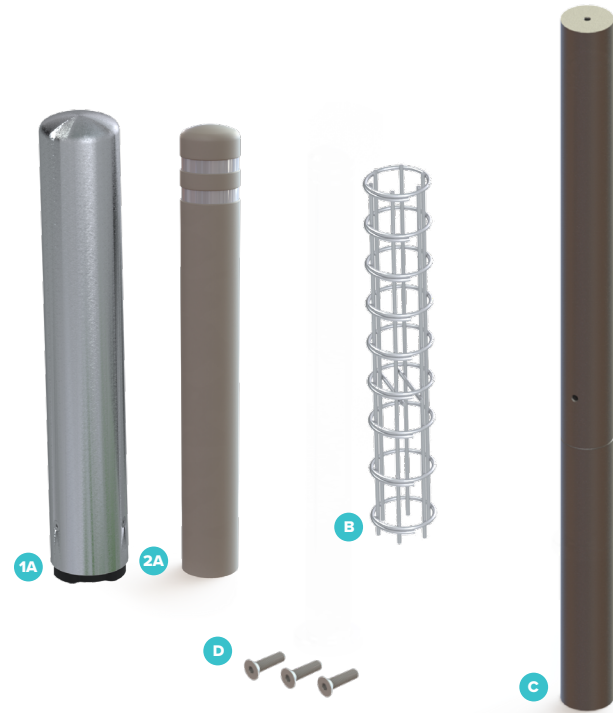


# CrashCore™ Bollard

## Crash-Rated Bollard Installation Instructions



### COMPONENTS



#### INCLUDED COMPONENTS

- |           |   |
|-----------|---|
| <b>1A</b> | Stainless Steel Post Cover                |
| <b>2A</b> | Plastic Post Cover                        |
| <b>B</b>  | Rebar Cage                                |
| <b>C</b>  | Steel Core                                |
| <b>D</b>  | Flat Head Screw, 1/2" -13 Thread, 2" long |

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# Suggested Tool List

Below you will find the suggested tools for a deep cage CrashCore Bollard installation

## EQUIPMENT

- Skid Steer with 10" Auger & Bucket Attachments
- Core Drill with 12" Diamond Core Bit
- Small Concrete Mixer or 5 Gallon Bucket with Concrete Paddle Mixer
- Gas-Powered Generator
- Wet/Dry Vacuum
- Pressure Washer
- Portable Work Lights (If Night Work)
- Cordless Blower
- Pallet Jack with 5000 lb Capacity
- Cordless Impact Driver
- Dumpster

## HARDWARE & SUPPLIES

- Fast-Setting Concrete Mix with Minimum 3000 psi — Approximately 2 ft<sup>3</sup> Per Bollard
- 1/4" x 1-3/4" Tapcon Self-Threading Concrete Anchors
- 3/16" Carbide Tip Masonry Drill Bit
- 5/16" Hex Impact Socket
- 5/16" Allen Key or Hex Bit
- Towels or Rags for Clean Stainless Steel
- Stainless Steel-Safe Cleaner

## TOOLS

- Chalk for Marking Concrete
- Chalk Line or Laser
- Tape Measure
- 24" Push Broom
- 7" Corn Hand Broom
- Finishing Trowel
- Flat Transfer Shovel
- Round Point Shovel
- Level
- Extension Cord
- 48" Post Hole Digger
- Wheelbarrow
- Web Slings for Lifting at least 1000 lb Capacity
- Square with at least 2 ft Blade
- 3/4" Water Hose with Hose Head Nozzle
- Steel Drilling Hammer or Dead Blow Hammer
- Shut-Off Valve Wrench (Water Security Key)
- 2 Adjustable Pipe Wrenches
- Utility Knife
- String or Wire
- Digging Bar
- Camera or Smart Phone

