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**SECTION 05720**

**ORNAMENTAL HANDRAILS AND RAILINGS**

Display hidden notes to specifier. (Don't know how? [Click Here](http://www.arcat.com/sd/display_hidden_notes.shtml))

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\*\* NOTE TO SPECIFIER \*\* SecoSouth, Inc; guardrails with stainless steel cable or rod infill.
.
 This section is based on cable fittings and rods made by SecoSouth, Inc. which is located at:
 2111 34th Way
 Largo, Florida 33771
 Tel: (727) 536-1924
 (888) 535-7326
 Fax: (727)539-6314
 Email: info@SecoSouth.com
 [www.secosouth.com](http://www.secosouth.com)

 SECO SOUTH is the largest manufacturing facility in the United States dedicated to supplying stainless steel cable and tie-bar assemblies for use in architectural and structural building applications.
 Together with our affiliate companies NAVTEC and LEWMAR, we form an organization with over fifty years of experience in the rigging industry. Our goal is to share this knowledge with design professionals to create innovative solutions in the construction industry for the new millennium.
 Whether its decorative, architectural or structural, we have the experience and products to compliment your designs. We look forward to working with you. This specification can be used to specify either custom designed or standard pre-engineered systems.

1. GENERAL
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Stainless steel railing framework with horizontal stainless steel cable infill.
		2. Stainless steel railing framework with vertical stainless steel cable infill.
		3. Stainless steel cable infill.
	1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 02945 - Planting Accessories; Cable trellises.
		2. Section 03300 - Cast-In-Place Concrete: Placement of anchors in concrete.
		3. Section 04810 - Unit Masonry Assemblies: Placement of anchors in masonry.
		4. Section 05150 - Wire Rope Assemblies.
		5. Section 05510- Metal Stairs: Handrails other than those specified in this section.
		6. Section 06400 - Architectural Woodwork: Wood handrails.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ASTM International (ASTM):
			1. ASTM A492 - Standard Specification for Stainless Steel Rope Wire.
			2. ASTM A554 - Specification for Welded Stainless Steel Mechanical Tubing.
			3. ASTM A555/A555M - Standard Specification for General Requirements for Stainless Steel Wire and Wire Rods.
			4. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
			5. ASTM E985 - Standard Specification for Permanent Metal Railing Systems and Rails for Buildings.
	1. SUBMITTALS
		1. Submit under provisions of Section 01300.
		2. Shop Drawings: Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, finishes, and accessories.
		3. Verification Samples: For connections and terminations to be used, one full sized sample of each. For type of cable to be used, 12 inches (304 mm) long sample, representing actual product.
1. PRODUCTS
	1. MANUFACTURERS
		1. Cable Fittings: Seco South , Inc., 2111 34th Way, Largo, FL 33771. ASD. Tel: (727) 536-1924. (888) 535-7326. Fax: (727)539-6314. Email: info@SecoSouth.com . [www.secosouth.com.](http://www.secosouth.com.)

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01600.
	1. MATERAILS
		1. Stainless Steel Wire: ASTM A 492 Type 316.
		2. Stainless Steel Rod: ASTM A 555, Type 316.
		3. Stainless Steel Fittings: ASTM A 666, Type 316.
		4. Stainless Steel Tubing: ASTM A, Grade:

\*\* NOTE TO SPECIFIER \*\* Delete one of the following types.

* + - 1. Type 304.
			2. Type 316.
		1. Stainless Steel Strip, Plate, and Flat Bar ASTM A 666:

\*\* NOTE TO SPECIFIER \*\* Delete one of the following types.

* + - 1. Type 304.
			2. Type 316.
	1. HANDRAILS AND GUARDRAILS - GENERAL

\*\* NOTE TO SPECIFIER \*\* Check your local code for requirements relating to handrails/guardrails in general and cable railings in particular. Cable infill for guardrails is recommended to be spaced at no more than 2-1/2 inches ( 64 mm) to 3 inches (76 mm) on center. Cable assemblies require a significant amount of tension in order to minimize the deflection in the cable when a load is applied. Terminating points are very important since they ultimately support the tension cable. Terminating points for horizontal cable systems are the end posts the fittings connect to. Terminating points for vertical cable systems are the top and bottom horizontal components of the railing framework. The minimum dimensions for the terminating posts and corners of the railing framework are: Round posts, 0.145 inch (3.7 mm) minimum wall thickness; square posts 0.120 inch (3.1 mm) minimum wall thickness; angle posts 0.375 inch (9.5 mm) minimum wall thickness; flat bars or plates 0.5 inch (13 mm) minimum thick plate (Flat plate material must be doubled up and bridged by material between the Plates); 4 inches by 6 inches (102 mm by 152 mm) pressure treated wood posts.

