PROCUREMENT AND CONTRACTING REQUIREMENTS

SPECIFICATIONS

END OF SECTION

PART 1 - GENERAL

1.1 RELATED WORK DESCRIBED ELSEWHERE

A. The provisions and intent of the Contract, including the General and Supplemental Conditions apply to this work as if specified in this section. Work related to this section is described throughout these Specifications.

B. Individual submittals are required in accordance with the pertinent sections of these Specifications

1.2 PAYMENT PROCEDURES

A. Monthly pay estimates shall clearly identify the work performed for the given time period based on the approved Schedule of Values.

1. At the Pre-construction meeting, the Engineer and the Contractor shall agree upon a date each month when payment applications shall be submitted.

B. Prior to submitting a payment application, the Contractor and Engineer shall meet each month to review the work accomplished to determine the actual quantities including labor, materials and equipment charges to be billed.

1. Prior to the payment application meeting, the Contractor shall submit to the Engineer all measurement documentation as referenced in these contract documents; to include all measurement by weight, volume or field.

2. For all change work being done on a force account basis, the Contractor shall submit prior to meeting with Engineer all Force Account back-up documentation as required to process the payment application where Force Account work is being billed. The Engineer and the Contractor shall review the documentation at the payment application meeting to verify quantities and review the work accomplished.

3. The Contractor shall bring a copy of all documentation to the pay application meeting with the Engineer.

C. Following the Engineers' review, the Contractor shall prepare an original pay estimate with complete supporting documentation attached and submit it electronically using Adobe PDF file format to cpinvoices@portoftacoma.com

D. An estimated cashflow statement projecting the Contractor's monthly billings on the project shall be submitted with each payment application.

1.3 PAYMENT PRICING

A. Pricing for the various lump sum or unit prices in the Bid Form, as further specified herein, shall include all compensation to be received by the Contractor for furnishing all tools, equipment, supplies, and manufactured articles, and for all labor, operations, and incidentals appurtenant to the items of work being described, as necessary to complete the various items of the work in accordance with the requirements of the Contract Documents.

B. Pricing also includes all costs of compliance with the regulations of public agencies having jurisdiction, including safety and health requirements of the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA).

C. No separate payment will be made for any item that is not specifically set forth in the Bid Form, and all costs therefore shall be included in the prices named in the Bid Form for the various appurtenant items of work.

D. All other work not specifically mentioned in the measurement and payment sections identified below shall be considered incidental to the work performed and merged into the various unit and lump sum prices bid. Payment for work under one item will not be paid for under any other item.

E. The Port of Tacoma reserves the right to make changes should unforeseen conditions necessitate such changes. Where work is on a unit price basis, the actual quantities occasioned by such changes shall govern the compensation.

1.4 LUMP-SUM MEASUREMENT

A. Lump-sum measurement will be for the entire item, unit of Work, structure, or combination thereof, as specified and as indicated in the Contractor's submitted bid.

1. If the Contractor requests progress payments for lump-sum items, such progress payments will be made in accordance with an approved schedule of values. The quantity for payment for completed work shall be an estimated percentage of the lump sum amount, agreed to between the Engineer and Contractor, payable in monthly progress payments in increments proportional to the work performed in amounts as agreed between the Engineer and the Contractor.

1.5 REJECTED, EXCESS, OR WASTED MATERIALS

A. Quantities of material wasted or disposed of in a manner not called for under the Contract; rejected loads of material, including material rejected after it has been placed by reasons of the failure of the Contractor to conform to the provisions of the Contract; material not unloaded from the transporting vehicle; material placed outside the lines indicated on the Contract Drawings or established by the Engineer; or material remaining on hand after completion of the Work, will not be paid for, and such quantities shall not be included in the final total quantities. No additional compensation will be permitted for loading, hauling, and disposing of rejected material.

1.6 MEASUREMENT AND PAYMENT

A. Item #1: MOBILIZATION AND DEMOBILIZATION

1. Payment for MOBILIZATION AND DEMOBILIZATION shall be for preparatory work and operations performed by the Contractor including, but not limited to completion and submittal and approval of the following:

a. All bonds and insurance certificates

b. Construction Site Safety and Security Plan (CSSP)

c. Initial Submittal Schedule

d. Schedule of Values

e. Detailed CPM progress schedule

f. Pre-construction photographs and videotapes

g. Submittal of Inspection and Test Plan

h. Erosion and Sediment Control Plan

i. Hazardous and Contaminated Substance Health and Safety Plan

j. Establishing Contractor's Project Manager, Superintendent, and other required specified personnel on the Work site full time.

k. Furnishing and installing all temporary facilities and controls as needed for the safe and proper completion of the work, including utilities, sanitary facilities, barriers and enclosures, fences, staging and entrance areas, and field offices, as specified.

l. Mobilization onto the site required in support of the Contractor's first 30 days of operations.

m. Furnishing and installing project signs, as specified.

2. MOBILIZATION AND DEMOBILIZATION shall be paid at the lump sum price listed in the Contractor's submitted bid. Incremental payment shall be made for each location as follows:

a. 40% after completion of 5% of the total contract amount of other bid items have been earned.

b. 40% after completion of 20% of the total contract amount of other bid items have been earned.

c. 20% after completion of all work on the project has been completed, including cleanup and acceptance of the project by the Port.

B. Item #2: PROJECT ADMINISTRATION

1. Item Description: The Work of PROJECT ADMINISTRATION includes full compensation for all administrative costs associated with administering and supervising the project including supervision of personnel, coordination of all work activities, coordination of subcontractors and/or suppliers, preparation and transmittal of submittals, permit acquisitions, and project overhead including health and safety.

2. Measurement: PROJECT ADMINISTRATION will be measured by lump sum.

3. Payment: PROJECT ADMINISTRATION will be paid at the lump sum price as listed on the bid form. Incremental payment for completed work shall be a percentage, determined by the Engineer, in accordance with the approved Schedule of Values.

C. Item #3:FURNISH MEZZANINE.

1. Item Description: The Work of FURNISH MEZZANINE shall be full compensation for the cost of labor, materials, tools, equipment, handling, transportation and incidentals required to deliver to the site the mezzanine as shown on the drawings and as defined in these specifications.

2. Measurement: FURNISH MEZZANINE will be measured by lump sum.

3. Payment: FURNISH MEZZANINE will be paid at the lump sum price as listed on the bid form. The payment will be made when the mezzanine is delivered to the site.

D. Item #4:INSTALL MEZZANINE.

1. Item Description: The Work of INSTALL MEZZANINE shall be full compensation for the cost of labor, materials, tools, equipment, handling, transportation and incidentals required to erect mezzanine and bolt it to the existing floor as shown on the drawings and as defined in these specifications.

2. Measurement: INSTALL MEZZANINE will be measured by lump sum.

3. Payment: INSTALL MEZZANINE will be paid at the lump sum price as listed on the bid form. Incremental payment for completed work shall be a percentage, determined by the Engineer, in accordance with the approved Schedule of Values.

E. Item #5:ARCHITECTURAL MODIFICATION - MAIN BLDG.

1. Item Description: The Work of ARCHITECTURAL MODIFICATION - MAIN BLDG includes all work necessary to complete the work on the contract architectural plans including but not limited to furnishing and installing door additions and hardware, demolishing walls, patching, painting, new ~~exit~~ signage, ~~and~~ removing a ladder in the parts area and furnishing and installing shelving as shown on the drawings and defined in these specifications

2. Measurement: ARCHITECTURAL MODIFICATION - MAIN BLDG will be measured by lump sum.

3. Payment: ARCHITECTURAL MODIFICATION - MAIN BLDG will be paid at the lump sum price as listed on the bid form. Incremental payment for completed work shall be a percentage, determined by the Engineer, in accordance with the approved schedule of values.

F. Item #6:ELECTRICAL WORK - MAIN BLDG.

1. Item Description: The Work of ELECTRICAL WORK - MAIN BLDG shall be full compensation for the cost of labor, materials, tools, equipment, and incidentals required to complete the work as shown on the contract electrical drawings and as defined in these specifications. Includes but not limited to, all wiring, terminations, breakers, electrical shutdowns, conduits, penetrations and necessary structural supports.

2. Measurement: ELECTRICAL WORK - MAIN BLDG will be measured by lump sum.

3. Payment: ELECTRICAL WORK - MAIN BLDG will be paid at the lump sum price as listed on the bid form. Incremental payment for completed work shall be a percentage, determined by the Engineer, in accordance with the approved schedule of values.

G. Item #7:MECHANICAL WORK - MAIN BLDG.

1. Item Description: The Work of MECHANICAL WORK - MAIN BLDG shall be full compensation for the cost of labor, materials, tools, equipment, and incidentals required to complete the work shown on the mechanical plans and as defined in these specifications. Includes but not limited to, furnishing and installing gas heaters, and structural supports as well as demolition and modifications to existing heating, condensate and refrigerant systems.

2. Measurement: MECHANICAL WORK - MAIN BLDG will be measured by lump sum.

3. Payment: MECHANICAL WORK - MAIN BLDG will be paid at the lump sum price as listed on the bid form. Incremental payment for completed work shall be a percentage, determined by the Engineer, in accordance with the approved schedule of values.

H. Item #8:FIRE PROTECTION WORK.

1. Item Description: The Work of FIRE PROTECTION WORK shall be full compensation for the cost of labor, materials, tools, equipment, and incidentals required to complete the work shown on the fire protection plans and as defined in these specifications. Includes but not limited to, furnishing and installing h sprinkler system, tie in to existing fire protection system, all necesary structural supports.

2. Measurement: FIRE PROTECTION WORK will be measured by lump sum.

3. Payment: FIRE PROTECTION WORK will be paid at the lump sum price as listed on the bid form. Incremental payment for completed work shall be a percentage, determined by the Engineer, in accordance with the approved schedule of values.

I. Item #9:ARCHITECTURAL MODIFICATION - SHED.

1. Item Description: The Work of ARCHITECTURAL MODIFICATION - SHED includes all work necessary to complete the work on the contract architectural plans including but not limited to removing and disposing of old insulation, furnishing and installing insulation, removal of roll up doors, ~~furninish~~furnishing and installing two roll up doors and repairs to gaps in shed as shown on the drawings.

2. Measurement: ARCHITECTURAL MODIFICATION - SHED will be measured by lump sum.

3. Payment: ARCHITECTURAL MODIFICATION - SHED will be paid at the lump sum price as listed on the bid form. Incremental payment for completed work shall be a percentage, determined by the Engineer, in accordance with the approved schedule of values.

J. Item Item #10:ELECTRICAL WORK - SHED.

1. Item Description: The Work of ELECTRICAL WORK - SHED shall be full compensation for the cost of labor, materials, tools, equipment, and incidentals required to complete the work as shown on the contract electrical drawings and as defined in these specifications. Includes but not limited to, all wiring, terminations, panels, breakers, electrical shutdowns, conduits, penetrations and necessary structural supports.

2. Measurement: ELECTRICAL WORK - SHED will be measured by lump sum.

3. Payment: ELECTRICAL WORK - SHED will be paid at the lump sum price as listed on the bid form. Incremental payment for completed work shall be a percentage, determined by the Engineer, in accordance with the approved schedule of values.

K. Item #11:MECHANICAL WORK - SHED.

1. Item Description: The Work of MECHANICAL WORK - SHED shall be full compensation for the cost of labor, materials, tools, equipment, and incidentals required to complete the work shown on the mechanical plans and as defined in these specifications. Includes but not limited to, furnishing and installing electric heaters, and providing necessary foundations and structural supports.

2. Measurement: MECHANICAL WORK - SHED will be measured by lump sum.

3. Payment: MECHANICAL WORK - SHED will be paid at the lump sum price as listed on the bid form. Incremental payment for completed work shall be a percentage, determined by the Engineer, in accordance with the approved schedule of values.

L. Item #12:PROJECT CLOSEOUT.

1. Item Description: The Work of PROJECT CLOSEOUT includes all work necessary to finish the project including warranty work, operations and maintenance manuals, project as-built drawings, providing certificates, punchlist items and cleanup.

