SECTION 05 52 00

SAFETY RAILING SYSTEMS

\*\* *NOTE TO SPECIFIER* \*\* Delta Prevention Inc, aluminium rooftop safety railings systems.

This section is based on the products of Delta Prevention Inc., which is located at:

4000A Place de Java

Brossard, Quebec

J4Y 0C4, Canada

Toll Free Tel: 1-844-855-4273

Email: info@deltaprevention.com

Web: https://deltaprevention.com/en/

Click [here](https://deltaprevention.com/en/) to visit our website

Delta Prevention is a manufacturer of non-penetrating fall protection equipment for rooftop. With innovative materials and industry leading versatility, Delta Prevention’s VSS System is the safest and most durable collective fall protection system on the market. Visit our website at deltaprevention.com

1. GENERAL
	1. SECTION INCLUDES

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

* + 1. Non-penetrating roof safety railing - VSS Classic
		2. Non-penetrating roof safety railing - VSS Compact
		3. Non-penetrating skylight fall protection system
		4. Clamp-on roof hatch safety railing
		5. Permanent Warning line - VSS SafetyLine
		6. RELATED SECTIONS

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

* + 1. Section 05 50 00 - Metal Fabrications.

\*\* NOTE TO SPECIFIER \*\* Roof Edge Protection and Roof Hatch protection only. Delete if not required.

* + 1. Section 07 42 00 - Wall Panels.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required.

* + 1. National Building Code of Canada (NBC)
			1. 4.1.5.14 Loads on Guards
		2. Occupational Safety and Health Administration (OSHA): 1926.502 - Fall protection systems criteria and practices.
		3. Occupational Safety and Health Administration (OSHA): 1910.23 - Guarding Floor and Wall Openings and Holes.
	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. Storage and handling requirements and recommendations.
			3. Installation methods.
		3. Shop Drawings: Including but not limited to indication of profiles, sizes, connections, sizes and types of fasteners and accessories; showing fabrication and installation of handrails and guardrails including but not limited to plans, elevations, sections, details of components, anchor details, and attachment to adjoining units of work.
	2. QUALITY ASSURANCE

\*\* NOTE TO SPECIFIER \*\* For aluminium railing systems. Delete if not required.

* + 1. Railings Structural Requirements:

\*\* NOTE TO SPECIFIER \*\* The following are typical structural requirements for rails. Modify for the location of your project if required by code or other authorities.

* + - 1. The minimum specified horizontal load applied inward or outward at the minimum required height of every required guard shall be a concentrated load of 1.0 kN (225 lb) applied at any point.
			2. Individual elements within the guard, including solid panels and pickets, shall be designed for a load of 0.5 kN applied over an area of 100 mm by 100 mm located at any point in the element or elements so as to produce the most critical effect.
	1. DELIVERY, STORAGE, AND HANDLING
		1. Deliver, store and handle materials and products in strict compliance with manufacturer's instructions and recommendations and industry standards. Store materials within absolute limits for temperature and humidity recommended by the manufacturer.
		2. Protect finishes from damage.
	2. PROJECT CONDITIONS
		1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by the manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
		2. Field Measurements: Where handrails and railings are indicated to fit to other construction, check actual dimensions of other construction by accurate field measurements before fabrication; show recorded measurements on final shop drawings.
			1. Where field measurements cannot be made without delaying the railing fabrication and delivery, obtain guaranteed dimensions in writing by the Contractor and proceed with fabrication of products to not delay fabrication,
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: Delta Prevention Inc., located at: 4000A Place de Java, Brossard, Quebec, Canada; Toll Free 1-844-855-4273; Email: info@deltaprevention.com; Web: https://deltaprevention.com/en/

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of section 1 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.

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

* 1. NON-PENETRATING ROOF SAFETY RAILING - VSS CLASSIC
		1. Non-penetrating rooftop guardrail systems designed and manufactured by Delta Prevention.
			1. Description: Permanent, modular, free-standing, roof edge railing system that does not penetrate the roofing system.
			2. Provide components including but not limited to aluminium railings, vertical post, bases, counterweights, junction clamps and accessories as per the manufacturer’s installation guide to provide complete installation.
			3. Compliance:
				1. Canadian National Building Code 4.1.10.1(1)(e), 4.1.10.1(2), 4.1.10.1(4).
				2. Ontario Building Code Section 4.1.10.1(1)(b), 4.1.10.1(2), 4.1.10.1(4).
				3. OSHA Standard 29 CFR 1926.502.
				4. WorkSafe BC 4.54 to 4.62, 11.2

\*\* NOTE TO SPECIFIER \*\* Delete system design not required.

* + - * 1. Counterweight

Materials: 100 percent recycled rubber

\*\* NOTE TO SPECIFIER \*\* Delete options for types not required.

Type: As indicated on Drawings.

End Counterweights: DCS3 - 3 counterweights

Second Counterweights: DCS2 - 2 counterweights.

Subsequent Counterweights: DCS1 - 1 counterweight

\*\* NOTE TO SPECIFIER \*\* Delete options for system configuration not required.

* + - 1. System Configuration: Vertical posts installed straight.
			2. System Configuration: Vertical posts angled at 10-degree angle for lowered visual impact.

\*\* NOTE TO SPECIFIER \*\* Delete options for nominal pipe size not required.

* + - 1. Pipe Size: Anodized T-6061 aluminium, outside diameter: 1.9”, wall thickness: 0.120"
			2. Top and Intermediate Rails: Anodized T-6061 aluminium, outside diameter: 1.9”, wall thickness: 0.120"
			3. Cantilever Tubes: Anodized T-6061 aluminium, outside diameter: 1.9”, wall thickness: 0.120"
			4. Fittings: Galvanized malleable cast iron.
			5. Hardware: 18-8 stainless steel

\*\* NOTE TO SPECIFIER \*\* Delete option for components not required.

* + - 1. Components: As scheduled and indicated on Drawings, as required to match design indicated on Drawings and as required to provide complete installation.
			2. Components:
				1. Vertical post assembly: VPA42001
				2. Counterweight Levers: anodized T-6061 aluminium, outside diameter: 1.9”, wall thickness: 0.120"
				3. Base junctions: GA200-01, galvanized malleable cast iron with wrap-around rubber pad.

\*\* NOTE TO SPECIFIER \*\* Delete options for material, finish not required.

* + - * 1. Materials, Finish: Anodized T-6061 aluminium.
				2. Materials, Finish: Option aluminium with custom RAL powder coated finish.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with the RAL color designation as applicable. Delete options for color not required.

Color: \_\_\_\_\_\_\_\_\_\_\_\_.

Color: To match the guardrail system.

Color: As indicated on Drawings.

\*\* NOTE TO SPECIFIER \*\* Delete option for toe boards if not required.

* + - 1. Toe boards: All aluminium, no welds or drilling needed; vertical post brackets, connectors and corner connectors needed to complete installation.

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

* 1. NON-PENETRATING ROOF SAFETY RAILING - VSS COMPACT
		1. Non-penetrating rooftop guardrail systems designed and manufactured by Delta Prevention.
			1. Description: Permanent, modular, free-standing, roof edge railing system that does not penetrate the roofing system.
			2. Provide components including but not limited to pipe railings, uprights, bases, weights, fittings and accessories as indicated or required to match design indicated on Drawings and to provide complete installation.
			3. Compliance:
				1. Canadian National Building Code 4.1.10.1(1)(e), 4.1.10.1(2), 4.1.10.1(4).
				2. Ontario Building Code Section 4.1.10.1(1)(b), 4.1.10.1(2), 4.1.10.1(4).
				3. OSHA Standard 29 CFR 1926.502.
				4. WorkSafe BC 4.54 to 4.62, 11.2

\*\* NOTE TO SPECIFIER \*\* Delete system design not required.

* + - 1. System Design: Designed for applications with flat roofs.
				1. Bases: Weighted base connector with recycled rubber counterweight.

Materials: galvanized malleable cast iron

Materials: 100% recycled rubber

Weights: One weighted base connector with recycled rubber counterweight at every vertical post, maximum post spacing of 10’ (120”)

Weights: One weighted base connector with recycled rubber counterweight at every corner.

Terminations: One 5’ (60”) full height return at each end with one weighted base connector with recycled rubber counterweight.

Weights: maximum counterweight allowable height: 6”

