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*Suggested Architectural Specification For:*

**CYCLESAFE INC. PRORACK SERIES BICYCLE STORAGE SYSTEM SPECIFIC NOTES:**

**PRORACK (PR) SPECIFICATIONS**

**CYCLESAFE® PRORACK BICYCLE RACKS**

## SECTION 12 93 13.10

### U-RACK BICYCLE PARKING

#### Part 1 General

##### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections apply to this section.

##### 1.2 SUMMARY

- A. This section includes the following:
  - 1. Surface mounted "U" style bicycle racks
  - 2. Rail mounted "U" style bicycle racks
  - 3. In Ground mounted "U" style bicycle racks

##### 1.3 ALTERNATES

- A. Refer to Section 01 23 00 – Alternates for description of work in this Section affected by alternates.
- B. Approval of alternate manufacturer model is contingent upon use of equivalent material that meets or exceeds all material ratings. Approved alternate models shall also include all components and design features specified herein.
- C. Requests for approval of alternate manufacturer model, if submitted, must be requested no less than twenty days before the project bid is due.

##### 1.4 MEASUREMENT AND PAYMENT

- A. Bicycle Racks: measured as completed units and includes furnishing and installing as specified on the plans, complete and in place, along with required mounting hardware & fasteners. Bicycle racks to be paid for at the contract unit price each.
- B. Foundation slab or improved surface: paid under separate pay item.

##### 1.5 RELATED SECTIONS

- A. Section 03 30 00 - Cast-in-Place Concrete: concrete foundation slab
- B. Section 05 50 00 - Metal Fabrications: metal bollards
- C. Section 10 73 46 – Bicycle Shelter Systems: covered bicycle parking
- D. Section [ \_\_\_\_\_ - \_\_\_\_\_ ]:

**1.6 REFERENCE STANDARDS**

- A. ASTM A36 – 08 Standard Specification for Carbon Steel
- B. ASTM A53 – 07 Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
- C. ASTM A123 – 09 Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
- D. ASTM A153 – 09 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
- E. ASTM A240 – 09c Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip
- F. ASTM A249 – Standard specification for nominal-wall-thickness welded tubes and heavily cold worked welded tubes made from austenitic steels
- G. ASTM A276 – Standard Specification for Stainless Steel Bars and Shapes
- H. ASTM A312 – Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes
- I. ASTM A513 Type-5 – Standard specification for electric resistance welded carbon and alloy steel mechanical tubing
- J. ASTM B117 – Standard Practice for Operating Salt Spray (Fog) Apparatus
- K. ASTM C1107 – Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink)
- L. ASTM D412 – Standard test Methods for Vulcanized Rubber and Thermoplastic Elastomers - Tension
- M. ASTM D522 – Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings
- N. ASTM D1004 – Standard test Method for Tear Resistance (Graves tear) of Plastic Film and Sheeting
- O. ASTM D2240 – Standard Test Method for Rubber Property – Durometer Hardness
- P. ASTM D2247 – Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity
- Q. ASTM D2794 – Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)
- R. ASTM D3359 - 09 Standard Test Methods for Measuring Adhesion by Tape Test
- S. ASTM D3363 – Standard Test Method for Film Hardness by Pencil Test

## 1.7 DEFINITIONS

- A. Class I Bicycle Parking Facilities do not apply unless by specific ordinance.
- B. Class II Bicycle Parking Facilities do not apply unless by specific ordinance.
- C. Class III Bicycle Parking - Light security for short-term visitor parking. Class III, when used alone, is the least secure method of storing bicycles. The rack must be constructed of steel pipe or tubing, round or square, and securely anchored to an immovable level surface. The rack must provide support for the bicycle frame by holding it upright and allowing at least two points of contact for locating a cable or U-shaped lock. Racks that locate the bicycle solely by one wheel may cause damage to the rim and are not recommended.

## 1.8 PRE-INSTALLATION MEETING

- A. If required by Architect or Owner, conduct pre-installation meeting at Project site to comply with requirements in Section 01 33 00 – Pre-Installation Meeting.

## 1.9 SUBMITTALS

- A. Product Data: for each type of product indicated
  - 1. Include construction details, material descriptions, dimensions, finishes, and installation instructions.
- B. Shop Drawings: Show fabrication and installation details and attachments to other work. Include parking area plans, ingress and egress, and bicycle rack elevations.
- C. Samples
  - 1. Provide samples for selection for each type of finish indicated for units with integrally pigmented factory-applied finish.
  - 2. Provide samples for verification for each type of exposed finish.
- D. Certifications
  - 1. Submit certification documentation [prior to award of contract] [\_\_\_\_\_]
  - 2. Material Certificates: Prepare written acknowledgement on manufacturer's letterhead certifying that products or materials comply with requirements of ISO 9000 or ISO 14000.
  - 3. Obtain, from Manufacturer, the following
    - a. Manufacturer certification that the product submitted meets required standards referenced.
    - b. Manufacturer certificate of compliance with current local and federal regulations as it applies to the manufacturing process.
    - c. Written statement on manufacturer's letterhead certifying that manufacturer complies with requirements of the Contract Documents.
- E. Sustainable Design Submittals: LEED Submittal.
  - 1. Provide documentation to substantiate implementation of each applicable category of LEED Credits.

