

Air Master Systems

Steel Casework

Product Specifications

Version 1.3
December 2, 2025

Revision History

Revision - Date	Version	Revised By:	Description of / Reason for Revision:
8-20-25	1.0	NC	Initial Draft of Specification
11-17-25	1.1	BL	2 nd Draft of Specification
11-21-25	1.2	BL	3 rd Draft of Specification
12-1-25	1.3	DC	Final touches

SECTION 12 35 53 - STEEL LABORATORY CASEWORK AND RELATED PRODUCTS

PART 1 – DESCRIPTION OF WORK

1.00 SUMMARY AND SCOPE

A. Section Includes:

1. Metal Casework
 - a. Floor Supported Base Cabinets
 - b. Mobile Cabinets
 - c. Under-Counter Mounted Cabinets
 - d. Wall Mounted Cabinets
 - e. Floor Supported Tall Units
 - f. Specialty Cabinets
 - g. Cabinet Fillers
 - h. Utility Tables
 - i. End Pedestals
 - j. Island Reagent Uprights

B. Accessories: Furnish and deliver all service outlets, accessory fittings, electrical receptacles, and switches, as listed in these specifications and equipment schedules or as shown on drawings.

C. All debris, dirt, and rubbish accumulated as a result of the installation of the painted steel casework will be removed to an on-site container provided by others, leaving the premises clean and orderly.

1.01 BASIS OF WORK

A. It is the intent of this specification to use Air Master Systems, located in Norton Shores, MI, as the standard of construction for painted steel casework. The construction standards of the Air Master Systems Metal Casework product line shall provide the basis for quality and functional installation.

B. Supply all equipment in accordance with this specification. The offering of a product differing in materials and construction from this specification requires written approval. This approval must be obtained seven (7) days before the proposal deadline.

C. General Contractors should secure the architect's approved casework manufacturers to protect against non-conformance with these specifications.

D. The owner/architect reserves the right to reject qualified or alternate proposals and to award based on product value, where such action assures the owner of the greater integrity of the product.

1.02 QUALITY ASSURANCE

A. Product Standard: All Air Master Systems Metal Casework are following SEFA 8-2020 "Laboratory Grade Metal Casework" scientific equipment and furniture association recommended practices.

1. Flammable Cabinets: **NFPA 30** compliant and **UL 1275** certified.
2. Acids/Bases Cabinets: Meeting OSHA standards for secondary containment.

B. Warranty of 5 years as listed on manufacturer's website.

C. All products shall meet Build America Buy American Act.

PART 2 – CASEWORK PRODUCTS

2.00 MATERIALS

- A. Aprons: 18 ga. CRS
- B. Back Panels: 18 ga. CRS
- C. Bottom Panels: 18 ga. CRS
- D. Drawer/Door Outer Panel: 20 ga. CRS
- E. Door Inner Panel: 20 ga. CRS
- F. Drawer Bodies: 20 ga. CRS
- G. Finished Back: 20 ga. CRS
- H. Removable Panel: 20 ga. CRS
- I. Shelves: 18 ga. CRS
- J. Side Panels: 18 ga. CRS
- K. Security Panels: 20 ga. CRS
- L. Square Tubing: 16 ga. CRS
- M. Enclosure Panels: 18 ga. CRS
- N. Front/Side Cabinet Filler Panels: 20 ga. CRS
- O. Knee Space Panels: 20 ga. CRS
- P. End Pedestals: 18 ga. CRS
- Q. Island Reagent Uprights: 16 ga. CRS

2.01 FABRICATION

A. General: Complete assembly and finish work at the point of manufacture. Perform assembly on precision jigs to produce square units that are fully reinforced with angles, gussets, channels, and integrally framed and welded to form a durable, structurally sound cabinet. All Casework products are constructed to meet listed Performance Requirements.

B. Floor Supported Base Cabinets: Fully welded base cabinet with adjustable levelers.

C. Mobile Cabinets: Fully welded framed cabinet with reinforced bottom panels to support casters. Enclosed counterweight mounted in the rear of the cabinet.

D. Counter Mounted Cabinets (Hanging Cabinets): Fully welded framed cabinet suspended from the underside of a table or countertop.

E. Drawer and Door Construction: Double-pan with sound-deadening material.

1. Wood Fronts available upon request only for Flush Overlay style cabinetry.

F. Drawer Slides: Full-extension ball-bearing, 100 lbs. (Standard) or optional 200 lbs. capacity.

G. Cabinet Hinges: Stainless steel, 5 knuckle institutional type, 13 gauge.

H. Shelving: Adjustable on 2" centers.

I. Utility Tables: Welded H-Leg assemblies comprised of 2" square tubing welded to conjoining apron and lower cross bar. Bolted cross-stretchers and aprons between H-Leg assemblies with adjustable levelers.

1. Open bottom, slip-on leg shoes.

J. Single Leg Assembly: Welded adjustable leveler inside of 2" square tube.

1. Open bottom, slip-on leg shoe.

K. Filler and Closure Panels: Knee space panels, modesty panels, base cabinet front fillers, wall-mounted cabinet front fillers, tall cabinet front fillers, corner fillers and rear cabinet fillers all fabricated with same material and finish as casework with flanged edges.

L. End Pedestals: 2 panel construction at 2" wide with adjustable leveling feet for additional work surface support.

M. Island Reagent Upright: 2 panel construction for support of island mounted shelving.

N. Paint: All surfaces shall be painted or zinc-plated with a chemical- and UV-resistant, baked-on epoxy-hybrid powder coating.

2.02 PERFORMANCE REQUIREMENTS

A. Structural Performance: Floor Supported Base Cabinets. Provide steel casework capable of withstanding the following loads without permanent deformation, excessive deflection, or binding of drawers and doors, in accordance with SEFA 8 Standards.

1. Cabinet Load Test: 2,000-pound load mounted on top of a cabinet.
2. Cabinet Concentrated Load Test: 200-pound center load on top.
3. Cabinet Torsional Strength Test: 200-pound load with 3-point support.

4. Door Hinge Test: 200-pound load cycled through hinge arc.
5. Door Impact Test: 240 inch-pound force applied to door face.
6. Door Cycle Test: 100,000 cycles at 90°.
7. Drawer and Door Pull Test: 50-pound load.
8. Drawer Cycle Test: 50,000 cycles at 100-pound load.
9. Drawer Impact Test: 10-pound load dropped into drawer.
10. Base Cabinet Shelves: 40 lbs./sq.ft. to max 200 lbs.

B. Structural Performance: Wall Mounted Cabinets, Counter Mounted Cabinets and Floor Supported Tall Units. Provide steel casework capable of withstanding the following loads without permanent deformation, excessive deflection, or binding of drawers and doors, in accordance with SEFA 8 Standards.

1. Cabinet Load: Maximum load is not to exceed 600 pounds.
2. Cabinet Top/ Bottom: 40 lbs./sq.ft. doesn't exceed 200 lbs. on the bottom and 160 lbs. on the top.
3. Shelves: 40 lbs./sq.ft. to max of 140 lbs.
4. Door Hinge Test: 200-pound load cycled through Hinge Arc.
5. Door Impact Test: 240 inch-pound force applied to door face.
6. Door Cycle Test: 100,000 cycles at 90°.
7. Drawer and Door Pull Test: 50-pound load.

C. The following shown below are the Air Master Systems standards for a Mobile Cabinet. Door, Drawer and Shelf ratings follow SEFA 8 Standards. SEFA does not offer standards for Mobile Cabinets at this time.

1. Caster Load Rating: Mobile cabinets shall be equipped with heavy-duty (standard 3" or optional 2") with a maximum load rating of 250 pounds per caster and locking mechanisms for stationary stability.

PART 3 – SPECIALTY CABINETS

3.00 MATERIALS

- A. Back Panels: 18 ga.
- B. Bottom Panels: 18 ga.
- C. Door Outer Panel*: 18 ga.
- D. Door Inner Panel*: 18 ga.
- E. Door Outer Panel (Vacuum Pump Cab): 20 ga.
- F. Door Inner Panel (Vacuum Pump Cab): 20 ga.
- G. Removable Panel: 18 ga.
- H. Shelves: 18 ga.
- I. Side Panels: 18 ga.

3.01 FABRICATION

A. General: Complete assembly and finish work at the point of manufacture. Perform assembly on precision jigs to produce square units that are fully reinforced with angles, gussets, channels, and integrally framed and welded to form a durable, structurally sound cabinet. All specialty products are constructed to meet listed Performance Requirements.

B. Vacuum Pump Cabinets (W/Bottom):

1. Fully welded base cabinet with adjustable levelers.
2. Interior mounted, 200lb capacity stainless-steel pull-out shelf.
3. Vented double pan door(s).
4. Interior lined with sound dampening insulation.
5. Electrical Whip provided for installation by certified electrician onsite:
 - a. One GFI duplex electrical outlet 15A/125V (inside).
 - b. Pump on/off switch (front panel).
6. 2" Ventilation port located at top of liner rear panel, centered horizontally.
 - a. Ports provided for end user piping.

C. Vacuum Pump Cabinets (No Bottom):

1. Fully welded base cabinet with adjustable levelers.
2. Vented double pan door(s) built with integrated toe kicks.
3. Welded, 200lb capacity pull-out cart with casters.
4. Interior lined with sound dampening insulation.
5. Electrical Whip provided for installation by certified electrician onsite:
 - a. One GFI duplex electrical outlet 15A/125V (inside).
 - b. Pump on/off switch (front panel).
6. 2" Ventilation port located at top of liner rear panel, centered horizontally.
 - a. Ports provided for end user piping.

D. Flammable Storage Cabinets:

1. Fully welded base cabinet with adjustable levelers.
2. Welded interior liner surrounded by insulation.
 - a. Insulation at 1.5" thick.
3. 2" high leak proof drip pan.
4. Grounding screw provided at back of cabinet.
5. Double pan insulated door(s) with full height piano hinge(s). Fire resistant gasket all around door opening. 3-point locking mechanism installed.
6. Shelf provided with 1/2" incremental adjustability.
 - a. Designed to guide drippage into lower leak proof pan.
7. 2" diameter fire baffle vents located on rear side of cabinet. 1 baffle located lower right and the other upper left when viewed from the front of cabinet.
8. Removable back panels.
9. Indicated for Flammable Storage: **FLAMMABLE KEEP FIRE AWAY**
10. Complying with **NFPA 30** and **UL 1275** certified.

E. Mobile Flammable Storage Cabinets:

1. Fully welded mobile cabinet with swivel casters.
2. Welded interior liner surrounded by insulation.
 - a. Insulation at 1.5" thick.
3. 2" high leak proof drip pan.
4. Grounding screw provided at back of cabinet.
5. Double pan insulated door(s) with full height piano hinge(s). Fire resistant gasket all around door opening. 3-point locking mechanism installed.
6. Shelf provided with 1/2" incremental adjustability.
 - a. Designed to guide drippage into lower leak proof pan.
7. 2" diameter fire baffle vents located on rear side of cabinet. 1 baffle located lower right and the other upper left when viewed from the front of cabinet.
8. Removable back panels.
9. Indicated for Flammable Storage: **FLAMMABLE KEEP FIRE AWAY**
10. Built to **NFPA 30**.

F. Acids/Bases Liquid Storage Cabinets:

1. Fully welded base cabinet with adjustable levelers.
2. Welded interior liner with chemical resistant, Polyethylene based Plascoat finish. Lower Polypropylene tray with 2" high sides included with cabinet.
3. Grounding screw provided at back of cabinet.
4. Shelf provided with 4" incremental adjustability.
5. Double pan, vented door(s) with full height piano hinge(s).
6. 2" Ventilation ports located at back of cabinet. 1 port located lower right and the other upper left when viewed from the front of cabinet.
 - a. Ports provided for end user piping.
7. Indicated for Acids/Bases liquid storage. Meeting OSHA standards for secondary containment.

G. Mobile Acids/Bases Liquid Storage Cabinets:

1. Fully welded base cabinet with swivel casters.
2. Welded interior liner with chemical resistant, Polyethylene based Plascoat finish. Lower Polypropylene tray with 2" high sides included with cabinet.
3. Grounding screw provided at back of cabinet.
4. Shelf provided with 4" incremental adjustability.
5. Double pan, vented door(s) with full height piano hinge(s).
6. 2" Ventilation ports located at back of cabinet. 1 port located lower right and the other upper left when viewed from the front of cabinet.
 - a. Ports provided for end user piping.
7. Indicated for Acids/Bases liquid storage. Meeting OSHA standards for secondary containment.

3.02 PERFORMANCE REQUIREMENTS

A. Structural Performance: Vacuum Pump Cabinets, Solvent Cabinets and Flammable Cabinets. Provide steel casework capable of withstanding the following loads without permanent deformation, excessive deflection, or binding of doors, in accordance with SEFA 8 Standards.

1. Cabinet Load Test: 2,000-pound load mounted on top of a cabinet.
2. Cabinet Concentrated Load Test: 200-pound center load on top.
3. Cabinet Torsional Strength Test: 200-pound load with 3-point support.
4. Door Hinge Test: 200-pound load cycled through hinge arc.
5. Door Impact Test: 240 inch-pound force applied to door face.
6. Door Cycle Test: 100,000 cycles at 90°.
7. Drawer and Door Pull Test: 50-pound load.
8. Drawer Cycle Test: 50,000 cycles at 100-pound load.
9. Drawer Impact Test: 10-pound load dropped into drawer.
10. Base Cabinet Shelves: 40 lbs./sq.ft. to max 200 lbs.

PART 4 – EXECUTION

4.00 INSTALLATION

A. Install plumb, level, and true shim as required, using concealed shims. Where laboratory casework abuts other finished work, apply filler strips and scribes for an accurate fit, with fasteners concealed where practical.

B. Secure mobile cabinets with locking casters in designated locations, as outlined in the floor plan.

4.01 CLEANING AND PROTECTING

A. Repair, remove, and replace defective work as directed upon completion of installation.

B. Clean finished surfaces, touch up as required, and remove or refinish damaged or soiled areas to match the original factory finish.

C. Protection: Provide 6-mil plastic or other suitable water-resistant covering over work surfaces. Tape to the underside of the countertop at a minimum of 48 inches in the center.