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Booho Chair One Co., Ltd.
Date: September 6, 2011

Test Report For:

Booho Chair One Co., Ltd.

ANSI/BIFMA X5.1-2011
CHAIR TEST STANDARD

E1-C100 Chair

Lynwood Pearson
Project Manager

Bryan Stratton
Reviewer

Attention: Dana Shin
Booho Chair One Co., Ltd.
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DATE RECEIVED: 7/28/2011
DATES TESTED: 8/9/2011- 9/6/2011

DESCRIPTION OF SAMPLES:
Part Description: E1-C100 Chair
Condition of Test Sample: New

WORK REQUESTED/APPLICABLE DOCUMENTS:
To test the submitted sample per ANSI/BIFMA X5.1-2011 Chair Test Standard for the following test program:

Test No.	Test Description
6	Back Rest Strength-Non-Tilt
8	Drop-Dynamic
11	Seating Durability
12	Stability
13	Arm Strength-Vertical
14	Arm Strength-Horizontal
16	Backrest Durability-Non-Tilt
18	Leg Strength
21	Arm Durability

CONCLUSION:
The submitted sample meets the acceptance criteria of the tests listed above.

TEST EQUIPMENT:

Asset	Description	Cal Date	Cal Due
138012	SCALE / 0-1,000 #	12/04/2009	12/04/2011
138272	LOAD CELL 0-1,000 #	04/08/2011	04/08/2012
138039.1	BAG WEIGHT- (300 lbs)	12/07/2007	VBU
138039.2	BAG WEIGH- (225 lbs)	12/07/2007	VBU
138042	SEATING IMPACT / 2 STATION	VBU	VBU
138043	BACK DURABILITY 0-300lbs	VBU	VBU
138112	GRADUATED RULE 36"	08/27/2008	08/27/2013
138185	STOPWATCH	12/8/2010	12/08/2011
138914	FORCE GAUGE	03/29/2011	03/29//2012
138170	FRONT STABILITY WEIGHT	04/14/2008	VBU
138148	DIGITAL PROTRACTOR	09/23/2010	09/23/2011
138243	CYCLIC PROPORTIONAL CONTROLLER	VBU	VBU

6. BACK STRENGTH PROCEDURE - STATIC (Type II-III – Non-Tilt Seat):

Date Tested: 8/25/2011
Condition of Test Sample: New

Test Procedure:
Test Method: ANSI/BIFMA X5.1 2011; Test No. 6
Functional Load: 150 lbf.
Proof Load: 250 lbf.

Number of Samples Tested: One (1)

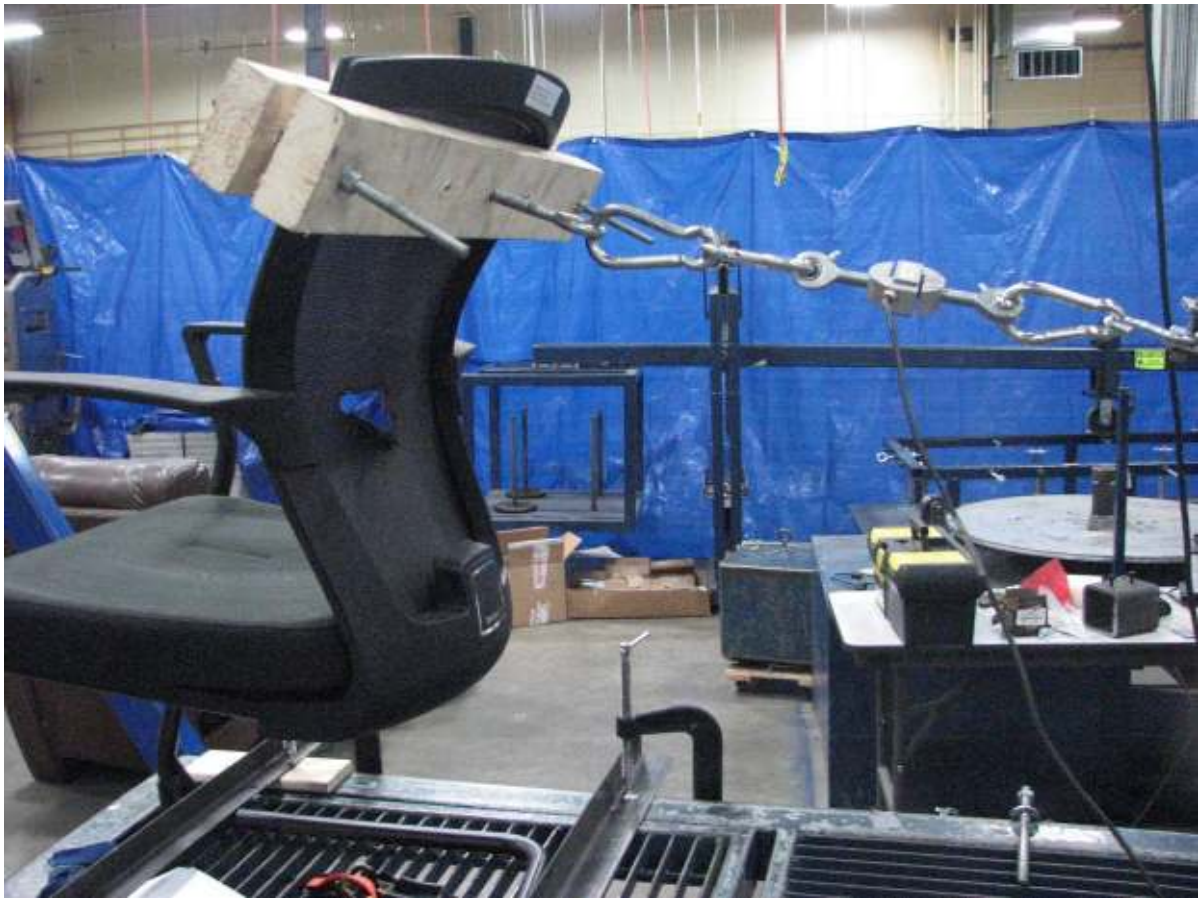
Acceptance Criteria:
Functional Load: There shall be no loss of serviceability to the chair.