**1.10 QUALITY ASSURANCE**

- A. Products of This Section: Manufactured to ISO 9000 or ISO 14000 certification requirements.
- B. Manufacturer Qualifications: A company specialized in the manufacture products as specified herein with a minimum of 5 years documented experience.
- C. Installer Qualifications: An experienced installer who has completed bicycle storage installations similar in material, design, and extent to those indicated and whose work has resulted in construction with a record of successful in-service performance.

**1.11 REGULATORY REQUIREMENTS**

- A. Conform to Class III Bicycle Parking Facilities requirements.

**1.12 DELIVERY, STORAGE, AND PROTECTION**

- A. Delivery
  - 1. Deliver materials in original factory furnished packaging and bearing manufacturer's labels indicating brand name and directions for storage.
  - 2. Each bicycle rack shall be packaged for protection from damage and clearly marked with project information per manufacturer's packaging standard.
  - 3. Each package shall contain all fasteners necessary for installation and complete installation instructions.
- B. Storage
  - 1. Store bicycle racks in the original packaging, as directed, until ready for installation to prevent deterioration from moisture, heat, cold, direct sunlight, or other causes.

**1.13 FIELD CONDITIONS**

- A. Field Measurements: Indicate measurements on Shop Drawings
- B. Coordinate installation of anchor bolts and adhesive for bicycle rack, furnish directions for installation.

**1.14 WARRANTY**

- A. Manufacturer's Warranty: Submit a written warranty executed by the manufacturer's standard form in which manufacturer agrees to repair or replace components of bicycle rack that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, the following.
  - 1. Structural failures including, but not limited to, weld failures, screw thread or mounting point failure, imperfections to base materials.
  - 2. Deterioration of metals, finishes, and other materials beyond normal weathering.
- B. Warranty does not cover normal weathering, improper installation, neglect, or misuse.

## Part 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. CycleSafe® Inc., ProRack Bicycle Racks
1. Location: 947 Forest Hill Ave., Suite C, Grand Rapids, MI 49546
  2. Phone: 888-950-6531
  3. Web Site: www.cyclesafe.com
- B. Substitutions: Not Allowed
- [OR]**
- C. Substitutions: may be considered, provided manufacturer can comply with the specifications written herein.
1. Partial or incomplete validation of material physical properties to ASTM standards herein will not be accepted.
  2. Requests for substitution must be submitted in writing no less than 10 days prior to bid date.

### 2.2 ARCHED INVERTED U-SHAPED RACK

- A. Overall Installed Height: [36 inches (914mm)] [38 inches (965mm)] [As indicated on Drawings] [As indicated on bicycle rack schedule] [<Insert height>]
- B. Overall Installed Width: [24 inches (610mm)] [As indicated on Drawings] [As indicated in a bicycle rack schedule] [<Insert width>]
- C. Overall Installed Depth: [As indicated on drawings] [As indicated in a bicycle rack schedule] [<Insert depth>]
- D. Installation method: [Surface Mount] [In Ground Mount] [Rail Mount]
- E. Style: U/2 Inverted U-Rack [with Cross Bar]
1. Capacity: double sided, designed to accommodate not less than [two] [four] [six] [eight] [ten] [twelve] [<Insert number>] bicycles set as [individual rack units] [ganged groups of <Insert Number>]
  2. Frame Material: [Steel] [Stainless Steel] [Schedule-40 Pipe] [Mechanical Tubing]
  3. Finish: [Plain] [Plastisol] [Galvanized] [Painted]

### 2.3 MATERIALS

- A. Mild Steel: Low Carbon, Free from surface blemishes
1. Plates, Shapes, and Bars: ASTM A36
  2. Steel Pipe: Schedule 40 wall thickness, ASTM A53 Type F, or Electric Resistance Welded (ERW), ASTM A53 Grade B Type E
  3. Round Mechanical Tubing: Drawn Over Mandrel (DOM), ASTM A513 Type 5, or ERW, ASTM A513 Type 2
- B. Stainless Steel: Type 304 NMSS, Non Hardening. Free from surface blemishes

