Technical Evaluation Report™ - Canada

A Duly Authenticated Report from an Approved Agency

Report No: 2501-108

Issue Date: June 18, 2025

Revision Date: June 18, 2025

Subject to Renewal: July 1, 2026

Trex® Metal Railing Systems - Canada

Trade Secret Report Holder:

Trex® Company, Inc.

2500 Trex Way
Winchester, VA 22601-6520

Phone: 800-289-8739
Website: www.trex.com

CSI Designations:

DIVISION: 05 00 00 - METALS

Section: 05 52 00 - Metal Railings

Section: 05 52 23 - Aluminum Railings

Section: 05 72 00 - Decorative Metal Railings

Section: 05 73 16 - Wire Rope Decorative Metal Railings

1 Innovative Products Evaluated[1]

1.1 Trex Metal Railing Systems:

1.1.1 Trex Signature® X-Series™ Cable Rail

1.1.2 Trex Enhance™ Steel Rail

2 Product Description and Materials

2.1 The innovative products evaluated in this report are shown in **Figure 1** and **Figure 2**.

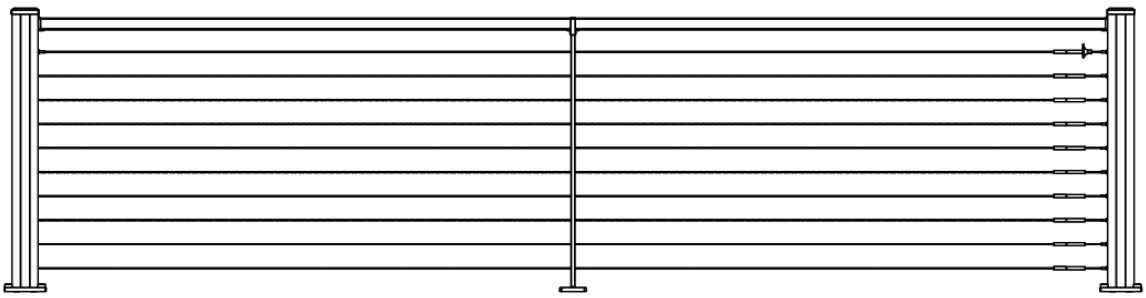

Figure 1. Trex Signature X-Series Cable Rail

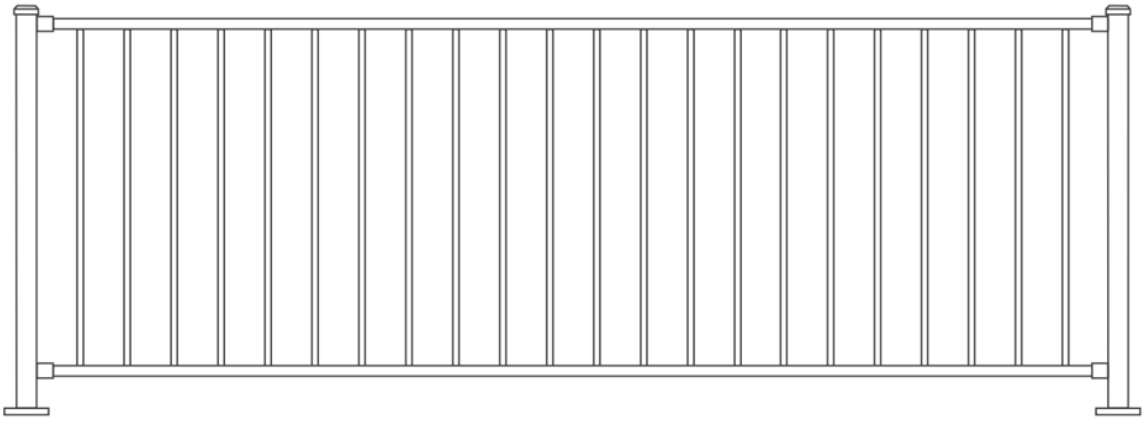

Figure 2. Trex Enhance Steel Rail

Table 1. Product Information

Trex Metal Railing Systems	Description	Maximum Allowable Dimensions	Infill	Infill Section Total Dimensions		Applications
				Heights	Lengths	
Trex Signature X-Series Cable Rail	Assemblage of extruded aluminum pieces, stainless steel fasteners, cast Zamak 3 bracket materials and stainless steel cable infill material	1.1 m (42") height 1.8 m (72") span between adjacent structural posts; For kits larger than 1.8 m (72"), additional structural Pass-Through Posts are provided	1 x 19 Stainless Steel Cables, 3.2 mm (1/8") diameter	0.9 m and 1.1 m (36" and 42")	1.8 m, 3.6 m, and 5.5 m (72", 144", and 216")	Horizontal
Trex Enhance Steel Rail	Assemblage of steel posts, stainless steel fasteners, steel bracket materials and steel infill assembly	1.1 m (42") height 2.4 m (96") span between posts	Square Steel Balusters 16.2 mm x 16.2 mm (0.638" x 0.638")	0.9 m and 1.1 m (36" and 42")	1.8 m and 2.4 m (72" and 96")	
SI: 1 in = 25.4 mm						

2.2 *Trex Signature X-Series Cable Rail*

2.2.1 Trex Signature X-Series Cable Rail is a guardrail system consisting of extruded aluminum components and zinc alloy (Zamak 3) brackets. The cables are spring-loaded stainless steel 1 x 19 cables.

2.2.1.1 X-Series Posts, Pass-Through Posts, Top Rails, and Brackets are available in charcoal black color.

2.2.1.1.1 X-Series Posts are comprised of a Specialized Internal X structure, Corner Covers, Flat Side Covers, and a Base Plate.

2.2.1.1.1.1 X-Series Posts are mechanically connected to the X-Series Base Plate via machine screws.

2.2.1.2 Pass-Through Posts are comprised of a Pass-Through Post Bar and a Pass-Through Base Plate.

2.2.1.2.1 The Pass-Through Post Bar is mechanically connected to the Pass-Through Base Plate via machine screws.

2.2.1.2.2 The Top Rail is mechanically connected to the X-Series Post and Pass-Through Posts (where applicable) via X-Series Straight Brackets and X-Series Pass-Through Brackets.

