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FORTRESS RAILING PRODUCTS
TEST REPORT

SCOPE OF WORK
ICC-ES AC273 TESTING ON *FE*[26] *TRADITIONAL* AND *PLUS* STAIR RAILING SYSTEMS

REPORT NUMBER
I4120.01-119-19 R0

TEST DATE(S)
06/19/18 - 06/21/18

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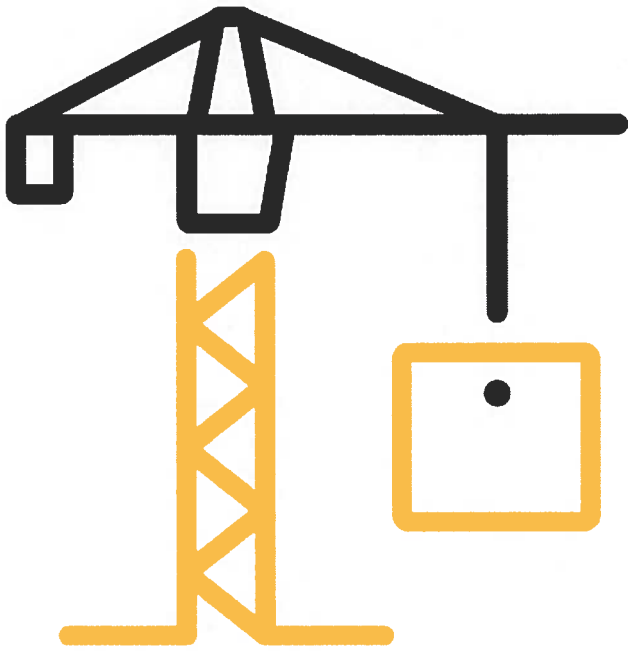

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TEST REPORT FOR FORTRESS RAILING PRODUCTS
Report No.: I4120.01-119-19 R0
Date: 02/21/19

REPORT ISSUED TO
FORTRESS RAILING PRODUCTS
1720 North 1st Street
Garland, Texas 75040

SECTION 1
SCOPE

Intertek Building & Construction (B&C) was contracted by Fortress Railing Products, Garland Texas, to perform structural testing in accordance with ICC-ES™ AC273 on their 8 ft by 42 in *Fe*[26] *Traditional* and *Plus* stair guardrail systems. This report is in conjunction with Intertek report No.'s J0101.02-119-19 and B2564.01-119-19 which include structural performance testing of the 3 in and 2 in post mounts respectively and I4120.02-103-15 which includes product sampling information. Results obtained are tested values and were secured by using the designated test method(s). Testing was conducted at the Intertek B&C test facility in York, Pennsylvania.

Intertek B&C in York, Pennsylvania has demonstrated compliance with ISO/IEC International Standard 17025 and is consequently accredited as a Testing Laboratory (TL-144) by International Accreditation Service, Inc. (IAS). Intertek B&C is accredited to perform all testing reported herein.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

For INTERTEK B&C:

COMPLETED BY:	Adam J. Schrum	**REVIEWED BY:**	V. Thomas Mickley, Jr., P.E.
TITLE:	Lead Technician	**TITLE:**	Senior Staff Engineer
SIGNATURE:	Digitally Signed by: Adam J. Schrum	**SIGNATURE:**	Digitally Signed by: Virgil Thomas Mickley, Jr.
DATE:	02/21/19	**DATE:**	02/21/19

AJS:vtm/aas

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SECTION 2
TEST METHOD(S)

The specimens were evaluated in accordance with the following:

> **ICC-ES™ AC273 (March 1, 2008 - editorially revised March 2016)**, *Acceptance Criteria for Handrails and Guards*

ICC-ES™ AC273 was developed by the ICC Evaluation Service, Inc. (ICC-ES™) as acceptance criteria to evaluate compliance with the following building codes:

> 2015 *International Building Code®*, International Code Council
>
> 2015 *International Residential Code®*, International Code Council

Limitations
All tests performed were to evaluate structural performance of the railing assembly to carry and transfer imposed loads to the supports (posts). The test specimen evaluated included the pickets, rails, rail brackets, and attachment to the supporting structure. Anchorage of support posts to the supporting structure is not included in the scope of this testing and would need to be evaluated separately.

