

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

ELECTRICAL
LIGHTING
EXTERIOR LIGHTING
LIGHT COLUMN BOLLARD WITH SECURITY CORE

Part 1 General

01. Summary

A. Section Includes:

1. Series 600 lighted security bollard.
2. Series 600 non-lighted security bollard.
3. Series 600 non-lighted removable security bollard.

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. Preparation instructions and recommendations.
 2. Storage and handling requirements and recommendations.
 3. Installation methods.
- C. Shop Drawings: Complete details of layout and assembly, showing member sizes and part identification, fasteners, anchors, and fittings.
- D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

05. Quality Assurance

A. Manufacturer Qualifications:

1. Minimum 15 years experience in the manufacture of metal bollards.
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.
3. Installer Qualifications: minimum of 5 years experience assembling and installing metal bollards.

06. Delivery, Storage and Handling

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store components off the ground in a dry covered area, protected from adverse weather

conditions.

07. Warranty

- A. Structural integrity of all metal bollards shall be warranted for a period of 5 years from date of delivery against defects in materials and workmanship except for finishes of any kind.

Part 2 Products

01. Manufacturer

A. 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. Substitutions: Not permitted.

C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

02. Materials (Select model(s) below):

A. Stainless Steel Lighted Security Bollards:

1. Model number Series LCO-SEC-604 – (Permanent Mount).

a. Height: 48" (standard) or 50" (LED).

a. Material: 304 Stainless Steel.

b. Column: 6" nominal diameter.

c. Head: 125" thick white-frosted acrylic tube with Stainless Steel cap.

d. Directional shield (optional) (Choose one below):

1) Standard is perforated Stainless Steel with .25" diameter holes on .38" straight centers.

2) Custom design.

e. Ballast (linear fluorescent only): electronic, thermally protected, 120/277V combination for two F14T5 or two F24T5/HO lamps, -18°C starting temperature, <10% THD, class A sound rating.

f. Driver (LED only): Input power is 100-277 V. Includes high efficiency constant output current with over-voltage, short circuit, overload protection, and has 0-10V dimming capabilities. Certifications include: IP66 (waterproof) enclosure and Class 2 rated output (UL 8750), can be specified as dimmable.

g. Lamps (for illuminated bollards) (Choose one lamp below):

1) LED 3000K:

1. 17W custom LED light engine.

2. Luminaire lumens: Series 500: 1542, Series 600: 1542.

3. Color temperature: 3,000K.

2) LED 4000K:

1. 17W custom LED light engine.

2. Luminaire lumens: Series 500: 1542, Series 600: 1545.

3. Color temperature: 4,000K.

3) (2) F14T5:

1. 14W T5 linear fluorescent.

2. Base: mini bi-pin.

3. Luminaire lumens: Series 500: 2220, Series 600: 2194.

4. Color temperature: 4,100K.

4) (2) F24T5/HO:

1. 24W T5HO linear fluorescent.

2. Base: mini bi-pin.

3. Luminaire lumens: Series 500: 3295, Series 600: 3287.

4. Color temperature: 4,100K.

h. Escutcheon: spun stainless w/ integral set screw.

i. 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.

j. Heavy steel wall security core set in 18" by 18" by 30" concrete footer minimum.

B. Stainless Steel Non-Lighted Security Bollards (Select one below):

1. Model number Series LCO-SEC-604 – (Permanent Mount).

a. Height: 48" (standard) or 50" (LED).

b. Material: 304 Stainless Steel.

c. Column: 6" nominal diameter.

d. Optional standard shield configurations (Choose one below, if desired):

1) Kente:

A) Series 600, 180° shield.

2) Perforation:

A) Series 500, 180° shield.

B) Series 600, 180° shield.

C) Series 500, 360° shield.

D) Series 600, 360° shield.

3) Scape:

A) Series 500, 180° shield.

B) Series 600, 180° shield.

C) Series 500, 360° shield.

D) Series 600, 360° shield.

4) Custom design.

e. Escutcheon: spun stainless w/ integral set screw.

f. 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.

g. Heavy steel wall security core set in 18" by 18" by 30" concrete footer minimum.

2. Model number Series LCO-RSEC-604 (Removable Mount).

a. Height: 48" (standard) or 50" (LED).

b. Material: 304 Stainless Steel.

c. Column: 6" nominal diameter.

- d. Finish: Satin.
 - e. Directional shield (optional) (Select one below):
 - 1) Standard is perforated Stainless Steel with .25" diameter holes on .38" straight centers.
 - 2) Custom design.
 - f. Escutcheon: spun stainless w/ integral key lock to access anchor bolts.
 - g. Mounting: 24" cast in place extra heavy wall steel security core with welded cross supports. Core welded to 10" dia. x ½" thick circular plate.
 - h. Matching 24" heavy wall steel security core welded to 10" dia. x ½" thick plate internal to security bollard.
 - i. Mechanically fasten core plates using 1/2" stainless bolts.
 - j. Heavy steel wall security core set in 18" by 18" by 30" concrete footer minimum.
03. Finishes
- A. Satin.
 - B. Polyester powdercoat (Select one option below):
 - a. Standard Texture from Forms+Surfaces Powdercoat Chart.
 - b. Premium Texture from Forms+Surfaces Powdercoat Chart.
 - c. Custom RAL powdercoat color.

Part 3 Execution

01. Examination
- A. Verify existing conditions before starting work. Do not proceed until unsatisfactory conditions are corrected in manner acceptable.
 - 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.
 - D. If preparation and condition is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
02. Installation
- A. Install in accordance with manufacturer's instructions.
 - B. Coordinate connection to utilities as specified in Sections of Division 16.
03. Protection
- A. Protect installed products until completion of project.
 - B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION