

SECTION 323119 – ORNAMENTAL FENCES AND GATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification sections, apply to this section.

1.2 SUMMARY

- A. Provide all labor, materials and equipment as necessary to complete all work as indicated on the Drawings and specified herein.
- B. This section includes ornamental railings, painted metal fences and gates, and vinyl coated post and chain systems.

1.3 REFERENCES

- A. ASTM F525 and ASTM F567 where applicable herein.

1.4 SUBMITTALS

- A. Shop Drawings: Furnish detailed and scaled Shop Drawings of railing including weld locations and field construction method for approval by Owner.

1.5 QUALITY ASSURANCE

- A. Fabrication Inspection: The following in-progress inspection may be made by the Owner, at the Owner's discretion, between fabrication stages listed below:
 - 1. Metal fabrication.
 - 2. Primer application.
 - 3. Final painting.
 - 4. Installation.

1.6 WARRANTY

- A. Contractor agrees that by their acceptance of this Work and in consideration thereof, for Contractor and for each Subcontractor, binds Contractor and each Subcontractor to all the guarantees and warranties. Contractor shall guarantee materials to be free from defects for 1 year after the date of final acceptance.
- B. If within warranty period, it is found that the guaranteed materials need to be replaced because of the use of materials which are inferior, defective, or not in accordance with the terms of the Agreement, Contractor, upon notification, shall promptly and without additional expense to Michigan State University replace such materials immediately.

- C. Should Contractor fail to proceed promptly in accordance with the guarantee, the Owner may have such replacements made at the expense of Contractor and Contractor's sureties.
- D. Contractor shall execute and deliver to the Owner, before final settlement, a written warranty subject to and stipulating the provisions above.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Materials shall be new and the best of their respective kind.
- B. Materials shall conform in every detail to the Specifications herein mentioned and standard mill tolerances.
- C. If required by the Owner, Contractor shall furnish affidavits from manufacturers, stating that the materials meet or exceed these Specifications.

2.2 PRIMER SOURCE

- A. Lilly Perfection, Catalyzed Acrylic Urethane Finish (F-70 Gloss Black), epoxy glaze primer; 715 East Maryland Street, Indianapolis, Indiana 48202-3999; 800-428-9199.

2.3 PAINT SOURCE

- A. Perfection Paint by Lilly, Futurac Acrylic Urethane Enamel (electrostatic application) (F70), 715 East Maryland Street, Indianapolis, Indiana 48202-3999; 800-428-9199.

2.4 METAL

- A. Surfaces of railing and post shall contain no imperfections such as scratches, dents, bubbles or an abrasive surface.
- B. Welded joints including those on railing post tops, seams and corners shall be ground smooth to eliminate indication that a welded joint exists. Welded corner shall exhibit only a slight roundness of 1/16-inch radius.
- C. Metal posts shall be hot rolled and seamless steel with a 1/4-inch wall.

2.5 PAINT

- A. Apply primer and paint electrostatically according manufacturer's recommendations to a smooth surface free of imperfection and grease, oil, dirt or other contaminants.
- B. Painted surface shall have a uniform finish.
- C. Bolts shall be painted identical to posts prior to assembly.

- D. Touch-up painting will be permitted in the field after installation. Touch-up imperfections in the paint surface according to manufacturer's recommendations.

2.6 VINYL COATED POST AND CHAIN SYSTEM [IF SPECIFIED]

- A. 3/8-inch proof coil chain manufactured by The Commercial Group, G-2427 East Judd Road, Burton, MI 48529; 800-392-7940, 810-744-4540.
- B. 3/8-inch connector link manufactured by The Commercial Group.

2.7 FABRICATION

- A. All welds shall be continuous and without pin holes.
- B. Fabricate posts and paint gloss black, quantity required as indicated on the Drawings.
- C. Furnish connector links and paint gloss black before assembly.
- D. Caps for steel posts shall be welded continuously. Pin holes in welds are not acceptable. Weld shall not distort outer edge of cap.
- E. Caps for aluminum posts shall be welded only at corners. Weld shall not distort outer edge of cap.
- F. Fence members shall be fabricated from a single piece of metal (spliced not acceptable).
- G. Finial to be securely attached to fence post with a weld, as specified. Bottom edge of finial shall be well defined with a uniform edge.
- H. All surfaces to be painted shall be prepared according to paint Manufacturer's specifications.
- I. Connector link for post and chain system shall be welded.

2.8 PAINT SYSTEM APPLICATION

- A. Refer to attached specifications for Lilly Epoxy Glass Primer and Acrylic Urethane Enamel.
- B. Minimum coating thickness shall be:
 - 1. Epoxy Primer: 3 mils.
 - 2. Epoxy Hi-build Primer: 4 mils.
 - 3. Acrylic Urethane Enamel: 3 mils.
- C. Owner will inspect each application for quality and thickness.

PART 3 - EXECUTION

3.1 PREPARATION

A. Field Measurements:

1. Contractor is responsible for calling MISS DIG prior to erection of the fence.
2. Contractor shall field measure the fence lengths to determine locations for odd length fence section(s).
3. Odd length sections shall occur at the middle of the fence run.
4. Locations of odd length fence sections shall be clearly indicated on the Shop Drawings.

3.2 INSTALLATION

A. General:

1. Perform Work in a professional and workmanlike manner.
2. Legally dispose of waste material and excavated soil off the Owner's property.

B. Contractor shall be responsible for calling MISS DIG prior to erection of fence and confirming locations of utilities prior to excavation. Provide the MSU office (517-353-5142) with the MISS DIG number as soon as it is provided.

C. Contractor is responsible for field layout based on the Drawings. Layout shall be approved by the Project Representative prior to installation.

D. Holes shall be auger drilled.

E. Posts shall be vertical and maintain a uniform height relative to each other.

F. Chain shall have consistent sag (to be determined by the Owner) throughout the Project and as indicated approximately on the Drawing detail.

G. Concrete Footing:

1. Footing shall be 42-inch deep and a minimum diameter of 10 inches.
2. Post shall be in the center of the hole with a minimum of 2 inches of concrete around the post.
3. Top 6 inches of the concrete footing shall be formed and contain a 1/2-inch wash to shed water away from the post.
4. Concrete shall sufficiently cure to eliminate broken footings. Footings that are broken during installation shall be completely removed and replaced.

H. Post Spacing: For post and chain system.

1. 9-foot on-center for single chain.
2. 8-foot on-center for double chain.

3.3 PAINT TOUCH UP

A. Very limited “touch up” painting will be permitted after installation. Touch up imperfections in the paint surface according to manufacturer’s recommendations. Review touch up locations with the Project Representative before executing touch up work.

3.4 CLEANING

A. Fence installation will not be considered complete until excess excavated materials, cut wires, spilled concrete, or other debris, including the existing fence to be removed, resulting from the fence construction, is removed.

END OF SECTION 323119