1. Plates, Shapes, and Bars: ASTM A240, A276
  2. Steel Pipe: Schedule 40 wall thickness, ASTM A312
  3. Round Mechanical Tubing: ERW, ASTM A249
- C. Anchors, Fasteners and Hardware: [Stainless steel] [Galvanized steel] Manufacturer's standard, corrosion-resistant-coated or non-corrodible materials; commercial quality; [Hex socket] [tamperproof, vandal and theft resistant] SAE Grade-3 Hardness, concealed, recessed, and capped or plugged. Provide as required for bicycle rack assembly, mounting and secure attachment.
1. Concrete Sleeve Anchors: [Stainless Steel] [Mild Steel, Hot Dipped Galvanized]
  2. Tamper Resistant Drop-in Expansion Anchor: [Stainless Steel] [Mild Steel, Hot Dipped Galvanized] with button head fastener [Hex socket] [tamperproof, vandal and theft resistant]
  3. ASME B18.2.1 - 1996 Square and Hex Bolts and Screws
  4. ASME B18.6.3 - 2003 Machine Screws and Machine Screw Nuts
  5. Concrete Anchor Adhesive: Williams Wil-Bond Epoxy, or equal.
- D. Concrete Pads: Refer to Section 03 30 00
- E. Nonshrink, Nonmetallic Grout: Premixed, factory packaged, nonstaining, non corrosive, nongaseous grout complying with ASTM C1107. Provide grout, recommended in writing by manufacturer for exterior applications.
- F. Erosion Resistant Anchoring Cement: Factory packaged, nonshrink, nonstaining, hydraulic controlled expansion cement formulation for mixing with potable water at Project site to create pourable anchoring, patching and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and is recommended in writing by manufacturer for exterior applications.

## 2.4 FINISH COATINGS

- A. TGIC Powder Coating
1. PCI Powder Smoothness: 8-9 (high gloss)
  2. Adhesion: ASTM D3359
  3. Pencil Hardness: ASTM D3363
  4. Impact Hardness: ASTM D2794
  5. Flexibility: ASTM D522 (1/8 inch - No fracturing)
  6. Humidity: ASTM D2247 (1,000+ hours)
  7. Salt Spray: ASTM B117 (1,000+ hours)
- B. Rack Color: [Black] [Custom Color]
- C. Plastisol: Vinyl Rubber (PVC) Coating
1. Color: Black
  2. Surface appearance: Glossy

3. Chemical Resistance: to acids, alkalines, detergents, oils and some solvents.
  4. Low Temperature Flexibility: to -65°F
  5. UV/ Weatherability: Good to excellent, usually at least 10 years.
  6. Mass solid density: 7.9 to 20.5 #/gallon
  7. Tensile Strength: ASTM D412, Die C 2000 psi (140 kg/sq cm) Min.
  8. Elongation: ASTM D412, Die C 300% Min.
  9. Durometer: ASTM D2240, 15 sec 80 +/- 5
  10. Tear Strength: ASTM D1004 275 PLI Min.
- D. Galvanizing: Where indicated for mild steel components, provide the following protective zinc coating applied to components after fabrication.
1. Hot-Dip Galvanizing:
    - a. Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products ASTM A123
    - b. Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Hardware ASTM A153

## 2.5 PERFORMANCE / DESIGN CRITERIA

- A. Thermal Movements: Provide bicycle racks that allow for thermal movements resulting from changes in ambient and surface temperatures by:
1. Preventing buckling
  2. Opening of joints
  3. Overstressing of components
  4. Failure of connections
  5. Other detrimental effects
- B. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- C. Bicycle Racks: designed so as to ensure that all racks are made of durable materials, provide adequate security, have capacity for storing all conventional bike sizes, are aesthetically pleasing, and are weather and graffiti resistant.
- D. Anchors: securely attach Racks to foundation slab where specified. Anchoring system shall be removable to enable Racks to be relocated if necessary.
- E. Anchors and Fasteners to be structurally stressed not more than 50 percent of allowable stress when maximum loads are applied.
- F. Color: All racks on a single site shall be the same [color] [color combinations] and should be appropriate for the surrounding environment and site context.
- G. Product Layout: Refer to CAD Details and/or 3-D Warehouse, for layout options and site dimensions. Drawings indicate size, profiles, and dimensional requirements of bicycle storage racks and systems, and are based on the specific system indicated.

