DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES
Section: 06 50 00—Structural Plastics
Section: 06 63 00—Plastic Railings

REPORT HOLDER:

TREX COMPANY INC.

EVALUATION SUBJECT:

TREX® TRANSCEND® SERIES RAILING SYSTEM
TREX® SELECT® SERIES RAILING SYSTEM

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:
- 2015, 2012 and 2009 International Residential Code® (IRC)

Property evaluated:
- Structural
- Durability
- Surface-burning Characteristics

1.2 Evaluation to the following green code(s) and/or standards:
- 2016 California Green Building Standards Code (CALGreen), Title 24, Part 11

Attributes verified:
- See Section 3.1

2.0 USES

The Trex® Transcend® Series Railing System and Trex® Select® Series Railing System described in this report are limited to exterior use as guards for balconies, porches, and decks in Residential Group R buildings of Type V-B construction and other types of construction in applications where untreated wood is permitted by IBC Section 1406.3 or in buildings constructed in accordance with the IRC.

3.0 DESCRIPTION

3.1 General:

Trex® Transcend® Series Railing System and Trex® Select® Series Railing System are guards consisting of top and bottom rails, balusters, baluster spacers, rail-to-post brackets, foot blocks, with decorative post sleeves, post sleeve caps and post sleeve skirts. The top and bottom rails, post sleeves, and the Transcend and Select balusters are composed of extruded wood-plastic composite core material, with a polyvinyl chloride (PVC) or acrylic cap layer.

The attributes of the railing systems have been verified as conforming to the provisions of (i) CALGreen Section A5.406.1.2 for reduced maintenance; (ii) ICC 700-2015 and ICC 700-2012 Sections 601.7, 11.601.7, and 12.1(A).601.7 for site-applied finishing materials; and (iii) ICC 700-2008 Section 601.7 for site-applied finishing materials. Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

3.2 Guards:

3.2.1 Trex® Transcend® Series Railing System: The height of the railing assembly is 36 inches or 42 inches (914.4 mm or 1066.8 mm) above the walking surface. The top rail has overall dimensions of 3.31 inches wide by 2.45 inches tall (84.1 mm by 62.2 mm). The bottom rail has overall dimensions of 3.0 inches wide by 2.0 inches tall (76.2 mm by 50.8 mm). The balusters can be either 1.42 inch (36.1 mm) or 1.125 inch (28.6 mm) square profiles. A baluster spacer, made of PVC with a PVC or acrylic cap layer, is installed onto the top and bottom rails. Each post is covered with a 4.45 inch (113 mm) square composite post sleeve. Rails are attached to posts with nylon composite brackets.

Transcend® Series Railing System components are available in 7 colors: Charcoal Black, Classic White, Fire Pit, Gravel Path, Rope Swing, Tree House, and Vintage Lantern.

3.2.2 Trex® Select® Series Railing System: The height of the railing assembly is 36 inches (914.4 mm) above the walking surface. The top rail has overall dimensions of 2.75 inches wide by 2.0 inches tall (69.9 mm by 50.8 mm). The bottom rail has overall dimensions of 2.0 inches wide by 2.75 inches tall (50.8 mm by 69.9 mm). The balusters are 1.125 inch (28.6 mm) square profiles. Balusters are installed directly into openings machined into the upper and lower rails. Each post is covered with a 4.45 inch (113 mm) square composite post sleeve. Rails are attached to posts with nylon brackets.

Select® Series Railing System is available in white color.
3.3 Durability:
When subjected to weathering, insect attack, and other
decaying elements, the material used to manufacture the
Trex® Transcend® Railing System and Trex® Select®
Railing System are equivalent in durability to code-
complying, preservative-treated or naturally durable lumber
when used in locations described in Section 2.0 of
this report. Trex® Transcend® Railing System and Trex®
Select® Railing System have been evaluated for structural
performance when exposed to temperatures from -20°F
(-29°C) to 125°F (52°C).

