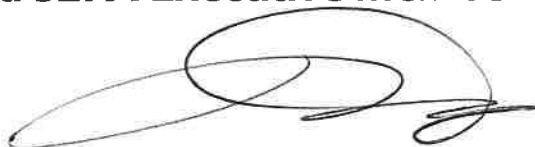


Scientific Equipment & Furniture Association
July 1, 2016—June 30, 2017
Certificate of Membership

DAVID J. SUTTON, Executive Director and General Counsel of the Scientific Equipment and Furniture Association, hereby certifies that:

ICI Scientific
(CampbellRhea - Jamestown Metal Prod. Divs.)
1865 Highway 641 North, Paris, TN 38242

is a **SEFA** Executive Member in good standing.


David J. Sutton, CAE, JD

Dated: July 27, 2016



MEMBER
since 1999

WWW.SEFALABS.COM

CERTIFICATE

for

INSTITUTIONAL CASEWORK, INC./CAMPBELLRHEA

1865 Highway 641 N.

Paris, Tennessee 38242

CERTIFICATE SCOPE

Certificate Type: *Single Chain of Custody and Controlled Wood*

Standard(s): *FSC-STD-40-004 V2-1; FSC-STD-40-005 V2-1*

Product Group(s): *Casework*

Valid from *April 18, 2016 to April 17, 2021*

Certificate Registration Code: *RA-COC-001156, RA-CW-001156*

FSC® License Code: *FSC-CC016935*

Certificate Issue Number: *IN-2016-1*

Additional details regarding the scope, including a full list of products and species are available at info.fsc.org.



Jon Jickling, Director, Certification

Rainforest Alliance
233 Broadway, 28th Floor
New York, NY 10279 USA

Rainforest Alliance is an FSC accredited certifier FSC® A000520

The validity of this certificate shall be verified on info.fsc.org. This certificate does not constitute evidence that a particular product supplied by the certificate holder is FSC certified and/or FSC Controlled Wood. Products offered, shipped or sold by the certificate holder can only be considered covered by the scope of this certificate when the required FSC claim is clearly stated on invoices and shipping documents.

This certificate is the property of Rainforest Alliance. This certificate and all copies or reproductions of this certificate shall be returned or destroyed if requested by Rainforest Alliance.



The mark of
responsible forestry



IVC INDUSTRIAL COATINGS, INC.
Date: August 28, 2014
P.O. No.: #073557-OJT-PO

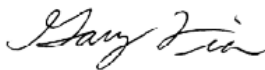
Report No.: 101777362GRR-001
Reference No.: 14-500545026
Page 1 of 9

Test Report For:

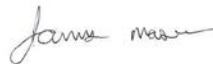
IVC INDUSTRIAL COATINGS, INC.

**10725/10750R Sealer/Topcoat; Gloss: NA;
S.O. # 46764, 8/4/14**

SEFA 8 W-2010: 8.1 Chemical Spot



Gary Liu
Project Engineer



Jim Mason
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.



IVC INDUSTRIAL COATINGS, INC.
Date: August 28, 2014
P.O. No.: #073557-OJT-PO

Report No.: 101777362GRR-001
Reference No.: 14-500545026
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Attention: Tim Ledford
IVC INDUSTRIAL COATING, INC.
1825 East National Ave
Brazil, IN 47834
Phone: 317-636-4407
E-Mail: tledford@teamivc.com

DATE RECEIVED: 08/06/14
DATES TESTED: 08/14/14 – 08/15/14

DESCRIPTION OF SAMPLES:

Part Description: 10725/10750R Sealer/Topcoat; Gloss: NA; S.O. # 46764,
8/4/14
Material Submitted: Two (2) of 14" x 24" x 0.75" Wood Laminate
Material Specification: SEFA 8-W-2010
Condition of Test Sample: Production

WORK REQUESTED / APPLICABLE DOCUMENTS:

Chemical Spot Test:	SEFA 8-W-2010, Section 8.1
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Conclusions:

Chemical Spot Test:	Conforming*
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* Suitability for a given application is dependent upon the chemicals used in a given laboratory.

Disposition of Test Specimens/Samples:

Test samples were returned to IVC INDUSTRIAL COATING, INC.

CHEMICAL SPOT TEST PROCEDURE:

Date Received: 08/06/14
Dates Tested: 08/14/14-08/15/14

Description of Samples:

Part Description: 10725/10750R Sealer/Topcoat; Gloss: NA; S.O. # 46764, 8/4/14
Material Submitted: Two (2) of 14" x 24" x 0.75" Wood Laminate
Material Specification: SEFA 8-W-2010
Condition of Test Sample: Production

Test Procedure:

Test Method: SEFA 8-W-2010, Sec 8.1
The received sample to be tested for chemical resistance as described herein: Place panel on flat surface, clean with soap (Liqui-Nox at 5% concentration) and water and blot dry. Condition the panel for 48-hours at 73±3°F (23±2°C) and 50 ± 5% relative humidity. Test the panel for chemical resistance using forty-nine (49) different chemical reagents by the following methods.

Method A: Test volatile chemicals by placing a cotton ball saturated with reagent in the mouth of a 1-oz. (29.574cc) bottle and inverting the bottle on the surface of the panel. The cotton ball shall remain in contact with the sample for duration of the test.

Method B: Test non-volatile chemicals by placing five drops of the reagent on the surface of the panel and covering with a 24 mm watch glass, concave side down.

For both of the above methods, leave the reagents on the panel for a period of one hour. Wash off the panel with water, clean with detergent (Liqui-Nox at 5% concentration) and naphtha, and rinse with deionized water. Dry with a towel and evaluate after 24 hours at 73±3°F (23±2°C) and 50 ± 5% relative humidity using the following rating system.

Rating Scale:	Level 0	No detectable change.
	Level 1	Slight change in color or gloss.
	Level 2	Slight surface etching or severe staining.
	Level 3	Pitting, cratering, swelling, or erosion of coating. Obvious and significant deterioration.

Side: "A" side - opposite of the label
Number of Samples Tested: Two (2)

Acceptance Criteria:

The range of results is provided to establish the acceptable range for Laboratory Grade Finish. Results will vary from manufacturer to manufacturer. Laboratory grade finishes should result in no more than four Level 3 conditions. Suitability for a given application is dependent upon the chemicals used in a given laboratory.

Results:

Volatile Chemicals					
Test No.	Chemical	Method	Range	Rating	Comments
1	Acetate, Amyl	A	0-1	0	
2	Acetate, Ethyl	A	0-1	0	
4	Acetone	A	0	0	
6	Alcohol, Butyl	A	0-1	0	
7	Alcohol, Ethyl	A	0	0	
8	Alcohol, Methyl	A	0-1	1	Slight Gloss Change
10	Benzene	A	0-1	0	
11	Carbon Tetrachloride	A	0-1	0	
12	Chloroform	A	0	0	
14	Cresol	A	0-2	2	Slight surface etching
15	Dichloroacetic Acid	A	0-3	2	Slight surface etching
16	Dimethylformamide	A	0-2	1	Slight gloss change
17	Dioxane	A	0-1	0	
18	Ethyl Ether	A	0-1	0	
19	Formaldehyde, 37%	A	0	0	
21	Furfural	A	0-1	1	Slight color change
22	Gasoline	A	0	0	
27	Methyl Ethyl Ketone	A	0	0	
28	Methylene Chloride	A	0-1	0	
29	Mono Chlorobenzene	A	0-1	0	
30	Naphthalene	A	0	0	
34	Phenol, 90%	A	0-2	2	Slight surface etching
46	Toluene	A	0	0	
47	Trichloroethylene	A	0	0	
48	Xylene	A	0	0	

Non-volatile Chemicals					
Test No.	Chemical	Method	Range	Rating	Comments
3	Acetic Acid, 98%	B	0-1	0	
5	Acid Dichromate, 5%	B	0-1	1	Slight color change
9	Ammonium Hydroxide, 28%	B	0-2	2	Staining
13	Chromic Acid, 60%	B	0-1	1	Slight gloss change
20	Formic Acid, 90%	B	0-1	1	Slight gloss change
23	Hydrochloric Acid, 37%	B	0-2	2	Slight surface etching
24	Hydrofluoric Acid, 48%	B	0-2	1	Color change
25	Hydrogen Peroxide, 30%	B	0-1	0	
26	Iodine, Tincture of	B	0-2	2	Staining
31	Nitric Acid, 20%	B	0	1	Slight gloss change
32	Nitric Acid, 30%	B	0-2	1	Slight gloss change
33	Nitric Acid, 70%	B	2-3	3	Erosion of coating
35	Phosphoric Acid, 85%	B	0-1	1	Slight gloss change
36	Silver Nitrate, Saturated	B	0-1	1	Slight gloss/color change
37	Sodium Hydroxide, 10%	B	0-2	0	
38	Sodium Hydroxide, 20%	B	0-2	0	
39	Sodium Hydroxide, 40%	B	0-2	0	
40	Sodium Hydroxide, Flake	B	0	0	
41	Sodium Sulfide, Saturated	B	0	0	
42	Sulfuric Acid, 33%	B	0-1	1	Slight gloss change
43	Sulfuric Acid 77%	B	0-1	3	Erosion of coating
44	Sulfuric Acid, 96%	B	1-3	3	Erosion of coating/pitting
45	Sulfuric Acid, (77%) and Nitric Acid (70%), equal parts	B	1-3	3	Erosion of coating
49	Zinc Chloride, Saturated	B	0	0	

IVC INDUSTRIAL COATINGS, INC.
Date: August 28, 2014
P.O. No.: #073557-OJT-PO

Report No.: 101777362GRR-001
Reference No.: 14-500545026
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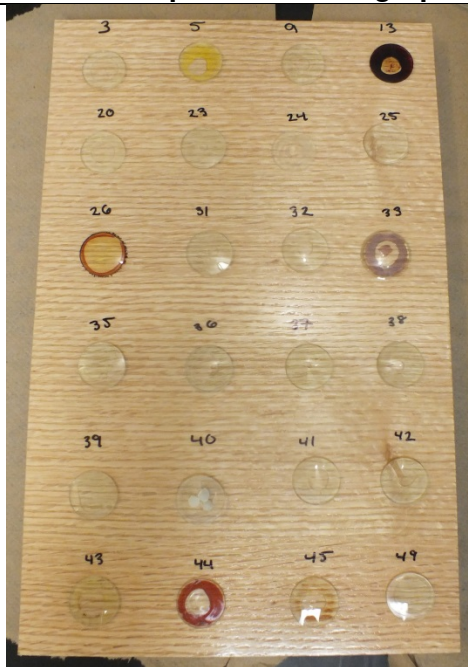
Totals			
Items	Requirement	No. Reagent with 3 Ratings	Disposition
Volatile Subtotal:	-	0	---
Non-volatile Subtotal:	-	4	---
Grand Totals:	No More than Four Level 3 Conditions	4	Conforming*

* Suitability for a given application is dependent upon the chemicals used in a given laboratory.

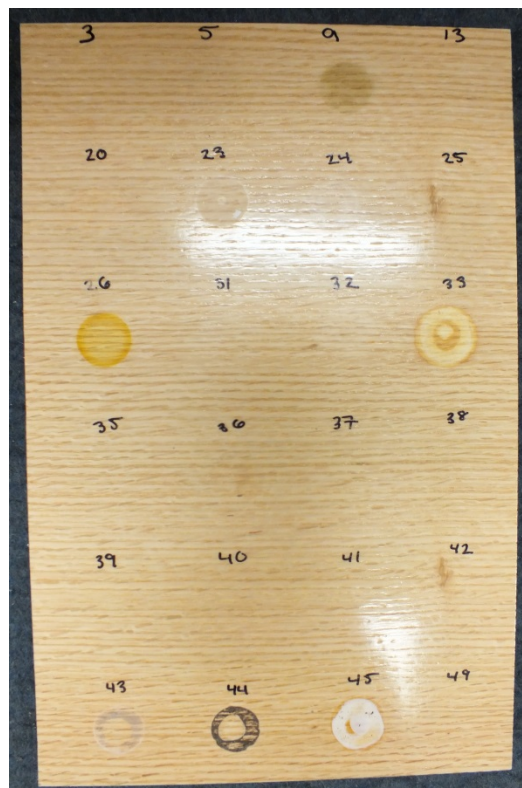
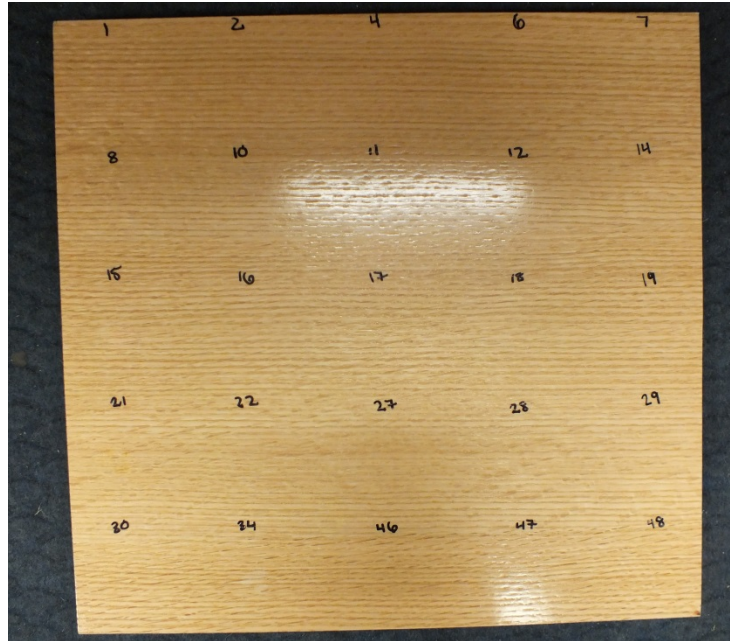
Disposition of Test Specimens/Samples:

Test samples were returned to IVC INDUSTRIAL COATING, INC.

