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Emeco
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Test Report For:

EMECO

**ANSI/BIFMA X5.1-2011
CHAIR TEST STANDARD**

BROOM STOOL



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Lynwood Pearson
Project Manager

Anthony Serge
Reviewer

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DATE RECEIVED: 3/7/2014
DATES TESTED: 3/10/2014 – 3/31/2014

DESCRIPTION OF SAMPLES: Broom Stool

Part Description: Broom Stool
Color: Tan
Green
Condition of Test Samples: New

WORK REQUESTED/APPLICABLE DOCUMENTS:

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

<u>Test No.</u>	<u>Test Description</u>
6	Back Rest Strength-Non-Tilt
8	Drop-Dynamic
11	Seating Durability
12	Stability
16	Backrest Durability-Non-Tilt
18	Leg Strength
19	Footrest Static Load
20	Footrest Durability

CONCLUSION:

The submitted samples meet the acceptance criteria of the tests listed above.

TEST EQUIPMENT:

Asset	Description	Cal Date	Cal Due
138272	LOAD CELL 0-1,000 #	10/16/2013	10/16/2014
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
138296	STOPWATCH	06/06/2012	06/06/2014
138170	FRONT STABILITY WEIGHT	04/14/2008	VBU
138012	SCALE / 0-1,000 #	12/11/2013	12/12/2014
138148	DIGITAL PROTRACTOR	09/16/2013	09/16/2014
138279	FORCE GAGE; DIGITAL 100LB	04/02/2013	04/02/2014
138112	GRADUATED RULE 36"	10/11/2013	10/11/2014

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

Date Tested: 3/10/2014 – 3/31/2014
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: Two (2)

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:

ID	Static Load	Results
Tan #1	150 lbf.	Pass
	250 lbf.	Pass
Green #2	150 lbf.	Pass
	250 lbf.	Pass

The samples meet the acceptance criteria of the test described above. Refer to the following pages for photographs.



BACK STRENGTH PROCEDURE – STATIC – SAMPLE – TAN



BACK STRENGTH PROCEDURE – STATIC – SAMPLE – GREEN

8. DROP TEST – DYNAMIC:

Date Tested: 3/31/2014
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: Two (2)

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:

ID	Static Load	Results
Tan #1	225 lbs.	Pass
	300 lbs.	Pass
Green #2	225 lbs.	Pass
	300 lbs.	Pass

The samples meet the acceptance criteria of the test described above. Refer to the following pages for photographs.



DROP TEST – DYNAMIC- SAMPLE – TAN



DROP TEST – DYNAMIC- SAMPLE – GREEN

11. SEATING IMPACT TEST

Date Tested: 3/17/2014 – 3/24/2014
Condition of Test Sample: Production

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: 1.2"
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: Two (2)

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

ID	Cycles	Results
Tan #1	100,000	Pass
Green #2	100,000	Pass

Section 11.4

ID	Cycles	Results
Tan #1	20,000 Each Corner	Pass
Green #2	20,000 Each Corner	Pass

The samples meet the acceptance criteria of the test described above. Refer to the following pages for photographs.



Seating Impact Test- Sample- Tan



Load Ease Test - Tan



Seating Impact Test- Sample- Green



Load Ease Test – Sample- Green

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

Date Tested: 3/31/2014
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 30"

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: Two (2)

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:

Color	Front Stability	Rear Stability	Results
Tan #1	9.4 lbf. to tip	31.9 lbf. to tip	Pass
Green #2	9.4 lbf. to tip	32 lbf. to tip	Pass

The samples meet the acceptance criteria of the test described above. Refer to the following pages for photographs.



Stability Test – Rear- Sample – Tan



Stability Test – Front - Sample – Tan



Stability Test – Rear- Sample – Green



Stability Test – Front – Sample – Green

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

Dates Tested: 3/10/2014 – 3/26/2014
Condition of Test Sample: New

Test Procedure:

Test Method: ANSI/BIFMA X5.1-2011; Test No. 16
Backrest Width: 13-5/8”
Number of Cycles Required: 120,000
Center Pull Location: 120,000
Force Applied to Chair Back: 75 lbf.
Load in Seat: 225 lbs.
Cycles per Minute: 10 to 30

Number of Samples Tested: Two (2)

Acceptance Criteria:

No structural breakage or loss of serviceability.

Results:

Color	Pull Location	Cycles	Results
Tan #1	Center Pull	120,000	Pass
Green #2	Center Pull	120,000	Pass

The samples meet the acceptance criteria of the test described above. Refer to the following pages for photographs.



BACK DURABILITY TEST-CYCLIC – SAMPLE – TAN



BACK DURABILITY TEST-CYCLIC – SAMPLE – GREEN

18. LEG STRENGTH TEST - FRONT & SIDE APPLICATION:

Date Tested: 3/31/2014
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: Two (2)

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:

Color	Load Application	Functional	Proof	Results
Tan #1	Side to Side (Rear Side)	75 lbf.	113 lbf	Pass
	Side to Side (Front Side)	75 lbf.	113 lbf	Pass
	Front to Rear (Left Side)	75 lbf.	113 lbf	Pass
	Front to Rear (Right Side)	75 lbf.	113 lbf	Pass
Green #1	Side to Side (Rear Side)	75 lbf.	113 lbf	Pass
	Side to Side (Front Side)	75 lbf.	113 lbf	Pass
	Front to Rear (Left Side)	75 lbf.	113 lbf	Pass
	Front to Rear (Right Side)	75 lbf.	113 lbf	Pass

The samples meet the acceptance criteria of the test described above. Refer to the following pages for photographs.



LEG STRENGTH TEST – SAMPLE - TAN



LEG STRENGTH TEST – SAMPLE – Green

19. FOOTREST STATIC LOAD TEST – VERTICAL

Date Tested: 5/28/2013
Condition of Test Sample: New

Test Procedure:

Test Method: ANSI/BIFMA X5.1-2011; Test No. 19
Functional Load: a) Apply a force F1 of 445 N (100 lbf.) uniformly along a 102 mm (4 in.) distance along the footrest but not greater than 51 mm (2 in.) from the outside edge at the apparent weakest point of the structure for one (1) minute in the vertical downward direction. If the footrest adjusts in height relative to the seat and allows for a force application 180 degrees (on the opposite side of the chair) from the primary force application, maintain force F1 and apply an additional force F2 of 445 N (100 lbf.) to the footrest at the opposing position for an additional one (1) minute. The F2 force shall also be applied uniformly along a 102 mm (4 in.) distance along the footrest but not greater than 51 mm (2 in.) from the outside edge.
b) If applicable, remove force F2.
c) Increase the force F1 to 200 lbf. for one (1) minute.

Proof Load: Apply a force of 1334 N (300 lbf.) uniformly along a 102 mm (4 in.) distance along the footrest but not greater than 51 mm (2 in.) from the outside edge at the apparent weakest point of the structure for one (1) minute in the vertical downward direction.

Number of Samples Tested: Two (2)

Acceptance Criteria:

The 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 (lbf.)	Results
Tan #1	Functional Load 200 lbf.	Pass
	Proof Load 300 lbf.	Pass
Green #1	Functional Load 200 lbf.	Pass
	Proof Load 300 lbf.	Pass

The samples meet the acceptance criteria of the test described above. Refer to the following pages for photographs.



FOOTREST STATIC LOAD TEST – TAN



FOOTREST STATIC LOAD TEST – GREEN

20. FOOTREST DURABILITY TEST – VERTICAL - CYCLIC:

Date Tested: 3/13/2014 – 3/19/2014
Condition of Test Sample: New

Test Procedure:

Test Method: ANSI/BIFMA X5.1-2011; Test No. 20
Load To Footrest: 200 lbs.
Direction of Force: Vertically Downward
Number of Cycles Required: 50,000
Cycles per Minute: 10 to 30
Number of Samples Tested: One (1)

Acceptance Criteria:

There shall be no loss of serviceability. Adjustable footrests that move more than 25 mm (1 in.) in the first 500 cycles shall be considered to have lost their serviceability.

Results:

Sample Number	Number of Cycles	Description of Results
Tan #1	50,000	Pass
Green #1	50,000	Pass

The samples meet the acceptance criteria of the test described above. Refer to the following page for photograph.



FOOTREST DURABILITY TEST – VERTICAL - TAN



FOOTREST DURABILITY TEST – VERTICAL - GREEN

