

SECTION 125000 - FURNITURE

PART 1 - GENERAL

1.1 SUMMARY

- A.** Section includes movable interior furniture for UMN applications.
See:
125200 for Seating
125600 for Laboratory furniture
125800 for Residential room furniture
125900 for Systems furniture
- B. Abbreviations:**
AATCC - American Association of Textile Chemists and Colorists
ASTM - American Society for Testing and Materials
BIFMA - Business and Institutional Furniture Manufacturers Association
BPA - (Chemical) Bisphenol A
CAL TB - State of California Technical Bulletin
MN B3 - Minnesota Building, Benchmarks and Beyond
NFPA - National Fire Protection Agency
PFAS - (Chemical) Per- and Polyfluoroalkyl Substances
PODS - Small self-contained movable structure
PVC - (chemical/material) Polyvinyl chloride
REACH - Registration, Evaluation, Authorization and Restriction of Chemicals
VOC - National Volatile Organic Compound Emission Standards
- C. Related Documents**
1. UMN, Controllers Office, Purchasing Services; Policies/Processes and U-Wide Agreements.
 2. UMN Office of General Council (OGC); Purchase Order Terms & Conditions #OGC-SC505a.
 3. State of Minnesota; MN B3 Guidelines; New Buildings and Major Renovations (most recent version/revision) Section I.1: Low Emitting Materials.
 4. UMN University Services, Building Standards, Division 13, Sub-sections as applicable.

1.2 RELATED REQUIREMENTS

- A. Performance**
1. Performance specifications are created and distributed through the UMN bid process to meet the functional requirements of each unique project at the University.
 2. In the absence of performance specifications, furniture must meet the criteria stated in Section: Part 2 - Products.
 3. All furnishings are considered mobile and may be moved to other locations in the UMN system when no longer needed for their original intent. Therefore, all furnishings must meet MN State Fire Code Class A or Class 1 for non-sprinklered areas.
 4. Placement of furnishings in public corridors and throughways must be reviewed and approved through the project planning process. Items must be weighted, anchored, or placed on a clearly delineated floor surface outside of the main path of egress.

5. Furnishings that are not listed on U-Wide Purchasing agreements must be on buying contracts approved by Purchasing Services, Furnishings Category Manager.
- B. Sustainability**
1. Reference MN B3 Website; Guideline I.1: Low Emitting Materials for product requirements related to project scope size over 20,000 gross square feet.
 2. A minimum of 1 (one) sustainability certificate from the following agencies must be submitted at the time of quote for order:
 - Collaborative for High Performance Schools (CHPS) Low Emitting Materials
 - Scientific Certification Systems (SCS) Indoor Advantage or Advantage Gold™; Document must state specific certification.
 - Underwriter Laboratories (UL) Greenguard or Greenguard Gold Certification
 - Intertek ETL Environmental VOC or VOC+
 - Materials Analytical Services, LLC (MAS) Certified Green Products
 - BIFMA e3 Furniture Sustainability LEVEL Certification; State registry level 1 (one) through 3 (three)
 - FSC (Forest Stewardship Council) Chain of Custody
 - Greenguard UL 2818 - Minimum rating: Gold
 - Cradle to Cradle Certified - Minimum rating: Silver.
- C. General Compliance**
1. All goods and furnishings must be new, unused, and free from defects in material and workmanship.
 2. The furniture manufacturer shall be a company specializing in the manufacture of commercial office furniture for a minimum of 10 (ten) years.
 3. Dealer shall have an established regional office. The Dealer's regional office shall be established for a minimum of 7 (seven) years.
 4. Delivery and installation charges: Sellers and subcontractors must pay laborers union or prevailing wage rates for work over \$2,500.00 in value. Furnishings or goods that can be delivered with no labor for assembly, use of tools or move services may charge only delivery fees at the organization's standard wage rate.

1.3 COORDINATION

A. UMN Coordination

1. Building Permits

- a. All furniture and/or goods (cubicle walls, folding walls, modular furniture (including PODS, lactation booths, huddle rooms, etc.) or other kinds of movable partitions equal to or taller than 5'-9" (five-feet, nine-inches) are required to secure a building permit through the University Building Codes Department.
- b. All products requiring electrical connections to direct power sources require electrical permit and trades installation.
- c. Furnishings and/or goods listed above may also be required to secure trade permits (electrical, mechanical, fire sprinkler and/or fire alarm) prior to installation.

