

PROJECT MANUAL

for



VA SAN DIEGO HEALTHCARE SYSTEM RENOVATE BUILDING 1 FIRST FLOOR FOR VOLUNTEER AND PATIENT SERVICES PHASE 3

DEPARTMENT OF VETERANS AFFAIRS
3350 La Jolla Village Drive
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VA PROJECT NO. 664-09-103

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December 2, 2011

**DEPARTMENT OF VETERANS AFFAIRS
PROJECT SPECIFICATIONS**

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SECTION 10 14 00

SIGNAGE

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies interior signage for room numbers, directional signs, code required signs, telephone identification signs and temporary interior signs.
- B. This section also covers signs that identify certain areas that do not comply with ADA accessibility requirements.

1.2 RELATED WORK

- A. Electrical: Related Electrical Specification Sections.
- B. Lighted EXIT signs for egress purposes are specified under Division 26, ELECTRICAL.

1.3 MANUFACTURER'S QUALIFICATIONS

Sign manufacturer shall provide evidence that they regularly and presently manufactures signs similar to those specified in this section as one of their principal products.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01 33 00, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.
- B. Samples: Sign panels and frames, with letters and symbols, each type. Submit 2 sets. One set of samples will be retained by Resident Engineer, other returned to Contractor.
 - 1. Sign Panel, 200 mm x 250 mm (8 inches x 10 inches), with letters.
 - 2. Color samples of each color, 150 mm x 150 mm (6 inches x 6 inches). Show anticipated range of color and texture.
 - 3. Sample of typeface, arrow and symbols in a typical full size layout.
- C. Manufacturer's Literature:
 - 1. Showing the methods and procedures proposed for the concealed anchorage of the signage system to each surface type.
 - 2. Manufacturer's printed specifications, anchorage details, installation and maintenance instructions.
- D. Samples: Sign location plan, showing location, type and total number of signs required.

- E. Shop Drawings: Scaled for manufacture and fabrication of sign types. Identify materials, show joints, welds, anchorage, accessory items, mounting and finishes.
- F. Full size layout patterns for dimensional letters.

1.5 DELIVERY AND STORAGE

- A. Deliver materials to job in manufacturer's original sealed containers with brand name marked thereon. Protect materials from damage.
- B. Package to prevent damage or deterioration during shipment, handling, storage and installation. Maintain protective covering in place and in good repair until removal is necessary.
- C. Deliver signs only when the site and mounting services are ready for installation work to proceed.
- D. Store products in dry condition inside enclosed facilities.

1.6 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. Council of American Building Officials (CABO):
 - A117.1-98.....Accessible and Usable Buildings and Facilities
- C. American National Standards Institute (ANSI):
 - A117.1-98.....Accessible and Usable Buildings and Facilities
 - N2.1-89.....Warning Symbols - Radiation Symbol
- D. Americans with Disabilities Act - 1990
- E. American Society for Testing and Materials (ASTM):
 - B209-04.....Aluminum and Aluminum-Alloy Sheet and Plate
 - B221-05.....Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and tubes.
- F. Federal Specifications (Fed Spec):
 - MIL_P 8184E.....Plastic Sheet, Acrylic, Modified.
 - A-A-59502.....Plastic Sheet, Polycarbonate.
 - MIL-P-46144C.....Plastic Sheet, Polycarbonate
- G. Federal Highway Administration

Manuals on Uniform Traffic Control Devices for Street and
Highways.

1.7 MINIMUM SIGN REQUIREMENTS

- A. Permanent Rooms and Spaces:
 - 1. Tactile and Braille Characters, raised minimum 0.793 mm (1/32 in). Characters shall be accompanied by Grade 2 Braille.
 - 2. Type Styles: Characters shall be uppercase, Helvetica Medium, Helvetica Medium Condensed and Helvetica Regular.
 - 3. Character Height: Minimum 16 mm (5/8 in) high, Maximum 50 mm (2 in).
 - 4. Symbols (Pictograms): Equivalent written description shall be placed directly below symbol, outside of symbol's background field. Border dimensions of symbol background shall be minimum 150 mm (6 in) high.
 - 5. Finish and Contrast: Characters and background shall be eggshell, matte or other non-glare finish with adequate contrast with background.
 - 6. Mounting Location and Height: As shown. Mounted on wall adjacent to the latch side of the door and to avoid door swing and protruding objects.
- B. Overhead Signs:
 - 1. Type Styles: As shown. Characters shall have a width-to-height ratio between 3:5 and 1:1. Characters shall have a stroke width-to-height ratio of between 1:5 and 1:10.
 - 2. Character Height: minimum 75 mm (3 in) high for overhead signs. As shown, for directional signs.
 - 3. Finish and Contrast: Same as for signs of permanent rooms and spaces.
 - 4. Mounting Location and Height: As shown.

1.8 COLORS AND FINISHES:

Colors and finishes shall be as selected by the Architect.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Signs of type, size and design shown on the drawings and as specified.
- B. Signs complete with lettering, framing and related components for a complete installation.

- C. Provide graphics items as completed units produced by a single manufacturer, including necessary mounting accessories, fittings and fastenings.
- D. Do not scale drawings for dimensions. Contractor to verify and be responsible for all dimensions and conditions shown by these drawings. Resident Engineer to be notified of any discrepancy in drawing, in field directions or conditions, and/or of any changes required for all such construction details.
- E. The Sign Contractor, by commencing work of this section, assumes overall responsibility, as part of his warranty of work, to assure that assemblies, components and parts shown or required within the work of the section, comply with the Contract Documents. The Contractor shall further warrant: That all components, specified or required to satisfactorily complete the installation are compatible with each other and with conditions of installations.

2.2 PRODUCTS

- A. Aluminum:
 - 1. Sheet and Plate: ASTM B209.
 - 2. Extrusions and Tubing: ASTM B221.
- B. Cast Acrylic Sheet: MIL-P-8184E; Type II, class 1, Water white non-glare optically clear. Matt finish water white clear acrylic shall not be acceptable.
- C. Polycarbonate: MIL-P-46144C; Type I, class 1.
- D. Vinyl: 0.1 mm thick machine cut, having a pressure sensitive adhesive and integral colors.

2.3 SIGN STANDARDS

- A. Topography:
 - 1. Type Style: Helvetica Medium and Helvetica Medium Condensed. Initial caps or all caps as indicated in Sign Message Schedule.
 - 2. Arrow: See graphic standards in drawings.
 - 3. Letter spacing: See graphic standards on drawings.
 - 4. Letter spacing: See graphic standards on drawings.
 - 5. All text, arrows, and symbols to be provided in size, colors, typefaces and letter spacing shown. Text shall be a true, clean, accurate reproduction of typeface(s) shown. Text shown in drawings are for layout purposes only; final text for signs is listed in Sign Message Schedule.
- B. Project Colors and Finishes: As selected by the Architect.

2.4 FABRICATION

- A. Design components to allow for expansion and contraction for a minimum material temperature range of 56 °C (100 °F), without

causing buckling, excessive opening of joints or over stressing of adhesives, welds and fasteners.