2.2.1.3 The 1 x 19 stainless steel cables have a nominal diameter of 3 mm ($^1/_8$").

2.2.1.3.1 Spacing of the cables is 80 mm (3.15") on center.

2.2.2 Trex Signature X-Series Cable Rail is available in two heights, 0.9 m (36") and 1.1 m (42"), and three length configurations:

2.2.2.1 1.8 m (6') Horizontal Cable Rail configuration (**Figure 3**)

2.2.2.2 3.6 m (12') Horizontal Cable Rail configuration (**Figure 4**)

2.2.2.3 5.5 m (18') Horizontal Cable Rail configuration (**Figure 5**)

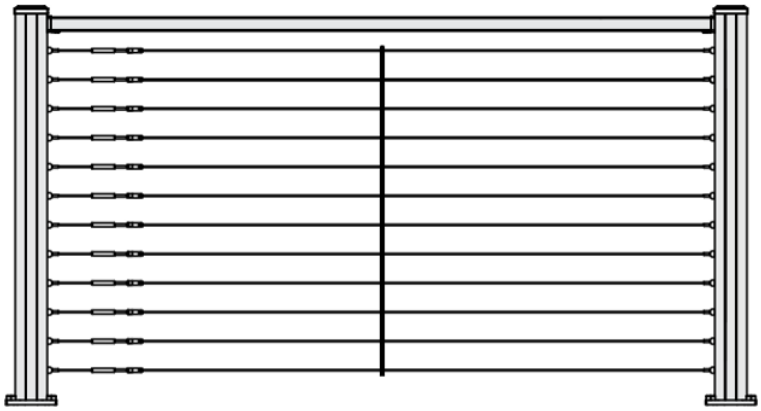

Figure 3. 1.8 m (6') Trex Signature X-Series Cable Rail

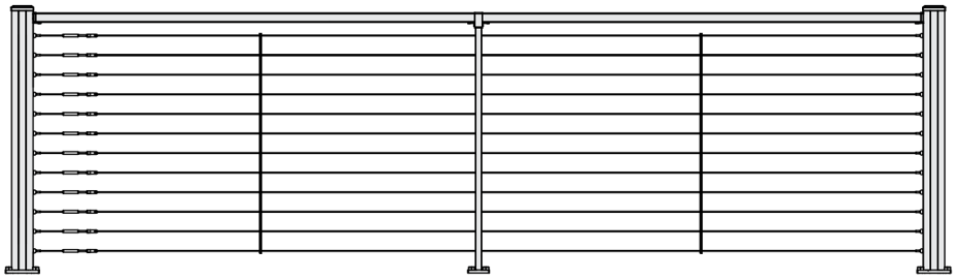

Figure 4. 3.6 m (12') Trex Signature X-Series Cable Rail

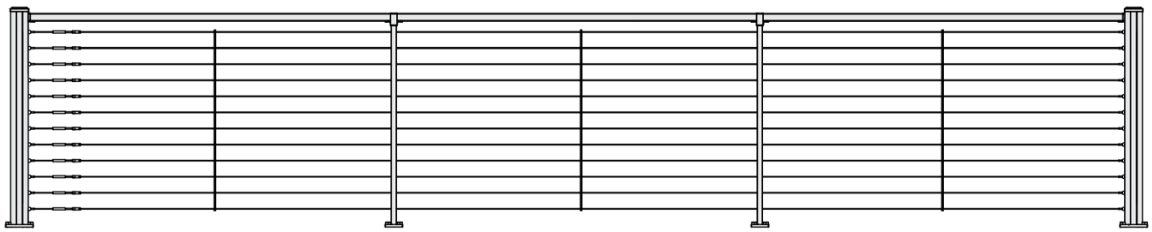

Figure 5. 5.5 m (18') Trex Signature X-Series Cable Rail

2.3 *Trex Enhance Steel Rail*

2.3.1 Trex Enhance Steel Rail is a guardrail system consisting of extruded coated steel posts, rails, square balusters, and coated steel brackets.

2.3.1.1 Enhance Steel Posts, and the pre-assembled rail/baluster panel are available in charcoal black powder coat.

2.3.1.1.1 The Enhance Steel Post is welded to the Steel Base Plate

2.3.1.1.2 The Enhance Steel Balusters are welded onto the Steel Top and Bottom Rails

2.3.1.2 Vertical Square Steel Balusters of the pre-assembled panel are approximately 89 mm ($3^1/_2$") apart.

2.3.2 Trex Enhance Steel Rail is available in two heights, 0.9 m (36") and 1.1 m (42"), and two length configurations:

2.3.2.1 1.83 m (6') configuration (**Figure 6**)

2.3.2.2 2.44 m (8') configuration (**Figure 7**)

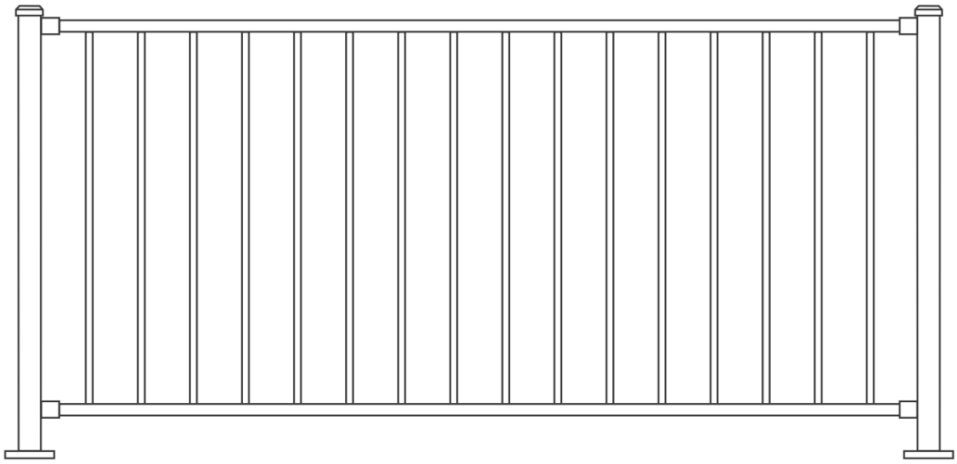

Figure 6. 1.8 m (6') Trex Enhance Steel Rail

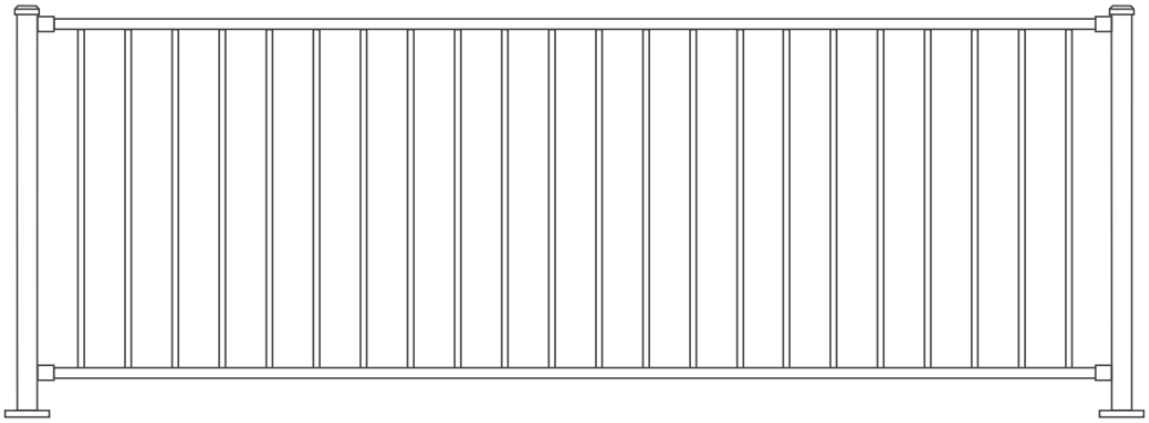

Figure 7. 2.4 m (8') Trex Enhance Steel Rail

Table 2. Component Details of Trex Metal Railing Systems

Component	Description
Trex Signature X-Series Post	
X-Series Post	89 mm (3 1/2") overall square profile with a specialized internal X structure made of 6061A extruded aluminum.
Base Plate	140 mm x 140 mm x 12.7 mm (5 1/2" x 5 1/2" x 1/2") thick 6063-T6 aluminum base plate with four 10.1 mm (0.397") diameter holes located approximately 42 mm (1.654") on-center from each edge and approximately 56 mm (2.192") apart on-center, four 13.5 mm (0.531") diameter holes located approximately 14.6 mm (0.575") on-center from each edge and approximately 111 mm (4.35") apart on-center.
Trex Signature X-Series Cable Rail	
Top Rail	38 mm high x 51 mm wide x 3.2 mm (1 1/2" high x 2" wide x 1/8") wall 6063-T6 extruded aluminum.
Infill	*Cable Brace:* 6.4 mm x 6.4 mm (1/4" x 1/4") square 316 stainless steel brace, 3.6 mm (0.141") diameter holes spaced 3.2 mm (1/8") on-center from the edges, 9.5 mm (3/8") on center from the ends and 80 mm (3.15") on center from each other. Assembly Height 0.9 m (36"), Cable Brace Height 0.75 m (29"), Number of Holes 10 Assembly Height 1.1 m (42"), Cable Brace Height 0.9 m (36"), Number of Holes 12
	Pass-Through Post Base Plate: 89 mm x 140 mm x 12.7 mm (3 1/2" x 5 1/2" x 1/2") thick 6063-T6 aluminum base plate with two 12.7 mm (1/2") diameter holes located approximately 55 mm (2.15") on-center from the long edge and 44.5 mm (1 3/4") on center from the short edge and approximately 30.5 mm (1.2") apart on-center, four 13.5 mm (17/32") diameter holes located approximately 14.6 mm (0.575") on-center from each edge.
	Pass-Through Post: 25 mm x 51 mm (1" x 2") rectangular post with 3.8 mm (0.150") diameter holes spaced 65 mm (2.555") on-center from the bottom plate, and 80 mm (3.15") on-center from each other. There is also a 5.6 mm (0.221") diameter hole located 66.7 (2 5/8") on-center from the topmost 3.8 mm (0.150") diameter hole and 7.1 mm (0.28") on-center from the top of the post. Assembly Height 0.9 m (36"), Post Height (34.1"), Number of Holes 10 Assembly Height 1.1 m (42"), Post Height (40.1"), Number of Holes 12
	1 x 19 Stainless Steel Cables, 3.2 mm (1/8") diameter, held in place by 6005A aluminum Cable Infill Adapters. Assembly Height 0.9 m (36"), Number of Cables 10 Assembly Height 1.1 m (42"), Number of Cables 12
Rail Attachment	*Top Rail Straight Bracket:* Cast zinc bracket (top rail). *Pass-Through Post Bracket:* Cast zinc bracket (top rail).
Trex Enhance Steel Post	
Enhance Steel Post	51 mm x 51 mm (2" x 2") square 13-gauge steel tube
Base Plate	102 mm x 102 mm x 7.8 mm (4" x 4" x 0.306") thick steel base plate with four 13.3 mm (0.525") diameter holes located with centers located approximately 13.7 mm (0.54") from each edge and approximately 74.7 mm (2.94") apart on-center.
Trex Enhance Steel Rail	
Top/Bottom Rail and Infill Prefabricated Panel	Pre-assembled with 25 mm x 25 mm x 2.5 mm (1" x 1" x 0.099") thick walled square steel tubes for top and bottom rails and 16.2 mm x 16.2 mm (0.638" x 0.638") Square Steel Tubes balusters. Balusters are positioned with 90 mm (3.56") minimum clearance between them.
Rail Attachment	*Top and Bottom Rail Brackets:* steel bracket material, in 33 mm x 35 mm x 35.6 mm (1.29" x 1.38" x 1.40") dimensions and 3.3 mm (0.131") metal thickness.

