

## DIVISION 10 - SPECIALTIES

### SECTION 105613 – METAL STORAGE SHELVING (Four-Post)

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

##### 1.2 SUMMARY

- A. This Section includes the following:  
Four-post type metal shelving.
- B. Related Work, Not Furnished:  
Finish floor covering materials and installation.
- C. Related Sections:  
[Sections in Division 9 – Finishes, relating to finish floor and base materials.]
- D. Allowances:
- E. Alternates:

##### 1.3 REFERENCES

- A. American National Standards Institute (ANSI) Standards:  
Applicable standards for fasteners used for assembly.
- B. American Society for Testing and Materials (ASTM) Standards:  
Applicable standards for steel sheet materials used for fabrication.
- C. American Institute Of Steel Construction (AISC) Standards:  
Applicable standards for steel materials used for fabrication.

##### 1.4 DESCRIPTION

- A. General: Four-Post Type Metal Shelving.
- B. Finishes:  
Fabricated Metal Components and Assemblies: All components to be painted with an electrostatically applied Powder Coat paint.  
Fabricated Laminate Components and Assemblies: Manufacturer's standard low-pressure or high-pressure laminate finishes.  
Fabricated Non-Porous Solid Surface Components and Assemblies: Manufacturer's standard.  
Fabricated Acrylic Components and Assemblies: Manufacturer's standard.

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### C. Sizes:

Available in heights of [5.75] inches to [143.75] inches ([146MM] to [3651MM]) as noted on drawings (variable in 1.5 inch [38.1MM] increments as required).

Available in nominal widths of [12] inches to [72 inches] ([305MM] to [1829MM]) as noted on drawings (variable in 1 inch [25.4MM] increments as required).

Available in nominal single-faced or double-faced depths of [9] inches to [36] inches ([229MM] to [914MM]) as noted on drawings (variable in 1 inch [25.4MM] increments as required).

## 1.5 PERFORMANCE REQUIREMENTS

### A. Design Requirements:

Limit overall width to [ ] inches [ ] MM.

Limit overall depth to [ ] inches [ ] MM.

Limit overall height to [ ] inches [ ] MM.

### B. [Seismic Performance: Provide four-post metal shelving capable of withstanding the effects of earthquake movement when required by applicable building codes.]

## 1.6 SUBMITTALS

### A. Product Data: Submit manufacturer's product literature and installation instructions for each type of four-post shelving required. Include data substantiating that products to be furnished comply with requirements of the contract documents.

### B. Shop Drawings: Show fabrication, assembly, and installation details including descriptions of procedures and diagrams. Show complete extent of four-post shelving installation layout including quantities, locations and types of accessory units required. Include notations and descriptions of all installation items and components.

Show installation details at non-standard conditions, if any.

Provide layout, dimensions, and identification of each unit corresponding to sequence of installation and erection procedures.

Provide installation schedule and complete erection procedures to ensure proper installation.

### C. Samples: Provide minimum 3 inch (76MM) square example of each color and texture on actual substrate for each component to remain exposed after installation.

### D. Selection Samples: For initial selection of colors and textures, submit manufacturer's color charts consisting of actual product pieces, showing full range of colors and textures available.

### E. Warranty: Submit draft copy of proposed warranty for review by the [Architect] [Architect/Engineer] [Engineer] [Designer].

### F. Maintenance Data: Provide in form suitable for inclusion in maintenance manuals for four-post shelving. Data shall include operating and maintenance instructions, parts inventory listing, purchase source listing, emergency instructions, and similar information.

Submit manufacturer's instructions for proper maintenance materials and procedures.

Submit manufacturer's printed instructions for maintenance of installed work, including methods and frequency recommended for maintaining optimum condition under anticipated use

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conditions. Include precautions against using materials and methods, which may be detrimental to finishes and performance.

- G. [Reference List: Provide a list of recently installed four-post shelving to be visited by owner, architect, and contractor. Intent of list is to aid in verifying the suitability of manufacturer's products and comparison with materials and product specified in this section.]

### 1.7 QUALITY ASSURANCE

- A. **Manufacturer Qualifications:** Engage an experienced manufacturer who is ISO 9001 certified for the design, production, installation and service of four-post shelving. Furnish certification attesting ISO 9001 quality system registration.
- B. **Installer Qualifications:** Engage an experienced installer who is a manufacturer's authorized representative for the specified products for installing four-post shelving.  
  
Minimum Qualifications: 1-year experience installing four-post shelving of comparable size and complexity to specified project requirements.

### 1.8 DELIVERY, STORAGE AND HANDLING

- A. Follow manufacturer's instructions and recommendations for delivery, storage and handling requirements.

### 1.9 PROJECT CONDITIONS

- A. **Field Measurements:** Verify quantities of four-post shelving units before fabrication. Indicate verified measurements on Shop Drawings. Coordinate fabrication and delivery to ensure no delay in progress of the Work.
- B. **Established Dimensions:** Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating four-post shelving units without field measurements. Coordinate construction to ensure actual dimensions correspond to established dimensions.

### 1.10 [SEQUENCING AND SCHEDULING]

- A. Sequence four-post shelving units [with other work] to minimize possibility of damage and soiling during remainder of construction period.
- B. Schedule installation of specified four-post shelving after finishing operations; including painting have been completed.
- C. Provide components, which must be built in at a time, which causes no delays general progress of the Work.
- D. **Pre-installation Conference:** Schedule and conduct conference on project site to review methods and procedures for installing four-post shelving units including, but not limited to, the following:

Recommended attendees include:

1. Owner's Representative.
2. Prime Contractor or representative.

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3. The [Architect] [Architect/Engineer] [Engineer/Architect] [Engineer] [Designer].
4. Manufacturer's representative.
5. Subcontractors or installers whose work may affect, or be affected by, the work of this section.]

### 1.11 WARRANTY

- A. Provide a written warranty, executed by Contractor, Installer, and Manufacturer, agreeing to repair or replace units, which fail in materials or workmanship within the established warranty period. This warranty shall be in addition to, and not a limitation of, other rights the Owner may have under General Conditions provisions of the Contract Documents.
- B. Limited Lifetime Warranty: Subject to the terms in the written warranty, warrant the original purchaser exclusively that the shelving manufactured by it will be free from defects in materials and workmanship for the lifetime of the shelving.

### 1.12 [MAINTENANCE]

- A. [Provide manufacturer's extended maintenance agreement for [\_\_\_\_\_] [years] [months], commencing on the day the standard maintenance warranty ends.]

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. General: Products are based upon four-post shelving manufactured by Southwest Solutions Group, Inc. .

### 2.2 BASIC MATERIALS

- A. General: Provide materials and quality of workmanship, which meets or exceeds established industry standards for products specified. Use furniture grade sheet metal, wood panels, plastic laminate and fasteners for component fabrication unless indicated otherwise. Material thicknesses/gauges are manufacturer's option unless indicated otherwise.

### 2.3 MANUFACTURED COMPONENTS

- A. Design:
  1. Wedge-lock type consisting of uprights, shelves, and shelf supports, designed to be assembled without fasteners or clips. Shelves shall not have any holes on exposed surfaces. Front and back flanges shall be flush with outside faces of posts. Design shall permit individual shelf adjustment and/or removal anywhere along the entire height of uprights.
- B. Materials and Workmanship:
  1. Fabricate units from Class 1, cold-rolled steel sheet with all bends sharp and true and no exposed "knife" edges.
    - a. All units shall be free of burrs, sharp edges and projecting hardware with smooth, non-abrasive surfaces and edges.

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- b. After fabrication, shelving shall exhibit no dents, "oil canning", buckling or other surface irregularities.
- C. Uprights:
1. Formed from steel sheet to a hollow "tee" shape for intermediate supports and formed angles for end supports. Uprights shall have keyhole slots on inner wall only. Provide with sheet steel panels full height and depth of end uprights. Provide intermediate "tee" uprights between adjacent units
- D. Shelves:
1. Form from sheet steel with flanges on all sides and return hem on front and back flanges. Ends shall be formed to clear inside of upright offset panels. Shelves shall be independently adjustable. Provide all shelves with slots for file dividers.
- E. Canopy Tops:
1. Same construction as shelf units.
- F. Shelf Supports:
1. Form from heavy gauge steel sheet with four solid steel shoulder rivets, two per ear, that interlock with inner wall of uprights.
- G. Nominal Shelf Dimensions:
1. Width: 12 inches (305MM) to 72 inches (1829MM) sections used to meet project requirements.
  2. Shelf Edge Vertical Profile: 3/4 inch (19MM) maximum.
  3. Vertical Adjustment Increment: 1-1/2 inches (38MM).
  4. Width Of Intermediate Uprights: 2 inches (51MM).
  5. Clearance Between Uprights: Nominal shelf section width minus 2 inches (51MM).
  6. Levelness of Completed Shelf Units: Maximum 1/8 inch (3.2MM) between bottom shelf and canopy top, measured along the edge of any upright in any direction.
  7. Number of Vertical Shelf Spaces: As indicated on the drawings [\_\_\_\_\_].
  8. Vertical Shelf-To-Shelf Spacing: As indicated on the drawings [\_\_\_\_\_].
- H. Load Carrying Capabilities:
1. Provide shelf units capable of supporting 40 pounds per lineal foot (18kg/305MM) with maximum deflection of L/140. Shelves shall exhibit no permanent deflection under fully loaded conditions.
- I. Accessories:
1. [(Optional) File Dividers: Provide [\_\_\_\_\_] file dividers per shelf. Provide manufacturer's standard.]]
  2. [(Optional) Center Stops: Provide manufacturer's standard.]
  3. [(Optional) Reference Shelf: Provide manufacturer's standard.]
  4. [(Optional) Back Stops: Provide manufacturer's standard.]
  5. [(Optional) Laminate End Panel: Provide manufacturer's standard.]
  6. [(Optional) End Panel Mounting Brackets: Provide manufacturer's standard.]

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7. [(Optional) Backs: Provide manufacturer's standard.]
8. [(Optional) Bin Dividers: Provide manufacturer's standard.]
9. [(Optional) Bin Fronts: Provide manufacturer's standard.]

### 2.4 FABRICATION

- A. General: Coordinate fabrication and delivery to ensure no delay in progress of the Work.

### 2.5 FINISHES

- A. Colors: [Selected from manufacturer's standard available colors.] [Provide in custom colors as selected by [Architect] [Architect/Engineer] [Engineer.]
- B. Paint Finish: Provide factory applied electrostatic powder coat paint. Meet or exceed specifications of the American Library Association.
- C. Low-Pressure Laminate Finish: [Selected from manufacturer's standard available colors and patterns.] [Provide in custom colors as selected by [Architect] [Architect/Engineer] [Engineer.]
- D. High-Pressure Laminate Finish: [Selected from manufacturer's standard available colors and patterns.] [Provide in custom colors as selected by [Architect] [Architect/Engineer] [Engineer.]
- E. Acrylic Finish: [Selected from manufacturer's standard available colors and patterns.] [Provide in custom colors as selected by [Architect] [Architect/Engineer] [Engineer.]
- F. [(Optional) (Describe finish materials)]

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine shelving units scheduled to receive accessories [with Installer present] for compliance with requirements for installation tolerances and other conditions affecting performance of specified accessory items.
- B. Verify that intended installation locations of sorter unit units will not interfere with or block established required exit paths or similar means of egress once units are installed.
- C. Proceed with accessory installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. General: Follow manufacturer's written instructions for installation of each type of accessory item specified.

### 3.3 FIELD QUALITY CONTROL

- A. Verify accessory unit alignment and plumb after installation. Correct if required following manufacturer's instructions.

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- B. Remove components that are chipped, scratched, or otherwise damaged and which do not match adjoining work. Replace with new matching units, installed as specified and in manner to eliminate evidence of replacement.

### 3.4 ADJUSTING

- A. Adjust all accessories to provide smoothly operating, visually acceptable installation.

### 3.5 CLEANING

- A. Immediately upon completion of installation, clean components and surfaces. Remove surplus materials, rubbish and debris resulting from installation upon completion of work and leave areas of installation in neat, clean condition.

### 3.6 DEMONSTRATION/TRAINING

- A. Schedule and conduct demonstration of installed accessory items and features with Owner's personnel.
- B. Schedule and conduct maintenance training with Owner's maintenance personnel. Training session should include lecture and demonstration of all maintenance and repair procedures that end user personnel would normally perform.

### 3.7 PROTECTION

- A. Protect system against damage during remainder of construction period. Advise Owner of additional protection needed to ensure that system will be without damage or deterioration at time of substantial completion.

END OF SECTION