



icpi

Interlocking Concrete
Pavement Institute®

Interlocking Concrete Pavements - Inspection Checklist

March 18, 2015

Planning

Pre-construction meeting

- Scope review meeting (not a pre-construction review typical by GC)
- Attended by GC, inspector, excavating/base prep contractor, paver installer
- Confirm who is responsible for material testing

Determine

- Construction sequence: before/during/after building construction
- Paving direction(s)
- String/sailor course against curbs
- Square concrete collars for utility structures, trees wells & related structures
- Measures for ICP protection after completed work

Identify material stockpile locations

Review Detail drawings on the plans

- Manufactured edge pavers (if applicable)
- String or sailor course of pavers against curbs, and concrete collars for utility structures, trees wells, and other related structures
- Weep holes in curbs to drain rainfall on base during construction
- Drain holes in concrete or asphalt bases, and roof drains
- Geotextile covering control joints and other opens in the base and edge restraint where bedding sand loss may occur

Submittals

Aggregate and Sand Analysis

- Base aggregate conforms to state DOT or local county requirements for road base
- Bedding sand gradation conforming to ASTM C33 or CSA A3.1 FA1
- Joint sand gradation conforming to ASTM C144 or CSA A179

Note limits on percent passing the 0.075 mm (No. 200) sieve

- Other tests results (as required by specs) e.g. bedding sand degradation test
- All tests/reports within past 12 months
- Other tests results (as required by specifications) e.g. bedding sand degradation test

Concrete Pavers

- Thickness correct for application as specified by the design engineer
- Aspect ratio appropriate for application as specified by the design engineer
- Laboratory test results for ASTM C936 or CSA A231.2

- ASTM Compressive strength per ASTM C140: Average 8000 psi (55 MPa), min. 7200 psi (50 MPa)
- CSA cube/cylinder compressive strength at 7200 psi (50 MPa)
- Absorption per ASTM C140: Average no greater than 5%, min. no greater than 7%
- Freeze-thaw durability per ASTM C1645 or CSA deicing resistance test as appropriate
- ASTM optional abrasion durability per ASTM C 418
- Manufacturer's product (cut) sheets for specified paver(s)
- MSDS

Other Materials

- Samples of materials along with documentation of physical properties required to meet specifications
- Edge Restraint (if possible)
- Geotextiles
- Pipes

Installer/Sub-contractor Documents

- Installer job references: minimum two references of jobs of similar size and complexity
- Current ICPI Certified Installer: at least one person on-site with certificate (typically job foreman or crew leader)
- State, local licenses
- Contract specific insurances (liability, workers compensation, etc.), performance bonds

On Site Preparation

Mock-up

- Location, size, completion date
- Surcharge (settlement after plate compaction)
- Shows color range
- Joint widths per specs/manufacturer's literature
- Paver pattern(s) and direction per drawings

Storage

- Bound paver "cubes" with steel/plastic bands or plastic wrap
- Each paver cube labeled and numbered
- Paver cubes should may be stack up to 2 high only on level ground
- Keep pavers off unpaved ground surface by pallets, plywood, etc.
- Sand piles covered if wind or rain

Sediment management

- Access routes for delivery and construction vehicles identified
- Vehicle tire / track washing station (if specified in Erosion & Sediment plan/SWPPP) location / maintenance

Verify Site Conditions

Excavation and Base Installation (done by others)

- GC or other representative provides written certification that base conforms to specifications that can include (but not limited to):
 - Subgrade drainage
 - Subgrade compacted density
 - Geotextile materials and placement
 - Base materials and thickness
 - Base compacted density

- Base elevations, surface tolerance, and slope(s)

Foundation Walls

- Confirm foundation wall can support additional load due to additional fill and materials
- Materials are not placed against exterior wall materials like wood, aluminum, vinyl, brick, stucco

Verify Delivered Materials

Pavers

- Source on tags matches specification
- Dimensions match specification
- Colors match samples submitted and mock up
- Delivery amounts and dates recorded

Sands delivered to site

- Bedding sand gradation meets ASTM C33 or CSA A23.1 FA1
- Joint sand gradation meets C144 or CSA A179

Additional Materials

- Edge restraints matches specification
- Geotextile matches specification
- Cleaners match specification
- Sealers/joint stabilization materials match specifications

Install Interlocking Concrete Pavement

Environment/weather conditions

- No work in heavy rain or snow – bedding is not saturated
- No sand and pavers placed on frozen base
- No frozen sand

Prepare Base

- Dry base surface, free of all debris
- Installation of geotextile for preventing loss of bedding sand at weep holes, drains, and joints

Installation of Edge Restraint

- Elevation, placement meet specifications and drawings
- Edge restraint provided at perimeter of ICP. Installation details and timing dependent on type selected. See Tech Spec 3 and manufacturer's instructions for additional guidance.
 - Concrete curb or building foundation – installed before base is completed. Curbs may be installed on top of base aggregate. Completed before bedding or pavers are placed.
 - Direct Fastened – directly fastened or lag bolted to concrete base using corrosion resistant fasteners. May use plastic or metallic restraint. Some restraints may be installed before placement of bedding sand and pavers and completed afterwards.
 - Spiked – placed directly on base which extends well beyond outside of restraints. May use plastic or metallic restraint. Some restraints may be installed before placement of bedding sand and pavers and completed afterwards.

Installation of sand and pavers

- Sand screeded to 1 in. (25 mm) thickness (can be min. ¾ in. (20 mm) over concrete or asphalt base)
- String or chalk line to start and maintain straight bond lines (laser transit okay)
- Paving pattern matches drawings

- Cut pavers: no small than 1/3 paver in areas exposed to tires
- Joint width range among pavers matches specifications
- Adjust/straighten bond lines prior to initial compaction
- Cut pavers in place prior to initial compaction of given area
- Paver surface broom clean prior to initial compaction
- Minimum 5,000 lbf plate compactor for compacting pavers (minimum dimensions of plate?)
- Broken and chipped pavers marked, removed and replaced after initial compaction
- Use stabilized joint sand meeting specifications if required
- Joint sand evenly spread over surface of pavers prior to final compaction
- Joint sand dry before final compaction commences
- Simultaneous sweeping and vibrating sand into joints with minimum of 4 passes of plate compactor
- No compaction within 6 ft (2 m) of an unrestrained edge of pavers
- All pavers compacted within 6 ft (2 m) of the laying face at the end of each day
- Cover uncompacted laying face when threat of rain
- Remove excess sand after entire pavement is compacted and joints are filled to bottom of chamfer; broom clean
- If using stabilized joint sand activate according to manufacturer's directions

Quality Control

- Surface elevation of pavers $\frac{1}{4}$ (6 mm) above adjacent drainage inlets, concrete collars, or channels
- Surface elevations conform to drawings
- Pavers $\frac{1}{8}$ to $\frac{1}{4}$ in. (3 to 6 mm) above curbs, inlets, concrete collars and channels
- Lippage: no greater than $\frac{1}{8}$ in. (3 mm) difference in height between adjacent pavers
- Bond (joint lines) lines: $\pm\frac{1}{2}$ in. (15 mm) over 50 ft. (15 m) string line
- Check filling of joints with sand with putty knife: max $\frac{1}{4}$ in. (6mm) below chamfer edge at completion. Fill and re-vibrate if necessary

Cleaners and sealers

- Cleaning and sealing may or may not be a requirement of the project
- Apply according to manufacturer's directions
- Keep all traffic from sealed surface during curing (drying) time

Finish Project

Final Inspection

- Surface swept clean
- Elevations and slope(s) conform to drawings
- Transitions other paved areas separated with edge restraints
- Remove excess debris and materials from ICP area
- Punch list signed by inspector after inspection and repairs are complete
- Inspector to provide signed final inspection report to GC and paver installation contractor

Protection

- General contractor to protect paver area after paver installation subcontractor completes work and leaves site

Maintenance Pavers

- Delivery location, date and time
- Verify amount delivered