

**SECTION 12 34 00**  
**MANUFACTURED PLASTIC CASEWORK**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. This section specifies interchangeable modular plastic casework system with countertops.
- B. System includes support components, storage units, accessories, electrical wiring chases, for wall hung and island arrangements.
- C. Casework identified by prefix "MVL".

**1.2 RELATED WORK**

- A. Instructions: SECTION 01 00 00, GENERAL REQUIREMENTS.
- B. Backing plates for wall mounted items: SECTION 09 22 16, NON-STRUCTURAL METAL FRAMING.
- C. Colors, patterns and finishes selected: SECTION 09 06 00, SCHEDULE FOR FINISHES.
- D. Countertop construction and materials and items installed in countertops: SECTION 12 36 00, COUNTERTOPS.
- E. Plumbing requirements: DIVISION 22, PLUMBING.
- F. Electrical requirements: DIVISION 26, ELECTRICAL.

**1.3 SUBMITTALS**

- A. Submit in accordance with SECTION 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Product data:
  - 1. Manufacturer's literature and other data showing compliance with the specification.
  - 2. List of 3 similar projects completed within last 5 years with names and addresses.
- C. Certification:
  - 1. Manufacturer's qualifications specified.
  - 2. Installer's qualifications specified.
- D. Shop drawings:
  - 1. Drawings complete, accurate and to scale.
  - 2. Show:
    - a. Location of each component.
    - b. Dimensions and clearance as required.
    - c. Identify each component with both drawing identification and manufacturer's product number.
    - d. Details including cuts, holes, scribes, attachments and specialized construction requirements.

3. Installation procedures: Show dimensions, methods of assembly, anchorage, installation and conditions relating to adjoining work.
4. Placement Listing: Itemized listing by room number of components provided.
5. Complete listing of each component used.
6. Include the weight of each component.

E. Samples:

1. Support rail, 1200 mm (48 inches) long.
2. Wall strip two pieces each, 1200 mm (48 inches) long.
3. Storage unit, drawers with countertop each type.
4. Storage unit, tambour door.
5. Process table.
6. Shelf unit, open.
7. Shelf unit, closed.
8. Mobile storage cart.
9. Typical service module.

F. Operational and Maintenance Manual

**1.4 QUALITY ASSURANCE**

- A. Approval by Contracting Officer is required of manufacturer and installer based upon certification of qualifications specified.
- B. Manufacturer's qualifications:
  1. Manufacturer is regularly engaged in design and manufacture of modular plastic casework, casework components and accessories of scope and type similar to requirements of this project for a period of not less than 5 years.
  2. Manufacturer has successfully completed at least 3 projects of scope and type similar to requirements of this project.
- C. Installer Qualifications:
  1. Installer is approved by modular plastic casework manufacturer.
  2. Installer has completed at least 3 projects in last 5 years in which these products were installed.

**1.5 DELIVERY, STORAGE AND HANDLING**

- A. Deliver, store and handle to prevent damage and deterioration until final acceptance of project.
- B. Deliver and store materials in manufacturer's original, labeled containers after building is enclosed and wet work is complete and dry.
- C. Store materials in a secure, locked area.
- D. Repair or replace damaged items due to storage or handling.

## 1.6 WARRANTY

Warranty casework system components against structural failure of components, disassembly of cabinets, shelves and countertops subject to terms of "Warranty of Construction" article specified in FAR clause 52.246-21, except that warranty period shall be 5 years.

## 1.7 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in the text by basic designation.
- B. American Hardwood Association:  
A135.4-04.....Basic Hardwood
- C. American National Standards Institute (ANSI):  
A208.1-09.....Particleboard
- D. American Society for Testing and Materials (ASTM):  
A36M-08.....Carbon Structural Steel  
A167-99 (R2009).....Stainless and Heat-Resisting Chromium Steel  
Plate Sheet and Strip  
A283/A283M-03(R 2007)...Low and Intermediate Tensile Strength Carbon  
Steel Plates  
A1008/A1008M-11.....Steel Sheet, Carbon Cold-Rolled, Commercial  
Quality  
A423/A423M-09.....Seamless and Electric-Welded Low-Alloy Steel  
Tubes  
A568/A568M-11.....Steel, Sheet, Carbon, Structural and High-  
Strength, Low-Alloy Hot-Rolled and Cold-Rolled,  
General Requirements  
B221-08.....Aluminum and Aluminum-Alloy Extruded Bars, Rods  
Wire, Profiles and Tubes  
B456-11.....Electrodeposited Coatings of Copper Plus, Nickel  
Plus Chromium and Nickel Plus Chromium  
D1201-99(R2004).....Polyester Thermosetting Molding Compound  
D4673-02(R2008).....Acrylonitrile-Butadiene-Styrene (ABS) Molding  
and Extrusion Materials  
E84-11.....Surface Burning Characteristics of Plastics and  
Alloys Building Materials
- E. National Association of Architectural Metal Manufacturers (NAAMM):  
AMP 500-06.....Metal Finishes Manual
- F. National Electrical Manufacturers Association (NEMA):  
LD-3-05.....High Pressure Decorative Laminates

LD-3.1-95.....Performance, Application, Fabrication and  
Installation of High Pressure Decorative  
Laminates

G. National Fire Protection Association (NFPA):

70-11.....National Electric Code (NEC)

H. National Sanitation Foundation (NSF):

30-92.....Cabinetry and Laboratory Furniture for Hospitals

I. U.S. Department of Commerce, Product Standard (PS):

PS1-95.....Construction and Industrial Plywood

J. Scientific Equipment and Furniture Association (SEFA):

2-10.....Installation of Scientific Laboratory Furniture  
and Equipment

K. Underwriters Laboratories (UL): Annual Fire Resistance Directories

## **PART 2- PRODUCT**

### **2.1 DESIGN REQUIREMENTS**

- A. Components provided by one manufacturer. Products of other manufacturers used meet specified flexibility and interchangeability requirements.
- B. Components interchangeable to form flexible system which will accommodate change:
  - 1. Dimensions of products are nominal and shown on drawings and schedules.
  - 2. Hanging components modular on same increments.
  - 3. Selectively removable and replaceable without disturbing adjacent components.
- C. Combustible components: Maximum flame spread rating of 25 and smoke development of 450 when tested in accordance with ASTM E84.
- D. Basic Support Components:
  - 1. Service Modules:
    - a. Steel support frames designed to support storage assemblies and work surfaces, enclosed plumbing and electrical lines and hold fixtures.
    - b. Used to form work area configurations that are easily rearranged.
    - c. Modules maybe installed as wall-attached structures or in freestanding configurations.
    - d. Adjacent modules capable of being joined together.
    - e. Equip module with adjustable floor guides to compensate for uneven floors.
    - f. Modules equipped with stability accessories such as floor anchors and wall attachments brackets as required. Show details on shop drawings.

- g. Provide access panels for easy access to interior of pipe chase areas. Access panels supported individually and not tied into each other.
  - h. Modules contain method to secure piping for fixtures, electrical outlets and sinks. Detail on shop drawing.
  - i. Enclose modules to floor with a removable panel.
  - j. Modules have end panels where noted. End panels capable of supporting storage assemblies.
  - k. Modules shipped completely finished preassembled, ready for installation.
2. Vertical Wall Strips:
- a. Fabricated of steel or aluminum.
  - b. Wall-mounted designed to suspend selected components that require vertical height adjustments.
  - c. Vertical adjustment 25 mm (1 inch) maximum.
  - d. Only one wall strip required between side by side suspended components.
  - e. Wall strips mounted to walls or service modules by mechanical fasteners. Wall strips maybe an integral part of service modules.
3. Horizontal Support Rail:
- a. Fabricated of steel or aluminum.
  - b. Designed to suspend selected components in one place, allowing them to be removed and replaced in same or different location.
  - c. Rail designed to be supported from vertical rails or service modules.
  - d. Rail configuration able to receive each hanging component.
  - e. Rail able to be cut to any length using simple hand tool or applied to form continuous runs.
  - f. System designed to eliminate area of potential dust accumulation or bacteriological growth.
  - g. Rail shall be mounted to walls or service modules by mechanical fasteners to provide a permanent installation.
4. Panel Support System:
- a. Steel hanger supports with slots of 25mm (1 inch) intervals for suspension of casework or countertops.
  - b. Adjustable level or slides to provide uniform height on adjacent units.
  - c. Allow removal, replacement or relocation without removing adjacent panels.

- d. Capable of installation on top of finished floor without use of fasteners to floors.
  - e. Have electrical channels as specified in electrical components with two duplex outlets per panel side.
  - f. Heights from 800 mm (34 inches) to 2000 mm (80 inches) standard with manufacturer.
  - g. Widths from 300 mm (12 inches) to 1200 mm (48 inches) standard with manufacturer.
  - h. Connectors to withstand weight of loaded components and stress of movement under loaded conditions, including a variety of panel configurations and panels of differing heights.
- E. Counter Tops and Work Surfaces:
- 1. Capable of being suspended from vertical support rails or horizontal wall strips or service modules.
  - 2. Provide solid surfacing work surfaces with round corners and impact resistant material on exposed edges.
  - 3. Capable of being easily relocated and installed without tools.
  - 4. Have capability to suspend and easily change under counter mounted storage units.
  - 5. Provide leveling adjustments capability so units can be brought into a level position.
  - 6. Secured using mechanical fasteners. Show detail on shop drawings.
- F. Process Tables:
- 1. Free-standing work surface same construction as countertops for work surface.
  - 2. Have capability to suspend and easily change under table mounted storage units.
  - 3. Locate support legs at work surface edges to maximize knee and storage unit space.
  - 4. Equip legs with adjustable leveling feet.
  - 5. Provide leveling adjustment capability so units can be brought into a level position to compensate for in-site floor conditions and excessive weight loads on surfaces.
- G. Modular Storage Units:
- 1. Fabricate with no exterior cracks, crevices, joints corners or angles that may facilitate bacterial accumulation.
  - 2. Design to accept drawers, shelves, tambour doors and other accessories as noted. Drawer and shelf guides integrally molded into unit. Provide for shelf adjustments or drawer adjustments.
  - 3. Provide unit with a top or be able to accept a lid.

4. Capable of being assembled by simple hand action without tools, except for those components fastening to work surfaces.
5. Designed to be suspended from support rail or from countertops.
6. Units, when broken apart for periodic washing and sanitizing operations have inherent capability for easy draining.
7. Drawers available in sizes shown and meet following requirements:
  - a. Drawer body molded one piece unit. Drawer front may be added to a molded one piece tray.
  - b. Drawers capable of being suspended from horizontal support elements of storage unit without use of tool or additional pieces.
  - c. Drawers capable of stacking.
  - d. Drawers capability to accept snap-on labels.
  - e. Drawers capability to accept dust cover.
  - f. Provide quantity of sub-containers and dividers for drawers, as shown with label flags for compartments.
  - g. Drawer depth to be full depth of the base cabinet.

H. Shelves:

1. Continuous molded lip around perimeter designed to retain liquid spillage and retain container dividers.
2. Self stacking for storage.
3. Capability to easily accept snap-on labels.
4. Provide container dividers, as shown.

I. Shelf units-Open and Closed Type:

1. Rounded exposed surfaces free from sharp edges.
2. Attach and interchangeable on wall strips and service module.
3. Doors designed to allow maximum use of interior cubic space.
4. Provide for shelf adjustment on 25 mm (1 inch).
5. Readily installed, removed and relocated without disturbing adjacent units.

J. Miscellaneous Components:

1. Mobile Storage Carts:
  - a. Capable of supporting 6 full-loaded storage units.
  - b. Equipped with minimum 125 mm (5 inch) diameter hard-rubber tire casters, with grease fittings for lubrication. Equip two casters with brakes.
  - c. Exposed and non-exposed surfaces capable of easily being cleaned and sanitized.
2. Sink modules:
  - a. Meet requirements of work services.
  - b. Design to hang on support rail and service modules.

- c. Provide solid front and sides to conceal plumbing hardware.
- d. Have backsplash.
- 3. Electrical components:
  - a. UL listed and approved in UL Fire Resistance Directories.
  - b. Comply with NFPA 70 and DIVISION 26, ELECTRICAL.
  - c. Provide general circuits for power not less than four, of 20-amp maximum rated load in power support system.
  - d. Electrical channels divided with shielding plate for not less than 35 pair cables for communication systems in panel support system.
  - e. Lay in cable channel design metal raceways.
- 4. Plumbing Components:
  - a. Comply with DIVISION 22, PLUMBING.
  - b. Sinks and fittings as specified in SECTION 12 36 00, COUNTERTOPS - size and type as shown.
- 5. Included in casework features that are part of the manufacturer's standards commercial product.
- 6. Keyboard Tray:
  - a. Minimum of 550 mm (22 inches) wide by 250 mm (10 inches) deep.
  - b. Designed to attach to underside of counter and roll out on supports.
  - c. Fabricated as plastic laminate face unit with vinyl edge strip.
- 7. Transportation:
  - a. Single unit capable of lifting large storage modules on and off storage rails providing a stable platform for transporting large storage modules to other locations without tipping over.
  - b. Equipped with hard rubber tires wheels not less than 125 mm (5 inches) in diameter with grease fitting for lubrication to accommodated washing and cleaning.
  - c. Design to be moved to insure safety to operator.
- K. Assembly and Disassembly:
  - 1. Mechanical interlock system that does not require tools. Positive locking system that prevents potential of accidental dislodged.
  - 2. Use of standard hand tools where fasteners used, no special designed tools permitted.
  - 3. Components of such size and weight that can easily be lifted or moved by one person or with transportation designed for such purpose.
- L. Live Load Capacity:
  - 1. Loads in addition to weight of components supported.
  - 2. Panel types; minimum of 130 kg (300 lbs) maximum of 500 kg (1100 lbs) per panel per sides.



3. Open panel types: Minimum of 86 kg (190 lbs), maximum of 181 kg (400 lbs).
4. Roller rails: 136 kg (300 lbs) per linear foot.
5. Vertical wall strips: Minimum 272 Kg (600 lbs).
6. Service modules: frames: 998 kg (2200 lbs).
7. Undercounter storage units: 91 kg (200 lbs).
8. Overhead Storage Units:
  - a. 750mm (30 inches) wide by 375 mm (15 inch) deep by 525 mm (21 inches) high, maximum of 32 kg (70 lbs).
  - b. 1200 mm (48 inches) wide by 375 mm (15 inches) deep by 525 mm (21 inches) high maximum of 64 kg (140 lbs.)
  - c. Manufactures standard modular sizes acceptable.
9. Special Storage Units:
  - a. 550 mm (22 inches) wide by 600 mm (24 inches) deep by 625 mm (25 inches) high maximum of 91 kg (200 lbs).
  - b. 550 mm (22 inches) wide by 750 mm (30 inches) deep by 625 mm (25 inches) high: maximum of 91 kg (200 lbs).
  - c. Pullout shelves or fixed shelves. Maximum of 23 kg (50 lbs) each.
  - d. Manufacturers standard modular sizes acceptable
10. Countertop 18 kg sq. per meter (40 lbs sq. foot)
11. Drawers: 18 kg (400 lbs) for drawers 100 mm (4 inches) deep.
- M. Finish:
  1. Selected from manufactures standard colors, specification SECTION 09 06 00, SCHEDULE FOR FINISHES.
  2. More than one color may be selected for units.
  3. Steel components finished with chemical resistant paint.
- N. Locks:
  1. Manufactures standard design.
  2. Drawers capable of locks into cabinets or lockable lids.
  3. Cabinets capable of locking.

## 2.2 MATERIALS

- A. Carbon Structural Steel: ASTM A36M
- B. Stainless Steel: ASTM A167, Type 302B with number 4 finish minimum.
- C. Steel plates: ASTM A283.
- D. Sheet Steel: ASTM A1008 or A568.
- E. Steel Tubes: ASTM A423.
- F. Aluminum: ASTM B221.
- G. ABS compounds: ASTM D4673.
- H. Plastic Laminate: NEMA LD-3.
- I. Hardboard: AHA A135.4, Class 1, tempered.

J. Particleboard: ANSI A208.1.

## **2.3 FABRICATION**

- A. Manufacturer's standard design of modular casework system meeting design requirements.
  - 1. Casework requirements specified are intended to establish essential minimum requirements.
  - 2. Dimensions of components shown are nominal to represent module requirements.
  - 3. Provide components compatible with each other as to color, finish and hardware.
- B. Components of ABS compounds, ASTM D4673, with integral color throughout and molded to manufacturer's standard system design.
- C. Components stain and rust-resistant capable of withstanding washing temperatures up to 85 degrees C (185 degrees F) without distortion or physical imperfections.
- D. Storage modules, plastic laminate exposed surfaces including interiors conforming to and fabricated in accordance with LD3.1, NSF 30, over plywood conforming to PS1 or not less than 641 Kg/ cubic meter (45 lbs. per cubic foot) particle board conforming to ANSI A 208.1.
- E. Storage modules of molded plastic:
  - 1. Fire-retardant thermoplastic or sheet-molding compound ASTM D 1201, injection-molding, compression-molding or vacuum-forming technique.
  - 2. Constructed to achieve structural strength, durability and resistance to acids, stains, corrosion and heat.
  - 3. Color integral throughout plastic.
- F. Comply with NSF 30.
- G. Fabricate frames and rails of steel or aluminum as standard with modular casework manufacturer's system.
- H. Fabricate electrical components to comply with NEC 70 and with modular casework manufactures system.
- I. Finish metals in accordance with NAAMM AMP 500-505 and plated steel in accordance with ASTM B456 as standard with modular casework manufacturer's system.
- J. Fabricate steel components of ASTM A36M, A283, A1008 or A568 as standard with casework system manufacturer.
- K. Weld In accordance with ANSI D1.1 or D9.1 Finish welds smooth and free of sharp edges where exposed.
- L. Plated Metal: Finish in accordance with ASTM B456 for steel products and NAAMM AMP 500-505.
- M. Painted Steel: Finish in accordance with NAAMM AMP 500-505

N. Anodized Aluminum: Finish as standard with modular cabinet manufacturers system.

## **2.4 COUNTERTOPS**

A. Exposed work surfaces finished with solid surfacing.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates and adjoining construction and conditions under which work is to be installed.
- B. Do not proceed with the work until unsatisfactory conditions detrimental to proper and timely completion of the work have been corrected.

### **3.2 SEQUENCING AND SCHEDULE**

- A. Begin only after work of other trades is complete, i.e., wall and floor finish completed, ceilings installed, light fixtures and diffusers installed and connected and area is free of trash and debris.
- B. Fixed components may be installed in areas which can not be secured.
- C. Install non-fixed components and accessories just prior to final inspection, unless areas where installation is complete is locked against entry.
- D. Coordinate with DIVISION 21, FIRE SUPPRESSION, DIVISION 22, PLUMBING, DIVISION 23, HEATING, VENTILATING, AND AIR CONDITIONING, DIVISION 26, ELECTRICAL, DIVISION 27, COMMUNICATIONS, and DIVISION 28, DIVISION ELECTRONIC SAFETY AND SECURITY trades to avoid interference and completion of service connections.

### **3.3 INSTALLATION**

- A. Assemble and install components in accordance with manufacturer's written instructions and recommendation and SEFA 2.3
- B. Anchor fixed components firmly in position; square, level, plumb and properly connect using mechanical fasteners, wood or sheet metal screws are not permitted.
- C. Perform cutting of components to receive work installed by others.
- D. Support Rail Attachments:
  - 1. Install true to horizontal at heights shown; maximum tolerance for uneven floors is plus or minus 13 mm (1/2 inch).
  - 2. Shim as necessary to accommodate variations in wall surface not exceeding 5 mm (3/16 inch) at fastener.
- E. Wall Strips:
  - 1. Install true to vertical and spaced as shown on installation drawing.
  - 2. Align slots to assure that hanging units will be level.

F. Furnish pipe supports in utility chases no closer than 1200 mm (48 inch) between centers.

### **3.4 ADJUSTMENTS**

- A. Adjust equipment to insure proper alignment and operation.
- B. Replace or repair damaged or improperly operating materials, components or equipment.

### **3.5 CLEANING**

- A. Immediately following installation, clean each item, removing finger marks, soil and foreign matter resulting from work of this section.
- B. Remove from job site trash, debris and packing materials resulting from work of this section.
- C. Leave installed areas clean of dust and debris resulting from work of this section.

### **3.6 INSTRUCTIONS**

- A. Provide operational and cleaning manuals and verbal instructions in accordance with Article INSTRUCTIONS, SECTION 01 00 00, GENERAL REQUIREMENTS.
- B. Provide in service training both prior to and after facility opening. Coordinate in service activities with Contracting Officer.
- C. Prior to Facility Opening:
  - 1. Furnish complete schedule of in service training activities including list of recommended personnel to attend activity, time required, and names of instructors.
  - 2. Furnish instructional literature and manuals illustrating locker, frame and drawer packing procedures.
  - 3. Commencing at least 7 days prior to opening of facility, provide 3 days of on-site orientation and technical instruction on use and application of products and systems specified herein.
- D. After Facility Opening: Provide a problem solving and in service technical review of system 30 days thereafter.

-----END-----