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

Results:

Sample No.	Static Load	Description of Results
1	150	Pass
	250	Pass

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



BACK STRENGTH PROCEDURE - STATIC

8. DROP TEST – DYNAMIC:

Date Tested: 9/6/2011
Condition of Test Sample: Production

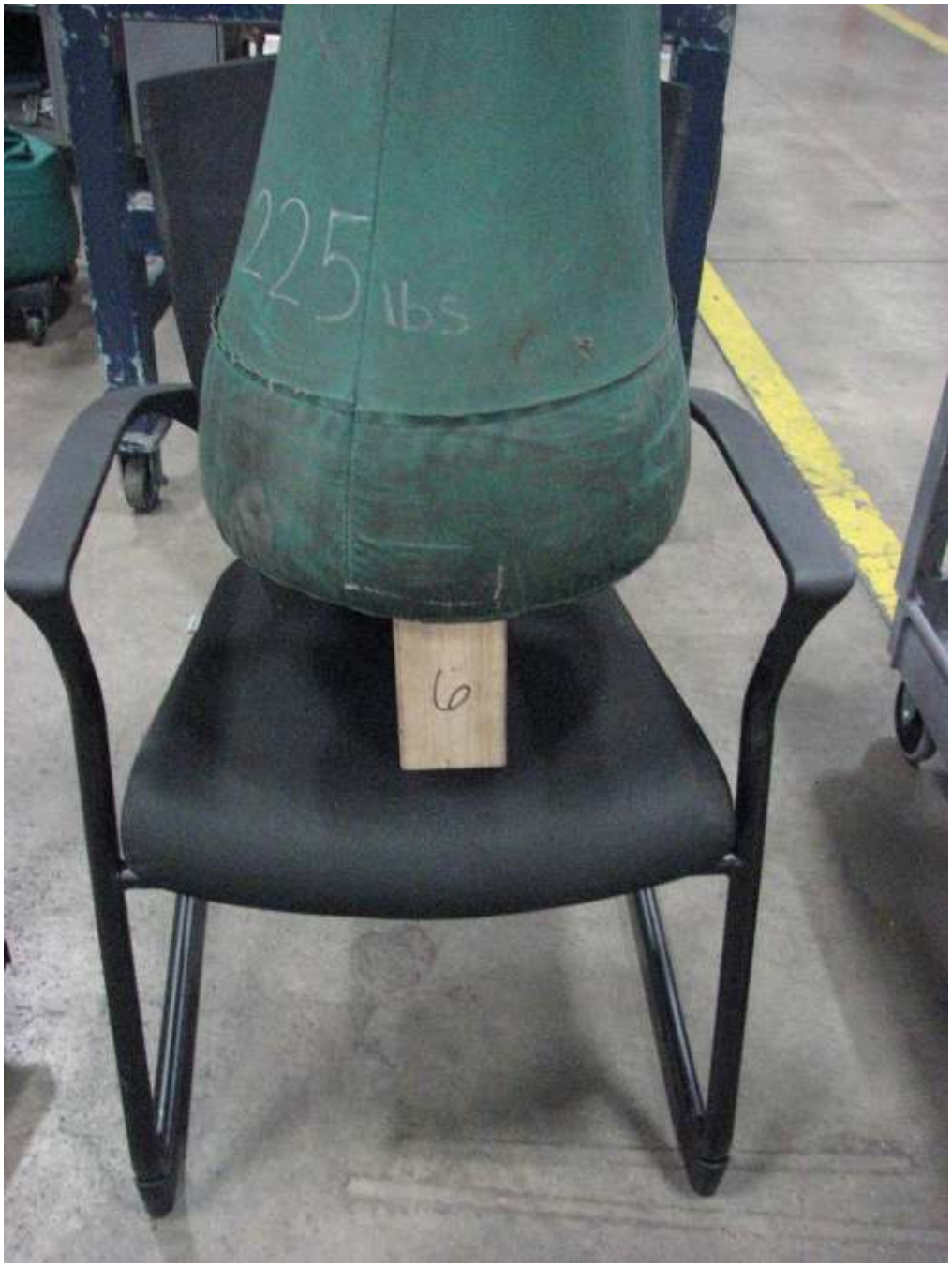
Test Procedure:
Test Method: ANSI/BIFMA X5.1-2011; Test No. 8
Functional Load: 225 lbs.
Proof Load: 300 lbs.
Drop Height: 6”
Number of Samples Tested: One (1)

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

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

Results:

Sample Number	Drop Weight	Results
2	Functional Load - 225 lbs	Pass
	Proof Load - 300 lbs	Pass



DROP TEST – DYNAMIC

11. SEATING IMPACT TEST

Dates Tested: 8/9/2011- 8/16/2011
Condition of Test Sample: New

Test Procedure:
Test Method: ANSI/BIFMA X5.1-2011; Test No. 11

Section 11.3 Seat Center Impact Test
Bag Diameter: 16”
Bag Weight: 125 lbs.
Number Cycles: 100,000
Height of Drop: 1”
Cycles per Minute: 10 to 30

Section 11.4 Load Ease Test
Bag Diameter: 8”
Bag Weight: 165 lbs.
Number of Cycles Required: 20,000 to each Front Corner
Cycles per Minute: 10 to 30
Number of Samples Tested: One (1)

Acceptance Criteria:
There shall be no loss of serviceability to the chair after completion of both the Impact and Load Ease Tests.

Results:

