

**SECTION 32 1713
PARKING BUMPERS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Precast concrete parking bumpers and anchorage.

1.02 REFERENCE STANDARDS

- A. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
- B. ASTM C150/C150M - Standard Specification for Portland Cement.
- C. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete.
- D. ASTM C330/C330M - Standard Specification for Lightweight Aggregates for Structural Concrete.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide unit configuration, dimensions.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Parking Bumpers: Precast concrete, conforming to the following:
 - 1. Nominal Size: 6 inches high, 8 inches wide, 6 feet long.
 - 2. Profile: Manufacturer's standard.
 - 3. Cement: ASTM C150, Portland Type I - Normal; gray color.
 - 4. Concrete Materials: ASTM C330/C330M aggregate, water, and sand.
 - 5. Reinforcing Steel: ASTM A615/A615M, deformed steel bars; unfinished, strength and size commensurate with precast unit design.
 - 6. Air Entrainment Admixture: ASTM C260/C260M.
 - 7. Use rigid molds, constructed to maintain precast units uniform in shape, size and finish. Maintain consistent quality during manufacture.
 - 8. Embed reinforcing steel, and drill or sleeve for two dowels.
 - 9. Cure units to develop concrete quality, and to minimize appearance blemishes such as non-uniformity, staining, or surface cracking.
 - 10. Minor patching in plant is acceptable, providing appearance of units is not impaired.
- B. Dowels: Steel, unfinished; 5/8 inch diameter, 12 inch long, pointed tip.
- C. Adhesive: Epoxy type.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install units without damage to shape or finish. Replace or repair damaged units.
- B. Install units in alignment with adjacent work.
- C. Fasten units in place with 2 dowels per unit.

END OF SECTION

SECTION 32 1723.13
PAINTED PAVEMENT MARKINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Parking lot markings, including parking bays, handicapped symbols, curb markings, and cross hatching and fire lanes.

1.02 REFERENCE STANDARDS

- A. MPI (APL) - Master Painters Institute Approved Products List; Master Painters and Decorators Association.
- B. FHWA MUTCD - Manual on Uniform Traffic Control Devices for Streets and Highways; U.S. Department of Transportation, Federal Highway Administration.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver paint in containers of at least 5 gallons accompanied by batch certificate.
- B. Store products in manufacturer's unopened packaging until ready for installation.
- C. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.05 FIELD CONDITIONS

- A. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Line and Zone Marking Paint: MPI (APL) No. 97 Latex Traffic Marking Paint; color(s) as indicated.
 - 1. Roadway Markings: "FIRE LANE" - Red stripe with white lettering.
 - 2. Parking Lots: White.
 - 3. Handicapped Symbols: Blue and white.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Allow new pavement surfaces to cure for a period of not less than 14 days before application of marking materials.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Clean surfaces thoroughly prior to installation.
 - 1. Remove dust, dirt, and other granular surface deposits by sweeping, blowing with compressed air, rinsing with water, or a combination of these methods.

- D. Where oil or grease are present, scrub affected areas with several applications of trisodium phosphate solution or other approved detergent or degreaser, and rinse thoroughly after each application; after cleaning, seal oil-soaked areas with cut shellac to prevent bleeding through the new paint.
- E. Establish survey control points to determine locations and dimensions of markings; provide templates to control paint application by type and color at necessary intervals.

3.03 INSTALLATION

- A. Begin pavement marking as soon as practicable after surface has been cleaned and dried.
- B. Do not apply paint if temperature of surface to be painted or the atmosphere is less than 50 degrees F or more than 95 degrees F.
- C. Apply in accordance with manufacturer's instructions using an experienced technician that is thoroughly familiar with equipment, materials, and marking layouts.
- D. Comply with FHWA MUTCD manual (<http://mutcd.fhwa.dot.gov>) for details not shown.
- E. Apply markings in locations determined by measurement from survey control points; preserve control points until after markings have been accepted.
- F. Apply uniformly painted markings of color(s), lengths, and widths as indicated on the drawings true, sharp edges and ends.
 - 1. Apply paint in one coat only.
 - 2. Wet Film Thickness: 0.015 inch, minimum.
 - 3. Width Tolerance: Plus or minus 1/8 inch.
- G. Parking Lots: Apply parking space lines, entrance and exit arrows, painted curbs, and other markings indicated on drawings.
 - 1. Mark the International Handicapped Symbol at indicated parking spaces.
 - 2. Hand application by pneumatic spray is acceptable.
- H. Symbols: Use a suitable template that will provide a pavement marking with true, sharp edges and ends, of the design and size indicated.

