

Date: 12-11-2020

To: All Plan Holders

Subject: ADDENDUM NO. 2

Project: CENTER FOR MATERIALS AND MANUFACTURING
SCIENCES, TROY UNIVERSITY MAIN CAMPUS-TROY ALABAMA

Job #: SSL# 18144
BC# 2020416
PSCA#: 006P



From: Cody Smith

The plans dated November 17, 2020 and Specifications dated November 2020 of the subject project, and any subsequent addenda are amended as follows: (Where there are conflicts between the plans and specifications and the addendum, this addendum shall govern)

- Item 1:** Refer to specification section “06 4100 Architectural Plastic Laminate Casework”, Paragraph 2.06.A.5. Stevens Industries will be considered an approved equal subject to requirements of the drawings and specifications.
- Item 2:** Refer to specification section “12 3553 Wood Laboratory Casework”, Paragraph 2.1.C.c.: Stevens Industries will be considered an approved equal subject to requirements of the drawings and specifications.
- Item 3:** Refer to specification section “09 6723 Resinous Flooring”, Paragraph 2.1.A.2.: Stonhard will be considered an approved equal subject to requirements of the drawings and specifications.
- Item 4:** Refer to spec section “08 7100 Door Hardware” The following substitutions have been approved subject to plans and specifications:
- 2.6 Mechanical Locks and Latching Devices A.2., Add the following:
 - d. Best Access
 - 2.10 Conventional Exit Devices B.1., Add the following:
 - c. Precision Hardware
 - 2.11 Door Closers B.1., Add the following:
 - d. Dormakaba

2.11 Door Closers C.1., Add the following:
c. Dormakaba

Hardware Set 28.0: OMIT Door 1004

Item 5: Refer to the Specifications ADVERTISEMENT FOR BIDS. **Delete** the first paragraph and **Replace** with the following:

Sealed proposals will be received by Troy University by the Purchasing Department of Troy University, at the Physical Plant Conference Room, located at 1 Melton Carter Dr, Troy, Alabama 36081 until 2:00 PM CST for the base bids and 3:00 PM CST for all alternates on Tuesday, December 22nd, 2020 at which time they will be open and read.

Bids must be hand delivered or mailed via FedEx or UPS to:

Troy University Physical Plant
Attn: Mark Salmon
1 Melton Carter Drive
Troy, AL 36081

Please note somewhere on the exterior of the envelope: CMMS Bid December 22

Item 6: Refer to specification section "07 2100 Thermal Insulation",

Paragraph 2.02.A.6 OMIT: "Board Thickness as required to provide minimum R Value of 5.6 (continuous). 1" maximum thickness. Total R-value equal to 13.

Paragraph 2.03.A.8. Delete: "Provide insulation in all exterior stud framed walls and as shown on drawings for complete envelope. (R-23)"

Replace with: "Provide mineral wool insulation (minimum R-Value of 18) in exterior stud framed walls and as shown on drawings.

Item 7: Refer to specification section "01 2300 Alternates", Refer to Paragraph 1.4:

Item 10 to be renumbered to be Item 11.

Add: 10) Chiller Generator

- a. Includes all plant labor and materials required to install 450 (500KW ALTNR) alternate generator as detailed and specified in Electrical Drawings/Specs. The work required below grade

for the installation of wiring, conduit, junction box and foundation remains a part of the base bid, and will be required if this alternate is not awarded. All new site utilities as shown in the contract documents shall be considered as part of the base bid.

Item 8: Refer to the Proposal form (To be turned in at 3:00) with alternates:

Item 10 to be renumbered to be Item 11.

Add: 10) Chiller Generator

Item 9: Refer to Sheet A10.0 & A10.1 Furniture, Fixtures & Equipment Plans,:

Fume Hood, Snorkel Vent, Flame Cabinet, and Acid Cabinet shall be Owner Furnished Owner Installed.

Refer to Sheet A10.0, Room 1009 3D Printing,: Lab Utility Tag Deleted.

Item 10: Refer to specification section “00 0102 Table of Contents”:

Replace Table of Contents it its entirety with the attached.

End of Addendum No. 2

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SECTION 06 4100 - ARCHITECTURAL PLASTIC LAMINATE CASEWORK

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Specially fabricated cabinet units.
- B. Cabinet hardware.
- C. Preparation for installing utilities.

1.02 RELATED REQUIREMENTS

- A. Section 01 2300 Alternates
- B. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.
- C. Section 06 1000 - Rough Carpentry: Support framing, grounds, and concealed blocking.
- D. Section 12 3600 - Countertops
- E. Section 12 3450 - Metal Laboratory Casework
- F. Section 12 3553 Wood Laboratory Casework

1.03 REFERENCE STANDARDS

- A. ANSI A208.1 - American National Standard for Particleboard; 2009.
- B. ANSI A208.2 - American National Standard for Medium Density Fiberboard for Interior Use; 2009.
- C. BHMA A156.9 - American National Standard for Cabinet Hardware; Builders Hardware Manufacturers Association; 2010 (ANSI/BHMA A156.9).
- D. GSA CID A-A-1936 - Adhesive, Contact, Neoprene Rubber; Federal Specifications and Standards; Revision A, 1996.
- E. NEMA LD 3 - High-Pressure Decorative Laminates; National Electrical Manufacturers Association; 2005.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Convene a preinstallation meeting not less than one week before starting work of this section; require attendance by all affected installers.

1.05 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.
 - 1. Minimum Scale of Detail Drawings: 1-1/2 inch to 1 foot (1:8).
- C. Samples: Submit actual samples of architectural cabinet construction, minimum 12 inches (300 mm) square, illustrating proposed cabinet, Drawer, door, and shelf unit substrate and finish.
- D. Samples: Submit actual sample items of proposed pulls, hinges, shelf standards, and locksets, demonstrating hardware design, quality, and all finishes and project colors. Provide as part of 1.05 C.

1.06 QUALITY ASSURANCE

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.

1. Company with at least one project in the past 3 years with value of woodwork within 20 percent of cost of woodwork for this Project.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Protect units from moisture damage.

1.08 FIELD CONDITIONS

- A. During and after installation of custom cabinets, maintain temperature and humidity conditions in building spaces at same levels planned for occupancy.
- B. Verify all project conditions prior to fabrication.
- C. Coordinate with all trades.

PART 2 PRODUCTS

2.01 CABINETS

- A. Plastic Laminate Faced Cabinets: equal to Case System, basis of design. Provide custom cabinets where manufacturer's standard is not available. Substitutions per specifications.
- B. Cabinets at _____:
 1. Finish - Exposed Exterior Surfaces: Decorative laminate.
 2. Finish - Exposed Interior Surfaces: Decorative laminate.
 3. Finish - Concealed Surfaces: Manufacturer's Option - see para. 2.02
 4. Door and Drawer Front Edge , shelves, cabinet body edgeProfiles: 3 mm thick, factory adhered PVC edging.
 5. Casework Construction Type: Frameless.
 6. Interface Style for Cabinet and Door: - reveal overlay.
 7. Cabinet Design Series: As indicated on drawings.
 8. Adjustable Shelf Loading: 50 lbs. per sq. ft..
 - a. Deflection: L/144.
 9. Cabinet Style: Flush overlay.
 10. Cabinet Doors and Drawer Fronts: Flush style.
 11. Drawer Construction: Provide a four sided drawer box that is made of 1/2 inch thick industrial particle board; finish same as semi exposed. Provide doweled and glued joints and 1/2 inch thick mechanically fastened bottom. Provide Plastic laminate drawer face with thermally fused 3 MM PVC edging. Blind screw front of drawer box into plastic laminate drawer face.

2.02 LAMINATE MATERIALS

- A. Manufacturers:
 1. Formica Corporation; _____: www.formica.com.
 2. Panolam Industries International, Inc; _____: www.nevamar.com.
 3. Wilsonart, LLC; _____: www.wilsonart.com.
 4. Substitutions: See Section 01 6000 - Product Requirements.
- B. Thermally Fused Laminate (TFL): NEMA LD 3, Type VGL laminate panels.
- C. High Pressure Decorative Laminate (HPDL): NEMA LD 3, types as recommended for specific applications.
- D. Provide specific types as scheduled.

1. Horizontal Surfaces unless noted otherwise: HGS, 0.048 inch (1.22 mm) nominal minimum thickness, colors as scheduled, finish as scheduled.
2. Vertical Surfaces and all exposed surfaces: VGS, 0.028 inch (0.71 mm) nominal **minimum** thickness, colors as scheduled, finish as scheduled.
3. Cabinet Liner: CLS, 0.020 inch (0.51 mm) nominal thickness, through color, colors as scheduled, finish as scheduled.
4. Laminate Backer: BKL, 0.020 inch (0.51 mm) nominal thickness, undecorated; for application to concealed backside of panels faced with high pressure decorative laminate.

2.03 ACCESSORIES

- A. Adhesive: Type recommended by fabricator to suit application.
- B. Plastic Edge Banding: Extruded PVC, flat shaped; smooth finish; of width to match component thickness. Factory adhere,
 1. Color: As selected by Architect from manufacturer's standard range.
 2. Provide 3mm at all cabinet face edges, door edges, drawer front edges, shelves edges, and any other exposed edges.
- C. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application; galvanized or chrome-plated finish in concealed locations and stainless steel or chrome-plated finish in exposed locations.
- D. Concealed Joint Fasteners: Threaded steel.

2.04 HARDWARE

- A. Hardware: BHMA A156.9, types as recommended by fabricator for quality grade specified.
- B. Adjustable Shelf Supports: Standard side-mounted system using multiple holes for pin supports and coordinated self rests, polished chrome finish, for nominal 1 inch (25 mm) spacing adjustments.
- C. Drawer and Door Pulls: "U" shaped wire pull, steel with brushed chrome finish, 4 inch centers ("U" shaped wire pull, satin stainless steel finish, 100 mm centers). ADA compliant
- D. Cabinet Locks: Keyed cylinder, two keys per lock, master keyed, steel with chrome finish. see drawings for location. Provide 4 more locks (installed) as directed by architect.
- E. Drawer Slides:
 1. Type: 3/4 extension , 100 lb. load graded, epoxy coated , roller bearing.
 2. Mounting: Bottom mounted.
 3. Stops: Integral type.
 4. Features: **Provide soft closing/stay closed type.**
 5. Products:
 - a. Accuride International, Inc; ____: www accuride.com.
 - b. Grass America Inc; ____: www.grassusa.com.
 - c. Hettich America, LP; ____: www.hettichamerica.com.
 - d. Knappe & Vogt Manufacturing Company; ____: www.knappeandvogt.com.
 - e. Substitutions: See Section 01 6000 - Product Requirements.

- F. Hinges: five knuckle -, BHMA No. A156.9, brushed chrome steel finish in manufacturers colors as selected by architect; 09 inches thick minimum, instutional grade. Doors over 48 inches in height shall have a minimum of three hinges, less than that height shall have two hinges.
- G. Magnetic door catches in number required to hold doors in closed position.
- H. Pilaster standards and shelf clips for adjustable shelves. . match color of cabinet interior. Recess into cabinet sides. or contractor's option to provide injection moulded clear plastic shelf clips with a double pin engagement at 32 mm on center. Shall have 3/4 inch anti tip locking tabs,

2.05 FABRICATION

- A. Assembly: Shop assemble cabinets for delivery to site in units easily handled and to permit passage through building openings.
- B. Edging: Fit shelves, doors, and exposed edges with specified edging. Do not use more than one piece for any single length.
- C. Fitting: When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide matching trim for scribing and site cutting.
- D. Plastic Laminate: Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Slightly bevel arises. Locate counter butt joints minimum 2 feet (600 mm) from sink cut-outs.
 - 1. Apply laminate backing sheet to reverse side of plastic laminate finished surfaces.
- E. Provide cutouts for plumbing fixtures. Verify locations of cutouts from on-site dimensions. Seal cut edges.
- F. The architectural casework wood contractor shall coordinate their manufacturing and installation to accomodate the plumbing, mechanical, elecrical, and countertops for all rquirements to complete the project installation to include but not limited to sinks, pipes, conduit, troughs, overflows, neutralization cartridges, traps, umbilicals, fixtures, switches, outlets, tombstone outlets, receptacles, etc. as specified and or shown on contract documents. Job verify all wall and floor conditions prior to fabrication; make adjustments per architects prior written approval.`

2.06 MANUFACTURERS/PRODUCTS:

- A. Acceptable Products:
 - 1. Case Systems
 - 2. TMI Systems
 - 3. Cahalan Woodworks, Moody Al 205-640-2779
 - 4. Alco - Montgomery Al - 334-264-3938
 - 5. **Stevens Industries (Addendum 2)**
 - 6. Substitutions: See 01 6000 - Product Requirements

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify adequacy of backing and support framing.
- B. Verify location and sizes of utility rough-in associated with work of this section.
- C. Verify all existing conditions.

3.02 INSTALLATION

- A. Set and secure custom cabinets in place, assuring that they are rigid, plumb, and level.
- B. Use fixture attachments in concealed locations for wall mounted components.
- C. Use concealed joint fasteners to align and secure adjoining cabinet units.
- D. Carefully scribe casework abutting other components, with maximum gaps of 1/32 inch (1 mm). Do not use additional overlay trim for this purpose.
- E. Secure cabinets to floor using appropriate angles and anchorages.
- F. Countersink anchorage devices at exposed locations. Conceal with solid wood plugs of species to match surrounding wood; finish flush with surrounding surfaces.

3.03 ADJUSTING

- A. Adjust installed work.
- B. Adjust moving or operating parts to function smoothly and correctly.

3.04 CLEANING

- A. Clean casework, counters, shelves, hardware, fittings, and fixtures.

END OF SECTION

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SECTION 12 3553 - WOOD LABORATORY CASEWORK

PART 1 - GENERAL

Summary: The following specification is written to provide the level of design expectation of the owner and architect in regards to the quality/functionality of the product and installation for the wood casework.

1.1 SECTION INCLUDES

- A. Furniture: Provide and install all wood casework, furniture and benches; which may include, but is not limited to: M-Line MDF wood casework, reagent shelves, standards, filler panels, scribes, knee space panels, accessories, utility space framing, utility space closure panels between base cabinets and at exposed ends of utility spaces, miscellaneous wall shelving, and miscellaneous items of equipment as listed in the specifications or as shown on drawings. Work includes all laboratory furniture depicted on drawings or listed in these specifications unless otherwise noted as "Not in Contract" (NIC) within the drawings, equipment schedule or said specifications.

1.2 RELATED SECTIONS

- A. Division 06 Section 1000: "Rough Carpentry" for blocking within walls to adequately support casework
- B. Division 11 Section 5300, "Laboratory Equipment"
- C. Division 12 Section 3600, "Countertops"
- D. Division 01 Section 2300, "Alternates"
- E. Related Work to be Performed by Others:
 - a. Final connection to service lines of all plumbing and electrical fixtures attached to laboratory casework or furniture

1.3 REFERENCES

- A. ANSI/Hardwood Plywood Veneer Association Manual
- B. ANSI-A135: for all hardboard.
- C. ANSI-A161.2-1998: performance for fabricated high-pressure decorative laminate countertops.
- D. ANSI-A208.1-2009: for Mat-Formed Wood Particleboard Grade M-3
- E. ANSI-A112.18.1m-1989: for fixtures and water service.
- F. ANSI Z359.1-1998: for safety eyewashes and equipment.
- G. ASSE Standard 1001: for vacuum breakers
- H. ASTM B88 and ANSI/NSF 61: for plumbing.

- I. AWI Standards 8th Edition – 2003 Sections 400A-T-12, 400B-T10 and 1600-T-11: for woodwork standards.
- J. BHMA A156.9: for Grade-1 hinge requirements.
- K. CAN/CSA b.125.M89 Canadian Standards: for fixtures and water service.
- L. National Electrical Code, Article 352-B: for surface nonmetallic raceway.
- M. NEMA 3 LD – 2005: for performance requirements of high pressure laminates.
- N. SEFA 8 Recommended practices for cabinet construction.
- O. UL-5A: for raceway listed for electrical wiring.
- P. UL 94 V-0: for raceway systems

1.4 DEFINITIONS

- A. “Barrel Hinge” is a hinge composed of two plates attached that are attached to abutting surface.
- B. “Concealed Portions of Casework” surfaces that are not visible after installation; Bottoms of cabinets are less than 30 inches above finished floor; Tops of cabinets are 72 inches or more above finished floor (and are not visible from an upper level); Stretchers, blocking and/or components that are concealed by drawers; Corners created by tall, wall, or base cabinets and which are non-accessible. NOTE: All cabinet ends will be considered exposed.
- C. “Eased” is a process of providing a slight radius on door and drawer fronts of a cabinet.
- D. “Exposed surfaces” are surfaces that are visible when: Drawer fronts and doors are closed; Cabinets and shelving are open or behind clear glass doors; Bottoms of cabinets are seen 48 inches or more above the finished floor; Tops of cabinets are seen below 72 inches above finished floor, or are visible from an upper floor or raised area after installation (Please see Modular Casework note under C. above)
- E. “False Fronts” are nonfunctional fronts attached to particular units that mimic drawer box fronts to create an uninterrupted visual image of an elevation.
- F. “FSC” is the term used for Forest Stewardship Council, required to achieve the LEED credit for certified wood.
- G. “Reveal Overlay” is casework design that requires the reveal of 1/8” between all individual door and drawer components within a cabinet. There is a 3/8” reveal at the edge of door and drawer components to the edge of the cabinet to maintain a 3/4” reveal on adjacent cabinets.
- H. “Laboratory Casework Contractor/Manufacturer” is defined as the manufacturer and/or manufacturer’s representative that is to provide and install the laboratory casework, equipment, and accessories listed under the specifications, laboratory equipment schedule and/or illustrated on drawings.
- I. “NAUF” is the term used for “no added urea formaldehyde”. This is required when no part of the wood product or any product on the entire can

contain added urea formaldehyde in the production of the products. This is critical to LEED point criteria and if specified must be followed explicitly or complete building failure will occur.