2. Measurement: PROJECT CLOSEOUT will be measured by lump sum.

3. Payment: PROJECT CLOSEOUT will be paid at the lump sum price as listed on the bid form. Incremental payment for completed work shall be a percentage, determined by the Engineer, in accordance with the approved schedule of values.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXEUCTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Products furnished under this Section include the following: Pre-engineered steel mezzanine

1.03 COORDINATION

A. Coordinate installation of the mezzanine structure with other work.

1.04 ACTION SUBMITTALS

A. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, and details of the mezzanine framing and their connections including connections to the existing building slab.

B. Design calculations and structural drawings for review by the Owner and the Owner's representative for construction and sufficient for submittal to the Building Authority to obtain a building permit.

C. Product data, material sample and location plan for signs.

1.05 INFORMATIONAL SUBMITTALS

A. Mill Certificates: Signed by steel manufacturers, certifying that products furnished comply with requirements.

B. Welding certificates.

1.06 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."

1.07 FIELD CONDITIONS

A. Field Measurements: Verify actual locations of construction contiguous with metal fabrications by field measurements before fabrication.

PART 2 - PERFORMANCE REQUIREMENTS

2.01 ALL METHODS, MATERIAL, AND WORKMANSHIP SHALL CONFORM TO THE 2015 INTERNATIONAL BUILDING CODE (IBC) AS AMENDED AND ADOPTED BY THE LOCAL BUILDING AUTHORITY.

A. Design criteria

1. Design the mezzanine floor for minimum 250 psf live load

2. Design the mezzanine for seismic loading including seismic loads per ibc section 1613 and asce 7 chapters 11 thru 13 with the following factors:

a. Risk Category:ii

b. Seismic Importance Factor: 1.0

c. Ss: 1.296

d. S1:0.503

e. Site Class: D

f. Sds: 0.864

g. Sd1:0.503

h. Seismic Design Category: D

2.02 METALS

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

B. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

C. Rolled-Steel WT Sections: ASTM A 992 Fy=50 ksi

2.03 FABRICATION, GENERAL

A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

C. Form exposed work with accurate angles and surfaces and straight edges.

D. Weld corners and seams continuously to comply with the following:

1. Use materials and methods that minimize distortion and develop the strength of base metals.

2. Obtain fusion without undercut or overlap.

3. Remove welding flux immediately.

4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing.

E. Signage: Provide signs showing safe live load rating near the new 6’-0” gate on the North side of the mezzanine and in 3 other location on the mezzanine railings in accordance with OSHA 1926.250(a)(2).

1. Signs shall have contrasting block lettering at least 2” in height.

2. Signs shall be fabricated from aluminum, minimum 13.5 gauge

2.04 STEEL COMPONENTS

A. General: Provide steel components as needed to complete the Work.

B. Fabricate units from steel shapes, plates, and bars unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary for close and accurate fit-up with adjacent construction.

2.05 FINISHES, GENERAL

A. Finish metal fabrications and adjacent metal surfaces after installation.

B. Field prime steel components after installation using Universal Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.

1. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.

C. Preparation for Field Priming: Prepare unpainted/ unprimed surfaces to comply with SSPC-SP 3, "Power Tool Cleaning."

1. Clean existing adjacent steel surfaces abraded, discolored, or otherwise affected by the work performed under this contract/work order

D. Field Priming: Apply primer to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," on all unpainted surfaces of new steel components and to existing adjacent steel surfaces abraded, discolored, or otherwise affected by the work under this contract/work order.

1. Stripe paint corners, crevices, welds, and sharp edges.

E. Field paint all primed steel with paint that matches color and finish of steel framing adjacent to and unaffected by the work completed under this contract/work order. Verify that the type, manufacturer, color, and finish of the paint is acceptable to the Owner by submitting color and texture samples to the Owner for acceptance before acquiring the paint. The paint shall be compatible with the primer used.

2.06 ADJUSTING AND CLEANING

A. Touchup Painting: clean abraded areas. Paint uncoated and abraded areas with the same material used for field priming to comply with SSPC-PA 1 for touching up field-painted surfaces.