3.4 Surface-burning Characteristics:
When tested in accordance with ASTM E84, Trex®
Transcend® Railing System and Trex® Select® Railing
System are equivalent in durability to code-
complying, preservative-treated or naturally durable lumber
when used in locations described in Section 2.0 of
this report. Trex® Transcend® Railing System and Trex®
Select® Railing System have a flame-spread index of no greater than 200.

4.0 DESIGN AND INSTALLATION

4.1 General:
The Trex® Transcend® Series Railing System and Trex®
Select® Series Railing System must be installed in
accordance with the manufacturer's published installation
instructions, the approved construction documents and
this report. The manufacturer's published installation
instructions must be available at all times on the jobsites
during installation.

4.2 Design:
The Trex® Transcend® Series Railing System and Trex®
Select® Series Railing System are satisfactory to resist
loads specified in Section 1607.8.1 of the 2015 and 2012
IBC, Section 1607.7.1 of the 2009 IBC and Table R301.5
of the IRC, when installed at the minimum clear distance
between the posts as noted in Table 1. When the raiing is
supported on one or both ends by the supporting structure,
the maximum clear distance between the post and
supporting structure or between the structures must
comply with the spans noted in Table 1.

4.3 Installation:

4.3.1 Trex® Transcend® Series Railing System:
Composite post sleeves are installed over a conventional
treated wood 4x4 post, having a minimum specific gravity
of 0.55. The attachment of the posts to the deck structure
must be adequate and is outside the scope of this report.
The top and bottom rail assemblies are attached to the
composite post sleeves using mounting brackets. The
bracelet screws are installed through the composite post
sleeve, into the 4x4 wooden post using two #8 x 2-inch-
long (50.8 mm) wood screws. Each mounting bracket
attaches to the top and bottom rail using two #12 x
1.5-inch-long (38.1 mm) self-drilling flathead screws.
Baluster spacers are installed in the top and bottom rails
to hold the balusters in place. Foot blocks are installed
at mid-span of the bottom rail between the deck surface and
the rail using one #10 x 2-inch-long (50.8 mm) screw.

4.3.2 Trex® Select® Series Railing System:
Composite post sleeves are installed over a conventional
treated wood 4x4 post, having a minimum specific gravity
of 0.55. The attachment of the posts to the deck structure
must be adequate and is outside the scope of this report.
The top and bottom rail assemblies are attached to the
composite post sleeves using mounting brackets. The
bracelet screws are installed through the composite post
sleeve, into the 4x4 wooden post using four #8 x 2-inch-
long (50.8 mm) wood screws. Each mounting bracket
attaches to the top and bottom rail using four #10 x 1-inch-
long (25.4 mm) pan-head screws. Balusters are installed
directly into the holes in the rail profiles. Foot blocks are
installed at mid-span of the bottom rail between the
deck surface and the rail using one #10 x 2-inch-long
(50.8 mm) screw.

5.0 CONDITIONS OF USE
The Trex® Transcend® Series Railing System and Trex®
Select® Series Railing System described in this report comply
with, or are suitable alternatives to what is specified in,
 codes listed in Section 1.0 of this report, subject to the following
conditions:

5.1 This Trex® Transcend® Series Railing System and
Trex® Select® Series Railing System are limited to
exterior use as guards for balconies, porches, and
decks in Residential Group R buildings of Type V-B
construction and other types of construction in
applications where untreated wood is permitted by
IBC Section 1406.3, or in building constructed in
accordance with the IRC.

5.2 Installation of the Trex® Transcend® Series Railing
System and Trex® Select® Series Railing System
must comply with this evaluation report, the
manufacturer's published installation instructions
and the applicable code. When the manufacturer’s
published installation instructions differ from this
evaluation report, this evaluation report governs.

5.3 Only those types of fasteners and fastening methods
described in this evaluation report have been
evaluated for the installation of Trex® Transcend®
Railing System and Trex® Select® Railing System.
The compatibility of fasteners with the supporting
construction, including chemically treated wood, is
outside the scope of this report.

