PAVERS INSTALLATION GUIDE

HARDSCAPES & MASONRY



STEP-BY-STEP INSTRUCTIONS

JOB PLANNING

Before commencing any paver installation work the location of underground utilities must first be determined on the job site, prior to excavation, by contacting local utility companies to mark locations on site. Identify the area to be excavated and mark out with spray paint.

NATURAL STONE PAVERS

Due to their geological properties, Polycor natural stone paving products withstand the test of time and meet the demands of high foot traffic areas in outdoor spaces. With no added dyes or pigments, Polycor's natural stone surfaces will not discolor with exposure to UV rays, rain, or frost.

LAYOUT & SITE PREPARATION

Place grade stakes / batter boards with string lines about 12" outside the area to be excavated, marking the elevations on them so the depth of excavation can be checked as it progresses.

Use nylon mason's line and set at finished elevation of the pavement. Measure all future excavations and base thickness from these lines. Set initial elevations and check them at the beginning of each day with a transit level. String lines set at final or finished elevations should be sloped at a minimum 3/16" for every foot and away from the direction of houses or buildings to direct water runoff.

PREPARATORY WORK

Excavate unsuitable, unstable, or unconsolidated subgrade material as dictated by soil classification on jobsite and compact the cleared area using fill and level with densely graded crushed stone aggregate suitable for subbase material, or as otherwise directed by Specifying Authority.



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SOIL CONSIDERATIONS

Gradation of soil on site is an important consideration when determining the performance criteria required for paving. The size and distribution of the particle size greatly influences its performance. Soils range from course to fine grained with sandy soils being coarse and clay soils having the smallest or finest particles, thereby making it less permeable. Perform soil tests to guide base compositions and preparations. ASTM D 422, Standard Test method for Particle Size Analysis of Soil Fines is commonly used for sieve analysis of soils. ASTM C 136, Standard Test Method for Seive Analysis of Fine and Coarse Aggregates is common for aggregates.

BASE

Dense graded aggregate base materials will vary by region and quarry certifications, but aim for using a crushed stone base material that does not have too much fines in the mix that it retains water and impedes drainage or could potentially lead to frost heaving (recommended 3/4", 0-20 mm or No. 78 stone). Conversely, if there's too little fine material it could lead to bedding sand migrating into the surface of the base.

General minimum base thickness (after compaction) for sidewalks, patios and pedestrian areas in North America is 4" (100 mm) over well-drained soils. Base should have some moisture in it in order to achieve a high density when compacted. Wet base material and compact thoroughly with a vibrating plate compactor (minimum 5,000 lbf, 22kN compactor) to a height adequate for your base soil type. Install base material in 4" lifts, compacting between layers. For clayey or silty soil make the foundation 6" to 8" of material. For sandy or gravelly soil, make the foundation 4" to 6" of material. The base should extend beyond the finished edge of the design by an extra width equal to the foundation thickness. Frozen base material should never be compacted, nor should material be placed over a frozen soil subgrade. Base levelness tolerance should be a maximum +/- 3/8" for every 10' increment.

COMPACTION

A common error in compacting soil or base is compacting it all at once. Instead, soil and base should be compacted in layers, or lifts. A lift of loose soil or aggregate is placed and compacted, and then another loose lift is spread and compacted, continuing until the soil or base is brought up to the desired elevation. No precise lift depth exists for soil or base compaction, but it's generally better to work in thinner 2" - 4" layers at a time to reach appropriate compaction, parallel to the finished grade.

High force compaction equipment can compact thicker lifts. Consult with compaction equipment manufacturers for guidance. Frozen base material should not be installed, nor should material be placed over a frozen soil subgrade. The thickness of the base is determined by traffic, soil type, subgrade soil drainage and moisture, and climate. Sidewalks, patios and pedestrian areas should have a minimum base thickness (after compaction) of 4" (100 mm) over well-drained soils.



CALEDONIA™ granite Slab pavers

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SETTING BED

Place bedding course of sharp, normal weight limestone screening or bedding sand on an even base surface. Sand should have symmetrical particles free of mud or foreign materials. Flat or elongated particles will not compact completely and will settle unevenly over time. Sand should not be used to fill depressions in the base. Check evenness of the base surface with straightedge, or by other means, prior to placing sand (+/- 3/8" over 10' maximum). A non-graded subsurface will be evident after installation. Bring bedding sand layer to 1" thickness, leveling and screeding to grade. Do not compact the bedding sand before pavers are set.

A common mistake is to use mason's sand for the bedding. Mason's sand is finer than concrete sand and is used to make mortar. Fine mason's sand used as bedding for pavers can produce a wavy appearance in the paving surface.

INSTALLATION

Dampproofing the Stone (For Indiana Limestone materials only).

A cementitious-based dampproofing should be applied to the backs and all unexposed sides of the stones to protect the stones from moisture sources and prevent staining.

Install pavers on to the setting bed in the shape dictated by the design or pattern required with 3/8" spacing between paver edges. Lay every paver course true and even, bringing up to grade level, keeping the pavers parallel to the base line by using rubber mallets or similar tools. Walk on paving stones while installing them to ensure they stay level when foot pressure is applied. If pavers wobble or are out-of-plane with the surface, remove the paving unit and add additional sand to level. Paving stones on the edge of a design can be cut using an angle grinder fitted with a masonry blade or a concrete saw. Ensure that the blade used on an angle grinder has sufficient depth-of-cut for your application. After the pavers are laid, the surface should be swept and inspected.

SWEEPING JOINTS / JOINT SAND

Joint sand provides vertical interlock and shear transfer of loads. Select your material accordingly for fill between stones. Concrete sand is sufficient, decomposed granite is also an option. If using decomposed granite – do not use decomposed granites with resins or stabilizers. It is not recommend to use polymeric sand with our INDIANA LIMESTONE - FULL COLOR BLEND[™] paving products based on understanding of current products. New products are brought to market consistently - refer to manufacturer's recommendations and test compatibility before completing a project installation. Spread out your selected fill material and sweep in between joints in all directions. Sweep once more and remove excess sand or decomposed granite. Broom sand into joints, tamping sand in joints to ensure full bedding around perimeter of stone.

EDGE RESTRAINTS

Restraints help to hold pavers tightly together and prevent pavers from spreading from horizontal forces of settling and foot traffic. Edge restraints are designed to remain stationary and are recommended along the perimeter of pavers. The compacted aggregate base should extend beyond the restraint the same dimension as the thickness of the base material (if the base is 6" thick, then it should extend at least 6" beyond the outside edge of the restraints. Soil backfill is not a suitable edge restraint and they should never be installed on top of bedding sand. A variety of edging is available. Spikes for the edge restraints must be installed into the compacted foundation and not the soil. Utilizing a polymer landscape edging is optional but will aid in retaining shape of paved walkways and patio areas.

If there is a possibility of sand loss from beneath the pavers, or between the joints of the edge restraints, then geotextile (filter cloth) is recommended to prevent migration. A 12" wide strip can be applied along the base and turned up along the sides of the restraints.



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