



SPECIFICATION FOR OLD MISSION® PAVER SYSTEM

PART 1: GENERAL

1.1 Scope

This work includes furnishing and installing permeable concrete paver system and base to the lines and grades designated on the construction drawings and as specified herein.

1.2 Reference Standards

- AASHTO M288 Geotextile Specifications to Highway Applications
- ACI 318 Building Code Requirements for Reinforced Concrete
- ASTM C33 Concrete Aggregates
- ASTM C39 Compressive Strength of Concrete
- ASTM C94 Ready-Mixed Concrete
- ASTM C131 Resistance to Abrasion
- ASTM C140 Sampling and Testing Concrete Masonry Units and Related Units
- ASTM C143 Slump of Concrete
- ASTM C144 Aggregate for Masonry Mortar
- ASTM C231 Air Content of Concrete
- ASTM C685 Concrete Made by Volumetric Batching and Continuous Mixing
- ASTM C936 Concrete Interlocking Paving Units
- ASTM D448 Sizes of Aggregate for Road and Bridge Construction
- ASTM D698 Laboratory Compaction Characteristics of Soil Using Standard Effort
- ASTM D1557 Laboratory Compaction Characteristics using Modified Effort
- ASTM D6938 In-Place Density and Water Content of Soil by Nuclear Method

1.3 Delivery, Storage, and Handling

- A. Check the materials upon delivery to assure proper material has been received. Unload without damaging product or adjacent materials
- B. Prevent excessive mud, wet concrete, and like materials from contacting the paving units.
- C. Protect the materials from damage. Damaged material shall not be incorporated in the project.

PART 2: MATERIALS

2.1 Paving Units

- A. Paving units shall be Old Mission® units as produced by a manufacturer licensed and authorized by the paver licensor to produce the units.

- B. Paving units shall have Old Mission® paver specifications and be made from wet-cast concrete in accordance with ASTM C94 or C685, latest revision, and per the following chart:

Freeze-Thaw Exposure Class*	Air Content %	28-Day Compressive Strength <i>psi (MPa)</i>	Maximum Water Cement Ratio	Min. Concrete Temp. at Placement °F (°C)
Negligible	1½ to 4½	8000 (55.2)	0.38	50 (10)
Moderate	2½ to 5½	8000 (55.2)	0.38	50 (10)
Severe	3 to 6	8000 (55.2)	0.38	50 (10)
Very Severe	3 to 6	8000 (55.2)	0.38**	50 (10)

All Outcropping products shall use frost-free aggregate.

*Exposure class is as described in ACI 318. “MODERATE” describes concrete that is exposed to freezing and thawing cycles and occasional exposure to moisture. “SEVERE” describes concrete that is exposed to freezing and thawing cycles and in continuous contact with moisture. “VERY SEVERE” describes concrete that is exposed to freezing and thawing cycles and in continuous contact with moisture and exposed to deicing chemicals. Exposure class should be specified by owner/purchaser prior to order placement.

**For Very Severe exposure, fly ash, other pozzolan, and slag shall be limited as described in ACI 318 4.2.3.

Notwithstanding anything stated above, all material used in the wall units must meet applicable ASTM and ACI requirements for exterior concrete.

- C. Paving units shall comply with ASTM C936, except as modified herein.
- D. Exterior paver dimensions, as measured in accordance with ASTM C140, shall be uniform and consistent. Maximum dimensional deviations shall be 0.125 inch (3.2 mm) or 2%, whichever is less, excluding the architectural surface.
- E. Average absorption (as determined according to ASTM C140) shall be less than 5%. Absorption of single units shall not exceed 7%.

SPECIFICATION FOR ROSETTA® OLD MISSION PAVER SYSTEM

2.2 Jointing Sand

- A. Use crushed natural stone with 90% fractured faces and LA Abrasion <40 per ASTM C131, meeting the gradation requirements of ASTM No. 8, 89, or 9. Note that use of ASTM No. 8 or 89 may result in excessive left-over joint sand.

2.3 Bedding, Base, and Subbase

- A. Internal and external drainage, subgrade conditions, traffic, and pavement structure requirements shall be evaluated by the Professional Engineer who is responsible for the pavement system design.
- B. Use crushed natural stone with 90% fractured faces and LA Abrasion <40 per ASTM C131.
- C. Use bedding sand meeting the gradation requirements of ASTM No. 8, 89, or 9.
- D. Use open-graded base material meeting the gradation requirements of ASTM No. 57.
- E. Use open-graded subbase material meeting the gradation requirements of ASTM No. 2.

