Permeable Interlocking Concrete Pavement (PICP) for Stormwater Management

Benefits and Uses

- Quantity, Pollutant Reduction, and Flood Control
- Recharges Groundwater
- Reduction in Stormwater Infrastructure (Piping, Catch-Basins, Ponds, Curbing, etc.)
- Suitable for Cold-Climate Applications, Maintains Recharge Capacity When Frozen
- No Standing Water or Black Ice Development During Winter Weather Conditions
- Maintains Traction While Wet
- Reduced Surface Temperatures; Minimizes the Urban Heat Island Effect
- Potential for Extended Pavement Life Due to Well Drained Base and Reduced Freeze-Thaw
- No curing time – ready for traffic upon installation completion

Limitations

- Requires Routine Vacuum Sweeping (Vacuum-Assisted Dry Sweeper Only)
- ICPI Recommends a PICP Installer Technician On-site During Installation
- Proper Soil Stabilization and Erosion Control Required to Prevent Clogging

Cost & Maintenance

Total Project Cost Can Be Comparable for PICP with Reduced Stormwater Infrastructure VS. Standard Pavement Applications where Stormwater Infrastructure is Required

- Paver Surface and Bedding Cost is 25-35% More Than Traditional Concrete
- Long-term Maintenance Required by Routine Vacuum Sweeping
- Sweeping Cost May Be Off-set by Possible Reduction in Deicing Costs
- Repairs Can be Made in Freezing Temperatures with Reinstated Concrete Paver Units and Aggregate Jointing/Bedding Materials

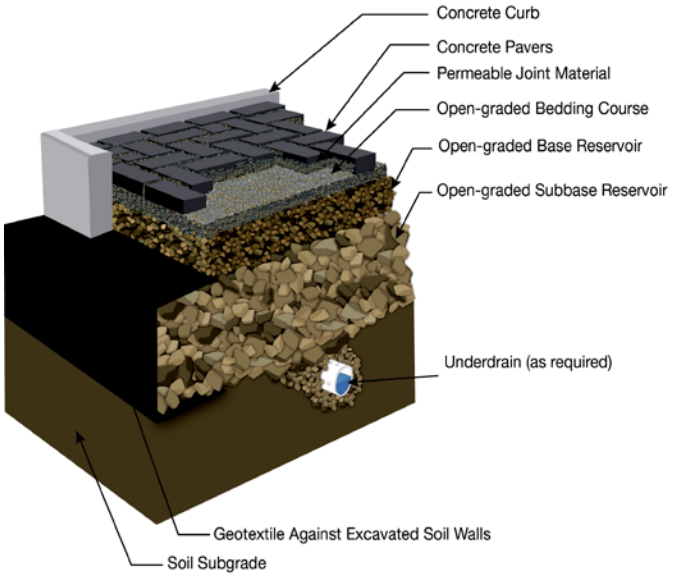
Design Criteria

*** Source: ICPI**

Recommended Soil Permeability 0.01 - 3.0 In./Hr

- Recommended Drainage Time 24-72 Hrs
- Use Underdrains to Remove Water That Cannot be Infiltrated within Drainage Time
- For Parking Lots, Alleys, Low-Use Roadways and Sidewalks
- Required Vertical Separation from Seasonal High Groundwater (1-3 ft. typical)
- Minimum Surface Infiltration (New) – 100 In./Hr and Minimum In-service Infiltration Indicating Vacuum Cleaning – 10 In./Hr Using ASTM C1781
- AASHTO Layer Coefficients: 0.3 for Concrete Pavers and Aggregate Bedding; 0.9 for Base Reservoir; 0.6 for Subbase Reservoir Thicknesses
- Can use stabilized open-graded bases for heavy traffic

TYPICAL CROSS-SECTION



Additional Resources

- US EPA Permeable Interlocking Concrete Pavement Fact Sheet http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&Rbutton=detail&bmp=136
- Interlocking Concrete Pavement Institute, *Permeable Interlocking Concrete Pavement* (2011)
- Interlocking Concrete Pavement Institute: http://www.icpi.org/