## PART 0 A/E INSTRUCTIONS

### 0.01 GENERAL DESIGN REQUIREMENTS

A. Pre-manufactured plastic laminate-faced casework is to be used for general classroom and office cabinetry.

B. Areas of frequent high moisture should not use plastic laminate-faced casework.

C. Do not use premium color laminates.

D. Provide continuous blocking at anchorage of upper and lower casework.

E. Maximum width of cabinets shall be 48” wide.

F. Avoid glass doors, and under-cabinet appliances unless approved in writing by DPS Project Manager.

G. Plastic laminate-faced casework is not appropriate for high school chemistry laboratories.

H. Architect shall coordinate all plumbing and electrical requirements with the casework, including heights, cut-outs and any required grommets.

I. Architect shall coordinate cabinets that are to have a lock function. Generally, all cabinets shall be lockable except under-sink cabinets.

J. Countertops

1. Provide backsplash at all adjoining surfaces, including ends, minimum 4” in height.
2. Specify all Countertops under one specification section (in this section or in Division 6).
3. High School Science labs require chemical resistant tops
4. Middle School science labs require chemical resistant plastic laminate countertops

K. Architect to coordinate ADA ( adult and children’s) requirements for countertops used as work surfaces and under-cabinet equipment.

1. To provide accessibility at sink cabinets, place faucet on side of sink instead of at back of sink, and do not provide wheelchair knee space beneath sink.

L. A maximum of 5 laminate face colors are to be used per school. Contrast countertops with cabinetry.

## PART 1 GENERAL

### 1.01 QUALITY ASSURANCE

A. Casework manufacturers seeking approval of their products must submit literature and a sample cabinet for review by the Architect and DPS prior to the bid. Supplemental information for bidders should contain this information.

## PART 2 PRODUCTS

### 2.01 ACCEPTABLE MANUFACTURERS

A. LSI Series L45

B. Ly-Line

C. Westmark Commercial Casework, Series 100

D. Stevens Cabinet "Standard Edge Series"

E. St. Charles Series "P" Casework

F. TMI Trimline Dowelled 7000 Series

G. Eurocase Premier Series

H. John Murphy Millworks (Erie, Colorado)

I. Hartson Enterprises, Inc. (Sheridan, Colorado)

J. North American Caseline, Inc. (Winnipeg, MB, Canada)

K. Sidney Millwork Company (Sidney, Montana)

L. Construction Design Associates (Denver, Colorado)

M. R & R Millwork, Inc. (Denver, Colorado)

**2.02 Listing of manufacturers above does not indicate any lessening of detailed requirements specified in other portions of this specification. Manufacturers must provide products complying with the detailed requirements listed below.**

**2.03 FABRICATION**

A. Shop Fabrication: fabricate plastic-faced casework to dimensions, profiles, and details indicated on the Drawings.

B. Assemble units in the shop in components as large as practical to minimize field cutting and jointing. All joints shall be dadoed, rabbeted, and glued.

C. Joints shall be glued with a quick-set white glue. Use precision jigs and clamps to insure square corners and plumb vertical surfaces.

**2.04 MATERIALS/COMPONENTS**

A. Core Material

1. Minimum density 45 lb. particleboard, minimum ¾" thick. Fabricate panels with plastic laminate face on both sides, or balancing sheet on concealed faces.

B. Countertops

1. Minimum NEMA LD-3, type HGS50 high-pressure general purpose laminate, 0.050" minimum thickness.

C. Exposed Surfaces (Except Countertops)

1. NEMA LD-3, Type HGS50 and PF30, high-pressure melamine laminate, 0.028" thickness, general purpose type.

D. Semi-Exposed Surfaces

1. Comply with the above except CLS-20 (minimum 0.020" thick) cabinet liner type for backs of doors, inside face of exposed ends and shelves.

2. All other semi-exposed surfaces: low-pressure laminate, minimum 0.015" thick.

E. Concealed Surfaces

1. Comply with above except BK-20 (0.020" thick), liner or backer type.

F. Case Backs and Drawer Bottoms

1. Manufacturer's standard pre-finished tempered hardboard (minimum 3/8" thick). Provide removable backs where piping or other utilities are routed behind casework.

G. Sub-Tops

1. Provide ¾" (minimum) solid particleboard sub-top on all base units (except sink bases). Sub-top to have facing sheets as for concealed surface.

H. Drawer Fronts

1. Provide double front drawers. Inner drawer front shall be dowelled or dovetailed joined to drawer sides. Drawer faces shall be screwed to inner drawer fronts.

I. Door and Drawer Spreaders

1. Provide minimum ¾" x 4" full-width particleboard or hardwood spreaders behind all door/drawers and all multiple drawer horizontal joints. Exposed edges shall have 1 mm (minimum) PVC edging.

J. Exposed Edges

1. Exposed cabinet body edges and shelves shall be edged with 3 mm (minimum) PVC edge banding, machine-applied with hot melt glue. Door and drawer front edges shall be covered with PVC edge banding (3 mm minimum). Color shall be selected by the Architect.

K. Filler Panels and Scribes

1. Panels shall be finished with surface laminate for full height of filler.

L. Cabinet Hardware

1. Hinges: institutional-type, five knuckle 2 ½" x .093" wrought steel. Provide one (1) pair for doors less than 4' high and three (3) hinges per door for doors over 4'. No European style allowed.
2. Pulls: semi-flush ABS plastic pulls for drawers and swing doors, mounted with two (2) screws fastened from back. Provide two (2) pulls for drawers over 24" wide. Color selected by the Architect.
3. Catch: magnetic with adjustable stop position. Minimum seven (7) lb. pull. Color shall match cabinet interior. Provide a minimum of two (2) catches for doors over 4' high. Provide magnetic catch for each door leaf.
4. Chain bolt: Stanley 1055 steel. For doors over 48" in height, chain bolts shall be 3" long, shall have an 18" pull cord and an angle strike to secure inactive door on cabinets. Provide two (2) chain bolt latches with connecting chain for inactive leaf of all full-height cabinets (over 54" high).
5. File Drawer guides: cabinet manufacturer's standard complying with positive stops requiring manual depression of lever to remove drawer, steel ball bearing suspensions which shall be 4" extension, have a load capacity minimum of 75 lbs. Knee space drawers shall be equipped with full extension-suspensions with a load capacity minimum of at least 50 lbs. and shall have positive stops requiring manual depression of lever to remove drawer. Paper storage and file drawers shall be equipped with one (1) pair of full extension steel ball bearing suspensions of similar design with a load capacity minimum of 100 lbs for drawers over 24” wide. Provide a minimum of four mounting screws on each side.
6. Drawer and cupboard locks: plated-finish disc tumbler, cam type. Only round cylinder to be exposed. Provide locks on all cabinet doors and drawers except for sink base cabinets. Double-door base cabinets shall have cylinder locks on each door leaf. All locks shall be keyed alike within each room. Each room shall be keyed differently. Provide two (2) keys for each lock keying. Provide a master key to pass all cabinet locks. Each lock furnished with two (2) keys and master keyed.
7. Coat rods: 1" diameter, 14-gauge chrome-plated steel.
8. Glass: ¼" thick tempered float glass. Each piece shall bear permanent tempered marker.
9. Mirrors: ¼" thick polished mirror plate attached with metal clips and screws.
10. Adjustable shelf supports: shelf supports shall be heavy-duty, self-locking nylon, designed for installation in pre-drilled holes in cabinet ends and vertical partitions. Each shelf support shall have two (2) pins 0.20” in diameter, designed to prevent the shelf support from rotating. Shelf supports that are not two-pin and self-locking are not acceptable.
11. ACCESSORIES- Provide all miscellaneous plastic laminate items, such as scribes, aprons, skirts, fillers, and closures, as required for a complete installation. Miscellaneous plastic laminate items shall be constructed of materials and by methods as specified for other casework components. All exposed surfaces of miscellaneous items shall be finished the same as door and drawer faces.

12. Chemical-Resistant (Resin) Countertops - Chemical-resistant countertops shall be constructed of monolithic copolymer resins, modified epoxy or fiber reinforced-cement, molded or cast.

**2.05 MATERIALS/CONSTRUCTION**

A. Cabinet Body Joinery

1. Join tops and bottoms to cabinet ends with minimum six (6) hardwood dowel. Four (4) fasteners may be used for 12” deep cabinets. Internal cabinet components such as fixed horizontals, rails, and verticals shall also be fastened with dowels.

2. Base cabinets: each base and tall unit shall have a separate or integral base. Rubber or vinyl base covering will be furnished and installed by others.

3. Wall cabinets shall have continuous horizontal reinforcement at top of wall cabinet for attachment to wall. Reinforcement shall be 12-gauge steel angle or 3/4” x 2 1/2” particleboard attached with screws and washers 2” from ends and 6” o.c. inside. Back of wall cabinet shall be flush with wall at the upper 2 1/2” of the cabinet.

4. Cabinet top and bottom: tops and bottoms shall be particleboard, 3/4” thick, laminated on the interior with melamine with a backer sheet of neutral color on the unexposed surface. The interior surface of sink cabinet bottom shall be melamine. The bottom surface of all upper cabinets shall be low-pressure laminate cabinet liner. Front edges shall be hot melt glue-applied PVC edging. T-mold or self-edged laminate is not acceptable on cabinet edges. All tops shall be solid except for sink base tops, which shall have 1” x 1” x 1/8” angle iron front rail. All cabinets over 42" and up to 72” in height shall be supplied with a finished 3/4” continuous top.

5. Cabinet ends: unexposed cabinet ends shall be particleboard, 3/4” thick, laminated on the interior with low-pressure laminate cabinet liner and a backer sheet of a neutral color on the exterior unexposed high-pressure laminate on the exterior and high-pressure laminate cabinet liner, light beige color, on the interior. Holes shall be drilled for adjustable shelf clips 32 mm (1 1/4”) on center. All holes shall be drilled in back of hinges, to provide an unbroken line of holes. Front edges shall be banded with hot melt glue-applied PVC edging. T-mold or self-edged laminate is not acceptable on cabinet edges. Bottom edges of wall cabinet ends to be banded with PVC edging. All ends shall be rabbeted to accept recessed back.

6. Fixed intermediates and adjustable shelves: particleboard, 3/4" thick, laminated on both sides with high-pressure laminate cabinet liner 0.020" thick. Color shall be light beige on both surfaces. Shelf front and back edges shall be banded with hot melt glue-applied 3 mm PVC edging. Edge banding less than 3 mm thick is not acceptable. Adjustable shelves up to 30” wide shall be 3/4” thick. Shelves wider than 30” shall be 1” thick with added reinforcing to prevent sag.

7. Cabinet back: standard recessed cabinet back shall be 1/4” minimum thickness pre-finished hardboard. Color to match cabinet interior. All sink cabinets shall have split back, removable from inside. Exposed exterior back on fixed or movable cabinets shall be particleboard, 3/4” inch thick, laminated with high-pressure laminate on the exterior surface and light beige-colored high-pressure laminate cabinet liner on the interior surface.

8. Provide removable backs at sink cabinets.

9. Cabinet doors and drawer fronts: particleboard, 3/4" thick, shall be laminated with vertical surface high-pressure plastic laminate on the exposed surface and light beige-colored high-pressure laminate cabinet liner on the interior surface. All corners shall be edged with heavy-gauge PVC edge banding (3 mm minimum thickness). Bevel edge banding corners,

B. Drawers

1. Standard and file drawers: all drawer sides, back, and sub-front shall be particleboard, 1/2” minimum thickness, laminated with light beige-colored polyester laminate. The back and sub-front shall be dowelled or dadoed and glued into the sides. Dowels shall be spaced 32 mm (1-1/4"). Dowels shall be hardwood, laterally fluted, with chamfered ends and a minimum diameter of eight (8) mm. Top edge shall be banded with PVC edging. Drawer bottom shall be light beige color 1/4¼” thick, pre-finished hardboard, let into sub-front, sides and back. Paper storage drawers shall be of heavy-duty 3/4” particleboard construction with 100 lb. full-extension slides, plywood reinforcement stiffener at bottom center of drawer and a retaining hood at the rear of each drawer. Drawer box shall be screwed to drawer front.
2. Drawers over 24” wide shall be 3/4” 13 ply Baltic Birch faced with Melamine. Bottom shall be 1/2” thick plywood.

C. Countertop Fabrication

1. Countertops shall be fabricated with segments as large as possible, to minimize seams. Edges shall be built up of a minimum of two thicknesses of ¾" x 4" particleboard.

## PART 3 EXECUTION

### 3.01 PREPARATION

A. Field-verify dimensions prior to fabrication. Examine the substrata and the conditions under which the work in this Section is to be performed. Do not proceed with work under this Section until unsatisfactory conditions have been corrected.

B. Coordinate with other trades for proper location of grounds and blocking.

C. Verify rough-in locations, sizes and adequacy for mechanical and electrical services

D. Condition plastic-faced casework to average prevailing humidity conditions in installation areas prior to installing.

### 3.02 FIELD MEASUREMENTS

A. Verify dimensions of all areas to receive wall-to-wall casework.

### 3.03 INSTALLATION

A. Install casework plumb, level, true and straight with no distortions. Shim as required, using concealed shims. Where plastic-faced casework abuts other finished work, scribe and cut for accurate fit.

B. Trim and Moldings: install in single, non-jointed lengths for openings and for runs less than maximum length of material available. For longer runs, use only one piece less than maximum length available in any single straight run. Stagger joints in adjacent members. Scribe backsplashes to uneven surfaces of walls.

C. Caulk joints between walls and scribes.

D. Secure wall units and shelf standards to appropriate blocking using wood screws and ½” (minimum) finish washers. Attach all parts and accessories, closures, panels, aprons, etc. to basic units as detailed and required. Install shelving.

E. Adjust casework and hardware so that doors and drawers operate smoothly without warp or bind. Lubricate operating hardware as recommended by manufacturer.

### 3.04 FIELD QUALITY CONTROL

A. Casework shall be installed only by skilled craftsmen authorized by the casework manufacturer.

**END OF SECTION 12304**