TECHNICAL SPECIFICATIONS for Model: EW-7050
SECTION 34 71 13
ACTIVE VEHICLE BARRIERS

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:

1. Vehicle wedge barriers
2. [_____]

1.2 RELATED SECTIONS

A. Section 03 30 00 – Cast-in-Place Concrete

B. Section 09 90 00 – Painting & Coatings

C. Section 28 13 00 – Security Systems

D. [_____]

1.3 REFERENCES

A. ASTM International (ASTM):

1. ASTM A36 - Standard Specification for Carbon Structural Steel
2. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
3. ASTM A500 Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
4. ASTM A529 – Standard Specification for High-Strength Carbon-Manganese Steel of Structural Quality
5. ASTM A992 – Standard Specification for Structural Steel Shapes
6. ASTM F2656 - Standard Test Method for Vehicle Crash Testing of Perimeter Barriers

B. American Welding Society (AWS)

1. AWS D1.1/D1.1M - Structural Welding Code – Steel

1.4 SUBMITTALS

A. Product Data:

1. Comply with Section [01 33 00 – Submittal Procedures.] [_____.]
2. Product Data: Provide for each type of barrier, component, finish, and accessory specified.
3. Maintenance Data: Submit manufacturer's field touch-up, cleaning, and maintenance instructions.
4. Warranty Documentation: Submit sample of manufacturer's warranty.

1.5 QUALITY ASSURANCE

A. COMPLY WITH SECTION [01 43 00 – QUALITY ASSURANCE.] [_____].

B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.

C. Installer Qualifications:

1. Engage an experienced installer who has minimum five years documented experience with projects of similar scope and complexity.
2. Installer is an authorized representative of the vehicle barrier manufacturer for both installation and maintenance of the type of units required for this Project.

D. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

E. Each Sloan Electric Wedge Barrier M50/P1 is cycled in-house prior to shipment to ensure proper working order and calibration of limit switches.

F. The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified.

G. Nameplates: The vehicle barrier shall have the manufacturer's names, contact for service, and catalog or serial number permanently affixed to a plate securely attached to the equipment in a suitable location.

1.6 DELIVERY, STORAGE AND HANDLING

A. Comply with Section [01 66 00 – Product Storage and Handling Requirements.] [_____].

B. The Sloan Electric Wedge Barrier M50/P1 shall be packaged to protect the materials from damage during shipment.

C. While Sloan Security Group does not assume responsibility for injury to persons or property during loading, unloading, transporting or installation, verbal guidance and additional written instructions are available upon request.

D. Sloan Security Group does not assume responsibility for insuring that the rigging and lifting gear is properly sized and attached when lifting heavy components. Equipment used shall be capable of handling product in an overhang position.

E. Sloan Electric Wedge Barrier M50/P1 is coated to protect materials from the effects of exposure to all outdoor elements; however, when site storage is required Sloan Security Group recommends the following guidelines:

1. Short term storage (0-12 months): Store in such a manner to ensure proper ventilation and drainage. The storage location shall protect against damage, vandalism, and theft.
2. Long term storage (more than 12 months): In addition to the recommendations for short term storage, the Sloan Electric Wedge Barrier M50/P1 shall also be covered to prevent exposure to the elements prior to installation. The purpose of this recommendation is to preserve the aesthetic appearance of the coating finish. Long term exposure to the elements naturally degrades coating appearances; therefore, proper storage is essential for ensuring preservation of the material.

F. Upon delivery of Sloan Electric Wedge Barrier M50/P1 control systems, the crate or pallets containing any electrical components shall be marked as such and stored in a covered location that ensures proper ventilation and drainage. The storage location shall protect against damage, vandalism, and theft. Control cabinets may not be rated for outdoor exposure; therefore, higher storage measures should be taken.

G. Upon receipt at the job site, all materials shall be checked to ensure that no damage occurred during shipping or handling. Materials shall be stored in such a manner to ensure proper ventilation and drainage, and to protect against damage, weather, vandalism, and theft.

1.7 WARRANTY

A. Sloan's passive vehicle barrier products carry a standard warranty against defects in material and workmanship on fabricated components for one year when installed by a Sloan authorized installer. Warranty begins at the ship date of product.

PART 2 – PRODUCTS

2.1 MANUFACTURERES

A. Acceptable Manufacturer: Sloan Security Group, Phone: (888) 382-8370, Website: www.sloansg.com, Email: info@sloansg.com

B. Substitutions: Not Permitted.

2.2 VEHICLE BARRIERS

A. Basis of Design: Sloan Electric Wedge Barrier M50/P1 System, Model: EW-7050, as manufactured by Sloan Security Group

1. This system shall be tested and certified to meet ASTM F2656-07, Impact Condition Designation M50, Penetration Rating P1, with the capability of stopping a 15,000lb vehicle traveling at speeds up to 50mph and less than 1 meter of dynamic penetration.
2. The manufacturer shall supply a total active vehicle barrier system of the Sloan Electric Wedge Barrier M50/P1 design. The vehicle barrier system shall include an operable barrier with controls, cabling, and obstruction detection devices. The barrier shall comply with Sloan's System Drawings.
3. The Sloan Electric Wedge Barrier M50/P1 System was tested to the pass requirements in accordance with ASTM F2656-07 and achieved a rating of M50 P1. The barrier was tested to 8ft and 14ft-6in (2.4 m - 4.4 m) blocking widths. Both test reports were approved by the USACE PDC and are both on the DOD list of approved barriers. The USACE PDC has approved interpolation for barriers with blocking widths between 8ft and 14ft-6in (2.4 m - 4.4 m).
4. The Sloan Electric Wedge Barrier M50/P1 System was tested by an ISO 17026 accredited testing facility.
5. The Sloan Electric Wedge Barrier M50 P1 System is designed to operate in a wide range of environmental conditions. These include the following:

    a. Ambient temperature ranges without heating or cooling systems: 32º F (0 º C) to 150 º F (65 º C). Heating and cooling options to be used when necessary
    b. Ambient relative humidity range: 0% to 100%
    c. High dust environments
    d. Continuous Immersion in up to 3 ft (1 m) of water (IP 68 Rating)

6. The Sloan Electric Wedge Barrier M50/P1 has a raised height of 36in (915mm) and the entire barrier sits flush to roadway when in the retracted position and shall be capable of supporting a 32,000-pound (14,515 kg) axel load.
7. The Sloan Electric Wedge Barrier M50/P1 System can be integrated into multiple configurations.
8. The Sloan Electric Wedge Barrier M50/P1 System shall be capable of 300 complete up/down cycles per hour. The barrier shall be capable of instantly changing direction when cycling through normal operation. Deployment speeds are programmable to match customer specifications. During emergency operation, the barrier shall be capable of less than 1.5 second deployment to secured position with 5HP motor and less than 2 second deployment to secured position with 3HP motor. Normal operation shall be between 4 to 8 seconds.
9. In the event of electrical failure, the Sloan Electric Wedge Barrier M50/P1 is designed to hold the last commanded position, including the raised position. The Sloan Electric Wedge Barrier M50/P1 shall be equipped with an IP68 rated stainless steel submersible brake motor that is capable of holding the raised position for extended periods of time. The Sloan Control system options include battery back-up and manual operating capability for use in event of power failure. Back-up operating equipment capable of a minimum three complete cycles (open and close) without use of manual system available upon request. Manual operating capability included as standard issue. Manual operation of barrier shall be simple and without need of special tools or knowledge.
10. The Sloan Electric Wedge Barrier M50 P1 shall be capable of performing a minimum of 250,000 complete up/down cycles with no parts replacement when properly maintained by a factory trained installer. Sloan provides a maintenance checklist in the Owner's Manual
11. The wedge barrier shall not utilize any pneumatics, springs, or assists other than the actuator and motor to deploy the barrier.

2.3 MATERIAL

A. Steel tubing material shall conform to the ASTM A500

B. Solid round bars shall conform to ASTM A36/A529 GR50 Dual Grade

C. W-Beams shall conform to ASTM A992

D. Steel plates shall conform to ASTM A36

E. Welding: Performed by welders certified to AWS D1.1

F. Sloan will provide material certifications with each order upon request.

2.4 FABRICATION

A. Fabrication of the members shall be in accordance with manufacturer's instructions, the plan details, and this specification.

B. The Sloan Electric Wedge Barrier M50/P1 coating system shall protect against the effects of long-term corrosion. Sloan can provide systems in galvanized with wet painted finishes. The standard coating design shall be all structural members hot dip galvanized to ASTM A123. In addition to the galvanizing, the blocking beams are painted white. The blocking beam is coated with nonskid reflective glass beading and painted with 4in (102 mm) wide red reflective stripes 4 in (102 mm) apart on the roadway surface. All stripes are diagonal at 45 degrees and pointing down and outward from the center of the blocking assembly. When alternative color pattern is required, the buyer will specify the custom color and design to the manufacturer at the time of ordering.

C. Shop drawings can be provided for site specific locations of each barrier upon request.

D. All Sloan products are coated to the customer specification.

PART 3 – EXECUTION

3.1 SITE EXAMINATION

A. The purchaser shall indicate the location of all products with suitable means.

B. The purchaser shall indicate all underground utility locations, USC&G benchmarks, property monuments, and other underground structures that interfere with installation.

C. Before installing the Sloan Electric Wedge Barrier M50/P1, all necessary site clearing and grading shall be performed by the purchaser. An adequate clearance on both sides of the vehicle barrier line is required.

D. Soil strength shall be equivalent to soil strength recorded during the ASTM F2656-07 certification test of the footer size and depth must be adjusted accordingly based on professional engineering analysis.

E. The barrier frame shall require no more than 14 in (355 mm) depth to accommodate its foundation. An additional 4 in (102 mm) may be required for drainage connection pipes.

F. Power Lines: Where power and hydraulic lines are required and are below grade, they must be protected with rigid electrical conduit.

3.2 PREPARATION

A. Examine and verify foundation suitability for product installation.

B. Clean surfaces thoroughly prior to installation

C. Prepare surfaces using the methods recommended by the manufacturer for achieving the best results for substrate under the project conditions.

3.3 INSTALLATION

A. The active vehicle barrier shall be installed per Sloan's System Drawing. Construct concrete foundations to the dimensions specified by the plans. Excavate a properly sized area for barrier foundations and install reinforcing steel in accordance with the plans. Place the concrete, install the barrier, and plumb. Refer to contract or submittal plans for more installation details.

B. Sloan's vehicle barriers are warranted against defects in material and workmanship on structural components for one year from ship date, when installed by a Sloan authorized installer.

C. Engage an experienced installer who has minimum five years documented experience with projects of similar scope and complexity.

D. Suggested Installer: Sloan Security Group Phone: (888) 382-8370, Website: www.sloansg.com, Email: info@sloansg.com

3.4 CLEANING

A. Clean active vehicle barriers in accordance with the manufacture's recommendations to remove dust, dirt, adhesives, and other foreign materials.

B. Touch-up, repair or replace damaged products before Substantial Completion.

C. The contractor shall clean the jobsite thoroughly to ensure it is left neat and free of any debris caused by the installation of the active vehicle barrier system.

3.5 CONTINUED SERVICE AND DOCUMENTATION

A. General maintenance of the Sloan Electric Wedge Barrier M50/P1 System shall consist of removing foreign materials from frame or sub-grade frame as debris may cause damage to the barrier and may cause safety concerns. Refer to the owner's manual for more details on the system maintenance.

B. Sloan will supply an operator manual that contains recommended maintenance intervals, procedures, and replacement parts lists.

C. Maintenance instructions shall include routine maintenance procedures, possible breakdowns, and repairs, and troubleshooting guide. The instructions shall include piping layout, equipment layout and simplified wiring, and control diagrams of the systems as installed.

D. Suggested Maintenance Contractor: Sloan Security Group, Phone: (888) 382-8370, Website: www.sloangsg.com, email: info@sloansg.com

NOTE: Sloan Security Group reserves the right to change these specifications at any time. Call (888) 382-8370 to ensure that you have the latest edition.

CAUTION: Barriers manufactured by Sloan Security Group are intended for use in controlling vehicular traffic and are not intended to be used by pedestrians or to control pedestrian traffic. **Always install a separate pedestrian entry.**