- B. Form work to required shapes and sizes, with true curve lines and angles. Provide necessary rebates, lugs and brackets for assembly of units. Use concealed fasteners whenever and wherever possible.
- C. Shop fabricate so far as practicable. Joints fastened flush to conceal reinforcement, or welded where thickness or section permits.
- D. Contact surfaces of connected members be true. Assembled so joints will be tight and practically unnoticeable, without use of filling compound.
- E. Signs shall have fine, even texture and be flat and sound. Lines and miters sharp, arises unbroken, profiles accurate and ornament true to pattern. Plane surfaces be smooth flat and without oil-canning, free of rack and twist. Maximum variation from plane of surface plus or minus 0.3 mm (0.015 inches). Restore texture to filed or cut areas.
- F. Level or straighten wrought work. Members shall have sharp lines and angles and smooth surfaces.
- G. Extruded members to be free from extrusion marks. Square turns and corners sharp, curves true.
- H. Drill holes for bolts and screws. Conceal fastenings where possible. Exposed ends and edges mill smooth, with corners slightly rounded. Form joints exposed to weather to exclude water.
- I. Finish hollow signs with matching material on all faces, tops, bottoms and ends. Edge joints tightly mitered to give appearance of solid material.
- J. All painted surfaces properly primed. Finish coating of paint to have complete coverage with no light or thin applications allowing substrate or primer to show. Finished surface smooth, free of scratches, gouges, drips, bubbles, thickness variations, foreign matter and other imperfections.
- K. Movable parts, including hardware, are to be cleaned and adjusted to operate as designed without binding or deformation of members. Doors and covers centered in opening or frame. All contact surfaces fit tight and even without forcing or warping components.
- L. Pre-assemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for re-assembly and coordinated installation.
- M. No signs are to be manufactured until final sign message schedule and location review has been completed by the Resident Engineer & forwarded to contractor.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Protect products against damage during field handling and installation. Protect adjacent existing and newly placed construction, landscaping and finishes as necessary to prevent damage during installation. Paint and touch up any exposed fasteners and connecting hardware to match color and finish of surrounding surface.
- B. Mount signs in proper alignment, level and plumb according to the sign location plan and the dimensions given on elevation and sign location drawings. Where otherwise not dimensioned, signs shall be installed where best suited to provide a consistent appearance throughout the project. When exact position, angle, height or location is in doubt, contact Resident Engineer for clarification.
- C. Contractor shall be responsible for all signs that are damaged, lost or stolen while materials are on the job site and up until the completion and final acceptance of the job.
- D. Remove or correct signs or installation work Resident Engineer determines as unsafe or as an unsafe condition.
- E. At completion of sign installation, clean exposed sign surfaces. Clean and repair any adjoining surfaces and landscaping that became soiled or damaged as a result of installation of signs.
- F. Locate signs as shown on the Sign Location Plans.
- G. Certain signs may be installed on glass. A blank glass back up is required to be placed on opposite side of glass exactly behind sign being installed. This blank glass back up is to be the same size as sign being installed.
- H. Contractor will be responsible for verifying that behind each sign location there are no utility lines that will be affected by installation of signs. Any damage during installation of signs to utilities will be the sole responsibility of the Contractor to correct and repair.
- I. Furnish inserts and anchoring devices which must be set in concrete or other material for installation of signs. Provide setting drawings, templates, instructions and directions for installation of anchorage devices which may involve other trades.
- J. At completion of installation turn over to Resident Engineer additional stock of signs and sign components listed in Sign Message Schedule: Individually box or crate by Sign Type or Part Number and labeled accordingly.

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SECTION 10 26 00

WALL AND DOOR PROTECTION

PART 1 - GENERAL

1.1 DESCRIPTION

This section specifies wall guards and corner guards and door/door frame protectors where indicated on the drawings.

1.2 RELATED WORK

- A. Armor plates and kick plates not specified in this section: Section 08 71 00, DOOR HARDWARE.
- B. Color and texture of aluminum and resilient material: Section 09 06 00, SCHEDULE FOR FINISHES.

1.3 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Shop Drawings: Show design and installation details.
- C. Manufacturer's Literature and Data:
 - 1. Wall Guards.
 - 2. Corner Guards.
- D. Test Report: Showing that resilient material complies with specified fire and safety code requirements.

1.4 DELIVERY AND STORAGE

- A. Deliver materials to the site in original sealed packages or containers marked with the name and brand, or trademark of the manufacturer.
- B. Protect from damage from handling and construction operations before, during and after installation.
- C. Store in a dry environment of approximately 21° C (70 degrees F) for at least 48 hours prior to installation.

1.5 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in text by basic designation only.
- B. American Society for Testing and Materials (ASTM):
 - A167-99(R2004).....Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip

- B221-07.....Aluminum and Aluminum-Alloy Extruded Bars,
Rods, Wire, Shapes, and Tubes
- D256-06.....Impact Resistance of Plastics
- D635-06.....Rate of Burning and/or Extent and Time of
Burning of Self-Supporting Plastics in a
Horizontal Position
- E84-07.....Surface Burning Characteristics of
Building Materials
- C. The National Association of Architectural Metal Manufacturers
(NAAMM):
AMP 500 Series.....Metal Finishes Manual
- D. National Fire Protection Association (NFPA):
80-06.....Standard for Fire Doors and Windows
- E. Society of American Automotive Engineers (SAE):
J 1545-05.....Instrumental Color Difference Measurement
for Exterior Finishes.
- F. Underwriters Laboratories Inc. (UL):
Annual Issue.....Building Materials Directory

PART 2 - PRODUCTS

2.1 WALL AND DOOR PROTECTION

- A. Subject to compliance with specified requirements, wall protection
and corner guards shall be "Acrovyn" by construction Specialties
Inc., or an "ore equal" product by one of the following:
 - 1. American Floor Products Co., Inc.
 - 2. ARDEN Architectural Specialties, Inc.
 - 3. Balco, Inc.
 - 4. IPC Door and Wall Protection Systems; Division of InPro
Corporation.
 - 5. Pawling Corporation
- B. Stainless Steel: ASTM A167, Type 302B.
- C. Aluminum Extruded: ASTM B221, Alloy 6063, Temper T5 or T6.
Aluminum alloy used for colored anodizing coating shall be as
required to produce specified color. //
- D. Resilient Material:
 - 1. Extruded and injection molded acrylic vinyl or extruded
polyvinyl chloride meeting following requirements:

- a. Minimum impact resistance of 1197 ps (25 ft lbs per sq.ft) when tested in accordance with ASTM D256 (Izod impact, ft.lbs. per inch notch).
 - b. Class 1 fire rating when tested in accordance with ASTM E84, having a maximum flame spread of 25 and a smoke developed rating of 450 or less.
 - c. Rated self extinguishing when tested in accordance with ASTM D635.
 - d. Material shall be labeled and tested by Underwriters Laboratories or other approved independent testing laboratory.
 - e. Integral color with all colored components matched in accordance with SAE J 1545 to within plus or minus 1.0 on the CIE-LCH scales.
 - f. Same finish on exposed surfaces.
- E. Coordinate wall and door protection material to ensure fit for all components, and color as specified.
- F. Provide adhesive as recommended by the material manufacturer.

2.2 FASTENERS AND ANCHORS

- A. Provide fasteners and anchors as required for each specific type of installation.
- B. Where type, size, spacing or method of fastening is not shown or specified, submit shop drawings showing proposed installation details.

2.3 FINISH

- A. In accordance with NAAMM AMP 500 series, and as selected by the Architect.
- B. Aluminum:
 - 1. Exposed aluminum: AAC22A31 chemically etched medium matte, with clear anodic coating, Class II Architectural, 0.4 mil thick, or AA-C22A32 chemically etched medium matte with integrally colored anodic coating, Class II Architectural 0.4 mil thick.
 - 2. Concealed aluminum: Mill finish as fabricated, uniform in color and free from surface blemishes.
- C. Stainless Steel: NAAMM finish Number 4.
- D. Resilient Material: Embossed texture and color in accordance with SAE J 1545 and as specified in Section 09 06 00, SCHEDULE FOR FINISHES.

PART 3 - INSTALLATION

3.1 CORNER GUARDS AND DOOR PROTECTION

- A. Install corner guards and door protection in accordance with manufacturer's instructions.
 - 1. Where corner guards are installed on gypsum board, clean surface and anchor guards with a neoprene solvent-type contact adhesive specifically manufactured for use on gypsum board construction. Remove excess adhesive from around edge of guard and allow to cure undisturbed for 24 hours.

- - - E N D - - -

SECTION 10 28 00

TOILET ACCESSORIES

PART 1 - GENERAL

1.1 DESCRIPTION

This section covers toilet accessories including mirrors, grab bars, dispensers and similar prefabricated items usually used in dressing rooms, toilets, and similar spaces.

1.2 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by Bobrick Washroom Equipment, Inc., or "or equal products of one of the following:
1. A & J Washroom Accessories, Inc.
 2. American Specialties, Inc.
 3. Bradley Corporation.
 4. General Accessory Manufacturing Co. (GAMCO).
- B. Accessories shall be products of manufacturers regularly engaged in manufacturing items of type specified.

1.3 IDENTICAL ACCESSORIES

Each different accessory of the same type shall be identical, and be the product of one manufacturer.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SAMPLES AND SHOP DRAWINGS.
- B. Shop Drawings:
- Paper towel dispenser and disposal combination units and wheelchair mirrors, showing design and installation of units when installed on offset surfaces.
- Metal framed mirrors, showing fillers and shelf where required.
- Grab bars, showing design and each different type of anchorage.
- C. Manufacturer's Literature and Data:
All accessories. Literature shall show type of material, gages and finishes and when required, capacity of accessories.

