

GENERAL SPECIFICATION

PART 1 – GENERAL

1.1 SUMMARY

- A. Related Documents:
 - 1. Drawings and provisions of the contract including General Conditions Supplementary Conditions and Division 1, apply to this section.
- B. Section Includes:
 - 1. Furnish and install plastic laminate casework and accessories as shown and listed on drawings and specified herein. Includes all countertops, sink cutouts, splashes, supports, shelving, and filler panels necessary for a complete casework installation.
- C. Related Requirements to be Performed by Others:
 - 1. Division 06 Section: "Rough Carpentry" for blocking within walls to adequately support casework.
 - 2. Division 06 Section: "Finish Carpentry"/Millwork.
 - 3. Division 07 Section: "Preformed Joint Seals" for caulking of casework and/or countertops to abutting walls.
 - 4. Division 08 Section: "Finish Hardware" for cabinet locks keyed or master keyed to building locks.
 - 5. Division 09 Section: "Resilient Base and Accessories" for resilient base applied to manufactured casework.
 - 6. Division 22 Section: "Plumbing" for furnishing, installation, and hook-up of sinks, fixtures, outlets, strainers, tailpieces, traps, vacuum breakers, and stops shall be performed by the plumbing contractor to state and local codes. In all cases, sink cutouts shall be by the casework contractor.
 - 7. Division 23 Section: "Heating, Ventilating, and Air-Conditioning" for furnishings, installation, and final connections of all ductwork to range hoods shall be by the HVAC contractor.
 - 8. Division 26 Section: "Electrical" for the electrical contractor to state and local codes shall perform electrical furnishing, installation, and final connections of wiring, conduit, and/or electrical items within casework.

1.2 REFERENCES

- A. ANSI-A135: for all hardboard.
- B. ANSI-A161.2-1998: for performance of fabricated high-pressure decorative laminate countertops.
- C. ANSI-A208.1-2016: for grade M-3i mat-formed wood particleboard.
- D. BHMA A156.9: for grade-1 hinge requirements.
- E. NEMA 3 LD-2005: for performance requirements of high pressure laminates.
- F. SEFA 8PL Recommended Practices: for cabinet construction.
- G. AWS: American Woodworking Standards, Edition 2.

1.3 DEFINITIONS

- A. Exposed:
 - 1. In casework, surfaces visible when drawers and opaque doors (if any) are closed; behind clear glass doors; bottoms of cabinets 42" or more above finished floor; and tops of cabinets less than 78" above finished floor.
- B. Semi-Exposed:
 - 1. In casework, surfaces that become visible when opaque doors are open or drawers are extended; bottoms of cabinets more than 30" or tops of cabinets less than 42" above finished floor.

1.4 SUBMITTALS

- A. Shop Drawings:
 - 1. Comply with Division 1.
 - 2. Include catalog numbers and specifications of Case Systems, Midland, Michigan.
 - 3. Submit three sets of laser quality, 11 x 17 shop drawings consisting of:
 - a. Finish, hardware, construction options selection sheet.
 - b. Small scale floor plan showing casework in relation to the building.
 - c. Large scale elevations and plan views.
 - d. Cross-sections; service runs; locations of blocking within walls (blocking is done by others); rough-in requirements and, sink centerlines
 - 4. Approved shop drawings to be returned to manufacturer at least 60 days before production.
 - 5. Project Architect and Construction Manager must approve all items prior to fabrication and delivery of casework.
 - 6. Manufacturer and/or Manufacturer's rep verifies all critical building dimensions prior to fabrication.
- B. Samples:
 - 1. Submit one set of laminate color brochures or webpage reference from standard laminate manufacturers Wilsonart, Formica, Pionite, and Nevamar.
 - 2. Submit one edge color sample chain.
 - 3. Submit one set of interior colors samples.
 - 4. Submit catalog showing construction details, material specifications and hardware specifications of all items used.
- C. LEED[®] Submittals:
 - 1. Provide EPP certificates of core for Credit MR 4.1 and **[MR 4.2]**: for casework core having recycled content.
 - 2. Provide FSC[®] certificate for Credit MR 7: for products having chain-of-custody certificate certifying that the wood used in the casework complies with FSC[®] requirements.
 - 3. Provide product data for IEQ 4.4: for casework core being manufactured without the use of urea formaldehyde.
- D. Warranty:
 - 1. Provide sample warranty document stating specified terms as referenced in 1.8.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Must be certified for chain of custody by a third party certification group approved by FSC®.
- B. Unless otherwise indicated, comply with AWI, for grades of interior architectural woodwork, construction, finishes and other requirements:
 - 1. Provide AWI Quality Certification Program [Labels] [Certificates] indicating that the woodwork, [including installation], complies with requirements of grades specified. This project has been registered as AWI/QCP project number _____. OR, Case Systems, upon award of work, shall register the work under this section with the AWI Quality Certification Program (800-449-8811).

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Acceptance Requirements:
 - 1. Deliver casework once painting, and similar requirements have been completed that will not damage casework. This includes ensuring spaces are enclosed and weather tight.
 - 2. All casework shall be blanket wrapped or covered with cardboard and foam for protection during shipping.
- B. Storage and Handling:
 - 1. Casework must be protected from dust, dirt and/or other trades.
 - 2. Countertops are stacked, properly supported and spaced evenly to avoid warping. Large pieces are stacked first on the pallets with shorter pieces stacked on top.

1.7 SITE CONDITIONS

- A. Ambient Conditions:
 - 1. Do not deliver or install the casework until concrete, masonry, and drywall/plaster work is dry; ambient relative humidity is maintained between 25 – 55% prior to delivery and throughout the life of installation; and the temperature is controlled above 55°F.
 - 2. Casework shall not be stored or installed in non-climate controlled conditions.
 - 3. If ambient conditions are not met at the time of requested delivery, the general contractor or owner must provide Case Systems a letter releasing manufacturer from any liability and responsibility from any warranty or damage resulting from not complying with required ambient conditions.

1.8 WARRANTY

- A. Case Systems shall offer a **[One-Year]** or **[Three-Year]** or **[Five-Year]** or **[Limited Lifetime]** warranty to the original owner against defective material and workmanship.