* + - 1. System Configuration: As indicated on Drawings.
			2. Top and Intermediate Rails and Vertical Support Rails: anodized T-6061 aluminium, outside diameter: 1.9”, wall thickness: 0.120"
			3. Fittings: Galvanized malleable cast iron
			4. Hardware: 18-8 stainless steel
			5. Components: As scheduled and indicated on Drawings, as required to match design indicated on Drawings and as required to provide complete installation.
	1. FALL PROTECTION GUARDRAIL KIT FOR SKYLIGHT
		1. Skylight fall protection guardrail systems manufactured by Delta Prevention.
			1. Description: Collective, clamp-on, non-penetrating, modular fall-protection solution for use around skylights up to 107” inches x 107” in size, with a minimum exposed height of 3”.
			2. Provide all components including but not limited to aluminium vertical posts and railings, 90-degree corner fittings, threaded rods, corner brackets and all necessary hardware as indicated or required to match design indicated on Drawings and to provide complete installation.
			3. Modularity: Can be taken down, moved and re-erected.
			4. Fittings: Galvanized malleable cast iron
			5. Compliance:
				1. Canadian National Building Code 4.1.10.1(1)(e), 4.1.10.1(2), 4.1.10.1(4).
				2. Ontario Building Code Section 4.1.10.1(1)(b), 4.1.10.1(2), 4.1.10.1(4).
				3. OSHA Standard 29 CFR 1926.502.
				4. WorkSafe BC 4.54 to 4.62, 11.2
			6. Finish: Anodized T-6061 aluminium.

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

* 1. FALL PROTECTION GUARDRAIL SYSTEM FOR ROOF ACCESS HATCH
		1. Roof access hatch guardrail system manufactured by Delta Prevention.
			1. Description: Clamp-on, non-penetrating, safety railing system designed for safe egress/ingress through roof access hatches, and protection while hatch open, including optional grab handles, aluminium adjustable self-closing safety gate.
			2. Compliance:
				1. Canadian National Building Code 4.1.10.1(1)(e), 4.1.10.1(2), 4.1.10.1(4).
				2. Ontario Building Code Section 4.1.10.1(1)(b), 4.1.10.1(2), 4.1.10.1(4).
				3. OSHA Standard 29 CFR 1926.502.
				4. WorkSafe BC 4.54 to 4.62, 11.2
			3. Fittings: Galvanized malleable cast iron
			4. Pipes: anodized T-6061 aluminium, outside diameter: 1.9”, wall thickness: 0.120"

\*\* NOTE TO SPECIFIER \*\* Delete options for system configuration not required.

* + - 1. System Configuration: HGKTSF01 - Standard System; for roof hatches up to 36” by 36” with ladder exit facing the front of the hatch. Includes adjustable (24” to 36”), aluminium self-closing safety gate (GAT24A02)
			2. System Configuration: HGKTSS01 - Standard System; for roof hatches up to 36” by 36” with ladder exit to the side of the hatch. Includes adjustable (24” to 36”), aluminium self-closing safety gate (GAT24A02)
			3. System Configuration: HGKTOS01 - Oversize System; for roof hatches with a side over 36”, up to 48” x 96”. Includes adjustable (24” to 36”), aluminium self-closing safety gate (GAT24A02)

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

* 1. PERMANENT WARNING LINE - VSS SAFETYLINE
		1. Permanent and non-penetrating safety line system VSS Safetyline as manufactured by Delta Prevention.
			1. Description: Modular, permanent free-standing warning line system composed of aluminium vertical post, counterweight bases made of recycled-rubber or equipped with a rubber pad, steel cable with yellow nylon coating, pre-cut and equipped with carabiners on each end.
			2. Compliance:
				1. RSST RSST 354.1; 8’ (2,5 m) between stanchions and capable of resisting a force of 100 N applied horizontally against the stanchion or vertically between 2 stanchions.
				2. OSHA Code 1926.502(f); resists, without tipping over, a force of at least 16 pounds (71 N) applied horizontally against the stanchion.
			3. Fittings: Galvanized malleable cast iron
			4. Flags: Heavy-duty yellow nylon mesh flags.
			5. Wire Cable: steel wire cable with yellow vinyl coating; connected to the stanchions with stainless steel carabiners
			6. Optional: UV resistant and non-conductive plastic carabiners

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

* 1. FABRlCATlON
		1. Fit and shop assemble components in largest practical sizes for delivery to site.
		2. Upright tops shall be plugged with weather and light resistant material.
		3. Assemble components with joints tightly fitted and secured. Accurately form components to suit installation.
1. EXECUTION
	1. EXAMINATION
		1. Prepare substrates using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
		2. If preparation is the responsibility of another installer, notify the Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.
	2. INSTALLATION
		1. Install in accordance with manufacturer's instructions including the following:
			1. All set screws must be set to 30 lb/ft except the GA201-10 composing the vertical post that must be set to 20 lb/ft.
			2. Maximum distance between vertical posts must be respected in all configurations.
			3. Non-penetrating guardrail must be installed 12” from the edge when there is no parapet wall and additional returns every 40’ are needed on the VSS Compact only.
	3. PROTECTION
		1. Protect installed products until completion of project.
		2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION