Case Systems, Inc.

**SECTION 12 32 16 – MANUFACTURED PLASTIC-LAMINATE-CLAD CASEWORK & MULTI-USE FURNISHINGS**

 GENERAL

 ADMINISTRATIVE REQUIREMENTS

 Pre-Installation Conference:

 Attendance: [Architect,] [Owner,] [Contractor,] [Construction Manager,] [Design/Builder] installer, and related trades.

 Review: Project conditions, manufacturer requirements, delivery, and storage, staging and sequencing, and protection of completed work.

 SUBMITTALS

 Action Submittals:

 Shop Drawings: Illustrate products, installation, and relationship to adjacent construction.

 Product Data: Manufacturer’s descriptive data and product attributes.

 Samples:

* + - * 1. [Selection samples.] [Verification samples.]
				2. [Small scale base cabinet.]

 Closeout Submittals:

 Operation and Maintenance Data.

* + 1. Quality Control Submittals:
			1. Manufacturer qualification statement.
			2. Comprehensive quality assurance standard documentation.

 QUALITY ASSURANCE

 Manufacturer Qualifications:

* + - 1. Manufacturer has a minimum of 10 years of experience of manufacturing architectural casework for similar projects, with a cataloged product line, and can show evidence of long-lasting financial stability.
			2. Certified for chain of custody by third party group approved by Forest Stewardship Council (FSC).
			3. Licensed under Architectural Woodwork Institute (AWI) Quality Certification Program (QCP).

 Installer Qualifications: Minimum [2] [\_\_] years’ experience in work of this Section.

 Mockups:

* + - 1. Full-size [base cabinet] [wall cabinet] [[\_\_\_\_] cabinet] [shelf unit], and [\_\_\_\_].
			2. Countertop, minimum [4] [\_\_] feet long.
			3. Approved mockups [may] [may not] remain as part of the work.

 WARRANTIES

 Fixed Casework: Manufacturer’s [1 year] [3 year] [5 year] [limited lifetime] warranty against defects in materials and workmanship,.

Multi-Use furnishings including accessories: [1year] [3 year] warranty against defects in materials and workmanship.

 PRODUCTS

 MANUFACTURERS

 Contract Documents are based on products by Case Systems, Inc., [www.casesystems.com](http://www.casesystems.com/).

 Substitutions: [Refer to Division 01.] [Not permitted.]

 MATERIALS

* + 1. Panel Core: Particleboard, ANSI A208.1, Grade M-2 or higher.

\*\*\*\* OR \*\*\*\*

* + 1. Panel Core: Moisture resistant particleboard, ANSI A208.1, interior grade moisture resistant, MR/FSC.

\*\*\*\* OR \*\*\*\*

* + 1. Panel Core: Recycled content, FSC Certified particleboard, ANSI A208.1, ULEF/FSC, M-2, containing recycled content, no added urea formaldehyde.

\*\*\*\* OR \*\*\*\*

* + 1. Panel Core: Recycled content, FSC Certified plywood, ULEF/FSC, no added urea formaldehyde.

\*\*\*\* OR \*\*\*\*

* + 1. Panel Core: FSC Certified plywood.
		2. Surfacing: NEMA LD-3 and ANSI A161.2.
			1. Vertical surface decorative grade: VGS.
			2. General purpose decorative grade: HGS.
			3. Cabinet decorative liner grade: CLS. White in color.
			4. Non-decorative backer grade: BKH.
			5. Decorative thermally fused laminate. White in color.
			6. Tango decorative thermally fused laminate.
			7. Chemical resistant decorative laminate.
		3. Edge Banding:
			1. PVC, applied utilizing hot melt adhesive and radiused by automatic trimmer.
			2. Adhesive: PVA type, mechanically applied, ULEF, free from VOC’s.