1.4 WARRANTY

- A. All products shall have a minimum of 10 (ten)-year written non-prorated warranty (unless

- otherwise noted) agreeing to replace without charge all defective materials, workmanship, and/or installation. Removal and replacement of defective or non-conforming products or installation shall be accomplished in a manner to minimize disturbance to University functions. Written warranties shall be submitted. The manufacturer shall guarantee for a period of 10 (ten) years the availability of components and finishes compatible with the original installation.
- B.** Limited warranties stated in exceptions sections of manufacturer warranty must have thresholds of ≥ 5 (five) years for movable parts/mechanisms and ≥ 2 (two) years for electronic parts.
- C.** Fabric warranties must be a minimum of 1 (one) year.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS

A. Upholstery

- 1. General definition.** Upholstery fabrics are defined as any woven or non-woven fabric applied to furnishings and goods that include not only seating but also furniture system panels, tackboards, vertical dividers, surface pads, etc.
- B. Woven fabrics** must meet the following criteria (in no specific order):
- Constructed of solution dyed bleach cleanable fibers that withstand a minimum 10:1 water:bleach solution.
 - ASTM D3511M-16 (2022) Resistance to Pilling Rating ≥ 3 (scale 1-5)
 - Pass ASTM D4157 Wyzenbeek double rub test $\geq 100,000$ wire mesh test
 - Light Fast Ratings equivalent to: ASTM light fast rating of ≥ 5 (scale 1 - 8) OR AATCC 16 Option 1 or 3-2003: Grade 4 minimum at 60 hours
 - Pass NFPA 260, UFAC Class 1 or CAL TB 117-2013 tests
 - Cleaning Code: WS Water Soluble or W/S/B-Clean
 - Light color materials must have denim dye resistant treatment.
- C. Non-woven fabrics** must meet the following criteria (in no specific order):
- 100% Vinyl/Phthalate Free or PVC Free, OR 100% Polyurethane materials that can withstand a minimum 10:1 water:bleach solution.
 - 100% Polyester backing
 - Pass ASTM D4157 Wyzenbeek double rub test $\geq 250,000$ wire mesh test
 - Light Fast Ratings equivalent to: A4 - AATCC 16 opt 3, CLASS 4 or ASTM D4329 No appreciable color change at 150 hours.
 - Hydrolytic Stability Rated: ≥ 7 weeks, ISO 1419
 - ASTM d 751-19 Breaking Strength
 - AATCC-8 / Crocking Pass
 - Pass NFPA 260, UFAC Class 1 or CAL TB 117-2013 tests
 - Cleaning Code: WS (Water Soluble) or W/S/B (Water, Solution, Bleach) -Clean
 - Light color materials must have denim dye resistant treatment.

D. Warranties. Fabrics must carry the following warranty: woven ≥ 1 year, non-woven ≥ 3 years.

E. Environmental criteria. Fabrics must meet at least 3 (three) of the following criteria:

- Contain recycled content.
- Greenguard Gold Certified
- REACH Compliant
- FR Free (Flame Resistant Free Materials)
- BPA, TRIS Free
- PFAS Free
- LBC (Living Building Challenge) Red List Free
- Formaldehyde Free
- PVC Free
- Phalate Free
- Heavy Metal Free
- BIFMA LEVEL certified

END OF SECTION 125000

SECTION 125200 - FURNITURE SEATING

PART 1 - GENERAL

1.1 SUMMARY

- A. The entirety of Division 12, Section 125000 applies to this section.

PART 2 - PRODUCTS

2.1 REQUIREMENTS

A. General Seating

1. **Durability and Cleaning.** Seating must consider the highest level of durability when selected for each area of use. It must be easy to clean with general soap and water wash or water extraction methods. Joints, material junctures, cracks are to be limited to avoid accumulation of debris.
2. **Cushions.** Lounge seating must have either attached cushions or cushions tethered securely to the structural frame. Stack chairs with pads; pads are to be mechanically fastened in a manner to allow replacement in the field.
3. **Fabrics.** Upholstery fabrics must meet criteria in Division 12, Section 125000, Part 2, 2.1.A Upholstery.
4. **Casters/Glides.** The manufacturer's representative must specify the appropriate caster or glide based upon the flooring surface. If incorrect casters/glides are specified, the manufacturer is required to replace them at no cost to UMN.

B. Task Seating

1. General features for office chairs used by staff assigned to greater than 50% Full-time Equivalence (FTE) status shall be as follows:
 - Pneumatic height adjustment 5" minimum
 - Arms: Adjustable height 3" minimum, adjustable width 2" minimum
 - Back: Adjustable back support 4" minimum
 - Seat: Adjustable seat pan 3" minimum
 - Variable position back stop/lock
 - Synchronized tilt
 - Swivel seat movement
 - Tilt tension adjustment
2. Special consideration and adjustment of features should be made for selection of passive ergonomic seating.
3. If an individual has a personal requirement outside of a standard selection for a project, they must be directed to the UMN Department of University Health & Safety ergonomics program.

End of Section 125200

SECTION 125600 - FURNITURE LABORATORY

PART 1 - GENERAL

1.1 SUMMARY

- A. The entirety of Division 12, Section 125000 applies to this section.

PART 2 - PRODUCTS

2.1 General Requirements

A. Laboratory Furniture

1. UMN uses either wood-built casework or metal casework in laboratories depending on need and location. Confirm solution with Capital Project Management's Design Project Manager.
 - Wood-built casework must comply with Division 064100, Architectural Wood Casework.
 - Metal casework must comply with Division 125900, Systems Furniture.
 - Laboratory worksurface/counter material must comply with Division 064100, Part 2, Section 2.1 Countertop materials.

End of Section 125600

SECTION 125800 - FURNITURE RESIDENTIAL

PART 1 - GENERAL

1.1 SUMMARY

- A. The entirety of Division 12, Section 125000, Part 1 applies to this section.

1.3 WARRANTY

- A. All residential furniture must have a minimum 15 (fifteen) year written non-prorated warranty (unless otherwise noted) agreeing to replace without charge all defective materials, workmanship, and/or installation. Removal and replacement of defective or non-conforming products or installation shall be accomplished in a manner to minimize disturbance to University functions. Written warranties shall be submitted. The manufacturer shall guarantee for a period of 10 (ten) years the availability of components and finishes compatible with the original installation.

PART 2 - PRODUCTS

2.1 BED FRAME

A. Requirements

1. Loftable & Bunkable Bed Units (one sleeping surface) with: equal size solid oak ladder end pieces; E-Z connect tool free steel springs; multiple height configurations.
2. Bed ends must have a vertical metal channel that accepts the bed spring.
3. Tool-less assembly required with spring height adjustments in a minimum of three (3) inch increments for the full length of the bed end post.
4. Single frame must be able to be used in single bed setting as well as loftable and bunkable. Stabilizer rail (to be included) and will be used whenever the bed is in the lofted position.
5. Loft adaptor kit to match exactly the dimensions and materials of the bed with an E-Z connect rear spreader/stabilizer bar and steel clips for stabilization.
6. Safety Rails must match the specified bed.

B. Construction

1. Solid northern grown red oak bed end construction to include:
 - a. Two (2) northern grown solid oak posts per bed end; 2" wide x 2-1/2" thick x 67-3/16" long to accept 5 (five) crossbars.
 - b. Five (5) crossbars per bed end; 3-1/4" wide x 3/4" thick, spaced equally to serve as a ladder and fastened to the 2" x 2-1/2" posts with a Loc Joint consisting of three (3) 2" x 3/8" hardwood dowels and #8 x 3" F.H.P.H. screws.
2. #8 x 3" screws to be counter sunk halfway through the width of the post in the middle of each crossbar joint and extended 2" into the length of the crossbar, locking the glued joint under pressure and holding the crossbar flush at one face of the post.
3. Use of pre-glued dowels is not acceptable.
4. Fasteners are concealed under solid oak face grain end plugs.
5. A steel insert for mounting the bedspring is machined into the face of each bed post so that it is flush with the surface.

6. The insert must allow sixteen (16) spring positions vertically and constructed of 1/16" thick steel and 1/4" thick steel pins fixed in place. The steel insert must be centered horizontally and vertically on each post.

C. Dimension

1. Frame size must accept a 36"W x 80" L mattress and/or a 36" W x 84" L mattress.
2. Assembled frame size to be 85"W x 38-1/4"D.
3. Dimensions must be within a tolerance range of 2" in widths.

D. Installation/Adjustment

1. Bed configurations must be achievable by students and staff without use of tools.
2. Metal inserts in the bed post ends will position and secure the bed ends of the bunked bed, lofted bed.
3. Standard bed height should be able to adjust sufficiently low to accommodate ADA transfer height.

2.2 BEDSPRING**A. Construction of the bed spring must have:**

1. Side rails: two (2) pieces 1" x 2" 14 ga box tubular steel
2. End rails: two (2) pieces 1" W x 2"H 14 ga box tubular steel
3. Cross-tubular: 1" w x 1" H 14 ga box tubular steel
4. Sinuous wire: 9 ga w/ends hooked for attachment to side rails
5. Connecting links: Four (4) rows 13-1/2 ga high carbon wires
6. Hook plates: 7 ga steel 4-1/2 L x 4-3/4 W welded to side rails
7. Spring frames are unitized, assemblies welded together for rigidity and strength; and powder coated for a durable finish

B. Dimension

1. Bed Spring: 36" wide x 82" long

2.3 DESK**A. Requirements**

1. Bookcase/Pedestal Style Desk with the following storage components:
 - a. one integral storage unit pedestal comprised of 1 (one) drawer above a cabinet that has 1 (one) adjustable shelf.
 - b. a knee space drawer that may be used as a sliding computer keyboard shelf.
 - c. side panel support leg on opposite side of storage unit
 - d. stretcher
 - e. finished back.
2. Storage unit pedestal to be either integral to the desk or if requested a mobile file pedestal separate from the unit comprised of 1 (one) 6" drawer above 1 (one) 12" drawer mounted on casters.

B. Construction

1. Construction, framing and all hardware must be of contract quality and commercial grade.
2. Storage unit pedestal fronts must be solid oak with routed finger pull.
3. Drawers must have full extension steel ball bearing glides.
4. Side panels must have solid stock oak on all 4 (four) sides of minimum 1" x 1" stock.

5. Bottom of unit must have 4 (four) corner, stainless steel glides accepted into threaded metal anchor.

C. Dimensions

1. Desk: 42"W x 24"D x 30"H
 - a. Overall desk dimensions must be within a tolerance range of +/-2" in width as long as the height is the same as the dresser.
2. Mobile file pedestal (if requested): 15"W x 22"D x 24"H
 - a. Overall mobile file pedestal must be within a tolerance range of +/- 1" in width.

2.3 DRESSER**A. Requirements**

1. Three drawer dresser to have 3 (three) equal size drawers.

B. Construction

1. Construction, framing and all hardware must be of contract quality and commercial grade.
2. Drawer fronts must be solid oak with routed finger pulls.
3. Drawers must have full extension steel ball bearing glides.
4. Side panels must have solid stock oak on all 4 (four) sides of minimum 1" x 1" stock.
5. Bottom of unit must have 4 (four) corner, stainless steel glides accepted into threaded metal anchor.

C. Dimensions

1. Dresser: 36"W x 24"D x 30"H
2. Dimensions must be within a tolerance range of +/-2" in width as long as the height is the same as the desk.

2.3 WARDROBE**A. Requirements**

1. Wardrobe to have 2 full height doors.
2. Wardrobe interior to have:
 - a. 1 (one) adjustable height shelf with attached coat rod, at an adjustable range to meet ADA access in the lowest position.
3. Metal fasteners must hold coat rod into position.

B. Construction

1. Construction, framing and all hardware must be of contract quality and commercial grade.
2. Door fronts must be solid oak with routed finger pulls and magnetic touch latches mounted at both the top and bottom of each door.
3. Side panels must have solid stock oak on all 4 (four) sides of minimum 1" x 1" stock.
4. Bottom of unit must have 4 (four) corner, stainless steel glides accepted into threaded metal anchor.

C. Dimensions

1. Wardrobe: 30"W x 24"D x 72"H
2. Dimensions must be within a tolerance range of +/-2" in width as long as the height is the same as the desk.

2.3 SAFETY RAILS

A. Requirements

1. The safety rail must attach to the bed springs.
2. University of Minnesota is to be cut into the face rail.
 - a. Logo is to be provide by University Relations and follow UMN Brand policy.

B. Construction

1. The safety rail is constructed of two (2) 11 ga HRP&O 1" x 2" x 10-1/2"H rectangular tubes mig welded to an 11 ga cold rolled steel plate that is 28" W x 4-1/2"H w/a 1" radius at the ends and a 99" radius overall.
2. The face plate is formed to a 1" W to facilitate welding to the vertical tubes.
3. The UofM logo is laser cut to exacting format in the face of the steel plate.
4. Attached to the back of the steel plate is a 5" H x 29" W solid oak insert.
5. The center of the face plate of the wood insert is the UofM primary color to show through the logo cut into the steel face.
6. The wood insert is permanently attached to the steel plate.

B. Dimensions

1. Safety Rails: 29" W x 1" D x 16" H
2. Dimensions must be within a tolerance range of 1" in width.

End of Section 125800

SECTION 125900 - FURNITURE SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. The entirety of Division 12, Section 125000 applies to this section.

PART 2 - PRODUCTS

2.1 General Requirements

A. System Furniture

1. System furniture shall be provided by a Single Source Manufacturer; proposed products shall be produced or supplied by a single manufacturer.
2. The manufacturer shall provide all brackets, supports, hangers, clips, panel-supported worksurface legs, connectors, cover plates, grommets, stabilizers, and other miscellaneous hardware, as required items necessary to form a physically and visually completed assembly and /or workstation.
3. Workstations shall permit easy assembly and disassembly. Back-to-back workstations shall be assembled in such a manner that components may be completely removed from one side without disturbing the other workstation.
4. Assembly of all components shall be possible with conventional tools locally available. If special tools are required, they shall be furnished to the University at the manufacturers' expense.

B. Height Adjustable Desks & Tables

1. **Criteria.** Height adjustable desks/worksurfaces must meet the following criteria:
 - ANSI/BIFMA X5.5-2021 Desk/Table Standard
 - 24.5 - 48" height range
 - Weight capacity must meet the equivalency of 220 pounds for a 30" x 60" surface.
 - Electric up-down function must have an anti-collision feature with a minimum of 1-3 presets.
 - Speed of lift to be of equivalent speed and size to match 1.5" per second for 30" x 60" top, unloaded.
 - Sound level during operation to be \leq 52 dB (decibels)
2. **Required.** Height adjustable desks are required through MN B3 Guidelines, I.8 Ergonomics and Physical Activity.

C. System Furniture Panels

1. Panel Performance

- a. **Testing.** Provide panel systems identical to that tested for the following: flammability, acoustic, durability, and stability characteristics, per test methods indicated below.
 - ASTM C423-02ae1 - Sound absorption and reverberation requirements
 - ANSI/BIFMA X 5.6-2016 - Safety, performance, and structural requirements
 - UL 723, NFPA 255, ASTM E84-6 - Surface burning characteristics of building materials
 - ASTM E662-06 – Optical smoke density of solid materials

- b. **Structural.** Panel system structural members must be steel or aluminum, and capable of structurally supporting cantilevered work surfaces, shelves, and upper storage bins, without special modifications to the panels.
 - c. **Sizes.** Minimum panel widths must be available from 18" wide with option sizes available at 6" increments up to 48" wide. Heights with electrical raceways must meet nominal heights (+/- 2") of 36", 42", 48", 56", 72", and 82".
 - d. **Panel Faces.** Panels shall have a seamless piece of fabric stretched over the entire face of the panel (or tile). The fabric shall be attached securely and continuously along the entire perimeter and shall allow for removal and replacement in the field.
 - e. **Panel Fabric.** Fabric shall be of polyester or synthetic blends and meet the following criteria:
 - ASTM E84-03 (Unadhered Mounting Method) Class A or Class 1.
 - ASTM D5034-09 (2017) (Grab Test) 35lbs. Breaking strength minimum in warp and weft.
 - AATCC 16 Option 1 or 3-2003 Grade 4 minimum at 40 hrs. Wrapped panel colorfastness to light.
 - AATCC 8-2001 Dry/Wet Crocking, Grade 3 minimum. Wrapped panel wet & dry crocking.
2. **Panel Configuration**
- a. **Panel Runs.** Panel runs shall be straight, right angles perpendicular and must terminate with a panel placed perpendicular to the length of the run and/or, run support provided through use of floor supported attached worksurface. Use of panel "feet", floor anchors, or other exposed panel stabilizer devices/fittings are not acceptable.
 - b. **Joints.** Vertical and horizontal joints shall be flush and level.
 - c. **Level.** Panels shall be leveled with integral, concealed, adjustable devices. Floor to panel gap dimension shall not exceed 1/4" without prior approval by the University, Architect and/or Interior Designer. Permanent floor shims will not be allowed.
 - d. **Floor.** Panel system shall be capable of being installed on top of finished floor regardless of type, without penetrating the finished floor or using floor fasteners.
 - e. **Connection.** Panel system shall be capable of connection in a variety of configurations, including connection of different heights and connection of two, three, and four panels from a single point.
 - f. **Connectors.** Panel connectors shall provide tight connections that provide continuous visual and acoustic seals.
 - g. **Hanging Surfaces.** Right angle connections shall not interfere with the capability to hang worksurfaces and other components on any adjacent panel.
 - h. **Wiring.** Connector system shall provide for continuation of electrical, data and communication wiring within workstations and from workstation to workstation.