1. The warranty specifically does not cover any product or hardware, which has been incorrectly installed, including poor climate conditions, exposed to excessive loads or abuse.
2. All non-casework items supplied, but not manufactured at Case Systems including, but not limited to sinks, fixtures, apparatus, fume hoods, keyboard trays, lights, power outlets, and power strips shall be covered under the original manufacturers' warranty.

PART 2– PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Product: **Case Systems**, 2700 James Savage Road, Midland, Michigan 48642 (989) 496-9510 and/or approved dealers.
- B. Substitution Limitations:
 1. Substitutions will be considered only when other manufacturers submit substitution requests in accordance with procurement substitution and/or substitution procedures, or provide a comparable product with the following support information detailed below:
 - a. Written documentation stating specification compliance regarding construction, materials, and standard of quality and manufacturing techniques.
 - b. Note all deviations to the drawings and/or specifications in writing.
 - c. Provide the Architect with a full-scale base cabinet not less than ten days prior to bid date. The sample shall represent typical construction and materials for the product the casework manufacturer proposes, meeting the quality standards set forth by this specification. The sample may be impounded by the owner and retained until completion of the casework installation.
 - d. The owner, or its designated representative, reserves the right to reject any proposal that in his opinion fails to meet the criteria established by this specification. Such a decision shall be final.

2.2 MATERIALS

- A. Provide Plastic Laminate Faced Cabinets Manufactured with:
 1. Particleboard Core:
 - a. All particleboard shall be Grade M-3i and shall meet or exceed all requirements as set by ANSI-A208.1-2016.

Modulus of Rupture	2176 psi
Modulus of Elasticity	362600 psi
Internal Bond	73 psi
Linear Expansion	0.40%
Thickness Tolerance	+/- 0.008"
Face Screw Holding	225 pounds Min
 2. MR (Moisture Resistant)/FSC® Core shall be:
 - a. Interior-Grade moisture resistant particleboard.

- b. Meet or exceed M-3i Grade, according ANSI-A208.1-2016.
 3. Low Emitting Core shall be:
 - a. ULEF/FSC[®] (No added Urea Formaldehyde) M-2 Particleboard:
 - i. For casework core having recycled content.
 - ii. For casework core being manufactured without the use of urea formaldehyde.
 - iii. For products having chain-of-custody certificates certifying that the wood used in the casework complies with FSC[®] requirements.
 - b. ULEF/FSC[®] (No added Urea Formaldehyde) Plywood:
 - i. Plywood that meets or exceeds the standards set forth by the APA for structural use panels.
 - ii. For casework core being manufactured without the use of urea formaldehyde.
 - iii. For products having chain-of-custody certificates certifying that the wood used in the casework complies with FSC[®] requirements.
 - c. FSC[®] M-3i Particleboard:
 - i. For products having chain-of-custody certificates certifying that the wood used in the casework complies with FSC[®] requirements.
 - d. FSC[®] Plywood:
 - i. For products having chain-of-custody certificates certifying that the wood used in the casework complies with FSC[®] requirements.
- B. Cabinet Joinery:
 1. Concealed Interlocking Mechanical Fasteners or Dowel construction: For cabinet body components. Manufacturer's discretion on best suited joinery method for project.
 2. Construction: Meets requirements in AWS Manual, Edition 2, including errata and appendix section.
- C. Surface Material:
 1. Acceptable laminate color, pattern, and finish as either scheduled or otherwise indicated on drawings or as selected by Architect from manufacturer's standards types and nominal thickness including:
 - a. Vertical surface decorative grade VGS.
 - b. General purpose decorative grade HGS.
 - c. Cabinet decorative liner grade CLS.
 - d. Non-decorative backer grade BKH.
 - e. Thermally fused melamine laminate.
 - f. Chemical resistant decorative laminate.
- D. Edge banding:
 1. PVC
 - a. Shall be applied utilizing hot melt adhesive and radiused by automatic trimmers. Edging shall be available in a variety of color options.
- E. Adhesives:
 1. PVA
 - a. Adhesive shall be mechanically applied.
 - b. ULEF, no VOC

2. EVA
 - a. Adhesive shall be mechanically applied.

2.3 FABRICATION

- A. General Cabinet Body Construction:
 1. Cabinet Box Style shall be **[Standard: Reveal Overlay]** or **[Flush Inset Fronts]**.
 2. Cabinet Box Core shall be **[Standard: Particleboard]** or **[ULEF/FSC® Plywood]** or **[MR/FSC® Board]** or **[ULEF/FSC® Particleboard]** or **[FSC® Particleboard]** or **[FSC® Plywood]**.
 3. Bottoms and ends of cabinets, and tops of tall cabinets and tops and bottoms of wall cabinets (all structural components) shall be 3/4"-inch thick.
 4. All panels shall be manufactured with balanced construction.
 5. Fixed interior components such as fixed shelves, dividers, and cubicle compartments shall be full 3/4" thick and attached with concealed interlocking mechanical fasteners.
 6. Cabinet body exterior surfaces shall be: **[Standard: VGS]** or **[Tango Thermally Fused]** or **[Thermally Fused]** or **[Decorative Thermally Fused]** or **[HGS]** or **[Chemical Resistant Laminate]**.
 7. Cabinet finished interior options shall be: **[Standard: Finished]** or **[Finished at All]** or **[Finished Where Noted]** or **[Finished At Opens]**.
 8. Cabinet body interior surfaces shall be: **[Standard: Thermally Fused]** or **[Tango Thermally Fused]** or **[Decorative Thermally Fused]** or **[Cabinet Liner Grade CLS]** or **[VGS]** or **[HGS]** or **[Chemical Resistant Laminate]**.
 9. Cabinet body front edge shall be: **[Standard: .020" PVC]** or **[3mm PVC]**. Mounting stretchers are 3/4" thick structural components fastened to end panels and back by mechanical fasteners, and are concealed by the cabinet back.
 10. When the rear of a cabinet is exposed, a separate finished 3/4" thick decorative laminate back panel may be specified.
 11. Backs of cabinets are 1/2" thick surfaced both sides for balanced construction and fully captured on both sides and bottom.
 12. A 5mm diameter row hole pattern 32mm (1-1/4") on center shall be bored in cabinet ends for adjustable shelves. This row hole pattern shall also serve for hardware mounting and replacement and/or relocation of cabinet components.
- B. Base Cabinet Construction:
 1. All base cabinets, except sink cabinets, shall have a solid 3/4" thick sub-top of core (as specified above), fastened between the ends with interlocking mechanical fasteners.
 2. Sink cabinets with a split removable back panel shall have a formed metal front brace, and steel corner gussets shall be utilized to support and securely fasten top in all four corners. Front brace shall be powder coated black.
- C. Tall Cabinet Construction:
 1. All tall cabinets shall be provided with an intermediate fixed shelf to maintain internal dimensional stability under heavy loading conditions as well as an intermediate 3/4" thick stretcher located behind the back panel and be secured between the cabinet ends with mechanical fasteners. The stretcher shall be secured to the shelf through the back with #8 x 2" plated flat head screws.
- D. Wall Cabinet Construction:

