SECTION 06 63 00

PVC RAILINGS AND BALUSTRADES

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\*\* NOTE TO SPECIFIER \*\* Superior Outdoor Products, PVC Balustrade and Porch and Deck Rail Systems products.
This section is based on the products of Superior Outdoor Products, which is located at:
260 Jalyn Dr.
New Holland, PA 17557
Toll Free Tel: 800-633-7093
Fax: 717-355-7129
Email: request info jsurovi@superioroutdoors.com
Web: https://superioroutdoors.com
[Click Here] for additional information.
With 30 years of design and vinyl manufacturing expertise, Superior Outdoor Products offers a wide variety of products and styles designed to maximize your enjoyment, security, and privacy. Manufactured and finished in the heart of Lancaster County, Pennsylvania, Superior has tapped into the wealth of knowledge and experience of our local craftsmen to blend ageless classic designs with modern, low-maintenance materials and superior structural integrity.

1. GENERAL
	1. SECTION INCLUDES

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

* + 1. Balustrade railing systems.
		2. Porch and deck rail systems.
		3. Porch and deck rail secondary handrail.
		4. Post caps.
		5. Stair lighting system
		6. Outdoor LED lighting.
	1. RELATED SECTIONS

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

* + 1. Section 03 30 00 - Cast-in-Place Concrete.
		2. Section 05 50 00 - Metal Fabrications.
		3. Section 05 51 33 - Metal Ladders.
		4. Section 05 52 13 - Pipe and Tube Railings.
		5. Section 06 10 00 - Rough Carpentry.
		6. Section 06 20 00 - Finish Carpentry.
		7. Division 16 - Electrical: Electrical service and disconnects, wire routing and connections.
	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 B429 - Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube.
		2. ASTM D1784 - Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
		3. ASTM E935 - Standard Test Methods for Permanent Metal Railing Systems and Rails for Buildings.
	1. PERFORMANCE AND DESIGN REQUIREMENTS
		1. Design Loads: Design to the following requirements. Concentrated and uniform loading need not be applied simultaneously. Horizontal and vertical concentrated load test of railing systems are to be conducted in accordance with ASTM E935.

\*\* NOTE TO SPECIFIER \*\* Edit the following paragraphs as required. Superior railings are typically designed for ICBO loadings of 200 pound concentrated and 50 pound uniform, however railings can be fabricated to meet other code loading conditions. Codes vary in method of application and magnitude of load. Governing code should be checked for specific requirements.

* + - 1. Uniform load: 50 pounds per foot (74.3 kg/m) applied at the top in any direction.
			2. Uniform load: \_\_\_ pounds per foot (\_\_\_\_ kg/m) applied at the top in any direction.
			3. Concentrated load: 200 pounds (90.6 kg) applied at the top in any direction.
			4. Concentrated load: \_\_\_ pounds (\_\_\_ kg) applied at the top in any direction.
	1. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
		2. Product Data: Manufacturer's data sheets on each product to be used, including:
			1. Preparation instructions and recommendations.
			2. Details of material and construction.
			3. Storage and handling requirements and recommendations.
			4. Installation methods and requirements.
		3. Shop Drawings: Submit shop drawings for fabrication and installation of railings and balustrades. Include plans, elevations, and detail sections. Indicate materials, methods, finishes and types of joinery, fasteners, anchorages, and accessory items. Provide setting diagrams and templates for anchorages, sleeves, and bolts installed by others.
		4. Load Tests: Submit test results from ASTM E935 conducted on the manufacturer's supplied system indicating compliance with required structural loading.

\*\* NOTE TO SPECIFIER \*\* Delete selection samples if colors have already been selected.

* + 1. Selection Samples: For each finish product specified, two complete sets of color charts representing manufacturer's full range of available colors and patterns.
		2. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) long, representing actual product, color, and patterns.
		3. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
		4. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for periodic cleaning and maintenance of all components.
	1. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Minimum 3 years documented experience producing systems specified in this section.
		2. Installer Qualifications: Minimum of 3 years documented experience installing systems specified in this section.

\*\* NOTE TO SPECIFIER \*\* Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
			1. Finish areas designated by Architect.
			2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
			3. Refinish mock-up area as required to produce acceptable work.
			4. Accepted mock-ups shall be comparison standard for remaining Work
		2. Pre-Installation Conference: Conduct pre-installation conference in accordance with Section 01 20 00 - Price and Payment Procedures. Date and time of the pre-installation conference shall be acceptable to the Owner and the Architect.
			1. Prior to commencing the installation, meet at the Project site to review the material selections, installation procedures, and coordination with other trades.
			2. Mock-ups shall be reviewed during the pre-installation conference.
			3. Pre-installation conference shall include the Contractor, the Installer, and any trade that requires coordination with the work.
	1. DELIVERY, STORAGE, AND HANDLING
		1. Deliver materials to the Project site in manufacturer's original wrappings and containers, labeled with supplier's or manufacturer's name, material or product brand name, and lot number, if any.
		2. Store materials in their original, undamaged packages and containers, inside a well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.
	2. SEQUENCING
		1. Ensure that locating templates and other information required for installation of products of this section are furnished to affected trades in time to prevent interruption of construction progress.
		2. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.
	3. PROJECT CONDITIONS
		1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
		2. Field Measurements: Take measurements of actual dimensions where necessary for fit without gaps. Indicate measurements on shop drawings.
	4. WARRANTY
		1. Lifetime Limited, Non-Prorated Warranty on Material and 5 Year Prorated Labor Warranty.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: Superior Outdoor Products, which is located at:260 Jalyn Dr.New Holland, PA 17557Toll Free Tel: 800-633-7093Tel: 717-355-7100Fax: 717-355-7129Email: [request info (info@superioroutdoors.com)](https://arcat.com/rfi?action=email&company=Superior%252BOutdoor%252BProducts&message=RE%253A%2520Spec%2520Question%2520(06610spp)%253A%2520&coid=54392&spec=06610spp&rep=&fax=717-355-7129);Web: <https://superioroutdoors.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 01 60 00 - Product Requirements.
	1. MATERIALS
		1. Rail, post, and pickets: Aluminum extrusions; alloy and temper 6063-T6 conforming to ASTM B 429.
		2. PVC: Poly Vinyl Chloride (PVC) formulated to resist impact and for Ultra Violet (UV) stabilization. Extruded products meets or exceeds ASTM D I784.

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

* 1. BALUSTRADE RAILING

\*\* NOTE TO SPECIFIER \*\* Select the Classic 5000 Balustrade Series from the following paragraphs. Note that 5000 Balustrade Series is available in per foot custom lengths and 28 to 45 degree step angle rails.

* + 1. Classic Balustrade System: 5000 Balustrade Series:
			1. Rail: Reinforced with extruded aluminum channels. Provide with top and bottom rail brackets as required with snap-on screw covers and hidden bracket screws.
				1. Top Rail (Width x Height): 4-1/2 x 3-3/8 inches.
				2. Bottom Rail (Width x Height): 4-1/2 x 3-3/8 inches.
			2. Baluster: 2-5/8 inch Vintage.
			3. Newel Post: Provide with post mounts, caps and trim required for the installation.

\*\* NOTE TO SPECIFIER \*\* Select one of the following size paragraphs. Delete those not required.

* + - * 1. Size: 6 inch square plain.
				2. Size: 6 inch recessed panel.
				3. Size: 6 inch vintage.

\*\* NOTE TO SPECIFIER \*\* Delete the height paragraph not required.

* + - 1. Height: 36 inch.
			2. Height: 42 inch.

\*\* NOTE TO SPECIFIER \*\* Select one of the following level rail length paragraphs. Delete those not required.

* + - 1. Level Rail Length: 4 foot.
			2. Level Rail Length: 6 foot.
			3. Level Rail Length: 8 foot.
			4. Level Rail Length: 10 foot.
			5. Level Rail Length: Special Length as determined by the Architect.
			6. Level Rail Length: Special Length as detailed on the Drawings.

\*\* NOTE TO SPECIFIER \*\* Select one of the following step/stair rail length paragraphs. Delete those not required.

* + - 1. Step/Stair Rail Length: 4 foot.
			2. Step/Stair Rail Length: 6 foot.
			3. Step/Stair Rail Length: 8 foot.
			4. Step/Stair Rail Length: 10 foot.
			5. Step/Stair Rail Length: Special Length as determined by the Architect.
			6. Step/Stair Rail Length: Special Length as detailed on the Drawings.
			7. Step/Stair Rail Mounting: Universal stair mounting bracket and trim as required for the installation. Suitable for 28 to 45 degree step angles.

\*\* NOTE TO SPECIFIER \*\* Delete color paragraph not required.

* + - 1. Color: White.
			2. Color: Clay.

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

* 1. PORCH AND DECK RAILING SYSTEMS

\*\* NOTE TO SPECIFIER \*\* Select the Porch and Deck Railing System from the following paragraphs. Note that 200 Series is available 32 to 36 degree step angle rails. Delete railing systems not required.

* + 1. Porch and Deck Railing System: 200 Series. Provide with top and bottom rail brackets as required. No visible hardware or screws are permitted. Provided with snap-on screw covers with hidden bracket screws.
			1. Rail: Reinforced with extruded aluminum channels.
				1. Vinyl Top Rail (Width x Height): 3-1/4 x 2 inches high. 2-1/2 inches flat top,
				2. Vinyl Bottom Rail (Width x Height): 1-3/4 x 2-3/4 inches.

\*\* NOTE TO SPECIFIER \*\* Select one of the following level rail length paragraphs. Delete those not required.

* + - 1. Level Rail Length: 6 foot.
			2. Level Rail Length: 7 foot.
			3. Level Rail Length: 8 foot.
			4. Level Rail Length: 10 foot.
			5. Level Rail Length: As indicated on the Drawings.

\*\* NOTE TO SPECIFIER \*\* Select one of the following step/stair rail length paragraphs. Delete the length paragraph not required.

* + - 1. Step/Stair Rail Length: 6 foot.
			2. Step/Stair Rail Length: 8 foot.
			3. Step/Stair Rail Mounting: Universal stair mounting brackets and trim as required for the installation. Suitable for 32 to 36 degree angles.

\*\* NOTE TO SPECIFIER \*\* Delete the height paragraph not required.

* + - 1. Height: 36 inch residential.
			2. Height: 42 inch commercial.

\*\* NOTE TO SPECIFIER \*\* Select one of the following baluster paragraphs. Delete those not required.

* + - 1. Baluster: Madison - vinyl 1.3 inch turned.
			2. Baluster: Model - vinyl 1.3 inch square.
			3. Baluster: Witmer - vinyl 3/4 inch square.
			4. Baluster: York - aluminum 3/4 inch round.
			5. Newel Post: Provide with post mounts, caps and trim required for the installation.
				1. Size: 4 inches

\*\* NOTE TO SPECIFIER \*\* Select one of the following length paragraphs. Delete those not required.

* + - * 1. Length: 38 inch.
				2. Length: 48 inch.
				3. Length: 54 inch.

\*\* NOTE TO SPECIFIER \*\* Delete the step/stair rail length paragraph not required.

* + - 1. Step/Stair Rail Length: 6 foot.
			2. Step/Stair Rail Length: 8 foot.
			3. Step/Stair Rail Mounting: Provide with universal stair mounting bracket and trim as required for the installation. Suitable for 32 to 36 degree angles.

\*\* NOTE TO SPECIFIER \*\* Select one of the following color paragraphs. Delete those not required.

* + - 1. Color: White.
			2. Color: Clay.
			3. Color: Black.
		1. Porch and Deck Railing System: 400 Series. Provide with top and bottom rail brackets as required. No visible hardware or screws are permitted. Provided with snap-on screw covers with hidden bracket screws.
			1. Rail: Aluminum "Drink" top rail and reinforced aluminum profile vinyl bottom rail.
				1. Aluminum Inserted Vinyl Top Rail (Width x Height): 3-1/8 x 3-7/16 inch.
				2. Vinyl Bottom Rail (Width x Height): 1-5/8 x 2-5/8 inch.

\*\* NOTE TO SPECIFIER \*\* Select one of the following level rail length paragraphs. Delete those not required.

* + - 1. Level Rail Length: 6 foot.
			2. Level Rail Length: 8 foot.
			3. Level Rail Length: 10 foot
			4. Level Rail Length: As indicated on the Drawings.

\*\* NOTE TO SPECIFIER \*\* Select one of the following step/stair rail length paragraphs. Delete the length paragraph not required.

* + - 1. Step/Stair Rail Length: 6 foot.
			2. Step/Stair Rail Length: 8 foot.
			3. Step/Stair Rail Length: 10 foot.
			4. Step/Stair Rail Mounting: Universal stair mounting bracket and trim as required for the installation. Suitable for 32 to 36 degree angles.

\*\* NOTE TO SPECIFIER \*\* Delete the height paragraph not required.

* + - 1. Height: 36 inch residential.
			2. Height: 42 inch commercial.

\*\* NOTE TO SPECIFIER \*\* Select one of the following baluster paragraphs. Delete those not required.

* + - 1. Baluster: Model - vinyl 1.3 inch square.
			2. Baluster: Witmer - vinyl 3/4 inch square.
			3. Baluster: York - aluminum 3/4 inch round.
			4. Baluster: Stainless Steel Cable - horizontal.
			5. Newel Post: Provide with post mounts, caps, and trim required for installation.
				1. Style/Size: 4 inch Plain.

\*\* NOTE TO SPECIFIER \*\* Select one of the following length paragraphs. Delete length options not required.

* + - * 1. Length: 39 inch.
				2. Length: 48 inch.
				3. Length: 54 inch.

\*\* NOTE TO SPECIFIER \*\* Select one of the following color paragraphs. Delete color paragraphs not required.

* + - 1. Color: White.
			2. Color: Clay.
			3. Color: Black.
		1. Porch and Deck Railing System: 1000 Series. Provide with Top and bottom rail brackets as required. No visible hardware or screws are permitted. Provided with snap-on screw covers with hidden bracket screws.
			1. Rail: Reinforced with extruded aluminum channels.
				1. Vinyl Top Rail (Width x Height): 3 inches x 3-1/2 inches.
				2. Vinyl Bottom Rail (Width x Height): 1-3/4 x 3-1/2 inches.

\*\* NOTE TO SPECIFIER \*\* Select one of the following level rail length paragraphs. Delete those not required.

* + - 1. Level Rail Length: 4 foot.
			2. Level Rail Length: 6 foot.
			3. Level Rail Length: 8 foot.
			4. Level Rail Length: 10 foot.
			5. Level Rail Length: As indicated on the Drawings.

\*\* NOTE TO SPECIFIER \*\* Delete height option not required..

* + - 1. Height: 30 inch residential
			2. Height: 36 inch residential.
			3. Height: 42 inch commercial.

\*\* NOTE TO SPECIFIER \*\* Select one of the following baluster paragraphs. Delete those not required.

* + - 1. Baluster: Madison.
			2. Baluster: Model.
			3. Baluster: Traditional.
			4. Baluster: Witmer.
			5. Baluster: York.
			6. Newel Post: Provide with post mounts, caps and trim required for the installation.

\*\* NOTE TO SPECIFIER \*\* Select one of the following style/size paragraphs. Delete style/size options not required.

* + - * 1. Style/Size: 4 inch Plain.
				2. Style/Size: 4 inch Madison.
				3. Style/Size: 4 inch Heritage.

\*\* NOTE TO SPECIFIER \*\* Select one of the height paragraphs. Delete height options not required.

* + - * 1. Height: 39 inch.
				2. Height: 48 inch.
				3. Height: 54 inch.

\*\* NOTE TO SPECIFIER \*\* Delete the step/stair rail length paragraph not required.

* + - 1. Step/Stair Rail Length: 6 foot.
			2. Step/Stair Rail Length: 8 foot.
			3. Step/Stair Rail Length: Special Length as determined by the Architect.
			4. Step/Stair Rail Length: Special Length as detailed on the Drawings.
			5. Step/Stair Rail Mounting: Provide with universal stair mounting bracket and trim as required for the installation. Suitable for 28 to 45 degree angles.

\*\* NOTE TO SPECIFIER \*\* Select one of the following color paragraphs. Delete those not required.

* + - 1. Color: White.
			2. Color: Clay.
			3. Color: Almond.
		1. Porch and Deck Railing System: 3000 Series. Provide with Top and bottom rail brackets as required. No visible hardware or screws are permitted. Provided with snap-on screw covers with hidden bracket screws.
			1. Rail: Reinforced with extruded aluminum channels.
				1. Vinyl Top Rail: 3 inches flat top by 3-1/4 inches high.
				2. Vinyl Bottom Rail: 1-3/4 inches wide by 3-1/2 inches high.

\*\* NOTE TO SPECIFIER \*\* Select one of the following level rail length paragraphs. Delete those not required.

* + - 1. Level Rail Length: 4 foot.
			2. Level Rail Length: 6 foot.
			3. Level Rail Length: 8 foot.
			4. Level Rail Length: 10 foot.
			5. Level Rail Length: As indicated on the Drawings.

\*\* NOTE TO SPECIFIER \*\* Delete height option not required.

* + - 1. Height: 36 inch residential.
			2. Height: 42 inch commercial.

\*\* NOTE TO SPECIFIER \*\* Select one of the following baluster paragraphs. Delete those not required.

* + - 1. Baluster: Madison.
			2. Baluster: Model.
			3. Baluster: Traditional.
			4. Baluster: Witmer.
			5. Baluster: York.
			6. Newel Post: Provide with post mounts, caps and trim required for the installation.

\*\* NOTE TO SPECIFIER \*\* Delete style/size option not required.

* + - * 1. Style/Size: 4 inch Plain.
				2. Style/Size: 4 inch Madison.

\*\* NOTE TO SPECIFIER \*\* Select one of the height paragraphs. Delete height options not required.

* + - * 1. Height: 38 inch.
				2. Height: 48 inch.
				3. Height: 54 inch.

\*\* NOTE TO SPECIFIER \*\* Delete the step/stair rail length option not required.

* + - 1. Step/Stair Rail Length: 6 foot.
			2. Step/Stair Rail Length: 8 foot.
			3. Step/Stair Rail Length: 10 foot.
			4. Step/Stair Rail Mounting: Provide with universal stair mounting bracket and trim as required for the installation. Suitable for 28 to 45 degree angles.

\*\* NOTE TO SPECIFIER \*\* Select one of the following color paragraphs. Delete color paragraphs not required.

* + - 1. Color: White.
			2. Color: Clay.
			3. Color: Almond.
			4. Color: Black.

\*\* NOTE TO SPECIFIER \*\* Delete the secondary handrail paragraph if not required.

* + 1. ADA Railing Systems:
			1. Secondary Handrail: 1-1/2 inch aluminum pipe with 1.9 inch outside diameter.
				1. End Cap.
				2. "P" Loop Return.
				3. Corner Mounting Bracket 6 inch ( mm).
				4. Outside Elbow.
				5. Connector.
				6. Universal Elbow: 0 to 90 degrees.
				7. Straight Handrail: 104 inches.
				8. Radius Elbow: 34 degree.
				9. Elbow Return Bracket: 90 degree.
				10. Wall Bracket: Straight.
				11. Mounting Bracket: 3 inch.
				12. Radius Elbow: 90 degree.

\*\* NOTE TO SPECIFIER \*\* Select one of the following paragraphs and delete those not required.

* + - 1. Color: Gloss White.
			2. Color: Gloss Almond.
			3. Color: Gloss Clay.
			4. Color: Gloss Black.

\*\* NOTE TO SPECIFIER \*\* Select the post caps required from the following paragraphs and delete those not required.

* 1. POST CAPS
		1. Vinyl Post Cap:

\*\* NOTE TO SPECIFIER \*\* Select the size required from the following paragraphs. Delete size options not required.

* + - 1. Size: 4 inch.
			2. Size: 5 inch.
			3. Size: 6 inch.

\*\* NOTE TO SPECIFIER \*\* Select the style required from the following paragraphs. Delete the style options not required.

* + - 1. Style: Flat.
			2. Style: New York Cap.
			3. Style: New England Cap.
			4. Style: Spade Cap: 4 inch.
			5. Style: Spade Cap: 5 inch.
			6. Style: Ball Cap.
			7. Style: Queen Cap.
			8. Style: King Cap.

\*\* NOTE TO SPECIFIER \*\* Select the color required from the following paragraphs. Delete color paragraphs not required. New England is available in White, Almond, and Clay only.

* + - 1. Color: White.
			2. Color: Almond.
			3. Color: Clay.
			4. Color: Black.
	1. POST TRIM
		1. Vinyl Post Trim Style/Size:

\*\* NOTE TO SPECIFIER \*\* Select one of the following post trim options. Delete post trim options not required.

* + - 1. Plain Post Trim: 4 inch.
			2. Plain Post Trim: 5 inch.
			3. Plain Post Trim: 6 inch.
			4. Plain Post Trim: 8 inch.
			5. Classic Post Trim: 4 inch.
			6. Classic Post Trim: 6 inch.
			7. Classic Post Trim: 8 inch.
			8. Federation Post Trim: 6 inch.
			9. Modular Post Trim Set: 3-1/2 inch.
			10. Modular Post Trim Set: 4 inch.
			11. Modular Post Trim Set: 4-1/2 inch.
			12. Modular Post Trim Set: 5 inch.
			13. Modular Post Trim Set: 6 inch.
	1. POST MOUNTS
		1. Structural Post Mounts:

\*\* NOTE TO SPECIFIER \*\* Delete post mount options not required.

* + - 1. No. 8436G-NT: 36 inch.
			2. No. 8442G-NT: 42 inch.
			3. No. 8436G-PP: 36 inch Plumb Perfect Post.
			4. No. 8442G-PP: 42 inch Plumb Perfect Post.
	1. OUTDOOR LED LIGHTING
		1. Lighting Construction:
			1. Housing: Die-cast aluminum, powder-coated.
			2. Lens: Polycarbonate.
			3. LED Bulbs: High output 3000K. Rated at over 50,000 hours.
			4. LED Light Board: Coated with an Optical Conformal Coating to protect circuitry from normal environmental conditions.
			5. Waterproof Connections: Mizu-P25 2.50 mm Pitch.

\*\* NOTE TO SPECIFIER \*\* Available lighting options: Delete options not required.

* + - 1. Post Cap Light: Decorative. 2-1/2 inch ( mm).
			2. Post Cap Light: Decorative. 3-1/4 inch ( mm).
			3. Post Cap Light: Decorative. 4 inch ( mm).
			4. Post Cap Light: Pyramid. 2-1/2 inch ( mm).
			5. Post Cap Light: Pyramid. 3-1/4 inch ( mm).
			6. Post Cap Light: Pyramid. 4 inch ( mm).
			7. Post Cap Down Light: Decorative. 2-1/2 inch ( mm).
			8. Post Cap Down Light: Decorative. 3-1/4 inch ( mm).
			9. Post Cap Down Light: Decorative. 4 inch ( mm).
			10. Post Cap Down Light: Pyramid. 2-1/2 inch ( mm).
			11. Post Cap Down Light: Pyramid. 3-1/4 inch ( mm).
			12. Post Cap Down Light: Pyramid. 4 inch ( mm).
			13. Post Cap - No Lights: Decorative. 2-1/2 inch ( mm).
			14. Post Cap - No Lights: Decorative. 3-1/4 inch ( mm).
			15. Post Cap - No Lights: Decorative. 4 inch ( mm).
			16. Post Cap - No Lights: Pyramid. 2-1/2 inch ( mm).
			17. Post Cap - No Lights: Pyramid. 3-1/4 inch ( mm).
			18. Post Cap - No Lights: Pyramid. 4 inch ( mm).
			19. Post and Stair Accent Lights.

\*\* NOTE TO SPECIFIER \*\* Delete accessories options not required.

* + 1. Accessories:
			1. Wire Extension: 2 ft length.
			2. Wire Extension: 5 ft length.
			3. Wire Extension: 9 ft length.
			4. Post Light Wire Kit:
				1. 2-Way Wire Splitter
				2. Wire Extension: 5 ft
				3. Wire Extension: 9 ft
			5. Splitter: 2-Way Wire.
			6. Splitter: 4-Way Wire: Includes 1 plug cover.
			7. Plug Cover: Packs of 3.
			8. Remote Dimmer: Control brightness of lights remotely.
			9. Photoelectric Timer: Set a timer for lights.
			10. Power Supply: Mean Well NPF-40-12 UL8750 constant voltage and constant current LED power supply.
				1. Number of Supported Fixtures: 40.
				2. Input Voltage: 90 to 305 VAC.
				3. C.V. Output Voltage: 12.0 Volts.
				4. C.V. Max Current: 3.340 Amps.
				5. Max Output Power: 60 Watts.
				6. Constant Current: 3.340 Amps.
				7. C.C. Voltage Min: 7.20 VDC.
				8. C.C. Voltage Max: 12.00 VDC.
	1. FABRICATION
		1. Fit, shape, and assemble components in largest practical sizes, for delivery to the site. Fabricate components with joints tightly fitted and secured.
		2. Top rails shall be continuous without splices except for lengths longer than \_\_\_ feet.
		3. If railing is angled horizontally, machine proper angle into the post.
		4. Fabricate railing system to meet step railing requirements, riser, and tread dimensions of the steps.
		5. Provide components required for anchorage. Fabricate anchors and related components of material and finish as required, or as specifically noted.
1. EXECUTION
	1. EXAMINATION
		1. Do not begin installation until substrates have been properly prepared.
		2. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
	2. PREPARATION
		1. Clean surfaces thoroughly prior to installation.

\*\* NOTE TO SPECIFIER \*\* Include the following paragraph and coordinate installation as applicable. Delete if not required.

* + 1. Coordinate railing installation with installation of waterproof membrane or coating Specified in Section 07xxx.
		2. Ensure that adjacent surfaces, structures, and finishes are protected from damage by construction activities of this section.
		3. Use wood blocks and padding to prevent damage to railing members and fittings during erection.
		4. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
	1. INSTALLATION
		1. Install in accordance with manufacturer's instructions.
		2. Fit, shape, and assemble components in largest practical sizes prior to installation. Fabricate components with joints tightly fitted and secured.
		3. Keep perimeter lines straight, plumb, and level.
		4. Provide grounds, clips, backing materials, adhesives, brackets, anchors, and accessories necessary for a complete installation.
			1. Expansion Bolt Mounting: Anchor through base plates to concrete substrate.
			2. Sleeve Mounting:
				1. Arrange for casting of sleeves or core drill in situ concrete to provide holes for railing uprights.
				2. After setting, fill holes with hydraulic grout; brace members until grout is cured.
			3. Connect railing components in accordance with manufacturer's instructions applicable to the specified system. Tighten all fasteners so that completed railing is rigid and free of play at joints and component attachments.

\*\* NOTE TO SPECIFIER \*\* Include the following paragraphs for LED lighting if required. Delete if not required.

* + 1. Install LED lighting in accordance with the manufacturer's recommendations. Coordinate with Division 16 - Electrical: Electrical service and disconnects, wire routing and connections.
	1. ERECTION TOLERANCES
		1. Install railings plumb and level, securely fastened, with vertical members plumb.
			1. Maximum variation from plumb: 1/4 inch (6 mm).
			2. Maximum misalignment from true position: 1/4 inch (6 mm).
			3. Maximum misalignment between adjacent separated members: 1/8 inch (3 mm).
	2. CLEANING
		1. Remove dust or other foreign matter from component surfaces; clean finishes in accordance with manufacturer's instructions.
	3. PROTECTION
		1. Protect installed products until completion of project.
		2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION