

DIVISION 10
SPECIALTIES

SECTION 10155 TOILET COMPARTMENTS

1.00 GENERAL

1.01 DESCRIPTION OF WORK

- A. This Section includes toilet compartments and screens as follows:

10155.A1, TOILET PARTITION
10155.A2, URINAL SCREEN

1. Type: Steel, color-powder coated finish.
2. Compartment Style: Ceiling hung.
3. Screen Style: Wall hung.

- B. Related Sections include the following:

1. Division 5 Section "Metal Fabrications" for supports that attach units to overhead structural system.
2. Division 10 "Toilet and Bath Accessories" for toilet paper holders, grab bars, purse shelves, and similar accessories.

1.02 SUBMITTALS

- A. Product Data: For each type and style of toilet compartment and screen specified. Include details of construction relative to materials, fabrication, and installation. Include details of anchors, hardware, and fastenings.
- B. Shop Drawings: For fabrication and installation of toilet compartment and screen assemblies. Include plans, elevations, sections, details, and attachments to other work.
1. Show locations of reinforcement and cutouts for compartment-mounted toilet accessories.
- C. Samples for Initial Selection: Manufacturer's color charts consisting of sections of actual units showing the full range of colors, textures, and patterns available for each type of compartment or screen indicated.

1.03 PROJECT CONDITIONS

- A. Field Measurements: Verify dimensions in areas of installation by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

2.00 PRODUCTS

2.01 MANUFACTURERS

Read and accepted as part of the Contract:

Bidder / Contractor

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. All American Metal Corp.
2. Bobrick Washroom Equipment, Inc.
3. Commercial and Architectural Products, Inc.; Marlite.
4. Compression Polymers Group; Comtec Industries.
5. Crane Plumbing; Sanymetal.
6. General Partitions Mfg. Corp.
7. Global Steel Products Corp.
8. Hadrian Inc.
9. Knickerbocker Partition Corporation.
10. Mills Company (The).
11. Partition Systems, Inc.; Columbia Partitions.
12. Santana Products, Inc.
13. Turan Partition Corporation.
14. Young Sales Corp.; DesignRite.

2.02 MATERIALS

- A. General: Provide materials that have been selected for surface flatness and smoothness. Exposed surfaces that exhibit pitting, seam marks, roller marks, stains, discolorations, telegraphing of core material, or other imperfections on finished units are unacceptable.
- B. Steel Sheets for Color-Powder Coated Finish: Provide mill-phosphatized steel sheet that is leveled to stretcher-leveled flatness complying with the requirements of standards indicated below:
1. Electrolytically Zinc-Coated Steel Sheet: ASTM A 591M, Class C, of the following minimum thicknesses:
 - a. Pilasters (Overhead Braced): 0.9 mm.
 - b. Panels and Screens: 0.9 mm.
 - c. Tapping Reinforcement: 1.9 mm.
 2. Hot-Dip Galvanized or Galvannealed Steel Sheet: ASTM A 653M, in manufacturer's standard coating designation and of the following minimum thicknesses:
 - a. Pilasters (Overhead Braced): 1.0 mm.
 - b. Pilasters (Unbraced): 1.3 mm.
 - c. Panels and Screens: 1.0 mm.
 - d. Panels and Screens: 0.85 mm.
 - e. Doors: 0.85 mm.
 - f. Tapping Reinforcement: 2.0 mm.
- C. Pilaster Shoes and Sleeves (Caps): ASTM A 666, Type 302 or 304 stainless steel, not less than 0.8 mm thick and 75 mm high, finished to match hardware.
- D. Stirrup Brackets: Manufacturer's standard ear or U-brackets for attaching panels and screens to walls and pilasters of the following material:
1. Material: Stainless steel.

- E. Full-Height (Continuous) Brackets: Manufacturer's standard design for attaching panels and screens to walls and pilasters of the following material:
 - 1. Material: Stainless steel.
- F. Hardware and Accessories: Manufacturer's standard design, heavy-duty operating hardware and accessories of the following material:
 - 1. Material: Stainless steel.
- G. Overhead Bracing: Manufacturer's standard continuous, extruded-aluminum head rail with antigrip profile in manufacturer's standard finish.
- H. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel, finished to match hardware, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use hot-dip galvanized or other rust-resistant, protective-coated steel.

2.03 FABRICATION

- A. General: Provide standard doors, panels, screens, and pilasters fabricated for compartment system. Provide units with cutouts and drilled holes to receive compartment-mounted hardware, accessories, and grab bars, as indicated.
 - 1. Provide internal reinforcement in metal units for compartment-mounted hardware, accessories, and grab bars, as indicated.
- B. Metal-Faced Toilet Compartments and Screens: Pressure laminate seamless face sheets to core material and provide continuous, interlocking molding strip or lapped and formed edges. Seal corners by welding or clips. Grind exposed welds smooth.
- C. Ceiling-Hung Compartments: Provide manufacturer's standard corrosion-resistant anchoring assemblies complete with threaded rods, lock washers, and leveling adjustment nuts at pilasters for connection to structural support above finished ceiling. Provide assemblies that support pilasters from structure without transmitting load to finished ceiling. Provide sleeves (caps) at tops of pilasters to conceal anchorage.
 - 1. Provide manufacturer's standard 100-mm-high, overhead cross bracing.
- D. Wall-Hung Screens: Provide units in sizes indicated of same construction and finish as compartment panels, unless otherwise indicated.
 - 1. Provide metal-faced screens with integral full-height flanges for attachment to wall.
- E. Doors: Unless otherwise indicated, provide 610-mm-wide in-swinging doors for standard toilet compartments and 914-mm-wide out-swinging doors with a minimum 813-mm-wide clear opening for compartments indicated to be handicapped accessible.
 - 1. Hinges: Manufacturer's standard self-closing type that can be adjusted to hold door open at any angle up to 90 degrees.
 - 2. Latch and Keeper: Manufacturer's standard surface-mounted latch unit with combination rubber-faced door strike and keeper designed for emergency access. Provide units that comply with accessibility requirements of authorities having jurisdiction at compartments indicated to be handicapped accessible.

3. Coat Hook: Manufacturer's standard combination hook and rubber-tipped bumper, sized to prevent door from hitting compartment-mounted accessories.
4. Door Bumper: Manufacturer's standard rubber-tipped bumpers at out-swinging doors or entrance screen doors.
5. Door Pull: Manufacturer's standard unit that complies with accessibility requirements of authorities having jurisdiction at out-swinging doors. Provide units on both sides of doors at compartments indicated to be handicapped accessible.

3.00 EXECUTION

3.01 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, plumb, and level. Provide clearances of not more than 13 mm between pilasters and panels and not more than 25 mm between panels and walls. Secure units in position with manufacturer's recommended anchoring devices. Seal stirrup brackets to wall.
 1. Secure panels to walls and panels with not less than 2 stirrup brackets attached near top and bottom of panel. Locate wall brackets so holes for wall anchors occur in masonry or tile joints. Align brackets at pilasters with brackets at walls.
- B. Ceiling-Hung Compartments: Secure pilasters to supporting structure and level, plumb, and tighten. Hang doors and adjust so bottoms of doors are level with bottoms of pilasters when doors are in closed position.
- C. Screens: Attach with anchoring devices according to manufacturer's written instructions and to suit supporting structure. Set units level and plumb and to resist lateral impact.

3.02 ADJUSTING AND CLEANING

- A. Hardware Adjustment: Adjust and lubricate hardware according to manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors and swing doors in entrance screens to return to fully closed position.
- B. Provide final protection and maintain conditions that ensure toilet compartments and screens are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 10155

SECTION 10200 LOUVERS AND VENTS

1.00 GENERAL

1.01 SCOPE

- A. This Section includes the following:
 - 1. Fixed, extruded-aluminum louvers.
 - 2. Fixed, formed-metal louvers.

- B. Related Sections include the following:
 - 1. Division 7 Section "Joint Sealants" for sealants installed in perimeter joints between louver frames and adjoining construction.
 - 2. Division 15 Section "Control Systems Equipment" for electric, electronic, and pneumatic control of adjustable metal louvers.
 - 3. Division 15 Sections for louvers that are a part of mechanical equipment.
 - 4. Division 16 Sections for electrical power connections for motor-operated adjustable metal louvers.

1.02 DEFINITIONS

- A. Louver Terminology: Definitions of terms for metal louvers contained in AMCA 501 apply to this Section, unless otherwise defined in this Section or in referenced standards.

- B. Standard Free Area: Free area of a louver 1220 mm wide by 1220 mm high, identical to that provided.

- C. Maximum Standard Airflow: Airflow at point of beginning water penetration through a louver 1220 mm wide by 1220 mm high, identical to that provided.

- D. Drainable-Blade Louver: Louver designed to collect and drain water to exterior at sill by means of gutters in front edges of blades and channels in jambs and mullions.

1.03 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide exterior metal louvers capable of withstanding the effects of loads and stresses from wind and normal thermal movement without evidencing permanent deformation of louver components including blades, frames, and supports; noise or metal fatigue caused by louver blade rattle or flutter; or permanent damage to fasteners and anchors.
 - 1. Wind Load: Uniform pressures (velocity pressures) indicated on Drawings, acting inward or outward.

- B. Air-Performance, Water-Penetration, and Air-Leakage Ratings: Provide louvers complying with performance requirements indicated, as demonstrated by testing

Read and accepted as part of the Contract:

Bidder / Contractor

manufacturer's stock units 1220 mm wide by 1220 mm high. Test units according to AMCA 500.

1. Perform testing on unpainted, cleaned, degreased units.
2. Perform water-penetration testing on louvers without screens.

1.04 SUBMITTALS

- A. Product Data: For each type of product specified.
- B. Shop Drawings: For louver units and accessories. Include plans; elevations; sections; and details showing profiles, angles, and spacing of louver blades. Show unit dimensions related to wall openings and construction; free area for each size indicated; profiles of frames at jambs, heads, and sills; and anchorage details and locations.
- C. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available for units with factory-applied color finishes.
- D. Samples for Verification: Of each type of metal finish required, prepared on Samples of same thickness and material indicated for final Work. Where finishes involve normal color and texture variations, include Sample sets showing the full range of variations expected.
- E. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1.05 QUALITY ASSURANCE

- A. Source Limitations: Obtain louvers and vents through one source from a single manufacturer where alike in one or more respects regarding type, design, or factory-applied color finish.
- B. SMACNA Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" recommendations for fabrication, construction details, and installation procedures.
- C. UL and NEMA Compliance: For motorized louvers, provide motors and related components for motor-operated adjustable louvers that are listed and labeled by UL and comply with applicable NEMA standards.

1.06 PROJECT CONDITIONS

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

2.00 PRODUCTS

2.01 MANUFACTURERS

Read and accepted as part of the Contract:

Bidder / Contractor

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Airline Products Co.
2. Aiolite Co.
3. All-Lite Louver Co.
4. Arrow United Industries.
5. Cesco Products.
6. Construction Specialties, Inc.
7. Dowco Products Group.
8. Greenheck Fan Corporation.
9. Hart & Cooley, Inc.; Reliable Metal Products Division.
10. Industrial Louvers, Inc.
11. NCA Manufacturing, Inc.
12. Riesner Vent Brick Corp.
13. Ruskin Manufacturing; Tomkins Industries, Inc.
14. Sunvent Industries; Sylro Sales Corp.

2.02 MATERIALS

- A. Aluminum Extrusions: ASTM B 221M, alloy 6063-T5 or T-52.
- B. Aluminum Sheet: ASTM B 209M, alloy 3003 or 5005 with temper as required for forming, or as otherwise recommended by metal producer for required finish.
- C. Fasteners: Of same basic metal and alloy as fastened metal or 300 series stainless steel, unless otherwise indicated. Do not use metals that are incompatible with joined materials.
1. Use types and sizes to suit unit installation conditions.
 2. Use Phillips flat-head screws for exposed fasteners, unless otherwise indicated.
- D. Anchors and Inserts: Of type, size, and material required for loading and installation indicated. Use nonferrous metal or hot-dip galvanized anchors and inserts for exterior installations and elsewhere as needed for corrosion resistance. Use toothed steel or expansion bolt devices for drilled-in-place anchors.
- E. Bituminous Paint: Cold-applied asphalt mastic complying with SSPC-Paint 12 but containing no asbestos fibers, or cold-applied asphalt emulsion complying with ASTM D 1187.

2.03 FABRICATION, GENERAL

- A. Assemble louvers in factory to minimize field splicing and assembly. Disassemble units as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

Read and accepted as part of the Contract:

Bidder / Contractor

1. Continuous Vertical Assemblies: Where height of louver units exceeds fabrication and handling limitations, fabricate units to permit field-bolted assembly with close-fitting joints in jambs and mullions, reinforced with splice plates and without interrupting blade-spacing pattern.
- B. Maintain equal louver blade spacing, including separation between blades and frames at head and sill, to produce uniform appearance.
- C. Fabricate frames, including integral sills, to fit in openings of sizes indicated, with allowances made for fabrication and installation tolerances, adjoining materials' tolerances, and perimeter sealant joints.
 1. Frame Type: Channel type, unless otherwise indicated.
- D. Include supports, anchorages, and accessories required for complete assembly.
- E. Provide concealed vertical mullions of type and at spacings indicated, but not more than recommended by manufacturer, or 1830 mm o.c., whichever is less. At horizontal joints between louver units, provide horizontal mullions, unless continuous vertical assemblies are indicated.
- F. Provide sill extensions and loose sills made of same material as louvers where indicated or required for drainage to exterior and to prevent water penetrating to interior.
- G. Join frame members to one another and to fixed louver blades with fillet welds concealed from view, unless otherwise indicated or size of louver assembly makes bolted connections between frame members necessary.
- H. Join frame members to one another and to fixed louver blades with fillet welds, threaded fasteners, or both, as standard with louver manufacturer, concealed from view; unless otherwise indicated or size of louver assembly makes bolted connections between frame members necessary.

2.04 FIXED, EXTRUDED-ALUMINUM LOUVERS

- A. Louver Construction: Provide "mullionless" fixed-blade louvers with extruded-aluminum frames and blades.
- B. Horizontal, Drainable-Blade Louvers: As follows:
 1. Louver Depth: 150 mm, unless otherwise indicated.
 2. Frame Thickness: 3.18 mm.
 3. Blade Thickness: 3.18 mm.
 4. Blade Angle and Spacing: 45 degrees and 150 mm o.c. for 150-mm-deep louvers.

2.05 LOUVER SCREENS

- A. General: Provide each exterior louver with louver screens complying with the following requirements:

Read and accepted as part of the Contract:

1. Screen Location for Fixed Louvers: Interior face.
 2. Screening Type: Bird screening, unless otherwise indicated.
 3. Screening Type: Insect screening where indicated.
- B. Secure screens to louver frames with stainless-steel machine screws, spaced a maximum of 150 mm from each corner and at 300 mm o.c.
- C. Louver Screen Frames: Fabricate screen frames with mitered corners to louver sizes indicated and to comply with the following requirements:
1. Metal: Same kind and form of metal as indicated for louver to which screens are attached.
 - a. Reinforce extruded-aluminum screen frames at corners with clips.
 2. Finish: Same finish as louver frames to which louver screens are attached.
 3. Type: Non-rewirable, U-shaped frames for permanently securing screen mesh.
- D. Louver Screening for Aluminum Louvers: As follows:
1. Bird Screening: Stainless steel, 12.7-mm-square mesh, 1.19-mm wire.
 2. Insect Screening: Stainless steel, 1.4-by-1.4-mm mesh, 0.23-mm wire.

2.06 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish louvers after assembly.

2.07 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with system established by the Aluminum Association for designating aluminum finishes.
- B. High-Performance Organic Coating Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid-chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 1. Fluoropolymer Two-Coat Coating System: Manufacturer's standard two-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 605.2.
 - a. Color and Gloss: Match Architect's sample.

3.00 EXECUTION

Read and accepted as part of the Contract:

Bidder / Contractor

3.01 PREPARATION

- A. Coordinate Setting Drawings, diagrams, templates, instructions, and directions for installation of anchorages that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to Project site.

3.02 INSTALLATION

- A. Locate and place louver units level, plumb, and at indicated alignment with adjacent work.
- B. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weathertight connection.
- C. Form closely fitted joints with exposed connections accurately located and secured.
- D. Provide perimeter reveals and openings of uniform width for sealants and joint fillers, as indicated.
- E. Repair finishes damaged by cutting, welding, soldering, and grinding. Restore finishes so no evidence remains of corrective work. Return items that cannot be refinished in the field to the factory, make required alterations, and refinish entire unit or provide new units.
- F. Protect galvanized and nonferrous-metal surfaces from corrosion or galvanic action by applying a heavy coating of bituminous paint on surfaces that will be in contact with concrete, masonry, or dissimilar metals.
- G. Install concealed gaskets, flashings, joint fillers, and insulation, as louver installation progresses, where weathertight louver joints are required. Comply with Division 7 Section "Joint Sealants" for sealants applied during louver installation.

3.03 ADJUSTING, CLEANING, AND PROTECTING

- A. Test operation of adjustable louvers and adjust as needed to produce fully functioning units that comply with requirements.
- B. Periodically clean exposed surfaces of louvers and vents that are not protected by temporary covering to remove fingerprints and soil during construction period. Do not let soil accumulate until final cleaning.
- C. Before final inspection, clean exposed surfaces with water and a mild soap or detergent not harmful to finishes. Thoroughly rinse surfaces and dry.
- D. Protect louvers and vents from damage during construction. Use temporary protective coverings where needed and approved by louver manufacturer. Remove protective covering at the time of Substantial Completion.

Read and accepted as part of the Contract:

Bidder / Contractor

- E. Restore louvers and vents damaged during installation and construction so no evidence remains of corrective work. If results of restoration are unsuccessful, as determined by Architect, remove damaged units and replace with new units.

END OF SECTION 10200

Read and accepted as part of the Contract:

Bidder / Contractor

SECTION 10265

IMPACT RESISTANT WALL AND DOOR PROTECTION

1.00 GENERAL

1.01 DESCRIPTION OF WORK

- A. This Section includes the following:
 - 1. Wall guards.
 - 2. Corner guards.

- B. Related Sections include the following:
 - 1. Division 5 Section "Metal Fabrications" for steel angle and bent plate corner guards fabricated from rolled metal.
 - 2. Division 6 Section "Rough Carpentry" for wood blocking and grounds for surface-mounted wall guards, corner guards, and handrails.

1.02 SUBMITTALS

- A. Product Data: Include physical characteristics, such as durability, resistance to fading, and flame resistance, for each impact-resistant wall protection system component indicated.

- B. Shop Drawings: Show locations, extent, and installation details of each impact-resistant wall protection system component. Show distance of rail from wall and methods of attachment to adjoining construction.

- C. Samples for Verification: For the following products, showing the full range of color and texture variations expected in each impact-resistant wall protection system component. Prepare Samples from the same material to be used for the Work.
 - 1. Wall Guards: 300-mm-long Samples of each type of impact-resistant wall protection system component required. Include examples of joinery, corners, and field splices.

- D. Material Test Reports: From a qualified testing agency indicating compliance of each impact-resistant wall protection system component with requirements indicated, based on tests performed by testing agency within the past five years.

- E. Maintenance Data: For each impact-resistant wall protection system component to include in maintenance manuals specified in Division 1.
 - 1. Include recommended methods and frequency for maintaining optimum condition of vinyl plastic covers under anticipated traffic and use conditions. Include precautions against

Read and accepted as part of the Contract:

Bidder / Contractor

using cleaning materials and methods that may be detrimental to vinyl plastic finishes and performance.

1.03 QUALITY ASSURANCE

- A. **Installer Qualifications:** An experienced installer who has completed installation of impact-resistant wall protection system components similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. **Manufacturer Qualifications:** A firm experienced in manufacturing impact-resistant wall protection system components similar to those required for this Project and with a record of successful in-service performance.
- C. **Source Limitations:** Obtain each color, grade, finish, and type of impact-resistant wall protection system component from a single source with resources to provide components of consistent quality in appearance and physical properties.
- D. **Fire-Test-Response Characteristics:** Provide impact-resistant wall protection system components with the following surface-burning characteristics, as determined by testing materials identical to those required in this Section per ASTM E 84 by a testing and inspecting agency acceptable to authorities having jurisdiction. Identify impact-resistant wall protection system components with appropriate markings of applicable testing and inspecting agency.
 - 1. Flame Spread: 25 or less.
 - 2. Smoke Developed: 450 or less.
- E. **Impact Strength:** Provide impact-resistant wall protection system components with a minimum impact resistance of 1356 J/m of width when tested according to ASTM D 256, Test Method A.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Store wall surface-protection materials in original undamaged packages and containers inside a well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.
 - 1. Maintain room temperature within the storage area at not less than 21 deg C during the period plastic materials are stored. Keep sheet material out of direct sunlight to avoid surface distortion.
 - 2. Store rigid plastic wall guard and handrail covers in a horizontal position for a minimum of 72 hours, or until the plastic material attains the minimum room temperature of 21 deg C.

