

## **GREEN MONSTER™ LINER SYSTEM (STEEL APPLICATION)**

### **111.1. GENERAL**

The work shall include the furnishing and installation of an interior protective coating system including all necessary materials, equipment and tools as required for a complete installation. Coating shall be manufactured by GML Coatings, LLC., or pre-approved equal. Applicator is required to have 5 years minimum experience with plural component coatings. The completed system shall provide a waterproof, corrosion resistant liner to prevent any deterioration of steel surfaces from hydrogen sulfide and other corrosive gases/acids produced by wastewater and to prevent exfiltration. To ensure total unit responsibility, all materials and installation thereof shall be approved and furnished by, and coordinated with, GML Coatings LLC.

### **111.2. MATERIALS AND EQUIPMENT**

- 2.1. All materials used within the Green Monster™ system shall be highly resistant to hydrogen sulfide in the wastewater environment.
- 2.2. Sandblasting equipment shall deliver enough pressure to remove all surface rust providing a substrate free of corrosion and delivering a 2-4 mil profile.
- 2.3. All spray equipment shall be plural component manufactured by Graco and be capable of monitoring pressures and temperatures of the coating ensuring a quality application. Green Monster™ shall only be applied with a minimum output pressure of 2,500 psi.
- 2.4. All products used in the Green Monster™ system shall be approved and installed by only GML Coatings trained personnel. View product specifications below:
- 2.5. Primer Specifications

#### **TYPICAL PROPERTIES (1:1 BY VOL.):**

|                            |            |        |
|----------------------------|------------|--------|
| TENSILE STRENGTH, PSI      | ASTM D638  | 4500   |
| ELONGATION, %              | ASTM D638  | 6      |
| COMPRESSIVE STRENGTH, NEAT | ASTM D695  | 3800   |
| SHRINKAGE                  |            | None   |
| BOND STRENGTH, psi         | ASTM D4541 | 1200   |
| HARDNESS, SHORE D          | ASTM D2240 | 71     |
| COLOR                      |            | Amber  |
| VISCOSITY, cps, neat       |            | 25     |
| FINAL CURE @ 72° F         |            | 20 min |

- 2.6. Primer shall have an extremely low viscosity allowing it to penetrate the profiled steel substrate allowing maximum adhesion.
- 2.7. Shall only be spray-applied and fully cure in 20 minutes or less without experiencing any shrinkage.

- 2.8. Green Monster™ Liner shall display excellent chemical resistance, thermal stability, and maintain flexible characteristics preventing cracking which may allow sewer gases to attack the substrate.

**TYPICAL PHYSICAL PROPERTIES :**

|                           |                |         |
|---------------------------|----------------|---------|
| TENSILE STRENGTH, PSI     | ASTM D412      | 4500    |
| ELONGATION, %             | ASTM D412      | 460     |
| 100% MODULUS              | ASTM D412      | 1460    |
| TEAR STRENGTH, PLI        | ASTM D624      | 570     |
| HARDNESS, SHORE A         | ASTM D2240     | 98      |
| HARDNESS, SHORE D         | ASTM D2240     | 52      |
| FLEXIBILITY, 1/8" MANDREL | ASTM D1737     | PASS    |
| FLASH POINT, °F           | PENSKY-MARTIN  | >200    |
| TABER ABRASION, MG LOSS   | ASTM D4060     | 17.0    |
| CS 17 WHEELS              | 1KG, 1000 REVS |         |
| A-SIDE HOSE TEMPERATURE   | °F             | 140-160 |
| B-SIDE HOSE TEMPERATURE   | °F             | 140-160 |
| BLOCK TEMPERATURE         | °F             | 160     |

**ADHESION RESULTS: ASTM D-4541 Patti Tester**

|                       |                      |         |
|-----------------------|----------------------|---------|
| Concrete              | Green Monster Primer | 600 PSI |
|                       | -EPOXY Glue Failure  |         |
| Carbon Steel (direct) |                      | 900 PSI |

**TYPICAL PROCESSING PROPERTIES:**

|                |         |     |
|----------------|---------|-----|
| GEL TIME       | SECONDS | 20  |
| TACK FREE TIME | SECONDS | 45  |
| VOLUME RATIO   | V:V     | 1:1 |

- 2.9. After, the proper steel preparation has been achieved; Green Monster™ shall be applied at 100 mils. Product shall be Green Monster™ Liner by GML Coatings, LLC. or pre-approved equal.

**111.3. SURFACE PREPARATION**

- 3.1. Preparation will begin by sandblasting the entire substrate preparing the surface so that it is structurally intact, clean of all corrosion, and provided with a near-white metal blast at a 2-4 mil profile.
- 3.2. All solids are to be removed from the work site along with other debris.
- 3.3. Work area is to be completely dried using in-direct heat lowering the moisture content of the substrate.
- 3.4. Green Monster™ Primer is to be spray applied to the dry and cooling substrate providing maximum adhesion.
- 3.5. Green Monster™ Liner shall be spray applied at a 100 mil thickness.

**111.4. MATERIAL INSTALLATION**

- 4.1. The limits of the corrosion protection system shall be all exposed steel

surfaces including walls, pipe penetrations, risers, etc., unless otherwise approved by Engineer.

- 4.2. Application of the Green Monster™ Liner System shall be in strict accordance with the manufacturer's recommendations.
- 4.3. All material installed must be holiday tested for pinholes. Either a GML Coatings representative shall approve the test or an onsite inspector employed by the owner.

#### 111.5. INSPECTION AND REPAIRS

- 5.1. Final coating system shall be completely free of pinholes or voids. Entire exposed steel surface shall be protected with corrosion protection system. Liner preparation and thickness shall meet what is stated above. All defects identified during inspection such as pinholes, thin film millage, etc. shall be repaired with same material and to same thickness as required of original installation.