

EMECO INDUSTRIES INC. TEST REPORT

SCOPE OF WORK

ANSI/BIFMA X5.1-2017 GENERAL PURPOSE OFFICE CHAIRS testing on
Charcoal Reclaimed Chair

REPORT NUMBER

103675663GRR-001C

ISSUE DATE

27-Feb-2019

PAGES

22

DOCUMENT CONTROL NUMBER

Per RT-AMER-L-GRR-DUR-001

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TEST REPORT FOR EMECO INDUSTRIES

Date: 27-Feb-2019

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P.O.: NA

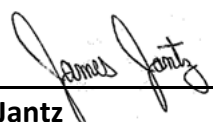
SECTION 1

CLIENT INFORMATION

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Engineer's Printed Name
Test Engineer



Jim Jantz
Project Reviewer

SECTION 2**SUMMARY AND CONCLUSION**

Date Received:

21-Jan-2019

Dates Tested:

22-Jan-2019 to 04-Feb-2019

DESCRIPTION OF SAMPLES

Part Description:

Charcoal Reclaimed Chair

Condition of Samples:

New

WORK REQUESTED/APPLICABLE DOCUMENTS

ANSI/BIFMA X5.1-2017 GENERAL PURPOSE OFFICE CHAIRS

Intertek quote Qu-00953864-4

CONCLUSION

TEST		RESULTS
6.	Backrest Strength Test - Static - Type III	CONFORMING
7.	Drop Test Dynamic	CONFORMING
10.	Seating Durability Tests – Cyclic	CONFORMING
11.	Stability Tests (Front and Rear)	CONFORMING
15.	Backrest Durability Test – Cyclic – Type II and Type III	CONFORMING
17.	Leg Strength	CONFORMING
24.	Structural Durability Test - Cyclic	CONFORMING

SAMPLE DISPOSITION

After test completion samples were retuned.

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TEST EQUIPMENT:

ASSET NUMBER	EQUIPMENT	CALIBRATION DATE	CALIBRATION DUE
138012	Scale/0-1,000#	10/15/2018	10/15/2019
138039.1	WEIGHT BAG	VBU	VBU
138039.2	WEIGHT BAG	VBU	VBU
138148	DIGITAL PROTRACTOR	12/19/2018	12/19/2019
138279	FORCE GAUGE	01/02/2019	01/02/2020
138343	Arm Durability Station	VBU	VBU
138343.1	1,000lb Load Cell	8/22/2018	8/22/2019
138343.2	1,000lb Load Cell	8/22/2018	8/22/2019
138427	1000LB LOAD CELL	05/29/2018	05/29/2019
138500.06	STOPWATCH	08/27/2018	08/27/2019
138325	Back Durability Machine	VBU	VBU
138325.1	Load cell used for station 1 on back durability machine.	8/22/2018	8/22/2019
138345	3 Station Seat Impact	VBU	VBU
138394	Static load Station	9/17/2018	9/17/2019
138394.1	1,000lb Load Cell	9/17/2018	9/17/2019
138282	72" Steel Rule	7/14/2018	7/14/2019
138519	Graduated Rule 48"	12/17/2018	12/17/2019
138338	CONTROLLER DURABILITY	VBU	VBU
138338.1	LOAD CELL	6/28/2018	6/28/2019
138338.2	LOAD CELL	6/28/2018	6/28/2019

SECTION 3**6. BACKREST STRENGTH TEST – STATIC – TYPE III:**

Date Received: 21-Jan-2019
Date Tested: 22-Jan-2019
Location Tested: Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

Part Description: Charcoal Reclaimed Chair
Condition of Samples: New

TEST PROCEDURE:

Test Method: Per ANSI/BIFMA X5.1-2017 Test No. 6:

Functional Load: 150 lbf.
Proof Load: 225 lbf.

Number of Samples Tested: One (1)

ACCEPTANCE CRITERIA:

Per ANSI/BIFMA X5.1-2017 Test No. 6:

Functional Load: There shall be no loss of serviceability to the chair.

Proof Load: There shall be no sudden and major change in the structural integrity of the product. Loss of serviceability is acceptable.

RESULTS:

SAMPLE ID	STATIC LOAD	RESULTS
A	150 lbf.	Conforming
	225 lbf.	Conforming

The submitted sample met the acceptance criteria of the test described above. Refer to the following page for photograph.



Backrest Strength Test – Static

7. DROP TEST – DYNAMIC:

Date Received: 21-Jan-2019
Date Tested: 01-Feb-2019
Location Tested: Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

Part Description: Charcoal Reclaimed Chair
Condition of Samples: New

TEST PROCEDURE:

Test Method: Per ANSI/BIFMA X5.1-2017 Test No. 7:
Functional Load: 225 lbs.
Proof Load: 300 lbs.
Drop Height: 6"

Number of Samples Tested: One (1)

ACCEPTANCE CRITERIA:

Per ANSI/BIFMA X5.1-2017 Test No. 7:
Functional Load:

There shall be no loss of serviceability.

Proof Load:

There shall be no sudden and major change in the structural integrity of the product. Loss of serviceability is acceptable.

RESULTS:

SAMPLE ID	HIGHEST POSITION OR DROP WEIGHT	RESULTS
A	Functional Load: 225 lbs.	Conforming
	Proof Load: 300 lbs.	Conforming

The submitted sample met the acceptance criteria of the test described above. Refer to the following page for photograph.



Drop Test – Dynamic

10. SEATING DURABILITY TESTS – CYCLIC:

Date Received: 21-Jan-2019
 Date Tested: 28-Jan-2019 to 01-Feb-2019
 Location Tested: Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

Part Description: Charcoal Reclaimed Chair
 Condition of Samples: New

TEST PROCEDURE:

Test Method: Per ANSI/BIFMA X5.1-2017 Test No. 10:

Test No. 10.3 Impact Test
 Bag Diameter: 16"
 Bag Weight: 125 lbs.
 Number of Cycles: 100,000
 Height of Drop: 1.4"
 Cycles per Minute: 10 to 30

Test No. 10.4 Front Corner Load-Ease Test – Cyclic – Off-center
 Bag Diameter: 8"
 Bag Weight: 200 lbs.
 Number of Cycles Required: 20,000 to each Front Corner
 Number Cycles: 10 to 30

Number of Samples Tested: One (1)

ACCEPTANCE CRITERIA:

Per ANSI/BIFMA X5.1-2017 Test No. 10:

There shall be no loss of serviceability to the chair after completion of both the Impact and Load Ease Tests. If applicable, the chair base (center structure) shall not touch the test platform as a result of the impact loads.

RESULTS:

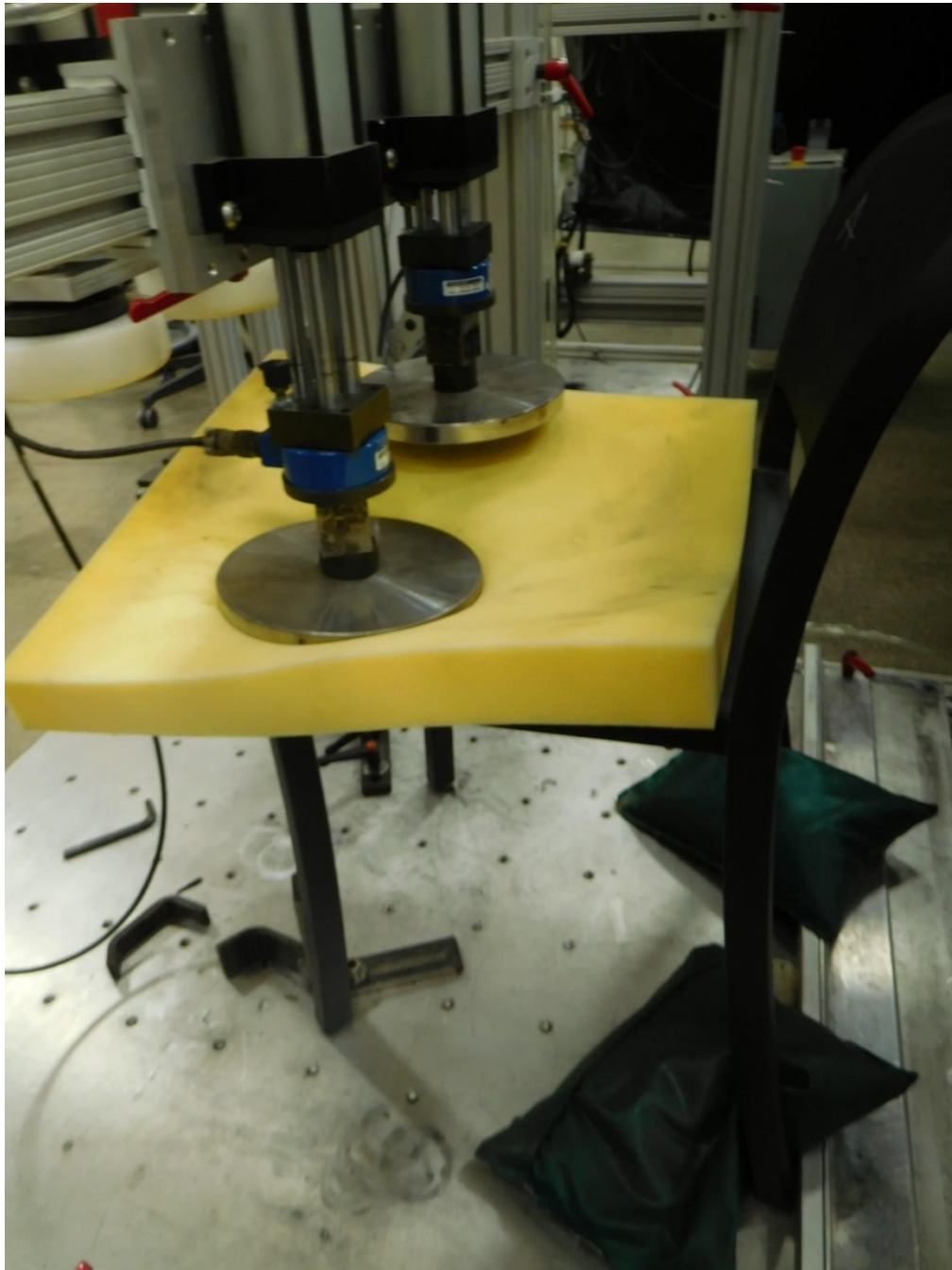
SAMPLE NO.	CYCLES	RESULTS
A	100,000	Conforming

Left Front Corner	20,000	Conforming
Right Front Corner	20,000	Conforming

The submitted sample met the acceptance criteria of the test described above. Refer to the following pages for photographs.



Impact Test



Load Ease Test

11. STABILITY TESTS (FRONT AND REAR):

Date Received: 21-Jan-2019
 Date Tested: 01-Feb-2019
 Location Tested: Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

Part Description: Charcoal Reclaimed Chair
 Condition of Samples: New

TEST PROCEDURE:

Test Method: Per ANSI/BIFMA X5.1-2017 Test No. 11:
 All of the chair's adjustable features shall be set for the most unstable conditions.

Chair Type: III

Test No. 11.3 Rear Stability

Weight in Seat

Type I:	286 lbs. (13 disks)
Type II:	286 lbs. (13 disks)
Type III:	132 lbs. (6 disks)

Test No. 11.4 Front Stability

Alternative: N / A
 Vertical Load: 135 lbs.
 Horizontal Force: 4.5 lbf.

Number of Samples Tested: One (1)

ACCEPTANCE CRITERIA:

Per ANSI/BIFMA X5.1-2017 Test No. 11:

Rear Stability: The force to tip shall not be less than:
 Type I: Chair must not tip over
 Type II: Chair must not tip over
 Type III: [F = 1.1 (47 – H) pounds force.]. H is the seat height in inches. For chairs with seat height equal to or greater than 710 mm (28.0 in.), a fixed force of 93 N (20.9 lbf.) shall be applied.

Front Stability: The chair shall not tip over as the result of the force application of 4.5 lbf.

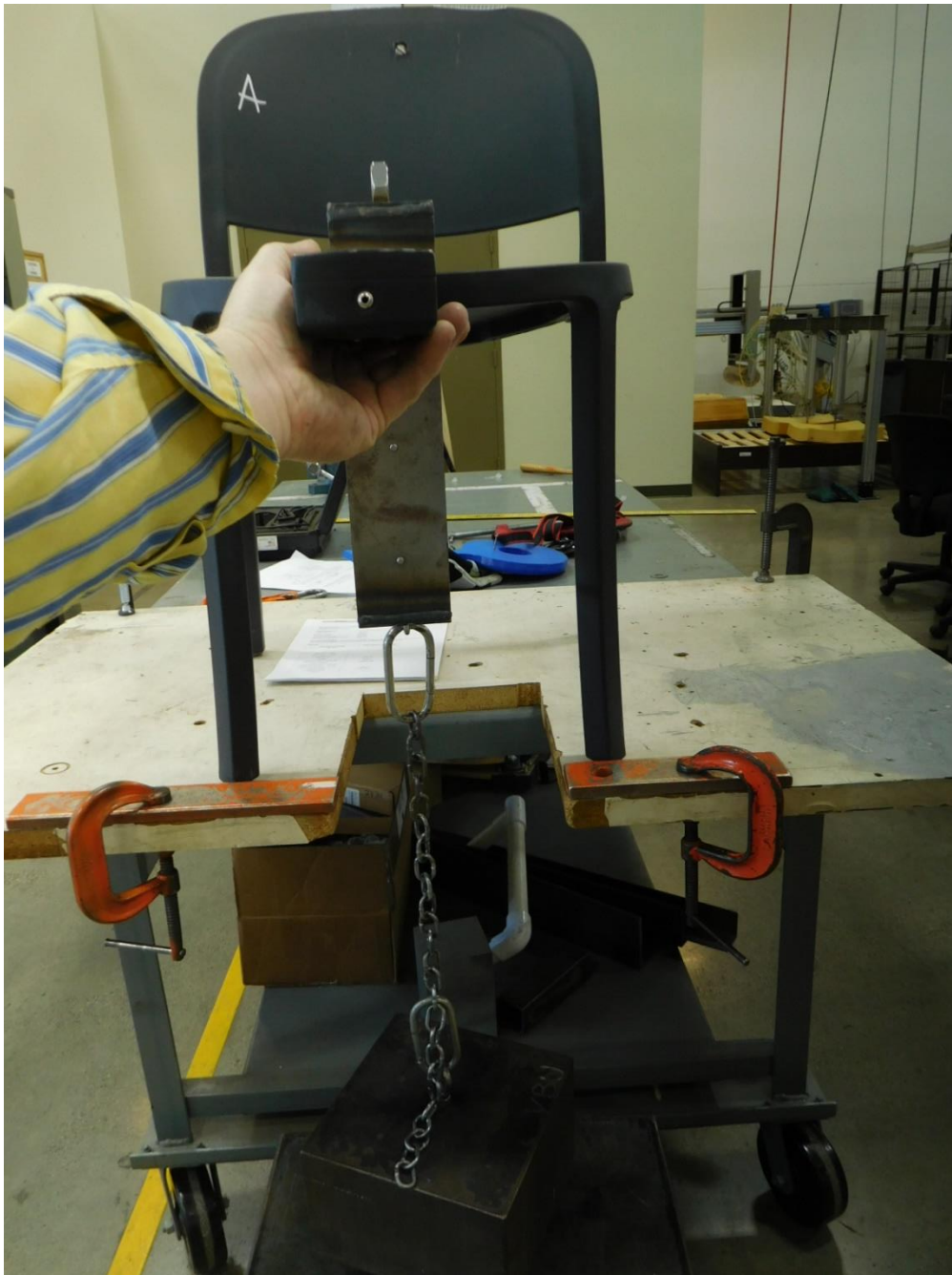
RESULTS:

SAMPLE ID	SEAT HEIGHT	FRONT STABILITY	REAR STABILITY	RESULTS
A	18"	8.6 lbf. to tip	39.2 lbf. to tip	Conforming

The submitted sample met the acceptance criteria of the test described above. Refer to the following pages for photographs.



Rear Stability



Front Stability

15. BACKREST DURABILITY TEST – CYCLIC – TYPE II AND TYPE III:

Date Received: 21-Jan-2019
Date Tested: 22-Jan-2019 to 28-Jan-2019
Location Tested: Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

Part Description: Charcoal Reclaimed Chair
Condition of Samples: New

TEST PROCEDURE:

Test Method: Per ANSI/BIFMA X5.1-2017 Test No. 15:

Backrest Width: 16
Number of Cycles Required: 120,000
Center Pull Location: 120,000
Force Applied to Chair Back: 75 lbf.
Load in Seat: 240 lbs.
Cycles per Minute: 10 to 30

Number of Samples Tested: One (1)

ACCEPTANCE CRITERIA:

Per ANSI/BIFMA X5.1-2017 Test No. 15:
No structural breakage or loss of serviceability.

RESULTS:

SAMPLE ID	PULL LOCATION	CYCLES	RESULTS
A	Center Pull	120,000	Conforming
	Off Center Pull	40,000	Conforming

The submitted sample met the acceptance criteria of the test described above. Refer to the following page for photograph.



Backrest Durability Test – Cyclic

17. LEG STRENGTH TEST – FRONT AND SIDE APPLICATION:

Date Received: 21-Jan-2019
 Date Tested: 01-Feb-2019
 Location Tested: Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

Part Description: Charcoal Reclaimed Chair
 Condition of Samples: New

TEST PROCEDURE:

Test Method: Per ANSI/BIFMA X5.1-2017 Test No. 17:

Test No. 17.3

Functional Load: 75 lbf. (Load Each Leg)
 Proof Load: 113 lbf. (Load Each Leg)

Test No. 17.4

Functional Load: 75 lbf. (Load Each Leg)
 Proof Load: 113 lbf. (Load Each Leg)

Number of Samples Tested: One

ACCEPTANCE CRITERIA:

Per ANSI/BIFMA X5.1-2017 Test No. 17:

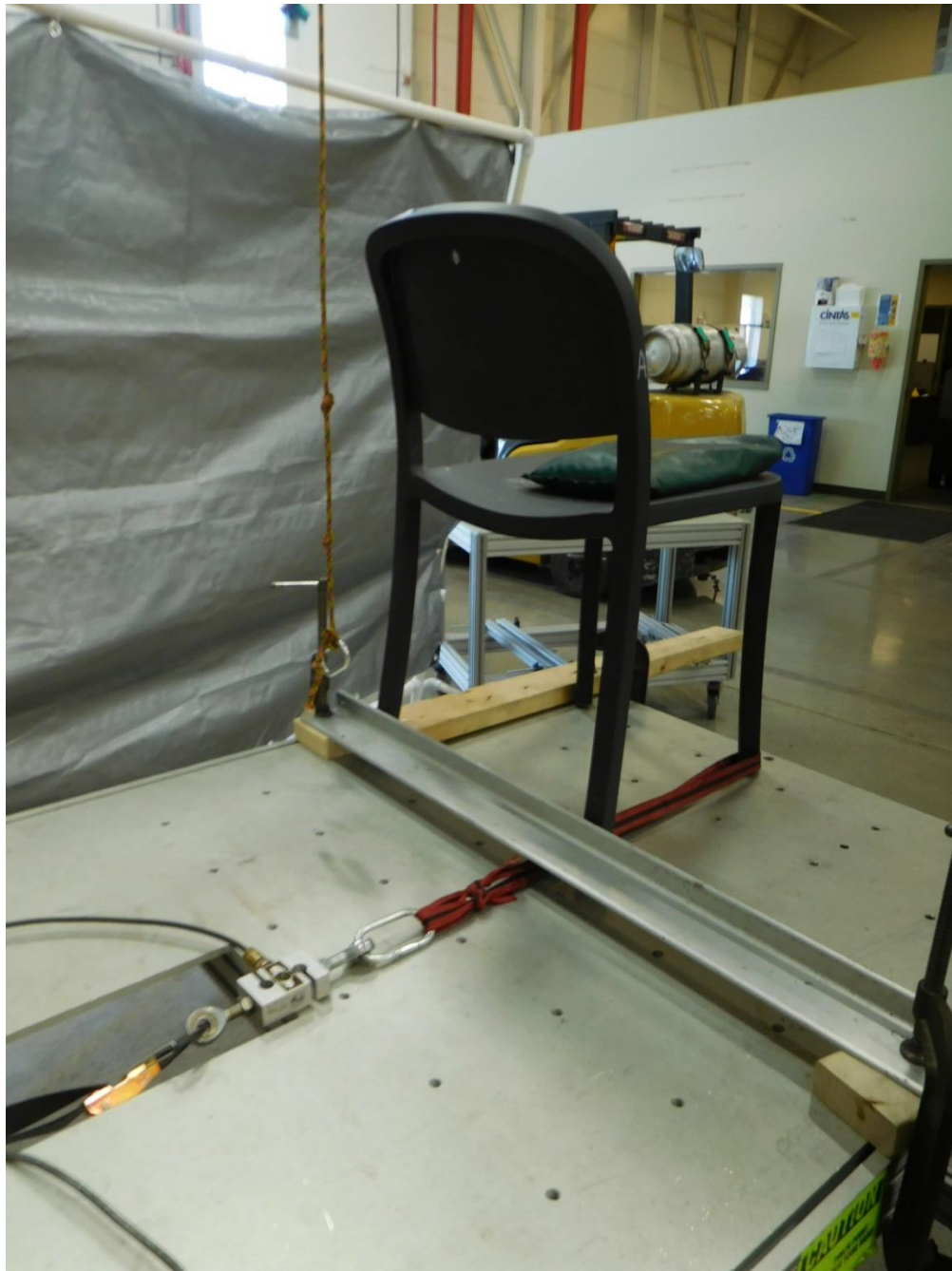
Functional Load: No structural breakage or loss of serviceability, including stacking if applicable.

Proof Load: No sudden and major change in the structural integrity of the product. Loss of serviceability is acceptable.

RESULTS:

SAMPLE ID	LOAD APPLICATION	FUNCTIONAL	RESULTS	PROOF	RESULTS
A	Side to Side (Rear Side)	75 lbf.	Conforming	113 lbf.	Conforming
	Side to Side (Front Side)	75 lbf.	Conforming	113 lbf.	Conforming
	Front to Rear (Left Side)	75 lbf.	Conforming	113 lbf.	Conforming
	Front to Rear (Right Side)	75 lbf.	Conforming	113 lbf.	Conforming

The submitted sample met the acceptance criteria of the test described above. Refer to the following pages for photographs.



Leg Strength Test – Front Load



Leg Strength Test – Side Load

24. STRUCTURAL DURABILITY TEST – CYCLIC:

Date Received: 21-Jan-2019
Date Tested: 01-Feb-2019 to 04-Feb-2019
Location Tested: Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

Part Description: Charcoal Reclaimed Chair
Condition of Samples: New

TEST PROCEDURE:

Test Method: Per ANSI/BIFMA X5.1-2017 Test No. 24:

Load in Seat: 240 lbs.
Force Applied: 75 lbf.
Number of Cycles Required: 25,000
Cycles per Minute: 20 ± 10 cycles per minute

Number of Samples Tested: One (1)

ACCEPTANCE CRITERIA:

Per ANSI/BIFMA X5.1-2017 Test No. 24:
There shall be no loss of serviceability.

RESULTS:

SAMPLE ID	CYCLES	RESULTS
A	25,000	Conforming

The submitted sample met the acceptance criteria of the test described above. Refer to the following page for photograph.



Structural Durability Test – Cyclic

SECTION 4**REVISIONS MADE TO TEST REPORT:**

DATE	REVISION DESCRIPTION	REVISED BY	REVISED BY
27-Feb-2019	Initial release.	Lynwood Pearson	