1.05 PROJECT CONDITIONS

Read and accepted as part of the Contract:

Bidder / Contractor

- A. Environmental Limitations: Do not install wall surface-protection system components until the space is enclosed and weatherproof and ambient temperature within the building is maintained at not less than 21 deg C for not less than 72 hours before beginning installation. Do not install rigid plastic wall surface-protection systems until that temperature has been attained and is stabilized.

1.06 EXTRA MATERIALS

- A. Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Impact-Resistant Wall Protection System Units: Full-size units of maximum length, including vinyl plastic cover and aluminum retainer, equal to 5 percent of each type, color, and texture of each type of unit installed, but not less than two units.
 - a. Include accessory components as required. Replacement materials shall be from the same production run as materials installed. Package replacement materials with protective covering, identified with appropriate labels.

1.06 WARRANTY

- A. Provide a manufacturers as installation warranty for a period of five years from Substantial Completion.

2.00 PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide impact-resistant wall protection system products by one of the following:
1. Construction Specialties, Inc.
 2. Sani-Rail
 3. Or Approved Equal.

2.02 MATERIALS

- A. Extruded Rigid Plastic: Textured, chemical- and stain-resistant, high-impact-resistant, PVC or acrylic-modified vinyl plastic; thickness as indicated; with a minimum impact resistance of 1356 J/m of width when tested according to ASTM D 256, Test Method A.

1. Color and Texture: As indicated by referencing manufacturer's designations.
 2. Color and Texture: As selected by Architect from manufacturer's full range for these characteristics.
- B. Aluminum Extrusions: Provide alloy and temper recommended by the manufacturer for the type of use and finish indicated, but with not less than the strength and durability properties specified in ASTM B 221M for alloy 6063-T5.
- C. Wood, plain sawn, FAS grade 6 to 10 % moisture content. Factory finish to AWI 60 degree gloss, ASTM D523.
- D. Stainless-Steel Plate: Type 304, minimum 1.6mm.
- E. Fasteners: Provide aluminum, nonmagnetic stainless-steel, or other noncorrosive metal screws, bolts, and other fasteners compatible with aluminum components, hardware, anchors, and other items being fastened. Use theftproof fasteners where exposed to view.

2.03 WALL GUARDS

- A. Rub-Rail-Type Wall Guards: aluminum retainer mounted at height indicated.

WP1, SINGLE ROW, SANI-RAIL, 100mm RAIL, 38mm, I beam support. Anodized finish.
WP1A, DOUBLE ROW, SANI-RAIL, 100mm RAIL, 38mm, I beam support. Anodized finish.

1. Retainer: Continuous, one-piece, extruded-aluminum; minimum 6.5 mm thick.
 - a. Mounting Type: 38mm I beam, surface mounted flush on wall.
2. Accessories: Provide prefabricated, end caps and inside and outside corners with concealed splices, mounting hardware, and other accessories as required.

- B. Crash-Rail-Type Wall Guards: To match specification below. Heavy-duty assembly consisting of a snap-on-type rigid plastic cover installed over a continuous aluminum retainer mounted at height indicated.

WP3, CONSTRUCTION SPECIALTIES, INC., FR-270,
TYPICAL ACROVYN, 929-OYSTER GRAY
ACCENT ACROVYN, 933-MISSION WHITE, Lobbies accent wall

1. Cover: Extruded, rigid plastic, minimum 2.8 mm thick, in profile indicated.
2. Retainer: Continuous, one-piece, extruded-aluminum retainer; minimum 1.6 mm thick; with continuous vinyl bumper cushion centered in the extrusion.

- a. Mounting Type: Surface mounted flush on wall.
3. Accessories: Provide prefabricated, injection-molded end caps and inside and outside corners with concealed splices, cushions, mounting hardware, and other accessories as required.
 - a. End caps and inside and outside corners shall match plastic cover color and shall be field adjustable for close alignment with snap-on plastic covers

2.04 CORNER GUARDS

A Stainless-Steel Corner Guards: Paper-covered, satin-finish, 1.6-mm minimum, stainless-steel sheet corner guards; height as indicated. Provide 90-degree turn, unless otherwise indicated; and formed edges.

1. Align with top edge of wood +/- 900mm AFF at WP-2.
2. Full height at WP-3.

CG-1, STAINLESS CORNER GUARDS

1. Wing Size: 114.3 by 114.3 mm.
2. Mounting Method: Countersunk screws with mounting holes 203 mm o.c.
3. Corner Radius: 3.2 mm.
4. Full Height

2.05 FABRICATION

- A. General: Fabricate impact-resistant wall and door protection systems to comply with requirements indicated for design, dimensions, details, finish, and member sizes, including thicknesses of components.
- B. Preassemble components in the shop to greatest extent possible to minimize field assembly. Disassemble only as necessary for shipping and handling.
- C. Fabricate components with tight seams and joints with exposed edges rolled. Provide surfaces free of wrinkles, chips, dents, uneven coloration, and other imperfections. Fabricate members and fittings to produce flush, smooth, and rigid hairline joints.
- D. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors for interconnecting members to other construction.
- E. Provide inserts and other anchoring devices for connecting components to concrete or masonry. Fabricate anchoring devices to withstand imposed loads. Coordinate anchoring devices with the supporting structure.

Read and accepted as part of the Contract:

Bidder / Contractor

2.06 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.07 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- B. Class I, Color Anodic Finish: AA-M12C22A42/A44 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, integrally colored or electrolytically deposited color coating 0.018 mm or thicker) complying with AAMA 606.1 or AAMA 608.1.
 - 1. Color: CLEAR ANODIZED.

2.08 STAINLESS-STEEL FINISHES

- A. Satin, Directional Polish: No. 6 finish.
 - 1. Remove tool and die marks and stretch lines or blend into finish.

3.00 EXECUTION

3.01 EXAMINATION

- A. Examine areas and conditions in which impact-resistant wall protection system components and impact-resistant wall covering materials will be installed.
 - 1. Complete finishing operations, including painting, before installing impact-resistant wall protection system components.

Read and accepted as part of the Contract:

Bidder / Contractor

- B. Impact-Resistant Wall Covering Materials: Wall surfaces to receive impact-resistant wall covering materials shall be dry and free from dirt, grease, loose paint, and scale.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. General: Before installation, clean substrate to remove dust, debris, and loose particles.

3.03 INSTALLATION

- A. Install impact-resistant wall protection system components level, plumb, and true to line without distortions.
 - 1. Do not use materials with chips, cracks, voids, stains, or other defects that might be visible in the finished Work.
- B. Install aluminum retainers, mounting brackets, and other accessories according to the manufacturer's written instructions.
 - 1. Where splices occur in horizontal runs of more than 6.1 m, splice aluminum retainers and plastic covers at different locations along the run.

3.04 CLEANING

- A. General: Immediately on completion of installation, clean plastic covers and accessories using manufacturer's written instructions. Clean metal components according to the manufacturer's written instructions.
- B. Remove excess adhesive using methods and materials recommended by the manufacturer.
- C. Remove surplus materials, rubbish, and debris, resulting from installation, on completion of work and leave installation areas in neat, clean condition.

END OF SECTION 10265

SECTION 10400 IDENTIFYING DEVICES

1.00 GENERAL

1.01 SCOPE

Furnish all materials, labor, equipment, plant, tools required for the installation of

- building identification letters

1.02 SAMPLE AND SHOP DRAWINGS

Submit samples for approval of the Architect. For the building identification, full size lettering layout and installation method shall be submitted to the Architect for approval before start of work. Make available half full size patterns for the Owner, upon request.

2.00 PRODUCTS

2.01 MATERIALS

Refer to Section 01020 Summary of Materials and Finishes.

3.00 EXECUTION

3.01 WORKMANSHIP

Execute in high quality workmanship comparable with artworks.

3.02 INSTALLATION

Install in a secure and permanent manner at prescribed heights and/or layout. For the building identification, float letters away from the back wall with the use of cantilevered brass dowels behind each letter. For back walls with irregular surface, provide dowels with different lengths such that the letter faces are true to place. Embed dowels into the back wall by drilling appropriate sized holes at accurate points. Do not mutilate the back wall. After the dowels are positioned, fill with expanding grout, or other approved fillers and retouch flush to the back wall surface.

END OF SECTION 10400

Read and accepted as part of the Contract:

Bidder / Contractor

SECTION 10425 INTERIOR SIGNAGE

1.00 GENERAL

1.01 SCOPE

- A. This Section includes the following types of signs:
 - 1. Sign software and paper insert signs.
 - 2. Panel signs.

- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Temporary Facilities" for temporary project identification signs.
 - 2. Division 10 Section "Directories and Bulletin Boards" for building directories.
 - 3. Division 14 Section "Electric Traction Elevators" for elevator door jamb markings.

1.02 SUBMITTALS

- A. General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.

- B. Product data for each type of sign specified, including details of construction relative to materials, dimensions of individual components, profiles, and finishes.

- C. Shop drawings showing fabrication and erection of signs. Include plans, elevations, and large-scale sections of typical members and other components. Show anchors, grounds, layout, reinforcement, accessories, and installation details.
 - 1. Provide message list for each sign required, including large-scale details of wording and lettering layout.
 - 2. For signs supported by or anchored to permanent construction, provide setting drawings, templates, and directions for installation of anchor bolts and other anchors to be installed as a unit of Work in other Sections.
 - 3. Furnish full-size rubbings for metal plaques.

- D. Samples: Provide the following samples of each sign component for initial selection of color, pattern and surface texture as required and for verification of compliance with requirements indicated.
 - 1. Samples for verification of color, pattern, and texture selected and compliance with requirements indicated:

Read and accepted as part of the Contract:

Bidder / Contractor

- a. Cast Acrylic Sheet: Provide a sample panel not less than 8-1/2 inches by 11 inches for each material, color, texture, and pattern required. On each panel include a representative sample of the graphic image process required, showing graphic style, and colors and finishes of letters, numbers, and other graphic devices.
- b. Aluminum: Samples of each finish type and color, on 6-inch-long sections of extrusions and not less than 4-inch squares of sheet or plate. Where finishes involve normal color and texture variations, include sample sets showing the full range of variations expected.
- c. Dimensional Letters: Provide full-size representative samples of each dimensional letter type required, showing letter style, color, and material finish and method of attachment.

1.03 QUALITY ASSURANCE

- A. Sign Fabricator Qualifications: Firm experienced in producing signs similar to those indicated for this Project, with a record of successful in-service performance, and sufficient production capacity to produce sign units required without causing delay in the Work.
- B. Single-Source Responsibility: For each separate sign type required, obtain signs from one source of a single manufacturer.
- C. Design Concept: The Drawings indicate sizes, profiles, and dimensional requirements of signs and are based on the specific types and models indicated. Sign units by other manufacturers may be considered provided deviations in dimensions and profiles do not change the design concept as judged by the Architect. The burden of proof of equality is on the proposer.

1.04 PROJECT CONDITIONS

- A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication to ensure proper fitting. Show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delay.

2.00 PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Manufacturers of Panel Signs:
 - a. APCO Graphics, Inc.
 - b. Or approved equal, sign system must allow owner to generate sign inserts using their own Computer, or sign manufacture to provide computer suitable for this use. Must exactly match Sign package in W series drawings.

Read and accepted as part of the Contract:

2.02 MATERIALS

- A. Cast Acrylic Sheet: Provide cast (not extruded or continuous cast) methyl methacrylate monomer plastic sheet, in sizes and thicknesses indicated, with a minimum flexural strength of 16,000 psi when tested according to ASTM D 790, with a minimum allowable continuous service temperature of 176 deg F (80 deg C), and of the following general types:
1. Transparent Sheet: Where sheet material is indicated as "clear," provide colorless sheet in matte finish, with light transmittance of 92 percent, when tested according to the requirements of ASTM D 1003.
 2. Opaque Sheet: Where sheet material is indicated as "opaque," provide colored opaque acrylic sheet in colors and finishes indicated.
- B. Aluminum Extrusions: Provide aluminum extrusions of alloy and temper recommended by the sign manufacturer for the type of use and finish indicated, and with not less than the strength and durability properties specified in ASTM B 221 for 6063-T5.
- C. Aluminum Castings: Provide aluminum castings of alloy and temper recommended by the sign manufacturer for the casting process used and for the use and finish indicated.
- D. Vinyl Film: Provide opaque nonreflective vinyl film, 0.0035-inch minimum thickness, with pressure-sensitive adhesive backing, suitable for exterior as well as interior applications.
- E. ABS Plastic: Provide high-impact thermoplastic composed of copolymers of acrylonitrile, butadiene, and styrene.
- F. Fasteners: Use concealed fasteners fabricated from metals that are not corrosive to the sign material and mounting surface.
- G. Anchors and Inserts: Use nonferrous metal or hot-dipped galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or lead expansion bolt devices for drilled-in-place anchors. Furnish inserts, as required, to be set into concrete or masonry work.
- H. Colored Coatings for Acrylic Plastic Sheet: Use colored coatings, including inks and paints for copy and background colors, that are recommended by acrylic manufacturers for optimum adherence to acrylic surface and are nonfading for the application intended.

2.03 SIGN SOFTWARE

- A. Manufacture to provide software sign package compatible with NIH computer and printer which allows NIH personnel to create and print paper sign insert. Manufacturer to provide 216mm x 279mm paper insert perforated for sign types specified. Provide three perforated sign inserts per sign type.

Read and accepted as part of the Contract:

Bidder / Contractor

- B. Manufacture to provide name and telephone number of local support for software and ordering of supplies.

2.04 PANEL SIGNS

- A. Framed Panel Signs: Fabricate frames to profile indicated; comply with the following requirements for materials and corner conditions:

A-3, APCO, SDIR-33 / 34, CMC MOUNTING, PRESS LOCK FASTENERS, WHITE OR FROM MANUFACTURERS STANDARD COLORS, ACCENT STRIP REFER TO DRAWINGS.

A4, APCO, IM SYSTEM, SH-88, WHITE OR FROM MANUFACTURERS STANDARD COLORS, ACCENT STRIP REFER TO DRAWINGS.

A5, APCO, IM SYSTEM, SH-88, WHITE OR FROM MANUFACTURERS STANDARD COLORS, ACCENT STRIP REFER TO DRAWINGS.

A5A, APCO, IM SYSTEM, SH-88, WHITE OR FROM MANUFACTURERS STANDARD COLORS, ACCENT STRIP REFER TO DRAWINGS.

A6, APCO, IM SYSTEM, SH-88, WHITE OR FROM MANUFACTURERS STANDARD COLORS, ACCENT STRIP REFER TO DRAWINGS.

A7, APCO, IM SYSTEM, SH-88, WHITE OR FROM MANUFACTURERS STANDARD COLORS, ACCENT STRIP REFER TO DRAWINGS.

FRAME COLOR APCO, A1 BONE WHITE

ACCENT COLOR APCO, TBD

1. Material: Aluminum, extruded or cast.
 2. Material: Acrylic plastic.
 3. Material: Injection molded ABS plastic.
 4. Corner Condition: Square corners.
- B. Laminated Sign Panels: Permanently laminate face panels to backing sheets of material and thickness indicated using the manufacturer's standard process.
- C. Brackets: Fabricate brackets and fittings for bracket-mounted signs from extruded aluminum to suit sign panel construction and mounting conditions indicated. Factory-paint brackets in a color matching the background color of the sign panel.

- D. Graphic Content and Style: Provide sign copy that complies with the requirements indicated for size, style, spacing, content, position, material, finishes, and colors of letters, numbers, and other graphic devices. Refer to project drawings and schedule.
- E. Raised Copy: Machine-cut copy characters from matte-finished opaque acrylic sheet and chemically weld onto the acrylic sheet forming sign panel face. Produce precisely formed characters with square cut edges free from burrs and cut marks.
 - 1. Panel Material: Matte-finished opaque acrylic sheet.
 - 2. Raised Copy Thickness: 1/8 inch.
- F. Applied Copy: Die-cut characters from vinyl film with pressure-sensitive adhesive backing. Apply copy to the exposed face of the sign panel.
 - 1. Panel Material: Matte-finished opaque acrylic sheet.

2.05 FINISHES

- A. Colors and Surface Textures: For exposed sign material that requires selection of materials with integral or applied colors, surface textures or other characteristics related to appearance, provide color matches indicated, or if not indicated, as selected by the Architect from the manufacturer's standards.
- B. Metal Finishes: Comply with NAAMM "Metal Finishes Manual" for finish designations and applications recommendations.
- C. Aluminum Finishes: Finish designations prefixed by "AA" conform to the system established by the Aluminum Association for designating aluminum finishes.
 - 1. Class II Clear Anodized Fine Satin Finish: AA-M31C21A31 (Mechanical Finish: Fine satin directional textured; Chemical Finish: Fine matte etched finish; Anodic Coating: Class II Architectural, clear film thicker than 0.4 mil).
- D. Stainless Steel Finishes: Finish designations prefixed by "AISI" conform to the system established by the American Iron and Steel Institute for designating finishes.
 - 1. Bright, Directional Polish Finish: AISI No. 4 finish.
 - a. Grain Direction: Vertical.

3.00 EXECUTION

3.01 INSTALLATION

- A. General: Locate sign units and accessories where indicated, using mounting methods of the type described and in compliance with the manufacturer's instructions.

Read and accepted as part of the Contract:

Bidder / Contractor

1. Install signs level, plumb, and at the height indicated, with sign surfaces free from distortion or other defects in appearance.
- B. Wall-Mounted Panel Signs: Attach panel signs to wall surfaces using Mechanical Fastener and Vinyl-Tape Mounting: Use double-sided foam tape to mount signs to smooth, nonporous surfaces and mechanically fasten sign to surface as required. Do not use this method for vinyl-covered or rough surfaces.
- C. Bracket-Mounted Units: Provide the manufacturer's standard brackets, fittings, and hardware as appropriate for mounting signs that project at right angles from walls and ceilings. Attach brackets and fittings securely to walls or ceilings with concealed fasteners and anchoring devices to comply with manufacturer's directions.

3.02 CLEANING AND PROTECTION

- A. After installation, clean soiled sign surfaces according to the manufacturer's instructions. Protect units from damage until acceptance by the Owner.

3.03 DEMONSTRATION

- A. Supplier shall conduct a full day training program for the user's personnel to demonstrate the use, maintenance and changeability of the sign systems and the use of the sign software.

B. START UP SERVICES

1. Assist user in production and installation of first insert for signs with paper inserts using sign software. Set up master sign back ground and provide detailed step by step instructions for future changes.
2. Train owner's representative on procedures and schedules relating to ordering replacement inserts, text, and installation.
3. Review data in the Operating and Maintenance Manual with owner's representative.

END OF SECTION 10432

SECTION 10505 METAL LOCKERS

1.00 GENERAL

1.01 SCOPE

- A. This Section includes the following:
 - 1. Wardrobe lockers, including the following:
 - a. Double tier.
 - 2. Locker benches.
- B. Related Sections include the following:
 - 1. Division 3 Section "Cast-in-Place Concrete" for concrete bases.
 - 2. Division 6 Section "Miscellaneous Carpentry" for wood furring and grounds.

1.02 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of locker and bench.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other Work.
 - 1. Show locker fillers, trim, base, sloping tops, and accessories. Include locker-numbering sequence.
- C. Samples for Verification: For the following products, in manufacturer's standard sizes, showing the full range of color, texture, and pattern variations expected. Prepare Samples from the same material to be used for the Work.
 - 1. Lockers.
 - 2. Locker benches.
- D. Maintenance Data: For adjusting, repairing, and replacing locker doors and latching mechanisms to include in maintenance manuals specified in Division 1.

1.03 QUALITY ASSURANCE

- A. Source Limitations: Obtain locker units and accessories through one source from a single manufacturer.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver lockers until spaces to receive them are clean, dry, and ready for locker installation.
- B. Protect lockers from damage during delivery, handling, storage, and installation.

Read and accepted as part of the Contract:

Bidder / Contractor

- C. Deliver master keys, control keys, and combination control charts to Owner.

1.05 COORDINATION

- A. Work with Contractor and Concrete subcontractor to ensure dimensions for locker to rest on concrete bases are correct per fabrication drawings..

2.00 PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide products by one of the following. Substitutions are allowed subject to Division 1 procedure for approval and review.
 1. Hadrian Manufacturing, Inc.
 2. Lyon Metal Products, Inc.
 3. Republic Storage Systems Co., Inc.
- B. Products: Subject to compliance with requirements, provide one of the products indicated for each designation in the Metal Locker Schedule at the end of Part 3.

2.02 MATERIALS

- A. Galvanized Steel Sheet: ASTM A 653/A 653M, commercial quality, Z180 coating designation; mill phosphatized; suitable for exposed applications, and stretcher leveled or roller leveled to stretcher-leveled flatness.
- B. Laminated Maple- 240mm wide x 32mm thick. AWI custom standard.
- C. Fasteners: Zinc- or nickel-plated steel, slotless-type exposed bolt heads, and self-locking nuts or lock washers for nuts on moving parts.

2.03 WARDROBE LOCKERS

- A. Body: Form backs, tops, bottoms, sides, and intermediate partitions from steel sheet; flanged for double thickness at back vertical corners. Comply with the following:
 1. Back-Material Sheet Thickness: 0.90 mm.
 2. Side-Material Sheet Thickness: 0.90 mm.
 3. Exposed Ends: Form exposed ends of nonrecessed lockers from minimum 1.50-mm-thick steel sheet.
- B. Frames: Form channel frames from minimum 1.50-mm-thick steel sheet; lapped and welded at corners. Form continuous integral door strike on vertical frame members. Provide resilient bumpers to cushion door closing.

1. Latch Hooks: Form from minimum 2.70-mm-thick steel; welded or riveted to door frames.
 2. Frame Vents: Fabricate horizontal face frames with vents.
- C. Doors: One-piece steel sheet, formed into channel shape at vertical edges and flanged at right angles at top and bottom edges. Fabricate to prevent springing when opening or closing, and to swing 180 degrees. Comply with the following:
1. Sheet Thickness: 1.90 mm minimum.
 2. Acoustical Treatment: Fabricate lockers for quiet operation with manufacturer's standard rattle-free latching mechanism and moving components isolated to prevent metal-to-metal contact.
 3. Louvered Vents: Stamped, louvered vents in door face, as follows:
 - a. Single-Tier Lockers: No fewer than six louver openings at top and bottom.
 4. Concealed Vents: Provide slotted perforations in top and bottom horizontal return flanges of doors.
- D. Shelves: Provide hat shelf in single-tier units; fabricated from minimum 0.60-mm-thick, formed steel sheet; flanged on all edges.
- E. Hinges: Steel, full loop, five or seven knuckle; tight pin; minimum 51 mm high. Weld to inside of door frame and attach to door with at least two factory-installed fasteners that are completely concealed and tamper resistant when door is closed.
- F. Recessed Handle and Latch: Manufacturer's standard housing, formed from 0.90-mm-thick nickel-plated steel or stainless steel, with integral door pull, recessed for latch lifter and locking devices; nonprotruding latch lifter; and automatic, prelocking, pry-resistant latch, as follows:
1. Provide single-point gravity or spring-actuated latch with padlock lug.

2.04 LOCKS

- A. Fabricate lockers to receive the following locking devices, installed on lockers using security-type fasteners:
1. Built-in Combination Locks: Key-controlled, three-number dialing combination locks; capable of at least five combination changes made automatically with a control key. Comply with the following:
 - a. Bolt Operation: Automatically locking dead bolt.

2.05 LOCKER ACCESSORIES

- A. Interior Equipment: Furnish each locker with the following items, unless otherwise indicated:

1. Hooks: Manufacturer's standard zinc-plated, ball-pointed steel. Provide one double-prong ceiling hook, and not fewer than two single-prong wall hooks for single-, double-, and triple-tier units. Attach hooks with at least two fasteners.
2. Coat Rods: Manufacturer's standard galvanized steel. Provide rod in lieu of ceiling hook for lockers 457 mm deep or greater.
- B. Number Plates: Manufacturer's standard etched, embossed, or stamped, aluminum number plates with numerals at least 9 mm high. Number lockers in sequence indicated. Attach plates to each locker door, near top, centered, with at least two aluminum rivets.
- C. Legs: Provide nominal 152-mm-long legs by extending vertical frame members, or by attaching gusset-type legs to locker body. Fabricate legs from at least 1.50-mm-thick steel sheet, with provision for fastening to floor, and finished to match lockers.
- D. Recess Trim: Manufacturer's standard; fabricated from minimum 1.20-mm-thick steel sheet, minimum 64-mm face width, and finished to match lockers. Fabricate trim in lengths as long as practicable.
- E. Filler Panels: Manufacturer's standard; fabricated from minimum 1.20-mm-thick steel sheet in an unequal leg angle shape, and finished to match lockers. Provide slip joint filler angle formed to receive filler panel.
- F. Boxed End Panels: Manufacturer's standard; fabricated from minimum 1.50-mm-thick steel sheet, with 25-mm-wide edge dimension, finished to match lockers, and designed for concealing exposed ends of nonrecessed lockers.
- G. Finished End Panels: Manufacturer's standard; fabricated from minimum 0.60-mm-thick steel sheet, finished to match lockers, and designed for concealing exposed ends of nonrecessed lockers.
 1. Provide one-piece panels for double-row (back-to-back) locker ends.

2.06 LOCKER BENCHES

LB-1 305mm X 1220mm LOCKER ROOM BENCH

- A. Bench Tops: Provide manufacturer's standard one-piece units, of the following material, minimum 240 mm wide by 32 mm thick, with rounded corners and edges:
 1. Laminated maple with two coats of clear sealer on all surfaces, and one coat of clear lacquer ON ALL SURFACES.
- B. Pedestals: Provide manufacturer's standard pedestal supports, with predrilled fastener holes, complete with consealed fasteners and anchors, and as follows:
 1. Type: Tubular steel, minimum 32-mm diameter, with minimum 3.4-mm-thick steel flanges welded at top and base, and baked-enamel finish; floor anchored with exposed fasteners.

2. Color: As selected by Architect from manufacturer's full range.

- C. Furnish a minimum of two pedestals for each bench, with pedestal spacing not more than 1820 mm o.c.

2.07 FABRICATION

- A. All-Welded Construction: Preassemble lockers by welding all joints, seams, and connections, with no bolts, screws, or rivets used in assembly. Grind exposed welds flush.
- B. Fabricate lockers square, rigid, and without warp, with metal faces flat and free of dents or distortion. Make exposed metal edges free of sharp edges and burrs, and safe to touch. Weld frame members together to form a rigid, one-piece assembly.

2.08 FINISHES, GENERAL

- A. Finish all steel surfaces and accessories, except prefinished stainless-steel and chrome-plated surfaces.
- B. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- D. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.09 GALVANIZED STEEL SHEET FINISHES

- A. Surface Preparation: Clean surfaces with nonpetroleum solvent so surfaces are free of oil and other contaminants. After cleaning, apply a conversion coating suited to the organic coating to be applied over it. Clean welds, mechanical connections, and abraded areas, and apply galvanizing repair paint specified below to comply with ASTM A 780.
- B. Baked-Enamel Finish: Immediately after cleaning and pretreating, apply manufacturer's standard baked-enamel finish consisting of a thermosetting topcoat. Comply with paint manufacturer's written instructions for applying and baking to achieve a minimum dry film thickness of 0.036 mm on doors, frames, and legs, and 0.028 mm elsewhere.
- C. Powder-Coated Finish: Immediately after cleaning and pretreating, electrostatically apply manufacturer's standard baked-polymer finish consisting of a thermosetting powder topcoat.

Comply with paint manufacturer's written instructions for applying and baking to achieve a minimum dry film thickness of 0.05 mm.

3.00 EXECUTION

3.01 INSTALLATION

- A. Install metal lockers and accessories level, plumb, rigid, and flush according to manufacturer's written instructions.
- B. Connect groups of all-welded lockers together with standard fasteners, with no exposed fasteners on face frames.
- C. Anchor lockers to floors and walls at intervals recommended by manufacturer, but not more than 910 mm o.c. Install anchors through backup reinforcing plates where necessary to avoid metal distortion, using concealed fasteners.
- D. Fit exposed connections of trim, fillers, and closures accurately together to form tight, hairline joints, with concealed fasteners and splice plates.
- E. Attach boxed end panels with concealed fasteners to conceal exposed ends of nonrecessed lockers.
- F. Attach finished end panels with fasteners only at perimeter to conceal exposed ends of nonrecessed lockers.
- G. Anchor locker benches to floors Uniformly space pedestals not more than 1830 mm apart, and securely fasten to bench top and anchor to floor.
- H. All surfaces intersecting with different material shall be sealed with clear silicone sealant, typical all surfaces.

3.02 ADJUSTING, CLEANING, AND PROTECTION

- A. Adjust doors and latches to operate easily without binding. Verify that integral locking devices operate properly.
- B. Protect lockers from damage, abuse, dust, dirt, stain, or paint. Do not permit locker use during construction.
- C. Touch up marred finishes, or replace locker units that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by locker manufacturer.

3.03 METAL LOCKER SCHEDULE

A. Metal Wardrobe Local: Where metal lockers of this designation are indicated, provide products complying with the following: Lockers shall exactly match the following requirements:

1. Products: Available products include the following:
ML-3, 305mm x 305mm x 1676mm.
2. Material: Galvanized steel sheet
3. Back-Material Thickness: 0.90 mm.
4. Side-Material Thickness: 0.90 mm.
5. Door-Material Thickness: 1.90 mm
6. Locker Fabrication: All welded.
7. Locker Arrangement: Single tier
8. Backs: Solid.
9. Sides: Solid.
10. Door Style: Louvered vents.
11. Shelves: Perforated.
12. Hinges: Standard hinge.
13. Handles/Latches: Recessed
14. Locks: Built-in combination lock, dead bolt]
15. Accessories:
 - a. Base: No base
 - b. Sloping Tops: Not required.
 - c. Recess Trim: Required.
 - d. End Panels: Finished.
16. Color: As selected by Architect from manufacturer's full range

END OF SECTION 10505

SECTION 10520 FIRE-PROTECTION SPECIALTIES

1.00 GENERAL

1.01 SCOPE OF WORK

- A. This Section includes the following:
 - 1. Fire-protection cabinets for the following:
 - a. Government-provided portable fire extinguishers.
 - 2. Brackets to mount Government-provided extinguishers.
 - 3. Fire-protection accessories.