1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.

B. Touchup Painting: Clean and touchup paint field welds and abraded areas of painted surfaces.

END OF SECTION

PART 1 GENERAL

1.01 REFERENCE STANDARDS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

B. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors; 2011.

C. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2014.

D. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 2011.

E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.

F. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable; 2015.

G. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2014.

H. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

I. ITS (DIR) - Directory of Listed Products; current edition.

J. NAAMM HMMA 840 - Guide Specifications for Installation and Storage of Hollow Metal Doors and Frames; 2007.

K. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2016.

L. NFPA 105 - Standard for Smoke Door Assemblies and Other Opening Protectives; 2016.

M. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; 2012.

N. UL (DIR) - Online Certifications Directory; current listings at database.ul.com.

O. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Installation Instructions: Manufacturer's published instructions, including any special installation instructions relating to this project.

C. Manufacturer's Certificate: Certification that products meet or exceed specified requirements.

D. Product data submittals for door, frame and hardware.

1.04 QUALITY ASSURANCE

A. Maintain at project site copies of reference standards relating to installation of products specified.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.

B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Hollow Metal Doors and Frames:

1. Ceco Door, an Assa Abloy Group company; www.assaabloydss.com.
2. De La Fontaine Inc; Hollow Metal Door: www.delafontaine.com/#sle.
3. Mesker, dormakaba Group; FDJ Series Drywall Frames:
4. Republic Doors; www.republicdoor.com.
5. Steelcraft, an Allegion brand: www.allegion.com/#sle.
6. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 DESIGN CRITERIA

A. Requirements for Hollow Metal Doors and Frames:

1. Steel used for fabrication of doors and frames shall comply with one or more of the following requirements; Galvannealed steel conforming to ASTM A653/A653M, cold-rolled steel conforming to ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel conforming to ASTM A1011/A1011M, Commercial Steel (CS) Type B for each.
2. Accessibility: Comply with ICC A117.1 and ADA Standards.

B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.03 HOLLOW METAL DOORS

A. Door Finish: Factory finished.

B. Type ~~____~~, S, Fire-Rated Doors:

1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
   a. Level 2 - Heavy-duty.
   b. Physical Performance Level B, 5000,000 cycles; in accordance with ANSI/SDI A250.4.
   c. Model 1 - Full Flush.
   d. Door Face Metal Thickness: 18 gage, 0.042 inch, minimum.
2. Fire Rating: 20 minute minimum, tested in accordance with UL 10C and NFPA 252 ("positive pressure fire tests").
3. Temperature-Rise Rating (TRR) Across Door Thickness: In accordance with local building code and authorities having jurisdiction.
4. Provide units listed and labeled by UL (DIR) or ITS (DIR).
   a. Attach fire rating label to each fire rated unit.

2.04 HOLLOW METAL FRAMES

A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.

B. Door Frames, Fire-Rated: Knock-down type.

1. Fire Rating: Same as door, labeled.

2.05 FINISHES

A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

2.06 ACCESSORIES

A. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.

B. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

C. Hardware: Provide crash bar exit hardware on North side of door (near stairs). No hardware is required on South (hallway) side of door. Hardware shall be heavy duty rated with finish to match hardware on existing nearby doors.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.

B. Install fire rated units in accordance with NFPA 80.

C. Coordinate frame anchor placement with wall construction.

D. Install door hardware as specified in Section 08 71 00.

E. Touch up damaged factory finishes.

3.02 TOLERANCES

A. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.03 ADJUSTING

A. Adjust for smooth and balanced door movement.

END OF SECTION

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other sections regarding related specifications, apply to this Section.

1.02 SUMMARY

A. This section includes the following:

1. 4-Post fixed shelving units, fabrication and installation including leveling.

B. Related Sections: 05 50 00 - PRE-ENGINEERED STEEL MEZZANINE

1.03 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Provide fixed shelving capable of withstanding the effects of earthquake motions as determined according to IBC 2006 and local building codes.

