

PERMEABLE INTERLOCKING CONCRETE PAVERS CONSTRUCTION CHECKLIST

PRE-CONSTRUCTION MEETING

Meeting should be conducted with the owner, engineer, general contractor and paver installer.

- Verify site layout conforms to Site Plan.
- Determine when pavement is scheduled in the construction sequence.
- Verify what level of subgrade soil compaction is acceptable (if any), and what measures will be required should over compaction occur (e.g. scarifying).
- Verify that everyone understands preventing and diverting sediment from entering the aggregates and pavement surface is of the highest priority.
- Confirm that the proposed sediment control measures will be adequate.
- Confirm that construction traffic will not be using the area once pavement installation starts or that an overlay is going to be used to protect the system for the duration of the project or that the owner understands that remedial maintenance will be required at the completion of all site construction at their cost.
- Ensure any areas that generate run-on to the permeable pavement will be stabilized before the sediment control measures are removed.
- Designate material storage area(s). Identify access routes and delivery truck unloading area(s).
- Review Physical Mock Up (where required) and verify written approval.
- Verify laying pattern for pavers, including borders and colors, match approved mock-up.
- Determine method for tagging and numbering concrete unit bundles delivered to the site (particularly important for large projects).
- Review Submittals (where required) and verify written approval.

CONFIRM RESPONSIBILITIES

- Subgrade inspection, testing and approval. By: _____
- Excavation and disposal of site soils. By: _____
- Installation of curbs and/or edge restraints. By: _____
- Installation of geotextiles/subbase/base & drainage components. By: _____
- Base testing and written approval. By: _____
- Installation of bedding layer and pavers. By: _____

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PRODUCT DELIVERY

Verify proper materials have been received and are in good condition.

Pavers: Type: _____ Finish: _____
 Size: _____ Thickness: _____
 Color: _____ Supplier: _____

Jointing Material (loose): Gradation Results Washed/Crushed Stone Confirmed
Jointing Material (bagged): Size: _____ Color: _____ Supplier: _____

Bedding aggregate (loose): Gradation Results Washed/Crushed Stone Confirmed
 Size: _____ Supplier: _____

Base aggregates (loose): Gradation Results Washed/Crushed Stone Confirmed
 Size: _____ Supplier: _____

Subbase aggregates (loose): Gradation Results Crushed Stone Confirmed
 Size: _____ Supplier: _____

Geotextile (if required): Brand/Type: _____ Roll Size: _____

Liner (if required): Brand/Type: _____ Roll Size: _____

Drain pipe (if required): Composition: _____ Diameter: _____
 Perforated and solid Matching fittings

Note: Use geotextiles and/or barriers to prevent loose aggregates (e.g. bedding chips) from becoming contaminated. Cover aggregate piles with waterproof tarps.

MOBILIZATION

- Mark construction area with paint and/or stakes.
- Verify utilities have been located and marked by local services.
- Verify linear sediment barriers properly installed, free of accumulated litter, and built up sediment.
- Rope off area to prevent unauthorized access.

EXCAVATION

- Excavate to the grades and elevations shown on the drawings.

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- Inspect soil subgrade. Address soft spots; remove roots, rocks or other debris.
- Confirm no groundwater seepage and/or standing water is present at subgrade.
- Where the system design calls for no subgrade compaction, inspect soil subgrade to determine if remedial work is required, and conduct necessary remedial work.
- Where the system design calls for subgrade compaction, verify soil compaction measurements per specification.
- Bottom of excavation to be within +/- 0.1 feet of the specified grades.
- Confirm design subgrade slope requirements are met. Note: Minimum slope of the subgrade is typically 0.5%.

LINER / GEOTEXTILE INSTALLATION

- Assemble liner (if required) per manufacturer's instructions. Once completed, liner tested for leaks with special attention to seams and pipe penetrations.
- Roll out geotextile (as required). Geotextile to be applied to the bottom and sides of the excavation with overlapping joints a minimum of 12 inches.
- Overlap to follow down slope.
- Do not allow wrinkles; pull taught and secure in place (use sandbags – DO NOT use stakes when a liner is being used).
- Inspect geotextile to verify no tears or holes.

SUBBASE INSTALLATION

- Install any perforated drains as shown on the drawings. Surround with minimum 4 in. of washed ASTM #57 stone or similar.
- Compact subbase aggregates in uniform layers not to exceed 6-inch loose thickness.
- Confirm subbase surface elevation is within +/- 1.5 in. of plan elevations.

Note: Attention will be paid to providing proper compaction near curbs, grade beams, concrete collars around utility structures, light standards, tree wells, building edges and other protrusions as applicable to the project. Areas not accessible to large compaction equipment, compact to specified density with mechanical tampers (jumping jacks).

