

## STANDARD SPECIFICATION

### SECTION 09860 POLYURETHANE COATING SYSTEM FOR MANHOLES AND WET WELLS

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

This section includes the installation of an epoxy/urethane lining system to be applied to the interior concrete surface of new manholes and wet wells.

##### 1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Standard Drawings.
- B. Record Drawings and Submittals: STD SPEC 01300.
- C. Painting and Coating: STD SPEC 09900.
- D. Precast Concrete Manholes: STD SPEC 03461.

##### 1.03 SUBMITTALS

- A. Submit submittal packages in accordance with Standard Specification Section 01300.
- B. Submit installation schedule.
- C. Submit manufacture's catalog data and descriptive literature.
- D. Submit testing procedures and acceptance criteria.

#### PART 2 - MATERIALS

##### 2.01 LINING MATERIAL

- A. The lining material shall be a two-component, 100% solid, non-solvent hybrid polyurethane coating, with a shore "D" hardness of 57 at 77 degrees Fahrenheit, such as Sancon 100 as manufactured by Sancon Engineering, Huntington Beach, California or District approved equal.
- B. Materials specified are those which have been evaluated for the specific service. Elastomeric urethane products of Sancon Engineering, Inc., or equal, are listed to establish a standard of quality. Standard products of manufacturers other than those specified may be accepted when it is proved to the satisfaction of the Engineer they meet Standard Specifications requirements, are equal in composition, durability, usefulness, and convenience for the purpose intended. Substitution will be considered provided when the following minimum conditions are met:
  - 1. The proposed lining system shall have a dry film thickness equal to or greater than that of the specified system.
  - 2. The proposed lining system shall employ an equal number of coats.

3. The proposed lining system shall employ coating of the same generic type.
  4. The proposed lining system shall have been successfully used in 10 similar projects, and at least three years old, where lining has been applied to similar exposure and application.
  5. All requests for substitution shall carry full descriptive literature and directions for application, along with complete information, generic type and non-volatile content by volume. Proof of meeting SSPWC Section 500- 2 requirements shall also be submitted to the District's Representative for review.
  6. Submit certified laboratory data sheets showing the proposed substitute. Testing shall have been performed by an independent testing laboratory satisfactory to the District's Representative and all costs incurred in the testing program shall be borne by the Contractor. The District's Representative shall be sole and final judge of the acceptability of any proposed substitution. Requests for substitution must be approved in writing.
  7. Both manufacturer and installer of the elastomeric polyurethane shall warrant its lining for five years against any type of failure due to defects in material and application.
  8. The material shall be the high-build type capable of application thickness, as specified, without runs or sags, and shall be capable of passing ASTM D-1737 for flexibility, using cylinder mandrel of 0.5 inch (12.7 millimeter). The flash point of the fluid mixture shall be 450 degrees Fahrenheit open Zahn cup.
  9. Lining material shall meet or exceed the requirements of 210-2.3.3 and 500-2.4.10 of the Standard Specifications for Public Works Construction pertaining to Chemical Resistance and Physical Properties. Proof of meeting these requirements shall be provided as part of the bid submittal and shall be confirmed by the District's Representative 15 days prior to commencement of work.
- C. The color shall be white or cream. The complete coating shall be impermeable to sewer gases and liquids and non-conductive to bacterial or fungus growth. The lining shall be capable of repair at any time during its lifespan.

### PART 3 - INSTALLATION

#### 3.01 SURFACE PREPARATION

- A. No surface preparation is required on clean concrete surfaces free from oils, curing Compounds or other foreign materials. Surface cleaning, if required, shall be accomplished by grit blasting.
- B. Grit blasting is required where the coating is subject to immersion service.
- C. Newly placed concrete or mortar may be coated as soon as initial set. Three to seven days of curing time for the newly placed concrete is required prior to coating.

### 3.02 LINER APPLICATION

- A. Only workmen trained and experienced with the specified material shall perform the lining application.
- B. The lining shall be applied through plural component equipment specifically designed and approved by the manufacturer of the lining material. The equipment shall be in good working order to insure correct proportioning and mixing of the components.
- C. A recommended thickness of 1 to 3 mils of epoxy shall be applied as the primer coat.
- D. A recommended minimum thickness of 80 mils of polyurethane shall be applied prior to the epoxy becoming tack free. The lining shall be applied over dry concrete to all interior surfaces as designated in the plans in one continuous coat, without seams, bubbles or pinholes.
- E. The finished lining shall be uniform in color and free from any holes or defects. Any areas in question shall be removed, reworked and patched.
- F. During lining application, the Contractor shall take wet gauge thickness readings as required to insure correct lining thickness.
- G. Application of the lining shall not take place when exposed to rain, or high winds. It is the Contractor's responsibility to insure protection of the work from these conditions.

### 3.03 QUALITY ASSURANCE

- A. Spark testing will be performed upon completion of lining installation and visual inspection. Spark testing voltage will be set at 100 volts per mil of coating thickness specified. Spark testing equipment shall be Tinker and Razor APW or District approved equal.
- B. Spark Testing shall be witnessed by the District's Representative.

END OF SECTION