of full pavers to desired width of path, to decrease cuts.)

Bedding Layer

1. For the bedding layer, 1 in. (25 mm) of clean crushed aggregate, 1/4 in. to 3/8 in. (6 mm to 10 mm) stones containing no fines should be installed over the rock base.
2. Bedding layer should be spread and screeded to proper thickness. **(Do not compact bedding layer, unless it is for a vehicular application, or instructed to do so by the design professional.)**
3. Bedding sand and finishing joint sand, which is used in traditional paver installations, are NOT RECOMMENDED for Xeripave as it reduces filtration rates and sand may shift due to high rate of permeability of pavers.

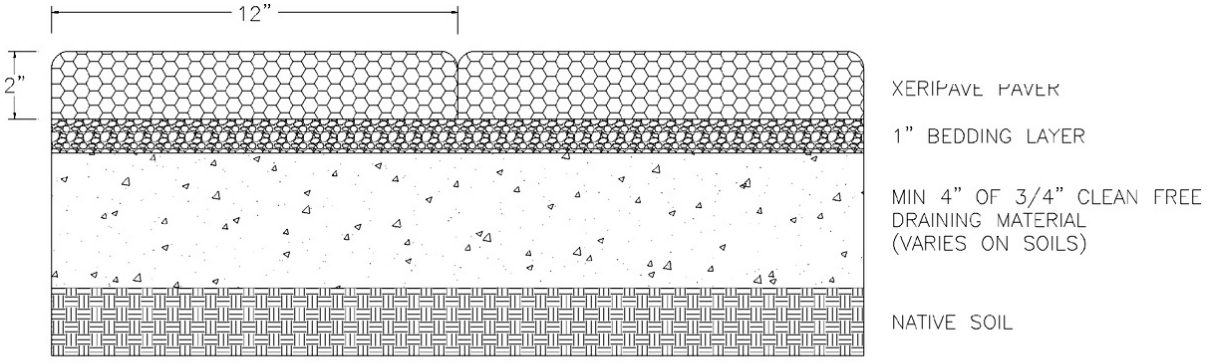

FIGURE 1 – TYPICAL CROSS SECTION
(12x12x2")
NOT TO SCALE

Installers should note that Xeripave pavers have a "top side" and a bottom side. The top of the paver is the side with the filleted, or rounded, corners. Care should be exercised to ensure that the pavers are installed "top side" up. Be aware that installing pavers "top side" down will void any warranty claims with Xeripave.

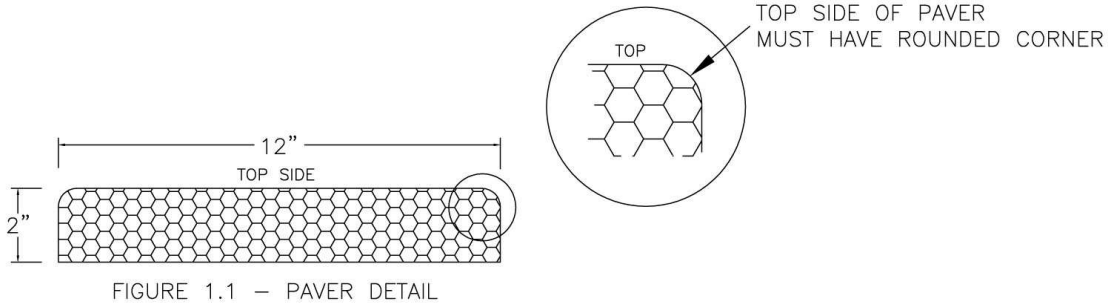

FIGURE 1.1 – PAVER DETAIL

Placing the Pavers

1. Chalk lines snapped on the bedding grade or string lines pulled across the surface of the pavers should be used as a guide to maintain straight joint lines. Buildings, concrete collars, inlets, etc., are generally not straight and should not be used for establishing straight joint lines.
2. If using grout between pavers, add the grout strip to each paver width to allow for the gap between each unit.
3. Cut pavers should be used to fill gaps along the edge of the pavement. Pavers may be cut with a diamond bladed masonry saw fitted with continuous water feed. DO NOT ATTEMPT TO CUT THE PAVERS DRY. Wash cut paver immediately to remove any dust or particulates.
4. After an area of pavers is placed, it should be compacted with a vibrating **rubber** plate. (Do not use metal plate directly on pavers.)
5. If necessary, a proper polymer grout, mixed to the grout manufacturer's specifications, should be used for joint lines.
6. **Any vehicular application should be grouted.** Insert appropriate backer rod into joints. Apply grout mixture with a trowel; ensuring exposed surfaces are protected from spillage. Exposed surfaces should be covered prior to grouting. Exposed paver surfaces will be damaged if grouting is spilled on the paver and permitted to dry. Grout joints should be overfilled and ironed in with a pointing tool. (A grout or mortar bag can also be used to fill joints with grout, where pavers are properly spaced.) **(If grout is used in joints, bedding layer must be compacted before pavers are placed. Consider this, when calculating excavation depth.)** ***(For more detailed information of vehicular applications, please contact the manufacturer.)***
7. While a small amount of settling is typical for all flexible pavements, final surface elevations should not vary more than ±3/8 in. (+10 mm) under a 10 ft (3 m) straightedge, unless otherwise specified. Bond or joint lines should not vary ±1/2 in. (15 mm) over 50 ft (15 m) from taut string lines.
8. The top of the pavers should be 1/8 in. to 3/8 in. (3 mm to 10 mm) above adjacent catch basins, utility covers, or drain channels, with the exception of areas required to meet ADA design guideline tolerances. The top of the installed pavers may be 1/8 in. to 1/4 in. (3 mm to 6 mm) above the final elevations to compensate for possible minor settling.

WARNING: The Xeripave installation manual is intended for use only as a guideline. It is NOT intended for use or reliance upon as an industry standard, certification or as a specification. Xeripave makes no promises, representations or warranties of any kind, expressed or implied, as to the content of this manual and disclaims any liability for damages resulting from the use of this manual. Professional assistance should be sought with respect to the design, specifications and construction of each project.