- J. "Reveal" is the measurement between individual door and drawer components on the face of a cabinet.
- K. "Semi-exposed" surfaces that are visible when: Opaque doors are open or drawers are extended; Bottoms of cabinets more than 30 inches and less than 42 inches above finished floor.
- L. "Service Fixtures" are laboratory gas, air, and vacuum cocks; hot, cold and reagent water faucets; remote control valves, electrical receptacles (with necessary flush mounting hardware), fluorescent and/or incandescent light fixtures, light switches and/or motor switches for fume hoods and other items which serve as an operational part of the equipment.
- M. "Service Lines" are the necessary piping and drain lines for laboratory gas, air and vacuum as well as hot, cold and reagent grade water that conveys the respective services from building roughing through floors or walls through equipment to the previously defined service fixtures. Also includes conduits, junction boxes, conduit fittings, wire disconnect switches and fuse or circuit breakers necessary to conduct electrical services from building roughing in floors or walls through equipment to service fixtures.

1.5 SYSTEM DESCRIPTION

- A. Reveal overlay with 1/8" reveal between intra-cabinet doors and drawers and 3/8" reveal at cabinet edge for offset of the hinge around the door. All door and drawer fronts will be adjusted to maintain these tolerances.
- B. Doors and drawer fronts are to be slightly eased at all edges.
- C. No exposed fasteners are allowed without prior approval of the architect or lab planner.
- D. Cabinet elevations will be built in symmetrical sizes as required to fill the area.
- E. Maximum filler size is 4" and must be balanced and on each end of wall to wall elevations.
- F. Rolled 3mm hardwood Edge banding is required.
- G. Provide all components for a full and complete installation, including but not limited to end panels, aprons, filler panels, base extensions, etc,

1.6 SUBMITTALS

- A. Shop Drawings:
 - a. Comply with Division 1
 - b. Submit shop drawings consisting of:
 - i. Finish, hardware, construction options selection sheet

- ii. Small scale floor plan showing casework in relation to the building.
 - iii. Large scale elevations and plan views.
 - iv. Cross-sections; service runs; locations of blocking within walls (blocking is done by others); rough-in requirements and, sink centerlines.
 - c. Drawings should include data and details for construction of the laboratory casework as well as information regarding the name, quantity, type and construction of materials (such as hardware, gauges, etc.), that will be used to complete the project.
 - d. The manufacturer or purchaser of any equipment prior to approval by the owner's representative will be undertaken at the manufacturer's risk.
 - e. Field Measurements: In instances in which casework is indicated to fit to other construction, dimensions are to be verified by field measurements before fabrication and reflected on shop drawings.
- B. Samples:
- a. Sample cabinets upon request: 1 base and/or 1 wall cabinet as selected by owner/architect
 - b. Stain and Finish Samples
 - i. A minimum of five (5) standard manufacturer's samples, constructed of the same material from which the casework will be constructed, painted and clearly identified, should be submitted to the architect for color selection.
 - ii. Finish samples will be retained by the owner's representative.

1.7 QUALITY ASSURANCE

- A. Design Data/Test Reports: Manufacturer shall submit test data and design criteria which are in compliance with the project specifications. Testing of safety devices and performance criteria shall be performed by a 3rd party validator.
- B. Certificates: All certifications required in the specifications should be submitted with the original submittal package under separate cover. Certificates must be provided with the signature of a qualified individual of the supplier.
- C. Qualification of Bidder/Manufacturer: The following list of information should be provided to the Architect at least ten (10) days prior to the bid opening:
 - a. List of manufacturing facilities
 - b. A list of five (5) installations of comparable stature completed within the past 3 years
- D. Regulatory Requirements
 - a. Reference Standard: The ensuing specifications are based on the design of **CiF Lab Solutions M-Line Series** wood casework.

- b. Source Limitations: All casework, including countertops, sinks, service fittings and accessories, should be obtained from a single source to ensure consistency in project delivery.
- E. Mock-Ups
 - a. Area mockups shall be as indicated on the shop drawings. Mockup areas must be priced for disassembly and reassembly and used within the project.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Packaging, Shipping, Handling and Unloading Packaging: Products should have packaging adequate enough to protect finished surfaces from soiling or damage during shipping, delivery and installation.
- B. Delivery: Casework delivery should only take place after painting, utility rough-ins and related activities are completed that could otherwise damage, soil or deteriorate casework in installation areas.
- C. Handling: Care, such as the use of proper moving equipment, experienced movers, etc., should be used at all times to avoid damaging the casework. Until installation takes place, any wrapping, insulation or other method of protection applied to products from the factory should be left in place to avoid accidental damage.
- D. Acceptance at Site: Casework will not be delivered or installed until the conditions specified under Part 3, Installation section of this document have been met.
- E. Storage: Casework should be stored in the area of installation. If, prior to installation, it is necessary for casework to be temporarily stored in an area other than the installation area, the environmental conditions shall meet the environmental requirements specified under the Project Site Conditions article of this section.
- F. Waste Management and Disposal: The supplier of the laboratory casework is responsible for removing any waste or refuse resulting from the installation of, or work pertaining to laboratory casework; thereby leaving the project site clean and free of debris. Trash container/s to be provided by others.

1.9 PROJECT SITE CONDITIONS

- A. Building must be enclosed (windows and doors sealed and weather-tight);
- B. An operational HVAC system that maintains temperature and humidity at occupancy levels must be in place;
- C. Relative humidity must be regulated and stable between 25% and 55% per AWI standards before products are brought on site, throughout project

completion and with the site moving forward while the building is in use by the owner.

- D. Ceiling, overhead ductwork and lighting must be installed;
- E. Site must be free of any further construction such as “wet work.”
- F. Required backing and reinforcements must be installed accurately and the project must be read for casework installation.

1.10 WARRANTY

- A. Furnish a written warranty that Work performed under this Section shall remain free from defects as to materials and workmanship for a period of three (3) years from date of acceptance. Defects in materials and workmanship that may develop within this time are to be replaced without cost or expense to the Owner. Defects include, but are not limited to:
 - a. Ruptured, cracked, or peeling veneer
 - b. Discoloration or lack of finish integrity
 - c. De-lamination of components or edge banding
 - d. Slippage, shift, or failure of attachment to wall, floor, or ceiling
 - e. Warping or unloaded deflection of components
 - f. Failure of hardware
- B. 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.
- C. All non-casework items supplied, but not manufactured at CiF Lab Solutions shall be covered under the original manufacturer’s warranty.