2.4 As needed, review material properties for design in **Section 4** and the regulatory evaluation in **Section 5**.

3 Applicable Codes and Standards[2]

3.1 *Standards and Referenced Documents*

3.1.1 *ASTM E935: Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings*

3.1.2 *CSA S157: Strength Design in Aluminum*

3.2 *Codes*

3.2.1 *NBCC —15, 20: National Building Code of Canada*

3.2.2 *BCBC — 18 24: British Columbia Building Code*

3.2.3 *NBC-Alberta — 19, 23: National Building Code - Alberta*

3.2.4 *O Reg. 163/24: Ontario Building Code (OBC)[3]*

4 Tabulated Properties Generated from Nationally Recognized Standards

4.1 *General*

4.1.1 Trex Signature X-Series Cable Rail and Trex Enhance Steel Rail are used as guardrail systems where a minimum guardrail height of 1,070 mm (42") is required in accordance with NBCC Sentence 3.3.1.18(1), NBCC Article 9.8.8.1, and NBCC Sentence 9.8.8.3(1).

4.2 *Structural Performance*

4.2.1 Trex Signature X-Series Cable Rail and Trex Enhance Steel Rail were tested and met the structural requirements of NBCC Clause 4.1.5.14(1)(c), NBCC Sentence 4.1.5.14(6), NBCC Article 9.8.8.2 and NBCC Table 9.8.8.2 for guards within dwelling units and exterior guards serving not more than two dwelling units. See also corresponding Sections 9.8.8.2 in 2024 BCBC and 2023 NBC-Alberta.

4.2.1.1 See **Table 3** for assessment of Trex Signature X-Series Cable Rail

4.2.1.2 See **Table 4** for assessment of Trex Enhance Steel Rail

Table 3. Allowable Design Live Loads for Trex Signature X-Series Cable Rail

Load Type	Location	Regulatory Source	Design Service-Level Live Load Assessment
Infill Load	Geometric Center	NBCC Table 9.8.8.2	0.5 kN (113 lb), [load over square loading plate of 300 mm x 300 mm]
	Lower Center		
	Center Adjacent to Post		
	Bottom Adjacent to Post		
	Center Adjacent to Cable Coupling		
	Bottom Adjacent to Cable Coupling		
	Center of Support Baluster		
	Bottom of Support Baluster		
Uniform Load	Horizontal – Top Rail	NBCC 4.1.5.14(1)(c) NBCC Table 9.8.8.2	0.75 kN/m (52 lb/ft)
	Vertical – Top Rail	NBCC 4.1.5.14(6) NBCC Table 9.8.8.2	1.5 kN/m (103 lb/ft)

Table 3. Allowable Design Live Loads for Trex Signature X-Series Cable Rail

Load Type	Location	Regulatory Source	Design Service-Level Live Load Assessment
Concentrated Load (Horizontal)	Midspan – Top Rail	NBCC 4.1.5.14(1)(c) NBCC Table 9.8.8.2	1.0 kN (225lb)
	Adjacent to Post – Top Rail		
	Top of Intermediate Post		
	Top of End Post		
Concentrated Load (Vertical)	Midspan – Top Rail	NBCC 4.1.5.14(1)(c) NBCC Table 9.8.8.2	1.0 kN (225lb)
	Adjacent to Post – Top Rail		
	Top of Intermediate Post		
Imperial: 1 N = 0.225 lb, 1 kN/m = 737.6 lb/ft			

Table 4. Allowable Design Live Loads for Trex Enhance Steel Rail

Load Type	Location	Regulatory Source	Design Service-Level Live Load Assessment
Infill Load	Geometric Center	NBCC Table 9.8.8.2	0.5 kN (113 lb), [load over square loading plate of 300mm x 300mm]
	Lower Center		
Uniform Load	Horizontal – Top Rail	NBCC 4.1.5.14(1)(c) NBCC Table 9.8.8.2	0.75 kN/m (52 lb/ft)
	Vertical – Top Rail	NBCC 4.1.5.14(6) NBCC Table 9.8.8.2	1.5 kN/m (103 lb/ft)
Concentrated Load (Horizontal)	Midspan – Top Rail	NBCC 4.1.5.14(1)(c) NBCC Table 9.8.8.2	1.0 kN (225lb)
	Adjacent to Post – Top Rail		
	Top of Single Post		
Concentrated Load (Vertical)	Midspan – Top Rail	NBCC 4.1.5.14(1)(c) NBCC Table 9.8.8.2	1.0 kN (225lb)
	Adjacent to Post – Top Rail		
Imperial: 1 N = 0.225 lb, 1 kN/m = 737.6 lb/ft			

4.2.1.3 Trex Enhance Steel Rail vertical balusters infill are able to withstand a live load of 0.1 kN applied in opposite directions between two adjacent balusters without exceeding the limitation set forth in NBCC Section 9.8.8.5(1).

4.3 Where the application falls outside of the performance evaluation, conditions of use, and/or installation requirements set forth herein, alternative techniques shall be permitted in accordance with accepted engineering practice and experience. This includes but is not limited to the following areas of engineering: mechanics or materials, structural, building science, and fire science.

5 Regulatory Evaluation and Accepted Engineering Practice

5.1 Trex Metal Railing Systems (Trex Signature X-Series Cable Rail and Trex Enhance Steel Rail) comply with the following adopted codes and/or accepted engineering practice for the following reasons:

5.1.1 Conformance to the appropriate requirements in NBCC Section 9.8 for use in dwelling units as specified in NBCC Article 3.3.4.7.

5.1.2 Structural performance in accordance with NBCC Clause 4.1.5.14(1)(c), NBCC Sentence 4.1.5.14(6), NBCC Article 9.8.8.2 and NBCC Table 9.8.8.2 for guards within dwelling units and exterior guards serving not more than two dwelling units.

5.1.2.1 Trex Signature X-Series Cable Rail infill runs horizontally. The conditions stated in NBCC Sentence 4.1.5.14(4) or NBCC Sentence 9.8.8.2(2) is for infills with vertical elements and, therefore, does not apply to Trex Signature X-Series Cable Rail.

5.1.2.2 Trex Enhance Steel Rail infill was evaluated in accordance with NBCC Sentence 4.1.5.14(4) or NBCC Sentence 9.8.8.2(2). See also corresponding Sections 9.8.8.2 in both 2024 BCBC, and 2023 NBC-Alberta.

5.1.3 Compliance with the minimum height requirement of 1,070 mm (42") with NBCC Sentence 3.3.1.18(1) and NBCC Sentence 9.8.8.3(1).

5.1.3.1 Height compliance with NBCC Sentence 9.8.8.3(1) also complies with the minimum height specified in NBCC Sentence 9.8.8.3(2) and NBCC Section 9.8.8.3(3).

5.1.4 Compliance with opening size in accordance with NBCC Sentence 3.3.1.18(2) and NBCC Article 9.8.8.5.

5.2 Trex Signature X-Series Cable Rail complies with the provision prescribed in NBCC Sentence 3.3.1.18(4) and NBCC Article 9.8.8.6., provided the guardrail for the protected level is not above 4.2 m (165") from the adjacent level. See also corresponding Sections 9.8.8.2 in both 2024 BCBC and 2023 NBC-Alberta.

5.2.1 Trex Signature X-Series Cable Rail is not permitted to be used in Ontario per Section 3.3.1.18(4) and Article 9.8.8.6 of the Ontario Building Code.

5.3 Any building code, regulation and/or accepted engineering evaluations (i.e., research reports, duly authenticated reports, etc.) that are conducted for this report were performed by DrJ, which is an ISO/IEC 17065 accredited certification body and a professional engineering company operated by RDP or approved sources. DrJ is qualified[4] to practice product and regulatory compliance services within its scope of accreditation and engineering expertise,[5] respectively.

5.4 Testing and related engineering evaluations are defined as intellectual property and/or trade secrets.[6]

5.5 Engineering evaluations are conducted with DrJ's ANAB accredited ICS code scope of expertise that is also its areas of professional engineering competence.[7]

5.6 Any code specific issues not addressed in this section are outside the scope of this report.

6 Installation

6.1 Installation shall comply with the approved construction documents, the manufacturer installation instructions, this report, and the applicable building code.

6.2 In the event of a conflict between the manufacturer installation instructions and this report, contact the manufacturer for counsel on the proper installation method.

6.3 *Installation Procedure*

6.3.1 Trex Signature X-Series X-Post, Pass-Through Post, or Trex Enhance Steel Post shall be installed in accordance with **Figure 8** or **Figure 9**.

6.3.1.1 Material shall be nominal 2 x 8 Pressure-Preservative-Treated (PPT) Southern Pine (SP) with a specific gravity of 0.55.

6.3.1.2 Fasteners shall be #10 x 3" PPT compatible wood screws (36 screws per post location).

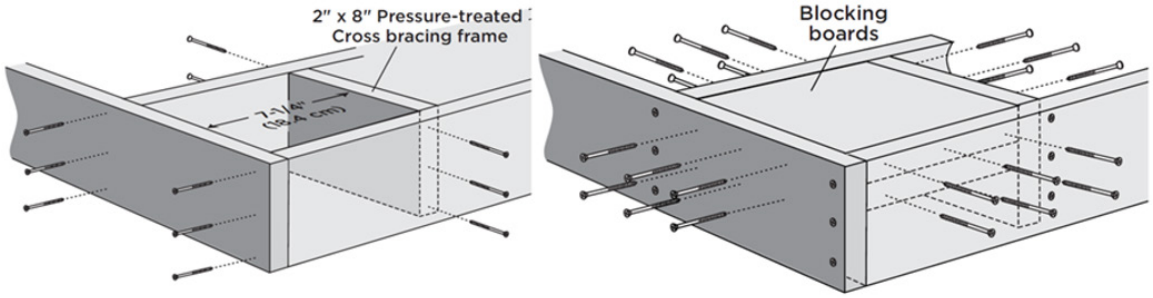

Figure 8. Corner Post Blocking – Post - Wood Installation

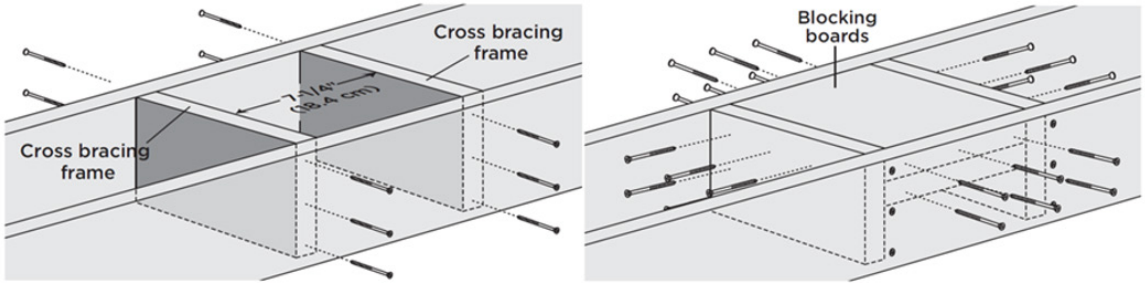

Figure 9. In-line Post Blocking – Post - Wood Installation

6.3.2 The Trex Signature X-Series Cable Rail fastening schedule, per component, is presented in **Table 5**.

Table 5. Fastening Schedule for Trex Signature X-Series Cable Rail

Component	Connection	Details
X-Series Post or Pass-Through Post	Post to Substructure	*Wood:* Four 1/2" x 6" stainless steel hex-cap bolts, stainless steel washers with stainless steel T-nuts installed into bottom of wood blocking
Top Rail	Top Rail Straight Bracket to X-Series Post	Bracket slides into channel and locked into place between the structural cover and locking assembly
	Top Rail Straight Bracket to Rail	One #8-18 x 1/2" pan head stainless steel screw per bracket
	Locking Block Assembly to Top Rail Straight Bracket and X-Series Post	Locking Block Assembly is composed of a stainless steel weld nut, 1/4"-20 bolt and a stainless steel locking block, which interfaces between X-Series Post and bracket
	Pass-Through Post Bracket to Pass-Through Post	Two 1/4" x 1 1/4" Barrel Bolts
	Pass-Through Post Bracket to Top Rail	Two #8-18 x 1/2" pan head stainless steel screws per bracket
Cable Brace	Cable Brace to Top/Bottom Cable	Cable Brace connects to the top and bottom cables via a #10-24 x 1/4" Thread Locking Cup point Set Screw in each end
Imperial: 1 mm = 0.039 in		

6.3.3 Trex Enhance Steel Rail's fastening schedule per component is presented in **Table 6**.

Table 6. Fastening Schedule for Trex Enhance Steel Rail

Component	Connection	Details
Enhance Steel Post	Post to Substructure	*Wood:* four 1/2" x 6" stainless steel hex-cap bolts, stainless steel washers, with stainless steel T-nuts installed into bottom of wood blocking.
Enhance Steel Rail – Horizontal Panel	Steel Bracket to Post	Two #12 x 3/4" self-drilling screws
	Horizontal Panel to Steel Brackets	Slide Horizontal Panel onto the steel brackets and secure panel to bracket with one #12 x 3/4" self-drilling screw
	Rail Bracket Covers to Brackets	Spread and snap corresponding bracket covers over opening in upper and bottom rails
	Post Skirt to Post Base Plate	Slide covers over post base plate from the side
	Post Cap to Post	Snap on post cap to post from the top (use of rubber mallet may be required for secure attachment)
Imperial: 1 mm = 0.039 in		

6.4 Installation of Trex Signature X-Series Cable Rail and Trex Enhance Steel Rail shall be installed on Trex Signature®, Trex Transcend® Lineage®, Trex Transcend®, Trex Select®, and Trex Enhance® decking, or decking with equivalent properties.

7 Substantiating Data

7.1 Testing has been performed under the supervision of a professional engineer and/or under the requirements of ISO/IEC 17025 as follows:

7.1.1 Guardrail service load testing in accordance with ASTM E935 test reports from approved sources:

7.1.1.1 In-fill load tests

7.1.1.2 Uniform load tests

7.1.1.3 Concentrated load tests

7.1.2 Vertical element separation within the infill region in accordance with NBCC Sentence 4.1.5.15(4).

7.2 Information contained herein is the result of testing and/or data analysis by sources that conform to the evaluation requirements of NBC Volume 1 Relationship of the NBC to Standards Development and Conformity Assessment and/or professional engineering regulations. DrJ relies upon accurate data to perform its ISO/IEC 17065 evaluations.

7.3 Where appropriate, DrJ's analysis is based on provisions that have been codified into law through provincial, territorial, or local adoption of codes and standards. The developers of these codes and standards are responsible for the reliability of published content. DrJ analysis may use code-adopted provisions as a control sample. A control sample versus a test sample establishes a product as being equivalent to that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety.

7.4 The accuracy of the provisions provided herein may be reliant upon the published properties of raw materials, which are defined by the grade mark, grade stamp, mill certificate, listings, certified reports, duly authenticated reports from approved agencies, and research reports prepared by approved agencies and/or approved sources provided by the suppliers of products, materials, designs, assemblies and/or methods of construction. These are presumed to be minimum properties and relied upon to be accurate. The reliability of DrJ's engineering practice, as contained in this report, may be dependent upon published design properties by others.

7.5 *Testing and Engineering Analysis:*

7.5.1 The strength, rigidity and/or general performance of component parts and/or the integrated structure are determined by suitable tests that simulate the actual conditions of application that occur and/or by accepted engineering practice and experience.

7.6 Where additional condition of use and/or code compliance information is required, please search for Trex Metal Railing Systems on the DrJ Certification website.

8 Findings

8.1 As outlined in **Section 4**, Trex Metal Railing Systems (Trex Signature X-Series Cable Rail and Trex Enhance Steel Rail) have performance characteristics that were tested and/or meet applicable regulations. In addition, they are suitable for use pursuant to its specified purpose.

8.2 When used and installed in accordance with this duly authenticated report and the manufacturer installation instructions, Trex Metal Railing Systems shall be approved for the following applications:

8.2.1 Use as a guardrail system where a guardrail height of 1,070 mm (42") is allowed in accordance with NBCC Sentence 3.3.1.18(1), NBCC Article 9.8.8.1, and NBCC Sentence 9.8.8.3(1)

8.3 Any application specific issues not addressed herein can be engineered by an RDP. Assistance with engineering is available from Trex Company, Inc.

8.4 These innovative products have been evaluated in the context of the codes listed in **Section 3** and are compliant with all known provincial, territorial, and local building codes. Where there are known variations in provincial, territorial, or local codes applicable to this report, they are listed here:

8.4.1 No known variations

8.5 NBC Volume 1 Relationship of the NBC to Standards Development and Conformity Assessment:

> **Certification**
>
> Certification is the confirmation by an independent organization that a product, service, or system meets a requirement…Certification bodies publish lists of certified products and companies…Several organizations, including the Canadian Construction Materials Centre (CCMC), offer such evaluation services.
>
> **Evaluation**
>
> An evaluation is a written opinion by an independent professional organization that a product will perform its intended function. An evaluation is very often done to determine the ability of an innovative product, for which no standards exist, to satisfy the intent of the Code requirement...

8.6 ISO/IEC 17065 accredited third-party certification bodies,[8] including but not limited to, Standards Council of Canada (SCC)[9] and ANSI National Accreditation Board (ANAB),[10] confirm that product certification bodies have the expertise to provide technical evaluation services within their scope of accreditation. All SCC and ANAB product certification bodies meet NBC requirements to offer evaluation services for alternative solutions.[11]

8.6.1 DrJ is an ISO/IEC 17065 ANAB-Accredited Product Certification Body – Accreditation #1131[12] and employs professional engineers.[13]

8.7 Through ANAB accreditation and the IAF Multilateral Agreements, this report can be used to obtain product approval in any jurisdiction or country that has IAF MLA Members & Signatories to meet the Purpose of the MLA – "*certified once, accepted everywhere*." IAF specifically says, "*Once an accreditation body is a signatory of the IAF MLA, it is required to recognise certificates and validation and verification statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA, with the appropriate scope*."[14]

8.8 Product certification organizations, accredited by the SCC and ANAB, are defined as equivalent evaluation services:

8.8.1 Canada-United States-Mexico Agreement (CUSMA), Article 11.6 Conformity Assessment confirms mutual recognition by stating, "*...each Party shall accord to conformity assessment bodies located in the territory of another Party treatment no less favorable than that it accords to conformity assessment bodies located in its own territory or in the territory of the other Party*."

8.8.2 The SCC National Conformity Assessment Principles states, "*SCC is a member of a number of international organizations developing voluntary conformity assessment agreements that help ensure the international acceptance of Canadian conformity assessment results. Signatories to these agreements (like SCC) recognize each other's accreditations as being equivalent to their own*."[15]

8.9 Building official approval of a licensed professional engineer is performed by verifying the professional engineer and/or their business entity are listed by the engineering regulators of the relevant jurisdiction.

9 Conditions of Use

9.1 Material properties shall not fall outside the boundaries defined in **Section 4**.

9.2 As defined in **Section 4**, where material and/or engineering mechanics properties are created for load resisting design purposes, the resistance to the applied load shall not exceed the ability of the defined properties to resist those loads using the principles of accepted engineering practice.

9.3 As listed herein, Trex Metal Railing Systems (Trex Signature X-Series Cable Rail and Trex Enhance Steel Rail) shall be limited to the following conditions:

9.3.1 Trex Signature X-Series Cable Rail and Trex Enhance Steel Rail have only been evaluated for live loads for use as guards. Other loadings are outside of the scope of this report.

9.3.2 The compatibility of the fasteners and all other metallic parts listed in this report with the supporting structure is outside of the scope of this report.

9.3.2.1 This includes treated wood products.

9.3.3 Shims are not required to prevent direct contact between the post base plate and supporting structure. Shims are permitted between the post base plate and supporting structure where necessary to plumb the posts.

9.4 When required by regulation and enforced by the building official, also known as the Authority Having Jurisdiction (AHJ) in which the project is to be constructed:

9.4.1 Any calculations incorporated into the construction documents shall conform to accepted engineering practice and, when prepared by an approved source, shall be approved when signed and sealed.

9.4.2 This report and the installation instructions shall be submitted at the time of permit application.

9.4.3 These innovative products have an internal quality control program and a third-party quality assurance program.

9.4.4 At a minimum, these innovative products shall be installed per **Section 6** of this report.

9.4.5 This report shall be reviewed for code compliance by the AHJ in concert with the duties and powers granted to the building official by the provincial regulations governing such duties and powers.

9.4.6 The application of these innovative products in the context of this report is dependent upon the accuracy of the construction documents, implementation of installation instructions, inspections, and any other regulatory requirements that may apply.

9.5 Design loads shall be determined in accordance with the building code adopted by the jurisdiction in which the project is to be constructed and/or by the building designer (i.e., owner).

9.6 The actual design, suitability, and use of this report for any particular building, is the responsibility of the owner or the authorized agent of the owner.

10 Identification

10.1 The innovative products listed in **Section 1.1** are identified by a label on the board or packaging material bearing the manufacturer name, product name, this report number, and other information to confirm code compliance.

10.2 Additional technical information can be found at www.trex.com.

11 Review Schedule

11.1 This report is subject to periodic review and revision. For the latest version, visit www.drjcertification.org.

11.2 For information on the status of this report, please contact DrJ Certification.

Appendix A

1 Trex Signature X-Series Cable Rail Components

Table 7. Trex Signature X-Series Cable Rail Component Specifications

Component		Overall Dimensions	Material
X-Series Anchor Posts	X-Post (core)	88 mm x 88 mm x 940 mm (3.5" x 3.5" x 37")	6061-T6, 6105-T5, or 6082-T6 Aluminum
	X-Post Corner Cover		6063-T6 Aluminum
	X-Post Flat Side Cover	88 mm x 88 mm x 1092 mm (3.5" x 3.5" x 43")	6063-T6 Aluminum
	X-Post Base Plate		6005A-T61 Aluminum
	Cable Infill Adapters	88 mm x 88 mm x 1,346 mm (3.5" x 3.5" x 53")	6063-T5 Aluminum
	Post Cap		Zamak 3
Pass-Through Posts (Intermediate Posts)	Pass-Through Post	25 mm x 51 mm x 876 mm (1.0" x 2.0" x 34.5")	6005A-T61 Aluminum
	Pass-Through Post Base Plate	25 mm x 51 mm x 1,030 mm (1.0" x 2.0" x 40.5")	
Top Rail		38 mm x 51 mm x 1,830 mm (1.5" x 2.0" x 72")	6063-T6 Aluminum
Infill	1 x 19 Cable Assembly	3.18 mm (1/8") Diameter	AISI 316L Stainless Steel
	X-Series Cable Braces	6 mm x 6 mm x 744 mm (0.25" x 0.25" x 29.3") 6 mm x 6 mm x 897 mm (0.25" x 0.25" x 35.3")	AISI 316L Stainless Steel
Hardware	Top Rail Insert	37 mm x 12 mm x 20 mm (1.44" x 0.46" x 0.80")	6063-T5 Aluminum
	X-Series Straight Bracket	42 mm x 56 mm x 64 mm (1.64" x 2.19" x 2.52")	Zamak 3
	X-Series Pass-Through Bracket	62 mm x 56 mm x 93 mm (2.44" x 2.19" x 3.65")	Zamak 3
	X-Series Locking Block	19 mm x 23 mm x 17 mm (0.75" x 0.90" x 0.65")	AISI 316L Stainless Steel
	X-Series Adjustable Bracket Pivot Bolt	1/4"-20 x 7/8" Machine Screw (Round Head)	AISI 18-8 Stainless Steel
	X-Series Barrel Bolt	6 mm (1/4") Diameter Barrel #10-24 Thread Connection	AISI 18-8 Stainless Steel
	X-Series Pass-Through Base Plate Mounting Bolt	1/2"-13 x 1 1/2" Machine Screw (Flat Head)	AISI 316 Stainless Steel
	X-Series #8 Self-tapping Screw	#8-18 x 1/2" Self-Tapping Screw (Round Head)	AISI 18-8 Stainless Steel
	X-Series Weld Nut	1/4"-20 x 1 1/8" Plate Nut	AISI 18-8 Stainless Steel

