**SECTION 10 73 43**

**BICYCLE SHELTERS**

**PART 1 GENERAL**

**1.1 SECTION INCLUDES**

A. Bicycle shelter(s) – Shed Model

**1.3 REFERENCES**

A. ASTM A 1008/A – Standard Specification for Steel Bars, Carbon and Alloy, Cold-Finished.

B. ASTM B 209 – Standard Specification for Aluminum and Aluminum-alloy Sheet and Plate.

1. ASTM B 221 – Standard Specification for Aluminum and Aluminum-alloy Extruded Bars, Rods, Wire, Profiles and Tubes.
2. ASCE 7-05 – Minimum Design Loads for Buildings and Other Structures.
3. ICC/ANSI A 117.1 – Accessible and Usable Buildings and Facilities.
4. IBC – International Building Code.
5. Americans with Disabilities Act of 1990 (ADA). As amended by Public Law 101-336 (2009)
6. AISC Publications:

1. Code of Standard Practice for Steel Buildings and Bridges.

 2. Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings.

 3. Structural Welding Code – Steel & Aluminum.

**1.4 DESIGN REQUIREMENTS**

A. Basic Wind Speed: \_\_\_ mph. Upgrades available to meet all hurricane zone requirements.

1. Exposure Category: \_\_\_: Upgrades available to meet all exposure categories.
2. Basic Snow Load: \_\_\_ psf. Upgrades available to meet all snow load requirements.
3. Seismic Design – per local codes. Upgrades available to meet any zone requirement.
4. Column to concrete footing / concrete pad connection to be in compliance with OSHA Steel Erection Standard CFR – which requires a minimum of four (4) anchor bolts per column.
5. No onsite welding shall be required or permitted.

**1.5 SUBMITTALS**

A. Product Data: Submit manufacturer's product data, including materials, components, finish and all accessories and equipment furnished.

B. Shop Drawings: Submit manufacturer's shop drawings, including plans, elevations, sections and details, dimensions, anchorage, flashing and seal details if applicable, finish, and options.

C. Erection Drawings: Submit manufacturer’s instructions and drawings, and develop erection procedures to enable field installation and repair.

D. Manufacturer’s Project References: Submit list of completed projects including project name and location and type of shelters manufactured.

E. Warranty: Submit manufacturer's standard warranty.

**1.6 QUALITY ASSURANCE**

1. Manufacturer's Qualifications:
2. Continuously engaged in Steel and Aluminum Shelter manufacturing with a minimum of 10 years successful experience.
3. Able to demonstrate successful performance on comparable projects.
4. Responsible for all components, including structural design.
5. All welding performed by AWS certified welders and inspected by AWS certified inspector. Qualify procedures and personnel according to AWS D1.1/D1.1M, “2020 Structural Welding Code – Steel”.
6. AISC member in good standing (required): A qualified steel fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Manufacturer, Category BU; Building Fabricator. Manufacturer shall affix their AISC certification number on the cover page of shop drawing set.
7. Comply with applicable provisions of the following specifications and documents: 1. AISC 303-16. AISC 341-16 and AISC 341s1. 3. AISC 360-16, AISC 358-16 and AISC 358s1-18. RCSC’s “Specifications for Structural Joints Using High Strength Bolts”.

 B. Installer’s Qualifications:

1. Authorized by manufacturer to install Shelters.

2. Trained by manufacturer' standard training methods and policies.

**1.7 DELIVERY, STORAGE, AND HANDLING**

A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name, manufacturer, and location of installation with detailed written instructions for installation.

B. Storage: Store materials in a clean, dry area indoors in accordance with manufacturer's instructions.

C. Inspect for concealed damage within 48 hours of delivery and compare manufacturer’s bill of lading / packing list and report any missing items to the manufacturer within this time frame.

**1.8 WARRANTY**

A. Warranty Period: One year starting on date of substantial completion.

**PART 2 PRODUCTS**

**2.1 MANUFACTURER**

1. “Shed” model, 9’ x 10’, 9’ x 13’, 9’ x 16’, 9’ x 19’, 9’ x 22’, 9’ x 25’, 9’ x 31’, by Duo-Gard
 Industries; 40442 Koppernick Road, Canton, Michigan 48187. Phone (734) 207-9700.
 Fax (734) 207-7995. Web Site [www.duo-gard.com](http://www.duo-gard.com). E-Mail info@duo-gard.com.
2. Substitutions must be approved ten (10) days prior to the bid date. Alternate providers must

 provide complete product drawings as well as proof of equivalency of the pretreatment and

 Tnemec finish system. Powder coating will not be an acceptable alternative for steel shelters but

is the standard for aluminum. Please forward complete information, including testing I information to meet ASTM requirements, for the alternate requested finishing procedures.

**2.2 2.3 Fabricated Steel Shelters**

1. Shelters – A pre-engineered and prefabricated framed shelter(s), columns, rafters, purlin structure with roof panels, trim, flashing, fasteners and accessories needed for complete installation.
2. The shelter glazing trim and associated components shall be fabricated using 6063-T5 extruded aluminum members Fed. Spec. QQ-A-200/9C(1). 6061-T6 and 6005-T6 alloy/temper shall be used where required. Finished to match.
3. Fasteners:
	1. Roof framing, accessories, amenities, wall / roof trim: stainless steel or aluminum.
	2. Structural/frame connections: grade 304 or 316 stainless steel.
	3. Anchoring: grade 304 or 316 stainless steel wedge anchor bolts or adhesive anchors.
	4. Fasteners ¼” dia. and smaller: finished to match at factory (as req’d).
	5. Fasteners 5/16” dia. and larger: to remain unfinished in completed product, or painted in field.
	6. All connections shall be concealed. No exposed fasteners shall be allowed other than anchor bolts.
4. Structural framing shall be Hollow Structural Sections (HSS) meeting ASTM A500 grade B.
5. Steel Roof Rafter and Purlins shall be beveled at a 45 degree angle. The openings shall be capped with steel, welded and ground smooth prior to the finishing process.
6. Ground anchor plates shall be stainless steel, grade 304, which are welded to the columns in the factory. The anchor plates shall be finished per section 2.5 (A).

G. Roof sheathing/glazing shall be shall be: translucent polycarbonate structured sheet or standing seam metal (choose one).

* 1. Translucent polycarbonate structured sheet: 8mm multi-wall polycarbonate sheet. Edges and joints to be trimmed with extruded aluminum glazing system, finished to match. Polycarbonate tint to be: clear, bronze, opal, other: (choose).
	2. 24 gauge standing seam galvalume steel panels – color to be selected from roof color guide. Aluminum Panels, standard thickness is .032, are available in limited colors.

H. Joint Sealant:

1. Factory-Applied Sealant: Gunnable, non-hardening, elastomeric sealant. ASTM C 920, Type S, Class 12, Grade NS. Fed Spec TT-S-1657, Type 1.n.

2. Field-Applied Sealant: As approved by the shelter manufacturer.

I. Field Fasteners:

1. Comply with shelter manufacturer’s instructions for fastener types, quantities, and usage. Substitutions are not permitted.

 J. Shelter fabrication and all components must meet Buy America Requirements.

**2.3 Accessories**

 A. LED Solar Lighting, or grid tied LED lighting, are available as a standard offering. Other types of

 light fixtures are available. Please contact the manufacturer for additional information.

**2.4 COLOR AND FINISH**

1. Steel framework:
	1. Duo-Gard long-wear paint process:
		1. Media Blast Prep to SSPC-SP10/NACE #2 Near White Blast Cleaned Steel.
		2. Tnemec Tneme-Zinc 90-97 primer; to meet ASTM D 1014 (Type II) Exterior

 Exposure and ASTA D 4541 (type II) Adhesion.

* + 1. Tnemec F.C. Typoxy Series 27 intermediate coat. To meet ASTM D 4060,

 ASTM D 3359, ASTA D 4585 and ASTM D 1653.

* + 1. Tnemec series 1075 Endura-Shield II topcoat; To meet requirements of ASTM

 D4060, ASTM D 3359, ASTM D 4141, ASTM D 522 and ASTM D4585.

* + 1. Topcoat Color: .
1. For approved equal requests to Tnemec finish provide the testing data for the requested alternate finish method for the following tests and test results. The requested finish system shall meet or exceed the requirements of the ASTM numbers listed above in 2.5 (A1, items b-d).
2. ASTM B 117 – Salt spray (Fog) Testing (1,000 hours exposure)
3. ASTM D 610 – Evaluating Degree of Rusting
4. ASTM D 1654 – Evaluating Coatings Subjected to Corrosive Environments

**PART 3 EXECUTION**

* 1. **EXAMINATION**

A. Use forklifts with fork extensions, where req’d. Handle all materials carefully to avoid scratching the finish. Note any visible damage on bill of lading. Concealed damage shall be reported to the manufacturer within 48 hours of delivery.

1. Examine areas to install shelters. Notify Architect of conditions that would adversely affect

 installation. Do not proceed with installation until unsatisfactory conditions are corrected.

**3.2 PREPARATION**

 A. Ensure location to receive shelter is clean, flat, level, plumb, square, accurately aligned, and correctly located.

**3.3 INSTALLATION**

A. The manufacturer shall provide installation instructions complete with diagrams. Installation shall be performed by the manufacturer or his representative (option). The manufacturer shall guarantee the installation for a period of one (1) year, when performed by the manufacturer, from the date of acceptance.

**3.4 CLEANING**

1. Clean shelters in accordance with manufacturer’s instructions.
2. Do not use harsh cleaning materials or methods that would damage the metal finish or glazing.

**3.5 PROTECTION**

A. Protect installed shelters from damage during construction.

**END OF SECTION**