

UltraTM series

PERVIOUS



bringing materials to *life*[™]



AN EXCELLENT CHOICE FOR STORMWATER MANAGEMENT

Lafarge delivers a reliable Pervious Concrete design to help you achieve site sustainability demands.

UltraSeriesTM Pervious is an excellent choice for storm water management

Applications

Ultra Pervious is a concrete which typically contains 15 – 25% void space and allows water to pass directly through it. The most common uses of UltraSeriesTM Pervious are:

- Parking areas
- Street and roadway shoulders
- Patios and walkways
- Driveways
- Recreational areas
- Erosion control
- (UltraSeriesTM Pervious may also be integrally colored)

Economic Benefits

Stormwater management and land value can be costly components of land development. The use of UltraSeriesTM Pervious may provide significant cost savings because it:

- Eliminates the need for detention ponds and other costly storm water systems
- Allows for more efficient land development

Environmental Benefits

The Pervious surface replaces traditional pavement allowing stormwater to infiltrate into the soil. This allows for several environmental benefits:

- Reduces stormwater runoff
- Cleans stormwater
- Replenishes aquifers
- Protect streams and lakes
- Allows water and oxygen to reach three roots
- Provides Best Management Practice to meet Environment Protection Agency Phase II stormwater regulations
- Reduces the heat island effect

Engineering Properties

Fresh Properties

- Slump: (0-20 mm)
- Unit Weight: 70% of conventional
- Working Time: 60-90 minutes

Hardened Properties

- Density: (1600-2000 kg/m³)
- Permeability: (145-400 l/m² /min)
- Compressive Strength: (4-28 MPa)
- Flexural Strength: (1-4 MPa)

Durability

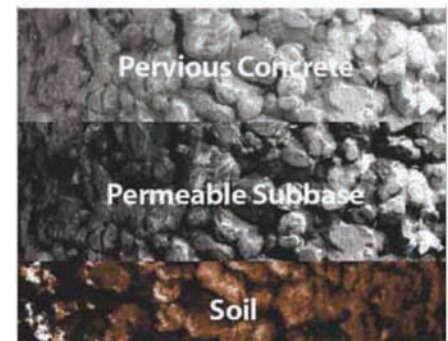
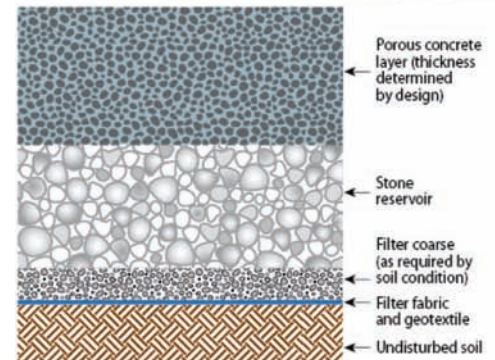
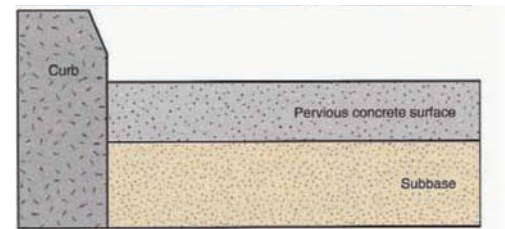
- Freez Thaw: Excellent performance in freeze thaw areas for systems that are designed to prevent water saturation

Safety Benefits

- Eliminates water accumulation (ponding) during heavy rains
- Reduces glare from wet pavement
- Mitigates risk of hydroplaning and skidding
- Improves visibility in lit areas at night due to lighter color

LEED Canada – New Construction 1.0 (Opportunities for LEED Credit Points)

- Stormwater Management (Sustainable Sites Credit 6.1)
- Reducing Heat Island Effects (Sustainable Sites Credit 7.1)
- Recycled Content (Materials and Resources Credit 4)
- Regional Materials (Materials and Resources Credit 5)
- Innovation in Design (Innovation and Design Process Credit 1)



RECOMMENDATIONS

DESIGN

Two factors determine design thickness:

- Hydraulic properties such as permeability and volume of voids
- Structural properties such as tensile strength

Select appropriate material properties and thickness for:

- Hydrological requirements
- Anticipated loading
- Larger of two values governs design thickness

SUBGRADE & SUBBASE PREPARATION

- Uniform subgrade support
- Compact subgrade to 90 - 95% of theoretical density
- Increasing compaction decreases permeability
- Consult local geotechnical engineer

CONSTRUCTION

- Not difficult to place
- Different from conventional concrete
- Stiff consistency and short setting time require special handling and placement
- Contractors use different techniques

TRANSPORTATION

- Place concrete within 60 - 90 minutes and use set retarding admixtures to extend discharge time
- Trucks need access to all areas of the slab
- Check jobsite accessibility for trucks

PLACEMENT

- Visually inspect for consistency
- Use unit weight test for consistency, not slump tests
- Placement should be continuous and rapid
- No pumping

Striking Off:

- Conventional forms are used
- Vibrating screeds are commonly used for strike off
- Strike off should be 15 - 20 mm above the forms to allow for compaction
- Do not over-vibrate the top surface

Compaction:

- Compact with steel rollers to height of forms
- Use hand tamper near edges and other places roller cannot reach
- Complete compaction within 15 minutes of placement
- No floating or troweling

JOINTING

- Many pavements are not jointed at all
- 6 m spacing if needed - 13.5 m spacing is successful
- Depth of joint = 1/4 slab depth
- Joint immediately after compaction

CURING & PROTECTION

- Fog mist the surface within 20 minutes of compaction
- Cover with plastic sheeting 20 minutes after placement and leave in place for 7 days
- Curing compounds may also be used

MAINTENANCE

- Minimal maintenance required
- Design site to minimize flow of soil & leaves to pavement
- Vacuum annually or as frequently as possible
- Power blowing or pressure washing is another option



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