## **2.6 RACK FABRICATION**

- A. U/2 Racks
  - 1. Material: Rolled pipe or mechanical tubing, 2" nominal diameter.
  - 2. Any blemishes or rust will not be allowed on material prior to finishing.
  - 3. Welded construction: 60,000 psi (4,200 kg/sq cm) minimum weld strength.
  - 4. Weld processes must adhere to generally recognized weld practices.
  - 5. Tolerances: all racks to have equal measurements with a maximum tolerance of +/- 1/32 inch.
  - 6. Surface Mounting Pad: Two (2) 3/8" thick plate with two (2) mounting holes on each.
  - 7. Fasteners: [Stainless Steel] [Zinc Plated]

## **2.7 SOURCE QUALITY CONTROL**

- A. Obtain primary materials and hardware through one source and fabricated from a single manufacturer.
- B. Fabrication and Finishes to be tracked by lot or batch numbers by vendor.
- C. Vendors to use ISO 9000:2000 or TS 16949:2002 as a basis for supplier quality verification.

## **Part 3 Execution**

### **3.1 EXAMINATION**

- A. Section 01 70 00: Verify existing site conditions before starting work.
- B. Verify that each assembly is complete. Undamaged, and ready for installation.
- C. Verify dimensions and method of attachment with other work.
- D. Examine site for slab requirements and location.
- E. Verify anchorage locations to proceed with installation.

### **3.2 INSTALLATION**

- A. Install Bicycle Parking Racks according to Manufacturer's written instructions.
- B. Where specified, install racks on minimum 4 inch- (100mm-) thick concrete slabs, sloped to provide drainage (maximum 2 degrees) per Section 03 30 00. Concrete shall be a minimum of 2,000 psi (140 kg/sq cm). For other improved surfaces, such as asphalt or pavers, contact Manufacturer for alternate installation procedures.
- C. Complete field assembly of racks where required.

- D. Surface Mount Racks: Fasten racks to concrete slab or improved surfaces with concrete style expansion anchors (furnished by Manufacturer) and concrete adhesive.

[OR]

- E. In Ground Racks: insert racks in pipe sleeves or voids in concrete slab, filling annular space between post and [sleeve] [concrete] with [grout] [or] [concrete adhesive].

[OR]

- F. Rail Mount Racks: Attach racks to rails at 36" spacing with hardware provided. Fasten rails to concrete slab with anchors at rail ends. Shim and level as required.
- G. Set racks plumb and aligned.
- H. Field alteration of racks or frames to accommodate field conditions is strictly prohibited.
- I. After completing installation, inspect exposed finishes and repair damaged finishes.

### 3.3 CLEANING

- A. Sweep all loose debris from around racks after installation and prior to acceptance.
- B. Wipe down all painted surfaces with warm water. Do not use solvents.

### 3.4 MAINTENANCE

- A. Use only materials and procedures recommended or furnished by rack manufacturer.

### 3.5 SCHEDULES

- A. CycleRack U-Rack
  - 1. Single unit
    - a. Capacity: 1-2 bicycles
    - b. Shipping Weight: [450 lbs] [240 kg]
    - c. Quantity: [\_\_\_\_\_]
  - 2. Gang of 2 units
    - a. Capacity: 2-4 bicycles
    - b. Gang length: 6'9"
    - c. Shipping Weight: [760 lbs] [345 kg]
    - d. Quantity: [\_\_\_\_\_]

### 3.6 ATTACHMENTS

- A. Attachment A: U-Rack Description
- B. Attachment F: Ordering Information

**END OF SECTION**

ATTACHMENT A

**U-Racks: Surface, In Ground and Rail Mount**

(Note: Surface Mount Racks Shown)

The U-Racks shown are also available in In-Ground and Rail Mounted configurations.

U/2 by CycleSafe

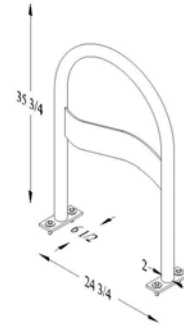


U/2 with Cross Bar

Staple by CycleSafe



The Staple Rack is not available without a cross brace



Typical Dimensions

Vintage by CycleSafe



Contact CycleSafe for a Complete List of Available Patterns

Modern by CycleSafe



Contact CycleSafe for a Complete List of Available Patterns

## ATTACHMENT F

### ORDERING INFORMATION

1. Call CycleSafe® representative at 888-950-6531 for rack configuration(s), site planning assistance, or pricing information. Or online at [www.CycleSafe.com](http://www.CycleSafe.com) to communicate your order needs.
2. Once you receive a formal proposal, secure your delivery schedule by faxing a purchase order to CycleSafe at 616-954-0290 or return email.
3. Identify how many bikes you want to park over all.
4. Determine how many rows or separate locations you wish to install.
5. Specify number of bikes per row.
6. Choose model style based on program needs.
7. Determine/plan your site footprint. Note that mounting on a 4 inch concrete pad is recommended, with a six-foot access aisle around at least three sides of a row of racks.
8. Bicycle racks can be attached to other improved non-concrete surfaces. Contact manufacturer for non-concrete attachment requirements.