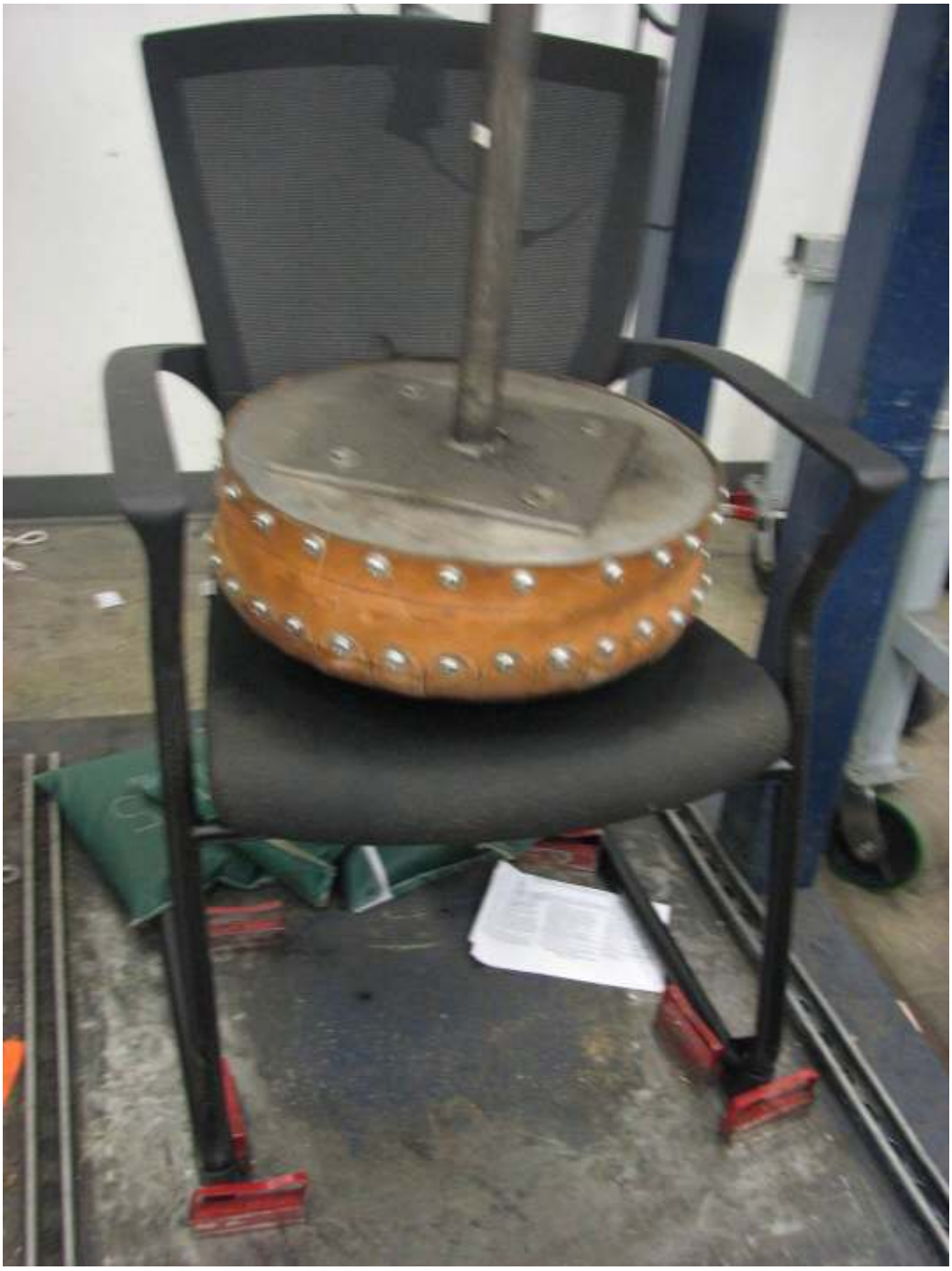
Section 11.3

Sample No.	Number of Cycles	Description of Results
1	100,000	Pass

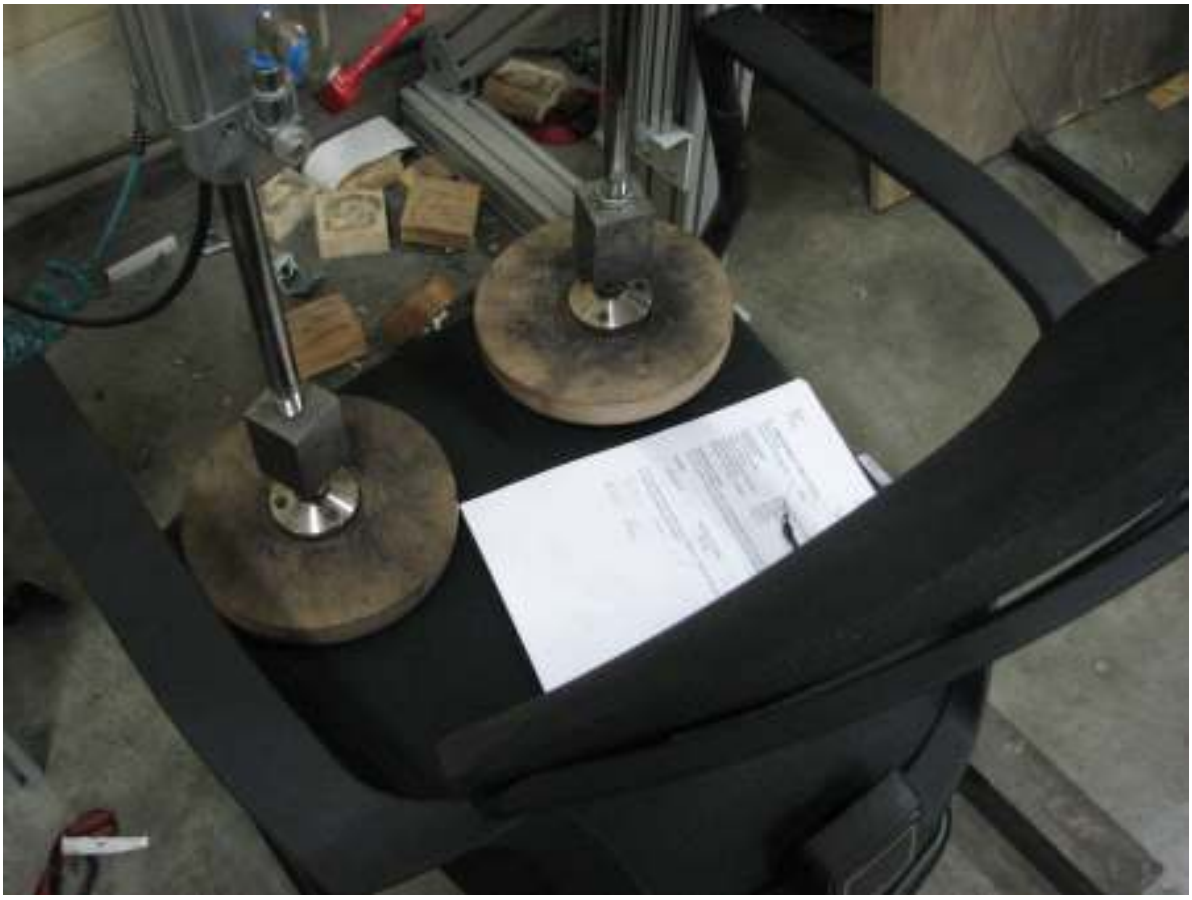
Section 11.4

Location of Force	Number of Cycles	Description of Results
Left Front Corner	20,000	Pass
Right Front Corner	20,000	Pass

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



Seating Impact Test



Load Ease Test

12. STABILITY TEST -DYNAMIC (Front and Rear):

Date Tested: 8/17/2011
Condition of Test Sample: New

Test Procedure:
Test Method: ANSI/BIFMA X5.1-2011; Test No. 12
All of the chair's adjustable features shall be set for the most unstable conditions.
Chair Type: III

Rear Stability:
Seat Height 17”
Weight in Seat
(Rear Stability Only): Type I: 286 lbs. (13 disks)
Type II: 286 lbs (13 disks)
Type III: 132 lbs (6 disks)

Front Stability:
Alternative: N/A
Vertical Load: 135 Lbs
Horizontal Force: 4.5 Lbs
Number of Samples Tested: One (1)

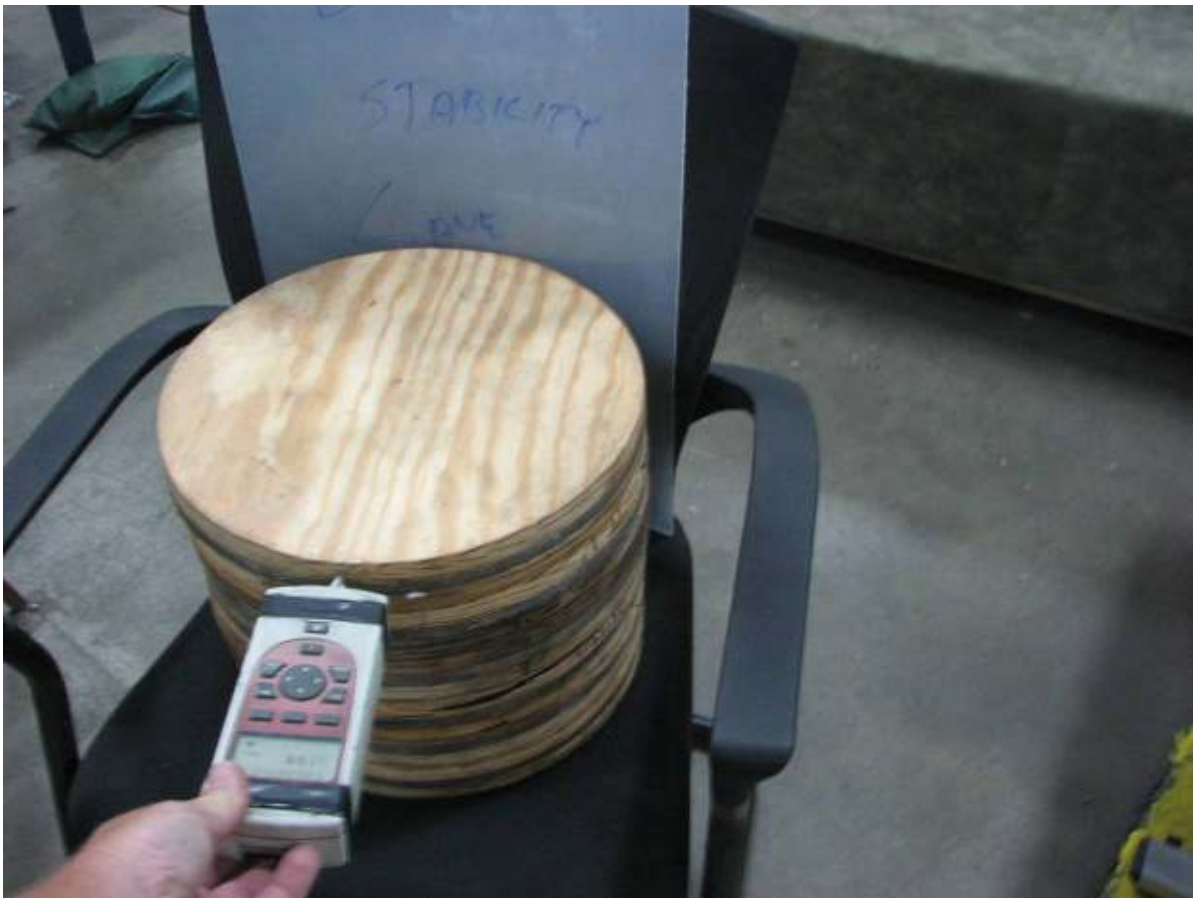
Acceptance Criteria:
Front Stability: The chair shall not tip over as the result of the force application of 4.5 lbf..

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.

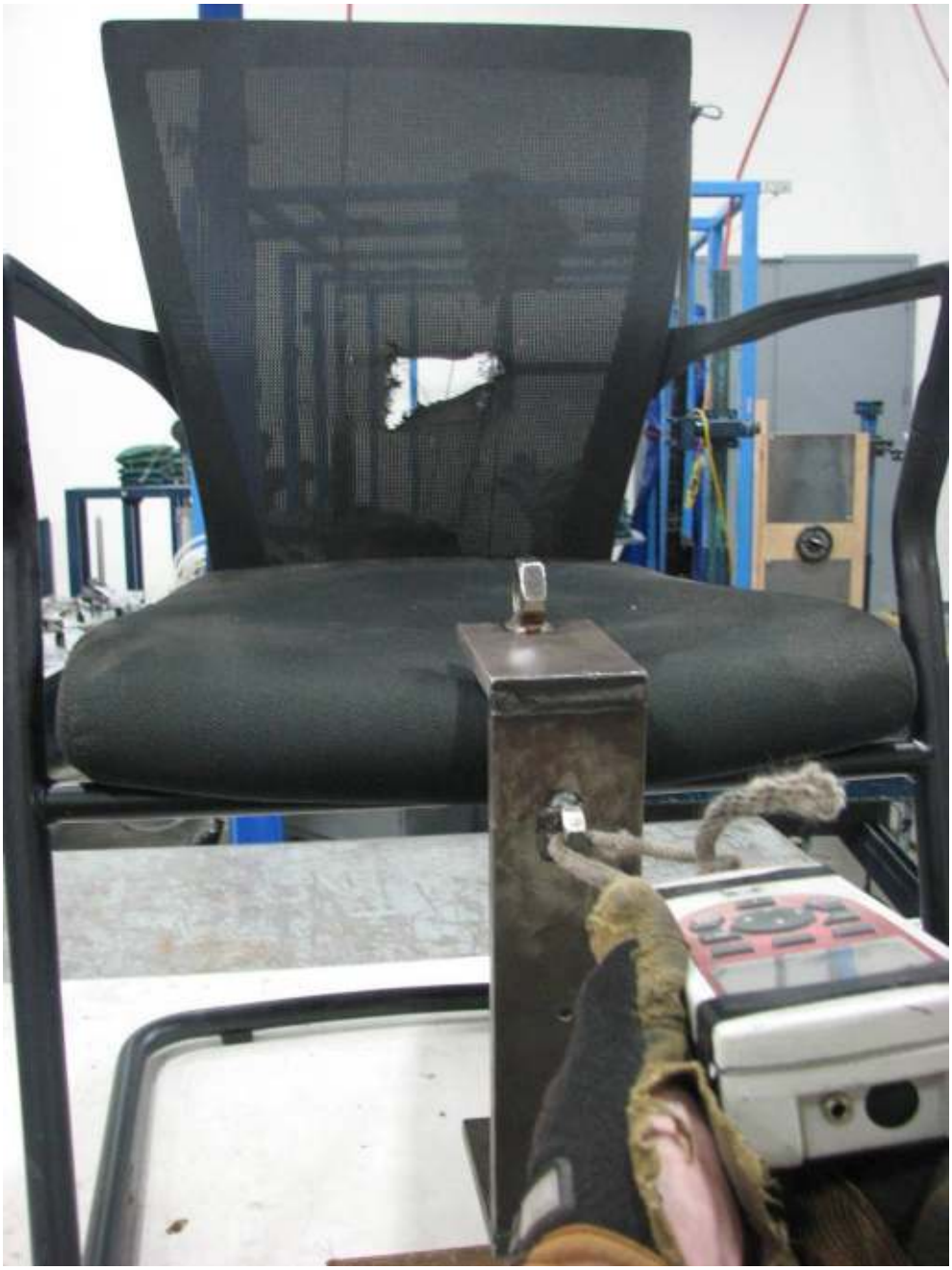
Results:

Sample ID	Front Stability	Rear Stability
1	36.5 lbf. to tip	53.7 lbf. to tip

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



Stability Test - Rear



Stability Test - Front

13. ARM STRENGTH TEST VERTICAL-STATIC:

Date Tested: 8/25/2011
Condition of Test Sample: New

Test Procedure:
Test Method: ANSI/BIFMA X5.1-2011; Test No. 13
Functional Static Load: 169 lbf.
Proof Static Load: 253 lbf.
Number of Samples Tested: One (1)

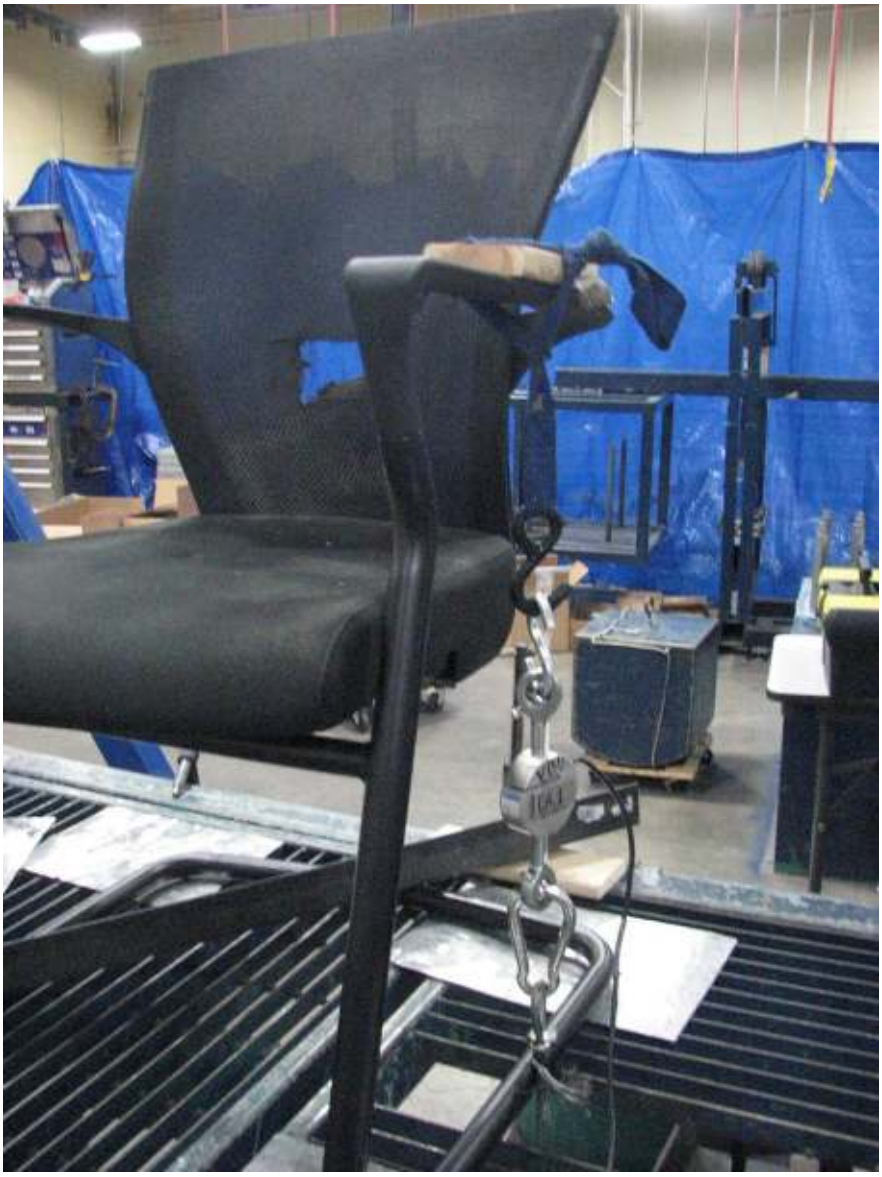
Acceptance Criteria:
Functional Load: There shall be no loss of serviceability.

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

Results:

Sample ID.	Static down Load (lbf.)	Description of Results
1	169	Pass
	253	Pass

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



Arm Strength Test Vertical-Static

14. ARM STRENGTH TEST- HORIZONTAL-STATIC:

Date Tested: 8/25/2011
Condition of Test Sample: New

Test Procedure:
Test Method: ANSI/BIFMA X5.1-2011; Test No. 14
Functional Force: 100 lbf.
Proof Load: 150 lbf.
Number of Samples Tested: One (1)

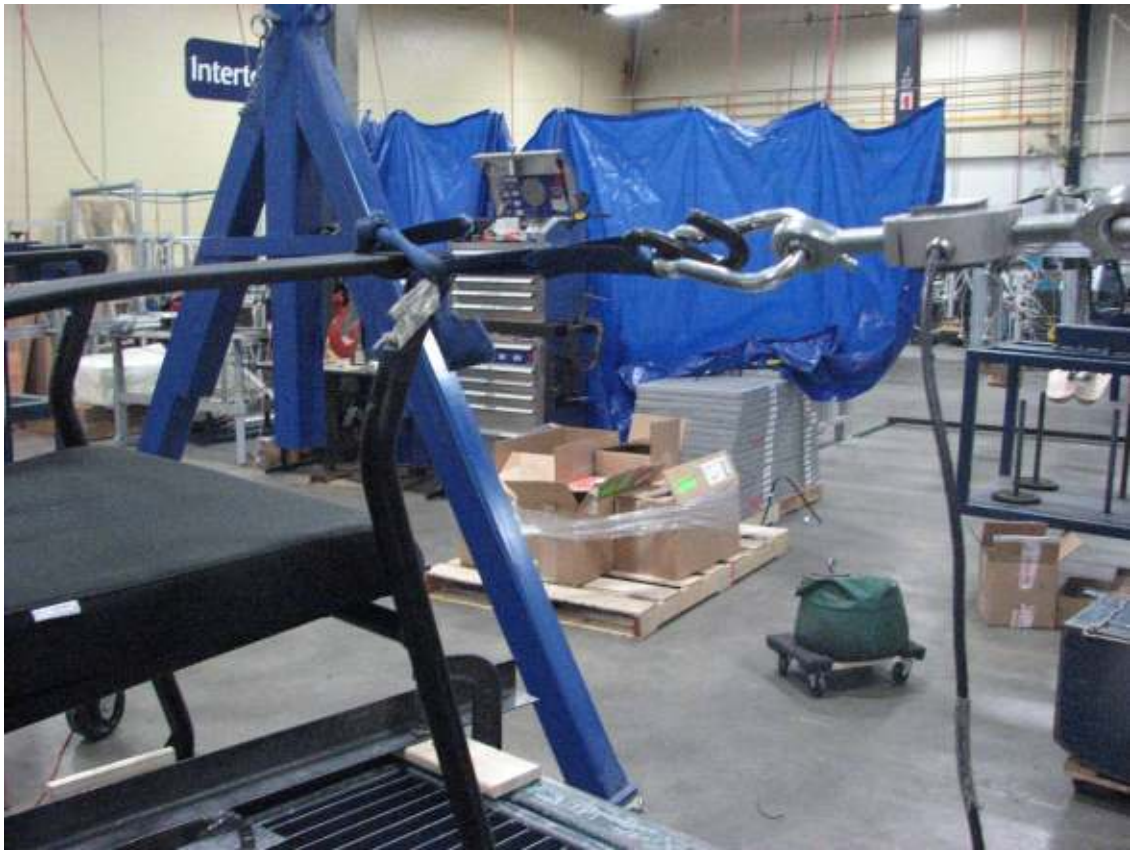
Acceptance Criteria:
Functional Load: A functional load applied once shall cause no loss of serviceability.

Proof Load: A proof load applied once shall cause no sudden and major change in the structural integrity of the unit. Loss of serviceability is acceptable.

Results:

Chair	Load (lbs)		Results
1	Functional Load	100	Pass
	Proof Load	150	Pass

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



Arm Strength Test- Horizontal-Static

16. BACK DURABILITY TEST-CYCLIC (Type III):

Dates Tested: 8/17/2011- 8/25/2011
Condition of Test Sample: New

Test Procedure:
Test Method: ANSI/BIFMA X5.1-2011; Test No. 16
Backrest Width: 19”
Number of Cycles Required: 120,000
Center Pull Location: 80,000
Off Center Pull Location: 40,000
Force Applied to Chair Back: 75 lbf.
Load in Seat: 225 lbs.
Cycles per Minute: 10 to 30

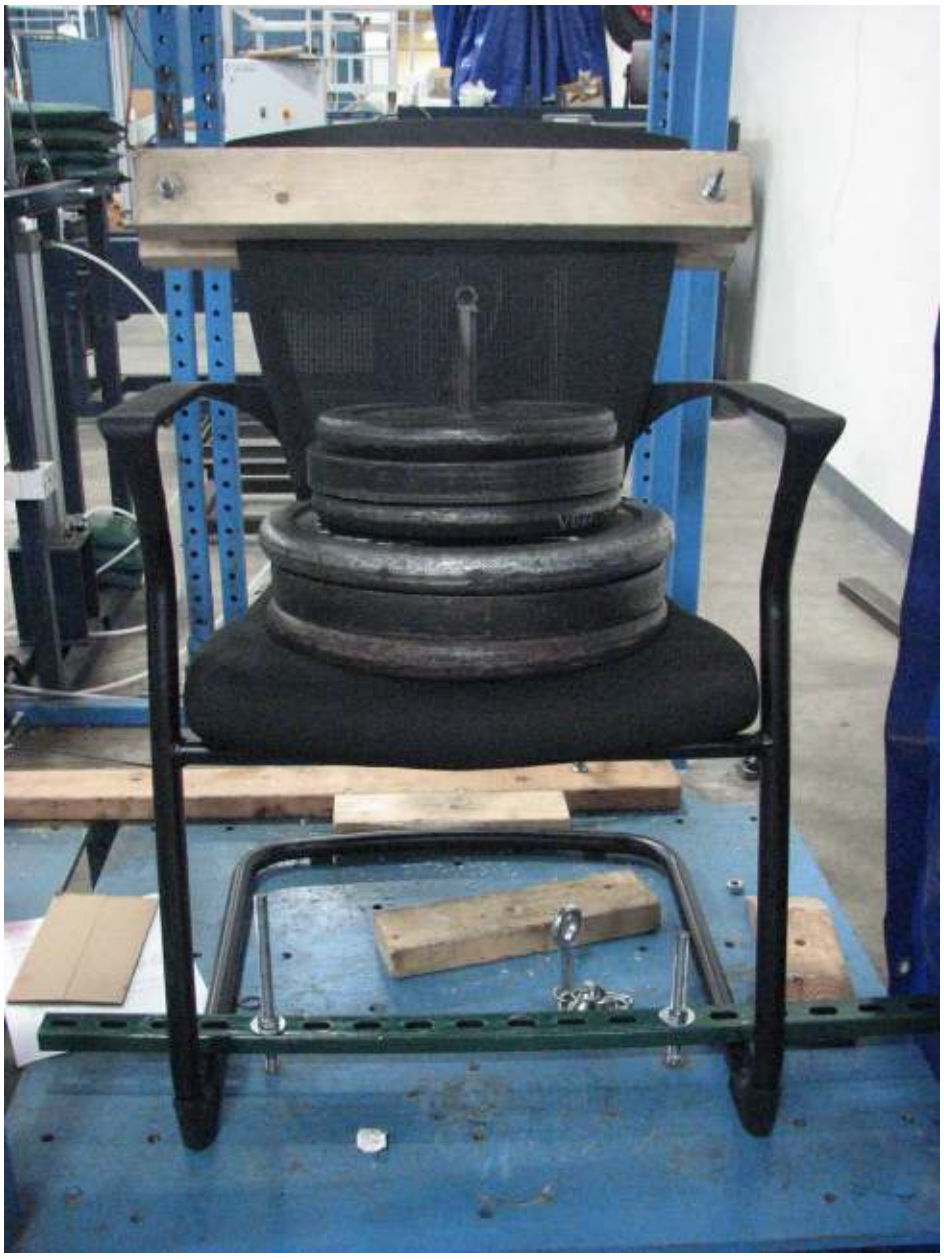
Number of Samples Tested: One (1)

Acceptance Criteria:
No structural breakage or loss of serviceability.

Results:

Sample No.	Pull Location	Number of Cycles	Description of Results
1	Center Pull	80,000	Pass
	Off Center Pull	40,000	Pass

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



BACK DURABILITY TEST-CYCLIC

18. LEG STRENGTH TEST - FRONT & SIDE APPLICATION:

Date Tested: 8/25/2011
Condition of Test Sample: New

Test Procedure:
Test Method: ANSI/BIFMA X5.1-2011; Test No. 18
Front to Rear Leg Application:
Functional Load: 75 lbf. (Load Each Leg)
Proof Load: 113 lbf. (Load Each Leg)
Side Load Application:
Functional Load: 75 Lbs (Load Each Leg)
Proof Load: 113 Lbs (Load Each Leg)

Number of Samples Tested: One (1)
Acceptance Criteria:
Functional Load: No structural breakage or loss of serviceability, including stacking if applicable.

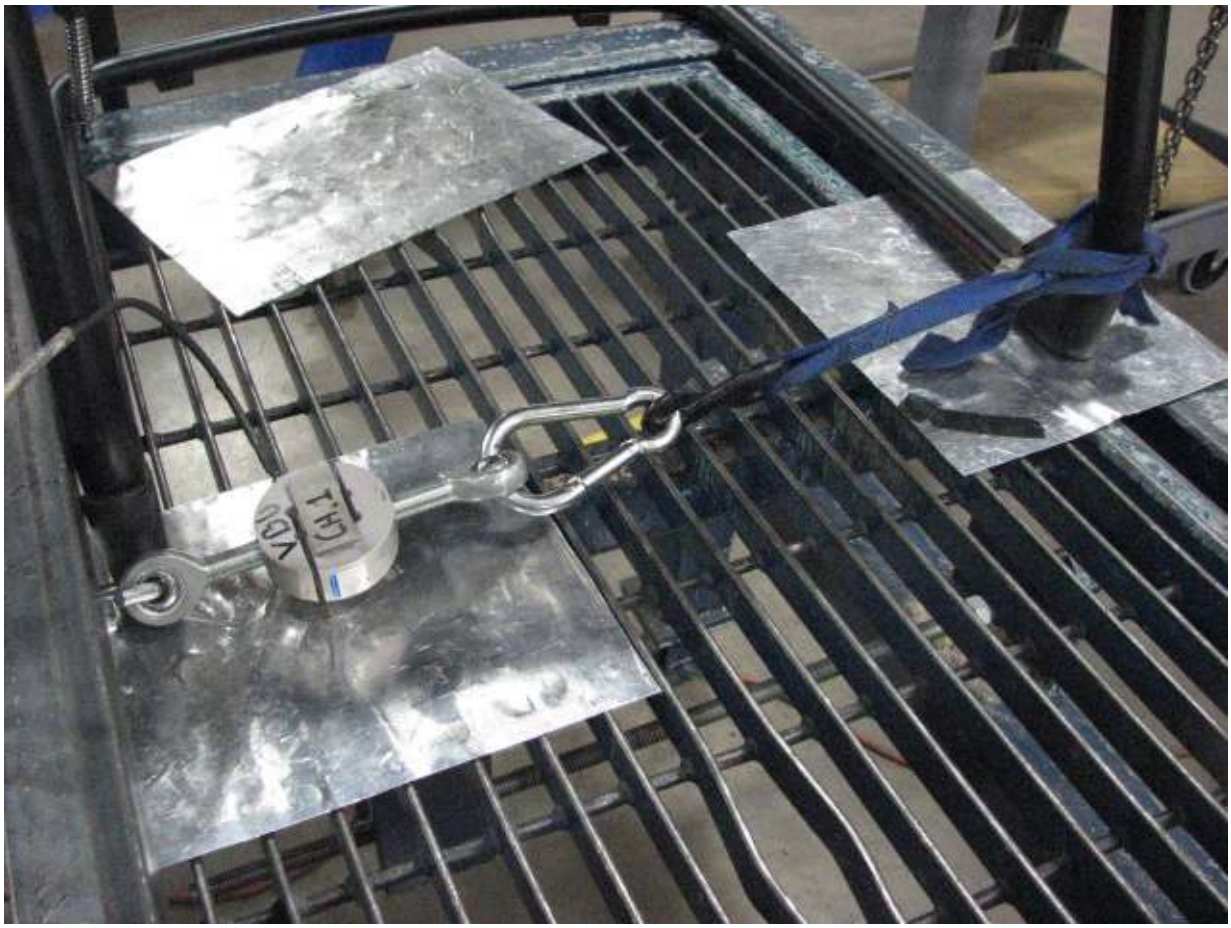
Proof Load: No sudden and major change in the structural integrity of the product. Loss of serviceability is acceptable.

Results:

Sample No.	Load Application	Functional	Proof	Description of Results
1	Side to Side (Rear Side)	75 lbf.	115 lbf	Pass
	Side to Side (Front Side)	75 lbf.	115 lbf	Pass
	Front to Rear (Left Side)	75 lbf.	125 lbf.	Pass
	Front to Rear (Right Side)	75 lbf.	125 lbf.	Pass

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

LEG STRENGTH TEST - FRONT APPLICATION



LEG STRENGTH TEST - SIDE APPLICATION

21. ARM DURABILITY TEST- CYCLIC:

Dates Tested: 8/12/2011- 8/15/2011
Condition of Test Sample: New

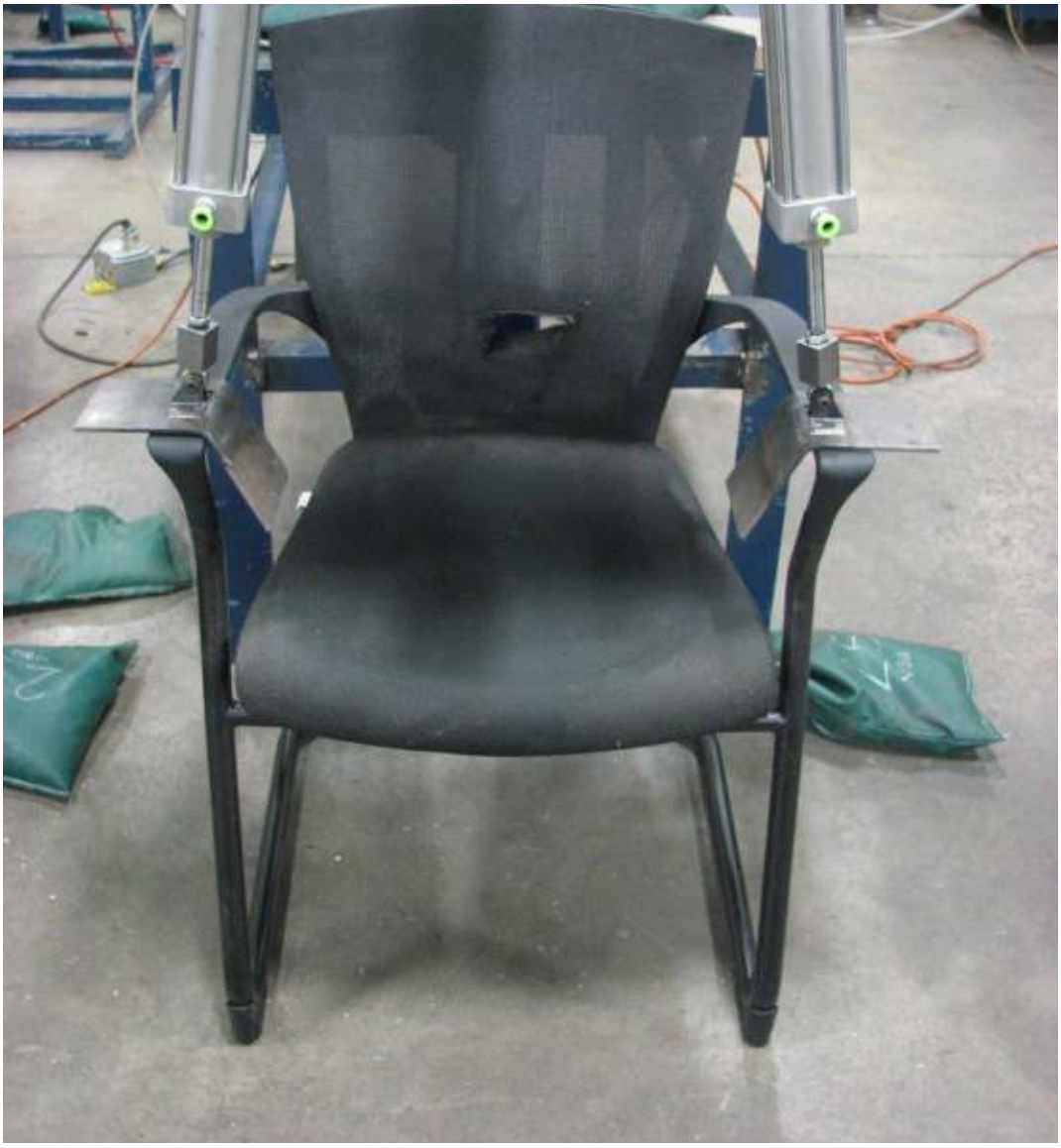
Test Procedure:
Test Method: ANSI/BIFMA X5.1-2011; Test No. 21
Load To Each Arm: 90 lbs.
Angle of Force: 10 Degrees from Vertical
Number of Cycles Required: 60,000
Cycles per Minute: 10 to 30
Number of Samples Tested: One (1)

Acceptance Criteria:
Structural breakage or loss of serviceability shall constitute failure. No failure that in any way would cause personal injury to the occupant shall be allowed.

Results:

Sample ID	Number of Cycles	Description
1	60,000	Pass

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



Arm Durability Test – Cyclic