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MAANI & PARTNERS FURNITURE CO.
TEST REPORT

SCOPE OF WORK
SEFA 8M-2016 RECOMMENDED TESTING STANDARDS FOR LABORATORY GRADE METAL CASEWORK on Laboratory Cabinet

REPORT NUMBER
103063239GRR-001

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18-July-2017

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TEST REPORT FOR MAANI & PARTNERS FURNITURE CO.

Report No.: 103063239GRR-001
Date: 18-July-2017
P.O.: 74/2017

SECTION 1

CLIENT INFORMATION

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SECTION 2

SUMMARY AND CONCLUSION

Date Received 08-Jun-2017
Dates Tested 13-Jun-2017 to 01-Jul-2017

DESCRIPTION OF SAMPLES

Part Description: Laboratory Cabinet
Condition of Samples: New

WORK REQUESTED/APPLICABLE DOCUMENTS

SEFA 8M-2016 LABORATORY GRADE METAL CASEWORK
Intertek quote Qu-00710760

CONCLUSION

TEST		RESULTS
4.2	Cabinet Load Test	CONFORMING
4.3	Cabinet Concentrated Load Test	CONFORMING
4.4	Cabinet Torsion Test	CONFORMING
5.1	Door Hinge Test	CONFORMING
5.2	Door Impact Test	CONFORMING
5.3	Door Cycle Test	CONFORMING
6.1	Drawer Static Test	CONFORMING
6.2	Drawer and Door Pull Test	CONFORMING
6.3	Drawer Impact Test	CONFORMING
6.4	Drawer Internal Rolling Impact Test	CONFORMING
6.5	Drawer Cycle Test	CONFORMING
7.2	Shelf Load Test	CONFORMING
8.1	Chemical Spot Test	CONFORMING
8.2	Hot Water Test	CONFORMING
8.3	Finish Impact Test	CONFORMING
8.4	Paint Adhesion on Steel	CONFORMING
8.5	Paint Hardness on Steel	CONFORMING
9.2	Load Test	N/A
10.2	Table Static Load Test	N/A
10.3	Table Racking Test	N/A

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

SAMPLE DISPOSITION

After testing was completed, sample was rendered unusable and then disposed of.

TEST EQUIPMENT

ASSET NUMBER	DESCRIPTION	LAST CAL	NEXT DUE
114233.1	Timer 4 Channel	07/28/2016	07/28/2018
117346	DIGITAL THERMOMETER	10/20/2016	10/20/2017
117358	STEEL RULE 36"	08/05/2016	08/05/2017
138012	SCALE/0-1,000#	10/18/2016	10/18/2017
138112	GRADUATED RULE 36"	10/11/2013	10/11/2018
138148	DIGITAL PROTRACTOR	09/20/2016	09/20/2017
138279	FORCE GAUGE	03/03/2017	03/03/2018
138296.1 - .41	STEEL BAR	01/04/2017	01/04/2022
138339	0-2" Dial Indicator	06/05/2017	06/05/2018
138426	SCIENTIFIC STOPWATCH	04/26/2017	04/26/2018

SECTION 3

4.1 SEFA 8M-2016 – DESCRIPTION OF TEST UNIT:

Dates Tested: 30-Jun-2017
Condition of Test Samples: New
Number of Samples Tested: One (1)

Model Number	Description of Sample	Dimensions
F11B12HM	Base Cabinet	48” W x 35” H x 22” D

PART DESCRIPTION:

Base unit has one drawer, two doors and a shelf.

The hardware on the units is as follows:

Model Number	Description of Sample
200001900	Hinge
200001890	Drawer Slides

Refer to the following pages for photographs.

Test Unit (Base Unit)

Cabinet Glide

Shelf Clip

Drawer Slide

Drawer Pull

Door Hinge

Door Handle

4.2 SEFA 8M-2016 – CABINET LOAD TEST:

Date Tested: 30-Jun-2017
Condition of Test Samples: New
Number of Samples Tested One (1)

DESCRIPTION OF SAMPLES:

Model Number	Description of Sample
F11B12HM	Base Cabinet

TEST PROCEDURE:

4.2.2 Test Method: Verify that the cabinet is level. Load the cabinet top by using 2000 lbs. (907.2 kg) of solid steel bars (Per Section 3.1) stacked 5 high and evenly spaced. After 24 hours, unload the cabinet.