* + 1. Design, fabricate, and test handrail/guardrail assemblies in accordance with the most stringent requirements of ASTM E 985 and applicable local code.
		2. See drawings for guardrail dimensions and configuration.

\*\* NOTE TO SPECIFIER \*\* Delete article below if standard designed systems are not used. All systems below are stainless steel. Standard designed systems include a frame consisting of balusters and handrails and infill consisting of cables, and cable terminations. The following standard systems are based on using either 3/16 inch (5 mm) or 1/8 inch (3 mm) diameter cables.

* 1. STANDARD DESIGNED SYSTEMS

\*\* NOTE TO SPECIFIER \*\* Delete below if not required.

* + 1. System AP1-2000 Aluminum Cable Railing System:
			1. Balusters: 2 3/8 inches (60 mm) square aluminum post component system.
			2. Handrail: 3-3/4 inches (95 mm) in oval aluminum.

\*\* NOTE TO SPECIFIER \*\* Refer to manufacturer for available finish colors.

* + - 1. Baluster and Handrail: Aluminum - Powder coat.
			2. Cable Infill Size: 1/8 inch (3 mm).
			3. Cable Infill Fittings: Adjustable stud tensioners.

\*\* NOTE TO SPECIFIER \*\* Delete below if not required.

* + 1. System DL1-2000 Welded Double Post Railing System:
			1. Balusters: 1-1/2 inch (38 mm) diameter tube.
			2. Handrail: 1-1/2 inch (38 mm) diameter tube.

\*\* NOTE TO SPECIFIER \*\* Stainless Steel is standard, Powder coat is optional. Contact manufacturer for a list of available powder coat colors. Delete one of the next two paragraphs.

* + - 1. Baluster and Handrail Finish: Stainless Steel - #3 brushed.
			2. Baluster and Handrail Finish: Aluminum - Powder coat.

\*\* NOTE TO SPECIFIER \*\* Refer to manufacturer for colors available.

* + - * 1. Color: \_\_.

\*\* NOTE TO SPECIFIER \*\* Delete below if not required.

* + 1. System SL1-2000 Welded Single Post Railing System:
			1. Balusters: 1-1/2 inch (38 mm) diameter tube.
			2. Handrail: 1-1/2 inch (38 mm) diameter tube.

\*\* NOTE TO SPECIFIER \*\* Stainless Steel is standard, Powder coat is optional. Contact manufacturer for a list of available powder coat colors. Delete one of the next two paragraphs.

* + - 1. Baluster and Handrail Finish: Stainless Steel - #3 brushed.
			2. Baluster and Handrail Finish: Aluminum - Powder coat.

\*\* NOTE TO SPECIFIER \*\* Refer to manufacturer for colors available.

* + - * 1. Color: \_\_.

\*\* NOTE TO SPECIFIER \*\* Delete below if not required.

* + 1. System SPG1-2000 Component Cable/Glass Railing System:
			1. Balusters: 1-1/2 inch (38 mm) square tube.
			2. Handrail: 1-1/2 inch (38 mm) diameter tube.
			3. Baluster and Handrail Finish: Stainless Steel - #3 brushed.

\*\* NOTE TO SPECIFIER \*\* Delete cable infill size not required.

* + - 1. Cable Infill Size: 1/8 inch (3 mm) diameter.
			2. Cable Infill Size: 3/16 inch (4.8 mm) diameter.
			3. Cable Infill Fittings: Adjustable stud tensioners.

\*\* NOTE TO SPECIFIER \*\* Delete finish not required.

* + - 1. Glass Infill Thickness: 3/8 inch (9.5 mm).
			2. Glass Infill Thickness: 1/2 inch (13 mm).

\*\* NOTE TO SPECIFIER \*\* Delete glass type not required.

* + - 1. Glass Type: Clear.
			2. Glass Type: Frosted.
			3. Glass Type: Smoked.

\*\* NOTE TO SPECIFIER \*\* Delete below if not required.

* + 1. System SPG2-2000 Component Glass Railing System:
			1. Balusters: 1-1/2 inches (38 mm) square tube.
			2. Handrail: 1-1/2 inches (38 mm) diameter tube.
			3. Baluster and Handrail Finish: Stainless Steel - #3 brushed.

\*\* NOTE TO SPECIFIER \*\* Delete finish not required.

* + - 1. Glass Infill Thickness: 3/8 inch (9.5 mm).
			2. Glass Infill Thickness: 1/2 inch (13 mm).

\*\* NOTE TO SPECIFIER \*\* Delete glass type not required.

* + - 1. Glass Type: Clear.
			2. Glass Type: Frosted.
			3. Glass Type: Smoked.

\*\* NOTE TO SPECIFIER \*\* Delete below if not required. System below is a welded railing frame system designed for bolt in or core drilled applications.