1.5 PACKAGING

Pack accessories individually to protect accessory and its finish.

1.6 DELIVERY

Deliver accessories to the project only when installation work in rooms is ready to receive them.

1.7 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. Federal Specifications (Fed. Specs.):
 - DD-G-451D.....Glass, Float or Plate, Sheet, Figured
(Flat For Glazing, Mirrors And Other Uses)
 - DD-G-1403B(1).....Glass, Plate (Float), Sheet, Figured, and
Spandrel (Heat Strengthened and Fully
Tempered)
 - WW-P-541/8.....Plumbing Fixtures (Accessories, Land Use)
- C. American Society For Testing and Materials (ASTM):
 - A167-82.....Stainless and Heat-Resisting Chromium-
Nickel Steel Plate, Sheet and Strip.
 - A176-82.....Stainless and Heat-Resisting Chromium
Steel Plate, Sheet, and Strip
 - A268-79a.....Seamless and Welded Ferritic Stainless
Steel Tubing for General Service
 - A366-72 (1979).....Cold-Rolled Carbon Steel Sheets,
Commercial Quality
 - B221-83.....Aluminum-Alloy Extruded Bars, Rods, Wire,
Shapes, and Tubes
 - B456-79.....Electrodeposited Coatings of Copper Plus
Nickel Plus Chromium and Nickel Plus
Chromium
 - D635-81.....Rate of Burning and/or Extent and Time of
Burning of Self Supporting Plastics in a
Horizontal Position
- D. The Aluminum Association (AA):
 - Designation System for Aluminum Finishes (March 1973)
- E. The National Association of Architectural Metal Manufacturers (NAAMM):
 - Metal Finishes (August 1969)

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Aluminum: ASTM B221, alloy 6063-T5 and alloy 6463-T5.
- B. Glass:

1. Fed. Spec. DD-G-451, Type I, Class 1, Quality q1, for mirrors.
- C. Steel Sheet: ASTM A526, zinc-coated (galvanized), coating designation G90.
- D. Stainless Steel: ASTM A167, Type 302, 304, or 304L, except ASTM A176 where Type 430 is specified, 0.0299 inch thick unless otherwise specified.

2.2 FASTENERS

- A. Exposed Fasteners: Stainless steel or chromium plated brass, finish to match adjacent surface.
- B. Concealed Fasteners: Steel, hot-dip galvanized (except in high moisture areas use stainless steel).
- C. Expansion Shields: Lead or plastic as recommended by accessory manufacturer for component and substrate.

2.3 FINISH

- A. Aluminum
 1. AA-A31 - Clear anodic coating, Class II Architectural, 0.4 mils thick.
 2. AA-A41 - Clear anodic coating, Class I Architectural, 0.7 mils thick.
- B. Chromium Plating: ASTM B456, satin or bright as specified, Service Condition No. SC2.
- C. Stainless Steel: NAAMM Finish No. 4.
- D. Ferrous Metal:
 1. Shop Prime: Clean, pretreat and apply one coat of primer and bake.
 2. Finish: Over primer apply two coats of alkyd or phenolic resin enamel, and bake.
- E. Nylon Coated Steel: Nylon coating powder formulated for a fluidized bonding process to steel to provide a hard smooth, medium gloss finish, not less than 0.012 inch thick, rated as self-extinguishing when tested in accordance with ASTM D635.

2.4 FABRICATION

- A. Grind and finish welded joints to match finish of adjacent surface.
- B. Form exposed surfaces from one sheet of stock, free of joints.
- C. Provide steel anchors and components required for secure installation.

- D. Form flat surfaces without distortion. Keep exposed surfaces free from scratches and dents. Reinforce doors to prevent warp or twist.
- E. Isolate aluminum from dissimilar metals and from contact with building materials as required to prevent electrolysis and corrosion.
- F. Hot-dip galvanized steel (except stainless steel) anchors and fastening devices.
- G. Shop assemble accessories and package with all components, anchors, fittings, fasteners and keys.

2.5 PAPER TOWEL DISPENSER AND DISPOSAL COMBINATION UNITS

- A. Recessed type, having a capacity for dispensing 400 sheets of any type of paper toweling.
- B. Where recessed type units are shown, provide top, side and bottom collar fabricated of the same material and finish as front.
- C. Fabricate of stainless steel. Form face frames, from one piece.
- D. Provide each door with continuous stainless steel piano hinge and tumbler non keyed lock.
- E. Provide removable waste receptacle of approximately 1.3 cubic feet (10.5 gallon) capacity, fabricated of 0.018 inch thick stainless steel.

2.6 SOAP DISPENSER, LIQUID WALL MOUNTED

- A. Bottom mounted plunger type dispensers and dispensers having glass soap containers are not acceptable.
- B. Horizontal Soap Valve: Acrylic Hard Plastic housing with cylinder and piston, that dispenses one-milliliter metered flow of liquid with each depression of the plunger, clears and self cleans out any soap remaining in spout by return stroke of the valve, preventing congealing of soap in the spout.
- C. Provide units with concealed mounting plates that discourage tampering with units, but assures ease in installation and maintenance removal.

2.7 GRAB BARS

- A. Concealed mount, except grab bars mounted at floor and on metal partitions. Fabricate of stainless steel: use only one type throughout the projects:
 - 1. Stainless Steel: Grab bars, flanges, mounting plates, supports, screws, bolts, and exposed nuts and washers.
- B. Bars: Fabricate from 1-1/2 inch outside diameter tubing with walls not less than 0.0478 inch thick for stainless steel, and not less than 0.0598 inch thick for nylon coated bars. Fabricate in one continuous piece with ends turned toward walls, except where

grab bars are shown continuous around three sides of showers, bars may be fabricated in two section, with concealed slip joint between.

- C. Intermediate Supports: Continuous weld intermediate support to the grab bar and grind welds smooth.
- D. Flange for Exposed Mounting: Not less than 3/16-inch thick, approximately 3-inch diameter. Insert grab bar through flange and continuously weld perimeter of grab bar flush to backside of flange.
 - 1. Where mounted on walls and showers partitions, provide three equally spaced, countersunk holes, sized to accommodate 3/16-inch diameter bolts.
 - 2. Where mounted on floor, provide four equally spaced holes, sized to accommodate 3/8-inch diameter bolts, not more than 3/8-inch from edge of flange.
- E. Flange for Concealed Mounting: Not less than 0.1046 inch thick, approximately 3-inch diameter by 1/2-inch deep, with provisions for not less than three set screws for securing flange to back plate. Insert grab bar through center of the flange and continuously weld perimeter of grab bar flush to back side of flange.
- F. Back Plates: Fabricate from not less than 0.1046 inch thick metal, in one piece, approximately 1/4-inch deep, with diameter sized to suit flange. Provide slotted holes to accommodate anchor bolts.
- G. In lieu of providing flange for concealed mounting, and back plate as specified, grab rail may be secured by being welded to a back plate and be covered with flange.
- H. Furnish spreaders, through bolt fasteners, and cap nuts, where grab bars are mounted on metal partitions.

2.8 METAL FRAMED MIRRORS

- A. Mirror Glass: Minimum 1/4-inch thick with chemically deposited silvering, copper plating, and tough elastic paint or varnish coating. Set mirror in a protective vinyl glazing tape.
- B. Frames: Channel or angle shaped section with face of frame not less than 3/8-inch wide, constructed of either 0.0359 thick stainless steel with clear anodized finish 0.4 mils thick.
- C. Filler: Fabricate fillers from same material and finish as the mirror frame, tapered and contoured to conceal slant mirror void.
 - 1. Provide fillers to close top and sides of slanted mirrors mounted above wheelchair lavatories.
 - 2. Where mirrors are mounted on walls having FRP wainscots not flush with wall above, provide fillers at void between back of mirror and wall surface.

- D. Back Plate: Fabricate backplate for concealed wall hanging of either zinc-coated, or cadmium plated 0.036 inch thick sheet steel, die cut to fit face of mirror frame, and furnish with theft resistant concealed wall fastenings.
- E. Shelf for Mirrors: Fabricated shelf of the same material and finish as the mirror frame. Form shelf for stainless steel framed mirror to be an integral part of the bottom frame member. Make shelf approximately five inches in depth, and extend full width of the mirror. Close the ends and the front edge of the shelf to the same thickness as the mirror frame width.

2.9 TOILET TISSUE DISPENSERS

- A. Surface mounted type, Fed. Spec. WW-P-541/8 single roll, Style B, Kind C with removable spindle except zinc alloy and plastic dispensers and wood rollers are not acceptable.
- B. Recessed type, having a capacity for dispensing double roll vertical toilet paper, and seat covering box with top access. Finish to be 302 stainless steel.

2.10 TOWEL BARS

- A. Towel bars; Fed. Spec. WW-P541/8, stainless steel.
- B. Length: 18 and 24 inches in length.
- C. Finish of bar same as brackets.

2.11 CLOTHES HOOKS

- A. Fabricate hook units of stainless steel, using 1/4-inch minimum thick stock, with edges and corners rounded smooth to the thickness of the metal, or 1/8-inch minimum radius.
- B. Fabricate each unit as a double hook on a single shaft, integral with or permanently fastened to the wall flange, provided with concealed fastenings.

2.12 TOILET SEAT COVER DISPENSERS

- A. Provide Type 304 stainless steel with surface mounted toilet seat cover dispensers. Provide dispenser with a minimum capacity of 500 seat covers.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Deliver inserts and rough-in frames to jobsite at appropriate time for building-in. Provide templates and rough-in measurements as required.
- B. Before starting work notify Project Engineer in writing of any conflicts detrimental to installation or operation of units.
- C. Verify with the Project Engineer the exact location of accessories.

3.2 INSTALLATION

- A. Install accessories in accordance with the manufacturer's printed instructions.
- B. Install accessories plumb and level and securely anchor to substrate.
- C. Install accessories in a manner that will permit the accessory to function as designed and allow for servicing as required without hampering or hindering the performance of other devices.
- D. Align mirrors, dispensers and other accessories even and level.

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SECTION 10 44 13

FIRE EXTINGUISHERS CABINETS

PART 1 - GENERAL

1.1 DESCRIPTION:

This section covers recessed fire extinguisher cabinets and fire extinguishers.

1.2 SUBMITTALS:

- A. In accordance with Section 01 33 23, SAMPLES AND SHOP DRAWINGS, furnish the following:
- B. Manufacturer's Literature and Data: Fire extinguisher cabinet including installation instructions and rough opening requirements.

PART 2 - PRODUCTS

2.1 FIRE EXTINGUISHER CABINETS

- A. Due to standards enforced by local authority extinguisher type to be: Model No. 1017F12 W/ADAC by "J.L. Industries" or equal as approved by the Hospital Safety Engineer.

2.2 FIRE EXTINGUISHERS

- A. Multi-purpose type Dry Chemical complying with UL 299 and Rated 4A-60B:C when tested in accordance with UL 711. The extinguisher shall be 10 lbs. Maximum, diameter not greater than 5.5 inches.

2.3 FABRICATION:

- A. Form body of cabinet from 0.0359 inch thick sheet steel.
- B. Fabricate door and trim from 0.0478 inch thick sheet steel with all face joints fully welded and ground smooth. Glaze doors with 1/4-inch thick clear acrylic.
- C. Design doors to open 180 degrees. Provide continuous hinge, pull handle and adjustable roller catch.

2.4 FINISH

- A. Finish interior of cabinet and body with baked-on semi-gloss white enamel.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install fire extinguisher cabinets in prepared openings and secure in accordance with manufacturer's instructions.
- B. Install cabinet so that bottom of cabinet is 40 inches above finished floor.

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SECTION 11 52 13

OVERHEAD PROJECTION SCREENS (MOTORIZED)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work specified in this section.

1.2 SUMMARY

- A. Furnish and install overhead projection screens (motorized) as indicated.

1.3 SUBMITTALS

- A. Shop Drawings: Submit details for installation, attachment, and electrical requirements.
- B. Product Data: Submit manufacturer data indicating model and size of units.
- C. Installation Instructions: Submit manufacturer's installation instructions.

1.4 QUALITY ASSURANCE

- A. Coordinate installation of ceiling mounted recessed screens with ceiling installation.
- B. Conduct a pre-installation meeting on Project site to review procedures, details and interfacing with adjacent materials and finishes.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Protect screens from damage.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Specification is based on products manufactured by Da-Lite Screen Company (or equal). The following products may be submitted:
 - 1. Draper Screen Company.
 - 2. Stewart Film Screen.

2.2 ELECTRICALLY OPERATED, SURFACE MOUNTED PROJECTION SCREENS

- A. Electrically operated screens shall be contained in housing designed for surface mounting on ceilings as indicated on

Drawings. Screens shall be furnished with a flame and mildew resistant, non-gloss matte white surface with 2 inch black masking border. Unless otherwise indicated, size shall be as indicated on the electrical drawings.

- B. Screens shall be electrically operated 115 volt, 60 Hz, 3.5 amp, and shall be furnished with a 3 wire quick reversal motor, especially designed for purpose, to be ball bearing and oiled for life.
- C. Automatic thermal overload cutout and integral interlocking gears. Preset but accessible limit switches to automatically stop screen surface in up and down positions.
- D. Case shall be of rigid metal construction. Motor compartment shall be metal lined. A section of bottom of case shall be furnished with piano type hinges and connected to drive mechanism so that it opens and closes automatically with lowering and raising of screen. Case shall be provided with a shop applied primer coat.
- E. Provide screens complete with 3-position control switch in box with cover plate. Screens shall bear UL label.

2.3 ELECTRICALLY OPERATED / RECESSED MOUNTED PROJECTION SCREENS

- A. Electrically operated screens shall be contained in housing designed for surface mounting on ceilings as indicated on Drawings. Screens shall be furnished with a flame and mildew resistant, non-gloss matte white surface with 2 inch black masking border. Unless otherwise indicated, size shall be as indicated on the electrical drawings.
- B. Screens shall be electrically operated 115 volt, 60 Hz, 3.5 amp, and shall be furnished with a 3 wire quick reversal motor, especially designed for purpose, to be ball bearing and oiled for life.
- C. Automatic thermal overload cutout and integral interlocking gears. Preset but accessible limit switches to automatically stop screen surface in up and down positions.
- D. Case shall be of rigid metal construction. Motor compartment shall be metal lined. A section of bottom of case shall be furnished with piano type hinges and connected to drive mechanism so that it opens and closes automatically with lowering and raising of screen. Case shall be furnished with a shop applied primer coat.
- E. Provide screens complete with 3-position control switch in box with cover plate. Screens shall bear UL label.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install screens according to manufacturer's installation instructions and Shop Drawings.
- B. The finished installation shall be free from damage, blemishes or other defects impacting appearance or operation, with operating panels in alignment with adjacent ceiling, and be uniform in plane and appearance.

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SECTION 12 22 16

DRAPERY TRACK AND ACCESSORIES

PART 1 - GENERAL

1.1 DESCRIPTION

This section covers window drapery tracks and drapery traverse rods.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Manufacturer's Literature and Data:
 - 1. Drapery tracks and traverse rod

1.3 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. American Society for Testing and Materials (ASTM):
 - B221/B221M-07.....Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
- C. The Aluminum Association Publication:
 - DAF 45-03.....Designation System for Aluminum Finishes

PART 2 - PRODUCTS

2.1 MATERIALS

Aluminum, Extruded: ASTM B221/B221M.

2.2 WINDOW DRAPERY TRACKS

- A. General: Fabricate drapery tracks of extruded aluminum, with necessary hangers, fittings, fastenings, and curtain carriers. Interior finish of track shall be smooth for passage of master carriers and other carriers.
 - 1. Provide traverse type tracks with bi-parting operation or one way draw, left or right as required by field conditions for rooms with one window as directed by the Architect. Where drapery width exceeds 4500 mm (15 feet), provide two separate one way tracks with cords on opposite ends. Tracks shall fit together evenly, with a right hand master used on one track and a left hand master used on the other track, so that sufficient overlap of draperies will occur. Use wall tension pulleys on all track installations.
- B. Tracks: Form of extruded aluminum 1.3 mm (0.050 inch) thick. Track shall be channel shape. On bi-parting tracks, provide two-wheel nylon or ball bearing end pulleys with zinc-coated steel housing

at each end. On one-way tracks, provide two-wheel nylon or ball bearing end pulleys with zinc-coated steel housing at one end, and nylon insert pulleys at other end of track.

- C. Brackets (For Wall Mounting): Brackets of 1.3 mm (0.05 inch) aluminum shall fit flush with track faces, and be of length to allow tracks to hang 63 mm (2-1/2 inches) from wall.
- D. Carriers: Ball bearing nylon rollers or non-binding two-wheel nylon rollers with eyes for drapery hooks. Provide one carrier for each four inches of track. Master carriers shall have four nylon wheels each.
- E. Accessories: Provide all component parts, including No. 4 drapery cord with a rayon center, end pulleys, weighted cord pulls, track splicers, end shields, wall pulleys, and fastenings.

2.3 DRAPERY TRAVERSE ROD

Rods shall be super duty, flat top type, formed of cold-rolled steel, 20 gage with baked-on white enamel finish. Direction of travel, and location on wall or ceiling shall be as required. Provide tension pulleys for each rod. Tension pulleys shall have a metal center stem. Draw cord shall be cotton with rayon center, No. 4 size. Provide self lubricating, nylon type carriers, brackets, and intermediate supports, and all related components required for a complete working installation.

2.4 FINISH: Exposed surfaces shall have the following finish:

- A. Aluminum: Finish numbers for aluminum are in accordance with the Aluminum Association's DAF-45, as selected by the Architect.
- B. Steel: Baked-on enamel finish, color as selected by the Architect.

2.5 PROTECTION

Apply a heavy coat of bituminous paint to track surfaces that will be in contact with concrete, plaster, or dissimilar metal.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Window Drapery Track: Set tracks straight and level, and rigidly anchor to surfaces with fastenings, as required by building construction.
 - 1. Install wall mounted tracks with two brackets 300 mm (one foot) apart on each track end. Space intermediate supports not over 1200 mm (four feet) apart. Leave sufficient ceiling clearance to allow for drapery heads.
- B. Drapery Traverse Rod: Direction of travel, and location on wall or ceiling shall be as shown. Install tension pulleys for each rod at 450 mm (18 inches) above the floor, and locate them so that they are not visible when drapes are hung. Anchor wall pulleys to window sill or wall as required by track location and length of drapes. Space intermediate supports at maximum of 1250 mm (50 inches).

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SECTION 12 24 00

WINDOW SHADES

PART 1 GENERAL

1.1 DESCRIPTION

Cloth shades, vertical blinds and venetian blinds are specified in this section. Window shades shall be furnished complete, including brackets, fittings and hardware.

1.2 QUALITY CONTROL

Manufacturer's Qualification: Venetian blind and vertical blind manufacturer shall provide evidence that the manufacture of blinds are a major product, and that the blinds have performed satisfactorily on similar installations.

1.3 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Samples:
 - 1. Shade cloth, each type, 600 mm (24 inch) square, including cord and ring, showing color, finish and texture.
- C. Manufacturer's literature and data; showing details of construction and hardware for:

Cloth and window shades
Venetian blinds

1.4 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced to in the text by the basic designation only.
- B. Federal Specifications (Fed. Spec.):

AA-V-00200B.....Venetian Blinds, Shade, Roller, Window, Roller, Slat, Cord, and Accessories
- C. American Society for Testing and Materials (ASTM):

A167-99 (R2004).....Stainless and heat-Resisting Chromium-Nickel Steel Plate, Sheet and Strip

B221/B221M-07.....Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes

D635-06.....Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position

D648-07.....Deflection Temperature of Plastics Under
Flexural Load in the Edgewise Position

D1784 Rev.A-06.....Rigid Poly (Vinyl Chloride) (PVC)
Compounds and Chlorinated Poly (Vinyl
Chloride) (CPVC) Compounds

PART 2 PRODUCTS

2.1 WINDOW SHADES

- A. Shade Cloth: Translucent or opaque, as selected.
- B. Staples (For Cloth Window Shades): Nonferrous metal or zinc-coated steel.
- C. Stainless Steel: ASTM A167
- D. Cords for Venetian Blinds: No. 4 braided nylon or No. 4-1/2 braided cotton having not less than 175 pounds breaking strength.
- E. Extruded Aluminum: ASTM B221/B221M.

2.2 FASTENINGS

Zinc-coated or cadmium plated metal, aluminum or stainless steel fastenings of proper length and type. Except as otherwise specified, fastenings for use with various structural materials shall be as follows:

Type of Fastening	Structural Material
Wood screw	Wood
Tap screw	Metal
Case-hardened, self-tapping screw	Sheet Metal
Screw or bolt in expansion shields	Solid masonry
Toggle bolts	Hollow blocks, wallboard and plaster

2.3 FABRICATION

- A. Fabricate cloth shades to fit measurements of finished openings obtained at site.
- B. Cloth Window Shades: Rolling type, constructed of shade cloth mounted on rollers. Shade cloth shall have plain sides, and with hem at bottom to accommodate wood slat. Separate shades are required for each individual sash within opening. Length of shades shall exceed height of window approximately 300 mm (12 inches) measured from head to sill, in addition to material required to make-up hem:
 - 1. Provide rollers with spindles, nylon bearings, tempered steel springs, and all other related accessories required for positive action. Provide rollers of diameter recommended by shade manufacturer. Staple shade cloth to wood rollers to prevent wrinkling or folding, and on line parallel to axis of rollers so that shade will hang plumb. Space staples not

over 90 mm (3-1/2 inches) on centers. Use of tacks is prohibited.

2. Wood slats shall be smooth, tapered, and inserted in the bottom hem of the shade cloth.
3. Eyelets shall have clear openings large enough to accommodate cords. Edges of eyelets shall not cut into cloth when set.
4. Cords shall be of sufficient length to permit shades to be drawn to bottom of opening with ends looped and held with cord rings. Attach cords to hems through metal eyelets in center of slats in bottom hems.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Cloth Window Shades: Mount window shades on end of face brackets, set on metal gussets, or casing of windows as required. Provide extension face brackets where necessary at mullions. In existing buildings, provide brackets similar to those on existing windows.
 1. Locate rollers in level position as high as practicable at heads of windows to prevent infiltration of light over rollers.
 2. Where extension brackets are necessary, on mullions or elsewhere, for alignment of shades, provide metal lugs, and rigidly anchor lugs and brackets.
 3. Place brackets and rollers so that shades will not interfere with window and screen hardware.
 4. Shade installation methods not specifically described, are subject to approval of Resident Engineer.

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SECTION 12 25 00

TRANSLUCENT WINDOW SHADES

PART 1 - GENERAL

1.1 DESCRIPTION

Cloth shades, vertical blinds and venetian blinds are specified in this section. Window shades shall be furnished complete, including brackets, fittings and hardware.

1.2 RELATED WORK

A. Lightproof Shades: Section 12 24 24, LIGHTPROOF SHADES.

1.3 QUALITY CONTROL

Manufacturer's Qualification: Venetian blind and vertical blind manufacturer shall provide evidence that the manufacture of blinds are a major product, and that the blinds have performed satisfactorily on similar installations.

1.4 SUBMITTALS

A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

B. Samples:

1. Shade cloth, each type, 600 mm (24 inch) square, including cord and ring, showing color, finish and texture.
2. Vertical blind slats, 300 mm (12 inches) long, including chain and supporting channels, showing color and finish.
3. Venetian blind slats, 300 mm (12 inches) long, including cord and tape, showing color and finish.

C. Manufacturer's literature and data; showing details of construction and hardware for:

Cloth and window shades

Vertical blinds

Venetian blinds

1.5 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced to in the text by the basic designation only.

B. Federal Specifications (Fed. Spec.):

AA-V-00200B.....Venetian Blinds, Shade, Roller, Window,
Roller, Slat, Cord, and Accessories

- C. American Society for Testing and Materials (ASTM):
- A167-99 (R2004).....Stainless and heat-Resisting Chromium-Nickel Steel Plate, Sheet and Strip
 - B221/B221M-07.....Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes
 - D635-06.....Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position
 - D648-07.....Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position
 - D1784 Rev.A-06.....Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds

PART 2 - PRODUCTS

2.1 TRANSLUCENT WINDOW SHADES

- A. Visually Transparent Single-Fabric Shadecloth: MechoShade Systems, Inc., ThermoVeil group, single thickness non-raveling 0.030-inch (0.762 mm) thick vinyl fabric, woven from 0.018-inch (0.457 mm) diameter extruded vinyl yarn comprising of 21 percent polyester and 79 percent reinforced vinyl, in colors selected from manufacturer's available range.
1. Extra - Dense Linear Weave "0900 series", 0-1 percent visually translucent linear weave pattern, for alternate Residential Rooms.
 2. Dense "3000 Satin Texture", "3200 Diamond Pastel", and "3300 Diamond Earthtone series" visually translucent, twill-weave pattern all at 1-2 percent open, for Multi-Purpose Room.
 3. Color: Selected from manufacturer's standard colors.

2.2 FABRICATION

- A. Fabricate translucent shades to fit measurements of finished openings obtained at site.
- B. Cloth Window Shades: Rolling type, constructed of shade cloth mounted on rollers. Shade cloth shall have plain sides, and with hem at bottom to accommodate wood slat. Separate shades are required for each individual sash within opening. Length of shades shall exceed height of window approximately 300 mm (12 inches) measured from head to sill, in addition to material required to make-up hem:
1. Provide rollers with spindles, nylon bearings, tempered steel springs, and all other related accessories required for positive action. Provide rollers of diameter recommended by shade manufacturer.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Window Shades: Install translucent shades as recommended by the product manufacturer. Mount window shades on end of face brackets, set on metal gussets, or casing of windows as required. Provide extension face brackets where necessary at mullions. In existing buildings, provide brackets similar to those on existing windows.
1. Locate rollers in level position as high as practicable at heads of windows to prevent infiltration of light over rollers.
 2. Where extension brackets are necessary, on mullions or elsewhere, for alignment of shades, provide metal lugs, and rigidly anchor lugs and brackets.
 3. Place brackets and rollers so that shades will not interfere with window and screen hardware.
 4. Shade installation methods not specifically described, are subject to approval of Resident Engineer.

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SECTION 12 32 00

MANUFACTURED WOOD CASEWORK

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies wood veneer casework, or plastic laminate casework or both as detailed on the drawings, including related components and accessories required to form integral units. Wood casework items shown on the drawings, but not specified below shall be included as part of the work under this section, and applicable portions of the specification shall apply to these items. Each like item of casework shall be of the same design and by one manufacturer.

1.2 MANUFACTURER'S QUALIFICATIONS

- A. The fabrication of casework shall be by a manufacturer who produces casework similar to the casework specified and shown.

1.3 SUBMITTALS

- A. Submit in accordance with Section `01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Manufacturer's Literature and Data:
 - 1. Sinks, trim and fittings.
 - 2. Locks for doors and drawers
 - 3. Adhesive cements
- C. Samples: Counter top, plastic laminate, 150 mm (six inch) square Wood Face Veneer or Hardwood Plywood
- D. Shop Drawings (1/2 full size):
 - 1. All casework, showing details of construction, including materials, hardware and accessories.
 - 2. Cabinets and counters showing faucets in connection with sink bowls, and electrical fixtures and receptacles which are mounted on cabinets and counters.
 - 3. Fastenings and method of installation.

1.4 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by basic designation only.
- B. American Society for Testing and Materials (ASTM):
 - A167-99 (R2004).....Stainless and Heat-Resisting chromium-Nickel Steel Plate, Sheet and Strip

- A1008-07.....Steel, Sheet, Cold-Rolled, Carbon,
Structural, High Strength Low Alloy
- C1036-06.....Flat Glass
- C. Composite Panel Association (CPA):
 - A208.1-99.....Particleboard
- D. U.S. Department of Commerce Product Standards (Prod. Std):
 - PS1-95.....Construction And Industrial Plywood
- E. Hardwood, Plywood and Veneer Association (HPVA):
 - HP.1-04.....Hardwood and Decorative Plywood
- F. Architectural Woodwork Institute (AWI):
 - Architectural Woodwork Quality Standards, Guide Specifications
Quality Certification Program - 1999
- G. American Society of Mechanical Engineers (ASME):
 - A112.18.1-05.....Plumbing Fixture Fittings
- H. National Electrical Manufacturers Association (NEMA):
 - LD3-05.....High Pressure Decorative Laminates
 - LD3.1-95.....Performance, Application Fabrication and
Installations of High-Pressure Decorative
Laminates
- I. Hardwood Plywood and Veneer Association
 - HP-1.....Hardwood and Decorative Plywood

PART 2 - PRODUCTS

2.1 PLYWOOD, HARDWOOD FACE VENEER

HPVA HP-1, Premium Grade, species and cut as selected by the Architect.

2.2 PLASTIC LAMINATE:

- A. NEMA LD-3.
- B. Exposed decorative surfaces including countertops, both sides of cabinet doors, and for items having plastic laminate finish. General purpose Type HGL.
- C. Cabinet Interiors Including Shelving: Both of following options to comply with NEMA, LD3.1 as a minimum.
 - 1. Plastic laminate clad plywood or particle board.
 - 2. Resin impregnated decorative paper thermally fused to particle board.

- D. Backing sheet on bottom of plastic laminate covered wood tops. Backer Type BKL.
- E. Post Forming Fabrication, Decorative Surface: Post forming Type HGP.

2.3 PLYWOOD, SOFTWOOD

Prod. Std. PS1, five ply construction from 13 mm to 28 mm (1/2 inch to 1-1/8 inch) thickness, and seven ply for 31 mm (1 1/4 inch) thickness.

2.4 PARTICLEBOARD

CPA A208.1, Type 1, Grade 1-M-3.

2.5 RUBBER OR VINYL BASE

Straight (for carpet), cove (for resilient floor); 100 mm (4 inch) high, 3 mm (1/8 inch) thick, flexible to conform to irregularities in walls, partitions and floors.

2.6 PLUMBING FIXTURES

ASME A112.18.1, except die-cast zinc-alloy material is not acceptable.

2.7 GLASS: ASTM C1036

For Doors: Type I, Class 1, Quality q4.

2.8 SOLID WOOD

Wood required for edge banding, moldings, or legs shall be of same species as wood face veneer.

2.9 HEET STEEL

ASTM A1008.

2.10 STAINLESS STEEL

ASTM A167, with No. 4 finish.

2.11 HARDWARE

- A. Where pin tumbler locks are specified, disc tumbler lock "Duo A", with brass working parts and case, as manufactured by the Illinois Lock Company will be an acceptable substitute. Locks for each type casework, shall be keyed differently and shall be master-keyed for each type service, such as Nurses, Psychiatric, and Administration. Provide two keys for each lock. Exposed hardware, except as otherwise specified, shall be satin finished chromium plated brass or nickel plated brass.
- B. Marking of Locks and Keys:
 - 1. The name of the manufacturer, or trademark by which manufacturer can readily be identified, legibly marked on each lock.

2. The key change number marked on the exposed face of lock, and also stamped on each key.
 3. Key change numbers shall provide sufficient information for replacement of the key by the manufacturer.
- C. Hinged Doors:
1. Doors 900 mm (36 inches) and more in height shall have three hinges and doors less than 900 mm (36 inches) in height shall have two hinges. Each door shall close against two rubber bumpers.
 2. Hinges: Fabricate hinges with minimum 2 mm (0.072 inch) thick chromium plated steel leaves, and with minimum 3.5 mm (0.139 inch) diameter stainless steel pin. Hinges shall be five knuckle design with 63 mm (2-1/2 inch) high leaves and hospital type tips.
 3. Fasteners: Provide full thread wood screws to fasten hinge leaves to door and cabinet frame. Finish screws to match finish of hinges.
- D. Door Catches:
1. Friction or Magnetic type, fabricated with metal housing.
 2. Provide one catch for cabinet doors 1200 mm (48 inches) high and under, and two for doors over 1200 mm (48 inches) high.
- E. Locks:
1. Cylinder type pin tumbler.
 2. Equip doors and drawers where shown with locks.
- F. Drawer and Door Pulls: Doors and drawers shall have flush pulls, fabricated of either chromium plated brass, chromium plated steel, stainless steel, or anodized aluminum.
- G. Drawer Slides:
1. Full extension steel slides with nylon ball-bearing rollers.
 2. Slides shall have positive stop.
 3. Equip drawers with rubber bumpers.
- H. Sliding Doors:
1. Each door shall be supported by two ball bearing bronze or nylon rollers, or sheaves riding on a stainless steel track at top or bottom, and shall be restrained by a nylon or stainless steel guide at the opposite end.
 2. Plastic guides are not acceptable.
 3. Each door shall have rubber silencers set near top and bottom of each jamb.

- I. Shelf Standards (Except For Fixed Shelves): Bright zinc-plated steel for recessed mounting with screws, 16 mm (5/8 inch) wide by 5 mm (3/16 inch) high providing 13 mm (1/2 inch) adjustment, complete with shelf supports.
- J. Gate Bolt: Surface mounted barrel type with strike.
- K. Hinged Gates: Gates shall have two double-acting hinges or pivots, size as required.

2.12 FABRICATION

- A. Casework shall be of the flush overlay design and, except as otherwise specified, be of premium grade construction and of component thickness in conformance with AWI Quality Standards.
- B. Fabricate casework of plastic laminated covered plywood or particleboard or factory finished wood veneer as follows:
 - 1. Where shown, doors, drawers, shelves and all semi-concealed surfaces shall be plastic laminated.
 - 2. Sliding doors shall have stops to prohibit bypass and be removable without use of tools.
- C. Electrical fixtures, receptacles, wiring and junction boxes required for fixtures and receptacles:
 - 1. Factory installed in casework.
 - 2. For electrical lighting fixtures, see drawings.
 - 3. For electric receptacles and lighting fixtures installed below or adjacent to wall cabinets or above counter tops, see electrical sections or specifications.
 - 4. Install wiring in built-in raceways and terminate at junction box mounted on rear of cabinet and counter.
 - 5. For final hook-up at junction box see electrical sections of specifications.
- D. Base:
 - 1. Provide rubber or vinyl base with close, flush joints; set with adhesive.
 - 2. Remove adhesive from exposed surfaces.
 - 3. Install base at floor line after casework has been accurately leveled.
 - 4. Rub base to glossy finish.
- E. Countertops:
 - 1. Countertops, splashbacks shall be plastic laminate factory glued to either a plywood (PS1), or particleboard (CPA A208.1) core.

2. Countertops shall be 19 mm 3/4 inch thick.
 3. Splashbacks shall be finished 19 mm (3/4 inch) thick and be secured to countertops with concealed metal fastenings and with contact surfaces set in waterproof adhesive.
 4. Provide cut-outs for plumbing trim where shown.
 5. Cover exposed edges of countertops, and splashbacks shelves with plastic.
- F. Sink bowls:
1. 18 gage stainless steel, of size and design shown.
 2. All interior corners of bowls shall be formed to manufacturer's standard radii.
 3. Sinks shall have rims with flanged edges overlapping tops to provide tight joints.
 4. Secure sink bowls with concealed fastenings.
 5. For service lines from service fixtures, see other sections of specifications.
- G. Provide the following plumbing trim and fittings:
1. Faucets: ASME A112.18.1 Type I, compression type, countertop mounted, chromium plated brass, having two valves and with swing-spout or gooseneck spout as shown, elevated to clear handles.
 2. Fittings shall have an elongated escutcheon for spout and handles, replaceable valve seats and four arm or lever style indexed chromium plated brass or stainless steel handles; handles either with or without hood.
- H. Faucets:
1. ASME A112.18.1 Type I, compression type, splashback mounted, chromium plated brass, having two valves and with swing-spout and gooseneck spout as indicated.
 2. Fittings shall have exposed body union inlets and adjustable flanges.
 3. Valves shall have indexed chromium plated brass or stainless steel lever handles and replaceable valves seats; handles either with or without hood.
- I. Drain:
1. Cast or wrought brass or stainless steel with flat strainer.
 2. Surfaces of drains exposed from above shall have a chromium plated finish.
- J. Traps: Cast brass.

K. Spray Hose:

1. Hose shall drop below counter top when not in use and be of sufficient length to reach the entire length of the countertop.
2. Concealed trim may be rough brass.

L. Support Members for Tops of Tables:

1. Construct as detailed.
2. Provide miscellaneous steel members and anchor as shown.

M. Legs For Counters:

1. Fabricate legs for counters of 1.6 mm (0.0635 inch) thick, 38 mm (1-1/2 inch) square tubular stainless steel where shown.
2. Secure legs to counter tops and provide legs at bottom with shoes not less than 25 mm (one inch) in height.
3. Fabricate shoes of either stainless steel, aluminum or chromium plated brass.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Set casework in place; level, plumb and accurately scribe and secure to walls, and/or floors.
- B. The installation shall be complete including all trim and hardware. Leave the casework clean and free from defects.

3.2 FASTENINGS

- A. Fastenings for securing casework to adjoining construction shall be as detailed on the drawings or approved shop drawings.
- B. See Section 05 50 00, METAL FABRICATIONS for reinforcement of walls and partitions for casework anchorage.

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SECTION 12 36 00

COUNTERTOPS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies casework countertops with integral accessories as indicated on the drawings.

1.2 RELATED WORK

- A. DIVISION 22, PLUMBING.
- B. DIVISION 26, ELECTRICAL.

1.3 SUBMITTALS

- A. Submit in accordance with SECTION 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Shop Drawings
 - 1. Show dimensions of section and method of assembly.
 - 2. Show details of construction at 1/2 scale.
- C. Samples:
 - 1. 150 mm (6 inch) square samples each top.
 - 2. Front edge, back splash, end splash and core with surface material and booking.

1.4 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to the extent referenced. Publications are referenced in the text by the basic designation only.
- B. American Hardboard Association (AHA):
 - A135.4-04.....Basic Hardboard
- C. Composite Panel Association (CPA):
 - A208.1-99.....Particleboard
- D. American Society of Mechanical Engineers (ASME):
 - A112.18.1-05.....Plumbing Fixture Fittings
 - A112.1.2-04.....Air Gaps in Plumbing System
 - A112.19.3-00 (R2004).....Stainless Steel Plumbing Fixtures
(Designed for Residential Use)
- E. American Society for Testing and Materials (ASTM):

- A167-99 (R2004).....Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet and Strip
- A1008-07.....Steel, Sheet, Cold-Rolled, Carbon, Structural, High Strength, Low Alloy
- D256-06.....Pendulum Impact Resistance of Plastic
- D570-98 (R2005).....Water Absorption of Plastics
- D638-03.....Tensile Properties of Plastics
- D785-03.....Rockwell Hardness of Plastics and Electrical Insulating Materials
- D790-07.....Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
- D4690-99 (2005).....Urea-Formaldehyde Resin Adhesives
- G21-96 (R2002).....Determining Resistance of Synthetic Polymeric Materials to Fungi
- F. Federal Specifications (FS):
 - A-A-1936.....Adhesive, Contact, Neoprene Rubber
- G. U.S. Department of Commerce, Product Standards (PS):
 - PS 1-95.....Construction and Industrial Plywood
- H. National Electrical Manufacturers Association (NEMA):
 - LD 3-05.....High Pressure Decorative Laminates
 - LD 3.1-95.....Performance, Application, Fabrication, and Installation of High Pressure Decorative Laminates

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Plastic Laminate: NEMA LD 3.
 - 1. Concealed backing sheet Type BKL.
 - 2. Decorative surfaces:
 - a. Flat components: Type GP-HGL.
 - b. Post forming: Type PF-HGP.
 - 3. Chemical Resistant Surfaces
 - a. Flat components: Type GP-HGL.
 - b. Post forming: Type PF-HGP.

c. Resistance to reagents:

- 1) Test with five 0.25 mil drops remaining on surface for 16 hours followed by washing off with tap water, then cleaned with liquid soap and water, dried with soft cotton cloth and then cleaned with naphtha.
- 2) No change in color, surface texture, and original protectability remaining from test results of following reagents:

98% Acetic Acid	Butyl Alcohol	Acetone
90% Formic Acid--	Benzine	Chloroform
28% Ammonium Hydroxide	Xylene	Carbon Tetrachloride
Zinc Chloride (Sat.)	Toluene	Cresol
Sodium Carbonate (Sat.)	Gasoline	Ether
Calcium Hypochlorite (Sat.)	Kerosene	Cottonseed Oil
Sodium Chloride (Sat.)	Mineral Oil	40% Formaldehyde
Methyl Alcohol	Ethyl Acetate	Trichlorethylene
Ethyl Alcohol	Amyl Acetate	Monochlorobenzine

- 3) Superficial effects only: Slight color change, spot, or residue only with original protectability remaining from test results of following reagents:

77% Sulfuric Acid	37% Hydrochloric Acid	85% Phenol
33% Sulfuric Acid	20% Nitric Acid	Furfural
85% Phosphoric Acid	30% Nitric Acid	Dioxane

- 4) Minimum height of impact resistance: 300 mm (12 inches).