- B. Related Sections include the following:
 - 1. Division 7 Section "Firestopping" for firestopping sealants at fire-rated cabinets.
 - 2. Division 9 Section "Painting" for field-painting fire-protection cabinets.
 - 3. Division 10 Section "Signs" for directional signage to out-of-sight fire extinguishers and cabinets.
 - 4. Division 16 Section "Interior Lighting" for fire extinguisher location lights.

1.02 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for fire-protection specialties.
 - 1. Cabinets: Include roughing-in dimensions, details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type, trim style, and panel style.

- B. Samples for Initial Selection: Manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available for each type of cabinet finish indicated.

- C. Samples for Verification: For each type of exposed cabinet finish required, prepared on samples of size indicated below and of same thickness and material indicated for the Work. If finishes involve normal color and texture variations, include sample sets showing the full range of variations expected.
 - 1. Size: 150-by-150-mm-square Samples.

1.03 COORDINATION

Read and accepted as part of the Contract:

Bidder / Contractor

- A. Coordinate size and quantity of cabinets to ensure that type and capacity of fire extinguishers required by building and fire codes are accommodated.

2.00 PRODUCTS

2.01 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Fire-Protection Cabinets:
 - a. Filtrine Manufacturing Company.
 - b. Fire-End & Croker Corporation.
 - c. General Accessory Manufacturing Co.
 - d. J.L. Industries, Inc.
 - e. Larsen's Manufacturing Company.
 - f. Modern Metal Products; Div. of Technico.
 - g. Moon/American, Inc.
 - h. Potter-Roemer; Div. of Smith Industries, Inc.
 - i. Samson Products, Inc.
 - j. Thomas Enterprises.
 - k. Watrous; Div. of American Specialties, Inc.
- B. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the products specified in the Fire-Protection Cabinet Schedule at the end of Part 3.
- C. Products: Subject to compliance with requirements, provide one of the products indicated for each designation in the Fire-Protection Cabinet Schedule at the end of Part 3.

2.02 MATERIALS

- A. Cold-Rolled Steel Sheet: Carbon steel, complying with ASTM A 366/A 366M, commercial quality, stretcher leveled, temper rolled.
- B. Stainless-Steel Sheet: ASTM A 666/A 666M, Type 302 or Type 304 alloy.

2.03 FIRE-PROTECTION CABINETS

- A. Cabinet Construction: Provide manufacturer's standard box (tub), with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated. Weld joints and grind smooth. Miter and weld perimeter door frames.
1. Fire-Rated Cabinets: Listed and labeled to meet requirements of ASTM E 814 for fire-resistance rating of wall where it is installed.
 - a. Construct fire-rated cabinets with double walls fabricated from 1.2-mm-thick, cold-rolled steel sheet lined with minimum 16-mm-thick, fire-barrier material.
 - b. Provide factory-drilled mounting holes.
 2. (10520.FEC-1) Cabinet Metal: Enameled-steel sheet.
 3. (10520.FEC-2) Cabinet Metal: Stainless-steel sheet.
 4. Shelf: Same metal and finish as cabinet.
- B. Cabinet Type: Suitable for the following:
1. Fire extinguisher.
- C. Cabinet Mounting: Suitable for the following mounting conditions:
1. Recessed: Cabinet box recessed in walls of sufficient depth to suit style of trim indicated.
- D. Cabinet Trim Style: Fabricate cabinet trim in one piece with corners mitered, welded, and ground smooth.
1. Exposed Trim: One-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend).
 - a. Flat Trim: 6- to 8-mm backbend depth.
- E. Cabinet Trim Material: Manufacturer's standard, as follows:
1. Same metal and finish as door.
- F. Door Material: Manufacturer's standard, as follows:
1. Steel sheet.
 2. Stainless-steel sheet.
- G. Door Glazing: Manufacturer's standard, as follows:
1. Tempered Break Glass: ASTM C 1048, Kind FT, Condition A, Type I, Quality q3, 1.5 mm.

- H. Door Style: Manufacturer's standard design, as follows:
 - 1. Fully glazed panel with frame.

- I. Door Construction: Fabricate doors according to manufacturer's standards, of materials indicated, and coordinated with cabinet types and trim styles selected.
 - 1. Provide minimum 13-mm-thick door frames, fabricated with tubular stiles and rails, and hollow-metal design.
 - 2. Provide inside latch and lock for break-glass panels.

- J. Door Hardware: Provide manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated. Provide either lever handle with cam-action latch, or exposed or concealed door pull and friction latch. Provide concealed or continuous-type hinge permitting door to open 180 degrees.

2.04 ACCESSORIES

- A. Mounting Brackets: Manufacturer's standard steel, designed to secure extinguisher, of sizes required for types and capacities of extinguishers indicated, with plated or baked-enamel finish.
 - 1. Provide brackets for extinguishers not located in cabinets, such as those in the Interstitial Levels.
 - 2. Provide brackets for extinguishers located in cabinets.

- B. Break-Glass Strike: Provide manufacturer's standard metal strike, complete with chain and mounting clip, secured to cabinet.

- C. Door Locks: Provide cylinder lock, with all cabinets keyed alike.

- D. Identification: Provide lettering to comply with authorities having jurisdiction for letter style, color, size, spacing, and location. Locate as indicated by Architect.
 - 1. Identify fire extinguisher in cabinet with the words "FIRE EXTINGUISHER" applied to door.
 - a. Application Process: Silk-screened.
 - b. Lettering Color: Red.
 - c. Orientation: Vertical.

2.05 COLORS AND TEXTURES

- A. Colors and Textures: Match match pre-design Owner-approved samples.

2.06 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- D. Cabinet and Door Finishes: Provide manufacturer's standard baked-enamel paint for the following:
 - 1. Exterior of cabinets and doors, except for those surfaces indicated to receive another finish.
 - 2. Interior of cabinets and doors.

2.09 STEEL FINISHES

- A. Surface Preparation: Clean surfaces of dirt, oil, grease, mill scale, rust, and other contaminants that could impair paint bond using manufacturer's standard methods.
- B. Baked-Enamel Finish: Immediately after cleaning and pretreating, apply manufacturer's standard two-coat, baked-enamel finish consisting of prime coat and thermosetting topcoat. Comply with paint manufacturer's written instructions for applying and baking to achieve a minimum dry film thickness of 0.05 mm.
 - 1. Color and Gloss: Match Architect's sample.

2.10 STAINLESS-STEEL FINISHES

- A. General: Remove or blend tool and die marks and stretch lines into finish. Grind and polish surfaces to produce uniform, directionally textured polished finish indicated, free of cross scratches. Run grain with long dimension of each piece.
- B. Satin, Directional Polish: No. 6 finish.
- C. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

3.00 EXECUTION

3.01 EXAMINATION

Read and accepted as part of the Contract:

Bidder / Contractor

- A. Examine walls and partitions for suitable framing depth and blocking where recessed and semi-recessed cabinets are to be installed.

3.02 INSTALLATION

- A. Comply with manufacturer's written instructions for installing fire-protection specialties.
- B. Install in locations and at mounting heights indicated or, if not indicated, at heights acceptable to authorities having jurisdiction.
 - 1. Prepare recesses for cabinets as required by type and size of cabinet and trim style.
 - 2. Fasten mounting brackets to structure and cabinets, square and plumb.
 - 3. Fasten cabinets to structure, square and plumb.

3.03 ADJUSTING, CLEANING, AND PROTECTION

- A. Adjust cabinet doors that do not swing or operate freely.
- B. Refinish or replace cabinets and doors damaged during installation.
- C. Provide final protection and maintain conditions that ensure that cabinets and doors are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 10522

SECTION 10523 FIRE EXTINGUISHERS

1.00 GENERAL

1.01 SCOPE

- A. Section includes portable, hand-carried fire extinguishers and mounting brackets for fire extinguishers.
- B. Related Sections:
 - 1. Division 10 Section "Fire Extinguisher Cabinets."

1.02 SUBMITTALS

- A. Product Data: For each type of product indicated. Include rating and classification, material descriptions, dimensions of individual components and profiles, and finishes for fire extinguisher and mounting brackets.

1.03 QUALITY ASSURANCE

- A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."
- B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

1.04 COORDINATION

- A. Coordinate type and capacity of fire extinguishers with fire protection cabinets to ensure fit and function.

2.00 PRODUCTS

2.01 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

- A. Fire Extinguishers: Type, size, and capacity for each fire protection cabinet and mounting bracket indicated.
 - 1. Valves: Manufacturer's standard.
 - 2. Handles and Levers: Stainless steel.

3. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B and bar coding for documenting fire extinguisher location, inspections, maintenance and recharging.
- B. Multipurpose Dry-Chemical Type in Steel Container: UL-rated 4-A:60-B:C, 10-lb nominal capacity with mono-ammonium phosphate-based dry chemical in enameled steel container.

3.00 EXECUTION

3.01 EXAMINATION

- A. Examine fire extinguishers for proper charging and tagging.
 1. Remove and replace damaged, defective, or undercharged fire extinguishers.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install fire extinguishers in brackets or in fire extinguishers where required by authorities having jurisdiction.

END OF SECTION 10523

SECTION 10651 OPERABLE PARTITIONS

1.00 GENERAL

1.01 SCOPE

- A. This Section includes the following:
 - 1. Manually operated, individual panel partitions.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Concrete floor tolerances are specified in Division 3 Section "Cast-in-Place Concrete."
 - 2. Metal framing and supports are specified in Division 5 Section "Metal Fabrications."
 - 3. Wood framing and supports are specified in Division 6 Section "Miscellaneous Carpentry."
 - 4. Special finishes are specified in a Division 9 Section.

1.02 SYSTEM PERFORMANCE REQUIREMENTS

- A. Acoustical Performance: Provide operable panel partitions tested by a qualified independent testing agency for the following acoustic properties according to following test method:
 - 1. Sound Transmission Requirements: Operable panel partition assembly tested in a full-scale opening 4267 by 2743 mm for laboratory sound transmission loss performance according to ASTM E 90, determined by ASTM E 413 and rated for an STC plus or minus 1 as follows:
 - 2. Sound Transmission Class (STC): STC 55.
 - 3. Noise Isolation Class (NIC): Operable panel partition assembly tested by a qualified independent agency for compliance with ASTM E 336 and ASTM E413 and rated for an NIC as follows:
 - a. NIC not less than 42.

1.03 SUBMITTALS

- A. General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product data on physical characteristics, durability, and surface-burning characteristics for each type of operable panel partition and accessory specified.

- C. Shop drawings showing location and extent of operable panel partitions. Include plans, elevations, large-scale details of anchorages, and accessory items. Indicate unit conditions at openings, location and installation requirements for hardware, and direction of travel.
- D. Template drawings prepared by manufacturer showing location of items supported or anchored by permanent construction.
- E. Samples for verification purposes of each type of panel finish face indicated; in sets for each color, texture, and pattern specified, showing a full range of variations expected in these characteristics.
 - 1. Finish Face Fabric: Full-width sample, not less than 900 mm long, with specified treatments applied. Show complete pattern repeat. Refer to 09772-FWS-3
 - 2. Panel Finish Face: Manufacturer's standard size unit, not less than 75 mm square.
Panel Edge Material: Manufacturer's standard size unit, not less than 75 mm square.
 - 3. All Seals Materials: Manufacturer's units 305mm in length in proposed color.
- F. Product certificates signed by manufacturers of operable panel partitions certifying that their products comply with specified requirements.
- G. Maintenance data for panel finish face to include in the "Operating and Maintenance Manual" specified in Division 1.
 - 1. Precautions for cleaning materials and methods that could be detrimental to finishes and performance.
 - 2. Instructions for restretching sagging or distorted finish face.
- H. Acoustical test reports from and based on tests performed by a qualified independent testing agency certifying that the product and materials furnished comply with specified requirements.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer who is certified in writing by the operable panel partition manufacturer as qualified to install the manufacturer's partition systems.
- B. Testing Agency Qualifications: To qualify for acceptance, an independent testing agency must demonstrate to the Architect's satisfaction, based on an evaluation of agency-submitted criteria conforming to ASTM E 699, that it has the experience and capability to satisfactorily conduct the testing indicated without delaying progress of the Work.
- C. Surface-Burning Characteristics: Provide panel finish face with the following surface-burning characteristics as determined by testing identical products per ASTM E 84 by UL or other testing and inspecting agencies acceptable to authorities having jurisdiction.
 - 1. Flame Spread: 25 or less.

Read and accepted as part of the Contract:

Bidder / Contractor

2. Smoke Developed: 450 or less.

2.00 PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Hufcor/AirWall.
 2. Modernfold, Inc.
 3. Panelfold, Inc.
- B. Products: Subject to compliance with requirements, provide one of the products specified in each Operable Panel Partition Product Data Sheet.

2.02 OPERABLE PANEL PARTITIONS

- A. Panel Configuration: Operable panels as follows:
 1. Manually operated, individual panels. Refer to drawings.
- B. Panel Construction: Top reinforcing as required to support suspension components and as follows:
 1. Steel Frame: Steel face sheets.
 - a. Face Sheets for Steel Frame: Tension-leveled steel welded to frame.
 - b. Steel Channel Frame: Not less than 1.2 mm.
- C. Panel Thickness: 83 mm.
- D. Panel Weight: 40 kg/sq m maximum.
- E. Hardware: Manufacturer's standard, finished to match exposed hardware on partition.

2.03 SUSPENSION SYSTEMS

- A. Carriers: Steel trolley system with 4-wheel ballbearing trolley as required for type, size, and weight of partition for ease of operation.
- B. Suspension Tracks: Steel with overhead supports of adjustable steel hanger rods designed for size and type of operable panel partition assembly indicated. Track deflection shall be no more than 2.5 mm between bracket supports.

2.04 FINISH SURFACE

- A. Stain-resistant fabric, color to be selected.

2.05 SEALS

Read and accepted as part of the Contract:

Bidder / Contractor

- A. Vertical Seals: Deep nesting, interlocking astragals mounted on each edge of panel with continuous vinyl acoustical seal.
- B. Horizontal Top Seals: Continuous-contact extruded vinyl or mechanical retractable vinyl-faced seal exerting consistent pressure on track when extended.
- C. Horizontal Bottom Seals: Retractable seal exerting positive pressure downward ensuring horizontal and vertical sealing and resisting panel movement.
 - 1. Extension/retraction of bottom seal automatically actuated by movement of partition. Clearance between retracted seal and floor finish shall be not less than 25 mm.

2.06 ACCESSORIES

- A. Storage Pocket Door: Full height at end of partition runs to conceal stacked partition, of same basic design, materials, thickness, and acoustical qualities as panels. Hinges in finish to match other exposed hardware, with acoustical seals at soffit, floor, and jambs.
 - 1. Hardware: Manufacturer's standard method to secure pocket door in closed position.
 - 2. Hardware: Key-operated rim lock to secure pocket door in closed position. Include two keys per lock. All storage pocket doors to be keyed alike.

3.00 EXECUTION

3.01 EXAMINATION

- A. Examine flooring, structural support, and opening for compliance with requirements for installation tolerances and other conditions affecting performance of operable panel partitions.
- B. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install operable panel partitions and accessories complying with ASTM E 557 after other finishing operations including painting, have been completed.
- B. Install operable panel partitions that conform to Drawings and approved shop drawings and in strict compliance with manufacturer's written installation instructions.
- C. Match operable panel partitions for color and pattern by installing partitions from cartons in same sequence as manufactured and packaged, if so numbered. Broken, cracked, chipped, or deformed panels are not acceptable.

3.03 FIELD QUALITY CONTROL

- A. Extent and Testing Methodology: Arrange for testing the completed operable panel partition installation in successive stages in areas of extent described below. Partitions are to be properly adjusted and fitted to ensure compliance with NIC requirements.
 - 1. Within each area, independent testing agency shall randomly select an operable panel partition installation and test according to ASTM E 336 for complying NIC. The NIC rating shall be calculated according to ASTM E 413.
- B. Repair or replace operable panel partitions within areas where test results indicate partitions do not comply with requirements and retest new partitions.

3.04 ADJUSTING

- A. Lubricate bearings and sliding parts; adjust to ensure smooth, easy operation.

3.05 DEMONSTRATION

- A. Startup Services: Provide the services of a factory-authorized service representative to provide start-up service and to demonstrate and train Owner's representative.
 - 1. Test and adjust controls and safeties. Replace damaged or malfunctioning controls and equipment.
 - 2. Train Owner's representative on procedures and schedules related to startup and shutdown, troubleshooting, servicing, and preventative maintenance.
 - 3. Review data in the "Operating and Maintenance Manual."

END OF SECTION 10651

SECTION 10675 MOBILE STORAGE UNITS

1.00 GENERAL

1.01 SCOPE OF WORK

- A. Manually-operated mobile shelving system.

1.02 RELATED SECTIONS

- A. Section 03300 Concrete Work
- B. Division 9 – Finishes, relating to finish floor and base materials.
- C. Section 13030 Controlled Environmental Rooms.

1.03 SUBMITTALS:

- A. Shop Drawings: Show shelving layout, shelf fabrication details, rail and deck details, lighting, power connection points.
- B. Product Data: Describe shelf units, finish, safety devices and controls.
- C. Samples: Color samples for selection.
- D. Informational Submittals: Special Warranty. Warrant all parts for 2 years from date of Substantial Completion.

2.00 PRODUCTS

2.01 MANUFACTURERS:

- A. The Spacesaver Group. "System S/4".
- B. Automated Storage & Retrieval Systems of America. "Elecompact".
- C. TAB Mobile Storage Systems. "E-111 High Profile".

2.02 RECORDS ARCHIVE, HDS-1.

- A. Design Performance Criteria:
 - 1. Module Design: Book size, closed backs. Maximum height, including aisle lighting: 8'-2".
 - 2. Shelves: Fixed base shelf and 6 adjustable shelves. Wire book supports: One per shelf.
 - 3. System Capacity: 1,000 pounds per linear foot (453 kg/0.30 m).

4. Operation: Manual; all components. .
5. Deck: Depressed slab design, aisles flush with surrounding floor no gaps.
6. Safety Devices: Devices to lock modules in place on both sides of aisle
7. Security: Each aisle have shall have a keyed hub lock mechanism.

2.03 SPECIMEN ARCHIVE, HDS-2.

A. Design Performance Criteria:

1. Module Design: Combination of double sided 18" deep by 4'-0" shelving units and double sided 14" deep by 3'-0" shelving units on a 21'-0" carrier closed backs. Maximum height, including aisle lighting: 8'-2"
2. Shelves: Wire shelving to allow air movement around sample trays. Each unit shall have 13 shelves.
3. Trays: Provide blood vial trays at 14" deep shelf units and liver tissue trays at the 18" deep shelf units.
4. System Capacity: 1,000 pounds per linear foot (453 kg/0.30 m), verify with Owner specific shelving needs and capacity of shelving based on stored items.
5. Operation: Electric; all components UL listed. Provide mechanical override to allow manual usage in event of power failure.
6. Deck: Depressed slab design, aisles flush with surrounding floor no gaps. Coordinate with the selected cold box manufacturer that is installing the insulated floor panels.
7. Safety Devices: Devices mounted at each module to lock modules in place on both sides of aisle.
8. Security: None.

2.04 GENERAL COMPONENTS

- A. Rails, wheels, shafts, controls, limit switches, ramps and other basic components: Manufacturer's standard.
- B. Motors: Continuous duty rating; sufficient HP so as not to exceed amperage rating when motor is at operating speed, driving fully loaded modules, full length of travel. Provide motors with thermal overload protection and automatic reset.

- C. Deck: Fire retardant plywood or particle board. Maximum flame spread and smoke development classification of 25 or less (ASTM) E84). 3/4 inch (20 mm) minimum thickness (no deflection).
- D. Finish: Manufacturer's standard baked enamel, in color selected from manufacturer's standards.

3.00 EXECUTION

3.01 INSTALLATION

- A. Installers are to provide written documentation of at least 5 year experience with installing the selected manufacturer's high density storage products.
- B. Coordinate installation date and route to the installation sites with the general contractor's schedule. Assume there is no on-site storage for product prior to the date of installation.
- C. Provide protection for the finished surfaces by others in the immediate area when moving materials and components to the space.
- D. Install track to degree of level tolerance acceptable to manufacturer. Provide for uniform distribution of wheel loads on structural concrete floor, using bearing plates and continuous non-shrink grout between plates.
- E. Install deck between track for level walking surface and to eliminate tripping hazards.
- F. Coordinate and test movement of all mobile units after the installation of finishes by others.
- G. Test and adjust installation to ensure smooth module movement and correct safety device operation.
- H. Remove and dispose of all debris related to unpacking and installing units.
- I. Leave storage areas broom clean after completing the work.