* + 1. System FB1-2000 Component Railing Frame System:
			1. Balusters: 1/2 inch by 1-1/2 inches (13 mm by 38 mm) welded flat bars bridged together with sections of tubing which enclose the cable fittings.
			2. Handrails: 1-1/2 inches (38 mm) diameter.
			3. Baluster and Handrail Finish: Stainless Steel - #3 brushed.

\*\* NOTE TO SPECIFIER \*\* Delete one of the two cable sizes below.

* + - 1. Cable Size: 3/16 inch (5 mm) diameter.
			2. Cable Size: 1/8 inch (3mm) diameter.

\*\* NOTE TO SPECIFIER \*\* Delete below if not required. System below is designed for easy installation on the job site. All components are shipped separately and can be easily assembled on the site. Posts are predrilled for the cable system.

* + 1. System SP1-2000 Component Railing System:
			1. Balusters: 1-1/2 inches (38 mm) square post component system.
			2. Handrail: 1-1/2 inches (38 mm) diameter stainless steel or wood (wood by others).
			3. Baluster and Handrail Finish: Stainless Steel - #3 brushed.

\*\* NOTE TO SPECIFIER \*\* Delete one of the two cable sizes below.

* + - 1. Cable Size: 3/16 inch (5 mm) diameter.
			2. Cable Size: 1/8 inch (3mm) diameter.

\*\* NOTE TO SPECIFIER \*\* Delete below if not required. System below is designed for both bolt in or core drilled applications.

* + 1. System RP1-2000 Component Railing System:
			1. Balusters and Railing: 2 inch (52 mm) diameter welded tube system.
			2. Baluster and Handrail Finish: Stainless Steel - #3 brushed.

\*\* NOTE TO SPECIFIER \*\* Delete one of the two cable sizes below.

* + - 1. Cable Size: 3/16 inch (5 mm) diameter.
			2. Cable Size: 1/8 inch (3mm) diameter.

\*\* NOTE TO SPECIFIER \*\* Delete below if not required. System below is similar to the FB1-2000 System except vertical balusters are bridged by small gusset plates instead of tubing.

* + 1. System FB3 -2000 Component Railing Frame System:
			1. Balusters: 1/2 inch by 1-1/2 inches (13 mm by 38 mm) welded flat bars bridged together with gusset plates.
			2. Handrails: 1-1/2 inches (38 mm) diameter.
			3. Baluster and Handrail Finish: Stainless Steel - #3 brushed.

\*\* NOTE TO SPECIFIER \*\* Delete one of the two cable sizes below.

* + - 1. Cable Size: 3/16 inch (5 mm) diameter.
			2. Cable Size: 1/8 inch (3mm) diameter.

\*\* NOTE TO SPECIFIER \*\* Delete below if not required. System below is a vertical welded railing frame system designed for bolt in or core drilled applications.

* + 1. System VC1-2000 Component Railing Frame System:
			1. Frame Components: 3/8 inch by 1-1/2 inches (9.5 mm by 38 mm) flat bar vertical balusters and a 1-1/2 inches (38 mm) "U" channel horizontal component.
			2. Handrail: 1-1/2 inches (38 mm) diameter.
			3. Baluster and Handrail Finish: Stainless Steel - #3 brushed.

\*\* NOTE TO SPECIFIER \*\* Delete one of the two cable sizes below.

 4. Cable Size: 1/8 inch (3mm) diameter.

* 1. FABRICATION
		1. Fit and shop assemble components in largest practical sizes for delivery to site.
		2. Fabricate components with joints tightly fitted and secured. Provide spigots and sleeves to accommodate site assembly and installation.
		3. Provide anchors and plates required for connecting railings to structure.
		4. Exposed Mechanical Fastenings: Provide flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
		5. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.
		6. Exterior Components: Drill condensate drainage holes at bottom of members at locations that will not encourage water intrusion.
		7. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
		8. Accommodate expansion and contraction of members and building movement without damage to connections or members.
1. EXECUTION
	1. EXAMINATION
		1. Verify that field conditions are acceptable and are ready to receive work.
	2. PREPARATION
		1. Supply items required to be cast into concrete or embedded in masonry with setting templates, for installation as work of other sections.
	3. INSTALLATION
		1. Install in accordance with manufacturer's instructions.
		2. Install components plumb and level, accurately fitted, free from distortion or defects.
		3. Anchor railings securely to structure.
		4. Conceal bolts and screws whenever possible. Where not concealed, use flush countersunk fastenings.
		5. Tension cables as recommended by cable fittings manufacturer.
	4. ERECTION TOLERANCES
		1. Maximum Variation From Plumb: 1/4 inch (6 mm) per floor level, non-cumulative.
		2. Maximum Offset From True Alignment: 1/4 inch (6 mm).
		3. Maximum Out-of-Position: 1/4 inch (6 mm).

END OF SECTION