## PPE

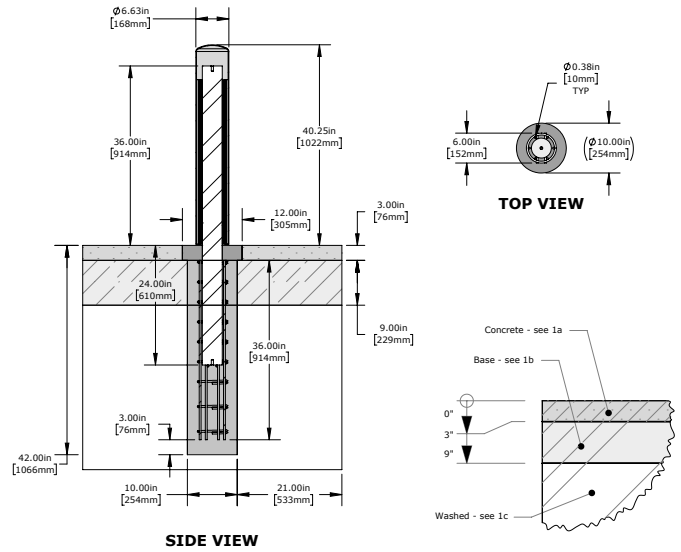
- Dust Mask
- Eye Protection
- Steel Toe Boots
- Ear Protection
- Gloves

## OH SH!T LIST

- Cones
- Cation Tape
- Metal Barricade
- Steel Tamper
- Jack Hammer
- 1/2" - 13 Tap
- 3/8" or #3 x 36" Rod or Rebar
- Masking Tape
- Tarp

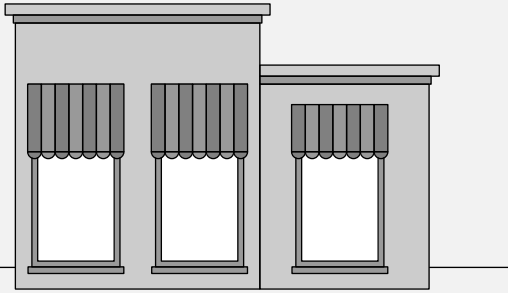
## GROUND CONDITIONS PER ASTM F3016

- **1a:** The concrete is 3000 psi minimum unconfined compressive strength, with one layer of #3 (Ø3/8") rebar spaced at 12" each way, with 1-1/4" cover at bottom. Rebar not shown here.
- **1b:** The base is Type A Grade 1 crushed limestone road base, compacted to 90% of standard proctor density.
- **1c:** The washed sand shall be classified as SP - poorly graded sand & be compacted to a density of not less than 90% maximum dry density in accordance with AASHTO Method of Test T099.



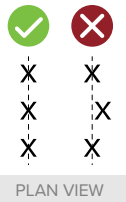
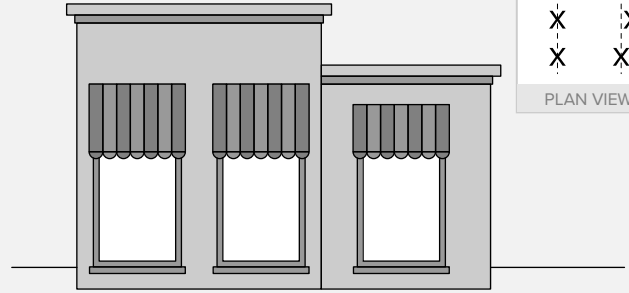
1

**PHOTOGRAPH:** Take wide angle photo including entire site.



2

Layout and mark bollard locations per print.

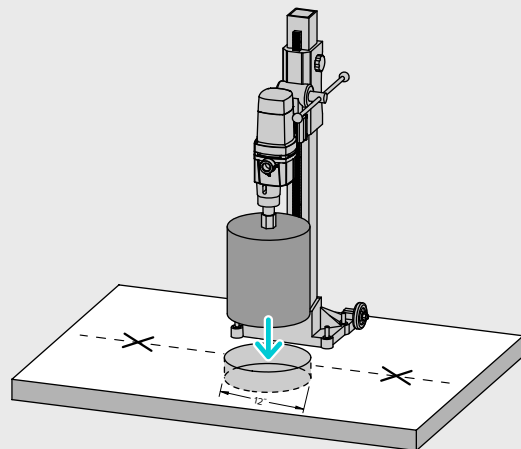
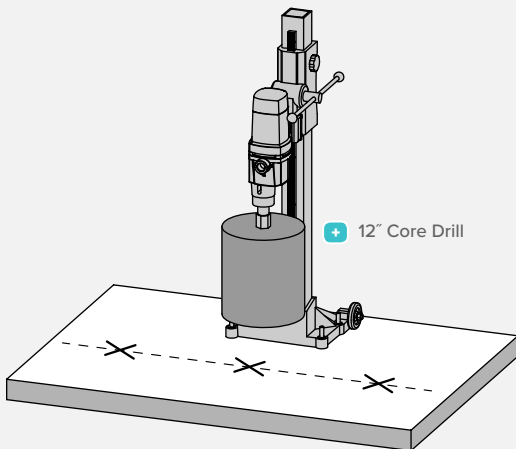


PLAN VIEW

+ Chalk, Tape & T-Square

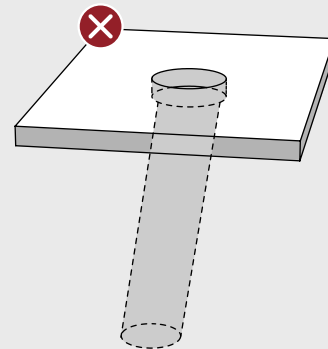
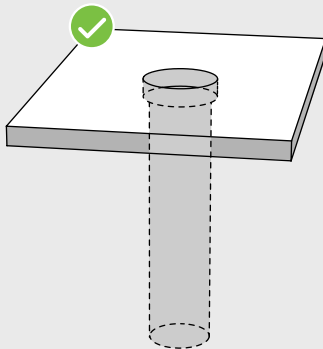
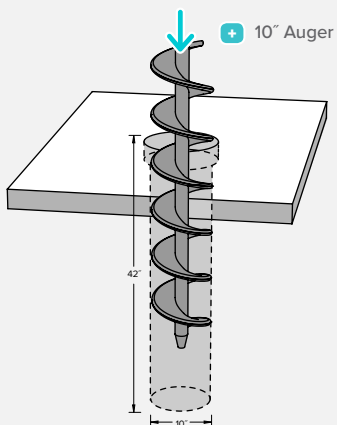
3

Use the 12" core drill to drill through concrete. Keep it clean — use the wet vac to make sure concrete slurry doesn't stain the sidewalk or enter drains.



4

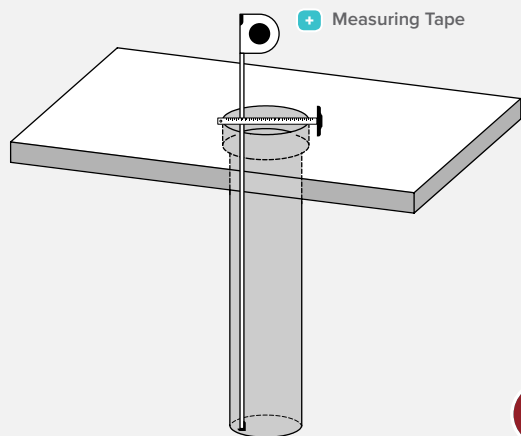
Using the 10" auger remove earth from hole. Auger 10" diameter hole 42" deep.



**NOTE:** Ensure hole is drilled straight and not at an angle

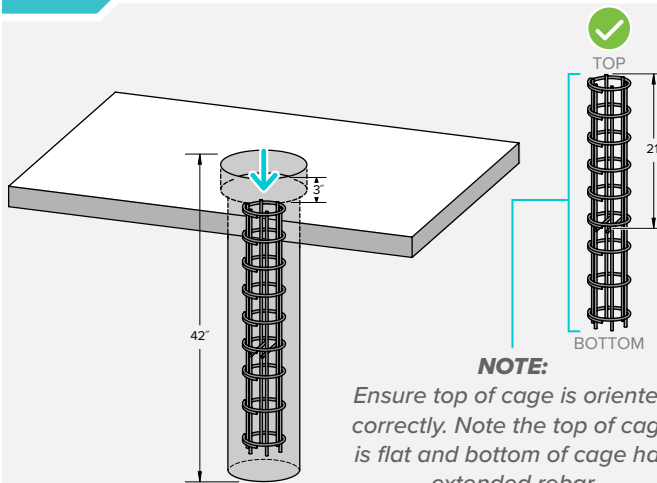
5

**PHOTOGRAPH:** Take two individual photos of both the diameter and depth of hole.



6

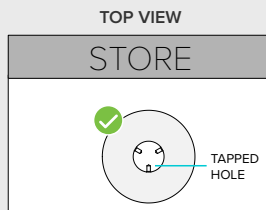
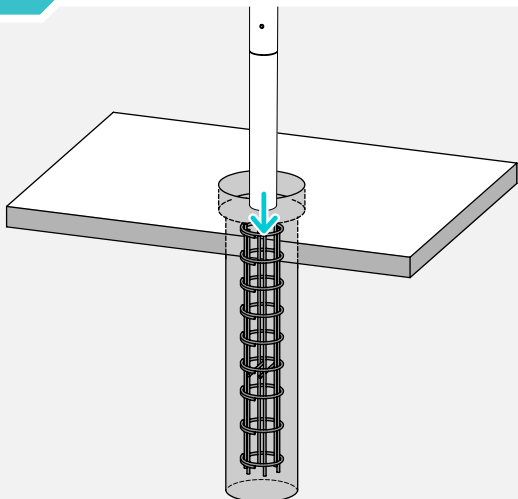
Install rebar cage 3" from ground level.



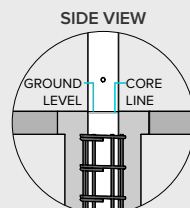
**NOTE:** Ensure top of cage is oriented correctly. Note the top of cage is flat and bottom of cage has extended rebar

7

Lower the core into the cage. Ensure one tapped hole is facing the parking lot and core is plumb.