END OF SECTION 10675

SECTION 10801 TOILET AND BATH ACCESSORIES

1.00 GENERAL

1.01 SCOPE OF WORK

- A. This Section includes the following:
 - 1. Toilet and bath accessories.
- B. Related Sections include the following:
 - 1. Division 8 Section "Mirrored Glass" for frameless mirrors.
 - 2. Division 9 Section "Ceramic Tile" for ceramic toilet and bath accessories.
 - 3. Division 10 Section "Toilet Compartments" for compartments and screens.

1.02 SUBMITTALS

- A. Product Data: Include construction details, material descriptions and thicknesses, dimensions, profiles, fastening and mounting methods, specified options, and finishes for each type of accessory specified.
- B. Samples: For each accessory item to verify design, operation, and finish requirements.
 - 1. Approved full-size Samples will be returned and may be used in the Work.
- C. Setting Drawings: For cutouts required in other work; include templates, substrate preparation instructions, and directions for preparing cutouts and installing anchoring devices.
- D. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required. Use designations indicated in the Toilet and Bath Accessory Schedule and room designations indicated on Drawings in product schedule.
- E. Maintenance Data: For accessories to include in maintenance manuals specified in Division 1. Provide lists of replacement parts and service recommendations.

1.03 QUALITY ASSURANCE

- A. Source Limitations: Provide products of same manufacturer for each type of accessory unit and for units exposed to view in same areas, unless otherwise approved by Architect.
- B. Product Options: Accessory requirements, including those for materials, finishes, dimensions, capacities, and performance, are established by specific products indicated in the Toilet and Bath Accessory Schedule.

Read and accepted as part of the Contract:

Bidder / Contractor

1. Other manufacturers' products with equal characteristics may be considered. See Division 1 Section "Substitutions."
2. Do not modify aesthetic effects, as judged solely by Architect, except with Architect's approval. Where modifications are proposed, submit comprehensive explanatory data to Architect for review.

1.04 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by disabled persons, proper installation, adjustment, operation, cleaning, and servicing of accessories.
- B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

1.05 WARRANTY

- A. General Warranty: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Manufacturer's Mirror Warranty: Written warranty, executed by mirror manufacturer agreeing to replace mirrors that develop visible silver spoilage defects within minimum warranty period indicated.
 1. Minimum Warranty Period: 15 years from date of Substantial Completion.

2.00 PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide accessories by one of the following:
 1. Toilet and Bath Accessories:
 - a. American Specialties, Inc.
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
- B. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, those indicated in the Toilet and Bath Accessory Schedule at the end of Part 3.

- C. Products: Subject to compliance with requirements, provide one of the products indicated for each designation in the Toilet and Bath Accessory Schedule at the end of Part 3.

2.02 MATERIALS

- A. Stainless Steel: ASTM A 666, Type 304, with No. 4 finish (satin), in 0.8-mm minimum nominal thickness, unless otherwise indicated.
- B. Galvanized Steel Sheet: ASTM A 653/A 653M, Z180.
- C. Mirror Glass: ASTM C 1036, Type I, Class 1, Quality q2, nominal 6.0 mm thick, with silvering, electroplated copper coating, and protective organic coating complying with FS DD-M-411.
- D. Galvanized Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.
- E. Fasteners: Screws, bolts, and other devices of same material as accessory unit, tamper and theft resistant when exposed, and of galvanized steel when concealed.

2.03 FABRICATION

- A. General: Names or labels are not permitted on exposed faces of accessories. On interior surface not exposed to view or on back surface of each accessory, provide printed, waterproof label or stamped nameplate indicating manufacturer's name and product model number.
- B. Surface-Mounted Toilet Accessories: Unless otherwise indicated, fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with continuous stainless-steel hinge. Provide concealed anchorage where possible.
- C. Recessed Toilet Accessories: Unless otherwise indicated, fabricate units of all-welded construction, without mitered corners. Hang doors and access panels with full-length, stainless-steel hinge. Provide anchorage that is fully concealed when unit is closed.
- D. Framed Glass-Mirror Units: Fabricate frames for glass-mirror units to accommodate glass edge protection material. Provide mirror backing and support system that permits rigid, tamper-resistant glass installation and prevents moisture accumulation.
 - 1. Provide galvanized steel backing sheet, not less than 0.85 mm and full mirror size, with nonabsorptive filler material. Corrugated cardboard is not an acceptable filler material.

- E. Keys: Provide universal keys for internal access to ALL accessories IN PROJECT for servicing and resupplying. Provide minimum of TWO keys PER ACCESSORIES to Owner's representative.

3.00 EXECUTION

3.01 INSTALLATION

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated. Seal all accessories to the wall to which they are mounted.
- B. Secure mirrors to walls in concealed, tamper-resistant manner with special hangers, toggle bolts, or screws. Set units level, plumb, and square at locations indicated, according to manufacturer's written instructions for substrate indicated.
- C. Install grab bars to withstand a downward load of at least 1112 N, when tested according to method in ASTM F 446.

3.02 ADJUSTING AND CLEANING

- A. Adjust accessories for unencumbered, smooth operation and verify that mechanisms function properly. Replace damaged or defective items.
- B. Remove temporary labels and protective coatings.
- C. Clean and polish exposed surfaces according to manufacturer's written recommendations.

3.03 TOILET AND BATH ACCESSORY SCHEDULE

- A. Toilet Tissue and Seat Cover Dispenser Combination: Where this designation is indicated, provide toilet tissue dispenser complying with the following:
 - 1. Products: Available products include the following:
 - 10801.A1, TISSUE AND SEAT COVER DISPENSER, TWO COMPARTMENT TYPE.
 - 10801.A1A, TISSUE AND SEAT COVER DISPENSER, TWO COMPARTMENT TYPE.
 - 10801.A2, TISSUE AND SEAT COVER DISPENSER, TWO RECESSED TYPE.
 - 10801.A15 SURFACE MOUNTED TOILET TISSUE DISPENSER.

 - 10801.A16 SURFACE MOUNTED TOILET SEAT- COVER DISPENSER

2. Type: Double-roll dispenser and Seat Cover dispenser with cover hinged at bottom and secured with vandal-resistant lockset
 3. Mounting:
 - 10801.A1A Partition mounted serving two adjacent toilet compartments, offset in partition.
 - 10801.A15 Surface mounted.
 - 10801.A16 Surface mounted.
 4. Material: Stainless steel
 5. Operation: Noncontrol delivery with mfr's standard spindle
 6. Capacity: Designed for 135-mm-diameter-core tissue rolls and 100 single or half fold toilet seat covers.
- B. Combination Towel Dispenser/Waste Receptacle : Where this designation is indicated, provide stainless-steel combination unit complying with the following:
1. Products: Available products include the following:

10801.A3 RECESSED WASTE RECEPTACLE
 2. Recessed Type with Projecting Receptacle: Designed for nominal 100-mm wall depth with continuous, seamless wall flange; towel dispenser in unit's upper compartment designed to dispense minimum of 600 C-fold or 800 multifold paper towels; waste receptacle in unit's lower portion secured by tumbler lockset and with minimum 45.4-L capacity, reusable, vinyl liner; and upper compartment double-panel door with continuous hinge and tumbler lockset.
- C. Soap Dispenser : Where this designation is indicated, provide soap dispenser complying with the following:
1. Products: Available products include the following

10801.A4 TOP FILLING LIQUID SOAP DISPENSER, DECK MOUNTED
Piston-and-spout-type unit with minimum 1-L capacity, polyethylene reservoir concealed below deck; brightly polished stainless-steel piston and 101.6-mm-long spout; and chrome-plated deck escutcheon.

 - a. Mounting: Designed for mounting on vanity deck
 - b. Soap Valve: Designed for dispensing soap in liquid form
 - c. Provide twelve additional soap dispensers in manufacturers packing with lables to NIH building services.
- D. Grab Bar : Where this designation is indicated, provide stainless-steel grab bar complying with the following:
1. Products: Available products include the following:

- 10801.A5 GRAB BAR, 914mm.
- 10801.A6 GRAB BAR, 1066mm.
- 10801.A7 GRAB BAR, 914mm X 914mm.

- 2. Stainless-Steel Nominal Thickness: Minimum 1.2 mm
- 3. Mounting: Concealed with manufacturer's standard flanges and anchors
- 4. Gripping Surfaces: Manufacturer's standard slip-resistant texture
- 5. Outside Diameter: 30 mm for medium-duty applications

H. Shower Curtain Rod : Where this designation is indicated, provide stainless-steel shower curtain rod with 75-mm stainless-steel flanges designed for exposed fasteners, in length required for shower opening indicated, and complying with the following:

- 1. Products: Available products include the following:

10801.A11 SHOWER CURTAIN ROD.

- 2. Heavy-Duty Rod: 30-mm OD; fabricated from nominal 1.2-mm-thick stainless steel.

I. Shower Curtain : Where this designation is indicated, provide shower curtain complying with the following:

- 1. Products: Available products include the following:

10801.A11 SHOWER CURTAIN.

- 2. Antibacterial Shower Curtain: Minimum 284-g, nylon-reinforced vinyl or 0.2-mm-thick vinyl material with integral antibacterial agent and corrosion-resistant grommets at minimum 152 mm o.c. through top hem.

- a. Size: Minimum 152 mm wider than opening by 1828 mm high
- b. Color: White.

- 3. Shower Curtain Hooks: stainless-steel, spring wire curtain hooks with snap fasteners, sized to accommodate specified curtain rod. Provide one hook per curtain grommet.

J. Folding Shower Seat : Where this designation is indicated, provide heavy-duty hinged seat designed to fold up against wall when not in use with stainless-steel support braces, hinges, frame, and fasteners; of all-welded construction; and complying with the following:

- 1. Products: [Provide one of the following] [Available products include the following]:

10801.A12 FOLDING SHOWER SEAT.

- 1. Configuration: L-shaped seat, designed for wheelchair access

2. Seat Material: Stainless steel; 13-mm minimum nominal thickness; with single-piece, pan-type construction and edge seams welded and ground smooth.
- K. Mop and Broom Holder :Where this designation is indicated, provide mop and broom holder complying with the following:
1. Products: Available products include the following:

10801.A14 MOP AND BROOM HOLDER.
 2. Mop and Broom Holder: 914-mm-long unit fabricated of minimum nominal 0.8-mm-thick, stainless-steel hat channel with four spring-loaded, rubber, cam-type, mop/broom holders.

END OF SECTION 10800