2.4 Geotextile

- A. Geotextile fabric shall meet the requirements for Class 2 construction survivability in accordance with AASHTO M288.

2.5 Edge Restraint

- A. For pedestrian or residential applications, plastic or metal edging strips fastened securely to the compacted base using steel spikes, per the manufacturer's recommendations, may be used.
- B. For vehicular applications, use cast-in-place concrete curb.

PART 3: CONSTRUCTION OF PAVER SYSTEM

3.1 Excavation & Grading

- A. Contractor shall excavate and/or grade to the lines and grades shown on the construction drawings.

3.2 Subgrade Preparation

- A. Verify that the subgrade meets the required alignment and grade. Note that pavers will settle slightly (1/4- to 3/8-inch; 6 to 10 mm) during compaction. Final grade of base and bedding material should be adjusted to account for this settlement. Take special care where pavers abut existing site features such as other pavements.
- B. Verify subgrade meets or exceeds assumed design strength, permeability, and compaction. Unsuitable soils, such as excessively soft of loose soil, soils that yield excessively under load, soils with high organic content, undocumented fill, or frozen soils shall be removed and replaced

with acceptable, compacted material, or otherwise improved, to the satisfaction of the engineer.

- C. Protect prepared subgrade from weather, traffic, and sediment. Remove subgrade that has been degraded and replace with clean, acceptable material.

3.3 Subbase and Base Placement

- A. Place geotextile on smooth, prepared subgrade, avoiding wrinkles. Do not operate wheeled or tracked equipment directly on geotextile.
- B. Place subbase to the required thickness. Compact with at least two passes in vibratory mode and two passes in static mode of a 10-ton (minimum) vibratory roller.
- C. If pavement will be subjected to vehicular traffic, continue to compact until average density (as determined by ASTM D6938 in backscatter mode) does not increase by more than 1.2 pcf (20 kg/m³) after two passes.
- D. Place open-graded base to the required thickness and compact as described above for the base.
- E. Ensure surface of gravel base is smooth and uniform, without irregular low or high locations. Protect from contamination by sediment.

3.4 Edge Restraint and Bedding Sand

- A. Place edge restraint as indicated. For metal or plastic edge restraints, install in accordance with the manufacturers installation instructions.
- B. Do not use metal or plastic edge restraints for vehicular applications. Use cast-in-place concrete curb instead.
- C. Place bedding material and screed to a uniform thickness of 2 inches (51 mm). Maintain the bedding in a loose, smooth condition. Protect from traffic, precipitation, or other disturbance. Do not place bedding further than the area that can be covered with pavers that day.
- D. Ensure a minimum of 1 inch vertical restraining surface is in contact with the side of the pavers.

3.5 Paver Installation and Joint Filling

- A. To ensure proper color distribution, mix layers from several bundles at one time.
- B. Install pavers following the indicated pattern.
- C. Push pavers together so the spacer bars butt tight and cut units as needed to finish edges.
- D. Replace pavers that become cracked or chipped.
- E. Fill all joints with jointing sand. Sweep joint filler sand into the joints between pavers until joints are completely filled.
- F. After joints are filled, carefully sweep pavers clean before compacting. Loose material could damage paver surface during compaction.

SPECIFICATION FOR ROSETTA® OLD MISSION PAVER SYSTEM

- G. Compact joint filling and set pavers in bedding material by compacting with a plate compactor. The compactor should be capable of exerting at least 5,000 lbs (22 kN) of compaction force at 75 to 90 hertz. Use a urethane pad or other measures, as necessary, to prevent damage to pavers. Compaction should proceed in overlapping rows such that each is crossed at least twice by the compactor in two perpendicular directions. Compact pavers to within 6 feet (2 meters) of the laying surface at the end of each work day. Protect uncompacted pavers and bedding sand from disturbance.
- H. Top off joints and recompact, if necessary.

3.6 Protection and Maintenance

- A. The Contractor shall be responsible for protection of the work from sediment deposition and damage during the remainder of construction activity at the site.
- B. The Owner shall maintain the permeable pavement system by protecting from sediment deposition and vacuuming annually (at a minimum).

PART 4: AVAILABILITY

Rosetta products are available from a licensed manufacturer, authorized to produce the units, or an authorized dealer. For a list of approved manufacturers contact:

Rosetta Hardscapes® LLC
05481 South US-31,
Charlevoix, MI 49720
1-844-367-9763
www.rosettahardscapes.com
info@rosettahardscapes.com