PART 2– PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Product: M-Line Series by CiF Lab Solutions 53 Courtland Avenue, Vaughan, ON, Canada L4K3T2 (or equal)
- B. Substitution Limitations:
 - a. 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:

- b. Written documentation stating specification compliance regarding construction, materials, and standard of quality and manufacturing techniques.
 - c. Note all deviations to the drawings and/or specifications in writing.
 - d. 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.
 - e. 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.
- C. Approved Equals
- a. Case Systems
 - b. Sheldon Labs
 - c. **Stevens Industries (Addendum 2)**

2.2 MATERIALS

1. Wood Casework:
- A. Solid Lumber Used:
- a. All hardwoods shall be carefully and thoroughly air-dried, and then kiln dried to a moisture content of 6-9 percent before use.
- B. Other materials for construction for Casework Body, Interior shelving and Doors/Drawer Heads:
- a. Cabinet ends, bottoms, shelves and backs shall be fabricated of premium $\frac{3}{4}$ " MDF board. Components of particleboard, lumber or other materials **WILL NOT** be acceptable.
 - b. Doors and drawer fronts shall be fabricated of premium $\frac{3}{4}$ " MDF board.
 - c. Backs of all open or glazed wall and tall cabinets shall be $\frac{1}{2}$ " MDF board. Backs of all semi-exposed wall and tall cabinets will be $\frac{1}{2}$ " thermally fused melamine.
 - d. Cabinet liners, vinyl covered boards, foils or other similar materials are not acceptable on any components.
- C. Hardware

- a. Pulls shall be nominal 4" wire type. Finish shall be brushed chrome. Drawers over 24" wide to receive two pulls. Mount drawer pulls horizontally. Mount door pulls vertically.
- b. Hinges shall be institutional type 2 3/4", 5-knuckle steel hinge, wrap around design. Finish to be brushed chrome. Two hinges on doors up to 36" in height, three hinges on doors over 36" in height, four hinges on doors over 60" in height
- c. Door catches: Adjustable type, spring activated nylon roller catches.
- d. Elbow catches shall be spring actuated and come complete with strike plate. Provided where locks occur in hinged double door units.
- e. Drawer slides shall be full extension, ball bearing type equal to Accuride model #3832, full extension series. File drawer slides shall be equal to the Accuride model #4034, 150lb, full extension.
- f. Locks: 5 disc tumbler cam locks with offset cam and removable core. Exposed face chrome plated. Keying: keyed alike in groups per room with master key.
- g. Adjustable seismic shelf supports shall be double pin, plastic locking type, able to accommodate both 3/4" and 1" thick shelves.

2.3 FABRICATION

A. Base Units

- a. Cabinet ends shall be 3/4" MDF board.
- b. Front top rail: 3/4" x 3 3/4" MDF board, fastened to cabinet ends with fluted dowels.
- c. Rear top and bottom support rails: 3/4" x 3 3/4" MDF board, fastened to cabinet with fluted dowels.
- d. Toe space rail: Solid, continuous pressure treated wood as required to construct 4" high x 2" deep toe space.
- e. Cabinet bottoms: 3/4" MDF board set flush and fastened to cabinet ends with fluted dowels.
- f. Cabinet backs: Cabinet backs in exposed cabinets shall be fabricated of 1/2" MDF board. Cabinet backs in semi-exposed cabinets shall be fabricated of one-piece 1/4" white tempered hardboard. Backs are not provided on drawer units.
- g. Vertical dividers: Full height dividers and half height dividers shall be 1 1/2" MDF board secured to bottom, front top rail and rear top rail with dowels and screws.

- h. Adjustable shelves shall be set on double pin, plastic locking shelf supports at 1¼" spacing. Shelves shall be full depth in standard cupboards and in open units. Adjustable shelves on base cabinets 36" and smaller shall be ¾" thick. Adjustable shelves on cabinets over 36" wide shall be 1" thick.
- i. Drawer Construction: Drawer box back, front and sides to be of ½" Baltic Birch, 9 ply hardwood plywood and shall be finished with the same laboratory grade finish as applied to the cabinet. Use dovetail joinery on all four joints. Drawer bottom shall be ¼" white thermo-fused melamine faced MDF and shall be grooved into all four sides of the drawer box and glued into position. Drawer body will be affixed to drawer front by screws.
- j. Doors and drawer fronts shall be ¾" MDF board. Construction shall be reveal overlay.

B. Wall and Tall Cases

- a. Case ends: ¾" MDF board.
- b. Tops of wall and tall cases: 1" MDF board fastened to ends with fluted dowels
- c. Bottoms of wall cases: 1" MDF board fastened to cabinet ends with fluted dowels.
- d. Bottoms of tall cases: ¾" MDF board fastened to cabinet with fluted dowels.
- e. Exposed backs on wall and tall cabinets shall be ½" MDF board; semi-exposed backs shall be ½" melamine. Backs shall be stapled and glued into rebates on back edge of ends.
- f. Fixed center shelves on tall cases shall be 1" thick and shall be fastened to ends with fluted dowels.
- i. Adjustable shelves shall be set on double pin, plastic locking shelf supports at 1¼" spacing. Shelves shall be full depth in standard cupboards and in open units. Adjustable shelves on base cabinets 36" and smaller shall be ¾" thick. Adjustable shelves on cabinets over 36" wide shall be 1" thick.

C. Doors

- a. Solid doors shall be ¾" MDF board. Construction shall be Reveal overlay.
- b. Provide two hinges on all doors up to 36" in height and a minimum of three hinges on doors exceeding this height.

2.4 FINISHES

A. Casework Finish

- a. Casework Finish Color is listed on Finish Schedule on drawings.
- b. Casework shall be finished on all interior and exterior surfaces in a flat line; oven cured process, spraying a catalyzed vinyl coating especially formulated for laboratory casework and be acid/solvent resistant (System 7 Catalyzed Vinyl).
- c. Casework finish shall meet AWI Quality Standards Eighth Edition for Specialty Finishes
– Premium Catalyzed Vinyl and SEFA 8-1999 CHEMICAL RESISTANCE SPECIFICATIONS. Manufacturers are to provide documentation to the architect of their finishes' compliance to the above.
- c. Apply a coat of sealer and two finish coats to surfaces. Thoroughly sand surfaces between coats. Maximum film build is 6 wet mils and (2.9-3.3) mils dry.
- d. Solids content to be minimum 35% by weight.
- e. Prior to finishing sand surfaces smooth, ensuring that they are free of dirt, defects, chatter and machine marks.
- f. Apply sealer and finish coats to all exposed and semi-exposed casework surfaces.
- g. Finish coat shall leave a smooth, clear, satin finish with consistent coloration.
- h. Finishes must pass the following tests or they will be rejected.
 - 1. 20 cycle Cold Check Test.
 - 2. Print Test ASTM D2091
 - 3. Moisture Resistance Test
 - 4. Impact Resistance Test
 - 5. Hot Water Test
 - 6. Chemical Resistance Test – ASTM D1308

PART 3 – EXECUTION

3.1 INSTALLERS

- A. Installer Qualifications: For installation and maintenance of units, an authorized representative of the casework manufacturer required for this project.

3.2 EXAMINATION

- A. Site Verification of Conditions: Casework will not be delivered or installed until the following conditions have been met:
- B. Building must be enclosed (windows and doors sealed and weather-tight);

- C. An operational HVAC system that maintains temperature and humidity at occupancy levels must be in place; Relative humidity must be regulated and stable between 25% and 55% per AWI standards before products are brought on site, throughout project completion and with the site moving forward while the building is in use by the owner.
- D. Ceiling, overhead ductwork and lighting must be installed;
- E. Site must be free of any further construction such as "wet work."
- F. Required backing and reinforcements must be installed accurately and the project must be read for casework installation.

NOTE: In the event that any of the specified requirements for installation are not present at the time of requested delivery, the general contractor or owner must provide the casework manufacturer with a letter of deviation that releases the manufacturer from any responsibility or liability from any damage to the products resulting from the unfavorable building conditions.

3.3 INSTALLATION

- A. Casework Installation:
 - a. Casework should be set with components plumb, straight and square, securely anchored to building structure with not distortion. Concealed shims should be used as required.
 - b. Cabinets in continuous runs should be bolted together with joints flush, uniform and tight with and alignment of adjacent units not to exceed 1/16 of an inch.
 - c. Wall casework should be secured to solid material, not lath, plastic or gypsum board.
 - d. Top edge surfaces should be abutted in one true place. Joints are to be flush and should not exceed 1/8 of an inch between tops units.
 - e. Casework and hardware shall be adjusted and aligned to allow for accurate connection of contact points and efficient operation of doors and drawers without any warping or binding.
- B. Countertop Installation:
 - a. Countertops are to have been fabricated in lengths according to drawings, with ends abutting tightly and sealed with corrosion resistant sealant.
 - b. Tops will be anchored to base casework in a single true plane with ends abutting at hairline joints with no raised edges at joints.
 - c. Joints shall be factory prepared having no need for in-field processing of top and edge surfaces.
 - d. Joints should be dressed smoothly, surface scratches removed and entire surface cleaned thoroughly.
- C. Cleaning

- a. Ensure all products are unsoiled and match factory finish. Remove or repair damaged or defective units.
 - b. Clean all finished surfaces, including drawers and cabinet shelves, and touch up as necessary.
 - c. Countertops should be cleaned and free of grease or streaks.
- D. Protection:
- a. Counter tops and ledges should be protected with 1/4 inch ribbed cardboard or plastic covering of 6mm thickness.

END OF SECTION

DIVISION 9 - FINISHES

SECTION 09 6723 – RESINOUS FLOORING

PART 1 - GENERAL

1.1 Summary

- A. This Section includes:
 - 1. High-performance resinous flooring systems.

1.2 Submittals

- A. Product Data: For each type of product indicated.
- B. Installer Certificates for Qualification: Signed by manufacturer certifying that installers comply with specified requirements.
- C. Material Certificates: For each resinous flooring component, from manufacturer.
- D. Material Test Reports: For each resinous flooring system.
- E. Maintenance Data: For maintenance manuals.
- F. Samples: Submit one sample of coating, indicating coating applied on horizontal surfaces. Sample shall illustrate transition from Resinous Flooring system. Provide sample which is a true representation of proposed field applied finish; not laboratory applied finish. Provide minimum 12 feet by 4 feet field sample color and texture for owner approval as a mockup at location designated by General Contractor for review and written approval by architect prior to installation of any other areas. If mockup is unacceptable remove and provide additional mock up(s) until approved by architect.
- G. Product Schedule: For resinous flooring.

1.3 Quality Assurance

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of flooring systems required for this Project.
 - 1. Engage an installer who is approved in writing by resinous flooring manufacturer as qualified to apply resinous flooring systems indicated.
 - 2. Installer Letter of Certification: Installer to provide letter stating that they have been in business for at least 10 years and listing 5 projects in the last 2 years of similar scope. For each project provide: project name, location, date of installation, contact information, size of project, and manufacturer of materials with system information.
- B. Source Limitations: Obtain primary resinous flooring materials, including primers, resins, hardening agents, grouting coats, and topcoats, from single source from single manufacturer. Provide secondary materials, including patching and fill material, joint sealant, and repair materials, of type and from source recommended by manufacturer of primary materials.
- C. Pre-installation Conference: Conduct conference at Project site before work and mockups begin.
- D. Mockups: Apply mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Apply full-thickness mockups on 48-inch square floor area selected by Architect.
 - 2. Simulate finished lighting conditions for Architect's review of mockups.
 - 3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

4. Mockup shall demonstrate desired slip resistance for review and approval by General Contractor prior to installing project areas.

1.4 Delivery, Storage, And Handling

- A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage and mixing with other components.
 1. Maintain containers in clean condition, free of foreign materials and residue.
 2. Remove rags and waste from storage areas daily.

1.5 Project Conditions

- A. Environmental Limitations: Comply with resinous flooring manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous flooring application. Permanent HVAC and enclosed building conditions shall be in place.
- B. Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous flooring application.
- C. Close spaces to traffic during resinous flooring application and for not less than 24 hours after application unless manufacturer recommends a longer period.

1.6 Warranty

- A. Submit a one-year warranty against defects in material and workmanship upon substantial completion of installation.

PART 2 - PRODUCTS

2.1 Manufacturers

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. The Sherwin Williams Company (or equal).
 2. **Stonhard (Addendum 2)**
- B. Basis of Design for High-Performance Resinous Flooring: The Sherwin Williams Company. Contact Phillip Smith (803)239-6901 phillip.c.smith@sherwin.com.
 1. General Polymers Decorative Mosaic Epoxy Coating System
 - a. 1st Coat: 2-part primer epoxy 3579 @ 200-300 sf/gal
 - b. 2nd Coat: body coat 2-part epoxy 3746 @ 200-300 sf/gal with 6750/6755 flake broadcast to excess (flake size as indicated on drawings)
 - c. 3rd Coat: grout coat: 2-part epoxy 3746 @ 160-250 sf/gal
 - d. Topcoat: 2-part clear urethane 4686 @ 250-400 sf/gal
 - e. Total System Thickness: 20-30 mils
 - f. Cove Base: if required, install integral cove base with 1" radius at height and locations indicated on drawings using General Polymer Epoxy Cove Base.

2.2 Materials

- A. VOC Content of Resinous Flooring: Provide resinous flooring systems, for use inside the weatherproofing system, that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24)].
 1. Resinous Flooring: 100 g/L.

2.3 High-Performance Resinous Flooring

- A. Resinous Flooring: Abrasion-, impact- and chemical-resistant, high-performance, resin-based, monolithic floor surfacing designed to produce a seamless floor.
- B. System Characteristics:
 - 1. Color and Pattern: As indicated from manufacturers listed above.
 - 2. Slip Resistance: Provide slip resistant finish.

PART 3 - EXECUTION

3.1 Preparation

- A. Inspection: Prior to commencing Work, thoroughly examine all underlying and adjoining work, surfaces and conditions upon which Work is in any way dependent for perfect results. Report all conditions which affect Work. No "waiver of responsibility" for incomplete, inadequate or defective underlaying and adjoining work, surfaces and conditions will be considered, unless notice of such unsatisfactory conditions has been filed and agreed to in writing before Work begins. Commencement of Work constitutes acceptance of surfaces. Test and report for moisture level in substrate to verify compliance with manufacturer's requirements. Do not proceed unless acceptable test results are achieved.
- B. Only installers approved by the manufacturer in writing shall perform installation of the material.
- C. Surface Preparation: Remove all surface contamination, loose or weakly adherent particles, laitance, grease, oil, curing compounds, paint, dust and debris by blast track method or approved mechanical means (acid etch not allowed). If surface is questionable try a test patch. Create a minimum surface profile for the system specified in accordance with the methods described in ICRI No. 03732 to achieve profile numbers as follows:
 - 1. Thin film, to 10 mils CSP-1 to CSP-3
 - 2. Thin and medium films, 10 to 40 mils CSP-3 to CSP-5
 - 3. Self-leveling mortars, to 3/16" CSP-4 to CSP-6
 - 4. Mortars and laminates, to 1/4" or more CSP-5 to CSP-10

3.2 Environmental Conditions

- A. All applicators and all other personnel in the area of the RF installation shall take all required and necessary safety precautions. All manufacturers' installation instructions shall be implicitly followed.
- B. Repair damaged and deteriorated concrete according to resinous flooring manufacturer's written instructions.
- C. Verify that concrete substrates are dry and moisture-vapor emissions are within acceptable levels according to manufacturer's written instructions by using the following methods as recommended by the resinous flooring manufacturer.
 - 1. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with application of resinous flooring only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. or that required in manufacturer's instructions of slab area in 24 hours.
 - 2. Perform plastic sheet test, ASTM D 4263. Proceed with application only after testing indicates absence of moisture in substrates.

3. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have a percent relative humidity level measurement as noted acceptable by resinous floor manufacturer.
- D. Alkalinity and Adhesion Testing: Verify that concrete substrates have pH within acceptable range. Perform tests recommended by manufacturer. Proceed with application only after substrates pass testing.
- E. Resinous Materials: Mix components and prepare materials according to resinous flooring manufacturer's written instructions.
- F. Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.
- G. Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's written instructions.

3.3 Applications

- A. Install resinous floor over properly prepared concrete surface in strict accordance with the manufacturer's directions. Installation of resinous floor indicates installers acceptance of substrate.
 1. Install the primer and/or base coats over thoroughly cleaned and prepared concrete.
 2. Install topcoat over flooring after excess aggregate has been removed.
 3. Maintain a slab temperature of 60°F to 80°F for 24 hours minimum before applying floor topping.
- B. Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.
 1. Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum intercoat adhesion.
 2. Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes.
 3. At substrate expansion and isolation joints, comply with resinous flooring manufacturer's written instructions.
- C. Sealant: Saw cut resinous floor topping at expansion joints in concrete slab. Fill sawcuts with sealant prior to final seal coat application. Follow manufacturer's written recommendations.
- D. Chase finish and key in all edges of floor coating at drains, adjacent bare concrete, and any termination points where there is no vertical surface to abut. No feather edging.
- E. Apply primer over prepared substrate at manufacturer's recommended spreading rate.
- F. Slip Resistant Finish: Provide grit for slip resistance.
- G. Apply topcoats in number indicated for flooring system and at spreading rates recommended in writing by manufacturer.

3.4 Completed Work

- A. Cleaning: Upon completion of the Work, clean up and remove from the premises surplus materials, tools, appliances, empty cans, cartons and rubbish resulting from the Work. Clean off all splatterings and drippings, and all resulting stains.
- B. Protection: Protect Work in accordance with manufacturer's directions from damage and wear during the remainder of the construction period. Use protective methods and materials, including temporary covering, recommended in writing by resinous flooring manufacturer.