 FABRICATION

* + 1. General Cabinet Body Construction:
			1. Joinery: Concealed interlocking fasteners or dowel construction at manufacturer’s discretion.
			2. Panels manufactured with balanced construction.
			3. Structural components: 3/4 inch thick for bottoms and ends of cabinets, tops of tall cabinets and tops and bottoms of wall cabinets.
			4. Fixed interior components: 3/4 inch thick for fixed shelves, dividers, and cubicle compartments.
			5. Cabinet body exterior surfaces: [VGS.] [HGS.] [Decorative thermally fused.] [Tango decorative thermally fused.] [Chemical resistant laminate.] [As indicated on Drawings.]
			6. Cabinet body interior surfaces:
1. Closed cabinets: [VGS.] [HGS.] [CLS.] [BKH.] [Decorative thermally fused.] [Tango thermally fused.] [Chemical resistant decorative laminate.]
2. Open cabinets: [VGS.] [HGS.] [CLS.] [BKH.] [Decorative thermally fused.] [Tango thermally fused.] [Chemical resistant decorative laminate.]
	* + 1. Laminate grain direction: [Combination grain.] [Vertical grain.] [Vertical grain match.]
			2. Cabinet body front edge: [Nominally 1 mm thick PVC.] [Nominally 3 mm thick PVC.] [As indicated on Drawings.]
			3. Cabinet body mounting: 3/4 inch thick stretchers, concealed by cabinet back.
			4. Exposed laminate back panels: Finished 3/4 inch thick back panel when cabinet rear is exposed.
			5. Cabinet backs: 1/2 inch thick, surfaced both sides, fully captured on both sides and bottom.
			6. Stretchers:
				1. ¾ inch thick lower stretchers located behind back panel.
				2. ¾ inch thick intermediate stretchers located behind back panel.
			7. Adjustable shelf hole pattern: 5 mm diameter holes spaced 1-1/4 inches on center for mounting adjustable shelves, hardware mounting, and replacement and relocation of cabinet components.
			8. Shelf clips: adjustable, injection-molded clear polycarbonate, 5mm twin-pin for use with ¾” or 1” shelves on 32mm row boring, supporting a structural load up to 1200lbs per shelf (300lbs per clip).
			9. Intermediate shelves: Fixed.
		1. Base Cabinet Construction:
			1. Sub-top: Solid 3/4 inch thick sub-top except at sink cabinets.
			2. Split removable back panels for sink cabinets.
		2. Wall Cabinet Construction:
			1. Wall cabinets over 36 inches in width: Fixed intermediate partition.
			2. Exterior bottoms: [Match standard interior.] [Match exterior surface.] [As indicated on Drawings.]
		3. Tall and Wall Cabinet Top Edges: [Raw top edges.] [Nominally 1 mm thick PVC at top of end panels, stretchers and back.] [As indicated on Drawings.]
		4. Tall, Wall, and Hutch Cabinet Exterior Top Finish: [Match standard interior.] [CLS to match interior.] [HPL to match exterior.] [As indicated on Drawings.]
		5. Door Reveals:
			1. Between doors and drawers: 3 mm.
			2. Above drawer, base, wall, tall, and hutch doors: 3 mm.
		6. Cabinet Toe Bases:
			1. Material: [Particleboard.] [MR/FSC particleboard.] [ULEF/FSC particleboard.] [ULEF/FSC plywood.] [FSC plywood.]
			2. Height: [96 mm.] [102 mm.] [152 mm.] [As indicated on Drawings.]
			3. Type: [Attached.] [3/4 inch loose strips.] [No base.]
		7. Drawer Fronts and Solid Doors: Surfaced on both sides.
			1. Component materials: [HPL door and drawer front exterior and grade CLS on interior.] [HPL door interior and exterior; both sides match front surface color.] [As indicated on Drawings.]
			2. Surfaces: [HPL Grade VGS.] [HPL Grade HGS.] [Thermally fused.] [Decorative thermally fused.] [Chemical resistant.] [As indicated on Drawings.]
			3. Door and drawer front edges: [Nominally 1 mm thick PVC.] [Nominally 3 mm PVC.]
		8. Drawer Boxes:
			1. Material: [Particleboard.] [MR/FSC particleboard.] [ULEF/FSC particleboard.] [ULEF/FSC plywood.] [FSC plywood.] [Prefinished dovetail with hardwood veneer plywood.]
			2. Core thickness: 1/2 inch thick.
			3. Construction: Non-racking, non-deflecting platform bottom carried by bottom mount drawer slides on non-file drawers and side-mounted ball bearing slides on file drawers.
			4. Drawer boxes with finished interiors: [Surface to match standard interior.] [Surface to match finished interior.] [Hardwood veneer plywood.]
			5. Sides, backs, sub-fronts, and bottoms: 1/2 inch thick.
			6. Top edges: Nominal 1 mm PVC, matching drawer color.
			7. Box corners: Joined with hardwood dowels and glue.
			8. Horizontal parting rails between drawers: 3/4 inch thick core, balanced surfaces.
			9. File drawer box construction: Full height sides supporting heavy duty support rail.
		9. Cabinet Doors:
			1. Construction: Solid doors, 3/4 inch thick core.
			2. Glazed doors:
				1. Frame thickness: 3/4 inch.
				2. Glazing panel thickness: 1/4 inch.
				3. Glazing panel mounting: Set into door frame secured with removable stops.

 Operation: [Hinged.] [Sliding.]

* + - * 1. Glazing type: [Clear acrylic.] [Safety glass.] [Smoked safety glass.] [Tempered glass.] [Smoked tempered glass.]
			1. Frameless glazed doors:
				1. Thickness: 1/4 inch.
				2. Material: Tempered glass.
				3. Operation: Sliding.
				4. Glass edges: Radius ground and polished.
			2. Sliding doors.
				1. Upper track: Extruded aluminum, anodized finish.
				2. Hardware: Two roller hanging brackets per door.
				3. Bottom retainers.
			3. Pocket doors: Self-closing, three-way adjustable door hinge with precision steel ball bearing slides, zinc plated.
		1. Shelves:
			1. Adjustable shelves: Finished on both sides.
				1. Core material: [Particle board.] [MR/FSC particle board.] [ULEF/FSC particleboard.] [ULEF/FSC plywood.] [FSC Certified plywood.]
				2. Thickness, in closed cabinets: [3/4 inch for shelves under [24] [27] [30] [33] [36] inches wide; 1 inch for shelved over [24] [27] [30] [33] [36] inches wide.] [1 inch.]
				3. Thickness, in open cabinets: 1 inch thick, except for special use cabinets.
				4. Edges in open cabinets: [Matching edges.] [Nominal 1 mm thick PVC] [Nominal 1 mm thick PVC] at front, [rear] [and] side] edges.
				5. Edges in closed cabinets: [Matching edges.] [Nominal 1 mm thick PVC] [Nominal 3 mm thick PVC] at front, [rear] [and] side] edges.
				6. Shelf surfaces in closed cabinets: [Match cabinet interior.] [Grade CLS on both sides.] [VGS HPL on both sides.] [HGS on both sides.] [Chemical resistant laminate.]
				7. Shelf surfaces in open cabinets: [Match cabinet interior.] [Grade CLS on both sides.] [VGS HPL on both sides.] [HGS on both sides.] [Chemical resistant laminate.]
				8. Setback for adjustable shelves: 15 mm from front.
			2. Fixed shelves:
				1. Thickness:
				2. All shelves: [3/4 inch thick except 1 inch at open shelves.] [1 inch.]
				3. Shelves under [24] [27] [30] [33] [36] inches wide: 3/4 inch.
				4. Shelves over [24] [27] [30] [33] [36] inches wide: 1 inch.
				5. Shelf surfaces in closed cabinets: Match interior.
				6. Shelf surfaces in open cabinets: Match interior.
			3. Wall shelves: [Thermally fused.] [Decorative thermally fused.] [Grade VGS.] [Grade HGS.] [Chemical resistant laminate.]
			4. Wire shelves: White, plastic coated.

 Hardboard shelves: 1/4 inch thick high density fiberboard with S2S surface finish.

* + 1. Mobile Cabinets:
			1. Mobile backs: 1 inch thick core.
			2. Maximum load rating: 500 pounds.
			3. Construction:
				1. Core: 3/4 inch thick.
				2. Core platform: 1 inch thick.
				3. Edging for platform and mobile tops: 3 mm thick.
				4. Mobile tops:
				5. Overhang at front, sides and rear.
			4. Surface materials: [VGS laminate.] [HGS laminate.] [Chemical resistant laminate.]
			5. Surface material color: [\_\_\_\_.] [To be selected.]
		2. Sloped Tops: Separate unit from cabinet, set at 30-degree angle.
		3. Lockers:
			1. Match general casework construction except fixed shelved ¾ inch thick.
			2. Locker tops: [Unfinished.] [Finished edge and surface.]
		4. Plastic Laminate Countertops:
			1. Surfacing: High-pressure decorative laminate, [grade HGS.] [Chemical resistant grade.] [As indicated on Drawings.]
			2. Backing: Grade BKL.
			3. Core thickness:
				1. Solid: [3/4 inch.] [1 inch.] [1-1/8 inches.]
				2. Built-up: 1-1/2 inches.
			4. Joints: Secured with biscuits and tight joint fasteners.
			5. Backsplashes: 4 inches high, thickness to match countertop thickness.
			6. Edges: [3 mm thick for solid.] [Self-edge, same material as top.]

 Epoxy Resin Tops: 1 inch thick with 1/32 inch chamfer on finished edges; provide drip grooves on underside at exposed edges.

 Phenolic Resin Tops:

* + - 1. Thermosetting resins, homogeneously reinforced with wood-based fibers, manufactured under high heat and high pressure.
			2. Non-porous, water resistant with integral anti-microbial properties.
			3. Thickness: [3/4] [1] inch.
			4. Edges: 1/8 inch thick, radius edge and drip groove on underside of top.

 ACCESSORlES

* + 1. Hardware:
			1. Hinges: Five-knuckle type, reveal overlay, Institutional Grade per ANSI/BHMA A156.9; two per door except three per door for doors over 48 inches high.

\*\*\*\* OR \*\*\*\*

* + - 1. Hinges: Concealed type, flush overlay, nickel plated, self-closing, minimum Grade 2 per ANSI/BHMA A156.9; two hinges for doors up to 48 inches high; three hinges for doors from 49 to 66 inches high; four hinges f\or doors 67 inches and higher.
			2. Pulls: [Anodized aluminum wire type.] [Epoxy coated wire type.] [Brass core wire type.] [Stainless steel wire type.] [Semi-recessed type.] [Semi-recessed type, oversized.] [powder-coated steel, trapezoid shape to match SALTO furnishings]
			3. Drawer slides:
				1. Standard drawers: Full Extension, side mount, 100-pound rated, minimum Grade 1 per ANSI/BHMA A156.9.

 File drawers: Full extension, side mount, 100-pound rated, minimum Grade 1 per ASNI/BHMA A156.9.

* + - 1. Wall shelving hardware: Design: Heavy-duty wall shelving hardware. Finish: Anochrome.
			2. Coat hooks: Zinc plated.
			3. Closet rods: Chrome plated oval rod, 15 x 30 mm.
			4. Mirrors: 8 x 10 inches.
			5. Label holders: [None.] [At drawers.] [At doors.] [At doors and drawers.] [As indicated on Drawings.]
			6. Locks:
				1. Locations: [Drawers.] [Doors.] [As indicated on Drawings.]
				2. Type: [Five-disc tumbler cam locks.] [Five pin lock, pin tumbler.] [Dead bolt style.] [Best - 5E.] [Olympus 100DR for doors and 200DW for drawers.]
				3. Keying: [Key locks alike.] [Key locks differently by room and master key, minimum of 50 keying options.]
				4. Lock cores: Removable, except at five pin locks.
			7. Casters: [Model M, 6 inch diameter.] [Model U, 4 inch diameter nominal height.]
				1. Bearings: Ball bearing, 360-degree swivel.
				2. Wheels: Non-marring, [locking.] [non-locking.]
			8. Catches:
				1. Chain pulls: Zinc plated.
				2. Chain stops: Zinc plated.
				3. Elbow catches: Chrome plated.
				4. Roller catches: Heavy-duty, spring-loaded.
				5. Magnetic catches: White plastic housing.
				6. Catch types:

 [Magnetic at base and wall cabinets, single roller at tall cabinets.]

 [Single roller at base, wall, and tall cabinets.]

 [Magnetic at base and wall cabinets, two rollers at tall cabinets.]

 [Single roller at base and wall cabinets, two rollers at tall cabinets.]

 None for concealed hinges at base, wall, and tall cabinets.

