

32 13 13 – Exterior Concrete Paving

DIVISION 32 – Exterior Improvements



Saint Paul
PUBLIC SCHOOLS

STATEMENT OF PURPOSE & BACKGROUND

- Scope:
 - Concrete curb and gutter, sidewalks, concrete pavement, pedestrian curb ramps and related work.
- Statement of goals:
 - Provide consistent, high quality concrete paving that:
 - meets or exceeds all applicable industry standards.
 - minimizes the potential for surface defects and pop-outs.
 - Facilitate snow removal by providing ribbon and/or surmountable curb profiles at parking areas and drive aisles where possible.
- Revision history of section:
 - 03/09/20 (date of adoption)
 - 10/28/2022

SELECTION AND APPLICATION CRITERIA

- Complies with all other applicable standards from ASTM and American Concrete Institute (ACI).
- Complies with applicable portions of construction methods and materials from Minnesota Department of Transportation 2022 Edition, “Standard Specifications for Construction” including the following:
 - MN/DOT 2301 Concrete Pavement
 - MN/DOT 2521 Walks
 - MN/DOT 2531 Concrete Curbing
 - MN/DOT 3137 Coarse Aggregates: 3137.2.D.2, Class A aggregates including granite.

OUTLINE SPECIFICATION

- Part 1 General
 - The goal of this standard is to minimize the potential and occurrence of pop-outs and surface defects in finished exterior concrete paving.
 - Provide surmountable or ribbon curb profiles at parking areas and drive aisles to facilitate snow removal.
 - Provide siloxane sealer on slabs subject to de-icing salts to protect new concrete.
- Part 2 Products
 - Materials:
 - Cement for normal weight structural concrete: ASTM C150/C150M, Type 1.
 - Use only one type and brand of Portland Cement for all exposed concrete.
 - Reinforcing Steel: ASTM A775; grade 60; epoxy coated, free from materials that would prevent bond.
 - Maximum nominal size of coarse aggregate shall be $\frac{3}{4}$ " for all concrete.
 - Limits for deleterious substances and physical properties of coarse aggregates shall meet the requirements of MN/DOT 3137.2.D.2, Class A aggregates.
 - Maximum limits of total spall per MN/DOT: 0.5%.
 - Potential density of pop-outs per square yard with maximum deleterious limits per MN/DOT: 5-10.
 - Siloxane sealer – TK 290 VOC Salt Protector Plus or approved equal.

- Concrete Mixes:
 - Mixes shall meet the following minimum requirements. Submit concrete mix design for each type of concrete.
 - Mix designs of each class of concrete must be reviewed prior to pouring concrete for conformance with specification requirements. Contractor is responsible for performance.
 - 28-day Compressive Strength: 4,500 psi.
 - Maximum Aggregate Size: ¾”.
 - Slump range: 2”-5”.
 - Maximum Water/Cement Ratio:
 - 0.42 for unreinforced concrete.
 - 0.42 for fiber reinforced concrete.
- Part 3 Execution
 - Per Consultant and / or manufacturer specification.
 - Pre-Installation: Hold a pre-installation conference to note specific procedures for installation and curing of exterior flatwork.
 - Installation: specify the timing of applying curing and the method and density/application rate of curing compound.
 - Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures and mechanical injury.
 - Light broom finish typical at exterior concrete paving; perpendicular to direction of travel at sidewalks and inclined ramps.
 - Contractor shall maintain records of placed concrete items. Record date, location of pour, quantity, mix design, air temperature and test samples taken.
 - During the 12 month warranty period, Owner will perform periodic inspections to determine if exterior paving contains any unsatisfactory results including spalling and pop-outs.
 - Any pop-outs identified within the 12 month warranty period greater than 1” in diameter in any direction, shall be repaired by Contractor using industry standard drill and fill method approved by Architect and Owner.
 - Any pop-outs identified within the 12 month warranty period of any size, exceeding 10 per square yard, or within a 25.5” radius, shall be repaired by Contractor using industry standard drill and fill method approved by Architect and Owner.
 - Repair procedures:
 - To improve the color match of the repair, substitute white cement for gray cement and use trial mixes to determine best ratio.
 - Finish or texture the repair to match surrounding concrete.
 - Apply siloxane sealer per manufacturer’s instructions to exterior sidewalks and paving subject to use of de-icing salts.

End of Section