D. Worksurfaces

- 1. **Tops.** Work surface tops within panel system configurations shall be a nominal thickness of 1-1/4" minimum. Edges shall be self-edge profile with T-mold PVC (or similar material) or minimum 2.0 mm Flat PVC (or similar material) Profile edge band.
- 2. **Core materials.** Work surface core materials shall meet the most recent edition of the American Woodwork Institute (AWI) "Quality Standards" premium grade and the

American Institute of Architects (AIA) "Environmental Resource Guide". All laminated materials shall be counter-mounted with 0.20 melamine backer sheet.

- Pre-drilled holes for mounting components are allowed providing the holes are inconspicuous and do not interfere with any functional use.
3. **Laminates.** Work surface laminates shall meet the most recent edition of the American Woodwork Institute (AWI) "Quality Standards" premium grade standards for High Pressure Decorative Laminate (HPDL).
 - HPDL must be selected for primary worksurfaces without embossed texture. Embossed textures may be approved for use on secondary table tops once presented and approved by UMN project stakeholders.
 - HPDL shall not be adversely affected by ordinary household solvents, acids, alcohols, or saline solutions, and shall be capable of being cleaned with ordinary household cleaners.
 4. **Support.** Work surfaces shall be either fully supported by floor-support legs, pedestals, furniture end panels or panel system cantilever brackets at an increment of no less than 48". Use of steel spanners to bridge distances greater than 48" is not allowed.
 5. **Adjustment.** Work surfaces shall be adjustable in nominal 1" increments on system furniture panels and/or wall tracks. Height adjustable surfaces must be provided to meet requirements set forth in Part 2 - Section 2.1.B.
 6. **Abutting.** Abutting work surfaces shall meet at equal heights when used side by side, or side to end configurations, to provide a continuous level surface.
 7. **Accessories.** Work surfaces shall:
 - be capable of accepting a fully articulating keyboard and mouse pad tray.
 - have horizontal and vertical wire management systems, either integral or attached by fasteners.

E. Storage/Filing Units

1. **Storage/Filing units** must meet the following requirements (in no specific order):
 - ANSI/BIFMA X5.9-2012 - Storage Units - Unit loads, drawer cycles, drop cycles, etc.
 - ISO 7170:2021 Furniture - Storage Units
 - ANSI/BIFMA X5.3-2007
2. **Units** consist of system integrated and freestanding units referred to as pedestals, vertical files, lateral files, cabinets, bookcases, overhead shelves, overhead cabinets, and lockers. They are to be constructed of steel at minimum gauges listed below:
 - a. Pedestal file units: 18-20-gauge steel
 - b. Lateral and vertical files: 20-22-gauge steel
 - c. Bookcases, overhead shelves, overhead cabinets, and storage cabinets: 18-20-gauge steel
 - d. Drawer glides shall be steel ball bearing extension glides that allow full extension of drawer (drawer back to cabinet face frame).
3. **Storage unit (drawer and cabinet cases, accessories, operable components, shelves)** shall be entirely metal with formed edges, including an integral metal back. Metal components shall have a factory baked enamel finish on all surfaces.
 - a. HDPL cabinet cases must be presented to CPM Interior Design for approval for use in specific applications.
 - b. HDPL cabinet cases must meet University Services; Building Standards: Division 06: Section 064000

4. **Drawer and door faces** shall meet the criteria of Part 2, 2.1 Products, Item E.3.
 - a. Additional materials may be presented to CPM Interior Design for consideration:
 - i. Fabric wrapped steel fronts on overhead units may only be wrapped with fabric that meets the criteria in Part 2.1, Section C.1.e.
 - ii. HPDL fronts may be used and connected to the drawer body with metal-to-metal fasteners.
 - iii. HPDL edges must be finished in HPDL or PVC (or equal) edge band of ≥ 1.0 mm thick in color to match drawer/door front.
 - iv. Use of HDPL doors must meet the requirements of University Services, Building Standards; Division 06: Section 064000.
5. **Internal Shelves.** Shelves within storage units, wall hung or hung on panels must meet the following requirements:
 - a. Minimum 18" steel gauge reinforced shelves are required.
 - b. Shelves must meet a weight capacity BIFMA tested equivalent to 127 pounds for a 15 x 36" shelf.
 - c. Shelves shall be attached to metal support end panels with metal screws or metal lock clips.
 - d. If multiple shelves are available, they must be adjustable in ≤ 2 " increments.
 - e. Units over 65" (+/- 2") high must have one fixed shelf for unit stability.
6. **File/Cabinet finish.** Files or cabinets installed beneath worksurfaces must be finished on all sides, able to be moved without dismantling the system and maintaining the locking integrity of the unit once it is moved.
7. **File drawer accessories.** File storage drawers shall have dividing options of pencil or convenience trays, metal dividers, file dividers, etc. and be capable of accepting more than one divider. Magnets are unacceptable methods to hold dividers and/or other devices in place.
8. **Hardware.** Drawer and/or door hardware shall be flush, recessed, or protrude no more than 1-1/4".
9. **Wire management.** Storage units within workstations shall accommodate and/or maintain the capacity for installation of contiguous horizontal and vertical wire management systems.
10. **Leveling.** Storage units must have adjustable glides on all 4 corners to ensure units can be installed flush and plumb. Casters may be provided on small cabinets and mobile pedestals must have 4 (four) casters with a minimum of 2 (two) front locking directional casters. Adjustable feet must be smooth and not have textures that will catch or mar surfaces when moved.

F. Locks and Keying

1. All storage/file units shall be capable of having keyed locks.
2. Drawers/doors of storage units shall be lockable by either a central lock or individual keyed locks in each pedestal or drawer. Lock components shall be metal.
3. Field interchangeable locks and cylinders shall be provided. Two matching keys shall be provided for each lock; three master keys and one core-removal key/device shall be provided to the University. Keys and lock cylinders shall be numbered for ease of replacement.
4. A key numbering plan must be included with the final installation plans.

G. Electrical

1. Electrical components shall use copper wiring and shall meet the requirements of Underwriter's Laboratory (UL) Standard 1286, and the National Electric Code. The

"UL Listed" label will be accepted as evidence that the materials and/or equipment conform to the applicable standards of that agency.

2. All electrical components must comply with Part 2, Section 2.1.C.2.
3. All panels requiring electrical power shall have:
 - raceways capable of distributing 4 (four) circuits, utilizing all 3 phases.
 - power system shall be an 8-wire system (4 hot, 2 neutral, 2 ground)
 - minimum requirements are for 20-amp power circuits.
 - a divided channel for the equivalent of eight, 25-pair communications cables with required connectors
 - capacity for wire twist and right-angle corner radius loss
4. Receptacles shall be commercial grade and easily identified by line or circuit identification number and phase identification.
5. Internal panel-to-panel power connection shall be polarized straight or flexible plug-in and plug-out grounded connections; shall be aesthetically unobtrusive.
6. In-feed modules shall supply power to the base panels by a conduit built into a panel, or a conduit which attaches to a panel connection post and shall provide access doors for routing the communication cables. Panels shall accept power source from floors, ceilings, and walls.
7. Base covers shall be securely mounted to panels but permit easy access to the raceway. Metal or plastic end covers, which attach securely to the panel base shall be provided and shall match the finish and color of the panel base. Panel base covers shall not be secured by magnets.

H. Tables; Conference, Classroom, Office, Meeting

1. Products must meet ANSI/BIFMA X5.5-2021 Desk/Table Standard
2. Reference UMN University Services, Building Standards, Division 13-20 for classroom table information specific to Office of Classroom Management classrooms.

I. Fabrics. Upholstery fabrics must meet criteria in Division 12, Section 125000, Part 2, 2.1.A Upholstery.

End of Section 125900