SECTION 05 73 00

ORNAMENTAL HANDRAILS AND RAILINGS

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PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Stainless Steel Flexible Mesh Handrail Infill

B. Related Sections:

1. Section 4 - Masonry Anchoring and Reinforcing
2. Section 5 - Metal Stairs
3. Section 5 - Metal Railings
4. Section 5 – Wire Rope Assemblies
5. Section 5 – Decorative Metal Railings
6. Section 6 – Wood Stairs and Railings
7. Section 13 – Athletic and Recreation Safety Netting
8. Section 13 – Fabric Structures
9. Section 32 – Exterior Fences and Gates

1.02 REFERENCES

A. General: Standards listed by reference, including revisions by issuing authority, form a part of this specification section to extent indicated. Standards listed are identified by issuing authority, authority abbreviation, designation number, title or other designation established by issuing authority. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation.

B. American Society for Testing and Material (ASTM International)

1. ASTM A380 - Practice for Cleaning and Descaling Stainless Steel Parts, Equipment and Systems.
2. ASTM A492 - Specification for Stainless Steel Rope Wire.

3. ASTM A554 – Welded Stainless Steel Mechanical Tubing.

4. ASTM A554 – Specification for Welded Stainless Steel Mechanical Tubing

5. ASTM A555 - Stainless Steel Wire.

6. ASTM E985 – Standard Specification for Permanent Metal Railing Systems and Stairs for Buildings

7. ASTM F1145 - Specification for Turnbuckles, Swaged, Welded, Forged.

C. Military Specification (MIL)

1. MIL-C5688 - Pre-Stretching and Proof-Testing of Wire Rope Assemblies.

2. MIL-W-83420 - Wire Rope, Flexible for Aircraft Control.

1.03 SYSTEM DESCRIPTION

A. Performance Requirements: Provide Stainless Steel flexible Mesh Guardrail Infill and mounting hardware which have been manufactured and installed to meet or exceed manufacturer's and project performance criteria.

1.04 SUBMITTALS

A. Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.

B. Product Data: Submit Manufacturer's product data sheet for specified products.

C. Shop Drawings: Show layout, sizes, dimensions, details, and installation of railing frame components. Include mesh aperture and rope dimensions, cable and mesh attachment hardware, tensioning devices, mounting methodology.

D. Samples: Submit samples of mesh and support hardware, as required.

E. Quality Assurance/Control Submittals:

1. Test reports: Submit any test report demonstrating compliance with intended use and code requirements.

2. Certificates: Submit manufacturer's certificate that product meets or exceeds specified requirements

F. Closeout Submittals: Submit the Following:

1. Warranty: Submit manufacturer's standard warranty documents

2. Maintenance Data: Include manufacturer's standard cleaning and maintenance instructions to avoid detrimental actions to finishes and performance.

1.05 QUALITY ASSURANCE

A. Qualifications:

1. Installer Qualifications: Installer should be experienced in performing work of this section and should have specialized in installation of work similar to that required for this project.

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B. Regulatory Requirements and Approvals:

1. [Code Agency Name]
    a) [Report or Approval Description]

C. Mock-Ups: Mock-Ups: Install at project site or appropriate location a job mock-up using acceptable products and manufacturer approved installation methods. Obtain Owner's and Architect's approval of product, application, and workmanship standards. Comply with Division 1 Quality Control (Mock-Up Requirements) Section.

1. Mock-Up Size: [Specify mock-up size and fixation requirements].

2. Maintenance and Disposal: Maintain mock-up during construction for workmanship comparison.
    a) Removal: Remove and legally dispose of mock-up when no longer required.
    b) Incorporation: Mock-up may be incorporated into final construction upon Owner's approval.

D. Pre-Installation Meetings: Conduct meetings with [Contractor, Architect, Fabricator, Installer and any other subcontractors] whose work involves railing system to verify project requirements, framing and support conditions, mounting surfaces, manufacturer's installation instructions, and warranty requirements. Comply with Division 1 requirements.

1.06 DELIVERY, STORAGE, AND HANDLING

A. General: Comply with Division 1 Product Requirements Sections Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

B. Delivery: Deliver in manufacturer's original, unopened, undamaged containers, identification labels intact.

C. Storage and Protection: Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer. Store cartons and panels in a secure location in a dry place at the project site.

1.07 WARRANTY

A. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official.