PARKING LOT

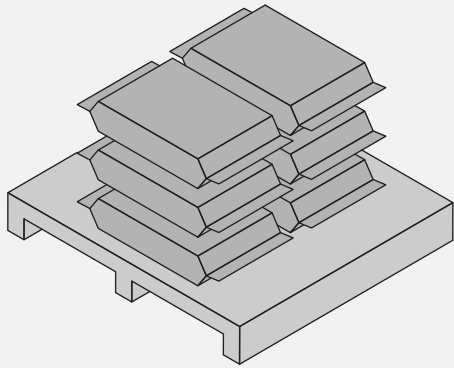


**NOTE:** Ensure top of core is oriented correctly. Note the tapped hole should be above the grooved core line.



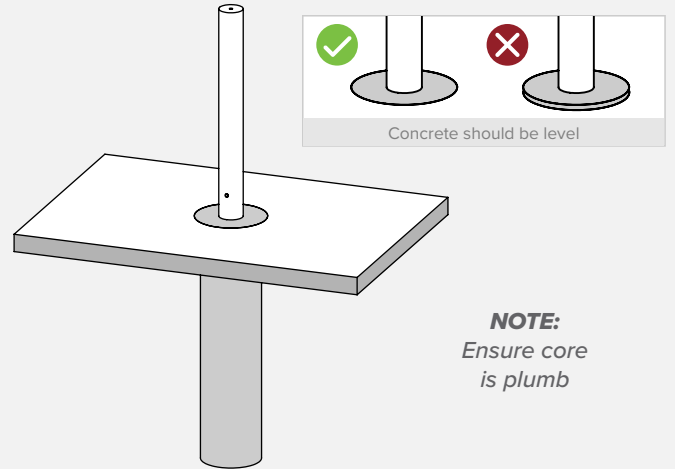
8

**PHOTOGRAPH:** Take photo of concrete bag.



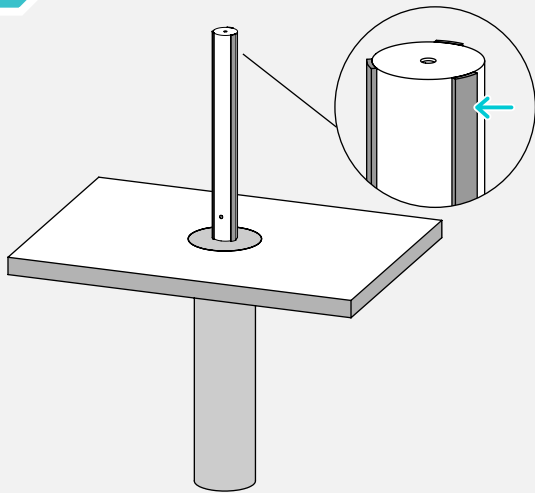
9

Mix & place 3,000 PSI minimum concrete into the hole to ground level — estimated concrete approximately 2 cubic feet per bollard.



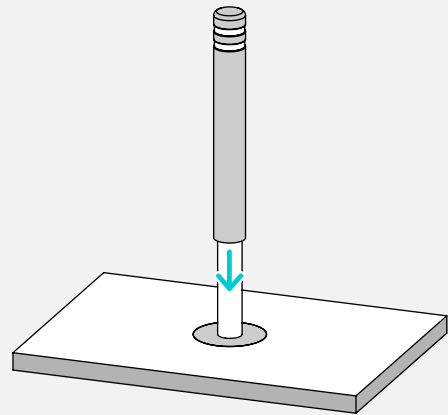
10A

**IF PLASTIC COVER:** Cut a 3' piece of foam tape and apply to the area between the threaded holes.



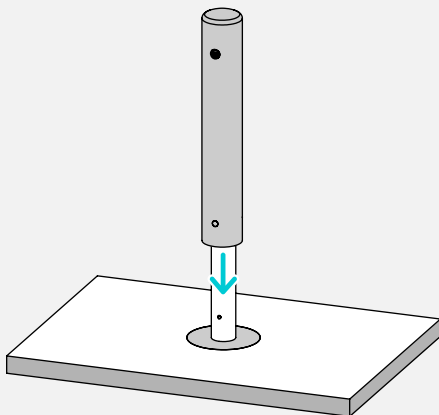
11A

While concrete is still curing, install the plastic post cover.



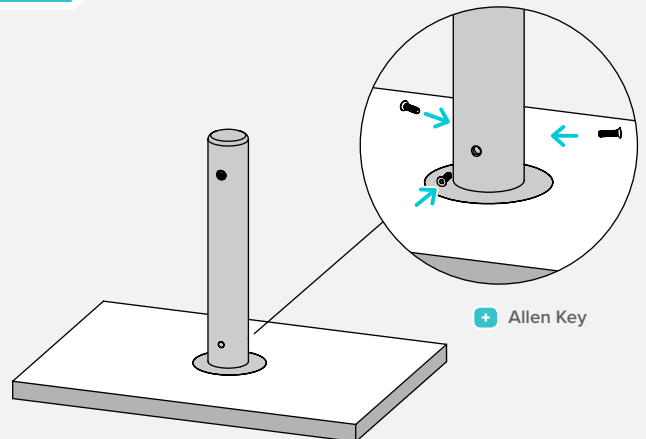
10B

**IF STAINLESS STEEL COVER:** While concrete is still curing, install the stainless steel post cover.



11B

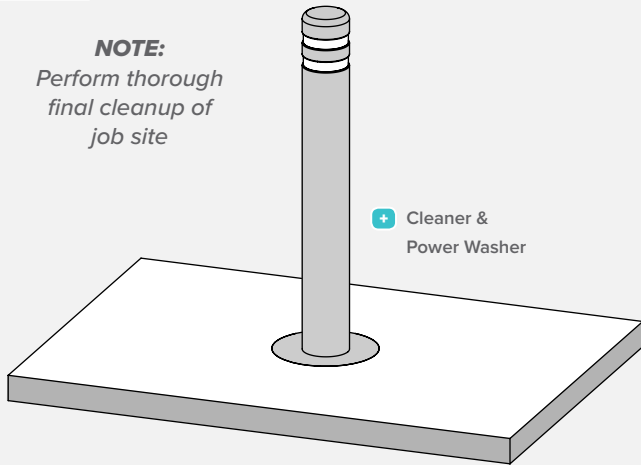
Use the 5/16" Allen Key to tighten the screws to secure the cover.



12

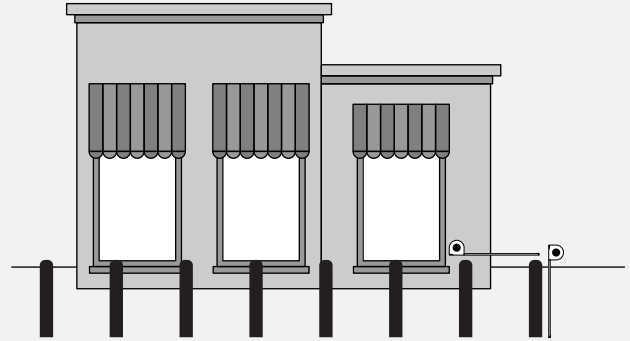
Clean bollard cover and ensure entire site is clean.

**NOTE:**  
Perform thorough final cleanup of job site



13

**PHOTOGRAPH:** Take photos of completed installation, bollard height & typical spacing.



**NOTE:** Total of 3 photos



# Installation Checklist

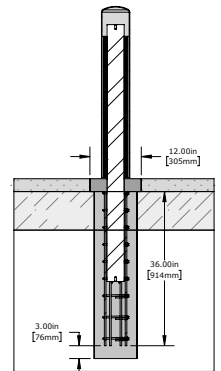
Ensure all items are complete before finishing installation

## MEASUREMENT CHECK

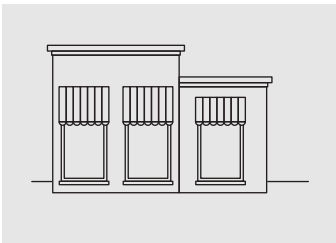
- 42" Deep hole
- 10" Diameter hole
- Cage is 3" from ground level

## CORE ALIGNMENT

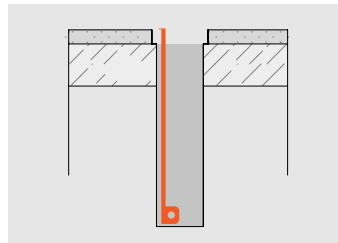
- Center the core in the hole
- Core is plumb
- Check the overall height of the bollard from ground level using a tape measure and the line on the core



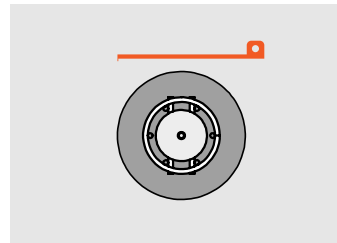
**PHOTO CHECK:** Ensure to document the completion of each specified step that included a photo icon as shown below



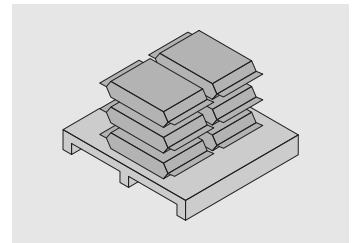
Before Photo Of Work Site



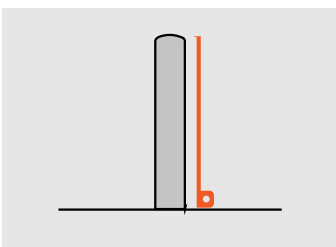
42" Deep Hole



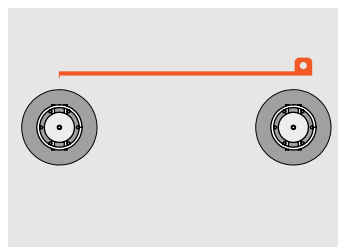
10" Diameter Hole



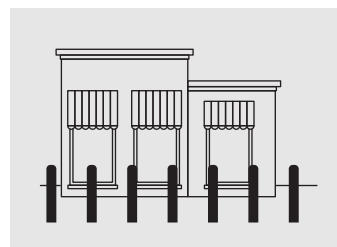
Concrete Bag



Overall Bollard Height



Typical Bollard Spacing



Finished Site Installation



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