SECTION 3
MATERIAL SOURCE

The specimens were selected by Intertek B&C personnel. The specimens were tagged prior to shipment on 05/31/2018, (Reference Intertek B&C Test Specimen Selection Report No. I4120.02-103-15, dated 05/31/2018). See photograph in Section 9 for typical sampling mark.

Representative samples of the test specimen(s) will be retained by Intertek B&C for a minimum of four years from the test completion date.

SECTION 4
LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Alva R. Baker	Intertek B&C
Adam J. Schrum	Intertek B&C

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SECTION 5
TEST PROCEDURE

Railing assembly tests were performed per ICC-ES™ AC273, Section 4.2.1 in a self-contained structural frame designed to accommodate anchorage of a rail assembly and application of the required test loads. The specimen was loaded using an electric winch mounted to a rigid steel test frame. High strength steel cables, nylon straps, and load distribution beams were used to impose test loads on the specimen. Applied load was measured using an electronic load cell located in-line with the loading system. Deflections were measured to the nearest 0.01 in using electronic linear displacement transducers.

The railing assembly was installed and tested as a single railing section by directly securing the post mounts to a rigid steel test frame. The railing was assembled by an Intertek B&C technician. Transducers mounted to an independent reference frame were located to record movement of reference points on the railing system components (ends and mid-point) to determine net component deflections. See photographs in Section 9 for test setups.

The test specimen was inspected prior to testing to verify size and general condition of the materials, assembly, and installation. No potentially compromising defects were observed. One specimen was used for all load tests which were performed in the order reported. Each design load test was performed using the following procedure:

1. Zeroed transducers and load cell at zero load;
2. Increased load to specified test load in no less than ten seconds; and
3. Held test load for no less than one minute.

Unless otherwise noted, all loads and displacement measurements were normal to the rail (horizontal). The test results apply only to the railing assembly between supports and anchorage to the support.

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SECTION 6
TEST SPECIMEN DESCRIPTION

The *Fe[26] Stair Railing* guardrail system is comprised of steel top and bottom rails, pickets spaced between the rail members, and posts. Test specimens consisted of one product color: Black. Drawings are included in Section 10 to verify the overall dimensions and other pertinent information of the tested product, its components, and any constructed assemblies. Photographs are provided in Section 9.

SERIES/MODEL	*Fe[26] Plus* and *Traditional* Stair Railing
COLOR	Black
MATERIAL	Steel
RAIL LENGTH	*Fe[26] Traditional*: 93-1/2 in (inside of post to inside of post)
	Fe[26] Plus: 97-3/4 in (inside of post to inside of post)
RAIL HEIGHT	*Fe[26] Traditional*: 40-1/2 in (top of top rail to bottom of bottom rail) (measured parallel to the balusters)
	Fe[26] Plus: 41-1/2 in (top of top rail to bottom of bottom rail) (measured parallel to the balusters)
TOP/BOTTOM RAIL	*Fe[26] Traditional*: 1 in square by 0.055 in thick rail
	Fe[26] Plus: 1-1/4 in square by 0.062 in thick rail
RAIL BRACKET	Simplified stair bracket (SSB-05 and SSB-04) variable angle/hinged die-cast aluminum collar bracket
BALUSTERS	*Fe[26] Traditional*: 5/8 in square by 0.039 in thick steel picket
	Fe[26] Plus: 3/4 in square by 0.045 in thick steel picket
POST	*Fe[26] Traditional*: 2 in square by 0.091 in thick steel tube connected to a 4 in square by 0.23 in thick steel base plate with a 1/8 in continuous fillet weld; the base plate included four 3/8 in diameter holes and one 15/16 in diameter hole
	Fe[26] Plus: 3 in square by 0.075 in thick steel tube connected to a 5-1/8 in square by 0.30 in thick steel base plate with a 3/16 in continuous fillet weld; the base plate included four 1/2 in diameter holes and one 15/16 in diameter hole

