General Design Principles

Chapter 4

Layout/Grade/Slope

- Part of System
  - Supports traffic
  - Allows water to pass
- Water should flow vertically
- Minimize horizontal flow
- Storage in gravel base
- Can use pavement and ponding zone
- Flat system offers the maximum storage
Pervious Pavement Profile
Sandy Soil Subgrade

Subgrade permeability should be at least 0.5 inches per hour

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Pervious Pavement Profile
Silty or Clayey Subgrade Soils

Permeable subgrade compacted to 92-95% Modified Proctor
Filter Fabric

Curbs
Transition to Asphalt

Header Curb
Decorative Curb

Prevent Debris from Clogging Slab
Slope Grade Away from Pavement

Grade Pavement High
No Adjacent Dirt Parking

Islands/Vegetation
Pavement Grades

Filter Fabric may be Required to Stabilize Base

Base/Subgrade

COMPACT TO 92 - 95% OF MODIFIED PROCTOR
Base Thickness

- Typically 6 inches
- Greater than 6 inches to increase storage
- Greater than 6 inches for freeze-thaw
- Not required in some cases
  - Minimize root damage
  - Native soils highly permeable

Freeze-thaw Resistance

- Store water in aggregate base
- Dry Freeze
  - 4 – 8 in. of aggregate base
- Wet Freeze
  - 4 – 8 in. of aggregate base
- Hard Wet Freeze
  - 8 – 24 in. of crushed rock drainage base
  - Air-entraining admixture
  - Perforated drainage pipe
Pavement Thickness

- **Minimums**
  - 6” Parking lots
  - 6” Residential Driveways
  - 8” Streets
  - 8” Commercial Driveways

- **Consider Conventional Concrete Pavement**
  - Heavy truck traffic
  - High volume traffic

Storage Capacity

- Storage capacity typically governs design
- Depends on porosity of pavement and subbase
- 1” of pavement with 20% porosity can store 0.20”
- 1” of #67 stone base with 40% porosity can store 0.40”
- 6” pavement on 6” subbase can store 3.6” of rain

\[(20\%) \text{ 6 in.} + (40\%) \text{ 6 in.} = 3.6 \text{ in.}\]
Proper Joints

- 15’ typical
- 20 ’ max.
- Square panels
- Isolation joints as appropriate
- Align with joints in plain concrete
- No need to seal

Isolation Joint
Do not Seal Joints

Signage
Aesthetic Design

A Good Idea…
Colored Concrete

Striping
Design Aids

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