

ILLINOIS URBAN MANUAL PRACTICE STANDARD

Pervious and Porous Pavement

(square feet)

Code 890



Source: IUM Technical Review Committee

Definition

Alternate pavement systems are designed to allow water to pass through the surface into the subsurface for storage and infiltration and to also reduce peak runoff rates and volumes, as well as reduce pollution loads.

Purpose

The purpose of this practice is to promote volume reduction, peak flow reduction and to reduce pollution into downstream water bodies.

Conditions Where Practice Applies

This practice applies where pavement is desirable or required, including but not limited to:

1. Parking lots
2. Commercial use alleys
3. Driveways for residential and light
4. Low traffic roadways

5. Boat ramps
6. Paths and sidewalks
7. Fire lanes
8. Community spaces

Criteria

1. Permeable soils
2. Tributary area is less than 3 times the porous/pervious pavement area. Things that may affect this are: soil permeability, stabilization practice and amount of overland flow.
3. The site slope is less than 2%
4. If the soils are not permeable then some type of under drain system should be used when the sub-grade soil permeability is less than 0.5 in/hr.
5. Under drain use must require a storm drain infrastructure
6. If the depth of the water table is less than 2 feet below the finish surface, this practice should not be considered
7. To facilitate infiltration, a graded stone and/or geo-textile fabric (see Material Specification [GEOTEXTILE 592](#)) should be used
8. Heavy traffic loading will affect performance and longevity
9. Ice management; low or no chloride, no sanding or cinders
10. Use this practice with no sanding or cinders for ice management
11. Not suitable for storm water hot spots, areas with high pollutant loads or contaminated soils
12. Roadway and parking lot marking should be applied as paint vs. an adhesive tape
13. The base material shall be free of contaminants to allow for water passage
14. ASTM test C1701 should be used to identify the needed flow through the porous/pervious pavement layer

Considerations

1. Pretreatment of flows may be necessary.
2. A porous system is going to have more void space in its cross section than a pervious system, allowing more water passage
3. ADA compliant

4. Pollutants of concern shall be identified along with the appropriate Best Management Practices to address or mitigate them
5. Materials may consist of vegetation, interlocking blocks (P-ACM/M), unbound aggregate, concrete, asphalt, paver bricks and recycled glass
6. Recommend draw down time of the sub-surface layer to be less than 48 hours
7. Pipe under drains shall be sized for flow requirements. Perforations shall be slotted vs. round. A geo-textile may be needed (see Material Specification [GEOTEXTILE 592](#)).
8. Some practices are better suited to reduce contributions to the heat island effect
9. No seal coating or sealers can be used with this practice because of reduced volume of water flow
10. Street sweeping is one method that may help to remove debris; however, it may not remove debris far enough into the cross section
11. Should not be used for high-speed roads
12. Areas of concern if used would be:
 - a. Sediment laden runoff
 - b. High traffic counts
 - c. Heavy repetitive loading
 - d. Not accessible for maintenance
 - e. Non-permeable soils or a high water table
 - f. Removal of dissolved pollutants limited with under drain use
 - g. Near or up against basement walls

Plans and Specifications

Plans and specifications shall be prepared in accordance with the criteria of this standard and shall describe the requirements for applying the practice to achieve its intended use.

The extent of porous and pervious pavement shall be identified on the plans with sometime of cross hatching.

A cross-sectional detail showing locations and thickness of the materials needs to be included.

Installation sequence of materials may need to be listed.

A detailed specification should be developed to ensure the proper type of porous or pervious pavement is installed.

Standard Drawings

Pretreatment (IUM-xxx) – *to be developed*

Operation and Maintenance

1. No sanding or cinder use with this practice
2. Low or no chloride ice management
3. Rubber or plastic tipped snow plow blades shall be used
4. Clean out of pretreatment practices
5. Landscapes waste (leaves, clippings, branches, seeds, etc.) shall be removed or captured to prevent clogging of the surface
6. If flushing is the method of cleaning the cross section, the debris that is washed through must be removed
7. Air wands are one method of cleaning the cross section; however, care should be taken not to blow the debris deeper into the pavement

References

IL Urban Manual Technical Committee
Geosyntec Consultants Permeable Pavement Technical Document
Michigan DEQ