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TEST REPORT FOR FORTRESS RAILING PRODUCTS
Report No.: I4120.01-119-19 R0
Date: 02/21/19

Fastening Schedule

CONNECTION	FASTENER
Rail Bracket to Post*	Two #12-24 by 3/4 in, Torx drive, flat-head, Type F thread cutting point, steel screws
Rail Bracket to Rail*	*Fe[26] Traditional:* One #12-24 by 3/4 in, Torx drive, flat-head, Type F thread cutting point, steel screw
	Fe[26] Plus: Two #12-24 by 3/4 in, Torx drive, flat-head, Type F thread cutting point, steel screws
Rail Bracket Hinge	One #8-32 by 1/4 in, Philips drive, truss head, connector bolt with 1/4 in outside barrel diameter

* 5/32 in diameter pre-drill used

SECTION 7
TEST RESULTS

Key to Test Results Tables:

Load Level: Target test load

Test Load: Actual applied load at the designated load level (target). Where more than one value is reported, the test load was the range (min. - max.) that was held during the time indicated in the test.

Elapsed Time (E.T.): The amount of time into the test with zero established at the beginning of the loading procedure. Where more than one value is reported, the time was the range (start-end) that the designated load level was reached and sustained.

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TEST REPORT FOR FORTRESS RAILING PRODUCTS
Report No.: I4120.01-119-19 R0
Date: 02/21/19

Test Series No. 1
8 ft by 42 in by 37° *Fe[26] Traditional* Stair Railing with 2 in Post Mount and *SSB-04* Brackets Limited to Use in IRC - One- and Two-Family Dwellings / ICC-ES™ AC273

Specimen No. 1 of 3
Test No. 1 - Test Date: 06/19/18
Design Load: 50 lb / 1 Square ft of In-Fill at Center of Two Pickets

LOAD LEVEL	TEST LOAD (lb)	E.T. (min:sec)	RESULT
125 lb (2.50 x D.L.)	126 - 129	00:26 - 01:58	Sustained load equal to or greater than 125 lb for one full minute without failure

Test No. 2 - Test Date: 06/19/18
Design Load: 50 lb / 1 Square ft of In-Fill at Bottom of Two Pickets

LOAD LEVEL	TEST LOAD (lb)	E.T. (min:sec)	RESULT
125 lb (2.50 x D.L.)	126 - 128	00:26 - 01:39	Sustained load equal to or greater than 125 lb for one full minute without failure

Test No. 3 - Test Date: 06/19/18
Design Load: 200 lb Concentrated Load at Mid-Span of Top Rail

LOAD LEVEL	TEST LOAD (lb)	E.T. (min:sec)	DISPLACEMENT (in)			
			END	MID	END	NET [1]
200 lb (D.L.)	200	00:26	0.22	2.18	0.39	1.88
500 lb (2.50 x D.L.)	500 - 513	00:51 - 02:22	**Result**: Withstood load equal to or greater than 500 lb for one full minute without failure			

Deflection Evaluation:
Maximum rail deflection at 200 lb = 1.88 in on an 8 ft rail (93.5 in)
Limits per AC273:

$$\left(\frac{h}{24}+\frac{l}{96}\right)=\left(\frac{42}{24}+\frac{93.5}{96}\right)=2.72">1.88"\therefore OK$$

and

$$\frac{h}{12}=\frac{42}{12}=3.5">1.88"\therefore OK$$

[1] *Each end displacement was measured at the center of the support. Net displacement was the rail displacement relative to the supports.*

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TEST REPORT FOR FORTRESS RAILING PRODUCTS
Report No.: I4120.01-119-19 R0
Date: 02/21/19

Test No. 4 - Test Date: 06/19/18
Design Load: 200 lb Concentrated Load at Ends of Top Rail (Brackets)

LOAD LEVEL [1]	TEST LOAD (lb)	E.T. (min:sec)	RESULT
1000 lb (2.50 x D.L.) x 2	1000 - 1014	00:55 - 02:08	Each end withstood load equal to or greater than 500 lb for one full minute without failure

[1] *Load was imposed on both ends of rail using a spreader beam; therefore, loads were doubled.*

Specimen No. 2 of 3
Test No. 1 - Test Date: 06/19/18
Design Load: 50 lb / 1 Square ft of In-Fill at Center of Two Pickets

LOAD LEVEL	TEST LOAD (lb)	E.T. (min:sec)	RESULT
125 lb (2.50 x D.L.)	125 - 128	00:17 - 01:30	Sustained load equal to or greater than 125 lb for one full minute without failure

Test No. 2 - Test Date: 06/19/18
Design Load: 50 lb / 1 Square ft of In-Fill at Bottom of Two Pickets

LOAD LEVEL	TEST LOAD (lb)	E.T. (min:sec)	RESULT
125 lb (2.50 x D.L.)	125 - 128	00:18 - 01:34	Sustained load equal to or greater than 125 lb for one full minute without failure

Test No. 3 - Test Date: 06/19/18
Design Load: 200 lb Concentrated Load at Mid-Span of Top Rail

LOAD LEVEL	TEST LOAD (lb)	E.T. (min:sec)	DISPLACEMENT (in)			
			END	MID	END	NET [1]
200 lb (D.L.)	200	00:36	0.67	2.54	0.47	1.97
500 lb (2.50 x D.L.)	500 - 511	01:04 - 02:19	**Result**: Withstood load equal to or greater than 500 lb for one full minute without failure			

Deflection Evaluation:
Maximum rail deflection at 200 lb = 1.97 in on an 8 ft rail (93.5 in)
Limits per AC273:

$$\left(\frac{h}{24}+\frac{l}{96}\right)=\left(\frac{42}{24}+\frac{93.5}{96}\right)=2.72">1.97"\therefore OK$$

and

$$\frac{h}{12}=\frac{42}{12}=3.5">1.97"\therefore OK$$

[1] *Each end displacement was measured at the center of the support. Net displacement was the rail displacement relative to the supports.*

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TEST REPORT FOR FORTRESS RAILING PRODUCTS
Report No.: I4120.01-119-19 R0
Date: 02/21/19

Test No. 4 - Test Date: 06/19/18
Design Load: 200 lb Concentrated Load at Ends of Top Rail (Brackets)

LOAD LEVEL [1]	TEST LOAD (lb)	E.T. (min:sec)	RESULT
1000 lb (2.50 x D.L.) x 2	1000 - 1020	00:33 - 01:49	Each end withstood load equal to or greater than 500 lb for one full minute without failure

[1] *Load was imposed on both ends of rail using a spreader beam; therefore, loads were doubled.*

Specimen No. 3 of 3
Test No. 1 - Test Date: 06/20/18
Design Load: 50 lb / 1 Square ft of In-Fill at Center of Two Pickets

LOAD LEVEL	TEST LOAD (lb)	E.T. (min:sec)	RESULT
125 lb (2.50 x D.L.)	126 - 129	00:17 - 01:33	Sustained load equal to or greater than 125 lb for one full minute without failure

Test No. 2 - Test Date: 06/20/18
Design Load: 50 lb / 1 Square ft of In-Fill at Bottom of Two Pickets

LOAD LEVEL	TEST LOAD (lb)	E.T. (min:sec)	RESULT
125 lb (2.50 x D.L.)	125 - 128	00:17 - 01:32	Sustained load equal to or greater than 125 lb for one full minute without failure

Test No. 3 - Test Date: 06/20/18
Design Load: 200 lb Concentrated Load at Mid-Span of Top Rail

