

Installation Guidelines

Interlocking Concrete Pavers and Slabs

County Materials provides general construction guidelines to design professionals and installers of interlocking concrete pavers. For additional installation information, reference the Interlocking Concrete Pavement Institute's (ICPI) Tech Spec Technical Bulletins.

Installation Guidelines

EXCAVATION

- A** Before excavating, call all local utility companies (e.g., phone, gas, electrical) to ensure the area in which you plan to dig is clear of underground utilities.
- B** When excavating, it is important to achieve a slope in increments of 1.5% (3/16" per ft./5 mm per 300 mm), which will allow for proper drainage. The excavation should mirror the final grade of pavement.
- C** The width of your base behind your edge should be equivalent to the thickness of the base.
- D** Grade the bottom of your excavated area. If the natural soil is granular or sandy, the industry recommends you compact the soil with a vibrating plate. If the soil is clay-like, change the soil with a blend of lime and crushed stone prior to compaction. Next, cover it with a layer of geotextile fabric to prevent the contamination of your base (clay and 0-3/4" [0-20 mm] crushed stone).

BASE MATERIAL

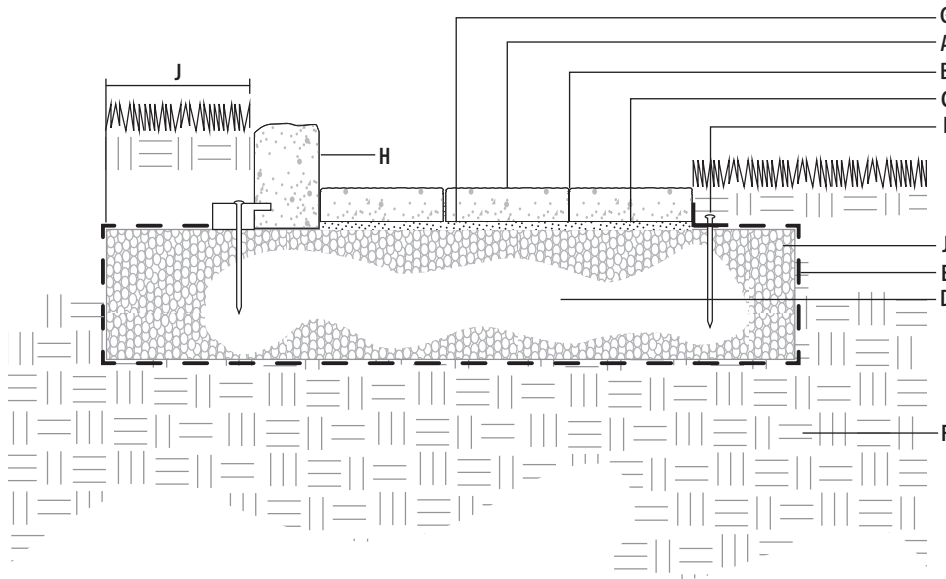
- A** Install your 0-3/4" (0-20 mm) crushed stone base, in 4" (100 mm) lifts with a (minimum 5000 lbs [22 kN] vibrating plate) compactor.
- B** To facilitate compacting, wet your base material thoroughly and compact with a vibrating plate proceeding in all directions. Continue this process until you achieve your desired height. At this stage, you can verify your final height with the help of a paver.
- C** Base tolerance $\pm 3/8"$ (10 mm) for every 10' (3-m) increment.

THE SETTING BED

- A** On your compacted crushed base, install two pipes (outside diameter of 1" (25 mm). Grade the concrete sand with the help of a straight edge. If the base isn't properly graded and smooth, imperfections will be evident in the finishing grade of the pavement.
- B** Bedding sand should not be compacted until all paving stones have been laid down. Passing the vibrating plate over your paving stones causes them to settle approximately 3/8" (10 mm) into your bedding sand.

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- A County Materials Concrete Paving Stones (ASTM C936). Paver surface pitch for positive drainage (minimum 2%. 1/4"/ft, [6mm/300mm])
- B Sand joint material (ASTM C144)
- C Sand setting bed: 1" (25mm) before compaction (ASTM C33)
- D Base stone depth varies with soil type, climate, load and water table
- E Geotextiles
- F Subgrade soil; classified and properly graded
- G Geotextile strip to prevent downward sand migration
- H Edge restraint
- I Edge restraint (PVC, aluminum) anchored to base stone
- J Base stone extends beyond edge of pavement to a minimum of 6" (150 mm) or equal to depth of base stone

INTERLOCKING CONCRETE PAVEMENT INSTALLATION

Typical cross section

MOCK-UP SAMPLE UNITS

Before project installation begins, construct a separate mock-up sample panel of not less than 7 feet by 7 feet with units in the pattern, type, color, finish and shape specified. This sample panel must be completed for evaluation of surface preparation techniques, application workmanship, as well as the application methods for any jointing materials, and cleaning and sealing agents.

INSTALLATION OF PAVING STONES

- A Once the choice of paving stones and the design has been finalized, it is recommended that you start installing your pavers at a 90-degree angle. This is realized by proceeding as follows: measure a first horizontal line 3' (1-m), and a second line of 4' (1.2 m) perpendicular to the first. You then connect a third straight line of 5' (1.5 m) which will form a triangle, and the result will be a perfect 90-degree angle. While installing your paving stones, walk on the installed pavers, and fill in gaps caused by the pipes with concrete sand.
- B Because concrete units are manufactured with high quality, naturally-mined aggregates and materials, variations in color or shading should be expected in products that are manufactured at different times and in units having different shapes. This color or shading variation is acceptable in the industry.

The contractor must install concrete units in accordance with the landscaping industry's best practices, according to ICPI standard specifications, and the manufacturer's instructions. Install units from several pallets to ensure distribution of color. County Materials is not liable or responsible for loss or damage resulting from improper storage, handling, maintaining the products or failure to follow installation instructions. Follow recommended warnings, advisories and instructions.
- C You may use a chalk line to mark the stones to be cut along the borders, after which you can then cut using a guillotine or a concrete saw. When cutting paving stones, always wear personal protective equipment.
- D Once you finish installing your paving stones, you can then install the specified edge restraint. In a vehicular traffic application, the concrete must be reinforced using steel rods.

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JOINT MATERIAL

There are many different jointing materials specific to application requirements and desired results. Joint material should be completely removed from the surface of the pavers. ASTM C144 specifies natural sand as the paver jointing material for use with County Materials' concrete pavers, along with a sand joint stabilizer. Polymeric sands should not be used on pavers with heavily textured surface. Use of joint material must comply with all instructions provided by the joint material manufacturer, and the joint material method must be performed on a separate mock-up sample not less than 7 feet by 7 feet prior to Buyer approval. County Materials accepts no responsibility or liability for the use of joint material with our concrete pavers.

VIBRATING PLATE ALERT! - Paver and patio stone surfaces require a buffer between the plate compactor and the paver surface to prevent scuffing. Pavers with embossed surfaces (high and low points) are more susceptible to scuff marks from plate compactors. County Materials accepts no responsibility or liability for compaction scuffs or burns on pavers.

EFFLORESCENCE

Efflorescence is a naturally occurring process in all concrete products which may appear in the form of a white powdery film on the unit's surface. Efflorescence may be more perceivable in darker colors. It does not, in any way, compromise the functionality or the structural integrity of the product or your installation. Although efflorescence cannot be prevented, it will wash off over time or it can be cleaned with an industry cleaner. County Materials accepts no responsibility or liability for the occurrence of efflorescence.

POLYMERIC HAZE

Polymeric haze from the use of polymeric joint sand may appear on concrete paver products if the sand was not installed properly or removed from the surface of the pavers properly. This does not, in any way, compromise the functionality or the structural integrity of the product or your installation. The hazing will weather away naturally with time and rain. Polymeric haze may be removed with an industry cleaner. County Materials accepts no responsibility or liability for the use of polymeric sand with our concrete pavers or any occurrence of polymeric haze or other undesired result.

CONSTRUCTION RESIDUE

A possible by-product of cutting concrete units during installation with a saw is residue-filled water or concrete dust. Residue-filled water or re-hydrated dust can cling to the surface of units and leave a concrete stain. It is recommended to wash and remove the water or concrete dust from the surface of the pavers before it dries. Construction residue can also happen through soil disturbance or environmental elements. These contaminants should be removed immediately; they do not compromise the functionality or the structural integrity of the product or your installation. County Materials accepts no responsibility or liability for the occurrence of construction residue or concrete stains.

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WASHING GUIDELINES

Seasonal maintenance is recommended for all County Materials pavers and slabs. General washing guidelines are provided for the following: organic stains, including fruit, soil and leaf residue, algae and moss stains, and efflorescence. For efflorescence stains, wash with a hose and stiff broom or pressure washer. Care must be taken if pressure washing is done to avoid removing excess joint sand or damaging paving material. Water pressure should be comparable to the average pressure from a home watering hose.

CLEANING AGENTS

Concrete cleaning agents are not required but are an option for all County Materials pavers and slabs. There are many different cleaning agents specific to application requirements and desired results. Use of the cleaning agent must comply with all instructions provided by the cleaning agent manufacturer, and the cleaning agent method must be performed on a separate mock-up sample not less than 7 feet by 7 feet prior to Buyer approval. County Materials accepts no responsibility or liability for the use of cleaning agents on our pavers and slabs.

SEALERS

A concrete sealer application is not required on County Materials pavers and slabs but is an option. There are many different sealing agents specific to application requirements and desired results. Use of the sealing agent must comply with all instructions provided by the sealing agent manufacturer, and the sealing agent method must be performed on a separate mock-up panel not less than 7 feet by 7 feet prior to Buyer approval. County Materials accepts no responsibility or liability for the use of sealers on our pavers and slabs.

COMPACTOR & SNOW REMOVAL EQUIPMENT

Textured paver and patio stone surfaces require a buffer between the plate compactor and the paver surface to prevent scuffing. Refer to County Materials' Interlocking Concrete Paver or Slab Installation Guidelines. Also, snow removal equipment should have the proper spacing, bumper, and rubber blade guards to protect the surface of the pavers. County Materials accepts no responsibility or liability for damage caused by the use of compaction or snow removal equipment that may leave scuffs, burns or other markings on pavers.

PROPER LIFETIME CARE

Refer to County Materials' Care and Maintenance Guide for Pavers and Patio Products for year-round care and maintenance recommendations.

Buyer is responsible for proper use, handling, maintenance and installation of product as determined by the manufacturer and industry standards. Product has a fitness for a particular purpose. Use and/or application of product not intended by the manufacturer and not in compliance with industry standards is not recommended. Use and/or installation and application are the sole responsibility of the Buyer.