Chemical Spot Test Photographs



Set-up



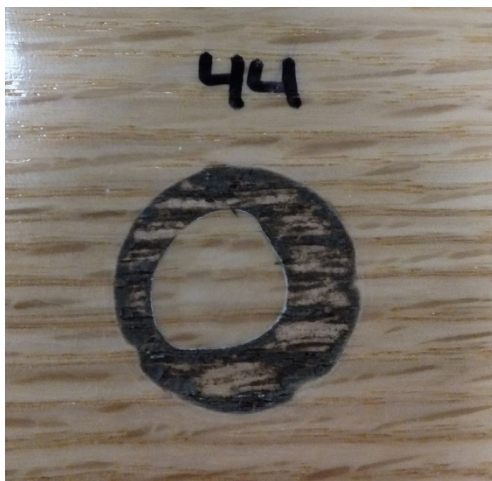
After Exposure



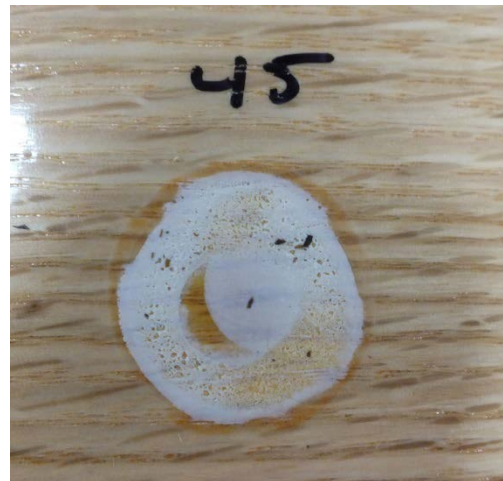
33, Nitric Acid, 70%, Erosion of coating



43, Sulfuric Acid 77%, Erosion of coating/pitting



44, Sulfuric Acid, 96%,



45, Sulfuric Acid, (77%) and Nitric Acid (70%),
equal parts, Erosion of coating

Failures

Universal Laboratory, Inc.

(972) 272-7337
Fax (972) 272-7790

1726 Commerce St
Garland, Texas 75040-6710

TEST REPORT

Date: 10-15-08

For: DURCON, INC.
206 Allison Drive
Taylor, TX 76574

Test No.: 36763-A
Page 1 of 3
P.O. 015689
Requested By:
Adrian Ahmad

Background: Durcon submitted one 24"x 24" Graphite Slab for testing to SEFA, Paragraph 8.1. Samples received from customer supplied carrier on 10-14-08 in good condition. The following information is being provided.
Order Entry Log Date: 10-14-08 Log # 947730

Test Methods: SEFA 8, Paragraph 8.1 Chemical Spot Test

Procedure: Chemical Spot Check Test SEFA 8.1-1998, Method A & B
Test Method A: Volatile chemicals tested by placing a saturated cotton ball with the reagent in the mouth of a 1-oz. bottle and inverting the bottle on the surface of the panel.
Test Method B: Five drops of non-volatile chemicals of each reagent placed on sample, covered with watch glass, convex side down. Each Chemical was left for twenty-four hours, then washed off with water, cleaned with detergent and naphtha and rinsed with deionized water, dried and evaluated after 24 hours at $73 \pm 3^{\circ}\text{F}$ and $50 \pm 5\%$ relative humidity.

RATING SCALE: Level 0 - No Detectable Change
 Level 1 - Slight Change in Color or Gloss
 Level 2 - Slight Surface Etching or Severe Staining
 Level 3 - Pitting, Cratering, Swelling, Erosion of Coating.
 Obvious & Significant Deterioration.

Test Results: The test results are provided in the attached data report

Note: "We certify that all portions of each test performed were under continuous, direct supervision of this Laboratory."


Charles Stanley, Director

Universal Laboratory, Inc.

(972) 272-7337
Fax (972) 272-7790

1726 Commerce St
Garland, Texas 75040-6710

TEST REPORT

Date: 10-15-08

Test No.: 36763-A

For: DURCON, INC.

Page 2 of 3

P.O. 015689

Test Results: SAMPLE ID: GRAPHITE SLAB 24" X 24"

Chemical Spot Tests:

<u>#</u>	<u>CHEMICALS</u>	<u>Test Method</u>	<u>Time In Hours</u>	<u>Rating Scale</u>
1	Amyl Acetone	A	24	Level 1
2	Ethyl Acetate	A	24	Level 0
3	Acetic Acid 98%	B	24	Level 1
4	Acetone	A	24	Level 0
5	Acid Dichromate 5%	B	24	Level 1
6	Butyl Alcohol	A	24	Level 1
7	Ethyl Alcohol	A	24	Level 0
8	Methyl Alcohol	A	24	Level 0
9	Ammonium Hydroxide, 28%	B	24	Level 1
10	Benzene	A	24	Level 0
11	Carbon Tetrachloride	A	24	Level 2
12	Chloroform	A	24	Level 2
13	Chromic Acid 60%	B	24	Level 0
14	Cresol	A	24	Level 1
15	Dichlor Acetic Acid	A	24	Level 0
16	Dimethylformamide	A	24	Level 0
17	Dioxane	A	24	Level 1
18	Ethyl Ether	A	24	Level 0
19	Formaldehyde 37%	A	24	Level 0
20	Formic Acid 90%	B	24	Level 1
21	Furfural	A	24	Level 0
22	Gasoline	A	24	Level 0
23	Hydrochloric Acid, 37%	B	24	Level 0
24	Hydrofluoric Acid 48%	B	24	Level 3
25	Hydrogen Peroxide 28%	B	24	Level 0
26	Tincture of Iodine	B	24	Level 0
27	Methyl Ethyl Ketone	A	24	Level 3
28	Methylene Chloride	A	24	Level 0
29	Mono Chlorobenzene	A	24	Level 0
30	Napthalene	A	24	Level 0
31	Nitric Acid, 20%	B	24	Level 1
32	Nitric Acid, 30%	B	24	Level 1

Universal Laboratory, Inc.

(972) 272-7337
Fax (972) 272-7790

1726 Commerce St
Garland, Texas 75040-6710

TEST REPORT

Date: 10-15-08

Test No.: 36763-A

For: DURCON, INC.

Page 3 of 3

P.O. 015689

Test Results Continued: Sample ID: GRAPHITE SLAB 24" X 24"

<u>#</u>	<u>CHEMICALS</u>	<u>Test Method</u>	<u>Time In Hours</u>	<u>Rating Scale</u>
33	Nitric Acid, 70%	B	24	Level 1
34	Phenol 90%	A	24	Level 0
35	Phosphoric Acid, 85%	B	24	Level 1
36	Silver Nitrate, Saturated	B	24	Level 1
37	Sodium Hydroxide, 10%	B	24	Level 1
38	Sodium Hydroxide, 20%	B	24	Level 1
39	Sodium Hydroxide, 40%	B	24	Level 1
40	Sodium Hydroxide, Flake	B	24	Level 1
41	Sodium Sulfide, Saturated	B	24	Level 0
42	Sulfuric Acid, 25%	B	24	Level 3
43	Sulfuric Acid, 85%	B	24	Level 3
44	Sulfuric Acid, 96%	B	24	Level 3
45	Sulfuric Acid 85%, and Nitric Acid 70%, equal parts	B	24	Level 2
46	Toluene	A	24	Level 1
47	Trichlorethylene	A	24	Level 0
48	Xylene	A	24	Level 1
49	Zinc Chloride, Saturated	B	24	Level 0

LABORATORY FURNITURE CERTIFICATE OF PERFORMANCE

To SEFA 8 SPECIFICATIONS



Jamestown Metal Products _____ Certifies that its laboratory furniture identified
(Manufacturing Company)
as **Base Cabinet P105-48FX (48" wide, X 35" tall X 21-3/4" Deep)** has been tested in conformance
(Test Unit)
with the full requirements of the SEFA-8-M Recommended Practice with results noted below.

TEST	TEST RESULTS PASS/FAIL	TEST	TEST RESULTS PASS/ FAIL	TEST	TEST RESULTS PASS/ FAIL
4.2	PASS	6.2	PASS	9.1	PASS
4.3	PASS	6.3	PASS	10.1	Test Not Conducted
4.4	PASS	6.4	PASS	10.2	Test Not Conducted
4.5	N.A.	6.5	Full Extension	10.3	Test Not Conducted
5.1	PASS	6.5	2/3 Extension N.A.	10.4	Test Not Conducted
5.2	PASS	7.2	N.A.	10.5	Test Not Conducted
5.3	PASS	8.2	N.A.		
6.1	PASS	8.3	N.A.		

Full documentation of the test results is available upon request in a bound report that includes a detailed description of the test unit and procedures, witnessed results, and appropriate drawings or photographs of the test unit and procedures.

TESTING COMPANY INFORMATION	TEST SUPERVISOR INFORMATION
Name: Bjorksten I bit 7	Name: Raymond J. Robey
Address: 7 Fen Oak	Title: Director Research Development, Testing
Madison, WI 53718	Signature: 
Telephone: 608-271-6900	COMPANY OFFICER INFORMATION
Fax: 608-224-0455	Name: Raymond J. Robey
	Title: Director Research Development, Testing
Date: May 29, 2009	Signature: 

May 29, 2009

SEFA-8-M-2007 TESTS

Performed For:

**Jamestown Metal Products
178 Blackstone Avenue
Jamestown, NY 14701**

4.0 Base Cabinets

4.1 Description of Test Cabinet:

Part No. **P105-48FX** (48" wide, X 35" tall X 21-3/4" Deep) Base Cabinet was leveled and the drawers, doors, hinges, latches, etc. were inspected and all were operating properly.

4.2 Cabinet Load Test

4.2.1 Purpose of Test

The cabinet load test challenges the structural integrity and the load bearing capability of the cabinet construction. The test demonstrates the ability of the cabinet to support heavy loads, but is not intended to test the functional characteristics of the cabinet under heavy loads.

4.2.2 Test Procedure

The cabinet top was loaded using 2,000 pounds (907.2 Kg) of solid steel bars* stacked five high, in eight equally spaced rows (Figure 1). After 10 minutes, the bars were removed from the cabinet. * Square solid steel bar, 2-1/2" X 2-1/2" X 28-1/4" (63.5 mm X 63.5 mm x 717.55 mm) weighing 50 lbs. (22.68 Kg).

4.2.3 Acceptance Level

There are no signs of permanent damage.

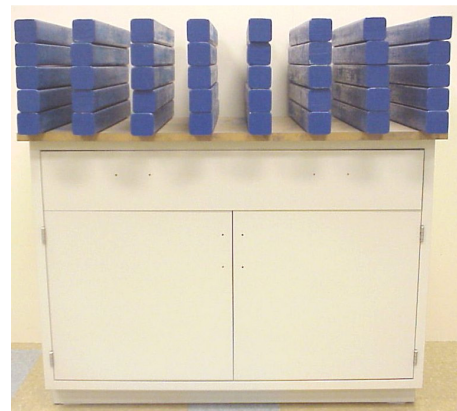


Figure 1

4.3 Cabinet Concentrated Load Test

4.3.1 Purpose of Test

The purpose of the test is to challenge the functional characteristics of the cabinet when subjected to a concentrated load on the center of the cabinet top.

4.3.2 Test Procedure

Four, 50 pound (22.68 Kg) solid steel bars (200 pounds, 90.7 Kg total) were placed on top of the cabinet, along the cabinet centerline (Figure 2). With the weight in place, the drawers and doors were operated and inspected.

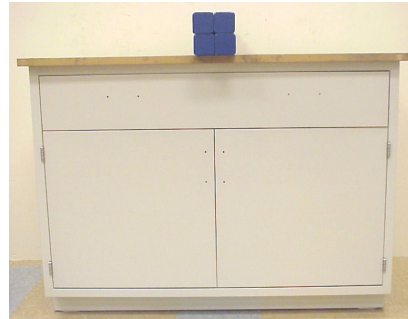


Figure 2

4.3.3 Acceptance Level

Doors and drawers operated normally. There is no permanent distortion to the front rail, cabinet joinery, doors, or drawers.

4.4 Cabinet Torsion

4.4.1 Purpose of Test

The test evaluates the structural integrity of the cabinet construction when subjected to torsional load.

4.4.2 Test Procedure

The cabinet was supported on three, 3-1/2" X 3-1/2" X 4" high (88.9 mm X 88.9 mm X 101.6 mm) hardwood blocks, located under the two rear corners and one front corner (not more than 6" (152.4 mm) in from each support corner). The cabinet was secured, diagonally, from the unsupported corner with seven, 50 pound (22.68 Kg), solid steel bars (to prevent overturning). Four, 50 pound (22.68 Kg), solid steel bars (200 pounds, 90.7 Kg total) were placed on the unsupported corner of the cabinet and left in position for 15 minutes (Figure 3). The weights were then removed and the cabinet was placed on the floor in its normal, upright, position. The cabinet joinery was inspected and the cabinet was leveled and measured, diagonally, between the corners of the face and the back of the cabinet (Table 1).



Figure 3

Table 1
Diagonal Measurements of Cabinet

Location	#1	#2	Difference
Front	57	57	0
“	57	57	0
Back	59-1/2	59-1/2	0
“	59-1/2	59-1/2	0

4.4.3 Acceptance Level

When returned to normal position, the operation of the cabinet was normal and there was no evidence of permanent damage. The difference between the diagonal measurements does not exceed 1/8" (3.175 mm) front or back.

5.0 Doors

5.1 Door Hinge Test

5.1.1 Purpose of Test

The test demonstrates the durability of the door and its hardware (hinge leaf, screws, etc.) to an applied load of 200 pounds (90.72 Kg).

5.1.2 Test Procedure

The shelf was removed and weight was placed on top of the cabinet to prevent it from overturning. A cabinet door was opened 90° and a sling with four 50 pound (22.68 Kg) weights (200 pounds, 90.72 Kg total) was hung over the top of the door, at a point 12" (394.8 mm) out from the hinge centerline. The door was then slowly moved through the full cycle of the hinge (up to a 160° arc) (Figure 4). The weight was then removed, the door was swung through its full intended range of motion, and closed. The procedure was then repeated on the other door.



Figure 4

5.1.3 Acceptance Level.

There was no significant permanent distortion and the doors operated normally and latched properly after the weight was removed.

5.2 Door Impact Test

5.2.1 Purpose of Test

The test demonstrates the resistance to a 240 inch-pound (27.1 N-m) impact to the door face.

5.2.2 Test Procedure

Six, 50 pound (22.68 Kg) solid steel bars (400 Pounds, 181.44 Kg total) were placed on top of the cabinet (to prevent overturning). A 20 pound (9.07 Kg) sand bag was then suspended (from a pendulum support) and dropped providing an impact of 240 inch-pounds (27.1 N-m) at the center of a closed door (Figure 5).

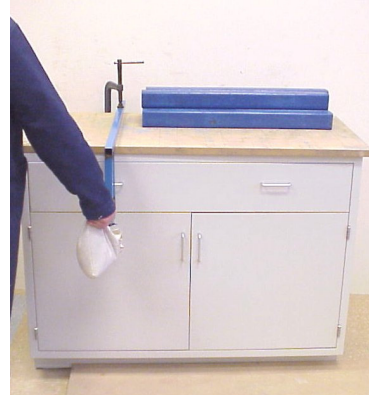


Figure 5

5.3 Acceptance Level

Door and catch operate normally and show no sign of permanent damage.

5.3 Door Cycle Test

5.3.1 Purpose of Test

The test demonstrates the ability of the door hinge hardware to withstand 100,000 cycles as a reliable measure of longevity.

5.3.2 Test Procedure

A cycling mechanism*, that swings a door through an arc of 90°, was operated for 100,000 cycles (at a speed of less than 15 cycles per minute) (Figure 6).

* The test was performed in conformance with ANSI test procedure A156.9, Grade 1, requirements for cycle testing of doors.



Figure 6

5.3.3 Acceptance Level

The door operated for the full 100,000 cycles without deterioration that significantly affected the function of the door. After completion of the test, the door operates freely and without binding.

6.0 Drawers

6.1 Drawer Static Load Test

6.1.1 Purpose of Test

The test demonstrates the ability to support a point load given to the front of the drawer and will challenge the drawer suspension system and the attachment of the drawer head to the drawer.

6.1.2 Test Procedure

Eight, 50 pound (22.68 Kg) solid steel bars (400 Pounds, 181.6 Kg total) were placed on top of the cabinet (to prevent over-turning). A drawer was opened to 13" (330.2 mm) of travel and 150 pounds (68.04 Kg) was hung from the drawer head, at the centerline of the drawer, for 5 minutes (Figure 7). The weight was then removed and the drawer was operated through the full cycle.

6.1.3 Acceptance Level

There was no interference with the normal operation of the drawer and the drawer head remained tightly fastened to the drawer.



Figure 7

6.2 Drawer and Door Pull Test

6.2.1 Purpose of Test

The test evaluates the strength of the pull and the pull hardware.

6.2.2 Test Procedure

The pulls were installed in accordance with the manufacturers practice using specified attaching hardware and method. A drawer and a door were blocked closed and a force gauge was used to apply a force of 50 pounds (22.68 Kg) perpendicular to each pull for 15 seconds (Figure 8 and 9). A force gauge was then used to apply a 50 pound (22.68 Kg) downward force to each pull for 15 seconds (Figures 10, and 11).

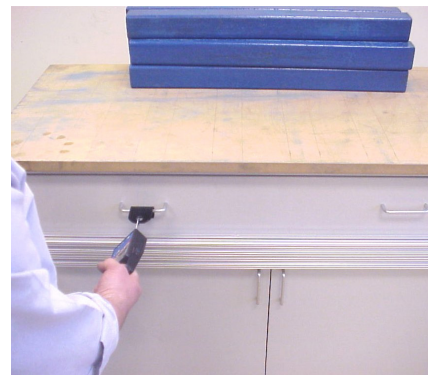


Figure 8



Figure 9



Figure 10



Figure 11

6.2.3 Acceptance Level

Pulls resisted the force and supported the weight and there is no evidence of permanent distortion.

6.3 Drawer Impact Test

6.3.1 Purpose of Test

The test demonstrates the resistance to impact of the drawer bottom and the slide mechanism.

6.3.2 Test Procedure

A drawer was opened to 13" (330.2 mm) of travel and then a 10 pound (4.54 Kg) sand bag was dropped, from a height of 24" (609.6 mm), into the bottom of the drawer, at the centerline of the width of the drawer and 6" (152.4 mm) back from the inside face of the drawer (Figure 12).

6.3.3 Acceptance Level

The drawer was operated through a full cycle and it operated normally. There was no visible deformation of the drawer.



Figure 12

6.4 Drawer Internal Rolling Impact

6.4.1 Purpose of Test

The test evaluates the strength of the drawer head, bottom, and back as a result of opening and closing the drawer with a rolling load.

6.4.2 Test Procedure

The drawer was positioned on a table at a 45° angle and a 2" (50.8 mm) diameter by 12" (304.8 mm) long steel rod, that weighs approximately 10 pounds (4.54 Kg), was positioned 13" (330.2 mm) from the target impact area such that the rod rolled freely to impact the back of the drawer. The back was subjected to three impacts and then the drawer was reversed and the front was subject to three additional impacts (Figure 13).



Figure 13

6.4.3 Acceptance Level

There are no visible signs of permanent damage. The drawer operated normally when returned to the unit.

6.5 Drawer Cycle Test

6.5.1 Purpose of Test

The test is intended to replicate years of operation of a drawer under full load.

6.5.2 Test Procedure

Laboratory Load (100 pounds, 45.36Kg)

A static load of 100 pounds (45.6 Kg) (using ten 10 pound (4.54 Kg) sand bags) was uniformly distributed in a drawer and the force required to activate the drawer was measured (Table 2). The drawer was then opened from a closed position to a position within 1/4" (6.35 mm) of full extension and then closed. The procedure was repeated 50,000 times at a rate that did not exceed 10 cycles per minute (Figure 14).



Figure 14

Table 2

Load in Drawer (lbs)	Initial Force (lbs)	Final Force (lbs)	% change
100	3.5		

6.5.3 Acceptance Level

100 lbs - After the 10,000 cycles were completed, the drawer slides failed and the drawer no longer operated freely. The required 50,000 cycles were not completed.

9.0 Shelving

9.1.1 Purpose of Test

The test demonstrates the ability of a shelf and mounting hardware to support normal laboratory loads.

9.1.2 Test Procedure

The shelf was mounted in the manner in which it was designed and a dial indicator was positioned under the center of the shelf and adjusted to zero. Twenty 10 pound (4.54 Kg) sand bags (200 pounds, 90.72 Kg total) were uniformly distributed on the shelf and the deflection was recorded (Figure 15). The weight was then removed from the shelf.



Figure 15

9.1.3 Acceptance Level

The deflection of the shelf under load = 0.118" (3 mm) which is less than the allowable maximum of 0.25" (6.35 mm). There was no significant permanent distortion of the shelf.

Bjorksten I bit 7

A handwritten signature in black ink, reading "Raymond J. Robey". The signature is written in a cursive style.

Raymond J. Robey
Director Research Development and Testing

May 29, 2009

SEFA-8-M-2007 TESTS

Performed For:

**Jamestown Metal Products
178 Blackstone Avenue
Jamestown, NY 14701**

8.0 Tables

8.1 Description of Test Unit:

Model Number: TBH-6024

8.2 Table Static Load

8.2.1 Purpose of Test

The test challenges the table components to loads that are used in the laboratory.

8.2.2 Test Procedure

A dial indicator was placed under the front apron rail of the table and adjusted to zero. The table was then loaded using 600 pounds (272.16 Kg) of solid steel bars, each weighing 50 pounds (22.68 Kg) (Figure 1). The deflection of the front frame rail was measured with the load in place.

8.2.3 Acceptance Level

There was no indication of structural damage from application of the load. Deflection of the front frame rail = 0.056 (1.422 mm) which is less than the maximum allowed (1/8", 3.175 mm).

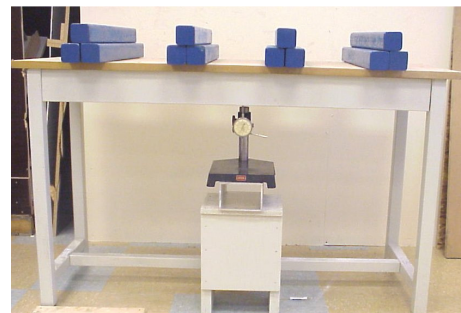


Figure 1

8.3 Table Racking

8.3.1 Purpose of Test

The test demonstrates the structural integrity of the table construction when subjected to racking load.

8.3.2 Test Procedure

A top, with a block on the underside to prevent it from sliding, was placed on the table and the table was positioned at a 45° angle, with one pair of legs on the floor and the other raised and supported (Figure 2). The table remained in that position for 30 minutes. The table was then lowered and the procedure was repeated on the opposite end.

8.3.3 Acceptance Level

When returned to normal position, there was no sign of permanent damage.



Figure 2

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Raymond J. Robey
Director Research Development and Testing

May 29, 2009

SEFA-8-M-2007 TESTS

Performed For:

**Jamestown Metal Products
178 Blackstone Avenue
Jamestown, NY 14701**

7.0 Wall Mounted Cabinets

7.1 Description of Test Cabinet:

Model Number: P203-48 (48" X 30" X 12")

7.2 Load Test

7.2.1 Purpose of Test

The test demonstrates the strength of the back of the wall cabinet.

7.2.2 Test Procedure

Shelf dimensions are 47.5 X 9.5 = 3.13 sq.ft., therefore 13 ten lb. sand bags were used to load the cabinet bottom, the cabinet top, and two shelves, (~40 lb/sq.ft.). A total of 520 pounds, (236.4 Kg) were placed on the wall cabinet (Figure 1). With the weight in place, the doors were operated through their full travel to verify normal operation. The weight was removed and the doors were again operated through their full travel to verify normal operation.

7.2.3 Acceptance Level

The doors opened and closed normally with and without the weight in place. There is no significant permanent deflection or damage to the cabinet, cabinet back, cabinet top, cabinet bottom, or shelf.



Figure 1

9.0 Shelving

9.1 Shelf Load Test

9.1.1 Purpose of Test

Demonstrate the ability of a shelf and its mounting hardware to support normal laboratory loads.

9.1.2 Test Procedure

Shelf dimensions are $47.5 \times 9.5 = 3.13$ sq.ft, therefore 13 ten lb. sand bags were used to load the cabinet shelf, (~40 lb/sq.ft.) (Figure 2). The deflection was measured with a dial indicator.

9.1.3 Acceptance Level

The deflection was 0.244" of an inch which is which is less than the allowable maximum of 0.25". There were no signs of permanent damage to the shelf.



Figure 2

Bjorksten I bit 7

A handwritten signature in black ink that reads "Raymond J. Robey". The signature is written in a cursive, flowing style.

Raymond J. Robey
Director Research Development and Testing

SEFA 8.0 CABINET SURFACE FINISH TESTS

Performed for: Jamestown Metal Products
178 Blackstone Avenue
Jamestown, NY 14701

Item Tested: Painted Metal Panel, 2" x 2" Coupons and 12" x 24" Panel

Reference: Scientific Equipment & Furniture Association (SEFA)
Laboratory Furniture Casework, Shelving and Tables Recommended Practices
SEFA 8 M-2010

Section 10.0 Cabinet Surface Finish Tests

Results:

8.1 Chemical Spot Test
See detailed results on attached form.

Four Level 3 conditions permitted Rating: ☒ Pass ☐ Fail

There are two (2) Level 3 conditions evident

8.2 Hot Water Test Rating: ☒ Pass ☐ Fail

There is no effect due to the hot water (925 ml @ 94°-92° C for 5 min.)

8.3 Impact Test Rating: ☒ Pass ☐ Fail

There are no checks or cracks evident due to impact

8.4 Paint Adhesion on Steel Rating: ☒ Pass ☐ Fail

100% of the grid areas remain intact upon completion of the test.

8.5 Paint Hardness on Steel Rating: ☒ Pass ☐ Fail

The paint finish did withstand the abrasion of a 4H pencil in attempting to penetrate through to the substrate

Tests performed by Dr. Neil M. Ball Title: Environmental Analyst

Neil M. Ball Ph.D. 9-7-11
Signature Date

State of Wisconsin
County of Sheboygan

This document was signed before me on 9/7/11.



Jennifer Benzel Notary Public Expires 4-21-2013

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CHEMICAL RESISTANCE TESTING – 8.1



Scientific Equipment &
Furniture Association

SEFA 8 M-2010

Date of Test: 9-1-11	Sample Description: Painted Metal Panel, 2" x 2" Coupons	Type of Material Coated: CRS, 18 GA	Coating Type: Epoxy Powder
Rating Scale: Level 0 - No Detectable Change Level 1 - Slight Change in Color or Gloss Level 2 – Slight Surface Etching or Severe Staining Level 3- Pitting, Cratering, Swelling, Erosion of Coating, Obvious & Significant Deterioration.			

#	Chemical	Rating	Comments
1	Amyl Acetate	0	
2	Ethyl Acetate	0	
3	Acetic Acid 98%	1	There is a slight change in gloss
4	Acetone	0	
5	Acid Dichromate 5%	0	
6	Butyl Alcohol	0	
7	Ethyl Alcohol	0	
8	Methyl Alcohol	0	
9	Ammonium Hydroxide 28%	0	
10	Benzene	0	
11	Carbon Tetrachloride	0	
12	Chloroform	0	
13	Chromic Acid 60%	2	There is slight surface etching
14	Cresol	1	There is a slight change in gloss
15	Dichloroacetic Acid	2	There is slight surface etching
16	Dimethyl Formamide	1	There is a slight change in gloss
17	Dioxane	1	There is a slight change in gloss
18	Ethyl Ether	0	
19	Formaldehyde 37%	0	
20	Formic Acid 90%	3	There is severe swelling/bubbling of the surface
21	Furfural	2	There is severe staining (brown) of the finish
22	Gasoline	0	
23	Hydrochloric Acid 37%	0	
24	Hydrofluoric Acid 48%	1	There is a slight change in color
25	Hydrogen Peroxide 30%	0	
26	Tincture of Iodine	2	There is severe staining (yellow) of the finish

CHEMICAL RESISTANCE TESTING – 8.1



SEFA 8 M-2010

Date of Test: 9-1-11	Sample Description: Painted Metal Panel, 2" x 2" Coupons	Type of Material Coated: CRS, 18 GA	Coating Type: Epoxy Powder
-------------------------	---	--	-------------------------------

Rating Scale: Level 0 - No Detectable Change
 Level 1 - Slight Change in Color or Gloss
 Level 2 - Slight Surface Etching or Severe Staining
 Level 3- Pitting, Cratering, Swelling, Erosion of Coating, Obvious & Significant Deterioration.

#	Chemical	Rating	Comments
27	Methyl Ethyl Ketone	1	There is a slight change in gloss
28	Methylene Chloride	1	There is a slight change in gloss
29	Monochlorobenzene	0	
30	VM&P Naphtha	0	
31	Nitric Acid 20%	1	There is a slight change in color (pale yellow)
32	Nitric Acid 30%	1	There is a slight change in color (pale yellow)
33	Nitric Acid 70%	3	There is swelling of the finish and a severe stain
34	Phenol 90%	0	
35	Phosphoric Acid 85%	0	
36	Silver Nitrate, Saturated	1	There is a slight change in color (grey)
37	Sodium Hydroxide 10%	0	
38	Sodium Hydroxide 20%	0	
39	Sodium Hydroxide 40%	0	
40	Sodium Hydroxide, Flake	0	
41	Sodium Sulfide, Saturated	0	
42	Sulfuric Acid 33%	0	
43	Sulfuric Acid 77%	0	
44	Sulfuric Acid 96%	0	
45	Sulfuric Acid 77% and Nitric Acid 70%, equal parts	2	There is a severe staining (yellow/red) of the finish
46	Toluene	0	
47	Trichloroethylene	0	
48	Xylene	0	
49	Zinc Chloride, Saturated	0	

Test Performed By: Dr. Neil M. Ball

Date:

LABORATORY FURNITURE CERTIFICATE OF PERFORMANCE

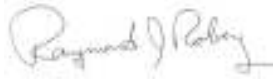
To SEFA 8 – 2010 SPECIFICATIONS



Jamestown Metal Products _____ Certifies that its laboratory furniture identified
(Manufacturing Company)
as **Base Cabinet P105-48FX (48" wide, X 35" tall X 21-3/4" Deep)** has been tested in conformance
(Test Unit)
with the full requirements of the SEFA 4th Edition version 1 2010 Recommended Practice with results noted
below.

TEST	TEST RESULTS PASS/FAIL	TEST	TEST RESULTS PASS/ FAIL	TEST	TEST RESULTS PASS/ FAIL
4.2	Test Not Conducted	6.2	Test Not Conducted	9.1	Test Not Conducted
4.3	Test Not Conducted	6.3	Test Not Conducted	10.1	Test Not Conducted
4.4	Test Not Conducted	6.4	PASS	10.2	Test Not Conducted
4.5	Test Not Conducted	6.5	Test Not Conducted.	10.3	Test Not Conducted
5.1	Test Not Conducted	6.5	Test Not Conducted.	10.4	Test Not Conducted
5.2	Test Not Conducted	7.2	Test Not Conducted	10.5	Test Not Conducted
5.3	Test Not Conducted	8.2	Test Not Conducted		
6.1	Test Not Conducted	8.3	Test Not Conducted		

Full documentation of the test results is available upon request in a bound report that includes a detailed description of the test unit and procedures, witnessed results, and appropriate drawings or photographs of the test unit and procedures.

TESTING COMPANY INFORMATION	TEST SUPERVISOR INFORMATION
Name: Bjorksten I bit 7	Name: Raymond J. Robey
Address: 7 Fen Oak	Title: Director Research Development, Testing
Madison, WI 53718	Signature: 
Telephone: 608-271-6900	COMPANY OFFICER INFORMATION
Fax: 608-224-0455	Name: Raymond J. Robey
	Title: Director Research Development, Testing
Date: MARCH 11, 2011	Signature: 

March 11, 2011

SEFA 4th Edition Version 1.0 - 2010 TESTS

Performed For:

**Jamestown Metal Products
178 Blackstone Avenue
Jamestown, NY 14701**

6.5 Drawer Cycle Test

6.5.1 Purpose of Test

The test is intended to replicate years of operation of a drawer under full load.

6.5.2 Test Procedure

Laboratory Load (100 pounds, 45.36Kg)

A static load of 100 pounds (45.6 Kg) (using ten 10 pound (4.54 Kg) sand bags) was uniformly distributed in a drawer and the force required to activate the drawer was measured (Table 2). The drawer was then opened from a closed position to a position within 1/4" (6.35 mm) of full extension and then closed. The procedure was repeated 50,000 times at a rate that did not exceed 10 cycles per minute (Figure 1).



6.5.3 Acceptance Level

The pull force prior to the test was 4.5 lbs to open and 2.0 lbs to close. The force at test completion was less than 2 lbs. to open and less than 2 lbs to close which passes the 8 pound acceptance level.

Figure 1

Bjorksten | bit 7



Raymond J. Robey
Director Research Development and Testing



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CAMPBELLRHEA
Date: October 21, 2003
P. O. No.: 72643

Report No.: 03-0505-6000F(R12/10/03))
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Revision to reflect correction in part
description.

Test Report For:

CAMPBELLRHEA

**SEFA 8 – 1998 RECOMMENDED TESTING
STANDARDS FOR
LABORATORY CASEWORK**

Base Cabinets

A handwritten signature in black ink, appearing to read "Jerry Bender". The signature is fluid and cursive, written over a horizontal line.

**Jerry Bender
Production Manager/cm**



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Attention: Gary Nored
CAMPBELLRHEA
1865 N. Market Street
PARIS TN 38242
Phone: 731-642-4251
Fax: 731-642-1052

DATE RECEIVED: 05/05/03
DATES TESTED: 05/05/03 – 10/17/03

DESCRIPTION OF SAMPLES:

Part Description: Wood Laboratory Furniture

<u>Sample</u>	<u>Catalog No.</u>	<u>Description</u>
1	1578	Base Cabinets (Plywood Core) (One Drawer, Two Doors) With Fuller 2021 Slides

WORK REQUESTED/APPLICABLE DOCUMENTS:

To test the submitted samples per the SEFA 8 – 1998 Laboratory Furniture Standards.

<u>Test No.</u>	<u>Test Description</u>
4.2	Cabinet Load Test
4.3	Cabinet Concentrated Load Test
4.4	Cabinet Torsion
4.5	Cabinet Submersion Test
5.1	Door Hinge Test
5.2	Door Impact Test
5.3	Door Cycle Test
6.1	Drawer Static Load Test
6.2	Drawer and Door Pull Test
6.3	Drawer Impact Test
6.4	Drawer Internal Rolling Impact
6.5	Drawer Cycle Test
7.0	Shelf Load Test



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CONCLUSION:

The submitted samples meet all of the SEFA 8-1998 Laboratory Furniture testing standards.

TEST EQUIPMENT:

Load Cell	Asset No.: 138022 1&2
Shot Bags	Asset No.: 138039 1&2
Shot Bags	Asset No.: 138002
Load Bars	Asset No.: 138
Force Gage	Asset No.: 138906

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4.2 CABINET LOAD TEST:

Date Received: 05/05/03
Dates Tested: 05/05/03 - 05/16/03

Description of Samples:

Part Description: Sample No. 1, 1578 Base Cabinets
(Plywood Core) (One Drawer, Two Doors)

4.2.2 Test Procedure:

Test Method: Verify that the cabinet is level. Load the cabinet top by using 2000 pounds (871.8 Kg) of solid steel bars (per Section #3.1) stacked four high and spaced per Figure #2. After ten minutes, unload the cabinet.

Number of Samples Tested: One (1)

4.2.3 Acceptance Level:

The cabinet will have no signs of permanent failure. After the load is removed, inspect the levelers. Any deformation shall not interfere with the function of the leveling system.

Results:

<u>Static Load</u>	<u>Description of Results</u>
2000 Lb	Passed the test

There was no structural damage to the unit. The sample meets the acceptance criteria. Refer to Figure 1 for photograph.

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Figure 1. 4.2 Cabinet Load Test

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4.3. CABINET CONCENTRATED LOAD TEST:

Date Received: 05/05/03

Dates Tested: 05/05/03 - 05/16/03

Description of Samples:

Part Description:

Sample No. 1, 1578 Base Cabinets
(Plywood Core) (One Drawer, Two Doors)

4.3.2 Test Procedure:

Test Method:

Using solid weights or 10 pound (4.359 Kg) sand
bags (per Section #3.1), apply a total of 200 pounds
(87.18 Kg) to the top of the cabinet along the cabinet
centerline (See Figure #3). Operate doors and
drawers.

Number of Samples Tested:

One (1)

4.3.3 Acceptance Level:

Door and drawer operation shall be normal under condition of test load. There shall be
no signs of permanent distortion to front rail, cabinet joinery, doors, or drawers.

Results:

Static Load

200 Lb

Description of Results

Passed the test

There was no structural damage to the unit. The sample meets the acceptance criteria.
Refer to Figure 2 for photograph.

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Figure 2. 4.3 Cabinet Concentrated Load Test



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4.4 CABINET TORSION TEST:

Date Received:

05/05/03

Dates Tested:

05/05/03 - 05/16/03

Description of Samples:

Part Description:

Sample No. 1, 1578 Base Cabinets
(Plywood Core) (One Drawer, Two Doors)

4.4.2 Test Procedure:

Test Method:

The cabinet shall be tested in its normal upright position, raised not less than four-inches off the floor and supported on rear and one front corner. The area of support under the cabinet shall be located not more than 6" (152.4mm) in from each supported corner. Secure the cabinet diagonally from the unsupported corner with seven solid steel bars per Section #3.1 (350 pounds (152.57 Kg) of weight), on the top of the cabinet to prevent overturning. Apply four solid steel bars (200 pounds (87.18 Kg) of weight) to the unsupported corner for a period of fifteen minutes (See Figure #4). Remove weight and place cabinet on the floor in its normal upright position. Observe cabinet joinery. Level the cabinet and measure the face and back of the cabinet across the diagonal corners.

Number of Samples Tested:

One (1)

4.4.3 Acceptance Level:

When returned to normal position, the operation of the cabinet shall be normal, and there will be no signs of permanent damage. The difference between the two measurements taken from measuring the diagonal corners shall be no more than 1/8" (3.175mm).

Results:

Static Load

200 Lb

Description of Results

Passed the test

There was no structural damage to the unit. There was no measurable set taken in the unit. The sample meets the acceptance criteria. Refer to Figure 3 for photograph.

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Figure 3. 4.4 Cabinet Torsion Test

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4.5 CABINET SUBMERSION TEST:

Date Received: 05/05/03
Dates Tested: 05/05/03 - 05/16/03

Description of Samples:

Part Description: Sample No. 1, 1578 Base Cabinets
(Plywood Core) (One Drawer, Two Doors)

4.5.2 Test Procedure:

Test Method: The material thickness along the perimeter of the cabinet shall be measured on 6" (152.4mm) increments. Record the thickness of the material to be submerged in water. Calculate the arithmetic mean of the data taken. Place the entire test cabinet in its upright position such that the cabinet is submerged in a pan filled with 2" (50.8mm) of water. After four hours, remove the unit from the water and immediately measure the thickness of the material at the same points measured initially. Calculate the new arithmetic mean. After the unit has been allowed to dry, inspect for other damage.

Number of Samples Tested: One (1)

4.5.3 Acceptance Level:

The cabinet will show no signs of permanent deformation or deterioration. Increase in thickness shall not exceed four percent of the initial mean measurements.

Results:

There was a .002 % increase in the thickness. The sample meets the acceptance criteria. Refer to Figure 4 for photograph.

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Figure 4.

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Report No.: 03-0505-6000F R12/10/03

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5.1 CABINET DOOR HINGE TEST:

Date Received: 05/05/03

Date Tested: 10/14/03

Description of Samples:

Part Description:

Sample No. 1, 1578 Base Cabinets
(Plywood Core) (One Drawer, Two Doors)
Liebman Door Hinges

5.1.2. Test Procedure:

Test Method:

Remove the shelf for this test. With unit and top set as described in Section #4.1, add sufficient weight to the top in order to prevent overturning. With cabinet door opened 90-degrees, hang a sling made up of two 100 pound (43.59 Kg) weights (shot bags or solid weights) over top of the door at a point 12" (304.8mm) out from the hinge center-line (See Figures #5a and 5b). Slowly move door through the full cycle of the hinge, up to a 160-degree arc. Remove weight and swing door through its full intended range of motion and close door.

Number of Samples Tested: One (1)

5.1.3 Acceptance Level:

The open door shall withstand a load of 200 pounds (87.18 Kg) when applied at a point 12" (304.8mm) from the hinge centerline without significant permanent distortion.

Operation of the door, after test, shall show no significant permanent distortion that will cause binding of the door or hinges or that will adversely affect operation of the catch*.

Results:

The submitted samples pass the test requirements. There was no functional or structural damage. Refer to Figure 5 for photograph.

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Figure 5. Cabinet Door Hinge Test – Test Setup



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5.2 CABINET DOOR IMPACT TEST:

Date Received: 05/05/03
Dates Tested: 05/05/03 - 05/16/03

Description of Samples:

Part Description: Sample No. 1, 1578 Base Cabinets
(Plywood Core) (One Drawer, Two Doors)

5.2.2. Test Procedure:

Test Method: With unit and top set as described in Section #4.1, add sufficient weight to the top in order to prevent overturning. A 20 pound (8.718 Kg) sand bag (per Section #3.1) shall be suspended and dropped to provide an impact of 240 inch-pounds (27.1 N-m) at the center of the closed door. (See Figure #6.)

Number of Samples Tested: One (1)

5.2.3 Acceptance Level:

After the test, the door and catch shall operate normally and show no signs of permanent damage.

Results:

There was no functional or structural damage to the unit. The sample meets the acceptance criteria. Refer to Figure 6 for photograph.

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Figure 6. 5.2 Cabinet Door Impact Test

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5.3 CABINET DOOR CYCLE TEST:

Date Received: 05/05/03
Dates Tested: 05/05/03 - 05/16/03

Description of Samples:

Part Description: Sample No. 1, 1578 Base Cabinets
(Plywood Core) (One Drawer, Two Doors)

5.3.2. Test Procedure:

Test Method: This test shall be in conformance to the ANSI test procedure A156.9, Grade 1, requirements for cycle testing of doors. A cycling mechanism shall swing door 90-degrees. Door shall operate for 100,000 cycles with a speed not greater than 15 cycles per minute.

Number of Samples Tested: One (1)

5.3.3 Acceptance Level:

Door shall operate for the full cycle period without deterioration that will significantly affect the function of the door. The door shall operate freely without binding.

Results:

There was no functional or structural damage to the unit. The doors operated freely without binding. The sample meets the acceptance criteria. Refer to Figure 7 for photograph.

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Figure 7. 5.3 Cabinet Door Cycle Test

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6.1 CABINET DRAWER STATIC LOAD TEST:

Date Received: 05/05/03

Dates Tested: 05/05/03 - 05/16/03

Description of Samples:

Part Description:

Sample No. 1, 1578 Base Cabinets
(Plywood Core) (One Drawer, Two Doors)

6.1.2.. Test Procedure:

Test Method:

With unit and top set as described in Section # 4.1, add sufficient weight to the top in order to prevent overturning. Open the drawer to 13" (330.2mm) of travel and hang 150 pounds (65.385 Kg) from the drawer head at the centerline of the drawer for five minutes. (See Figure #7) Remove the weight and operate the drawer through the full cycle.

Number of Samples Tested: One (1)

6.1.3. Acceptance Level:

There shall be no interference with the normal operation of the drawer.

Results:

There was no functional or structural damage to the unit. The drawer operated freely. The sample meets the acceptance criteria. Refer to Figure 8 for photograph.

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Figure 8. 6.1 Cabinet Drawer Static Load Test

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6.2 CABINET DRAWER AND DOOR PULL TEST:

Date Received: 05/05/03

Dates Tested: 05/05/03 - 05/16/03

Description of Samples:

Part Description: Sample No. 1, 1578 Base Cabinets
(Plywood Core) (One Drawer, Two Doors)

6.2.2... Test Procedure:

Test Method: Pulls are to be installed in accordance with manufacturer's practice using specified attaching hardware and method. Block door and drawer closed. Using a cable, pulley and weight assembly (See Figure #8), apply a force of 50 pounds (21.795 Kg) perpendicular to each pull. Revise setup to hang weight from each pull. (See Figure #9) Remove weight.

Number of Samples Tested: One (1)

6.2.3. Acceptance Level:

Pulls shall resist force and support weight without breakage. After completion of test and removal of weight, there shall be no significant permanent distortion. Some pull designs will require variations to set up apparatus. These pulls shall be tested in conformance to the applied pull forces.

Results:

There was no functional or structural damage to the unit. The drawer and door operated freely. The sample meets the acceptance criteria. Refer to Figures 9-10 for photographs.

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Figure 9. 6.2 Cabinet Drawer And Door Pull Test; Drawer

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Figure 10. 6.2

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6.3 CABINET DRAWER IMPACT TEST:

Date Received: 05/05/03

Dates Tested: 05/05/03 - 05/16/03

Description of Samples:

Part Description: Sample No. 1, 1578 Base Cabinets
(Plywood Core) (One Drawer, Two Doors)

6.3.2... Test Procedure:

Test Method: Open drawer to 13" (330.2mm) of travel. Drop a 10 pound (4.359 Kg) sand or shot bag from a height of 24" (609.6mm) into the bottom of a drawer at the center of the width of the drawer and 6" (152.4mm) back from the inside face of the drawer. Remove the sand or shot bag.

Number of Samples Tested: One (1)

6.3.3. Acceptance Level:

Operate drawer through full cycle. Drawer shall operate normally. Any deformation will not cause binding or interfere with the operation of the drawer.

Results:

There was no functional or structural damage to the unit. The drawer operated freely. The sample meets the acceptance criteria. Refer to Figure 11 for photograph.

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Figure 11. 6.3 Cabinet Drawer Impact

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6.4 CABINET DRAWER INTERNAL ROLLING TEST:

Date Received: 05/05/03

Dates Tested: 10/02/03

Description of Samples:

Part Description:

Sample No. 1, 1578 Base Cabinets
(Plywood Core) (One Drawer, Two Doors)

6.4.2... Test Procedure:

Test Method:

Position the drawer on a table at a 45-degree angle per Figure #10. Place a 2" (50.8mm) diameter by 12" (304.8mm) long steel rod (approximately 10 pounds (4.359 Kg) 13" (330.2mm) from the target impact area such that the rod will roll freely to impact the back of the drawer. Subject the back to three impacts and reverse the drawer to subject the front to three additional impacts.

Number of Samples Tested: One (1)

6.4.3. Acceptance Level:

The drawer shall show no signs (other than minor scratches and dents) of permanent damage. All joinery shall be intact and the drawer, when replaced in the unit, shall operate normally. Minor scratches and dents are acceptable.

Results:

There was no functional or structural damage to the drawer. The drawer operated freely. The sample meets the acceptance criteria. Refer to Figure 12 for photograph.

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Figure 12. 6.4 Cabinet Drawer Internal Rolling Test; Setup

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6.5 CABINET DRAWER CYCLE TEST:

Date Received: 05/05/03

Dates Tested: 05/05/03 - 05/16/03

Description of Samples:

Part Description:

Sample No. 1, 1578 Base Cabinets
(Plywood Core) (One Drawer, Two Doors)
Fulterer 2021 Slides

6.5.2... Test Procedure:

Test Method:

Laboratory Load (100 pounds (43.59 Kg) – A static load of 100 pounds (43.59 Kg) (using ten 10 pound (4.359 Kg) sand bags per Section #3.1) shall be uniformly distributed in the drawer. Measure force required to activate the drawer. Operate from a closed position to within ¼" (6.35mm) of full extension for 50,000 cycles at a rate not to exceed 10 cycles per minute.

Number of Samples Tested: One (1)

6.5.3. Acceptance Level:

The drawer shall operate freely without evidence of dragging rubbing or binding. The force required to open and close loaded drawer shall not be more than a 20% increase of that required prior to test and shall not be greater than 8 pounds (3.487 Kg) to activate hardware.*

Results:

There was no functional or structural damage to the drawer after the 50,000 cycles. The drawer pull force was 6.5 Lbs. The drawer operated freely.

The sample meets the acceptance criteria. Refer to Figure 13 for photograph.

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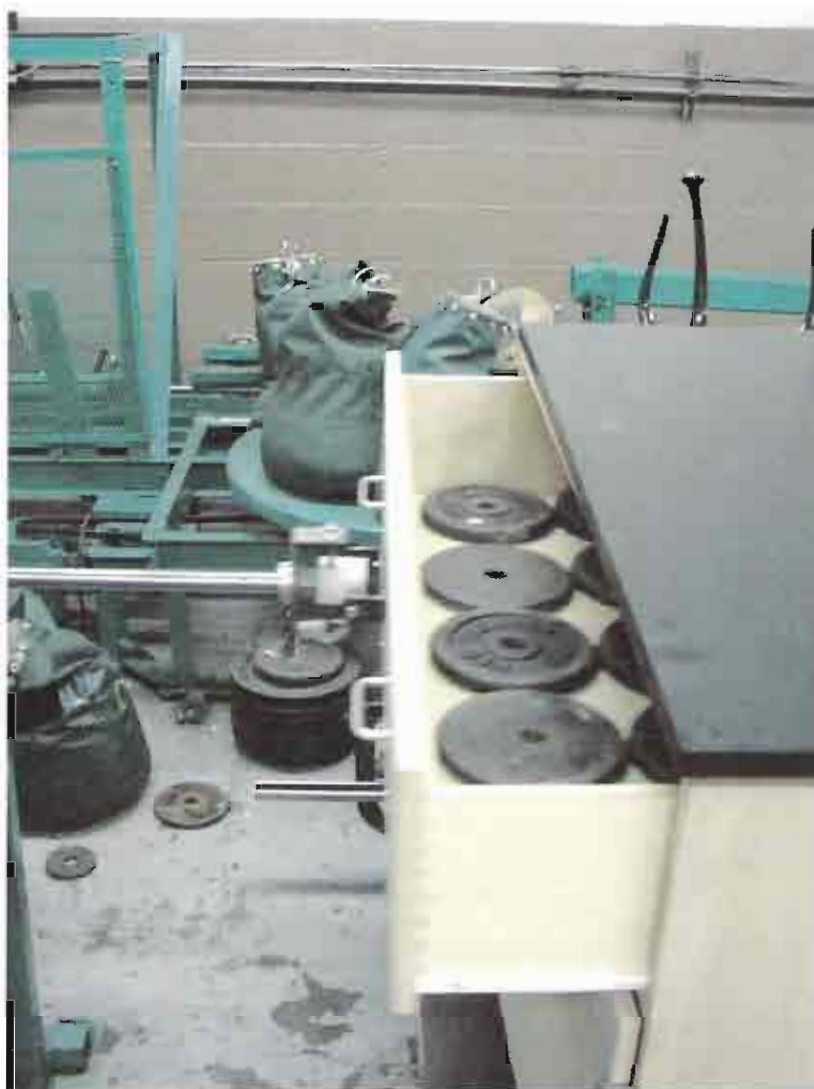


Figure 13. 6.4 Cabinet Drawer Cycle Test



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7.1 SHELF LOAD TEST:

Date Received: 05/05/03
Dates Tested: 10/09/03

Description of Samples:

Part Description: Sample No. 1, 1578 Base Cabinets
(Plywood Core) (One Drawer, Two Doors)

7.1.2... Test Procedure:

Test Method: A shelf shall be mounted in the manner in which it is designed. Measure the distance from the underside of the shelf to a reference point perpendicular to the center of the shelf. Use shot or sand bags weighing 10 pounds (4.359 Kg) each. Unless otherwise specified, load the shelf uniformly to 40 pounds (17.436 Kg) per square foot shelf area to a maximum of 200 pounds (87.18 Kg). Measure the deflection on the shelf by measuring the distance to the reference point and calculating the difference between the two measurements. Record data and remove load from the shelf.

Number of Samples Tested: One (1)

7.1.3. Acceptance Level:

Different materials will perform differently to the loads applied based on the Modulus of Elasticity for the material and the cross section moment of inertia for the shape of the material. Longer shelves will support less loads than shorter shelves. The allowable maximum deflection of a shelf is 1/180 of the span and not in excess of .25" (6.35mm). The following formula may be used to calculate the approximate deflection expected from a uniformly distributed load.

Results:

<u>Static Load</u>	<u>Deflection</u>	<u>Set</u>	<u>Description of Results</u>
200 Lbs	..215	.004	Passed the test.

The sample meets the acceptance criteria. Refer to Figures 14 for photograph.

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Figure 14. Shelf Load Test – Sample #1

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TERMS AND CONDITIONS

The following terms and conditions apply to all work performed by ENTELA, Inc., and supercede and/or replace terms and conditions of client's purchase order unless specifically exempted in writing by an officer of ENTELA, Inc.

1. ENTELA, Inc. represents to the client that testing is done in accordance with standard procedures as applicable and that reported test results are accurate within generally accepted commercial ranges of accuracy, unless a specific measure of greater accuracy has been agreed to in writing by ENTELA, Inc. and the client.
2. ENTELA, Inc. reports apply only to the specific sample(s) tested under stated test conditions and test results are not necessarily indicative of the qualities of apparently identical or similar test or operating conditions. ENTELA, Inc. shall have no liability for any deductions, inferences or generalizations drawn by the client or others from ENTELA, Inc. reports.
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5. Payment for the services rendered is the obligation of the client issuing the purchase order or accepting the proposal. The obligation is not contingent on any specific result from ENTELA, Inc.'s services and may not be assigned without the written permission of ENTELA, Inc.
6. If services are to be supplied to a client who has not established credit with ENTELA, Inc., or in connection with a legal action, a retainer equal to the estimated cost is required with the order, which retainer may be applied at ENTELA, Inc.'s option to its final billings. The minimum retainer required for services to be performed in connection with a legal action is \$1,000.
7. If the service to be performed requires more than one (1) month for completion, ENTELA, Inc. will make monthly billings of the approximate percentage of the work completed each month, supplying with the interim invoice a progress report showing accomplishments to date. Terms of all invoices shall be net 30 days upon receipt of invoice.
8. If the client desires forensic testing services, the client must mark each test sample and supporting documents and the test authorization form conspicuously as "LEGAL". Unless otherwise indicated in writing, prices quoted or charged by ENTELA, Inc. do not include charges for any court appearance, records retrieval/storage, expert witness testimony, deposition, or affidavit, or preparation thereof, in connection with forensic testing services. Such charges will be computed at ENTELA, Inc.'s then prevailing hourly rates, plus expenses. All such charges must be prepaid by the client prior to such appearance, testimony, deposition or affidavit and, where required by law, advance court approval of charges must be obtained by the client at the client's expense.
9. In the event that ENTELA, Inc., as a result of an order or subpoena issued by a court, is called upon to produce or testify in respect to a report, it will advise the client of the fact and the time and place of the scheduled hearing, if reasonable advance notice is given to ENTELA, Inc. If the client has any objections to ENTELA, Inc. complying with such order or subpoena, it will be the client's obligation to present such objections to the court at or prior to the time specified in such order or subpoena, and to give timely notice to ENTELA, Inc. of the results.
10. ENTELA, Inc. shall purchase, and client agrees to sell and convey title to any and all parts, assemblies, or products submitted for testing and analysis to ENTELA, Inc. for the sum of \$1.00. Upon completion of testing and analysis any and all parts, assemblies or products used or consumed during the course of our work shall be sold to and title conveyed to Client for the sum of \$1.00. Sample(s) will be destroyed thirty (30) days after the date of the final report, unless the client indicates otherwise in writing before the expiration of said 30-day period. **Tested samples shall be returned F.O.B. origin; customer responsible for return charges and insurance against risk of loss or damage of goods.**
11. Prices quoted by ENTELA, Inc. are subject to change if not accepted by the client within thirty (30) days, or if the work involved is not commenced within forty-five (45) days of such acceptance through no fault of ENTELA, Inc.
12. ENTELA, Inc.'s liability for damage to or loss or destruction of the client's property while it is in the possession of ENTELA, Inc. will be limited to the amount ENTELA, Inc. has agreed to charge the client for the services.
13. Any order or agreement for testing services by ENTELA, Inc. may be terminated in writing by the client before completion thereof with ENTELA, Inc.'s written consent in which event the client shall pay to ENTELA, Inc. an amount to be determined by ENTELA, Inc. as being sufficient to reimburse ENTELA, Inc. for all direct and indirect costs and expenses, including (but not limited to) supplies, materials, labor, and overhead incurred with respect to the order or agreement through the date of termination.
14. ENTELA, Inc. shall not be liable for any failure or delay in performance which is caused in whole or in part by fire, flood, accident, riot, war, operation of law, government action, strikes or other labor disturbances, fuel shortages, or any other cause beyond the control of ENTELA, Inc.
15. All contracts between ENTELA, Inc. and the client shall be deemed to be made in and governed by the laws of the State of Michigan.
16. Should ENTELA, Inc. be required to subcontract any testing or other services, the client will be informed of such arrangement either verbally or in writing. ENTELA, Inc. shall have no liability for any deductions, inferences, or generalizations drawn by the client or others from subcontractor's data.
17. Should witness of testing or services on ENTELA, Inc. premises be requested, the client shall comply with all applicable safety regulations and precautions. Client shall supply, if requested, evidence of workers compensation coverage prior to visit.
18. It is the client's responsibility to understand the procedures utilized in the testing process. Any action taken by a client based on any consulting, recommendations, results, observations, conclusions, discussions, or data as provided by ENTELA are the sole responsibility of the client."

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Test Report For:

CAMPBELL RHEA

**SEFA 8 – 1998 RECOMMENDED TESTING
STANDARDS FOR
LABORATORY TABLES**


Jerry Bender
Production Manager/kvm



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Fax: 731-642-1052

DATE RECEIVED: 05/05/03
DATES TESTED: 05/05/03 - 05/16/03

DESCRIPTION OF SAMPLES:

Part Description: Wood Laboratory Furniture

<u>Sample</u>	<u>Catalog No.</u>	<u>Description</u>
7.		24" x 60" Wood Tables (Plywood Frame)
8.		24" x 60" Wood Tables (Solid Wood Frame)

WORK REQUESTED/APPLICABLE DOCUMENTS:

To test the submitted samples per the SEFA 8 – 1998 Laboratory Furniture Standards.

<u>Test No.</u>	<u>Test Description</u>
10.2	Table Load Test
10.3	Table Racking Test

CONCLUSION:

The submitted samples meet all of the SEFA 8-1998 Laboratory Furniture testing standards.

TEST EQUIPMENT:

Load Cell	Asset No.: 138022 1&2
Shot Bags	Asset No.: 138039 1&2
Shot Bags	Asset No.: 138002
Load Bars	Asset No.: 138
Force Gage	Asset No.: 138906

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10.2 TABLE STATIC LOAD TEST:

Date Received: 05/05/03
Dates Tested: 05/05/03 TO 05/16/03

Description of Samples:

Part Description: Sample No. 7. 24" x 60" Wood Tables
(Plywood Frame)

10.2.2 Test Procedure:

Test Method: Load the table top by using solid steel bars (per Section #3.1), each weighing 50 pounds (21.795Kg), stacked evenly and spaced per Figure #14. Load the table to the manufacturer's recommended live load*. These evenly distributed loads should be no less than 300 pounds (130.77 Kg) for mobile, 600 pounds (261.54 Kg) for free standing and 2000 pounds (871.8 Kg) for fixed. Include the weight of the working surface as live load.

Number of Samples Tested: One (1)

10.2.3. Acceptance Level:

No structural breakage shall result from application of the load. With the full load, the apron rails shall not deflect more than 1/360 of the span of the table and not to exceed 1/8" (3.175mm). In the case of a table with a drawer, the deflection of the rail shall not interfere with the function of the drawer. After the load is removed, inspect the table for structural damage.

Results:

<u>Static Load</u>	<u>Deflection</u>	<u>Set</u>	<u>Description of Results.</u>
600 Lbs	.052	.004	There was no damage to the table.

The sample meets the acceptance criteria. Refer to Figure 1 for photograph.

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Figure 1. 10.2 Table Static Load Test; Plywood Frame

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10.2 TABLE STATIC LOAD TEST:

Date Received: 05/05/03
Dates Tested: 05/05/03 TO 05/16/03

Description of Samples:

Part Description: Sample No. 8 24" x 60" Wood Tables
(Solid Wood Frame)

10.2.2 Test Procedure:

Test Method: Load the table top by using solid steel bars (per Section #3.1), each weighing 50 pounds (21.795Kg), stacked evenly and spaced per Figure #14. Load the table to the manufacturer's recommended live load*. These evenly distributed loads should be no less than 300 pounds (130.77 Kg) for mobile, 600 pounds (261.54 Kg) for free standing and 2000 pounds (871.8 Kg) for fixed. Include the weight of the working surface as live load.

Number of Samples Tested: One (1)

10.2.3. Acceptance Level:

No structural breakage shall result from application of the load. With the full load, the apron rails shall not deflect more than 1/360 of the span of the table and not to exceed 1/8" (3.175mm). In the case of a table with a drawer, the deflection of the rail shall not interfere with the function of the drawer. After the load is removed, inspect the table for structural damage.

Results:

<u>Static Load</u>	<u>Deflection</u>	<u>Set</u>	<u>Description of Results.</u>
600 Lbs	.035	.002	There was no damage to the table.

The sample meets the acceptance criteria. Refer to Figure 2 for photograph.

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Figure 2. 10.2 Table Static Load Test; Solid Wood Frame

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10.3 TABLE RACKING TEST

Date Received: 05/05/03
Dates Tested: 05/05/03 TO 05/16/03

Description of Samples:

Part Description: Sample No. 7. 24" x 60" Wood Tables
(Plywood Frame)

Test Method: The table shall be tested in its normal upright position, with floor glides or casters fully retracted and blocked to prevent the table from sliding. The table shall then be positioned at 45, with one pair of legs on the floor and the other raised and supported (See Figure #15). The unit shall remain in this position for thirty minutes. The unit shall be lowered without shock to the leveled surface and the general operation of the drawers shall be evaluated. The procedure shall be repeated on the opposite end.

Number of Samples Tested: One (1)

10.3.3. Acceptance Level:

When returned to normal position, the operation of the table shall be normal, and there will be no signs of permanent damage.

Results:

There was no functional or structural damage. The sample meets the acceptance criteria. Refer to Figure 3 for photograph.

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Figure 3. 10.3 Table Racking Test

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10.3 TABLE RACKING TEST:

Date Received: 05/05/03
Dates Tested: 05/05/03 TO 05/16/03

Description of Samples:

Part Description: Sample No. 8 24" x 60" Wood Tables
(Solid Wood Frame)

10.3.2 Test Procedure:

Test Method: The table shall be tested in its normal upright position, with floor glides or casters fully retracted and blocked to prevent the table from sliding. The table shall then be positioned at 45, with one pair of legs on the floor and the other raised and supported (See Figure #15). The unit shall remain in this position for thirty minutes. The unit shall be lowered without shock to the leveled surface and the general operation of the drawers shall be evaluated. The procedure shall be repeated on the opposite end.

Number of Samples Tested: One (1)

10.3.3. Acceptance Level:

When returned to normal position, the operation of the table shall be normal, and there will be no signs of permanent damage.

Results:

There was no functional or structural damage. The sample meets the acceptance criteria. Refer to Figure 4 for photograph.

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Figure 4. 10.3 Table Racking Test

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TERMS AND CONDITIONS

The following terms and conditions apply to all work performed by ENTELA, Inc., and supercede and/or replace terms and conditions of client's purchase order unless specifically exempted in writing by an officer of ENTELA, Inc.

1. ENTELA, Inc. represents to the client that testing is done in accordance with standard procedures as applicable and that reported test results are accurate within generally accepted commercial ranges of accuracy, unless a specific measure of greater accuracy has been agreed to in writing by ENTELA, Inc. and the client.
2. ENTELA, Inc. reports apply only to the specific sample(s) tested under stated test conditions and test results are not necessarily indicative of the qualities of apparently identical or similar test or operating conditions. ENTELA, Inc. shall have no liability for any deductions, inferences or generalizations drawn by the client or others from ENTELA, Inc. reports.
3. When ENTELA, Inc. performs services, its work and reports are not governed by the Uniform Commercial Code. Except as stated in Paragraph 1, ENTELA, Inc. disclaims all warrants of merchantability or fitness for a particular purpose. ENTELA, Inc. assumes no liability for incidental or consequential damages of any nature whatsoever.
4. The client shall not advertise or publish the name, the seal or servicemark, reports, test results, documentation or procedures of ENTELA, Inc. without written authorization from ENTELA, Inc. Any test reports provided to client by ENTELA, Inc. shall not be reproduced **except in full** without the approval of ENTELA, Inc. The client's actual or threatened failure to abide by this Paragraph 4 may result in legal action by ENTELA, Inc. for injunctive and other relief.
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7. If the service to be performed requires more than one (1) month for completion, ENTELA, Inc. will make monthly billings of the approximate percentage of the work completed each month, supplying with the interim invoice a progress report showing accomplishments to date. Terms of all invoices shall be net 30 days upon receipt of invoice.
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9. In the event that ENTELA, Inc., as a result of an order or subpoena issued by a court, is called upon to produce or testify in respect to a report, it will advise the client of the fact and the time and place of the scheduled hearing, if reasonable advance notice is given to ENTELA, Inc. If the client has any objections to ENTELA, Inc. complying with such order or subpoena, it will be the client's obligation to present such objections to the court at or prior to the time specified in such order or subpoena, and to give timely notice to ENTELA, Inc. of the results.
10. ENTELA, Inc. shall purchase, and client agrees to sell and convey title to any and all parts, assemblies, or products submitted for testing and analysis to ENTELA, Inc. for the sum of \$1.00. Upon completion of testing and analysis any and all parts, assemblies or products used or consumed during the course of our work shall be sold to and title conveyed to Client for the sum of \$1.00. Sample(s) will be destroyed thirty (30) days after the date of the final report, unless the client indicates otherwise in writing before the expiration of said 30-day period. **Tested samples shall be returned F.O.B. origin; customer responsible for return charges and insurance against risk of loss or damage of goods.**
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14. ENTELA, Inc. shall not be liable for any failure or delay in performance which is caused in whole or in part by fire, flood, accident, riot, war, operation of law, government action, strikes or other labor disturbances, fuel shortages, or any other cause beyond the control of ENTELA, Inc.
15. All contracts between ENTELA, Inc. and the client shall be deemed to be made in and governed by the laws of the State of Michigan.
16. Should ENTELA, Inc. be required to subcontract any testing or other services, the client will be informed of such arrangement either verbally or in writing. ENTELA, Inc. shall have no liability for any deductions, inferences, or generalizations drawn by the client or others from subcontractor's data.
17. Should witness of testing or services on ENTELA, Inc. premises be requested, the client shall comply with all applicable safety regulations and precautions. Client shall supply, if requested, evidence of workers compensation coverage prior to visit.
18. It is the client's responsibility to understand the procedures utilized in the testing process. Any action taken by a client based on any consulting, recommendations, results, observations, conclusions, discussions, or data as provided by ENTELA are the sole responsibility of the client."



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Grand Rapids MI, 49548-1289
Ph: (616) 247-0515
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1-800-888-3787
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CAMPBELLRHEA

Date: June 3, 2003

P. O. No.: 72643

Report No.: 03-0505-6000BR11/03/03 *9m*

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Revision to reflect correction in
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Test Report For:

CAMPBELLRHEA

**SEFA 8 – 1998 RECOMMENDED TESTING
STANDARDS FOR
LABORATORY CASEWORKS, SHELVES**

Tall Cabinets

A handwritten signature in black ink, appearing to read "Jerry Bender". The signature is written in a cursive, flowing style.

Jerry Bender
Production Manager/kvm



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CAMPBELLRHEA

Date: June 3, 2003

P. O. No.: 72643

Report No.: 03-0505-6000BR11/03/03 

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company name.

Darlo Pack
CAMPBELLRHEA
1865 N.MARKET ST
PARIS TN 38242
Phone: 731-642-4251
Fax: 731-642-1052

DATE RECEIVED:

05/05/03

DATES TESTED:

05/05/03 - 05/16/03

DESCRIPTION OF SAMPLES:

Part Description:

Wood Laboratory Furniture

<u>Sample</u>	<u>Catalog No.</u>	<u>Description</u>
4.	D5688	Tall Case (Particle Board Core)(Two Doors, Four Shelves)

WORK REQUESTED/APPLICABLE DOCUMENTS:

To test the submitted samples per the SEFA 8 – 1998 Laboratory Furniture Standards.

<u>Test No.</u>	<u>Test Description</u>
5.1	Door Hinge Test
5.2	Door Impact Test
5.3	Door Cycle Test
7.0	Shelf Load Test

CONCLUSION:

The submitted samples meet all of the SEFA 8-1998 Laboratory Furniture testing standards.

TEST EQUIPMENT:

Load Cell	Asset No.: 138022 1&2
Shot Bags	Asset No.: 138039 1&2
Shot Bags	Asset No.: 138002
Load Bars	Asset No.: 138
Force Gage	Asset No.: 138906

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Date: June 3, 2003

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5.1 CABINET DOOR HINGE TEST:

Date Received: 05/05/03

Dates Tested: 05/05/03 - 05/16/03

Description of Samples:

Part Description: Sample No. 3. D5688 Tall Case
(Plywood Core) (Two Doors, Four Shelves)

5.1.2. Test Procedure:

Test Method: Remove the shelf for this test. With unit and top set as described in Section #4.1, add sufficient weight to the top in order to prevent overturning. With cabinet door opened 90-degrees, hang a sling made up of two 100 pound (43.59 Kg) weights (shot bags or solid weights) over top of the door at a point 12" (304.8mm) out from the hinge center-line (See Figures #5a and 5b). Slowly move door through the full cycle of the hinge, up to a 160-degree arc. Remove weight and swing door through its full-intended range of motion and close door.

Number of Samples Tested: One (1)

5.1.3 Acceptance Level:

The open door shall withstand a load of 200 pounds (87.18 Kg) when applied at a point 12" (304.8mm) from the hinge centerline without significant permanent distortion. Operation of the door, after test, shall show no significant permanent distortion that will cause binding of the door or hinges or that will adversely affect operation of the catch.*

Results:

The submitted sample passed the test requirements. Refer to Figure 1 for photograph.

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Figure 1. 5.1 Cabinet Door Hinge Test



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5.1 CABINET DOOR HINGE TEST

Date Received: 05/05/03

Dates Tested: 05/05/03 - 05/16/03

Description of Samples:

Part Description: Sample No. 4. D5688 Tall Case
(Particle Board Core) (Two Doors, Four Shelves)

5.1.2. Test Procedure:

Test Method: Remove the shelf for this test. With unit and top set as described in Section #4.1, add sufficient weight to the top in order to prevent overturning. With cabinet door opened 90-degrees, hang a sling made up of two 100 pound (43.59 Kg) weights (shot bags or solid weights) over top of the door at a point 12" (304.8mm) out from the hinge center-line (See Figures #5a and 5b). Slowly move door through the full cycle of the hinge, up to a 160-degree arc. Remove weight and swing door through its full-intended range of motion and close door.

Number of Samples Tested: One (1)

5.1.3 Acceptance Level:

The open door shall withstand a load of 200 pounds (87.18 Kg) when applied at a point 12" (304.8mm) from the hinge centerline without significant permanent distortion. Operation of the door, after test, shall show no significant permanent distortion that will cause binding of the door or hinges or that will adversely affect operation of the catch.*

Results:

The submitted sample passed the test requirements. Refer to Figure 2 for photograph.

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Figure 2. 5.1 Cabinet Door Hinge Test

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5.3 CABINET DOOR CYCLE TEST:

Date Received: 05/05/03

Dates Tested: 05/05/03 - 05/16/03

Description of Samples:

Part Description: Sample No. 3. D5688 Tall Case
(Plywood Core) (Two Doors, Four Shelves)

5.3.2. Test Procedure:

Test Method: This test shall be in conformance to the ANSI test procedure A156.9, Grade 1, requirements for cycle testing of doors. A cycling mechanism shall swing doors 90-degrees. Door shall operate for 100,000 cycles with a speed not greater than 15 cycles per minute.

Number of Samples Tested: One (1)

5.3.3 Acceptance Level:

Door shall operate for the full cycle period without deterioration that will significantly affect the function of the door. The door shall operate freely without binding.

Results:

There was no functional or structural damage to the unit. The doors operated freely with out binding after the 100,000 cycles.

The sample meets the acceptance criteria. Refer to Figure 3 for photograph.

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Figure 3. 5.3 Cabinet Door Cycle Test

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5.3 CABINET DOOR CYCLE TEST

Date Received: 05/05/03

Dates Tested: 05/05/03 - 05/16/03

Description of Samples:

Part Description: Sample No. 4. D5688 Tall Case
(Particle Board Core) (Two Doors, Four Shelves)

5.3.2. Test Procedure:

Test Method: This test shall be in conformance to the ANSI test procedure A156.9, Grade 1, requirements for cycle testing of doors. A cycling mechanism shall swing doors 90-degrees. Door shall operate for 100,000 cycles with a speed not greater than 15 cycles per minute.

Number of Samples Tested: One (1)

5.3.3 Acceptance Level:

Door shall operate for the full cycle period without deterioration that will significantly affect the function of the door. The door shall operate freely without binding.

Results:

There was no functional or structural damage to the unit. The doors operated freely without binding after the 100,000 cycles.

The sample meets the acceptance criteria. Refer to Figure 4 for photograph.

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Figure 4. 5.3 Cabinet Door Cycle Test

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P. O. No.: 72643

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7.1 SHELF LOAD TEST:

Date Received:

05/05/03

Dates Tested:

05/05/03 TO 05/16/03

Description of Samples:

Part Description:

Sample No. 3. D5688 Tall Case (Plywood Core)
(Two Doors, Four Shelves)

7.1.2... Test Procedure:

Test Method:

A shelf shall be mounted in the manner in which it is designed. Measure the distance from the underside of the shelf to a reference point perpendicular to the center of the shelf. Use shot or sand bags weighing 10 pounds (4.359 Kg) each. Unless otherwise specified, load the shelf uniformly to 40 pounds (17.436 Kg) per square foot shelf area to a maximum of 200 pounds (87.18 Kg). Measure the deflection on the shelf by measuring the distance to the reference point and calculating the difference between the two measurements. Record data and remove load from the shelf.

Number of Samples Tested:

One (1)

7.2.3. Acceptance Level:

Different materials will perform differently to the loads applied based on the Modulus of Elasticity for the material and the cross section moment of inertia for the shape of the material. Longer shelves will support less loads than shorter shelves. The allowable maximum deflection of a shelf is 1/180 of the span and not in excess of .25" (6.35mm). The following formula may be used to calculate the approximate deflection expected from a uniformly distributed load.

Results:

<u>Shelf</u>	<u>Static Load</u>	<u>Deflection</u>	<u>Description of</u>
Fixed	178 Lbs	.068	There was no functional or structural damage to the shelf.
Adjustable	178 Lbs	.086	There was no functional or structural damage to the shelf.

The sample meets the acceptance criteria. Refer to Figures 5-6 for photographs.

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Figure 5. Shelf Load Test; Sample #3 - Fixed

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Figure 6. Shelf Load Test; Sample #3 - Adjustable

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7.1 SHELF LOAD TEST:

Date Received:

05/05/03

Dates Tested:

05/05/03 TO 05/16/03

Description of Samples:

Part Description:

Sample No. 4. D5688 Tall Case
(Particle Board Core) (Two Doors, Four Shelves)

7.1.2... Test Procedure:

Test Method:

A shelf shall be mounted in the manner in which it is designed. Measure the distance from the underside of the shelf to a reference point perpendicular to the center of the shelf. Use shot or sand bags weighing 10 pounds (4.359 Kg) each. Unless otherwise specified, load the shelf uniformly to 40 pounds (17.436 Kg) per square foot shelf area to a maximum of 200 pounds (87.18 Kg). Measure the deflection on the shelf by measuring the distance to the reference point and calculating the difference between the two measurements. Record data and remove load from the shelf.

Number of Samples Tested:

One (1)

7.1.3. Acceptance Level:

Different materials will perform differently to the loads applied based on the Modulus of Elasticity for the material and the cross section moment of inertia for the shape of the material. Longer shelves will support less loads than shorter shelves. The allowable maximum deflection of a shelf is 1/180 of the span and not in excess of .25" (6.35mm). The following formula may be used to calculate the approximate deflection expected from a uniformly distributed load.

Results:

<u>Shelf</u>	<u>Static Load</u>	<u>Deflection</u>	<u>Description of</u>
Fixed	178 Lbs	.068	There was no functional or structural damage to the shelf.
Adjustable	178 Lbs	.086	There was no functional or structural damage to the shelf.

The sample meets the acceptance criteria. Refer to Figure 7 for photograph.

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Figure 7. Shelf Load Test; Sample #4

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CAMPBELLRHEA
Date: June 3, 2003
P. O. No.: 72643

Report No.: 03-0505-6000CR11/03/03 *gmb*
Page 1 of 11
Revision to reflect correction in
company name.

Test Report For:

CAMPBELLRHEA

**SEFA 8 – 1998 RECOMMENDED TESTING
STANDARDS FOR
LABORATORY CASEWORKS, SHELVES
AND TABLES**

Wall Cabinets

A handwritten signature in cursive script that reads "Jerry Bender".

Jerry Bender
Production Manager/kvm



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Darlo Pack
CAMPBELLRHEA
1865 N.MARKET ST
PARIS TN 38242
Phone: 731-642-4251
Fax: 731-642-1052

DATE RECEIVED:

05/05/03

DATES TESTED:

05/05/03 - 05/16/03

DESCRIPTION OF SAMPLES:

Part Description:

Wood Laboratory Furniture

<u>Sample</u>	<u>Catalog No.</u>	<u>Description</u>
5.	D4722	Wall Case (Plywood Core)
6.	D4722	Wall Case (Particle Board Core)

WORK REQUESTED/APPLICABLE DOCUMENTS:

To test the submitted samples per the SEFA 8 – 1998 Laboratory Furniture Standards.

<u>Test No.</u>	<u>Test Description</u>
7.0	Shelf Load Test
9.2	Cabinet Load Test

CONCLUSION:

The submitted samples meet all of the SEFA 8-1998 Laboratory Furniture testing standards.

TEST EQUIPMENT:

Load Cell	Asset No.: 138022 1&2
Shot Bags	Asset No.: 138039 1&2
Shot Bags	Asset No.: 138002
Load Bars	Asset No.: 138
Force Gage	Asset No.: 138906

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7.1 SHELF LOAD TEST:

Date Received:

05/05/03

Dates Tested:

05/05/03 TO 05/16/03

Description of Samples:

Part Description:

Sample No. 5. D4722 Wall Case (Plywood Core)
(Two Doors, Two Shelves)

Test Method:

A shelf shall be mounted in the manner in which it is designed. Measure the distance from the underside of the shelf to a reference point perpendicular to the center of the shelf. Use shot or sand bags weighing 10 pounds (4.359 Kg) each. Unless otherwise specified, load the shelf uniformly to 40 pounds (17.436 Kg) per square foot shelf area to a maximum of 200 pounds (87.18 Kg). Measure the deflection on the shelf by measuring the distance to the reference point and calculating the difference between the two measurements. Record data and remove load from the shelf.

Number of Samples Tested:

One (1)

7.1.3. Acceptance Level:

Different materials will perform differently to the loads applied based on the Modulus of Elasticity for the material and the cross section moment of inertia for the shape of the material. Longer shelves will support less loads than shorter shelves. The allowable maximum deflection of a shelf is 1/180 of the span and not in excess of .25" (6.35mm). The following formula may be used to calculate the approximate deflection expected from a uniformly distributed load.

Results:

<u>Shelf</u>	<u>Static Load</u>	<u>Deflection</u>	<u>Description of</u>
Adjustable	112 Lbs	.231	There was no functional or structural damage to the shelf.

The sample meets the acceptance criteria. Refer to Figure 1 for photograph.

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Figure 1. Shelf Load Test; Sample #5

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7.1 SHELF LOAD TEST:

Date Received:

05/05/03

Dates Tested:

05/05/03 TO 05/16/03

Description of Samples:

Part Description:

Sample No. 6. D4722 Wall Case
(Particle Board Core) (Two Doors, Two Shelves)

7.1.2... Test Procedure:

Test Method:

A shelf shall be mounted in the manner in which it is designed. Measure the distance from the underside of the shelf to a reference point perpendicular to the center of the shelf. Use shot or sand bags weighing 10 pounds (4.359 Kg) each. Unless otherwise specified, load the shelf uniformly to 40 pounds (17.436 Kg) per square foot shelf area to a maximum of 200 pounds (87.18 Kg). Measure the deflection on the shelf by measuring the distance to the reference point and calculating the difference between the two measurements. Record data and remove load from the shelf.

Number of Samples Tested:

One (1)

7.1.3. Acceptance Level:

Different materials will perform differently to the loads applied based on the Modulus of Elasticity for the material and the cross section moment of inertia for the shape of the material. Longer shelves will support less loads than shorter shelves. The allowable maximum deflection of a shelf is 1/180 of the span and not in excess of .25" (6.35mm). The following formula may be used to calculate the approximate deflection expected from a uniformly distributed load.

Results:

<u>Shelf</u>	<u>Static Load</u>	<u>Deflection</u>	<u>Description of</u>
Adjustable	112 Lbs	.220	There was no functional or structural damage to the shelf.

The sample meets the acceptance criteria. Refer to Figure 2 for photograph.

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Figure 2. Shelf Load Test; Sample #6

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9.2 LOAD TEST:

Date Received:

05/05/03

Dates Tested:

05/05/03 TO 05/16/03

Description of Samples:

Part Description:

Sample No. 5. D4722 Wall Case (Plywood Core)
(Two Doors, Two Shelves)

9.2.2... Test Procedure:

Test Method:

Using sand and shot bags weighing 10 pounds (4.359 Kg) each, load cabinet bottom, each shelf, and top uniformly with 40 pounds (17.436 Kg) per square foot to a maximum of 200 pounds (87.18 Kg) each. Maximum load to any cabinet shall not exceed 600 pounds. (261.54 Kg) (a maximum of 200 pounds (87.18 Kg) loaded to each bottom, a minimum of one shelf loaded per Section 7.0, and the top) regardless of the number of shelves.

Number of Samples Tested:

One (1)

9.2.3. Acceptance Level:

With weights in place, operate doors through full travel to verify normal operation of doors. Remove weights and operate doors to verify normal operation. Verify that there is no significant permanent deflection of cabinet top, cabinet back, cabinet bottom, or shelves. After weights are removed, the cabinet shall show no permanent damage to the cabinet, cabinet bottom, or shelves.

Results:

<u>Shelf</u>	<u>Static Load</u>	<u>Description of Results.</u>
Top	112 Lbs	
2 nd down	112 Lbs	
Bottom	112 Lbs	
Top of unit	112 Lbs	

Total 448 Lbs

The doors would not close due to the
roller binding on the top shelf.

When the load was removed the doors returned to there original position and no binding was observed.
Refer to Figure 3 for photograph.

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Figure 3. Load Test

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9.2 LOAD TEST

Date Received:

05/05/03

Dates Tested:

05/05/03 TO 05/16/03

Description of Samples:

Part Description:

Sample No. 6. D4722 Wall Case
(Particle Board Core) (Two Doors, Two Shelves)

9.2.2... Test Procedure:

Test Method:

Using sand and shot bags weighing 10 pounds (4.359 Kg) each, load cabinet bottom, each shelf, and top uniformly with 40 pounds (17.436 Kg) per square foot to a maximum of 200 pounds (87.18 Kg) each. Maximum load to any cabinet shall not exceed 600 pounds. (261.54 Kg) (a maximum of 200 pounds (87.18 Kg) loaded to each bottom, a minimum of one shelf loaded per Section 7.0, and the top) regardless of the number of shelves.

Number of Samples Tested:

One (1)

9.2.3. Acceptance Level:

With weights in place, operate doors through full travel to verify normal operation of doors. Remove weights and operate doors to verify normal operation. Verify that there is no significant permanent deflection of cabinet top, cabinet back, cabinet bottom, or shelves. After weights are removed, the cabinet shall show no permanent damage to the cabinet, cabinet bottom, or shelves.

Results:

<u>Shelf</u>	<u>Static Load</u>	<u>Description of Results.</u>
Top	112 Lbs	
2 nd down	112 Lbs	
Bottom	112 Lbs	
Top of unit	112 Lbs	
Total	448 Lbs	The doors would not close due to the roller binding on the top shelf.

When the load was removed the doors returned to there original position and no binding was observed. Refer to Figure 4 for photograph.

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Figure 4. 9.2 Load Test

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TERMS AND CONDITIONS

The following terms and conditions apply to all work performed by ENTELA, Inc., and supercede and/or replace terms and conditions of client's purchase order unless specifically exempted in writing by an officer of ENTELA, Inc.

1. ENTELA, Inc. represents to the client that testing is done in accordance with standard procedures as applicable and that reported test results are accurate within generally accepted commercial ranges of accuracy, unless a specific measure of greater accuracy has been agreed to in writing by ENTELA, Inc. and the client.
2. ENTELA, Inc. reports apply only to the specific sample(s) tested under stated test conditions and test results are not necessarily indicative of the qualities of apparently identical or similar test or operating conditions. ENTELA, Inc. shall have no liability for any deductions, inferences or generalizations drawn by the client or others from ENTELA, Inc. reports.
3. When ENTELA, Inc. performs services, its work and reports are not governed by the Uniform Commercial Code. Except as stated in Paragraph 1, ENTELA, Inc. disclaims all warrants of merchantability or fitness for a particular purpose. ENTELA, Inc. assumes no liability for incidental or consequential damages of any nature whatsoever.
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5. Payment for the services rendered is the obligation of the client issuing the purchase order or accepting the proposal. The obligation is not contingent on any specific result from ENTELA, Inc.'s services and may not be assigned without the written permission of ENTELA, Inc.
6. If services are to be supplied to a client who has not established credit with ENTELA, Inc., or in connection with a legal action, a retainer equal to the estimated cost is required with the order, which retainer may be applied at ENTELA, Inc.'s option to its final billings. The minimum retainer required for services to be performed in connection with a legal action is \$1,000.
7. If the service to be performed requires more than one (1) month for completion, ENTELA, Inc. will make monthly billings of the approximate percentage of the work completed each month, supplying with the interim invoice a progress report showing accomplishments to date. Terms of all invoices shall be net 30 days upon receipt of invoice.
8. If the client desires forensic testing services, the client must mark each test sample and supporting documents and the test authorization form conspicuously as "LEGAL". Unless otherwise indicated in writing, prices quoted or charged by ENTELA, Inc. do not include charges for any court appearance, records retrieval/storage, expert witness testimony, deposition, or affidavit, or preparation thereof, in connection with forensic testing services. Such charges will be computed at ENTELA, Inc.'s then prevailing hourly rates, plus expenses. All such charges must be prepaid by the client prior to such appearance, testimony, deposition or affidavit and, where required by law, advance court approval of charges must be obtained by the client at the client's expense.
9. In the event that ENTELA, Inc., as a result of an order or subpoena issued by a court, is called upon to produce or testify in respect to a report, it will advise the client of the fact and the time and place of the scheduled hearing, if reasonable advance notice is given to ENTELA, Inc. If the client has any objections to ENTELA, Inc. complying with such order or subpoena, it will be the client's obligation to present such objections to the court at or prior to the time specified in such order or subpoena, and to give timely notice to ENTELA, Inc. of the results.
10. ENTELA, Inc. shall purchase, and client agrees to sell and convey title to any and all parts, assemblies, or products submitted for testing and analysis to ENTELA, Inc. for the sum of \$1.00. Upon completion of testing and analysis any and all parts, assemblies or products used or consumed during the course of our work shall be sold to and title conveyed to Client for the sum of \$1.00. Sample(s) will be destroyed thirty (30) days after the date of the final report, unless the client indicates otherwise in writing before the expiration of said 30-day period. **Tested samples shall be returned F.O.B. origin; customer responsible for return charges and insurance against risk of loss or damage of goods.**
11. Prices quoted by ENTELA, Inc. are subject to change if not accepted by the client within thirty (30) days, or if the work involved is not commenced within forty-five (45) days of such acceptance through no fault of ENTELA, Inc.
12. ENTELA, Inc.'s liability for damage to or loss or destruction of the client's property while it is in the possession of ENTELA, Inc. will be limited to the amount ENTELA, Inc. has agreed to charge the client for the services.
13. Any order or agreement for testing services by ENTELA, Inc. may be terminated in writing by the client before completion thereof with ENTELA, Inc.'s written consent in which event the client shall pay to ENTELA, Inc. an amount to be determined by ENTELA, Inc. as being sufficient to reimburse ENTELA, Inc. for all direct and indirect costs and expenses, including (but not limited to) supplies, materials, labor, and overhead incurred with respect to the order or agreement through the date of termination.
14. ENTELA, Inc. shall not be liable for any failure or delay in performance which is caused in whole or in part by fire, flood, accident, riot, war, operation of law, government action, strikes or other labor disturbances, fuel shortages, or any other cause beyond the control of ENTELA, Inc.
15. All contracts between ENTELA, Inc. and the client shall be deemed to be made in and governed by the laws of the State of Michigan.
16. Should ENTELA, Inc. be required to subcontract any testing or other services, the client will be informed of such arrangement either verbally or in writing. ENTELA, Inc. shall have no liability for any deductions, inferences, or generalizations drawn by the client or others from subcontractor's data.
17. Should witness of testing or services on ENTELA, Inc. premises be requested, the client shall comply with all applicable safety regulations and precautions. Client shall supply, if requested, evidence of workers compensation coverage prior to visit.
18. It is the client's responsibility to understand the procedures utilized in the testing process. Any action taken by a client based on any consulting, recommendations, results, observations, conclusions, discussions, or data as provided by ENTELA are the sole responsibility of the client."