* + - 1. Tote trays: [Impact resistant polystyrene with label holder, supported by polycarbonate rails] [ Gratnells totes to match SALTO furnishings]
			2. Countertop Supports: Powder coated, formed metal.
	1. SALTO® MULTI-USE FURNISHINGS FOR MAKER SPACES, STEM ROOMS, ESPORTS AND MORE.
		1. Mobile Multi Use Cabinets
			1. Cabinet Body:

* + - * 1. Core Material: Panel Core: Particleboard, ANSI A208.1, Grade M-2 or higher.
				2. Joinery: Concealed interlocking fasteners.
				3. Panels manufactured with balanced construction.
				4. Recessed Design with inset end panels to allow seamless integration with fixed casework and side-by side alignment.
				5. Structural components: 1 inch thick for bottom, back panels, end panels and tops of cabinets.
				6. Fixed interior components: 3/4 inch thick for fixed shelves, 1 inch thick for shelves over 36 inches wide, dividers, and cubicle compartments.
				7. Cabinet body exterior surfaces: [VGS.] [HGS.] [Chemical resistant laminate.] [As indicated on Drawings.]
				8. Cabinet body interior surfaces:

 Closed cabinets: [VGS.] [HGS.] [CLS.] [BKH.] [Chemical resistant decorative laminate.]

 Open cabinets: [VGS.] [HGS.] [CLS.] [BKH [Chemical resistant decorative laminate.]

* + - * 1. Laminate grain direction: [Horizontal grain.] [Vertical grain.]
				2. Cabinet body edge: Nominally 1 mm thick
				3. Cabinet top and bottom edge: Nominally 3 mm thick PVC.
			1. Epoxy powder coated 14 ga steel corner frame in recessed design.
				1. Powder coat color: Stealth Charcoal Metallic
			2. Peg board: epoxy powder-coated 14 ga steel in Dash Design hole pattern. Color: [ ] [to be selected from SALTO Standard color offering]
			3. Casters: sinusoidal split wheel design
			4. Meets or exceeds ANSI/BIFMA X5.9-2019 testing standards
			5. Steel powder-coated whiteboard [not added] [added to the back]
			6. Hardware:
				1. Pulls: Trapezoid shape, powder-coated steel. Color: Stealth Charcoal Metallic
				2. Hinges: Concealed, flush overlay, nickel plated, self-closing, minimum Grade 2 per ANSI/BHMA A156.9; two hinges for doors up to 48 inches high; three hinges for doors from 49 to 66 inches high
				3. Handles: powder-coated aluminum in matte nickel finish for mobile storage units taller than 36 inches.
				4. Locks:

 Locations: Doors.

 Type: Five-disc tumbler cam locks. [

 Keying: [Key locks alike.] [Key locks differently by room and master key, minimum of 50 keying options.]

 Lock cores: Removable

* + - 1. Totes : Gratnells style according to manufacturer’s design. Color: translucent
			2. Maximum load rating: 1,200 lbs. evenly distributed static load
		1. Maker Space Table
			1. Frame: Epoxy powder coated steel in recessed design including utility rail with Dash Design hole pattern. Powder-coat color: Stealth Charcoal Metallic
			2. Legs: Epoxy powder-coated steel legs. Color: [ ] [to be selected from SALTO Standard color offering]
			3. Pegboard: powder coated steel in Dash Design hole pattern. Color: Stealth Charcoal Metallic
			4. Top:
				1. Mable Butcher Block, Size [30” x 60”] [30” x 72”]

\*\*\* OR \*\*\*

* + - * 1. High Pressure laminate on particle board core 1-1/8” thick with 3mm flexible PVC edge

 Size [30” x 60] [30 x 72]

 Shape [rectangular] [one-sided cut-out]

 Surface materials: [HGS Laminate] [Chemical Resistant Laminate]

 Surface material color [ ] [ To be selected from SALTO standard offering]

 Flexible PVC Edge [ ] [ to be selected from SALTO standard offering]

* + - 1. Tote storage: [single bin tote shelf] [tote drawer slides]
			2. Feet: [4 casters: sinusoidal split-wheel design] [4 leveler feet]
			3. Accessories: [manufacturer’s included offering] [to be selected]
			4. Meets or exceeds ANSI/BIFMA X5.5-2019 standards
			5. Load Rating: 1,200 lbs. evenly distributed static load
		1. Multi-Purpose Table;
			1. Frame: Powder coated steel [with utility rail] [on sides] [on front and back] in Dash Design hole pattern. Color: Stealth Charcoal
			2. Legs: Epoxy powder coated 18 ga steel. Color: Silver Metallic Shimmer
			3. Top: High Pressure laminate on particle board core 1 1/8” thick with 3mm flexible PVC edge
			4. Surface materials: [HGS Laminate] [Chemical Resistant Laminate]
				1. Surface Material color [ ] [To be selected]
				2. Size [24” x 48”] [24” x60”] [24” x 64”], [24” x 72”], [30” x 60”] [30”x 64”] [30” x 72’]
				[30” x 69” trapezoid only]
			5. Shape: [Rectangular] [one-sided cut-out] [trapezoid]
			6. Feet: [4 Casters: sinusoidal split-wheel design] [4 leveler feet]
			7. Meets or exceeds ANSI/BIFMA X5.5-2019 standards
			8. Load Rating; 500 lbs evenly distributed load

* + 1. Maker Center Workstation:
			1. Core Material: Panel Core: Particleboard, ANSI A208.1, Grade M-2 or higher.
			2. Joinery: Concealed interlocking fasteners.
			3. Panels manufactured with balanced construction.
			4. Structural components: 1” inch thick for back panel bottoms and ¾” for end panels of cabinets.
			5. Fixed interior components: 3/4 inch thick for fixed shelves, dividers, and cubicle compartments.
			6. Cabinet body exterior surfaces: [VGS.] [HGS.] [Chemical resistant laminate.] [As indicated on Drawings.]
			7. Cabinet body interior surfaces:

 Closed cabinets: [VGS.] [HGS.] [CLS.] [BKH.] [Chemical resistant decorative laminate.]

 Open cabinets: [VGS.] [HGS.] [CLS.] [BKH.] [Chemical resistant decorative laminate.]

* + - 1. Maximum load rating: 1200 lbs evenly distributed static load
			2. Laminate grain direction: [Horizontal grain.] [Vertical grain.]
			3. Cabinet body front edge: Nominally 3 mm thick PVC.
			4. Epoxy powder-coated frame in recessed design. Powder coat color: Stealth Charcoal Metallic Shimmer.
			5. Top:
				1. Mable Butcher Block, Size [30” x 60”] [48” x 54”]

\*\*\* OR \*\*\*

* + - * 1. High Pressure laminate on particle board core 1-1/8“ thick with 3mm flexible PVC edge

 Size [30” x 60] [48 x 54]

 Surface materials: [HGS Laminate] [Chemical Resistant Laminate]

 Surface material color [ ] [ To be selected from SALTO standard offering]

 Flexible PVC Edge [ ] [ to be selected from SALTO standard offering]

* + - 1. Peg board: epoxy powder coated steel in Dash Design hole pattern. Color: [ ] [to be selected from SALTO Standard color offering]
			2. Hardware:
				1. Pulls: Trapezoid shape, powder-coated steel. Color: Stealth Charcoal Metallic Shimmer
				2. Hinges: Concealed, flush overlay, nickel plated, self-closing, minimum Grade 2 per ANSI/BHMA A156.9; two hinges for doors up to 48 inches high; three hinges for doors from 49 to 66 inches high
				3. Locks:

 Locations: Doors.

 Type: Five-disc tumbler cam locks.

 Keying: [Key locks alike.] [Key locks differently by room and master key, minimum of 50 keying options.]

 Lock cores: Removable

* + - 1. Casters: sinusoidal split-wheel design
			2. Meets or exceeds ANSI/BIFMA X5.9-2019 testing standards
		1. Wall Mount Panel System:
			1. Wall Frame: Epoxy powder coated steel in Dash Design hole pattern, Color: Stealth Charcoal (Color number)
			2. Panel Options:
				1. Pegboard: Epoxy powder coated steel in Dash Design hole pattern, Color: Stealth Charcoal [32”x20”] [32”x 4”]
				2. Whiteboard: Epoxy powder coated steel whiteboard, [32”x20”], [32”x 4”]
			3. Shelves: Epoxy powder coated steel,
				1. Color: [ ] [To be selected from SALTO standard offering]
				2. Shelf Load Rating: 100 lbs per shelf evenly distributed

 EXECUTION

 INSTALLATION

 Install in accordance with manufacturer’s instructions and approved Shop Drawings.

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 END OF SECTION