EDGE RESTRAINT INSTALLATION

Adequate edge restraint shall be provided along the perimeter of all paving as specified.

- Confirm the face of the edge restraint, where it abuts pavers, is vertical.
- Verify concrete edge restraints are constructed to dimensions specified and are supported on a compacted subbase not less than 6 inches thick.
- Verify concrete used for the construction of edge restraints meets air-entrainment and compressive strength requirements as specified. All poured concrete shall be in accordance with ASTM C94 requirements.

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BASE INSTALLATION

- Verify the base aggregates to be installed are clean, and not contaminated.
- Confirm base aggregates are compacted in one 4-inch thick layer.
- Confirm finished base elevation is within +/- 3/4 inches of plan elevations.

Note: Attention will be paid to providing proper compaction near curbs, grade beams, concrete collars around utility structures, lights standards, tree wells, building edges and other protrusions as applicable to the project. Areas not accessible to large compaction equipment, compact to specified density with mechanical tampers (jumping jacks).

BEDDING AGGREGATE INSTALLATION

- Verify the bedding aggregates to be installed are clean, and not contaminated.
- Confirm bedding aggregate is spread evenly over the base course and loose screed with beam/bar or machine to a nominal 2inch thickness.
- Confirm bedding layer is +/- 3/8 in. over any 10ft. straightedge. Note: Bedding aggregate should not be used to compensate for an uneven base.

PAVER INSTALLATION

- Inspect pavers for chipped, damaged, or discoloration prior to installation. NOTE: mechanical installation may not comply with discoloration aspect for individual layers and should be addressed with Mock up review and approval.
- Confirm that the pavers are installed in the pattern(s) as shown on the drawings.
- Verify proper color blending, by ensuring installer draws from a minimum of 3 cubes for manual installation and 6 cubes for mechanical installation.
- Confirm consistent joint spacing between individual pavers, between cut paver and at edge restraints, buildings, collars, or other protrusions/edging.
- Confirm gaps greater than 3/8 in. are filled with cut pavers or edge units. Note: do not install cut pavers smaller than one-third of a whole paver along edges subject to vehicular traffic – trim two pavers to fit.
- Pavers may be cut with a masonry saw or a splitter, unless specified otherwise.
- Confirm installer uses a low amplitude plate compactor capable of at least 5,000 lbs. (22 kN) compaction at a frequency of 75 hz –100 hz, to compact the pavers into the bedding aggregate and the base material #57.

Note: The pavers shall be compacted to achieve consolidation of the bedding layer into the base material and brought to level and profile by not less than three passes. Initial compaction should proceed as closely as possible following the installation of the paving units and prior to the acceptance of any traffic or application of sweeping joint fill. Any paver units that are structurally damaged during compaction shall be immediately removed and replaced prior to joint fill application.

JOINT AGGREGATE INSTALLATION

- Confirm installer sweeps dry joint aggregate into paver openings and vibrate until they are full. Note: this will require at least two or three passes with the compactor.
- Confirm installer does not compact within 6 ft. of the unrestrained edges of the paving units.
- Confirm installer sweeps off excess aggregates when the job is complete.

FINAL INSPECTION CHECKLIST

- The pavers utilized are the type, thickness, and dimensions specified per the construction details.
- The edge restraint system is installed per the construction details.
- Paver joint openings are filled with the specified aggregate to at least ½-inch below the top of the paver.
- The area around the permeable paver perimeter is stabilized and covered with required vegetation or specified surface material
- Final paver surface elevations do not deviate by more than 3 /8 in. under a 10ft. long straightedge.
- The surface elevation of the pavers is 1/8 to 1/4 in. above adjacent drainage inlets, concrete collars, channels and curbing or edge restraints in pedestrian areas. Note: Vehicular areas may be 3/8" above similar penetrations.
- Lippage is not greater than 1/8 in. between adjacent pavers.
- The paver surface contains no deformations (depressions/settlement) exceeding ½-inch.
- Cracked paver units (if existing) have been removed and replaced.
- The installed surface slope is in accordance with the construction drawings.
- Drains and outfalls (if existing) related to the permeable pavement system are constructed for the free flow of water and connected to outlet structures in accordance with the construction drawings.
- Observation wells (if existing) related to the permeable pavement system have been installed in accordance with the construction drawings and have been accessed to confirm the reservoir is draining as designed (based on rain event size).
- The surface infiltration of the permeable pavement is at least 100 in./hour as tested in accordance with ASTM C 1781, *Standard Test method for Surface Infiltration Rate of Permeable Unit Pavement Systems*.