3.04 DRYING, PROTECTION, AND REPLACEMENT

- A. Protect newly painted markings so that paint is not picked up by tires, smeared, or tracked.
- B. Provide barricades, warning signs, and flags as necessary to prevent traffic crossing newly painted markings.
- C. Allow paint to dry at least the minimum time specified by the applicable paint standard and not less than that recommended by the manufacturer.
- D. Remove and replace markings that are applied at less than minimum material rates; deviate from true alignment; exceed length and width tolerances; or show light spots, smears, or other deficiencies or irregularities.
- E. Remove markings in manner to avoid damage to the surface to which the marking was applied, using carefully controlled sand blasting, approved grinding equipment, or other approved method.
- F. Replace removed markings at no additional cost to Owner.

END OF SECTION

SECTION 32 3119
DECORATIVE METAL FENCES AND GATES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Decorative aluminum fences.

1.02 RELATED REQUIREMENTS

- A. Section 03 3000 - Cast-in-Place Concrete.

1.03 REFERENCE STANDARDS

- A. ASTM A276/A276M - Standard Specification for Stainless Steel Bars and Shapes.
- B. ASTM B117 - Standard Practice for Operating Salt Spray (Fog) Apparatus.
- C. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Conduct a preinstallation meeting one week prior to start of work of this section; require attendance by affected installers.

1.05 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Shop Drawings:
 - 1. Indicate plan layout, spacing of components, post foundation dimensions, hardware anchorage, gates, and schedule of components.
 - 2. Foundation details, concrete design mix and reinforcing schedule for anti-ram barrier system.
- D. Manufacturer's Warranty.

1.06 QUALITY ASSURANCE

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

1.07 DELIVERY, STORAGE AND HANDLING

- A. Store materials in a manner to ensure proper ventilation and drainage. Protect against damage, weather, vandalism and theft.

1.08 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Finish: 20 years.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Decorative Metal Fences:
 - 1. Ametco Manufacturing Corporation, 4326 Hamann Parkway, P.O. Box 1210, Willoughby, Ohio 44096; 800-362-1360. www.ametco.com.
 - 2. Substitutions: See Section 01 6000 - Product Requirements.

2.02 FENCES

- A. Fences: Complete factory-fabricated system of posts and panels, accessories, fittings, and fasteners; finished with polyester powder coating finish, and having the following performance characteristics:
 - 1. Capable of resisting vertical load, horizontal load and infill performance requirements for fence categories defined in ASTM F2408.
- B. Aluminum: ASTM B221.
- C. Fasteners: ASTM A276/A276M, Type 302 stainless steel; finished to match fence components.
 - 1. Tamper-proof security bolts.
 - 2. Self-drilling hex-head screws.

2.03 ALUMINUM FENCE

- A. Decorative Aluminum Fence System: Provide fence meeting requirements of ASTM F2408 for Industrial class.
 - 1. Fence Panels: 5 feet high by 5 feet long.
 - a. Panel Style: Breeze Design.
 - 1) Staggered Slotted Holes, round ends
 - 2. Posts: Aluminum extrusions; 4 inches square.
 - 3. Fasteners: Manufacturer's standard stainless steel bolts, screws, and washers; factory finish fasteners to match fence.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Clean surfaces thoroughly prior to installation.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Set fence posts in accordance with the manufacturer recommended spacing.
- C. When cutting rails immediately seal the exposed surfaces by:
 - 1. Removing metal shavings from cut area.
 - 2. Apply zinc-rich primer to thoroughly cover cut edge and drilled hole; allow to dry.
 - 3. Apply two coats of custom finish spray paint matching fence color.
 - 4. Failure to seal exposed surfaces in accordance with manufacturer's instructions will negate manufacturer's warranty.
- D. Space gate posts according to the manufacturers' drawings, dependent on standard out-to-out gate leaf dimensions and gate hardware selected.
 - 1. Base type and quantity of gate hinges on the application; weight, height, and number of gate cycles.
 - 2. Identify the necessary hardware required for the application on the manufacturer's gate drawings.
 - 3. Provide gate hardware by the manufacturer of the gate and install in compliance with manufacturer's recommendations.

3.04 ERECTION TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch.
- B. Maximum Offset From Indicated Position: 1 inch.

- C. Minimum Distance from Property Line: 6 inches.

3.05 CLEANING

- A. Leave immediate work area neat at end of each work day.
- B. Clean jobsite of excess materials; scatter excess material from post hole excavations uniformly away from posts. Remove excess material if required.
- C. Clean fence with mild household detergent and clean water rinse well.
- D. Remove mortar from exposed posts and other fencing material using a 10 percent solution of muriatic acid followed immediately by several rinses with clean water.
- E. Touch up scratched surfaces using materials recommended by manufacturer. Match touchup paint color to fence finish.

3.06 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair, or replace damaged products before Date of Substantial Completion.

END OF SECTION