B. Molded Resin:

1. Non-glare epoxy resin or furan resin compounded and cured for minimum physical properties specified:

Flexural strength	70 MPa (10,000 psi)	ASTM D790
Rockwell hardness	105	ASTM D785
Water absorption, 14 hours (weight)	.01%	ASTM D570

2. Material of uniform mixture throughout.

C. Stainless Steel: ASTM A167, Type 304.

D. Sheet Steel: ASTM A1008, cold rolled, Class 1 finish, stretcher leveled.

E. Particleboard: CPA A208.1, Grade 2-M-2.

- F. Plywood: PS 1, Exterior type, veneer grade AC not less than five ply construction.
- G. Hardwood Countertop: Solid maple, clear grade except where otherwise specified.
- H. Hardboard: AHA A135.4, Type I, tempered, fire retardant treated, smooth surface one side.
- I. Adhesive
 - 1. For plastic laminate FS A-A-1936.
 - 2. For wood products: ASTM D4690, unextended urea resin or unextended melamine resin, phenol resin, or resorcinol resin.
 - 3. For Field Joints:
 - a. Epoxy type, resistant to chemicals as specified for plastic laminate laboratory surfaces.
 - b. Fungi resistant: ASTM G-21, rating of 0.
- J. Fasteners:
 - 1. Metals used for welding same metal as materials joined.
 - 2. Use studs, bolts, spaces, threaded rods with nuts or screws suitable for materials being joined with metal splice plates, channels or other supporting shape.
- K. Solid Polymer Material:
 - 1. Filled Methyl Methacrylic Polymer.
 - 2. Performance properties required:

Property	Result	Test
Elongation	0.3% min.	ASTM D638
Hardness	90 Rockwell M	ASTM D785
Gloss (60° Gordon)	5-20	NEMA LD3.1
Color stability	No change	NEMA LD3 except 200 hour
Abrasion resistance	No loss of pattern Max wear depth 0.0762 mm (0.003 in) - 10000 cycles	NEMA LD3
Water absorption weight (5 max)	24 hours 0.9	ASTM D-570
Izod impact	14 N·m/m (0.25 ft-lb/in)	ASTM D256 (Method A)
Impact resistance	No fracture	NEMA LD-3 900 mm (36") drop 1 kg (2 lb.) ball
Boiling water surface resistance	No visible change	NEMA LD3
High temperature resistance	Slight surface dulling	NEMA LD3

3. Cast into sheet form and bowl form.
 4. Color throughout with subtle veining through thickness.
 5. Dupont "Corian" is acceptable if meeting the above properties.
 6. Joint adhesive and sealer: Manufacturers silicone adhesive and sealant for joining methyl methacrylic polymer sheet.
- L. Laminar Flow Control Device
1. Smooth bright stainless steel or satin finish, chrome plated metal laminar flow device shall provide non-aeration, clear, coherent laminar flow that will not splash in basin. Device shall also have a flow control restrictor and have vandal resistant housing.
 2. Flow Control Restrictor:
 - a. Capable of restricting flow of 7.5 to 8.5 Lpm (2.0 to 2.2 gpm) for sinks provided in paragraph 2.2D.
 - b. Compensates for pressure fluctuation maintaining flow rate specified above within 10 percent between 175 and 550 kPa (25 and 80 psi).
 - c. Operates by expansion and contraction, eliminates mineral/sediment building up with self clearing action, and is capable of easy manual cleaning.

2.2 COUNTERTOPS

- A. Fabricate in largest sections practicable.
- B. Fabricate with joints flush on top surface.
- C. Fabricate countertops to overhang front of cabinets and end of assemblies 25 mm (one inch) except where against walls or cabinets.
- D. Provide 1 mm (0.039 inch) thick metal plate connectors or fastening devices (except epoxy resin tops).
- E. Join edges in a chemical resistant waterproof cement or epoxy cement, except weld metal tops.
- F. Fabricate with end splashes where against walls or cabinets.
- G. Splash Backs and End Splashes:
 1. Not less than 19 mm (3/4 inch) thick.
 2. Height 100 mm (4 inches) unless noted otherwise.
 3. Laboratories and pharmacy heights or where fixtures or outlets occur: Not less than 150 mm (6 inches) unless noted otherwise.

4. Fabricate epoxy splash back in maximum lengths practical of the same material.
- H. Drill or cutout for sinks, and penetrations.
1. Accurately cut for size of penetration.
 2. Cutout for VL 81 photographic enlarger cabinet.
 - a. Finish cutout to fit flush with vertical side of cabinet, allowing adjustable shelf to fit into cutout space of cabinet at counter top level. Finish cutout surface as an exposed edge.
 - b. Provide braces under enlarger space to support not less than 45 kg (100 pounds) centered on opening side along backsplash.
- I. Plastic Laminate Countertops:
1. Fabricate plastic laminate on five-ply plywood or particleboard core 19 mm (3/4 inch) thick with plastic laminate backing sheet.
 2. Front edge over cabinets not less than 38 mm (1-1/2 inches) thick except where plastic "T" insert is used, not less than 19 mm (3/4 inch) thick.
 3. Exposed Surface and edges of decorative laminated plastic or laboratory chemical resistant surface.
 - a. Use chemical resistant surface on tops 6A, 6B, and 6C.
 - b. Use decorative surface tops when noted plastic laminate, for tops 10A, 10B and 10C.
- J. Metal Counter Tops:
1. Fabricate up to 3600 mm (12 feet) long in one piece, including nosing, backs and ends.
 2. When counter tops exceed 3600 mm (12 feet) in length accurately fitted field joints are acceptable.
 3. Finish thickness at edges 32 mm (1-1/4 inch).
 4. Reinforced with minimum 1.5 mm (0.0598 inch) thick hat channel stiffeners, minimum of two stiffeners for units without sinks and three stiffeners for units with sinks welded or soldered to underside of top full length, except at sink openings.
 5. Apply sound deadening material on underside.
 6. Flange edges of tops down 32 mm (1-1/4 inch) and reinforce with concealed hardwood or with a steel frame.
 7. Grind welds smooth and finished on exposed surfaces to match finish specified.

8. Stainless Steel Counter or Sink Tops:

- a. Where noted stainless steel except where specified for nourishment unit, unit kitchen, and medicine cabinet.
- b. Use 1.5 mm (0.0598 inch) thick stainless steel.
- c. Depth of splash backs and splash ends 25 mm (one inch) and turned down at least 13 mm (1/2 inch) at wall. Where faucets are located in splash backs, fabricate depth of splash backs 50 mm (2 inches) with provision made to receive required fixture.
- d. Where sinks occur fabricate top with 5 mm (3/16 inch) marine edge and fit flush with adjacent tops of other materials.
- e. Weld sink flush to counter top and finish to appear seamless.

K. Molded Resin Tops:

1. Molded resin with drip groove cut on underside of overhanging edge.
2. Finish thickness of top minimum 25 mm (1 inch).
3. Joints: Epoxy Type.
4. Secure reagent shelves to counter tops with fasteners from underside and seal seam.

L. Maple tops:

1. Fabricate in one piece of solid laminated tongue and groove maple strips, not more than three inches in width, glued under pressure to a thickness 45 mm (1-3/4 inches).
2. Edges and ends of clear maple wood. Make splash backs and splash ends of 19 mm (3/4 inch) thick maple and secure to counter tops with concealed metal fasteners and with contact surfaces set in waterproof glue.
3. Round exposed edges of maple tops and backs to approximate 9 mm (3/8 inch) radius.
4. Sand exposed surfaces smooth and even and apply two coats of boiled linseed oil. Rub in each coat and allow 48 hours to lapse between coats.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Before installing countertops verify that wall surfaces have been finished as specified and that mechanical and electrical service locations are as required.

- B. Secure countertops to supporting rails of cabinets with metal fastening devices, or screws through pierced slots in rails.
 - 1. Where type, size or spacing of fastenings is not shown or specified, submit shop drawings showing proposed fastenings and method of installation.
 - 2. Use round head bolts or screws.
 - 3. Use epoxy or silicone to fasten the epoxy resin countertops to the cabinets.
 - 4. Use wood or sheet metal screws for wood or plastic laminate tops; minimum penetration into top 16 mm (5/8 inch), screw size No 8, or 10.
- C. Rubber Moldings:
 - 1. Where shown install molding with butt joints in horizontal runs and mitered joints at corners where ceramic tile occurs omit molding.
 - 2. Fasten molding to wall and to splashbacks and splashends with adhesive.

3.2 PROTECTION AND CLEANING

- A. Tightly cover and protect against dirt, water, and chemical or mechanical injury.
- B. Clean at completion of work.

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