

SECTION 055968 - STAINLESS STEEL MESH STRUCTURES AND RIGGING SYSTEMS

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. Prototyping, design, engineering, fabrication and installation of complete, functioning, and safe otter barrier systems. All work of this Section shall be fabricated with materials noted on the plans and in the specifications. Work shall be coordinated with the building, building systems, site and site systems. Items fabricated and installed under this Section includes, but is not limited to:
 - 1. Animal barrier structural support systems, rigging and woven wire rope mesh animal containment.
 - 2. Contractor shall anticipate and provide the following sequence of Work in order to establish each of the two above systems:
 - a. Review of Bid Documents to understand overall design intent, function and aesthetic.
 - b. Pre-detailing conference: Contractor shall schedule and hold a prefabrication meeting to coordinate specification and shop drawing issues prior to the first shop drawing submittal. Attendees shall include the Owner, Architect, General Contractor, Subcontractors related to this work.
 - c. Construction of systems including testing and adjusting as required and correcting deficient or defective operations and materials.
- B. Related Requirements:
 - 1. Division 03 Section "Cast-in-Place Concrete."
 - 2. Division 05 Section "Structural Steel Framing."
 - 3. Division 05 Sections – Animal Caging Specifications

1.3 PRE-QUALIFIED METAL FABRICATORS AND INSTALLERS

- A. Only Subcontractors whose experience and workmanship that have been previously reviewed and pre-qualified by the Architect for the Work of this Section. Qualifications for companies not listed herein include a minimum of five (5) years' experience in metal work of this type, plus a minimum of three (3) similar projects involving the containment of animals. Companies requesting consideration shall submit written and photographic proof of previously performed projects.

- B. Subject to the compliance with the requirements of these Specifications, pre-qualified fabricators and installers for flexible woven wire mesh and rigging include, but are not limited to the following:

1. A thru Z Consulting and Distributing, Inc.
8620 E. Old Vail Road, Suite 100
Tucson, AZ 85747
Phone: (520) 434-8281
2. Nets Unlimited, Inc.
28248 N. Tatum Blvd., B1-450
Cave Creek, AZ 85331
Phone: (480) 515-1300
Fax: (480) 515-1301

1.4 FIELD MEASUREMENTS

- A. Prior to submission of shop drawings, the Specialty Mesh Subcontractor shall verify that all field measurements are as indicated on the Drawings and Schedules and notify the Architect in writing of any major discrepancies. No fabrication shall proceed until all inconsistencies are corrected.

1.5 SUBMITTALS

- A. Pre-detailing Conference: Contractor shall schedule and hold a prefabrication meeting to coordinate specification and shop drawing issues prior to the first shop drawing submittal. Attendees shall include the Owner, Architect, contractor's project manager, the detailer, the fabricator, the erector.
- B. Submit Shop Drawings, Product Data, and Samples to the requirements relevant to Division 01.
- C. Mesh Structure Shop drawings: Indicate layout, location, all dimensions for each of the mesh structures, and all tensioning requirements for each cable. Show all concrete details, steel reinforcing, and steel erection details, connection details, and all miscellaneous steel fabrication details.
- D. Mesh Fabric Shop Drawings: Show all plans, elevations, cross-sections, and complete details of all anchoring methods, fastenings, mesh attachment methods, operable panel details, materials and methods for a complete installation for all structures.
- E. Shop Drawings:
1. Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories.
 2. Include erection drawings, elevations, and details where applicable. Indicate welded connections using standard AWS welding symbols. Indicate net weld lengths.
 3. Caging Contractor to review and coordinate with steel fabrication drawings prior to submitting steel shop drawings and caging drawings to Architect and Engineer.
- F. Product Data: Provide manufacturer's engineering data and other pertinent product data for wire rope, cables, turnbuckles, swage joints, eye nuts, etc.

G. Samples: Submit for review, one (1) representative samples of each of the following:

1. Mesh - 18" x 18" samples of each type of mesh specified.

1.6 WARRANTY

A. Submit the following written warranty:

1. The fabricator/installer shall provide the Owner with a written warranty, signed and notarized, guaranteeing the materials, workmanship, and operation of the otter barrier systems for a period of not less than one (1) year from the date of 'substantial completion.' This warranty shall be separate from any other materials or operations warranty that may or may not be supplied by any parts supplier or manufacturer. Any defective materials, inadequate operation, or general failure of the system or any portion thereof during the warranty period, shall be the sole responsibility for the fabricator/installer.

B. Replace any defective materials with new materials furnished by the fabricator/installer at no cost to the Owner if failure occurs during the warranty period.