5.4 The Trex® Transcend® Series Railing System and
Trex® Select® Series Railing System must be directly
fastened to supporting construction having adequate
strength and stiffness. Where required by the code
official, engineering calculations and construction
documents consistent with this report must be
submitted for approval. The calculations must verify
that the supporting construction complies with the
applicable building code requirements and is
adequate to resist the loads imparted upon it from
the products and systems discussed in this report.
The documents must contain details of the
attachment to the supporting structure consistent
with the requirements of this report. The documents
must be prepared by a registered design professional
where required by the statutes of the jurisdiction in
which the project is to be constructed.

5.5 The use of Trex® Transcend® Series Railing System and
Trex® Select® Series Railing System on stairs
has not been evaluated and is outside the scope of
this evaluation report.

5.6 Structural posts and attachment of the posts to the
supporting structure are outside the scope of this
report.

5.7 The Trex® Transcend® Railing System and Trex®
Select® Railing System are manufactured in
Winchester, Virginia, under a quality-control program
with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED
Data in accordance with the ICC-ES Acceptance Criteria
for Deck Board Span Ratings and Guardrail systems
(Guards and Handrails) (AC174), dated January 2012
(Editors revised December 2014).
7.0 IDENTIFICATION

7.1 The Trex® Transcend® Series Railing System and Trex® Select® Series Railing System described in this report are identified by a stamp on each individual piece or on the packaging, bearing the report holder’s name (Trex Company, Inc.), the product name (The Trex® Transcend® Series Railing System or Trex® Select® Series Railing System), the allowable span, ICC-ES evaluation report number (ESR-3947).

7.2 The report holder’s contact information is the following:

TREX COMPANY INC.
160 EXETER DRIVE
WINCHESTER, VIRGINIA 22602
(540) 542-6300
www.trex.com

<table>
<thead>
<tr>
<th>PRODUCT NAME / COMPONENT</th>
<th>APPLICABLE BUILDING CODE</th>
<th>MAXIMUM SPAN (inches)</th>
</tr>
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<tbody>
<tr>
<td>Trex® Transcend® Railing System</td>
<td>Yes</td>
<td>67.5</td>
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<tr>
<td>Trex® Transcend® Railing System</td>
<td>No</td>
<td>68.25</td>
</tr>
<tr>
<td>Trex® Select® Railing System</td>
<td>No</td>
<td>91.75</td>
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</table>

For SI: 1 inch = 25.4 mm; 1 foot = 305 mm.

1The ability of the supporting construction, including posts, to resist the reactionary loads must be justified to the satisfaction of the code official.

2Indicates compliance with the respective building codes.

3The minimum height of the top rails is 42 inches in accordance with Section 1015 of the 2015 IBC and Section 1013 of the 2012 and 2009 IBC and 36 inches in accordance with IRC Section R312.

4Maximum span is the clear distance measured from edge-of-post to edge-of-post, edge-of-post to edge-of-structure, or edge-of-structure to edge-of-structure.

5Maximum allowable span has been adjusted for durability. No further increases are permitted.

6Exempt in One- and Two-Family Dwellings.

A. Top Rail
B. Bottom Rail
C. Railing Bracket
D. **Assembly Guide Template
E. **Gaskets
F. Balusters
G. Post Cap
H. Post Skirt
I. Trex® Composite Post Sleeve
J. **Trex® Decking
K. **Code-Approved Wood Joists
L. Trex® Footblock
M. Baluster Spacer

Note: Items marked with ** are outside the scope of this report.
FIGURE 2—TREX® TRANSCEND® SERIES RAILING COMPONENTS

FIGURE 3—TYPICAL TREX® SELECT® SERIES RAILING ASSEMBLY

A. Top Rail  
B. Bottom Rail  
C. Railing Bracket  
D. Bracket Covers  
E. Balusters  
F. Trex® Foot block  
G. Post Cap  
H. Post Skirt  
I. Trex® Composite Post Sleeve  
J. **Trex® Decking  
K. **Code-Approved Wood Joists

Note: Items marked with ** are outside the scope of this report.

FIGURE 4—TREX® SELECT® SERIES RAILING COMPONENTS
FIGURE 5—TREX® TRANSCEND® AND SELECT® SERIES COMPOSITE POST SLEEVE