1. A lower 3/4" thick stretcher shall be located behind the back panel and attached between the end panels with mechanical fasteners. The stretcher is also secured through the back and into the cabinet bottom. Wall cabinets over 36" in width shall receive a fixed intermediate partition.
 2. All wall cabinet exterior bottoms shall be: **[Standard: Match Standard Interior]** or **[Match Exterior Surface]**.
 3. All wall cabinet tops shall be: **[Standard: 3/4-inch]** or **[1-inch]**.
- E. Tall and Wall Cabinet Top Edges shall be: **[Standard: Raw]** or **[.020" PVC at Top of End Panels, Stretchers & Back]**.
- F. Tall, Wall and Hutch Exterior Top Finish shall be: **[CLS to Match Standard Interior]** or **[HPL to Match Exterior Surface]** or **[Material Match Standard Interior]**.
- G. Base, Tall, Wall and Hutch Upper Door Reveal shall be: **[Standard: 15mm Reveal]** or **[3mm (1/8") Reveal]**.
- H. Toe Base of Cabinet:
1. Individual bases shall be constructed of: **[Standard: Particleboard]** or **[MR/FSC[®] Board]** or **[ULEF/FSC[®] Particleboard]** or **[FSC[®] Particleboard]** or **[ULEF/FSC[®] Plywood]** or **[Pressure Treated Plywood]** or **[Raw Exterior Glue Plywood]** or **[FSC[®] Pressure Treated Plywood]** or **[FSC[®] Raw Exterior Glue Plywood]** factory applied to base and tall cabinets and shall support and carry the load of the end panels, and the cabinet bottom, directly to the floor. The base shall be let in from the sides and back of the cabinet to allow cabinets to be installed tightly together and tight against a wall, also to conceal the top edge of applied vinyl base molding (not supplied by casework manufacturer). There shall be a front to back center support for all bases over 30" wide.
 2. Toe Base Height **[Standard: 96mm]** or **[102mm]** or **[152mm]** or **[Other: As Specified]**.
 3. Toe Base Options **[Standard: Attached]** or **[3/4" Raw Loose Base Strips]** or **[No Base]**.
- I. Drawer Fronts and Solid Doors:
1. All drawer fronts and solid door components shall be: **[Standard: Particleboard]** or **[ULEF/FSC[®] Plywood]** or **[MR/FSC[®] Board]** or **[ULEF/FSC[®] Particleboard]** or **[FSC[®] Particleboard]** or **[FSC[®] Plywood]** surfaced both sides for balanced construction.
 2. Options shall be: **[Standard: HPL Door and Drawer Front Exterior and Grade CLS on Interior]** or **[HPL Door Interior and Exterior (both sides match front surface color)]** or **[HPL Door Interior and Exterior (inside surface match interior color)]** or **[HPL Door and Drawer Interior and Exterior (both sides match front surface color)]** or **[Corkboard Doors]** or **[True 3/4" Core]**.
 3. Surfaces shall be: **[Standard: HPL Grade VGS]** or **[HPL Grade HGS]** or **[Thermally Fused]** or **[Decorative Thermally Fused]** or **[Chemical Resistant]**.
 4. Door and drawer front edge shall be: **[Standard: 3mm PVC]** or **[.020" PVC]**.
- J. Drawer Boxes:
1. Drawer box constructed with a full 1/2" thick core shall be: **[Standard: Particleboard]** or **[ULEF/FSC[®] Plywood]** or **[MR/FSC[®] Board]** or **[ULEF/FSC[®] Particleboard]** or **[FSC[®] Particleboard]** or **[FSC[®] Plywood]** or **[Pre-finished Hardwood Veneer Plywood]** non-racking, non-deflecting platform bottom that is carried directly by "L" shaped, bottom mount drawer glides.

2. Drawer box at finished interiors shall be: **[Standard: Surface to Match Standard Interior]** or **[Surface to Match Finished Interior]** or **[Hardwood Veneer Plywood]** or **[Cabinet Liner Surface to Match Standard Interior]**.
3. **[Standard: Slides are secured with 1-1/4" long screws driven through the platform and into the sides. Drawer box sides, backs, sub-front, and bottom shall be 1/2". The top edge shall be nominal 1mm (.020") PVC matching the drawer color. Drawer box corners shall be joined with fluted hardwood dowels and glue spaced at a minimum of 32mm on center. Drawer box fronts shall be removable and attached to drawer box sub-front with screws from inside of drawer. Horizontal parting rails between drawers shall be 3/4" thick core, with balanced surfaces, secured to and further reinforcing cabinet ends. File drawer box shall have full-height sides supporting a heavy-duty support rail for hanging file folders] or [Full-height sides and back on all drawer boxes] or [Pre-finished dovetail drawer boxes – if selecting this drawer box construction, drawer box core must be pre-finished hardwood veneer plywood].**

K. Doors:

1. Solid Doors shall be: **[Standard: 3/4" thick core]**.
2. Glazed Doors, Framed shall be:
 - a. Hinged or sliding 3/4" thick, framed doors shall be: **[None]** or **[Standard: Clear Acrylic Panels]** or **[Safety Glass Panels]** or **[Smoked Safety Glass Panels]** or **[Tempered Glass Panels]** or **[Smoked Tempered Glass Panels]**. Panels must be 1/4" thick. Glazing panel shall be set into the doorframe without the use of a separate molding. Glazing shall be held in place with removable stops.
3. Glazed Doors, Frameless shall be:
 - a. Sliding, 1/4" thick tempered glass panels. All edges to be radius ground and polished.
4. Sliding Doors shall be:
 - a. Extruded aluminum upper track with anodized finish. All tall cabinets shall receive two hanging brackets per door with two rollers per bracket. All other cabinets shall receive two hanging brackets per door with one roller per bracket. The bottom of door shall be captured in a retainer to prevent doors from swinging in or out.
5. Pocket Doors shall be:
 - a. Zinc plated, self-closing, three-way adjustable geometric door hinge with precision steel ball bearing slides.
6. Grille Doors shall be:
 - a. Powder coated platinum finish, grille doors where shown or noted with model number shall have individual lock hasps and number plates.
 - b. Single wide grille doors where shown or noted shall have individual, zinc plated stay-close wire door latches. The wire door latch is a robust, door/side-mounted design made of 13-gauge cold rolled steel. A self-latching lever smoothly travels over the hasp and falls into a positive latched, stay-close position. For security, the door can be locked with a padlock. This option is not available on cabinets with double door configurations.

L. Shelves:

1. Adjustable:

- a. Adjustable shelves shall be: **[Standard: Particleboard]** or **[ULEF/FSC Plywood]** or **[MR/FSC® Board]** or **[ULEF/FSC® Particleboard]** or **[FSC® Particleboard]** or **[FSC® Plywood]** core, with balanced surfaces.
 - b. Adjustable shelves in closed cabinets shall be: **[Standard: ¾" Shelves, 1" for Shelves Over 36" Wide and Open Cabinets]** or **[¾" Shelves, 1" for Shelves Over 33" Wide]** or **[¾" Shelves, 1" for Shelves Over 30" Wide]** or **[¾" Shelves, 1" for Shelves Over 27" Wide]** or **[¾" Shelves, 1" for Shelves Over 24" Wide]** or **[1" for All Shelves]**.
 - c. All adjustable shelves in open cabinets shall be: 1" thick, except for special use cabinets such as mail, cubical, instrument or locker type units.
 - d. Adjustable shelf edge on open cabinets shall be: **[Standard: .020" Match Edge at Front]** or **[.020" PVC at Front Edge]** or **[.020" PVC at Front and Back Edges]** or **[.020" PVC on All Four Edges]** or **[3mm PVC on Front Edge]** or **[3mm on Front and Back Edges]** or **[3mm on Front and Back Edges, .020" on Sides]** or **[3mm on Front, .020" on Back and Sides]** or **[3mm on All Four Edges]**.
 - e. Adjustable shelf edge on closed cabinets shall be: **[Standard: .020" Match Edge at Front]** or **[.020" PVC at Front Edge]** or **[.020" PVC at Front and Back Edges]** or **[.020" PVC on All Four Edges]** or **[3mm PVC on Front Edge]** or **[3mm on Front and Back Edges]** or **[3mm on Front and Back Edges, .020" on Sides]** or **[3mm on Front, .020" on Back and Sides]** or **[3mm on All Four Edges]**.
 - f. Adjustable shelf shall be set back **[Standard: 15mm from the front]** or **[23mm setback option when locks are used]**.
2. Fixed:
 - a. Fixed shelves shall be: **[Standard: Particleboard]** or **[ULEF/FSC® Plywood]** or **[MR/FSC® Board]** or **[ULEF/FSC® Particleboard]** or **[FSC® Particleboard]** or **[FSC® Plywood]**.
 - b. Fixed shelves shall be: **[Standard: ¾" Shelves, 1" at Opens]** or **[¾" Shelves, 1" for Shelves Over 36" Wide and Open Cabinets]** or **[¾" Shelves, 1" for Shelves Over 33" Wide]** or **[¾" Shelves, 1" for Shelves Over 30" Wide]** or **[¾" Shelves, 1" for Shelves Over 27" Wide]** or **[¾" Shelves, 1" for Shelves Over 24" Wide]** or **[1" for All Shelves]**.
 - c. Fixed shelf surfaces on closed cabinets shall be: **[Standard: Match Interior Selections]** or **[Grade CLS on Both Sides]** or **[VGS HPL on Both Sides]** or **[HGS on Both Sides]** or **[Chemical Resistant Laminate]**.
 - d. Fixed shelf surfaces on open cabinets shall be: **[Standard: Match Interior Selections]** or **[Grade CLS on Both Sides]** or **[VGS on Both Sides]** or **[HGS on Both Sides]** or **[Chemical Resistant Laminate]**.
 3. Wall shelving selections for model numbers R204, R205, R206 only shall be:
 - a. **[Standard: .020" PVC]** or **[3mm PVC]**.
 - b. **[Standard: Particleboard]** or **[ULEF/FSC® Plywood]** or **[MR/FSC® Board]** or **[ULEF/FSC® Particleboard]** or **[FSC® Particleboard]** or **[FSC® Plywood]**.
 - c. **[Standard: Thermally Fused]** or **[Decorative Thermally Fused]** or **[Grade VGS]** or **[Grade HGS]** or **[Chemical Resistant Laminate]**.
 4. Wire Shelves shall be white, plastic coated.
 5. Hardboard Shelves shall be ¼" thick tempered hardboard. All hardboard shall have a "S2S" surface finish.

M. Specialty Products:

1. Rail Mounted Cabinets:

- a. Wall mounted continuous support rail and cabinet mounted interface hooks shall be an anodized finished extruded aluminum.
- b. Wall mount support shall come factory pre-drilled 8" on center for mounting to 16" or 24" on center studs and in-wall blocking. Blocking is required per manufacturers' recommendations and is supplied and installed by other specified trade.
- c. Cabinet interface hooks shall be pre-mounted at the factory with deep thread 7mm x 70mm specialty screws. Screws shall not be visible in cabinet interior. Hook styles shall be available for single and triple height adjustment based on the cabinet model number.
- d. Cabinet lower leveling bar shall be adjustable from cabinet interior and shall allow for plus or minus 3/8" plumb adjustment without additional materials.
- e. Recommended maximum load capacity for base cabinets with a 1-1/8" standard laminate countertop, wall cabinets and tall cabinets shall be 100 lbs per linear foot.
- f. Rail mounted casework shall be vertically (dependent on model #) and horizontally adjustable.
- g. Core material only available in grade M3 particleboard core.
- h. **[Optional Leg Supports shall be Available to Accommodate Heavier Loads for Tall and Base Rail Cabinets].**

2. Music Cabinets:

- a. Shelves:
 - i. Core shall be: **[Standard: Particleboard]** or **[Plywood]** or **[MR/FSC® Board]** or **[ULEF/FSC® Particleboard]** or **[ULEF/FSC® Plywood]** or **[FSC® Particleboard]** or **[FSC® Plywood]**.
 - ii. Surface shall be: **[Heavy-Duty Shelves shall be core (specified above) with tempered hardboard top and bottom sandwich type construction. Front edge of shelves and cabinet end panels shall be: high impact radiuses 3mm PVC] or [Top Surface Thermoplastic Shelves shall be core (specified above) heavy-duty continuous thermoplastic, permanently bonded to core and tight fitting to cabinet back and end panels. Front edge of shelves and cabinet end panels shall be high impact radiused 3mm PVC] or ["Caseliner™" Shelf shall be melamine faced, charcoal grey and 3/4" thick core (specified above). Shelf top shall have drainage grooves running from back to front with a radiused top front edge. Top surface of shelf and front shall be coated with a Polyurethane/Polyurea Elastomer coating to provide superior impact resistance and to allow top and front surface of shelf to be waterproof].** Plywood core is not available with this surface.
- b. Doors:
 - i. **[Grille doors shall have individual lock hasps, number plates and be powder coated with a platinum finish] or [Grille doors where shown or noted shall have individual stay-close wire door latches. This wire door latch is a robust, door/side-mounted design made of 13-gauge cold rolled steel in a zinc finish. A self-latching lever**

smoothly travels over the hasp and falls into a positive latched, stay-close position. For security, the door can be locked with a padlock. This option is not available on cabinets with double door configurations] or [Grille doors shall be powder coated with a platinum finish and shall be attached to cabinet end panels by means of thru bolting].

- ii. ¾" thick Solid Core Door shall be: **[Standard: Particleboard]** or **[Plywood]** or **[MR/FSC Board]** or **[ULEF/FSC® Particleboard]** or **[ULEF/FSC® Plywood]** or **[FSC® Particleboard]** or **[FSC® Plywood]**, with HPL front and CLS liner back used for balanced construction. Doors shall be provided with individual lock hasps.
 - **[Optional: Sliding latch on Solid Core Door Only].**
 - c. Instrument Cabinet Interior Surface shall be: **[Standard: Match Standard Interior]** or **[Match Finished Interior]**.
3. Mobiles:
- a. Mobile top shall have 3mm edging and shall have an overhang at front, sides and rear to act as a bumper. Mobile top shall be available in a variety of colors. Mobile unit shall be constructed of a ¾" thick core, as specified, and a 1" thick core platform with 3mm edging. Sides, back and casters will be securely fastened using mechanical fasteners.
 - b. Mobile units shall be available with either 4" or 6" nominal height casters.
 - c. Mobile back shall be 1" thick specified core.
 - d. Mobile unit shall have a maximum load rating of 500 pounds.
 - e. Mobiles will have a ¾" thick finished top with material as specified below.
 - i. **[Standard: VGS laminate]** or **[No Top]** or **[HGS laminate]** or **[Chemical Resistant Laminate]**.
4. Sloped Tops shall be a separate unit from the cabinet and set at a 30° angle.
5. Locker construction shall match general casework section with the exception that all fixed shelves are ¾" thick.
- a. Locker top finish shall be: **[Standard: Unfinished]** or **[Finished Edge and Surface]**.
6. Library Furniture shall be:
- a. Fully modular and moveable construction.
 - b. All uprights and shelves shall be: 1" thick components.
 - c. Laminated shelves shall have 3mm PVC radiused edges.
 - d. Drawer boxes shall be: non-racking, non-deflecting platform drawer box with ½" thick bottoms.
 - e. ½" thick inset and finished backs.
 - f. Thermally Fused laminate, which exceeds ANSI/NEMA LD3- 2005 for GP-28 performance.
 - g. 1" thick work surfaces with high-pressure finish.
 - h. Materials:
 - i. Finish of surfaces:
 - All interior and exterior surfaces shall be: laminated with **[Standard: Decorative Thermally Fused Melamine]** or **[All VGS]** which meets the performance standards of ANSI/NEMA LD3-2005 for GP-28. All panels shall be balanced construction.

- ii. Edges:
 - All leading edges shall be 3mm PVC. The PVC shall be machine applied utilizing hot melt adhesive and radiused by automatic trimmers. All four-end panel edges shall be edged for true modularity.
 - Other edges utilizing PVC shall be machine applied with EVA adhesive and .020" PVC.
- i. Construction:
 - i. All bookshelves shall be of starter/adder design. Units shall be easily assembled and disassembled for ease of modularity. All bookshelves shall be constructed with finished backs and end panels for use as free standing or wall mounted. Modular construction shall allow Owner to move or reuse for either location.
 - ii. Bookshelf body panels to be assembled using thru-bolt design.
 - iii. All bookshelf end panels shall be 1" thick. All work surfaces shall be 1" thick.
 - iv. All back panels shall be ½" thick particleboard, finished both sides.
 - v. Shelves shall be adjustable 32mm (1-¼") on center utilizing nickel plated shelf clips or optional anti-tilt, twin pin locking clips.
 - vi. Shelving shall not deflect in excess of ¼", when loaded at 40 lbs/sq. ft., maintaining a maximum cabinet width of 36".
 - vii. Drawer boxes shall be constructed with full ½" thick non-racking, non-deflecting platform bottom which is carried directly by "L" shaped, self closing, bottom mounted drawer glides with life time warranty by the slide manufacturer.
 - viii. Table frames shall be furniture construction type with solid oak legs with adjustable feet.
 - ix. Circulation desk shall be fully modular for owner's ease of re-design.
 - x. All library shelving units shall ship knockdown.
- 7. Countertops:
 - a. High-pressure decorative laminate, nominal **[1-1/8" thick solid core]** or **[1" thick solid core]** or **[3/4" thick solid core]** or **[1-1/2" thick buildup]**, conforming to NEMA Standard LD3-2005 and ANSI A161.2-1998.
 - i. General Purpose **[Standard: HGS]** or **[Chemical Resistant Laminate]** on horizontal surface.
 - ii. Laminate bonded to M-2 **[Standard: Particleboard]** or **[ULEF Plywood]** **[MR/FSC® Board]** or **[ULEF/FSC® Particleboard]** or **[FSC® Particleboard]** or **[FSC® Plywood – available with ¾" or 1-1/2" thick buildup]** core with PVA rigid adhesives. Core shall be balanced with backing Grade BKL.
 - iii. All joints shall be secured with biscuits for alignment and tight joint fasteners.
 - iv. Provide 4" high back splashes with thickness matching countertop thickness where shown and at all ends abutting walls and adjacent cabinets.
 - v. Provide edges **[Standard: 3mm]** or **[Self edge of the same material as top]**.

- vi. The maximum lengths of HPL buildup particleboard tops is 12' and the maximum lengths of HPL buildup plywood tops is 8'.
- b. Epoxy Resin:
 - i. Top shall be 1" thick with 1/32" chamfer on finished Epoxy edges and shall be provided with drip grooves on under side of finished top at exposed edges.
- c. Phenolic Resin:
 - i. Shall be: [$\frac{3}{4}$ "] or [1"] thickness with 1/8" radius edge and drip groove on underside of top.
 - ii. Shall be made of thermosetting resins, homogeneously reinforced with wood based fibers, manufactured under high heat and high pressure.
 - iii. Non-porous, water resistant with anti-microbial properties without the use of coatings or additives.

2.4 ACCESSORIES

- A. Hardware:
 - 1. Hinges:
 - a. **[5-Knuckle Hinges / Reveal Overlay: Standard: Hinges shall be: .095" thick steel five-knuckle hospital-tip, institutional Grade (Grade 1 per ANSI/BHMA A156.9) quality with .187" diameter tight pin. Each hinge shall be secured with a minimum of nine No. 8 screws. Hinge shall permit door to swing 270 degrees without binding. Doors less than 48" in height shall have two hinges. Doors over 48" in height shall have three hinges] or [Concealed Hinges: Hinges shall be: fully concealed, nickel-plated, self-closing, 170 degree swing European style with six way adjustment. Hinge shall be: a minimum of Grade 2 per ANSI/BHMA A156.9. Hinge shall permit door to swing 170 degrees without binding. Doors under 36" high shall have two hinges; 36"-72" high shall have three hinges; over 72" high shall have four hinges] or [3 Knuckle Hinges: Hinges shall be: nickel-plated semi-concealed, self-closing, 270-degree swing, 3-knuckle style with four-way adjustment. Hinge shall be: a minimum of Grade 1 per ANSI/BHMA A156.9. Hinge shall permit door to swing 270 degrees without binding. Doors under 36" high shall have two hinges; 36"-72" high shall have three hinges; over 72" high shall have four hinges] or [Flush Inset 5 Knuckle Hinge: Hinges shall be: .083" thick steel, five-knuckle hospital-tip institutional Grade (Grade 1 per ANSI/BHMA A156.9) quality with .187" diameter tight pin. Each hinge shall be: secured with a minimum of eight No. 8 screws. Hinge shall permit door to swing 270 degrees without binding. Doors less than 48" in height shall have two hinges. Doors over 48" in height shall have three hinges].**
 - 2. Pulls:
 - a. One pull shall be: located at the centerline of the drawer, regardless of width, to ensure ease of operation and maximize drawer slide life.
 - i. **[Standard: Anodized aluminum wire pull, 8mm diameter with 96mm O.C. mounting holes] or [Standard: Plastic contour pull, surface mounted, 35mm x 116 mm overall size with 96mm O.C. mounting**

- holes] or [Epoxy coated wire pull, 8mm diameter with 96mm O.C. mounting holes] or [Brass core wire pull, 8mm diameter with 96mm O.C. mounting holes] or [Stainless steel wire pull, 8mm diameter with 96mm O.C. mounting holes] or [Semi recessed, 110mm x 32mm with 96mm O.C. mounting holes] or [Semi recessed, oversized, 134mm x 43mm with 117.5mm O.C. mounting holes] or [No Drill/No Pull] or [Drill/No Pull] or [Custom Pull: As Specified].
3. Drawer Slides:
 - a. **[Standard drawer: Self-closing, bottom mount epoxy coated with captive roller and positive in stop. Slide shall have 100 lb. load rating, must be: self-closing and must prevent drawer fronts from contacting the cabinet body. Drawer slides must meet or exceed Grade 1 requirements per ANSI A156.9/BHMA with full extension slides on file and paper storage] or [Full extension Bottom Mount Slides on All] or [KV8400 at Standard Drawers, KV8500 at six increment Drawers and Deeper] or [KV8400 at All Drawers] or [KV8400 at Standard Drawers and KV8500 at File Drawers] or [Accuride 3832 at Standard Drawers and 4032 at 6 Increment Drawers and Deeper] or [Accuride 3832 at All Drawers] or [Accuride 3832 at Standard Drawers and 4032 at File Drawers].** There may be product limitations depending on choice of drawerslide. Please consult your Case Systems dealer for the best drawerslide solution for your project.
 - b. File drawer: Full extension, bottom mount epoxy coated with captive roller and positive in stop. Slide shall have 100lb. load rating, must be: full extension, and prevent drawer fronts from contacting the cabinet body. Drawer slides must meet or exceed Grade 1 requirements per ANSI/BHMA.
 4. Wall Shelving Hardware:
 - a. **[Standard duty wall shelving hardware, including standards and brackets, are available in an anochrome finish] or [Heavy-duty wall shelving hardware, including standards and brackets, are available in an anochrome finish].**
 - b. Bracket Mounted Shelf Core shall be: **[Standard: Particleboard] or [MR/FSC[®] Board] or [ULEF/FSC[®] Particleboard] or [ULEF/FSC[®] Plywood] or [FSC[®] Particleboard] or [FSC[®] Plywood].**
 - c. Bracket Mounted Shelf Edge shall be: **[020"] or [3mm].**
 - d. Bracket Mounted Shelf Surface shall be: **[VGS laminate] or [HGS laminate] or [Chemical Resistant Laminate] or [Decorative Thermally Fused] or [Thermally Fused].**
 5. Shelf Clips:
 - a. **[Standard: Plastic]**
 - i. Shelf clips shall be injected molded clear plastic, with a double pin engagement 32mm on center and shall have 3/4" and 1" anti-tip locking tabs as approved in AWI 400B-T-9 for premium Grade.
 - ii. Shelf clips shall be: single pin plastic shelf clip with anti-tip locking tabs, used for all 1/4" hardboard shelves.
 6. Coat Hooks shall be Zinc plated, single prong and double prong.
 7. Closet Rods shall be Zinc plated rod, 1" diameter with captive sockets.
 8. Mirrors:

- a. Teacher wardrobe mirrors to be 8" x 10".
9. Label Holders shall be on **[Standard: None]** or **[All Drawers]** or **[All Doors]** or **[All Doors and All Drawers]** or **[File Drawers Only]** or **[Left Door Only]** or **[Right Door Only]** or **[Standard Drawers Only]**.
10. Locks (where shown or noted only):
 - a. Lock Locations:
 - i. **[Standard: No Locks]** or **[Selected Cabinets Shown on Drawings]** or **[Locks at All]** or **[Lock Bottom Drawers Only]** or **[Locks at Doors Only]** or **[Locks at All Drawers Only]** or **[Locks at File Drawers Only]** or **[Locks on Top Drawers Only]**.
 - b. Lock Type:
 - i. **[Standard Lock: Five disc tumbler cam locks, chrome plated steel faceplate. All locks keyed alike or keyed differently by room and master keyed. Shall permit a minimum of 50 keying options. Lock core is removable permitting owner to easily change lock arrangements. Inactive door of base and wall cabinets shall be: secured by using an elbow catch, or a chain pull for tall cabinets]** or **[Five pin lock, pin tumbler, trim ring provided, special cams required]** or **[Dead bolt style]** or **[Best – 5E]** or **[Olympus - #100DR for Doors and Olympus #200DW for Drawers]**. There may be product limitations depending on choice of lock. Please consult your Case Systems dealer for the best lock solution for your project.
11. Casters:
 - a. Shall be available in both 4" (3" diameter wheel) and 6" (5" diameter wheel) nominal heights. 4" casters must have a minimum load rating of 165 lbs per caster and the 6" casters must have a minimum load rating of 200 lbs per caster. Shall be ball bearing with 360° swivel. Shall have non-marring wheels available in both locking and non-locking.
12. Catches:
 - a. Chain Pulls shall be zinc plated, spring loaded door catch used to hold door securely shut.
 - b. Chain Stops shall be zinc plated, looped chain used to limit door swing as specified, mounting plate at each end of chain shall use (4) #7 x 5/8" screws to secure to cabinet door and end panel. They shall be on cabinets at adjoining walls and where casework and countertops can interfere with the door swing of the tall cabinet.
 - c. Elbow Catch shall be chrome plated, spring loaded, used to hold non-locking door securely shut.
 - d. Roller Catch, (not used with self-closing hinges) shall have: heavy-duty, spring-loaded roller, with molded plastic bumper mounted at door top to keep door securely shut.
 - e. Magnetic Catch, (not used with self-closing hinges) shall have: white plastic housing with two 32mm spaced, elongated holes for screw-attachment to allow adjustability.
 - f. Catches shall be: **[Standard: Magnetic at Base and Wall, 1 Roller at Tall]** or **[1 Roller at All]** or **[Magnetic at Base and Wall, 2 Roller at Tall]** or **[1 Roller at All, 2 Rollers at Talls]** or **[Standard: None for 3 Knuckle or Concealed Hinges]**.

13. Tote Tray shall be tan, high impact resistant polystyrene, with label holder permanently attached to face of tray. Supported by individual polycarbonate channels mounted to cabinet ends and partitions with two integral 5mm diameter pins and secured with one-euro style screw. Height adjustable on 32mm (1-1/4") centers.
14. Countertop Supports:
 - a. Powder coated, formed metal supports. Must provide attachment points between countertop and wall.

2.5 FINISHES

- A. Plastic Laminate Casework Colors:
 1. High Pressure Laminate is available in non-premium, non-specialty and manufacturers' standard suede finishes from our select laminate manufacturers, including:
 - a. **[Standard: Wilsonart® in a "60" or "38" matte finish]** and **[Standard: Nevamar® in a "T" textured finish]** and **[Standard: Formica in a "58" finish]** and **[Standard: Pionite in an "SD" finish]**.
 - b. Color: Specialty and other manufacturer finishes are available with additional cost and longer lead times.
 2. Thermally Fused Melamine Laminate that meets performance requirements of ANSI/NEMA 3 LD – 2005 for GP-28.
 - a. **[Standard: Light Beige (Tango D30)]** or **[Standard: Fashion Grey (Tango D381)]** or **[Standard: Frosty White (Tango 1573)]**
 3. Thermally Fused Melamine Decorative Laminate available, but will result in additional cost when used for casework.
 - a. **[TrytoSavatre (Tango WC105 Timberline)]** or **[Afternoon Nap (Tango WA120 Wood Essence)]** or **[Wedding Cake (Tango WT790 Wood Essence)]** or **[Tranquility (Tango WA 3000 Wood Essence)]** or **[Bailey (Tango FB2030 Wood Essence)]** or **[Negotiating in Geneva (Tango PFA60 Metallic Luster)]** or **[Second Light (Tango HP302 Wood Essence)]** or **[Macchiato (Tango HP689 Wood Essence)]** or **[Stout Walnut (Tango WW3100 Wood Essence)]** or **[Antoccino (Tango WK0022 Wood Essence)]** or **[Untold Journey (Tango WW4400 Wood Essence)]** or **[Bankers Gray (Tango SG214 Satin)]** or **[Pralines & Cream (Tango WW160 Timberline)]** or **[Kona Blend Tango WZ0028 Timberline]** **[Sunset Tango HP336 Wood Essence]** **[Backwoods Sycamore Tango HP689 Wood Essence]** **[Antochino Tango WK0022 Wood Essence]** **[Sunbeam Tango WW9000 Wood Essence]** **[Little Black Dress Tango AE100 Metallic Luster]** **[Black Tango 1595 Satin]** **[Light Beige Tango D30 Satin]** **[Frosty White Tango 1573 Satin]**

[Black (1595 Wood Essence)]

4. Cabinet Liner .020" thick, high-pressure cabinet liner conforming to ANSI/NEMA 3 LD – 2005, Grade CLS. Surface texture shall be similar to exterior finish. Color shall match interior.
 - a. **[Standard: Light Beige]** or **[Standard: Fashion Grey]** or **[Standard: Frosty White]**.
- B. Music Shelves:
 1. Heavy-Duty Shelves:
 - a. **[Select an edge from our 52 standard colors]**.
 2. Thermoplastic Shelves:
 - a. Select a top surface standard color **[Grey]** or **[White]** or **[Light Beige]**.
 - b. **[Select an edge from our 52 standard colors]**.
 3. Caseliner Shelves:
 - a. Charcoal grey
- C. Decorative laminate Library furniture shall feature:
 1. Finish of surfaces standard in:

[TrytoSavatre (Tango WC105 Timberline)] or
[Afternoon Nap (Tango WA120 Wood Essence)] or
[Wedding Cake (Tango WT790 Wood Essence)] or
[Tranquility (Tango WA 3000 Wood Essence)] or
[Bailey (Tango FB2030 Wood Essence)] or
[Negotiating in Geneva (Tango PFA60 Metallic Luster)] or
[Second Light (Tango HP302 Wood Essence)] or
[Macchiato (Tango HP689 Wood Essence)] or
[Stout Walnut (Tango WW3100 Wood Essence)] or
[Antoccino (Tango WK0022 Wood Essence)] or
[Untold Journey (Tango WW4400 Wood Essence)] or
[Bankers Gray (Tango SG214 Satin)] or
[Pralines & Cream (Tango WW160 Timberline)] or
[Kona Blend Tango WZ0028 Timberline]
[Sunset Tango HP336 Wood Essence]
[Backwoods Sycamore Tango HP689 Wood Essence]
[Antochino Tango WK0022 Wood Essence]
[Sunbeam Tango WW9000 Wood Essence]
[Little Black Dress Tango AE100 Metallic Luster]
[Black Tango 1595 Satin]
[Light Beige Tango D30 Satin]
[Frosty White Tango 1573 Satin]
[Black (1595 Wood Essence)]
 2. Edges:
 - a. **[Select color from 20 Tango standard color options]**.
- D. Plastic Laminate Countertop Colors:
 - a. **[Standard: Wilsonart® in a "60" matte finish]** or **[Standard: Nevamar® in a "T" textured finish]** or **[Standard: Formica in a "58" finish]** or **[Standard: Pionite in an "SD" finish]**.

- b. Color: Specialty and other manufacturer finishes are available with additional cost and longer lead times.
- E. Epoxy Resin Countertops shall be: **[Standard: Black]**.
- F. Phenolic Resin Countertop shall be: **[Standard: Black]**.
- G. Accessories:
 - 1. Fixtures
 - a. All laboratory service fixtures (except fitting inside fume hoods) and safety equipment shall be:
 - i. Colored epoxy finish: fixtures shall be furnished with epoxy/polyester hybrid powder coated finish in **[White]** or **[Tan]** or **[Gray]**.
 - ii. Polished chrome plated with clear epoxy coating: fixtures shall be furnished with a polished chrome plated finish with clear epoxy coating.
 - iii. Satin Chrome Plated with Clear epoxy coating: fixtures shall be furnished with a satin chrome plated finish with clear epoxy coating.
 - 2. Hinges:
 - a. 5-Knuckle Hinge / Reveal Overlay: Three finishes are available as standard in epoxy powder coat: **[Black]** or **[Almond]** or **[Platinum]** and at an additional charge for **[Brushed Chrome]** or **[Stainless]**.
 - b. Inset 5-Knuckle Hinge: Three finishes are available as standard in: **[Black]** or **[Almond]** or **[Platinum]**.
 - c. 3-Knuckle Hinge shall be nickel-plated.
 - d. Concealed Hinge shall be nickel-plated.
 - 3. Pulls:
 - a. **[Aluminum Wire]**
 - b. **[96mm Stainless Steel]**
 - c. Brass Core Wire Pull shall be available as standard in: **[Dull Chrome]** or **[Polished Chrome]** or **[Dull Brass]** or **[Polished Brass]**.
 - d. Plastic Contour Pulls shall be available as standard in: **[Almond]** or **[Greystone]** or **[Black]**.
 - e. Epoxy Coated Wire Pulls shall be available as standard in: **[Almond]** or **[Platinum]** or **[Black]**.
 - f. ABS Semi Recessed Pulls shall be available as standard in: **[Black]** or **[Almond]** or **[Greystone]**.
 - g. Semi Recessed, Oversized Pulls shall be available as standard in: **[Black]** or **[Almond]** or **[Grey]**.
 - h. **[Custom Pull: Must Specify Brand and Model Number]**.
- H. Glazed Door Trim shall be one of our standard colors: **[Black]** or **[White]** or **[Almond]** or **[Grey]**.
- I. Countertop Supports shall be in one of our standard colors: **[Light Grey]** or **[Light Neutral]** or **[Black]** or **[White]**.
- J. Round Grommet shall be in one of our standard colors: **[Black]** or **[Almond]** or **[Grey]** or **[White]**.
- K. Round Grommets shall be in one of our standard colors: **[Black]** or **[Almond]** or **[Grey]** or **[White]**.



PART 3 – EXECUTION

3.1 INSTALLERS

- A. Installation shall be: by casework manufacturer's authorized representative.

3.2 INSTALLATION

- A. Casework shall not be: installed until concrete, masonry, and drywall/plaster work is dry.
 - 1. If ambient conditions are not met at the time of requested delivery, the general contractor or owner must provide Case Systems a letter that releases manufacturer from any liability and responsibility from any warranty or damage resulting from not complying with required ambient conditions.
- B. Casework shall be: installed plumb and true and is to be securely anchored in place.
- C. The casework contractor shall verify all critical building dimensions prior to fabrication of casework.
- D. Provide all labor for unloading, distribution, and installation of casework and related items as specified.
- E. All casework shall be: securely anchored to horizontal wall blocking, not to plaster lathe or wall board.
- F. The casework manufacturer shall re-configure the casework arrangements to dimensions requiring 2-1/2" or less of filler at each end of wall-to-wall elevations, and to ensure a complete and satisfactory installation.
- G. The casework installer shall remove all debris, sawdust, scraps, and leave casework spaces clean.
- H. All casework must be installed by casework installer plumb and level, adjust all doors, drawers and hardware to comply with manufacturers specifications and operate properly.

-END OF SECTION-