

**Conformance Guide: Catalina Laboratory Products steel laboratory casework and related products.**

**Part 1: Casework Design Features**

A. Inset construction: Drawers and doors, when closed, shall be recessed to create an overall flush face with 1/8" reveals. The top front corners of the door shall be welded and ground smooth to eliminate sharp raw edges of steel. Drawer fronts shall be 3/4" thick, double wall steel construction, pre-painted prior to assembly and sound deadened. Cabinet doors and drawers shall have rubber bumpers for quiet operation.

B. General construction; welded assembly:

1. All cabinet bodies shall be flush front construction with intersection of vertical and horizontal case members, such as end panels, top rails, bottoms, and vertical posts in same plane without overlap. Exterior corners shall be spot welded with heavy back up reinforcement at exterior corners. All face joints shall be welded and ground smooth to provide a continuous flat plane.

2. All drawer bodies shall be made in one-piece construction including the bottom, two sides, back and front. They shall be fully coved at interior bottom on all four sides for easy cleaning. The top front of the inner drawer body shall be offset to interlock with the channel formation in drawer head providing a 3/4" thick drawer head. Drawers shall be a minimum of 18 inches front to back, in a standard 22" deep cabinet.

3. Steel Door assembly (two-piece) for solid pan swinging doors shall consist of an inner and outer door pan. Outer door pan shall be formed at all four sides. The corners on the pull side of the outer door pan shall be welded and ground smooth to prevent exposure to sharp edges. The door assembly shall be 3/4" thick and contain sound deadening material, shall be twist -resistant and rigid, and shall close in a flat plane against the cabinet to permit the door catch at top of door to function properly.

C. Self-supporting units: Completely welded shell assembly without applied panels at ends, backs, or bottoms, so that cases can be used interchangeably or as a single, stand-alone unit. Each cabinet shall be complete so that units can be relocated at any subsequent time without requiring field application of finished ends or other such parts.

D. Interior of case units: Easily cleanable, smooth interior. Front and rear posts, reinforcing members or channel uprights shall be enclosed full heights on all cabinet openings.

E. Case openings: Rabbeted joints all four sides of case opening to provide structural integrity.

F. Framed glazed doors: Identical in construction, hardware, and installation to solid panel doors. Glazed doors shall be removable for glass replacement.

G. Cabinet base: Base cabinets shall be constructed with a fully integrated base and toe space. Toe space shall form a smooth, fully enclosed surface 3" deep by 4" high. Each bottom corner of base cabinets shall be furnished with a die-formed gusset having a 3/8" leveling bolt with nylon foot capable of making vertical adjustments up to 1.5". Each leveling bolt and gusset shall be capable of supporting 500 lbs. Access to the leveling bolts shall be through plug buttons in the cabinet bottom. Special tools are not required for leveling leg adjustment.

H. Back construction: Standard cabinets have removable back panels. Sink base cabinets have removable back panels that are lowered to provide access to service chase plumbing services.

I. Shelves: Adjustable shelves shall be formed down 3/4", returned back 7/8" and up 1/4" into a channel formation front and rear; formed down 3/4" at each end. Shelves over 42" long shall be further reinforced with a channel formation welded to underside of shelf.

## **Part 2: Casework Performance Features**

A. Structural performance features: Casework components will withstand the following minimum loads without damage to the component or to the casework operation:

1. Steel base unit load capacity: 200 lbs. per square foot of uniformly distributed load (2000 lbs. maximum) without objectionable distortion of interference with door and drawer operation.
2. Base cabinet corners where leveling bolts intersect horizontal gussets shall support 500 lbs. per corner, at 1½ inch projection of the leveling bolt below the gusset.
3. Drawer assemblies shall automatically maintain alignment in cabinet opening and shall not bind during opening or closing of the drawer. Drawer slides conform to SEFA 8M testing criteria by performing a minimum of 50,000 cycles with an evenly distributed load of 100 lbs.
4. Swinging doors mounted on base units shall support a 250 lb. load located at a test point 14 inches measured horizontally from hinge along the top edge of door through a swing of 180 degrees. Weight test allows for nominal temporary deflection, but no permanent distortion.
5. Hanging wall cases: 300 lb. maximum distributed load without objectionable distortion of interference with door and drawer operation
6. Each adjustable and fixed shelf 4 feet or shorter in length shall support an evenly distributed load of 40 lbs. per square foot up to a maximum of 200 lb., with nominal temporary deflection, but without permanent set.

### **Part 3: Steel Paint System Finish and Performance Features:**

A. Steel Paint System Finish: After Cold Rolled Steel component parts have been completely welded together and before finishing, they shall be given a pre-treatment before paint to provide excellent adhesion of the paint to the steel and to aid in the prevention of corrosion. Physical and chemical cleaning of the steel shall be accomplished by washing in an automated conveyORIZED 5-stage pre-treatment system. Where the system will clean the parts and apply a "Green" Oxsilan coating to provide a uniform surface that shall provide both an excellent bond for the powder finish and enhance the protection provided by the finish against humidity and corrosive chemicals.

After the nanotechnology pre-treatment, the steel shall be dried, and all steel surfaces shall be coated with a chemical and corrosion-resistant, environmentally friendly, electrostatically applied powder coat finish. All components shall be individually painted, ensuring that no area be vulnerable to corrosion due to lack of paint coverage. The coating shall then be cured by baking at elevated temperatures to provide maximum properties of corrosion and wear resistance. A minimum coating thickness of 60 microns shall be maintained across the surface.

The completed finish system in standard colors shall meet the performance test requirements specified below.

#### **B. Chemical Testing Performance:**

1. Testing Procedure: Chemical spot tests for non-volatile chemicals shall be made by applying 5 drops of each reagent to the surface to be tested and covering with a 1-1/4" dia. watch glass, convex side down to confine the reagent. Spot tests of volatile chemicals shall be tested by placing a cotton ball saturated with reagent on the surface to be tested and covering with an inverted 2-ounce wide mouth bottle to retard evaporation. All spot tests shall be conducted in such a manner that the test surface is kept wet throughout the entire test period, and at a temperature of 77° ±3° F. For both methods, leave the reagents on the panel for a period of one hour. At the end of the test period, the reagents shall be flushed from the surface with water, and the surface scrubbed with a soft bristle brush under running water, rinsed and dried. Volatile solvent test areas shall be cleaned with a cotton swab soaked in the solvent used on the test area. Immediately prior to evaluation, 16 to 24 hours after the reagents are removed, the test surface shall be scrubbed with a damp paper towel and dried with paper towels.

Test Evaluation: Evaluation shall be based on the following rating system.

- 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.

#### Test Reagents

Test No.	Chemical Reagent	Test Method
1.	Acetate, Amyl	Cotton ball & bottle
2.	Acetate, Ethyl	Cotton ball & bottle
3.	Acetic Acid, 98%	Watch glass
4.	Acetone	Cotton ball & bottle
5.	Acid Dichromate, 5%	Watch glass
6.	Alcohol, Butyl	Cotton ball & bottle
7.	Alcohol, Ethyl	Cotton ball & bottle
8.	Alcohol, Methyl	Cotton ball & bottle
9.	Ammonium Hydroxide, 28%	Watch glass
10.	Benzene	Cotton ball & bottle
11.	Carbon Tetrachloride	Cotton ball & bottle
12.	Chloroform	Cotton ball & bottle
13.	Chromic Acid, 60%	Watch glass
14.	Cresol	Cotton ball & bottle
15.	Dichloroacetic Acid	Cotton ball & bottle
16.	Dimethylformamide	Cotton ball & bottle
17.	Dioxane	Cotton ball & bottle
18.	Ethyl Ether	Cotton ball & bottle
19.	Formaldehyde, 37%	Cotton ball & bottle
20.	Formic Acid, 90%	Watch glass
21.	Furfural	Cotton ball & bottle
22.	Gasoline	Cotton ball & bottle
23.	Hydrochloric Acid, 37%	Watch glass
24.	Hydrofluoric Acid, 48%	Watch glass
25.	Hydrogen Peroxide, 3%	Watch glass
26.	Iodine, Tincture of	Watch glass
27.	Methyl Ethyl Ketone	Cotton ball & bottle
28.	Methylene Chloride	Cotton ball & bottle
29.	Mono Chlorobenzene	Cotton ball & bottle
30.	Naphthalene	Cotton ball & bottle
31.	Nitric Acid, 20%	Watch glass
32.	Nitric Acid, 30%	Watch glass
33.	Nitric Acid, 70%	Watch glass
34.	Phenol, 90%	Cotton ball & bottle

- 35. Phosphoric Acid, 85% Watch glass
- 36. Silver Nitrate, Saturated Watch glass
- 37. Sodium Hydroxide, 10% Watch glass
- 38. Sodium Hydroxide, 20% Watch glass
- 39. Sodium Hydroxide, 40% Watch glass
- 40. Sodium Hydroxide, Flake Watch glass
- 41. Sodium Sulfide, Saturated Watch glass
- 42. Sulfuric Acid, 33% Watch glass
- 43. Sulfuric Acid, 77% Watch glass
- 44. Sulfuric Acid, 96% Watch glass
- 45. Sulfuric Acid, 77% and  
Nitric Acid, 70%, equal parts Watch glass
- 46. Toluene Cotton ball & bottle
- 47. Trichloroethylene Cotton ball & bottle
- 48. Xylene Cotton ball & bottle
- 49. Zinc Chloride, Saturated Watch glass

\* Where concentrations are indicated, percentages are by weight.

After testing, panel shall show no more than five (5) Level 3 conditions. Suitability for a given application is dependent upon the chemicals used in each laboratory.

C. Hot Water Test (Heat Resistance) Performance:

- 1. Purpose of Test: The purpose of this test is to ensure that the coating is resistant to heat.
- 2. Test Procedure: Hot water (190°F to 205°F), shall be allowed to trickle (with a steady stream and at a rate of not less than 6 ounces per minute on the surface, which shall be set at an angle of 45-degrees, for a period of five minutes.
- 3. Acceptance Level: After cooling and wiping dry, the finish shall show no visible effect from the hot water.

D. Impact Test (Impact Resistance) Performance:

- 1. Purpose of Test: The purpose of this test is to evaluate the ductility of the coating.
- 2. Test Procedure: A one-pound ball approximately 2" in diameter shall be dropped from a distance of 12" onto a flat horizontal coated surface.
- 3. Acceptance Level: There shall be no visible evidence to the naked eye of cracks or checks in the finish due to impact.

E. Paint Adhesion on Steel Test

- 1. Purpose of Test: The paint adhesion test is used to determine the strength of the bond of the coating to the steel substrate.
- 2. Test Procedure: This test is based on ASTM D2197-86 "Standard Method of Test for Adhesion of Organic Coating". Two sets of eleven

parallel lines 1/16" apart shall be cut with a razor blade to intersect at right angles thus forming a grid of 100 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 for one minute. Examine under 100-foot candles of illumination.

3. Acceptance Level: Ninety or more of the squares shall show finish intact.

F. Paint Hardness on Steel Test (Hardness):

1. Purpose of Test: The paint hardness test is used to determine the resistance of the coatings to scratches.

2. Test Procedure: Pencils, regardless of their brand, are valued in this way: 8-H is the hardest, and next 11 order of diminishing hardness are 7-H, 6-H, 5-H, 4-H, 3-H, 2-H, H, F, HB, B (soft), 2-B, 3-B, 4-B, 5-B (which are softest).

The pencils shall be sharpened on emery paper to a wide sharp edge. Pencils of increasing hardness shall be pushed across the paint film in a chisel-like manner until one is found that will cut or scratch the film. The pencil used before that one, that is the hardest pencil that will not rupture the film, is then used to express, or designate the hardness.

3. Acceptance Level: The paint shall have a hardness of 4-H minimum with no visible puncture of the finish surface

G. Paint Performance Test (Bending Test): An 18-gauge coated steel strip, when bent 180o over a 1/2" diameter mandrel, shall show no peeling or flaking off of the finish.

#### **Part 4: Casework Materials**

A. Sheet steel: Mild, cold-rolled, and leveled furniture grade unfinished steel.

B. Minimum cabinet component gauges:

1. 20ga: Exterior/interior drawer fronts, interior door panels, scribing strips, filler panels, enclosures, drawer bodies, shelves, security panels and sloping tops.

2. 18ga: Door/Drawer assemblies, ends, bottoms, bases, backs, vertical posts, uprights, and access panels, scribes, and fillers.

3. 16ga: Top front rails, case tops, top rear gussets, intermediate horizontal rails, table legs and frames, leg rails and stretchers.

4. 14ga: Drawer mounting rails, door and case hinge reinforcements and front corner reinforcements.

5. 11ga: Table leg corner brackets and gussets for leveling screws.

C. Glass for glazed swinging and sliding doors and/or unframed doors:

1. 6mm Clear Float Glass (framed)

#### D. Hardware and Trim

1. Drawer and Door Pulls: 4" 'D'-shape stainless steel.
2. Hinges: Institutional type, five knuckle projecting barrel hinges, minimum 2-1/2" long, 14ga type 304 stainless steel. Provide two hinges for doors up to 36" high: three hinges for doors over 36" high. Drill each leaf for three screw attachments to door and frame. Independently Tested to the SEFA 8M 200 lb. static load and 100,000 cycles without failure or permanent deformation.
3. Drawer Slide: Drawer Slide: Heavy duty ball bearing slides, rated for SEFA 8M Laboratory 100 lb. Load – Independent tested with 100-pound load per SEFA 8M for 50,000 cycles at a rate not to exceed 10 cycles per minute without failure or permanent deformation. Provide full extension slides for full access and operation.
4. Shelf Adjustment Clips: Shelf adjustment clips shall be die formed, nickel-plated steel, designed to engage in shelf adjustment holes without the use of tools.
5. Door catches: Two-piece positive action made fully from rigid plastic shall be provided per door
6. Color: Steel casework and related products shall be powder-coated to a Glacier White finish (RAL Color #703.5).

\*This information is for general informational purposes only. This information has been provided in good faith. While we have tried to cover all details and specifications accurately, we reserve the right to make changes at any time.