

SECTION 05501 - IN-PLANT GUARDING SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

- A. This section includes the following:
 - 1. Guard rail
 - a) One line system
 - b) Two line system

1.2 SUBMITTALS

- A. Product Data for products used in Guardrail, bumper post, or handrail fabrication or installation including anchor bolts, concrete and grout.
- B. Shop drawings showing fabrication and illustrating erection of bumper post, handrail or guardrail. Include plans, elevations, sections and details showing component connections and anchorage. Provide templates for anchors installed under other sections.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. IDEAL SHIELD
2525 Clark Street
Detroit, Michigan 48209-1355
Phone: (877) 325-0769

2.2 MATERIALS

- A. Rolled Plates and Shapes: ASTM A36.
- B. Steel Pipe: ASTM A53, Grade B, Type E or S, Schedule 40 unless otherwise noted.
- C. Tubing: Cold formed shapes per ASTM A500 or hot-formed shapes per ASTM A501. Wall thickness for either category shall be in accordance with the thickness and tolerances specified in ASTM A501.
- D. Bolts: ASTM A307, Grade A, with hexagon heads or nuts where exposed in the finish work, with flat heads for countersinking where flush bolting is specified or required.
- E. Plastic Cover: Polyethylene Thermoplastic (HDPE) tubes having ultra-violet resistance and anti static properties, nominal thickness 0.250 inches. Color shall be OSHA yellow unless otherwise noted. Size covers for pipe diameters.
- F. Grout: Nonshrink, nonmetallic type per CE CRD-621 and ASTM C1107. Grout shall be pre-mixed and factory-packaged. Formulation shall be nonstaining, noncorrosive, nongaseous properties. Provide grout similar to Dayton Superior "Sure-Grip Utility Grout" or as recommended by grout manufacturer for interior or exterior applications.
- G. Anchor Bolts:
 - 1. Expansion Anchors: Threaded stud type with two independent expansion anchor wedges per Fed. Spec. FF-S-325, Group II, Type 4, Class 1 for concrete expansion anchors. Stud, wedges, washer and nut shall be zinc-plated steel.
 - a. Hilti Fastening Systems, "Kwick Bolt".
 - b. Molly Fastener Group, "Parabolt".
 - c. Red Head, Phillips Anchors, "Wedge Anchors".
 - 2. Adhesive Anchor System: Self contained glass vial containing pre-measured amounts of quartz sand, hardening agent and polyester resin. Studs shall be threaded rod conforming to ASTM A307 with compatible washers and hexagon nuts furnished by the anchor manufacturer.
 - a. Hilti Fastening System, "HVA".
 - b. Molly Fastener Group, "Parabond".
 - c. Ramset Fastening System, "Chemset".
- H. Concrete: Provide 3000 PSI, 28-day strength concrete unless noted otherwise. ASTM C94, slump of 4 inches \pm 1 percent.
 - 1. Exterior Concrete: Include air-entrainment of 6 percent \pm 1 percent.
 - 2. Cement: ASTM C150, Type 1.
 - 3. Aggregates: ASTM C33 normal weight, natural coarse aggregate, maximum 3/4-inch diameter.
 - 4. Water: Potable.

2.3 GUARD RAIL SYSTEM

- A. Provide guard rail system complying with the following requirements:
1. One line standard {2 ½ inch schedule 80 pipe; 4 inch schedule 40 pipe}.
 2. One line heavy {4 inch schedule 80 pipe; 6 inch schedule 40 pipe}
 3. Two line standard {2 ½ inch schedule 80 pipe; 4 inch schedule 40 pipe}
 4. Two line heavy {4 inch schedule 80 pipe; 6 inch schedule 40 pipe}
 5. Length of system: {standard 4'-0", 6'-0", 8'-0", 10'-0"} {heavy 4'-0", 6'-0", 8'-0", 10'-0", 12'-0"} {custom}
 6. Height of system: {one line 14 ¾, 27, 36, 42 inches}{two line 27, 36, 42 inches} {custom}
 7. Finish:
 - a. Cover: high-density polyethylene thermoplastic nominal thickness, 0.250 inch.
 8. Color: OSHA yellow. { custom colors available}
 9. Base plate size: {½ inch thick by 8 inch by 8 inch (Standard)} {5/8 inch thick by 10 inch by 10 inch (Heavy)} {Custom}

PART 3 EXECUTION

3.1 INSTALLATION

- A. Installation Options
1. Core
 2. Base Plate
 3. Core with sleeve/ removable

END OF SECTION