

DIVISION 26 00 00
SECTION 26 50 00
SECTION 26 56 00

ELECTRICAL
LIGHTING
EXTERIOR LIGHTING
KNIGHT SECURITY BOLLARD

Part 1 General

01. Summary

A. Section Includes:

1. Knight Bollard with security core.

02. References

- A. ASTM A 53 – Standard Specification for Pipe, Steel, Black, and Hot-Dipped, Zinc Coated, Welded and Seamless.
- B. ASTM A 123 – Specification for Zinc (hot-dip galvanized) Coatings on Iron and Steel Products.

03. Performance Requirements

- A. Bollards must meet minimum level of K2.7 impact kinetic energy designation as identified by the ASTM Standard Test Method for Vehicle Crash Testing of Perimeter Barriers. Manufacturer must provide documentation confirming that a finite element analysis has been completed for this product. A K2.7 rating is equivalent to stopping a 5,500 lb. vehicle traveling at 40 mph.

04. Submittals

- A. Provide submittals in accordance with Section 01 33 00 – Submittal Procedures.
- B. Product data: Manufacturer's standard data sheets on each product to be used, including:
 1. Manufacturer's standard product literature.
 2. Shop Drawings.
 3. Installation instructions.
 4. Maintenance instructions.
- C. Submit finish samples for approval.

05. Quality Assurance

- A. Manufacturer Qualifications:
 1. Minimum 15 years experience in the manufacture of outdoor lighting.
 2. Provide reference list of at least ten major transportation authorities, municipalities, universities, or other high-use public environments currently using site products fabricated by the manufacturer.

06. Delivery, Storage and Handling

- A. Handle products in accordance with manufacturer's instructions.
- B. Store products in manufacturer's original packaging until ready for installation.
- C. Protect products from impacts and abrasion during storage.

07. Warranty

- A. Provide manufacturer's standard warranty:
 1. Warranty terms: one year from date of invoice against defects in materials and workmanship.

Part 2 Products

01. Manufacturer

A. Basis-of-design product: provide bollards based on the product named.

1. Knight Security Bollard by Forms+Surfaces

2. Manufacturer Contact:

Forms+Surfaces
30 Pine Street
Pittsburgh, PA 15223
phone: 800-451-0410

fax: 412-781-7840

email: sales@forms-surfaces.com

website: www.forms-surfaces.com

B. Cast Aluminum Lighted Security Bollards:

1. Permanent Mount.

a. Height: 43.1 inches.

b. Material: Cast Aluminum.

c. Column: 8-inch nominal square.

d. Head: Aluminum quadrant casting with Aluminum lamp housing and four borosilicate glass lenses.

e. Ballast (Choose one below):

1) Compact Fluorescent: electronic, thermally protected, 120/277V combination for 26W, 32W or 42W compact fluorescent lamp, less than 10% THD, 0°F starting temperature.

2) High Intensity Discharge: F-can ballast, thermally protected, 120/277V, -20°F starting temperature, class B sound rating.

f. Driver (LED only, Choose one below):

1) 0-10 dimming: Input power is 122-277V. Includes high efficiency constant output current with over-voltage, short circuit, overload protection. Certifications include: IP66 (waterproof) enclosure and Class 2 rated output (UL 8750).

2) Phase dimming: Input power is 120V. Includes high efficiency constant output current with over-voltage, short circuit, overload protection. Certifications include: IP66 (waterproof) enclosure and Class 2 rated output (UL 8750).

g. Lamps (Choose one lamp below):

1) Compact Fluorescent:

1. CFM26

a. 26W triple tube 4-pin.

b. Base: GX24q-3.

c. Luminaire lumens: 650.

d. Color temperature: 4,100K.

2. CFM42

a. 42W triple tube 4-pin.

b. Base: GX24q-4.

c. Luminaire lumens: 1,200.

d. Color temperature: 4,100K.

2) High Intensity Discharge:

1. M70
 - a. 70W metal halide
 - b. Base: medium.
 - c. Luminaire lumens: 1,982.
 - d. Color temperature: 4,000K.

3) LED

1. 3000K
 - a. 16W custom LED light engine
 - b. Luminaire lumens: 362
 - c. Color temperature: 3,000K
2. 4000K
 - a. 16W custom LED light engine
 - b. Luminaire lumens: 362
 - c. Color temperature: 4,000K
- h. Mounting: cast in place extra heavy wall steel security core with welded cross supports. 48" Security core minimum 24" embed into concrete and minimum 24" internal to bollard.
- i. Heavy steel wall security core set in 18" by 18" by 30" concrete footer minimum.
- j. Finishes:
 - 1) Column and lamp housing: polyester powdercoat (Select one option below):
 1. Standard Texture from Forms+Surfaces Powdercoat Chart.
 2. Premium Texture from Forms+Surfaces Powdercoat Chart.
 3. Custom RAL powdercoat color.
- k. Quadrant casting: Aluminum Texture polyester powdercoat with polished outer edges. All surfaces are clear coated.

Part 3 Execution

01. Examination
 - A. Verify that substrates are stable and capable of supporting the weight of items covered under this section.
 - B. Verify that foundation, applied finishes, and adjacent construction are ready to receive bollards and are level, plumb, and square within tolerances acceptable to manufacturer.
 - C. Verify that required utilities are in correct location and are of correct capacities for specified products.
02. Installation
 - A. Install in accordance with manufacturer's installation instructions.
 - B. Install in conformance to applicable ADA guidelines and End User's established accessibility policies.

END OF SECTION