



4700 Broadmoor SE, Suite 200
Kentwood, MI 49512

Telephone: 616-656-7401
Facsimile: 616-656-2022
www.intertek-etlsemko.com

Emeco
Date: August 22, 2012
P. O. No.: NA

Project No.: 100834921GRR-001B
Page 1 of 24

Test Report For:

EMECO

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

BROOM CHAIR

**Lynwood Pearson
Project Manager**

**Bryan Stratton
Reviewer**

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.



Attention: Magnus Breitling
Emeco
805 Elm Avenue
Hanover, PA 17731
Phone: (717) 637-5951 ext. x4
Fax: (717) 633-6018
Email: magnus@emeco.net

DATE RECEIVED: 8/7/2012
DATES TESTED: 8/7/2012 – 8/21/2012

DESCRIPTION OF SAMPLES:

Part Description:	<u>Color</u>
BROOM CHAIR	White
	Yellow
	Orange
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

CONCLUSION:

Test	ID	Results	Notation
ANSI/BIFMA 5.1-2011 #6 Back Strength	White	Compliant	No loss of serviceability.
	Yellow	Compliant	No loss of serviceability.
	Orange	Compliant	No loss of serviceability.

Test	ID	Results	Notation
ANSI/BIFMA 5.1-2011 #8 Drop Test - Dynamic	White	Compliant	No loss of serviceability.
	Yellow	Compliant	No loss of serviceability.
	Orange	Compliant	No loss of serviceability.

Test	ID	Results	Notation
ANSI/BIFMA 5.1-2011 #11 Seating Durability	White	Compliant	No loss of serviceability.
	Yellow	Compliant	No loss of serviceability.
	Orange	Compliant	No loss of serviceability.

Test	ID	Results	Notation
ANSI/BIFMA 5.1-2011 #12 Stability Test	White	Compliant	No loss of serviceability.
	Yellow	Compliant	No loss of serviceability.
	Orange	Compliant	No loss of serviceability.

Test	ID	Results	Notation
ANSI/BIFMA 5.1-2011 #16 Back Strength Test	White	Compliant	No loss of serviceability.
	Yellow	Compliant	No loss of serviceability.
	Orange	Compliant	No loss of serviceability.

Test	ID	Results	Notation
ANSI/BIFMA 5.1-2011 #18 Leg Strength Test	White	Compliant	No loss of serviceability.
	Yellow	Compliant	No loss of serviceability.
	Orange	Compliant	No loss of serviceability.

TEST EQUIPMENT:

Asset	Description	Cal Date	Cal Due
138272	LOAD CELL 0-1,000 #	08/31/2011	08/31/2012
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
138228	STOPWATCH	1/4/2012	1/04/2013
138170	FRONT STABILITY WEIGHT	04/14/2008	VBU
138012	SCALE / 0-1,000 #	12/14/2011	12/14/2012
138170	FRONT STABILITY WEIGHT	04/14/2008	VBU
138148	DIGITAL PROTRACTOR	09/22/2011	09/22/2012
138279	FORCE GAGE; DIGITAL 100LB	03/30/2012	03/30/2013

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

Date Tested: 8/21/2012
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: Three (3)

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	Notation
White	150	Compliant	No loss of serviceability.
	250	Compliant	No loss of serviceability.
Yellow	150	Compliant	No loss of serviceability.
	250	Compliant	No loss of serviceability.
Orange	150	Compliant	No loss of serviceability.
	250	Compliant	No loss of serviceability.

Refer to the following pages for photographs.



BACK STRENGTH PROCEDURE – STATIC – SAMPLE – WHITE



BACK STRENGTH PROCEDURE – STATIC – SAMPLE – YELLOW



BACK STRENGTH PROCEDURE – STATIC – SAMPLE – ORANGE

8. DROP TEST – DYNAMIC:

Date Tested: 8/21/2012
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: Three (3)

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	Notation
White	225	Compliant	No loss of serviceability.
	300	Compliant	No loss of serviceability.
Yellow	225	Compliant	No loss of serviceability.
	300	Compliant	No loss of serviceability.
Orange	225	Compliant	No loss of serviceability.
	300	Compliant	No loss of serviceability.



DROP TEST – DYNAMIC- SAMPLE – WHITE



DROP TEST – DYNAMIC- SAMPLE – YELLOW



DROP TEST – DYNAMIC- SAMPLE – ORANGE

11. SEATING IMPACT TEST

Date Tested: 8/13/2012 – 8/21/2012
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: Three (3)

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	Notation
White	100,000	Compliant	No loss of serviceability.
Yellow	100,000	Compliant	No loss of serviceability.
Orange	100,000	Compliant	No loss of serviceability.

Section 11.4

ID	Cycles	Results	Notation
White	20,000 Each Corner	Compliant	No loss of serviceability.
Yellow	20,000 Each Corner	Compliant	No loss of serviceability.
Orange	20,000 Each Corner	Compliant	No loss of serviceability.

Refer to the following pages for photographs.



SEATING IMPACT TEST – SAMPLE - WHITE



LOAD EASE TEST – SAMPLE - WHITE



SEATING IMPACT TEST – SAMPLE - YELLOW



LOAD EASE TEST – SAMPLE - YELLOW



SEATING IMPACT TEST – SAMPLE - ORANGE



LOAD EASE TEST – SAMPLE - ORANGE

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

Date Tested: 8/7/2012
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 18-3/8"

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: Three (3)

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
White	13.4lbf. to tip	52.6 lbf. to tip	Compliant
Yellow	14lbf. to tip	52.9 lbf. to tip	Compliant
Orange	13.8 lbf. to tip	51.7lbf. to tip	Compliant

Refer to the following pages for photographs.



Stability Test – Rear- Sample – White



Stability Test – Front - Sample – White



Stability Test – Rear- Sample – Yellow



Stability Test – Front – Sample – Yellow



Stability Test – Rear- Sample – Orange



Stability Test – Front – Sample – Orange

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

Dates Tested: 8/7/2012 – 8/13/2012
Condition of Test Sample: New

Test Procedure:

Test Method: ANSI/BIFMA X5.1-2011; Test No. 16
Backrest Width: 12"
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: Three (3)

Acceptance Criteria:

No structural breakage or loss of serviceability.

Results:

Color	Pull Location	Cycles	Results
White	Center Pull	120,000	No loss of serviceability.
Yellow	Center Pull	120,000	No loss of serviceability.
Orange	Center Pull	120,000	No loss of serviceability.

Refer to the following pages for photographs.



BACK DURABILITY TEST-CYCLIC – SAMPLE – WHITE



BACK DURABILITY TEST-CYCLIC – SAMPLE – YELLOW



BACK DURABILITY TEST-CYCLIC – SAMPLE – ORANGE

18. LEG STRENGTH TEST - FRONT & SIDE APPLICATION:

Date Tested: 8/21/2012
 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: Three (3)

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	Notation
White	Side to Side (Rear Side)	75 lbf.	113 lbf	Pass	No loss of serviceability.
	Side to Side (Front Side)	75 lbf.	113 lbf	Pass	No loss of serviceability.
	Front to Rear (Left Side)	75 lbf.	113 lbf	Pass	No loss of serviceability.
	Front to Rear (Right Side)	75 lbf.	113 lbf	Pass	No loss of serviceability.
Yellow	Side to Side (Rear Side)	75 lbf.	113 lbf	Pass	No loss of serviceability.
	Side to Side (Front Side)	75 lbf.	113 lbf	Pass	No loss of serviceability.
	Front to Rear (Left Side)	75 lbf.	113 lbf	Pass	No loss of serviceability.
	Front to Rear (Right Side)	75 lbf.	113 lbf	Pass	No loss of serviceability.
Orange	Side to Side (Rear Side)	75 lbf.	113 lbf	Pass	No loss of serviceability.
	Side to Side (Front Side)	75 lbf.	113 lbf	Pass	No loss of serviceability.
	Front to Rear (Left Side)	75 lbf.	113 lbf	Pass	No loss of serviceability.
	Front to Rear (Right Side)	75 lbf.	113 lbf	Pass	No loss of serviceability.

Refer to the following pages for photographs.



LEG STRENGTH TEST - FRONT APPLICATION – SAMPLE- WHITE



LEG STRENGTH TEST - FRONT APPLICATION – SAMPLE- YELLOW



LEG STRENGTH TEST - FRONT APPLICATION – SAMPLE- ORANGE



4700 Broadmoor SE, Suite 200
Kentwood, MI 49512

Telephone: 616-656-7401
Facsimile: 616-656-2022
www.intertek-etlsemko.com

Emeco
Date: August 15, 2012
P. O. No.: NA

Project No.: 100834921GRR-001A
Page 1 of 15

Test Report For:

EMECO

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

BROOM CHAIR

**Lynwood Pearson
Project Manager**

**Bryan Stratton
Reviewer**

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.



Emeco
Date: August 15, 2012
P. O. No.: NA

Project No.: 100834921GRR-001A
Page 2 of 15

Attention: Magnus Breitling
Emeco
805 Elm Avenue
Hanover, PA 17731
Phone: (717) 637-5951 ext. x4
Fax: (717) 633-6018
Email: magnus@emeco.net

DATE RECEIVED: 7/25/2012
DATES TESTED: 7/26/2012 – 8/15/2012

DESCRIPTION OF SAMPLES:

Part Description: Broom Chair - 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

CONCLUSION:

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

TEST EQUIPMENT:

Asset	Description	Cal Date	Cal Due
138272	LOAD CELL 0-1,000 #	08/31/2011	08/31/2012
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
138228	STOPWATCH	1/4/2012	1/04/2013
138170	FRONT STABILITY WEIGHT	04/14/2008	VBU
138012	SCALE / 0-1,000 #	12/14/2011	12/14/2012
138170	FRONT STABILITY WEIGHT	04/14/2008	VBU
138148	DIGITAL PROTRACTOR	09/22/2011	09/22/2012
138279	FORCE GAGE; DIGITAL 100LB	03/30/2012	03/30/2013

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

Date Tested: 8/6/2012
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:

ID	Static Load	Results	Notation
Green	150	Compliant	No loss of serviceability.
	250	Compliant	No loss of serviceability.

Refer to the following pages for photographs.



BACK STRENGTH PROCEDURE – STATIC – SAMPLE – Green

8. DROP TEST – DYNAMIC:

Date Tested: 8/6/2012
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:

ID	Static Load	Results	Notation
Green	225	Compliant	No loss of serviceability.
	300	Compliant	No loss of serviceability.



DROP TEST – DYNAMIC- SAMPLE – GREEN

11. SEATING IMPACT TEST

Date Tested: 7/26/2012 – 7/31/2012
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: 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

ID	Cycles	Results	Notation
Green	100,000	Compliant	No loss of serviceability.

Section 11.4

ID	Cycles	Results	Notation
Green	20,000 Each Corner	Compliant	No loss of serviceability.

Refer to the following pages for photographs.



Seating Impact Test- Sample- Green



Load Ease Test – Sample- Green

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

Date Tested: 8/6/2012
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 18-3/8"

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:

Color	Front Stability	Rear Stability	Results
Green	15.4 lbf. to tip	54.1lbf. to tip	Compliant

Refer to the following pages for photographs.



Stability Test – Rear- Sample – Green



Stability Test – Front – Sample – Green

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

Dates Tested: 7/31/2012 – 8/6/2012
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: One (1)

Acceptance Criteria:

No structural breakage or loss of serviceability.

Results:

Color	Pull Location	Cycles	Results
Green	Center Pull	120,000	No loss of serviceability.

Refer to the following pages for photographs.



BACK DURABILITY TEST-CYCLIC – SAMPLE – GREEN

18. LEG STRENGTH TEST - FRONT & SIDE APPLICATION:

Date Tested: 8/6/2012 – 8/15/2012
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:

Color	Load Application	Functional	Proof	Results	Notation
Green	Side to Side (Rear Side)	75 lbf.	113 lbf	Pass	No loss of serviceability.
	Side to Side (Front Side)	75 lbf.	113 lbf	Pass	No loss of serviceability.
	Front to Rear (Left Side)	75 lbf.	113 lbf	Pass	No loss of serviceability.
	Front to Rear (Right Side)	75 lbf.	113 lbf	Pass	No loss of serviceability.

Refer to the following pages for photographs.



LEG STRENGTH TEST - FRONT APPLICATION – SAMPLE- GREEN