

SECTION 12300 - PLASTIC LAMINATE CASEWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:

1. Plastic laminate casework & custom millwork.
2. Countertops.
3. Sinks.
4. Accessories.
5. Service fittings including installation and **FINAL CONNECTIONS.**

- B. Related Sections include the following:

1. Section 09653 for resilient base applied to plastic laminate casework.
2. Division 15 and 16 Sections for rough-in of service utilities at indicated point.

1.3 DEFINITIONS

- A. Exposed Portions of Casework: Surfaces visible when doors and drawers are closed, including bottoms of cabinets more than 48 inches (1200 mm) above floor, and visible surfaces in open cabinets or behind glass doors.

1. Ends of cabinets indicated to be installed directly against and completely concealed by walls or other cabinets after installation shall not be considered exposed.

- B. Semi-exposed Portions of Casework: Surfaces behind opaque doors, such as interiors of cabinets, shelves, dividers, interiors and sides of drawers, and interior faces of doors. Tops of cases 78 inches (1980 mm) or more above floor are defined as semi-exposed.

- C. Concealed portions of casework include sleepers, web frames, dust panels, and other surfaces not usually visible after installation.

- D. Open interiors: Any open storage unit without solid door or drawer fronts and units with full glass insert doors and/or acrylic doors.

- E. Closed interiors: Any closed storage unit behind solid door or drawer fronts, sliding solid doors.

1.4 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of plastic laminate casework

1. **Refer to Division 1 Section "Submittal Procedures" for shop drawing submittal requirements.**
- B. Shop Drawings: For plastic laminate casework. Include plans, elevations, sections, details, and attachments to other work.
 1. Indicate locations and types of service fittings, together with associated service supply connection required.
- C. Samples for Initial Selection: Manufacturer's color charts consisting of actual units or sections of units showing the full range of colors, textures, and patterns available for cabinets and each type of top material indicated.
- D. Samples for Initial Selection: For units with factory-applied color finishes.
 1. **Provide samples for all surfaces for specified furnishings that require finish and/or color selection.**
 2. **Provide a item breakdown of required finishes and/or color selections for each item specified**
 3. **Refer to Appendix 'A' provided at end of specifications to sample item breakdown schedule**
- E. Samples for Verification: 6-inch- (150-mm-) square samples for each type of finish, including top material.

1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain casework, including tops, sinks, service fittings, and accessories, through one source from a single manufacturer.
- B. Installer Qualifications: Factory certified by the manufacturer.
- C. Product Designations: Drawings may indicate sizes, configurations, and finish material of casework by referencing designated manufacturer's catalog numbers. Use of a specific manufacturer's proprietary name to identify casework requirements is not intended to imply that named products are to be used to the exclusion of equivalent products of other named manufacturers.

1.6 GUARANTEE

- A. This contractor shall guarantee all materials and workmanship of equipment provided on this contract for a period of one (1) year from the date of final acceptance. Any defective materials or faulty workmanship occurring within that time shall be replaced or corrected without charge.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver casework until painting, utility roughing-in, and similar operations that could damage, soil, or deteriorate casework have been completed in installation areas. If casework must be stored in other than installation areas, store only in areas whose environmental conditions meet requirements specified in "Project Conditions" Article below.

- B. Protect finished surfaces from soiling and damage during handling and installation. Keep covered with polyethylene film or other protective covering.

1.8 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install casework until building is enclosed, wet-work is completed, and HVAC system is operating and will maintain temperature and relative humidity at occupancy levels through remainder of construction period.

1.9 COORDINATION

- A. Service fixtures are supplied and installed as part of this work of this section, including internal piping and wiring, up to designated point of supply connection. Final connections from point of supply are included in this Contract.
- B. Point of supply connections are typically as follows:
 - 1. Hot and cold water supply: Terminates at wall or floor at shut-off cocks.
 - 2. Sanitary waste: Terminates at wall or floor with plug.
 - 3. All rough-in of above listed building services are provided by others.
- C. Coordination and field verification of point of supply connection is work of this section.
- D. Coordination and field verification of all building dimensions of walls, doors, windows and other permanent items associated with the casework is work of this section.

1.10 EXTRA MATERIALS

- A. Furnish complete touchup kit for each type and finish of casework provided. Include scratch fillers, stains, finishes, and other materials necessary to perform permanent repairs to damaged casework finish.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Plastic-Laminate-Faced Casework:
 - a. Case Systems, Inc.
 - b. Fisher Hamilton, Inc.
 - c. LSI Corporation of America, Inc.
 - d. Southern Cabinetry, Inc.
 - e. Stevens Industries, Inc.
 - f. TMI Systems Design Corporation
 - g. Jastev Casework.
 - h. Counterspace

- i. Plastic Sales
- j. Fertig Cabinet Company

2.2 MATERIALS

A. Core Materials:

1. Particleboard: Medium Density 45-50 pound industrial grade particleboard of fir or pine meeting or exceeding ANSI A208.1-1993, M-3 requirements. Thickness' used are 1/4", 1/2", 3/4", 1".
2. Hardboard: Prefinished hardboard in 1/4" thickness meeting or exceeding commercial standards CS-251.

B. Decorative Laminates:

1. High-pressure decorative laminate GP28 (.028), NEMA Test LD-3-1995.
2. High-pressure decorative laminate GP50 (.050), NEMA Test LD-3-1995.
3. High-pressure decorative laminate PF42 (.042), NEMA Test LD-3-1995.
4. High-pressure decorative laminate CL20 (.020), NEMA Test LD-3-1995.
5. Thermally Fused Melamine laminate tested to meet NEMA Test LD-3-1995.
6. High-pressure backer BK20 (.020)

C. Concealed Materials: Comply with the following:

1. Plywood: APA C-C Plugged exterior.
2. Particleboard: ANSI A208.1, Grade M-2, 45# density.
3. Medium-Density Fiberboard: ANSI A208.2, minimum screw holding capacity of 355 lbs. on faces and 300 lbs. on edges, internal bond of 100 psi..
4. Hardboard: AHA A135.4, Class 1 Tempered.
5. Plastic Laminate: High pressure decorative laminate complying with NEMA LD3, Grade BK-20.

D. Edging Materials:

1. 1mm PVC banding, machine applied with waterproof hot melt adhesive.
2. 3mm PVC banding, machine applied with waterproof hot melt adhesive with external edges and outside corners of door and drawer fronts, machine profiled to 1/8" radius for safety.

E. Metal Parts:

1. Countertop support brackets, undercounter support frames, legs and miscellaneous metal parts are furniture steel, welded, degreased, cleaned, treated and epoxy powder coated.

2.3 DESIGN, COLOR, AND FINISH

A. Design: Provide plastic laminate casework of the following design:

1. Flush overlay.

B. Colors and Finishes: Comply with the following requirements for colors and finishes of plastic laminate laboratory casework:

1. Colors and Finishes: Provide Architect's selections from plastic laminate manufacturer's full range of colors, patterns and gloss.

C. Laminate Color Selection:

1. Selections for cabinet surfaces, grade GP28, are offered from the current year Wilsonart, Nevamar, Pionite or Formica Series. A maximum of one (1) color selected per unit face and five (5) colors per project.
2. Selections for countertops, GP50 and PF42, shall be selected from the current year Wilsonart, Nevamar, Pionite or Formica standard solid and pattern offering.

2.4 FABRICATION

A. Construction: Provide plastic-laminate-faced casework of the following minimum construction:

1. Bottoms and ends of cabinets, shelves, and tops of wall cabinets and tall cabinets: 3/4-inch (19-mm) particleboard, plastic-laminate faced on exposed surfaces, melamine faced on semi-exposed surfaces. Cabinet ends are to have holes drilled for adjustable shelves, 1-1/4" on center.
2. Cabinet backs are 1/4" prefinished hardboard. Wall and tall cabinets are provided with a 1"x1-3/4" PVC mounting strip used to secure the cabinet to the wall. Exposed back on fixed or moveable cabinets is 3/4" particleboard with the exterior surface finished in GP28 laminate as selected.
3. All fixed undercounter and tall units have an individually factory applied base, constructed of 3/4" A.C. Grade plywood. Base is 96mm (nominal 4") high unless otherwise indicated on the drawings.
4. Door/Drawer Fronts:
 - a. Core for all doors and applied drawer fronts is 3/4" thick particleboard. All edges finished as indicated herein.
 - b. Double doors are used on all cabinets in excess of 24" wide.
 - c. Exterior faces are laminated with high-pressure decorative laminate GP28, Color as selected. Interior face is high-pressure cabinet liner CL20.
 - d. Door and drawer front edges shall be rigid 3mm thick PVC banding, through color with satin finish.
5. Drawer bodies: Drawers shall be full box design with a separate front. Drawer sides and ends shall be constructed of a minimum of 1/2" thick medium density fiberboard with melamine laminate and matching PVC top edges. Bottoms shall be a minimum of 1/4" thick with melamine facing.
 - a. Corner joints shall be interlocking dowel pin design. Hardwood dowel pins 8mm diameter shall be inserted into drawer ends and fitted into matching hole patterns in drawer sides. Bottoms shall be trapped in grooves all four sides. Joints shall be glued and bottoms shall have additional mechanical fasteners.
 - b. Option: Corner joints shall be a lock shoulder (dado and rabbet) design.
6. All base units, except sink base units, are provided with a full sub-top. Sink base units are provided with an open top, full width sink rail at top front edge concealed behind face rail/doors, a split back removable access panel, and bottom panel to have CL20 high-pressure cabinet liner, color to match interior color. No exceptions will be permitted.
7. All exposed and semi-exposed edges of basic cabinet components are factory edged with PVC banding, machine applied with waterproof hot melt adhesive.
 - a. Edging is 1mm PVC.
8. Adjustable shelf core is 3/4" thick particleboard up to 30" wide, 1" thick particleboard over 30" wide.
9. Interior Finish, Units with Open Interiors:

- a. Sides, top, bottom, horizontal and vertical members, and adjustable shelving faced with GP28 high-pressure laminate.
- 10. Interior Finish, Units with Closed Interiors:
 - a. Sides, top, bottom, horizontal and vertical members, and adjustable shelving faced with thermally fused melamine laminate with matching prefinished back.
- 11. Exposed Ends:
 - a. Faced with high-pressure decorative laminate GP28 (.028) color from casework manufacturers full range offering from Wilsonart, Nevamar, Pionite and Formica, standard grades and finishes.
- 12. Wall Unit Bottom:
 - a. Faced with GP28 (.028) high-pressure laminate.
- 13. Wall and Tall Unit Tops:
 - a. The top edge of all wall and tall unit end panels are factory edged with 1mm PVC.
 - b. Top surface of wall units are laminated GP28 high-pressure laminate.
 - c. Top surface of tall unit tops are faced with thermally fused melamine laminate.
- 14. Balanced Construction of all laminated panels is mandatory. Unfinished core stock surfaces, even on concealed surfaces (excluding edges), will not be permitted. No exceptions.
- 15. Specialty Full Height Casework:
 - a. Subject to compliance with previous section, the following are acceptable for use as specialty full-height casework. Refer to drawings for applications.
 - 1) Type WD: Wardrobe cabinet with garment hanger with pullout carrier, with lock; See plans for configurations.
 - a) WD-02: 24"x24"x84".

- B. Filler Strips: Provide as needed to close space between cabinets and walls, ceilings and indicated equipment. Fabricate from the same material and with the same finish as cabinets.

2.5 CASEWORK HARDWARE

- A. Hardware, General: Provide manufacturer's standard satin-finish, commercial-quality, heavy-duty hardware complying with requirements indicated for each type.
- B. Hinges: Stainless-steel, 5-knuckle institutional grade hinges complying with ANSI-BHMA A156.9, Grade 1, with antifriction bearings and rounded tips. Provide 2 for doors less than 48 inches (1200 mm) high and 3 for doors more than 48 inches (1200 mm) high.
- C. Door and Drawer Pulls: Metal wire design, 96mm spacing on fasteners, chrome finish. Pull design is compatible with the American with Disabilities Act (ADA).
- D. Drawer Slides:
 - 1. Regular and kneespace drawers are equal to Blum Style No. BS230M and are epoxy powder coated. Slides have a 100-lb. load rating at full extension and a built-in, positive stop for both directions, with self-closing feature.
 - 2. File drawers are full extension, 150 lb. load rating.
 - 3. Pencil drawers are equipped with Blum BS230M.
 - 4. Slides to have a lifetime warranty as offered by the slide manufacturer.

- E. Door Catches: Nylon-roller spring catch or dual, self-aligning, permanent magnet catch. Provide 2 catches on doors more than 48 inches (1200 mm) high.
- F. Locks:
 - 1. For doors and drawers as shown on drawings, provide a removable core, disc tumbler, cam style lock with strike. Lock for ¾" inch sliding doors is a disc type plunger lock, sliding door type with strike. Lock for sliding glass/acrylic doors is a ratchet type sliding showcase lock.
 - 2. Chain bolts are 3" long, and have an 18" pull and an angle strike to secure inactive door on cabinets over 72" in height. Elbow catches are used on inactive doors up to and including 72" in height.
 - a. Provide minimum of 2 keys per lock and 6 master keys.
 - b. Provide locks on all specialty full-height casework.
- G. Adjustable Shelf Supports
 - 1. Injection molded polycarbonate, clear color to blend with selected interior finish, friction fit into cabinet end panels, and vertical dividers, readily adjustable on 32mm (approximately 1-1/4") centers. Each shelf support has two (2) integral support pins to interface pre-drilled holes and to prevent accidental rotation of support. The support will adapt to ¾" and 1" thick shelving and provide non-tip feature for shelving. Structural load testing shall show minimum loading of 180 lbs. per support without failure.
- H. Coat Rods:
 - 1. 1" diameter, 14-gauge chrome plated steel installed in captive mounting hardware.
- I. Mirrors:
 - 1. ¼" thick polished mirror plate.

2.6 TOPS AND SINKS

- A. Decorative Laminate Countertops:
 - 1. All nominal 1" thick laminate clad countertops shown on drawings are constructed with 1" particleboard core laminated top face and edges with GP50 (.050) high-pressure decorative laminate, with BK20 backer underside. Provide tight joint fasteners where needed. Provide tops in as long as practical lengths. No joints closer than 24 inches to either side of sink cutouts.
- B. Sinks, General: Provide sizes indicated or manufacturer's closest standard size of equal or greater volume, as approved by Architect.
 - 1. Outlets: 1-1/2-inch NPS (DN40) outlets with strainers and tailpieces a minimum of 6 inches (150 mm) long, of the same material as sink, or as otherwise approved by Architect.
 - 2. Overflows: For each sink, except cup sinks, provide overflow of standard beehive or open-top design and with separate strainer. Height 2 inches (51 mm) less than sink depth. Provide in the same material as sink.
- C. Stainless Steel Sinks: 18 gage, Type 302/304 with No. 4 satin finish, unless otherwise indicated. Fabricate with horizontal and vertical corners rounded and coved to at least 5/8" radius. Slope sink bottoms to pitch to outlet. Continuous butt weld joints and provide factory punching for fixtures.

D. SCHEDULE OF SINKS

1. SNK-01 - single compartment, 18 gauge, type 302 stainless steel, self-rimming with undercoating, basket strainer, 3-1/2 inch outlet, ledgeback drilled for trim, Just model no. SL-1815-A-GR, 18 x 15 x 7-1/2 inch outside dimension.
 - a. Fittings – Watersaver Model No. L2222, deck mounted mixing faucet w/ SG6 gooseneck swing spout, lever handles & aerator.

E. Sink Fabrication:

1. Install stainless steel sink units to other than stainless steel tops with integral rim or sink ring, set in mastic or sealant to form a positive seal with top. Apply approximately 1/8" thick heat-resistant underseal to undersink surfaces for condensation prevention and sound deadening.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances, location of reinforcement, and other conditions affecting performance of plastic laminate casework installation.
 1. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 CASEWORK INSTALLATION

- A. Install plumb, level, and true; shim as required, using concealed shims. Where casework abuts other finished work, apply filler strips and scribe for accurate fit, with fasteners concealed where practical.
- B. Base Cabinets: Set cabinets straight, plumb, and level. Adjust subtops within 1/16 inch (1.5 mm) of a single plane. Fasten cabinets to utility-space framing, partition framing, wood blocking, or reinforcements in partitions with fasteners spaced 24 inches (600 mm) o.c. Bolt adjacent cabinets together with joints flush, tight, and uniform. Align similar adjoining doors and drawers to a tolerance of 1/16 inch (1.5 mm).
 1. Where base cabinets are not installed adjacent to walls, fasten to floor at toe space with fasteners spaced 24 inches (600 mm) o.c. Secure sides of cabinets to floor, where they do not adjoin other cabinets, with not less than 2 fasteners.
- C. Wall Cabinets: Hang cabinets straight, plumb, and level. Adjust fronts and bottoms within 1/16 inch (1.5 mm) of a single plane. Fasten to hanging strips, masonry, partition framing, blocking, or reinforcements in partitions. Fasten each cabinet through back, near top, at not less than 24 inches (600 mm) o.c. Align similar adjoining doors to a tolerance of 1/16 inch (1.5 mm).
- D. Install hardware uniformly and precisely. Set hinges snug and flat in mortises, unless otherwise indicated. Adjust and align hardware so moving parts operate freely and contact points meet accurately. Allow for final adjustment after installation.
- E. Adjust casework and hardware so doors and drawers operate smoothly without warp or bind. Lubricate operating hardware as recommended by manufacturer.

3.3 INSTALLATION OF TOPS

- A. Field Jointing: Where possible, make in the same manner as shop jointing using dowels, splines, adhesives, and fasteners recommended by manufacturer. Prepare edges to be joined in shop so Project site processing of top and edge surfaces is not required. Locate field joints where shown on approved Shop Drawings.
- B. Fastenings: Use concealed clamping devices for field joints located within 6 inches (150 mm) of front, at back edges, and at intervals not exceeding 24 inches (600 mm). Tighten according to manufacturer's written instructions to exert a constant, heavy-clamping pressure at joints.
- C. Abut top and edge surfaces in one true plane, with internal supports placed to prevent deflection. Provide flush hairline joints in tops using clamping devices.
 - 1. Where necessary to penetrate tops with fasteners, countersink heads approximately 1/8 inch (3 mm) and plug hole flush with material equal to top in chemical resistance, hardness, and appearance.
- D. Provide required holes and cutouts for service fittings.
- E. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
- F. Provide scribe moldings for closures at junctures of top, curb, and splash, with walls as recommended by manufacturer for materials involved. Match materials and finish to adjacent casework. Use chemical-resistant, permanently elastic sealing compound where recommended by manufacturer.

3.4 INSTALLATION OF ACCESSORIES

- A. Install accessories according to approved Shop Drawings and manufacturer's written instructions.
- B. Install shelf standards plumb and at heights to align shelf brackets for level shelves. Install shelving level and straight, closely fitted to other work where indicated.

3.5 INSTALLATION OF SERVICE FITTINGS

- A. Comply with requirements of Division 15 and 16 Sections for installing water service fittings, piping, electrical devices, and wiring.
- B. Install fittings according to approved Shop Drawings and manufacturer's written instructions. Bed bases and flanges of sink- and countertop-mounted fittings in sealant recommended by manufacturer of sink or countertop material. Securely anchor fittings, piping, and conduit to casework, unless otherwise indicated.

3.6 CLEANING AND PROTECTING

- A. Repair or remove and replace defective work as directed on completion of installation.

- B. Clean finished surfaces, touch up as required, and remove or refinish damaged or soiled areas to match original factory finish, as approved by Architect.
- C. Protection: Provide 6-mil (0.15-mm) plastic or other suitable water-resistant covering over countertop surfaces. Tape to underside of countertop at minimum of 48 inches (1200 mm) o.c.

3.7 SCHEDULE OF CASEWORK

- A. Refer to Furnishings and Equipment drawings for casework locations and casework elevation ranges for types and dimensions.

END OF SECTION 12300

SECTION 12494 - ROLLER SHADES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes roller shades.
- B. Related Sections include the following:
 - 1. Division 6 Section "Miscellaneous Carpentry" for wood blocking and grounds for mounting roller shades and accessories.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include styles, material descriptions, construction details, dimensions of individual components and profiles, features, finishes, and operating instructions.
 - 1. Manual Shade Operators: Include operating instructions.
 - 2. Clutches: Show nameplate data, ratings, characteristics, and mounting arrangements.
- B. Shop Drawings: Show location and extent of roller shades. Include elevations, sections, details, and dimensions not shown in Product Data. Show installation details, mountings, attachments to other work, operational clearances, and relationship to adjoining work.
 - 1. Manual Shade Operators: Show locations and details for installing operator components, and controls. Indicate mounting.
- C. Samples for Initial Selection: For each colored component of each type of shade indicated.
 - 1. Include similar Samples of accessories involving color selection.
- D. Samples for Verification:
 - 1. Complete, full-size operating unit not less than 16 inches (400 mm) wide for each type of roller shade indicated.
 - 2. For the following products:
 - a. Shade Material: Not less than 8 inches square, with specified treatments applied. Mark face of material.
 - b. Valance: Full-size unit, not less than 12 inches (300 mm) long.

- E. Maintenance Data: For roller shades to include in maintenance manuals. Include the following:
 - 1. Methods for maintaining roller shades and finishes.
 - 2. Precautions about cleaning materials and methods that could be detrimental to fabrics, finishes, and performance.
 - 3. Operating hardware.

1.4 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: Provide roller shade band materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
 - 1. Flame-Resistance Ratings: Passes NFPA 701.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver shades in factory packages, marked with manufacturer and product name, fire-test-response characteristics and location of installation using same designations indicated on Drawings and in a window treatment schedule.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install roller shades until construction and wet and dirty finish work in spaces, including painting, is complete and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- B. Field Measurements: Where roller shades are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Allow clearances for operable glazed units' operation hardware throughout the entire operating range. Notify Architect of discrepancies. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

PART 2 - PRODUCTS

2.1 Manufacturers

- A. Products: Subject to compliance with requirements, provide one of the following:
 - 1. Lutron Shading Solutions by VIMCO – Sheershade Basketweave 4000
 - 2. Mechoshade Systems, Inc. – Thermoveil 1300 Series Dense Basket Weave ShadeCloth
 - 3. Draper Inc. – SheerWeave Series PW 3500 by Phifer
 - 4. Caldwell Windoware – SheerShade Basketweave 4000
- B. Shade Band Material:
 - 1. Pattern: Basketweave

2. Colors: As selected by Architect from manufacturer's full range
 3. Material Openness Factor: 5 percent.
 4. Bottom Hem: Fully sealed hembar on both sides
 5. Trim: Extruded Aluminum Fascia- color to be selected from manufacturer's standard color offering
- C. Rollers: Epoxy primed steel tube or 1 ½" aluminum tube of diameter and wall thickness required to support and fit internal components of operating system and the weight and width of shade band material without sagging; designed to be easily removable from support brackets; with adhesive strip for attaching shade material. Provide capacity for one roller shade band per roller.
- D. Direction of Roll: Regular, from back of roller. Retain first option in paragraph below if shade roller and operating hardware are exposed to view or concealed in a ceiling pocket; retain second option if needed for combination with fascia or headbox.
- E. Mounting Brackets: Fascia end caps, fabricated from plastic finished to match fascia or headbox.
- F. Fascia: L-shaped, formed-steel sheet or extruded aluminum; long edges returned or rolled; continuous panel concealing front and bottom of shade roller, brackets, and operating hardware and operators; length as indicated in a window treatment schedule; removable design for access.
- G. Bottom Bar: Steel or extruded aluminum. Provide concealed, by pocket of shade material, internal-type bottom bar with concealed weight bar as required for smooth, properly balanced shade operation.
- H. Mounting: Inside mounting permitting easy removal and replacement without damaging roller shade or adjacent surfaces and finishes.
- I. Shade Operation: Manual; with bead-chain, clutch, and bracket lift operator.
1. Pull: Manufacturer's standard hand-grip engaged pull
 2. Position of Clutch Operator: As indicated in a window treatment schedule.
 3. Clutch: Capacity to lift size and weight of shade; sized to fit roller or provide adaptor.
 4. Lift-Assist Mechanism: Manufacturer's standard spring assist for balancing roller shade weight and lifting heavy roller shades.
 5. Loop Length: Full length of roller shade
 6. Bead Chain: Stainless Steel.
 7. Cord Tensioner Mounting: Sill.
 8. Operating Function: Stop and hold shade at any position in ascending or descending travel.
 9. Stop: Provide stop on chain to prevent bottom of shade from entering roller assembly.

2.2 ROLLER SHADE FABRICATION

- A. Product Description: Roller shade consisting of a roller, a means of supporting the roller, a flexible sheet or band of material carried by the roller, a means of attaching the material to the roller, a bottom bar, and an operating mechanism that lifts and lowers the shade.

- B. Concealed Components: Noncorrodible or corrosion-resistant-coated materials.
 - 1. Lifting Mechanism: With permanently lubricated moving parts.
- C. Unit Sizes: Obtain units fabricated in sizes to fill window and other openings as follows:
 - 1. Shade Units Installed between (Inside) Jambs: Edge of shade not more than 3/4 inch from face of jamb. Length equal to head to sill dimension of opening in which each shade is installed.
- D. Installation Brackets: Designed for easy removal and reinstallation of shade, for supporting fascia, roller, and operating hardware and for hardware position and shade mounting method indicated.
- E. Installation Fasteners: No fewer than two fasteners per bracket, fabricated from metal noncorrosive to shade hardware and adjoining construction; type designed for securing to supporting substrate; and supporting shades and accessories under conditions of normal use.
- F. Color-Coated Finish: For metal components exposed to view, apply manufacturer's standard baked finish complying with manufacturer's written instructions for surface preparation including pretreatment, application, baking, and minimum dry film thickness.
- G. Colors of Metal and Plastic Components Exposed to View: As selected by Architect from manufacturer's full range unless otherwise indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, operational clearances, and other conditions affecting performance.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 ROLLER SHADE INSTALLATION

- A. Install roller shades level, plumb, and aligned with adjacent units according to manufacturer's written instructions, and located so shade band is not closer than 2 inches to interior face of glass. Allow clearances for window operation hardware.

3.3 ADJUSTING

- A. Adjust and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.

3.4 CLEANING AND PROTECTION

- A. Clean roller shade surfaces after installation, according to manufacturer's written instructions.
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that roller shades are without damage or deterioration at time of Substantial Completion.
- C. Replace damaged roller shades that cannot be repaired, in a manner approved by Architect, before time of Substantial Completion.

END OF SECTION 12494

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