PART 2 PRODUCTS

2.01 X-TEND® STAINLESS STEEL FLEXIBLE MESH HANDRAIL INFILL

A. Manufactured and sold by: Carl Stahl DécorCable Innovations, Inc., 8080 South Madison Street, Burr Ridge, IL USA 60527. Tel: 312-474-1100, Fax: 312-474-1789, E: sales@decorcable.com, Web: www.decorcable.com.

B. Proprietary Products/Systems: X-TEND® Stainless Steel Flexible Mesh Handrail Infill

1. Material: A492 Type 316 stainless steel 7x7 (or 7x19) wire rope joined with tinned copper or 316 stainless steel ferrules .

2. Cable Diameter x Mesh Aperture Dimensions
   a) 1.5mm x 40mm
   b) 1.5mm x 50mm
   a) 1.5mm x 60mm
   b) 1.5mm x 70mm
   c) 1.5mm x 80mm
   d) 1.5mm x 100mm
   e) 2.0mm x 50mm
   f) 2.0mm x 60mm
   g) 2.0mm x 70mm
   h) 2.0mm x 80mm
   i) 2.0mm x 100mm

3. X-tend Mesh Perimeter Finishes:
   a) Closed loops with loose ferrules for “sewn-on” installation method.
   b) Closed loops without loose ferrules for “pass through” installation method.
   c) Unfinished (Open) ends for on-site sizing.

4. Direction (Grain) of X-tend Mesh:
   a) Horizontal Mesh Direction for Rectangular Frame Shapes.
   b) Vertical Mesh Direction for Rectangular Frame Shapes.
   c) Diagonal Mesh Direction for Staircases [Specify Degree of Rise]

5. Specify Ferrule Style
   a) Seamless Tinned Copper Ferrule
   b) Seamless AISI 316L Stainless Steel Ferrule

6. Support Frame Style
   a) Round or Square Tubular Edge Supports constructed of Wood, Aluminum, Mild, or Stainless Steel complying with ASTM A 554/555. Supports to be spaced no more than 5 feet apart, depending on composition and size of support tubing.
   b) I-SYS INOX 7x7 (or 7x19) construction Stainless Steel Wire Rope. Supports to be spaced no more than 5 feet apart, depending on size and construction of support ropes.

2.02 PRODUCT SUBSTITUTIONS

A. Substitutions: No substitutions permitted.

2.03 FITTINGS AND ACCESSORIES

A. General: Attachment Cable Material: ASTM A 492, Type 316 stainless steel 7x7 (or 7x19) wire rope.

B. Accessories: Provide grommet, bushings, washers, swaging ferrules, studs, receivers, fittings and other components as required for system installation.

2.04 FABRICATION

A. Infill Construction: Infill panels shall be dimensioned and manufactured to specified size and labeled according to installer’s specifications.

PART 3 EXECUTION

3.01 MANUFACTURER’S INSTRUCTIONS

A. Compliance: Comply with manufacturer’s product data, including product technical bulletins, product catalog installation instructions and product carton instructions for installation.

3.02 EXAMINATION

A. Site Verification of Conditions: Verify condition of railing and post system which has been previously installed under other sections, to ensure it is acceptable for product installation in accordance with manufacturer’s instructions. Do not begin installation until backup surfaces are in satisfactory condition.

3.03 PREPARATION

A. Supply items required to be cast into concrete or embedded in masonry with setting templates, to appropriate Sections.

B. Take field measurements after permanent end terminations are in place and prior to preparation of shop drawings and fabrication, to ensure fitting of work.

3.04 INSTALLATION

A. Install mesh infill system in accordance with manufacturer's instructions and the approved shop drawings.

B. Provide anchorage devices and fittings to secure to in-place construction; including threaded fittings for concrete inserts, toggle bolts and through-bolts. Install mesh panel infill system plumb, level, square, and taut.

C. Anchor railing system to mounting surfaces as indicated on the drawings.

D. Separate dissimilar materials with bushings, grommets or washers to prevent electrolytic corrosion.

E. Use manufacturer’s supplied mounting hardware.

F. Terminate and tension mesh panels in accordance with manufacturer’s instructions.

G. Ensure mesh is clean, and without waves, kinks, or sags.

H. Adjust frame support cable tension and connecting hardware.

3.05 CLEANING

A. Remove temporary coverings and protection of adjacent work areas.

B. Clean installed products in accordance with manufacturer's instructions before owner's acceptance. Do not use chlorine-based or abrasive cleaners.

C. Remove from project site and legally dispose of construction debris associated with this work.

3.06 PROTECTION

A. Protection: Protect installed product from damage during subsequent construction activities.

END OF SECTION