LOAD LEVEL	TEST LOAD (lb)	E.T. (min:sec)	DISPLACEMENT (in)			
			END	MID	END	NET [1]
200 lb (D.L.)	201	00:26	0.23	2.07	0.33	1.79
500 lb (2.50 x D.L.)	500 - 510	01:23 - 02:37	**Result**: Withstood load equal to or greater than 500 lb for one full minute without failure			

Deflection Evaluation:
Maximum rail deflection at 201 lb = 1.79 in on an 8 ft rail (93.5 in)
Limits per AC273:

$$\left(\frac{h}{24}+\frac{l}{96}\right)=\left(\frac{42}{24}+\frac{93.5}{96}\right)=2.72">1.79"\therefore OK$$

and

$$\frac{h}{12}=\frac{42}{12}=3.5">1.79"\therefore OK$$

[1] *Each end displacement was measured at the center of the support. Net displacement was the rail displacement relative to the supports.*

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Date: 02/21/19

Test No. 4 - Test Date: 06/20/18
Design Load: 200 lb Concentrated Load at Ends of Top Rail (Brackets)

LOAD LEVEL [1]	TEST LOAD (lb)	E.T. (min:sec)	RESULT
1000 lb (2.50 x D.L.) x 2	1001 - 1011	00:40 - 01:55	Each end withstood load equal to or greater than 500 lb for one full minute without failure

[1] *Load was imposed on both ends of rail using a spreader beam; therefore, loads were doubled.*

Test Series No. 2 of 2
8 ft by 42 in by 37° *Fe[26] Plus* Stair Railing with 3 in Post Mount and *SSB-05* Brackets
IBC - Commercial Applications / ICC-ES™ AC273

Specimen No. 1 of 3
Test No. 1 - Test Date: 06/20/18
Design Load: 50 lb / 1 Square ft of In-Fill at Center of Two Pickets

LOAD LEVEL	TEST LOAD (lb)	E.T. (min:sec)	RESULT
125 lb (2.50 x D.L.)	125 - 128	00:11 - 01:24	Sustained load equal to or greater than 125 lb for one full minute without failure

Test No. 2 - Test Date: 06/20/18
Design Load: 50 lb / 1 Square ft of In-Fill at Bottom of Two Pickets

LOAD LEVEL	TEST LOAD (lb)	E.T. (min:sec)	RESULT
125 lb (2.50 x D.L.)	128 - 131	00:19 - 01:31	Sustained load equal to or greater than 125 lb for one full minute without failure

Test No. 3 - Test Date: 06/21/18
Design Load: 50 plf x (97.75 in ÷ 12 in/ft) = 407.3 lb Uniform Load Applied at 45 degrees on Top Rail

LOAD LEVEL	TEST LOAD (lb)	E.T. (min:sec)	RESULT
1018 lb (2.50 x D.L.)	1018 - 1040	00:41 - 02:11	Sustained load equal to or greater than 1018 lb for one full minute without failure

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Test No. 4 - Test Date: 06/21/18
Design Load: 200 lb Concentrated Load at Mid-Span of Top Rail

LOAD LEVEL	TEST LOAD (lb)	E.T. (min:sec)	DISPLACEMENT (in)			
			END	MID	END	NET [1]
200 lb (D.L.)	200	00:28	0.25	1.56	0.42	1.23
500 lb (2.50 x D.L.)	500 - 509	00:47 - 02:04	**Result**: Withstood load equal to or greater than 500 lb for one full minute without failure			

Deflection Evaluation:
Maximum rail deflection at 200 lb = 1.23 in on an 8 ft rail (97.75 in)
Limits per AC273:

$$\left(\frac{h}{24}+\frac{l}{96}\right)=\left(\frac{42}{24}+\frac{97.75}{96}\right)=2.77">1.23"\therefore OK$$

and

$$\frac{h}{12}=\frac{42}{12}=3.5">1.23"\therefore OK$$

[1] *Each end displacement was measured at the center of the support. Net displacement was the rail displacement relative to the supports.*

Test No. 5 - Test Date: 06/21/18
Design Load: 200 lb Concentrated Load at Ends of Top Rail (Brackets)

LOAD LEVEL [1]	TEST LOAD (lb)	E.T. (min:sec)	RESULT
1000 lb (2.50 x D.L.) x 2	1000 - 1020	00:47 - 02:05	Each end withstood load equal to or greater than 500 lb for one full minute without failure

[1] *Load was imposed on both ends of rail using a spreader beam; therefore, loads were doubled.*

Specimen No. 2 of 3
Test No. 1 - Test Date: 06/21/18
Design Load: 50 lb / 1 Square ft of In-Fill at Center of Two Pickets

LOAD LEVEL	TEST LOAD (lb)	E.T. (min:sec)	RESULT
125 lb (2.50 x D.L.)	126 - 130	00:36 - 01:48	Sustained load equal to or greater than 125 lb for one full minute without failure

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Test No. 2 - Test Date: 06/21/18
Design Load: 50 lb / 1 Square ft of In-Fill at Bottom of Two Pickets

LOAD LEVEL	TEST LOAD (lb)	E.T. (min:sec)	RESULT
125 lb (2.50 x D.L.)	131 - 145	00:10 - 01:20	Sustained load equal to or greater than 125 lb for one full minute without failure

Test No. 3 - Test Date: 06/21/18
Design Load: 50 plf x (97.75 in ÷ 12 in/ft) = 407.3 lb Uniform Load Applied at 45 degrees on Top Rail

LOAD LEVEL	TEST LOAD (lb)	E.T. (min:sec)	RESULT
1018 lb (2.50 x D.L.)	1021 - 1041	00:37 - 01:56	Sustained load equal to or greater than 1018 lb for one full minute without failure

Test No. 4 - Test Date: 06/21/18
Design Load: 200 lb Concentrated Load at Mid-Span of Top Rail

LOAD LEVEL	TEST LOAD (lb)	E.T. (min:sec)	DISPLACEMENT (in)			
			END	MID	END	NET [1]
200 lb (D.L.)	203	00:27	0.29	1.61	0.46	1.24
500 lb (2.50 x D.L.)	500 - 507	00:40 - 01:51	**Result**: Withstood load equal to or greater than 500 lb for one full minute without failure			

Deflection Evaluation:
Maximum rail deflection at 203 lb = 1.24 in on an 8 ft rail (97.75 in)
Limits per AC273:

$$\left(\frac{h}{24}+\frac{l}{96}\right)=\left(\frac{42}{24}+\frac{97.75}{96}\right)=2.77" > 1.24" \therefore OK$$

and

$$\frac{h}{12}=\frac{42}{12}=3.5" > 1.24" \therefore OK$$

[1] *Each end displacement was measured at the center of the support. Net displacement was the rail displacement relative to the supports.*

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TEST REPORT FOR FORTRESS RAILING PRODUCTS

Report No.: I4120.01-119-19 R0
Date: 02/21/19

Test No. 5 - Test Date: 06/21/18
Design Load: 200 lb Concentrated Load at Ends of Top Rail (Brackets)

LOAD LEVEL [1]	TEST LOAD (lb)	E.T. (min:sec)	RESULT
1000 lb (2.50 x D.L.) x 2	1001 - 1015	01:18 - 02:29	Each end withstood load equal to or greater than 500 lb for one full minute without failure

[1] *Load was imposed on both ends of rail using a spreader beam; therefore, loads were doubled.*

Specimen No. 3 of 3
Test No. 1 - Test Date: 06/21/18
Design Load: 50 lb / 1 Square ft of In-Fill at Center of Two Pickets

LOAD LEVEL	TEST LOAD (lb)	E.T. (min:sec)	RESULT
125 lb (2.50 x D.L.)	125 - 130	00:15 - 01:36	Sustained load equal to or greater than 125 lb for one full minute without failure

Test No. 2 - Test Date: 06/21/18
Design Load: 50 lb / 1 Square ft of In-Fill at Bottom of Two Pickets

LOAD LEVEL	TEST LOAD (lb)	E.T. (min:sec)	RESULT
125 lb (2.50 x D.L.)	125 - 128	00:35 - 01:48	Sustained load equal to or greater than 125 lb for one full minute without failure

Test No. 3 - Test Date: 06/21/18
Design Load: 50 plf x (97.75 in ÷ 12 in/ft) = 407.3 lb Uniform Load Applied at 45 degrees on Top Rail

LOAD LEVEL	TEST LOAD (lb)	E.T. (min:sec)	RESULT
1018 lb (2.50 x D.L.)	1018 - 1051	00:49 - 01:58	Sustained load equal to or greater than 1018 lb for one full minute without failure

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Report No.: I4120.01-119-19 R0
Date: 02/21/19

Test No. 4 - Test Date: 06/21/18
Design Load: 200 lb Concentrated Load at Mid-Span of Top Rail

LOAD LEVEL	TEST LOAD (lb)	E.T. (min:sec)	DISPLACEMENT (in)			
			END	MID	END	NET [1]
200 lb (D.L.)	200	00:25	0.23	1.53	0.34	1.25
500 lb (2.50 x D.L.)	501 - 507	00:43 - 01:57	**Result**: Withstood load equal to or greater than 500 lb for one full minute without failure			

Deflection Evaluation:
Maximum rail deflection at 200 lb = 1.25 in on an 8 ft rail (97.75 in)
Limits per AC273:

$$\left(\frac{h}{24}+\frac{l}{96}\right)=\left(\frac{42}{24}+\frac{97.75}{96}\right)=2.77">1.25"\therefore OK$$

and

$$\frac{h}{12}=\frac{42}{12}=3.5">1.25"\therefore OK$$

[1] *Each end displacement was measured at the center of the support. Net displacement was the rail displacement relative to the supports.*

Test No. 5 - Test Date: 06/21/18
Design Load: 200 lb Concentrated Load at Ends of Top Rail (Brackets)

LOAD LEVEL [1]	TEST LOAD (lb)	E.T. (min:sec)	RESULT
1000 lb (2.50 x D.L.) x 2	1000 - 1011	00:37 - 01:48	Each end withstood load equal to or greater than 500 lb for one full minute without failure

[1] *Load was imposed on both ends of rail using a spreader beam; therefore, loads were doubled.*

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SECTION 8
CONCLUSION

The railing assemblies reported herein meet the structural performance requirements of Section 4.2.1 of ICC-ES™ AC273 as installed between adequate supports with guardrail details and Occupancy Classification as shown in the following table:

GUARDRAIL SYSTEM	GUARDRAIL TYPE	SUPPORT POSTS	BALUSTER	CODE OCCUPANCY CLASSIFICATION
8 ft (93-1/2 in) by 42 in by 37° *Fe²⁶ Traditional*	Stair	2 in Square Steel Post Mount (Steel of Concrete Mounted)	5/8 in square steel picket	IRC - One- and Two-Family Dwellings
8 ft (97-3/4 in) by 42 in by 37° *Fe²⁶ Plus*		3 in Square Steel Post Mount (Steel of Concrete Mounted)	3/4 in square steel picket	IBC - All Use Groups

Anchorage of support posts to the supporting structure is not included in the scope of this testing and would need to be evaluated separately.

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SECTION 9
PHOTOGRAPHS

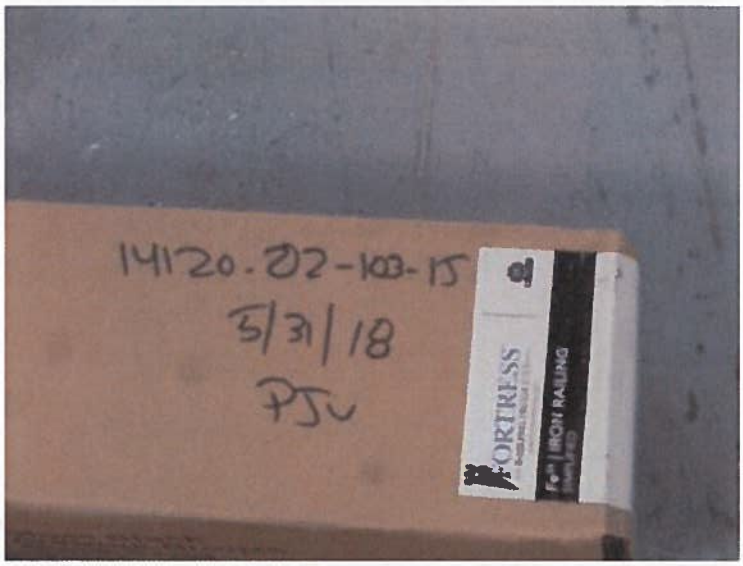

Photo No. 1
Typical Sampling Mark

Photo No. 2
In-Fill Load Test at Center of Two Pickets

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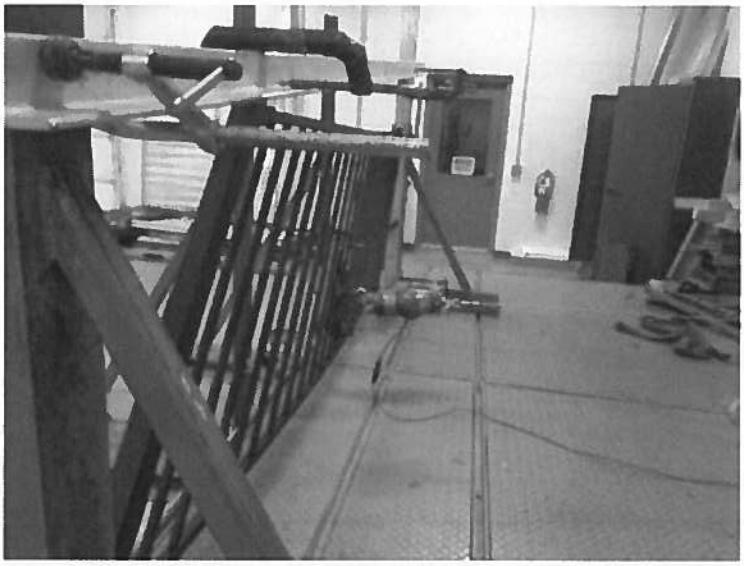

Photo No. 3
In-Fill Load Test at Bottom of Two Pickets

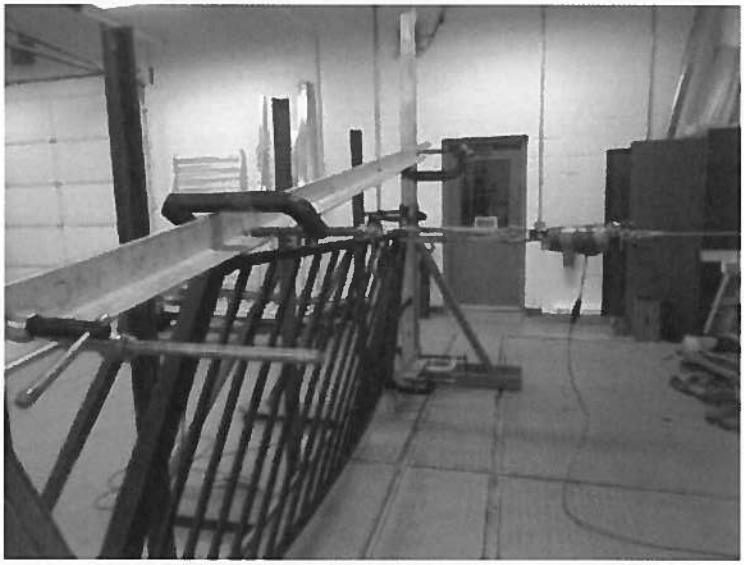

Photo No. 4
Concentrated Load Test at Mid-Span of Top Rail

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Photo No. 5
Concentrated Load Test at Ends of Top Rail (Brackets)

Photo No. 6
Uniform Load Applied at 45 degrees on Top Rail