2 Trex Enhance Steel Rail Components

Table 8. Trex Enhance Steel Rail Component Specifications

Component		Overall Dimensions	Material
Enhance Steel Posts	Enhance Steel Post (Corner)	102 mm x 102 mm x 946 mm (4" x 4" x 37 1/4") 102 mm x 102 mm x 1,099 mm (4" x 4" x 43 1/4")	Powder Coated Q195 (A53) Steel
	Enhance Steel Post (Line)		
	Enhance Steel Post (End)		
	Enhance Steel Post Cap		
	Enhance Steel Post Skirt		
Infill	Enhance Steel Rail Horizontal Panel	838 mm x 25.4 mm x 1,816 mm (33" x 1" x 71 1/2") 838 mm x 25.4 mm x 2,426 mm (33" x 1" x 95 1/2") 991 mm x 25.4 mm x 1,816 mm (39" x 1" x 71 1/2") 991 mm x 25.4 mm x 2,426 mm (39" x 1" x 95 1/2")	Powder Coated Q195 (A53) Steel
Hardware	Enhance Steel Brackets	36 mm x 33 mm x 35 mm (1.40" x 1.29" x 1.38")	Powder Coated Q235B (A36) Steel
	Enhance Steel Bracket Covers	37 mm x 39 mm x 36 mm (1.456" x 1.525" x 1.425")	Powder Coated Q235B (A36) Steel
	#12 Self-tapping Screw	#12 x 3/4" Drill-Point Screw (Flat Head)	C1018 Steel

Notes

1 For more information, visit drjcertification.org or call us at 608-310-6748.

2 Unless otherwise noted, all references in this report are from the 2020 version of the NBC. This alternative solution is also approved for use with the 2010 and 2015 NBC and the standards referenced therein.

3 References in this report to the National Building Code of Canada (NBC) apply to the Ontario Building Code (OBC), unless noted otherwise.

4 Qualification is performed by a legislatively defined Accreditation Body. ANSI National Accreditation Board (ANAB) is the largest independent accreditation body in North America and provides services in more than 75 countries. DrJ is an ANAB accredited product certification body.

5 https://anabpd.ansi.org/Accreditation/product-certification/AllDirectoryDetails?prgID=1&orgID=2125&statusID=4#:~:text=Bill%20Payment%20Date-,Accredited%20Scopes,-13%20ENVIRONMENT.%20HEALTH

6 18 U.S. Code § 1831 - Economic espionage - Whoever, intending or knowing that the offense will benefit any foreign government, foreign instrumentality, or foreign agent, knowingly steals, or without authorization appropriates, takes, carries away, or conceals, or by fraud, artifice, or deception obtains a trade secret shall be fined not more than $5,000,000 or imprisoned not more than 15 years, or both. Any organization that commits any offense described shall be fined not more than the greater of $10,000,000 or 3 times the value of the stolen trade secret to the organization, including expenses for research and design and other costs of reproducing the trade secret that the organization has thereby avoided. https://www.law.cornell.edu/uscode/text/18/part-I/chapter-90.

7 ANAB is part of the USMCA and IAF MLA, where the purpose of these agreements are to ensure mutual recognition of accredited certification and validation/verification statements between agreement signatories, and subsequent acceptance of ANAB accredited certification and validation/verification statements by professional engineers based upon having one universal approval process for the timely approval of innovative materials, products, designs, services, assemblies and/or methods of construction.

8 https://anabpd.ansi.org/Accreditation/product-certification/DirectoryListingAccredited?menuID=1&prgID=1

9 https://iaf.nu/en/member-details/?member_id=91

10 https://iaf.nu/en/member-details/?member_id=14

11 NBC Division A Clause A-1.2.1.1.(1)(b) provides information on code compliance via alternative solutions and defines alternative solutions as *"...achiev[ing] at least the minimum level of performance required by Division B."* NBC Division C Section 2.3 includes additional guidance for documentation of alternative solutions.

12 https://anabpd.ansi.org/Accreditation/product-certification/AllDirectoryDetails?&prgID=1&OrgId=2125&statusID=4

13 Through ANAB accreditation and the IAF MLA, DrJ certification can be used to obtain material, product, design, or method of construction approval in any jurisdiction or country that has IAF MLA Members & Signatories to meet the Purpose of the MLA – "*certified once, accepted everywhere*".

14 https://iaf.nu/en/about-iaf-mla/#:~:text=required%20to%20recognise

15 The National Conformity Assessment Principles states, "*Product regulations and standards may vary from country to country. If these are set arbitrarily, they could be deemed as protectionist. The World Trade Organization (WTO) Agreement on Technical Barriers to Trade (TBT Agreement) is intended to ensure that technical regulations, standards and conformity assessment procedures of member countries do not create unnecessary obstacles to trade. Under the TBT Agreement, members of the WTO agree to use international standards, including conformity assessment standards and guides, as a basis for their technical requirements*."