Number of Samples Tested: One (1)

ACCEPTANCE CRITERIA:

4.2.3 Acceptance Level: The cabinet will have no signs of permanent failure.

RESULTS:

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

Cabinet Load Test

4.3. SEFA 8M-2016 – CABINET CONCENTRATED LOAD TEST:

Date Tested: 30-Jun-2017
Condition of Test Samples: New
Number of Samples Tested: One (1)

DESCRIPTION OF SAMPLES:

Model Number	Description of Sample
F11B12HM	Base Cabinet

TEST PROCEDURE:

4.3.2 Test Method: Using 50 lb. solid weights or 10 lb sandbags (per Section 3.1), apply a total of 200 lbs. (90.70 kg) to the top of the cabinet along the cabinet centerline and operate doors and drawers.

Number of Sample Tested: One (1)

ACCEPTANCE CRITERIA:

4.3.3 Acceptance Level: Door and drawer operation shall be normal under condition of test load. There shall be no sign of permanent deformation to front rail, cabinet joinery, doors, or drawers. Doors and drawers shall operate normally.

RESULTS:

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

Cabinet Concentrated Load Test

4.4 SEFA 8M-2016 – CABINET TORSION:

Date Tested: 30-Jun-2017 to 01-Jul-2017
Condition of Test Samples: New
Number of Samples Tested: One (1)

DESCRIPTION OF SAMPLES:

Model Number	Description of Sample
F11B12HM	Base Cabinet

TEST PROCEDURE:

4.4.2 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 centered on the leveling feet of the cabinet. Per Section 3.1, secure the cabinet diagonally from the supported corner with seven solid steel bars so that 350 lbs. (158.75 kg.) of weight is placed on the top of the cabinet to prevent over-turning. Apply four solid steel bars (200 lbs (90.72 kg.)) to the unsupported corner for a period of 24 hours. Remove weight and place the cabinet on the floor in its normal upright position Observe the cabinet joinery. Level the cabinet and measure the face and back of the cabinet across the diagonal corners.

ACCEPTANCE CRITERIA:

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” (3.175 mm).

RESULTS:

The submitted sample met the acceptance criteria for the test described above. There was no change in the measurements. Refer to the following page for photograph.

Cabinet Torsion

5.1 SEFA 8M-2016 – DOOR HINGE TEST:

Date Tested: 29-June-2017
Condition of Test Samples: New
Number of Samples Tested: One (1)

DESCRIPTION OF SAMPLES:

Model Number	Description of Sample
F11B12HM	Base Cabinet

TEST PROCEDURE:

5.1.2. 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 lb. (45.35 kg) weights (shot bags or solid weights) over top of the door at a point 12" (304.8 mm) out from the hinge center-line. Slowly move door through the two full cycles of the hinge up to a 160 degree arc. Remove weight and swing door through its full intended range of motion and close door.

ACCEPTANCE CRITERIA:

5.1.3 Acceptance Level: The open door shall withstand a load of 200 lbs. (90.70 kg) when applied at a point 12" (304.8 mm) 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 met the acceptance criteria of the test. The door operated normally through its entire range of motion, and the door catch operated normally. Refer to the following page for photograph.

Door Hinge Test

5.2 SEFA 8M-2016 – DOOR IMPACT TEST:

Date Tested: 29-June-2017
Condition of Test Samples: New
Number of Samples Tested: One (1)

DESCRIPTION OF SAMPLES:

Model Number	Description of Sample
F11B12HM	Base Cabinet

TEST PROCEDURE:

5.2.2 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 lb (9.07 kg.) sand bag (per Section #3.1) shall be suspended and dropped to provide an impact of 240 inch-ponds (27.1 Nm) at the center of the closed door.

ACCEPTANCE CRITERIA:

5.2.3 Acceptance Level: After the test, the door and catch shall operate normally and show no signs of permanent damage. This test is not intended to evaluate the cabinet finish.

RESULTS:

The door operated normally through its entire range of motion, and the door catch operated normally. Refer to the following page for photograph.

Door Impact Test

5.3 SEFA 8M-2016 – DOOR CYCLE TEST:

Date Tested: 21-June-2017 to 28-June-2017
Condition of Test Samples: New
Number of Samples Tested: One (1)

DESCRIPTION OF SAMPLES:

Model Number	Description of Sample
F11B12HM	Base Cabinet

TEST PROCEDURE:

5.3.2. 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.

ACCEPTANCE CRITERIA:

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:

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

Door Cycle Test

6.1 SEFA 8M-2016 – DRAWER STATIC LOAD TEST:

Date Tested: 28-June-2017
Condition of Test Samples: New
Number of Samples Tested: One (1)

DESCRIPTION OF SAMPLES:

Model Number	Description of Sample
F11B12HM	Base Cabinet

TEST PROCEDURE:

6.1.2. 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" (330.2 mm.) of travel and hang 150 pounds (68.0 kg.) from the drawer head at the centerline of the drawer for five minutes. Remove the weight and operate the drawer through the full cycle.

ACCEPTANCE CRITERIA:

6.1.3. Acceptance Level: There shall be no permanent damage that will interfere with the normal operation of the drawer and the drawer head should remain tightly fastened to the drawer.

RESULTS:

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

Drawer Static Load Test

6.2 SEFA 8M-2016 – DRAWER AND DOOR PULL TEST:

Date Tested: 28-June-2017
Condition of Test Samples: New
Number of Samples Tested: One (1)

DESCRIPTION OF SAMPLES:

Model Number	Description of Sample
F11B12HM	Base Cabinet

TEST PROCEDURE:

6.2.2. 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, apply a force of 50 lbs (22.676 kg) perpendicular to each pull. Remove weight.

ACCEPTANCE CRITERIA:

6.2.3 Acceptance Level: Pull 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 operated freely. The submitted sample met the acceptance criteria for the test described above. Refer to the following page for photograph.

Drawer Pull Test

Door Pull Test

6.3 SEFA 8M-2016 – DRAWER IMPACT TEST:

Date Tested: 28-June-2017
Condition of Test Samples: New
Number of Samples Tested: One (1)

DESCRIPTION OF SAMPLES:

Model Number	Description of Sample
F11B12HM	Base Cabinet

TEST PROCEDURE:

6.3.2 Test Method: Remove drawer; support each corner with 2”x2”x1” (50.8 x 50.8 x 25.4 mm) supports. Drop a 10 lb. (4.545 kg) sand or shot bag from a height of 24” (609.6 mm) into the bottom of the drawer at the center of the width of the drawer. Remove the sand or shot bag.

ACCEPTANCE CRITERIA:

6.3.3. Acceptance Level: No damage or breakout of the drawer bottom.

RESULTS:

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

Drawer Impact Test

6.4 SEFA 8M-2016 – DRAWER INTERNAL ROLLING IMPACT TEST:

Date Tested: 20-June-2017
Condition of Test Samples: New
Number of Samples Tested: One (1)

DESCRIPTION OF SAMPLES:

Model Number	Description of Sample
F11B12HM	Base Cabinet

TEST PROCEDURE:

6.4.2. Test Method: Position the drawer on a table at a 45 degree angle. Place a 2" (50.8 mm.) diameter by 12" (304.8 mm.) long steel rod (approximately 10 lbs. (4.535 kg.) 13" (330.2 mm.) 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.

ACCEPTANCE CRITERIA:

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:

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

Drawer Internal Rolling Impact Test

6.5 SEFA 8M-2016 – DRAWER CYCLE TEST:

Date Tested: 13-Jun-2017 to 18-Jun-2017
Condition of Test Samples: New
Number of Samples Tested: One (1)

DESCRIPTION OF SAMPLES:

Model Number	Description of Sample
F11B12HM	Base Cabinet

TEST PROCEDURE:

6.5.2. Test Method: Laboratory Load (100 lbs. (45.35 kg) – A static load of 100 lbs (45.35 kg) (using ten 10 lb. (4.535 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 1/4" (6.35 mm) of full extension for 50,000 cycles at a rate not to exceed 10 cycles per minute.

ACCEPTANCE CRITERIA:

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 (3.628 kg.) to activate hardware.

RESULTS:

The submitted sample met the acceptance criteria for the test described above. Pull force at the end of the test was 5.5 lbf. Refer to the following page for photograph.

Drawer Cycle Test

7.2 SEFA 8M-2016 – SHELF LOAD TEST:

Date Tested: 29-June-2017
Condition of Test Samples: New
Number of Samples Tested: One (1)

DESCRIPTION OF SAMPLES:

Model Number	Description of Sample
F11B12HM	Base Cabinet

This test is only shelf deflection of the shelf in a base cabinet.

TEST PROCEDURE:

7.2.2 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 lbs. (4.535 kg) each. Unless otherwise specified, load the shelf uniformly to 40 lbs. (18.14 kg) per square foot shelf area to a maximum of 200 lbs. (90.70 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 the load.

ACCEPTANCE CRITERIA:

7.2.3. Acceptance Level: The allowable maximum deflection of a shelf is 1/180 of the span and not in excess of .25” (6.35 mm.). Maximum allowable deflection shall not exceed 0.25”.

RESULTS:

Shelf Type	Shelf Load	Deflection Measured	Results
Base Cabinet Shelf	200 lbs.	.171 in.	Conforming

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

Shelf Load Test – Base Cabinet

8.1 CHEMICAL SPOT TEST:

Date Received:	08-June-2017
Date Tested:	14-June-2017 to 16-June-17
Location Tested:	Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

Part Description:	SEFA 8M for Metal
Material Submitted:	Off-White Metal Painted Panels, three (3) of 6" x 13" and Seven (7) of 14" x 24"
Material Specification:	SEFA 8M-2016
Condition of Samples:	New

TEST PROCEDURE:

Test Method:	Per SEFA 8M-2016 Section 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.
Side Teste:	Does not matter
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, convex side down. For both of the above methods, leave the reagents on the panel for a period of <u>one hour</u>. 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.
Number of Samples:	Two (2) Panels	

ACCEPTANCE CRITERIA:

Per SEFA 8M-2016 Section 8.1:
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:

Test No.	Chemical (% by Vol.)	Method	Rating	Comments
1	Acetate, Amyl	A	0	
2	Acetate, Ethyl	A	1	Gloss Change
3	Acetic Acid, 98%	B	1	Gloss Change
4	Acetone	A	1	Gloss Change
5	Acid Dichromate, 5%	B	0	
6	Alcohol, Butyl	A	0	
7	Alcohol, Ethyl	A	0	
8	Alcohol, Methyl	A	0	
9	Ammonium Hydroxide, 28%	B	0	
10	Benzene	A	0	
11	Carbon Tetrachloride	A	0	
12	Chloroform	A	1	Gloss Change
13	Chromic Acid, 60%	B	1	Gloss/Color Change
14	Cresol	A	0	
15	Dichloroacetic Acid	A	0	
16	Dimethylformanide	A	1	Gloss Change
17	Dioxane	A	1	Gloss Change
18	Ethyl Ether	A	0	
19	Formaldehyde, 37%	A	0	
20	Formic Acid, 90%	B	1	Gloss/Color Change
21	Furfural	A	2	Staining
22	Gasoline	A	0	
23	Hydrochloric Acid, 37%	B	1	Gloss/Color Change
24	Hydrofluoric Acid, 48%	B	2	Color Change

Test No.	Chemical (% by Vol.)	Method	Rating	Comments
25	Hydrogen Peroxide, 30%	B	0	
26	Iodine, Tincture of	B	2	Staining
27	Methyl Ethyl Ketone	A	1	Gloss Change
28	Methylene Chloride	A	1	Gloss Change
29	Monochlorobenzene	A	0	
30	Naphthalene	A	0	
31	Nitric Acid, 20%	B	0	
32	Nitric Acid, 30%	B	0	
33	Nitric Acid, 70%	B	2	Staining
34	Phenol, 90%	A	0	
35	Phosphoric Acid, 85%	B	0	
36	Silver Nitrate, Saturated	B	0	
37	Sodium Hydroxide, 10%	B	0	
38	Sodium Hydroxide, 20%	B	0	
39	Sodium Hydroxide, 40%	B	0	
40	Sodium Hydroxide, Flake	B	0	
41	Sodium Sulfide, Saturated	B	0	
42	Sulfuric Acid, 33%	B	0	
43	Sulfuric Acid 77%	B	0	
44	Sulfuric Acid, 96%	B	3	Surface Erosion
45	Sulfuric Acid, (77%) and Nitric Acid (70%), equal parts	B	3	Surface Erosion
46	Toluene	A	0	
47	Trichloroethylene	A	0	
48	Xylene	A	0	
49	Zinc Chloride, Saturated	B	0	

Totals			
Items	**Requirement**	**No. Reagent with 3 Ratings**	**Disposition**
Volatile Subtotal:	-	0	---
Non-volatile Subtotal:	-	2	---
Grand Totals:	No More than Four Level 3 Conditions	2	Conforming*

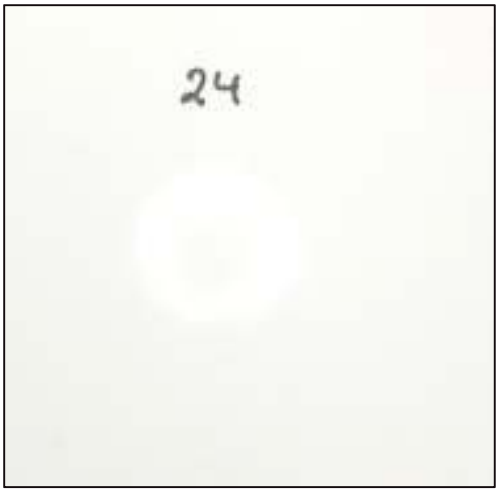
Refer to the following pages for photographs:

Chemical Spot Test "As Received" Test Panels

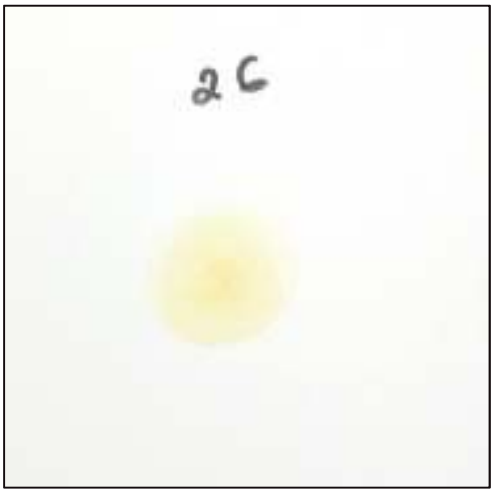
Chemical Spot Test Chemical Set-up

Chemical Spot Test Panels after Exposure

Chemical Spot Test 21, Furfural, Rating 2, Staining



Chemical Spot Test 24, Hydrofluoric Acid (48%), Rating 2, Color Change



Chemical Spot Test 26, Iodine Rating 2, Staining

Chemical Spot Test 33, Nitric Acid (70%) Rating 2, Staining

Chemical Spot Test 44, Sulfuric Acid (96%) Rating 3, Surface Erosion

Chemical Spot Test 45, Sulfuric Acid (77%) and Nitric Acid (70%) equal parts Rating 3, Surface Erosion

8.2 HOT WATER TEST:

Date Received:	08-June-2017
Date Tested:	21-June-2017
Location Tested:	Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

Part Description:	SEFA 8M-for Metal
Material Submitted:	Off-White Metal Painted Panels, three (3) of 6” x 13” and Seven (7) of 14” x 24”
Material Specification:	SEFA 8M-2016
Condition of Samples:	New

TEST PROCEDURE:

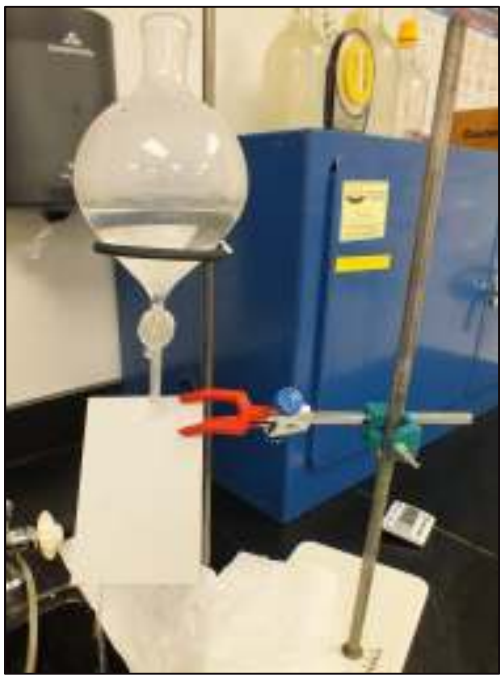
Test Method:	Per SEFA 8M-2016 Section 8.2:
Procedure:	Hot water (88 to 96°C) shall be allowed to trickle (with a steady stream and at a rate of not less than 6 ounces [177.44cc] per minute) on the finished surface, which shall be set at an angle of 45-degrees, for a period of five minutes.
Side:	Does not matter per client
Number of Samples:	One (1) section

ACCEPTANCE CRITERIA:

Per SEFA 8M-2016 Section 8.2:
After cooling and wiping dry, the finish shall show no visible effect from the hot water.

RESULTS:

Sample	Visible Effects from Hot Water	Disposition
1	None	Conforming



Hot Water Test – Set-up

Hot Water Test – After Exposure

8.3 FINISH IMPACT TEST:

Date Received:	08-June-2017
Date Tested:	27-June-2017
Location Tested:	Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

Part Description:	SEFA 8M-for Metal
Material Submitted:	Off-White Metal Painted Panels, three (3) of 6” x 13” and Seven (7) of 14” x 24”
Material Specification:	SEFA 8M-2016
Condition of Samples:	New

TEST PROCEDURE:

Test Method:	Per SEFA 8M-2016 Section 8.3:
Side Tested:	Does not matter.
Procedure:	Position the panel on a smooth concrete floor. A one-pound ball (approximately 2" [50.8mm] in diameter) shall be dropped from a distance of 12" (304.8 mm) onto a flat horizontal surface.
Number of Samples:	One (1) Panel

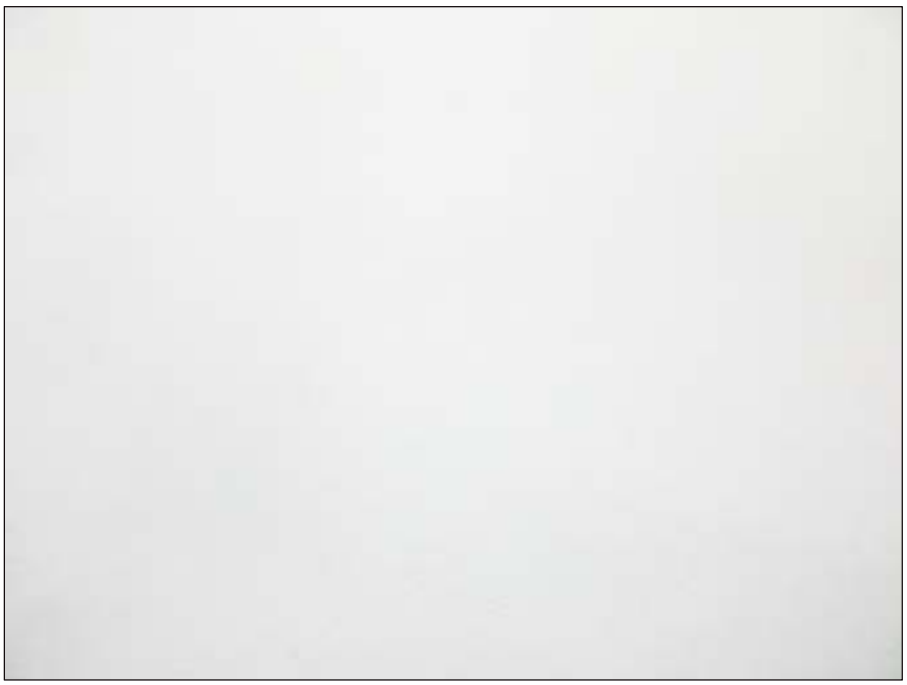
ACCEPTANCE CRITERIA:

Per SEFA 8M-2016Section 8.3:

RESULTS:

Specimen	Cracks or Checks in Finish	Disposition
1	No Cracks or Checks	Conforming

Finish Impact Test after Impact, No Change



Finish Impact Test after Impact, Close-Up, No Change

8.4 PAINT ADHESION ON STEEL:

Date Received:	08-June-2017
Date Tested:	26-June-2017
Location Tested:	Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

Part Description:	SEFA 8M-for Metal
Material Submitted:	Off-White Metal Painted Panels, three (3) of 6” x 13” and Seven (7) of 14” x 24”
Material Specification:	SEFA 8M-2016
Condition of Samples:	New

TEST PROCEDURE:

Test Method:	Per SEFA 8M-2016 Section 8.4; ASTM D3359-02, Method B, Cross-Cut Tape Test
Side Tested:	Does not matter.
Procedure:	Two sets of six parallel lines 2 mm apart shall be cut with a razor blade to intersect at right angles thus forming a grid of 25 squares. The cuts shall be made just deep enough to go through the coating, but not into the substrate. They shall then be brushed lightly with a soft brush then place a piece of tape over the grid. Rub the tape firmly with the eraser of a pencil to ensure good contact. Remove the tape by rapidly pulling it back upon itself as close to an angle of 180° as possible.
Tape:	3M 898
Number of Samples:	One (1)

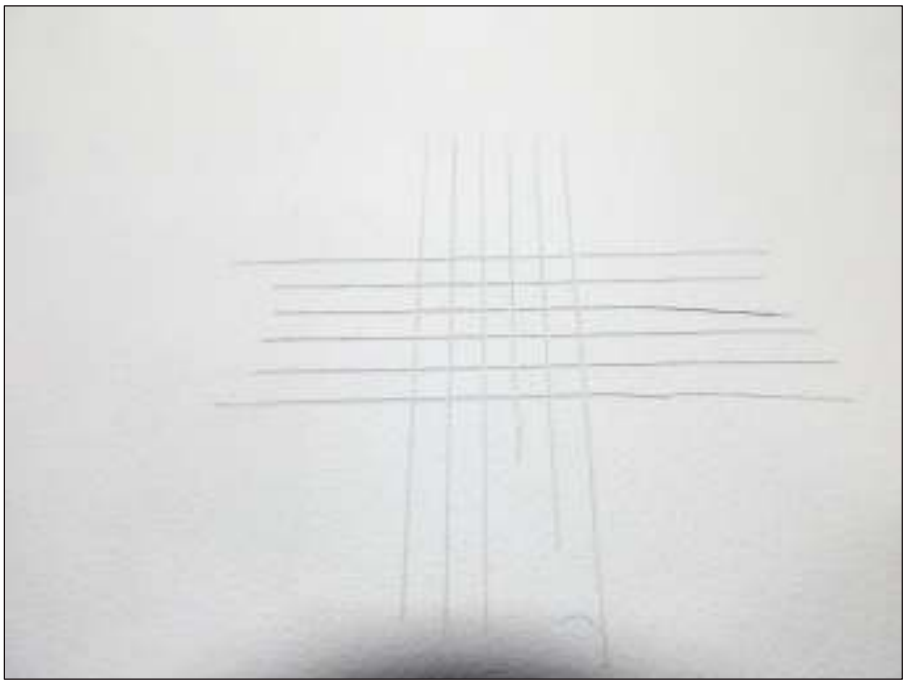
ACCEPTANCE CRITERIA:

Per SEFA 8M-2016 Section 8.4:
The paint finish shall withstand the abrasion of a 4H pencil without penetrating through to the substrate and completing a continuous circuit.

RESULTS:

Specimen	Tape Rating	% of Intact Squares	Disposition
1	5B	100	Conforming

Paint Test Set-Up



Paint Adhesion on Steel Test after Testing

8.5 PAINT HARDNESS ON STEEL:

Date Received:	08-June-2017
Date Tested:	26-June-2017
Location Tested:	Intertek Kentwood, MI

DESCRIPTION OF SAMPLES:

Part Description:	SEFA 8M for Metal
Material Submitted:	Off-White Metal Painted Panels, three (3) of 6" x 13" and Seven (7) of 14" x 24"
Material Specification:	SEFA 8M-2016
Condition of Samples:	New

TEST PROCEDURE:

Test Method:	Per SEFA 8M-2016 Section**.** Section 8.5; ASTM D3363-05:
Procedure:	Clip a corner of the sample at 45° exposing a raw metal edge. Place the sample on a raw metal base plate so that the exposed metal edge of the sample makes contact with the turned up side of the base plate (see figure below).

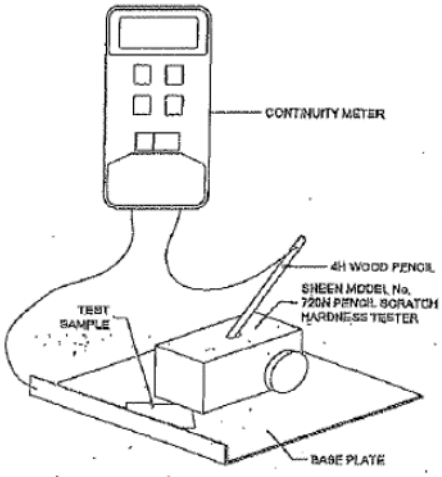


Figure 16. Paint Hardness on Steel Test Configuration

Figure 17. 4H Pencil Configuration

Remove approximately 6 mm of wood from a 4H pencil, being careful to leave an undisturbed smooth cylinder of lead. Holding the pencil at an angle of 90° to an abrasive paper, rub the lead against the paper marinating an exact angle of 90° until a flat smooth and circular cross section is obtained. On the other end the pencil remove approximately 13 mm of wood from one half of the pencil (see figure above).

Install the pencil into a Sheen model 720N Pencil Scratch Hardness Tester. Connect a continuity meter to the base plate and to the top of the pencil, being sure to make good contact with the exposed portion of the lead.

Following the manufactures instructions place the tester on the surface of the test sample and push it forward approximately 13 mm. Rotate the pencil 90° in the holder and repeat the test to one side of the first test. Repeat this two more times for a total of four tests, each with a different quadrant of the pencil lead.

Pencils used: Berol Turquoise
Number of Samples: One (1)

ACCEPTANCE CRITERIA:

Per SEFA 8M-2016 Section 8.5:
The paint finish shall withstand the abrasion of a 4H pencil without penetrating through to the substrate and completing a continuous circuit.

RESULTS:

Specimen	Pencil Hardness	Pencil Penetrating to Substrate	Completing a Continuous Circuit	Disposition
1	4H	No Penetration	No Continuous Circuit	Conforming

Paint Hardness on Steel Test after Exposure

SECTION 4

REVISIONS MADE TO TEST REPORT

DATE	REVISION DESCRIPTION	REVISED BY	REVISED BY
18-July -2017	Initial release.	James Jantz