PART 2 - PRODUCTS

2.1 MATERIALS FOR MESH STRUCTURE

- A. Concrete: Type specified in Division 03 Section "Cast-in-Place Concrete" to the requirements of the Structural Drawings.
- B. Structural Steel: Type specified in Division 05 Section "Structural Steel Framing."
- C. Miscellaneous Steel: Miscellaneous steel items shall include, but are not limited to, the following:
 1. Continuous steel rods and steel studs that are welded to the structure as indicated for the purpose of attaching all steel mesh fabric.
 2. All other miscellaneous steel fabrications required for the complete and fully functional mesh structures system.
 3. Finish: As indicated on Drawings.
- D. All materials are to be new and delivered to the site in undamaged condition.
- E. Galvanized Products: Assemblies called out to be galvanized shall be galvanized after fabrication, per ASTM A-123.
- F. Assemblies called out to be stainless steel shall be Type 304

2.2 MATERIALS FOR STEEL MESH

- A. Steel Mesh Types: Stainless steel type mesh, and as indicated on the Drawings, as follows:

1. Type 304 stainless steel hand woven wire rope mesh with double hitch splice (tuck) at each connection. Maximum opening shall be measured from corner to corner when fully tensioned after installation. Black Oxide finish.

- a. Mesh Barrier: 2" x 2" x 1/16".

2.3 MATERIALS FOR RIGGING

- A. Provide types and sizes as required for galvanized wire rope sizes indicated on the Structural Drawings, including, but not limited to the following:

1. Cables.
 2. Turnbuckles.
 3. Field adjustments.
 4. Anchor shackles.

- a. Material: Galvanized steel.

PART 3 - EXECUTION

3.1 INSTALLATION OF STRUCTURAL WORK

- A. Install, erect, and tension all required structural work to the criteria of Division 05 Section "Structural Steel Framing" and the Structural Drawings.

3.2 INSTALLATION OF STEEL MESH

- A. Prior to installing any mesh, verify that all necessary structural work is finished and in place ready to receive work. Do not proceed with installation in areas of discrepancy until all such discrepancies have been resolved.
- B. Verify that field conditions are acceptable and are ready to receive work. Do not install until any unsatisfactory conditions are corrected. Beginning Work constitutes the contractor's acceptance of conditions as satisfactory.
- C. Install all work in accordance with approved shop drawings.
- D. All loose ends of cables and mesh shall be finished with a double "NICO" press crimp, and ground smooth. No loose cable ends of sharp edges will be permitted.

3.3 PREPARATION OF STEEL ASSEMBLIES

- A. Verify dimensions on site prior to shop fabrication.
- B. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.

- C. Fabricate steel assemblies as noted on structural drawings and to American Institute of Steel Construction standards.
- D. Fabricate items with joints tightly fitted and secured. Make exposed joints butt tight, flush, and hairline. All oversized holes required for fabrication shall be welded & plugged. No holes, cavities, or other voids will be acceptable, unless specifically designed into the caging system.
- E. Continuously seal joined members by continuous welds.
- F. Fit and shop assemble in largest practical sections, for delivery to site.
- G. Exposed Mechanical Fastenings: Flush countersunk torx or hex socket machine screws and bolts; stainless steel finish; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- H. Grind exposed welds flush and smooth with adjacent finished surface. Ease exposed edges to small uniform radius of 1/8". Radius all corners to 1/4".
- I. Galvanize items in accordance to ASTM A-123 and hardware to ASTM A-153.
- J. Do not prime surfaces in direct contact bond with concrete or where field welding is required. Prime paint items scheduled with one coat.

3.4 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. After installation, touch-up field welds scratched or damaged surfaces with specified touch-up paint.
- C. Remove all sharp edges, burrs, corners and slivers that, in the opinion of the Architect, and/or Owner could injure animals or keepers.
- D. Apply specified sealant to all gaps in any of the following areas:
 - 1. Between adjacent construction.
 - 2. Where specifically detailed.
 - 3. Where required to comply with the Animal Management Requirements of Construction procedures listed elsewhere in this Specification Section.

3.5 WELDING REQUIREMENTS

- A. All exposed welds shall be ground smooth and galvanized.
- B. Remove all sharp edges, burrs, corners, and slivers, which in the opinion of the Architect and/or Owner, could injure animals or keepers.

3.6 ANIMAL MANAGEMENT AND REQUIREMENTS OF CONSTRUCTION

- A. As indicated in Division 01 Section "Animal Management Requirements of Construction" and as shown on Drawings.

END OF SECTION 055968