B. Design Requirements: Provide 73” high shelving units as shown on the drawings.

1. Each unit shall have 5 shelves, with at least 3 shelves adjustable.

2. Each shelf shall be rated to support 2500 lbs. minimum.

C. Color Samples: Provide sample for each exposed product and for each color required.

D. Selection Samples: For selection of colors and textures, submit manufacturer’s color charts consisting of actual product samples, showing full range of colors and textures available. Vendors must provide a minimum of 12 color selections in powder coat paint finish.

E. Installer Qualifications: Employ an experienced installer who is the manufacturer’s authorized and certified representative.

1. Minimum Qualifications: 1-year experience installing systems of similar size and complexity to specified project requirements

2. Manufacturer Certification: Required by manufacturer on manufacturer’s letterhead required at time of bid. Certifications by sales representatives, dealers, or distributors are unacceptable. Qualification must include resume of certified installation supervisor.

3. Provide support within 24 hours for service call.

F. Warranty: Submit a written warranty, executed by the contractor, installer and manufacturer, agreeing to repair or replace units that fail in materials or workmanship within the specified warranty period. This warranty shall be in addition to, no limitations of other rights the owner may have against the contractor under contract documents.

Lifetime Limited Warranty: The entire shelving installation will be warranted against defects in materials for the life of the installation from the date of acceptance by the Owner.

1.04 SUBMITTALS

A. Product Data: Submit manufacturer’s product literature, schematics, testing data, and other items as described in this specification. Include data substantiating that products to be furnished comply completely with requirements of the contract documents and specifications. Include installed weight, load criteria, furnished specialties, and accessories.

B. Shop Drawings: Prepared and detailing fabrication, assembly, and installation of storage shelving, as well as procedures and diagrams. Include details of layout and installation, as well as clearances, spacing, relation to adjacent construction in plan, elevation, and section,

components, assemblies, connections, attachments, reinforcements, and anchorage. Furnish floor layouts, technical, and installation manuals for every unit shipment.

1.05 QUALITY ASSURANCE

A. Manufacturer Certifications: Provide written certification by manufacturer on manufacturer's letterhead at time of bid required stating compliance with all specifications of shelving systems. Shelving certifications must confirm compliance with all shelf sizes and gauges as noted in these specifications.

1.06 PROJECT CONDITIONS

A. Field Measurements: Verify shelving unit location by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

B. Delivery, Storage, & Handling: Comply with instructions and recommendations of manufacturer for special delivery, storage and handling requirements.

C. Sequence & Scheduling: Sequence storage shelving system installation with other work to minimize possibility of damage and soiling during remainder of construction period.

D. Pre-installation Conference: Conduct conference at project site. Review methods and procedures related to installation of fixed storage units including, but not limited to, the following:

1. Inspect and discuss condition and levelness of flooring and other preparatory work.
2. In addition to the Contractor and the installer, arrange for the attendance of the following :
    a. Other installers affected by the work of this section.
    b. The Engineer.
    c. Manufacturer's representative.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Shelving:

1. Montel
2. Tennsco
3. Valley Craft
4. Or approved equal.

2.02 MANUFACTURED COMPONENTS - 4-POST SHELVING

A. Upright frames: Upright frames shall be made of two or more cross members welded to the top and bottom (and center if necessary) of the post and form a rectangular upright frame. Each post shall be made of minimum16-gauge 1 ¼" x 1 ½" rectangular shaped cold rolled steel. The uprights must allow for component integration on either 1" or 1 ½" increment depending only on the selected shelf component.

B. Cross members: Cross members shall be made of 16-gauge steel folded to create a "U" shape channel. In seismic zones, the cross members are welded to the post.

C. Levelers: Each post shall have an integrated leveler, inserted into formed upright tube, which allows for ¾" adjustment to accommodate for uneven floor surface. No temporary shims or other third party leveling device will be accepted.

D. Center back panel: Center back panels shall be made of 20-gauge steel and constructed in such a way as to form and integral finished product.

E. Full-back panel: Full-back panels shall be made of 20-gauge steel box formed ½" thick and affixed to the post to form an integral finished product.

F. Supported Type Shelving:

1. Full-depth shelves: Full-depth shelves shall be made of box rolled formed minimum 22-gauge steel, with ¾" edge construction which to add additional strength and capacity as well as it create a hidden safety edge to protect people and items. The full-depth shelves shall be supported by two longitudinal shelf supports and the appropriate number reinforcement channels.

2. Longitudinal supports: 1 ¼" high supports shall be made of one “U” shaped 12-gauge steel channel.

3. Front-to-back reinforcement channels: 1 ¼" high reinforcement channels shall be made of 12-gauge steel formed in a “U” shaped channel.

4. Base support: A 12-gauge steel “U” shaped channel shall be provided for the bottom shelf.

G. Sway brace: 1 1/8" wide sway braces shall be made of two 16-gauge steel bars, assembled with a rivet. Sway braces shall be connected to the posts by means of mechanical rivet or dowel pins. Sway braces shall be positioned where indicated by the manufacturer to provide lateral stability.

H. End panels: Shall be constructed of 20 gauge steel, 2" thick, and shall be bolted to bottom and top upright cross members.

I. Side closure panels: Shall be constructed of 20-gauge steel, they shall be formed to be flush with the edge of the shelving upright and bolted to bottom and top upright cross members.

J. Plain back stops: Shall be 5 17/32" high formed of 20-gauge steel with a 3/8" bend on top and bottom and a 1 3/16" bend on each side.

K. Slotted back stops: Shall be 5 17/32" high formed of 20-gauge steel with a 3/8" bend on top and bottom and a 1 3/16" bend on each side. Slots are located on 1" increments for divider adjustment.

L. Plain center stops: Shall be 4 3/16" high formed of 20-gauge steel with offsets bends to center on upright frame.

M. Slotted center stops: Shall be 4 3/1" high formed of 20-gauge steel with two offset bends. Slots are located on 1" increments for divider adjustment.

2.03 FINISH SPECIFICATIONS

A. Shall be the finest of their respective kinds and those best adapted to the construction for which they are employed to meet ISO 9001:2008 quality standards. All steel shall be superior quality mild, cold rolled, pickled, and double annealed, free from scale and buckle. All gauges are U.S. standard. The design of all parts shall be such that the completed installation shall present a neat and finished appearance and shall be free from exposed sharp edges or projections. All other special materials shall be as hereinafter specified.

B. All components shall be painted with an electrostatically applied powder coat finish. All steel parts shall be machined smoothed and thoroughly cleaned by a process of completely washing in a phosphatizing solution to insure removal of oil, grease or other foreign material which could interfere with the adhesion of the priming coat in any way. Following the cleaning process, all parts shall be coated and confirming every part is thoroughly and completely covered with fine powder coat, and baked to the paint manufacturer's recommendation. The finish for powder coat shall be medium gloss, giving a reading of 35 to 65 degrees on a standard gloss meter and must be capable of withstanding severe hammer and bending tests without flaking. The finish for epoxy-polyester hybrid powder coat shall be a minimum 1.2 mil thickness capable of resisting methyl ethyl ketone, salt spray, abrasion and printing, and all normal usage resistant requirements of a good finish. In addition, powder coat shall not be off gassing to prevent deterioration of collection and other stored materials. Colors to be selected by owner.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine subfloor surfaces, with installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of fixed storage units.

1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of fixed storage units.

2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Install components and accessories after finishing operations, including painting, have been completed. Install shelving units to comply with final layout drawings, in strict compliance with manufacturer's printed instructions and structural calculations. Position units level and plumb at proper location relative to adjoining units and related work

B. Field Quality Control: Remove and replace components that are chipped, scratched, or otherwise damaged and which do not match adjoining work. Provide new matching units, installed as specified and in manner to eliminate evidence of replacement.

C. Adjust: Adjust components and accessories to provide smoothly operating, visually acceptable installation.

D. Cleaning: Immediately upon completion of installation, clear 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.

E. Protection: Protect system against damage during remainder of construction period.

3.03 DEMONSTRATION/CUSTOMER TRAINING

A. Provide complete training to end-user's staff. Training shall include general safety and operation instructions, and basic preventative maintenance procedures.

END OF SECTION