- C. Contractor shall insure that coating is protected from any traffic until it is fully cured to the satisfaction of the coating manufacturer.

END OF SECTION 09 6723

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SECTION 087100 – DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes commercial door hardware for the following:
 - 1. Swinging doors.
 - 2. Sliding doors.
 - 3. Other doors to the extent indicated.
- B. Door hardware includes, but is not necessarily limited to, the following:
 - 1. Mechanical door hardware.
 - 2. Electromechanical door hardware.
 - 3. Automatic operators.
 - 4. Cylinders specified for doors in other sections.
- C. Related Sections:
 - 1. Division 06 Section "Rough Carpentry".
 - 2. Division 06 Section "Finish Carpentry".
 - 3. Division 08 Section "Operations and Maintenance".
 - 4. Division 08 Section "Door Schedule".
 - 5. Division 08 Section "Hollow Metal Doors and Frames".
 - 6. Division 08 Section "Flush Wood Doors".
 - 7. Division 08 Section "Aluminum-Framed Entrances and Storefronts".
 - 8. Division 08 Section "Automatic Door Operators".
- D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
 - 1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
 - 2. ICC/IBC - International Building Code.
 - 3. NFPA 70 - National Electrical Code.
 - 4. NFPA 80 - Fire Doors and Windows.
 - 5. NFPA 101 - Life Safety Code.
 - 6. NFPA 105 - Installation of Smoke Door Assemblies.
 - 7. UL/ULC and CSA C22.2 – Standards for Automatic Door Operators Used on Fire and Smoke Barrier Doors and Systems of Doors.

8. State Building Codes, Local Amendments.
- E. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:
 1. ANSI/BHMA Certified Product Standards - A156 Series.
 2. UL10C – Positive Pressure Fire Tests of Door Assemblies.
 3. CAN/ULC-S104 – Standard Method for Fire Tests of Door Assemblies.
 4. ANSI/UL 294 – Access Control System Units.
 5. ULC-S319 - Electronic Access Control Systems.
 6. ULC-60839-11-1, Alarm and Electronic Security Systems - Part 11-1: Electronic Access Control Systems - System and Components Requirements.
 7. CAN-ULC-S132 -- Standard Method of Tests for Emergency Exit and Emergency Fire Exit Hardware.
 8. CAN-ULC-S533 - Egress Door Securing and Releasing Devices.
 9. UL 305 – Panic Hardware.
 10. ULC-S132, Emergency Exit and Emergency Fire Exit Hardware.
 11. ULC-S533 – Egress Door Securing and Releasing Devices.
 12. ANSI/UL 437- Key Locks.
 13. ULC-S328, - Burglary Resistant Key Locks.

1.3 SUBMITTALS

- A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.
- B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
 1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
 2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
 3. Content: Include the following information:
 - a. Type, style, function, size, label, hand, and finish of each door hardware item.
 - b. Manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.

- e. Explanation of abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for door hardware.
 - g. Door and frame sizes and materials.
 - h. Warranty information for each product.
 - 4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
- C. Shop Drawings: Details of electrified access control hardware indicating the following:
- 1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:
 - a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.
 - b. Complete (risers, point-to-point) access control system block wiring diagrams.
 - c. Wiring instructions for each electronic component scheduled herein.
 - 2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.
- D. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.
- E. Informational Submittals:
- 1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.
- F. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.

1.4 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that

indicated for this Project and that have a proven record of successful in-service performance.

- B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).
- C. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- D. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.
- E. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
 - 1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
 - 2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.
- F. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.
- G. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
 - 1. Function of building, purpose of each area and degree of security required.
 - 2. Plans for existing and future key system expansion.
 - 3. Requirements for key control storage and software.
 - 4. Installation of permanent keys, cylinder cores and software.
 - 5. Address and requirements for delivery of keys.
- H. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
 - 1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and

adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.

2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
 3. Review sequence of operation narratives for each unique access controlled opening.
 4. Review and finalize construction schedule and verify availability of materials.
 5. Review the required inspecting, testing, commissioning, and demonstration procedures
- I. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.6 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
- B. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.7 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under

other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

- B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
 - 1. Structural failures including excessive deflection, cracking, or breakage.
 - 2. Faulty operation of the hardware.
 - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - 4. Electrical component defects and failures within the systems operation.
- C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.
- D. Special Warranty Periods:
 - 1. Ten years for mortise locks and latches.
 - 2. Five years for exit hardware.
 - 3. Five years for manual overhead door closer bodies.
 - 4. Twenty five years for manual overhead door closer bodies.
 - 5. Five years for motorized electric latch retraction exit devices.
 - 6. Two years for electromechanical door hardware.

1.8 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

- A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.
- B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
 - 1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing

requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

- C. Products furnished, but not installed, under this Section include the following. Coordinating, purchasing, delivering, and scheduling remain requirements of this Section.
 - 1. Permanent cylinders, cores, and keys to be installed by Owner.
- D. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 HANGING DEVICES

- A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.
 - 1. Quantity: Provide the following hinge quantity:
 - a. Two Hinges: For doors with heights up to 60 inches.
 - b. Three Hinges: For doors with heights 61 to 90 inches.
 - c. Four Hinges: For doors with heights 91 to 120 inches.
 - d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.
 - 2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
 - a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
 - b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.
 - 3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
 - a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
 - b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
 - 4. Hinge Options: Comply with the following:
 - a. Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.
 - 5. Manufacturers:

- a. Hager Companies (HA).
 - b. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK).
 - c. Stanley Hardware (ST).
- B. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 certified continuous geared hinge. with minimum 0.120-inch thick extruded 6060 T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.
 - 1. Manufacturers:
 - a. Hager Companies (HA).
 - b. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).

2.3 POWER TRANSFER DEVICES

- A. Concealed Quick Connect Electric Power Transfers: Provide concealed wiring pathway housing mortised into the door and frame for low voltage electrified door hardware. Furnish with Molex™ standardized plug connectors and sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.
 - 1. Manufacturers:
 - a. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE) – EL-CEPT Series.
 - b. Securitron (SU) - EL-CEPT Series.
 - c. Von Duprin (VD) - EPT-10 Series.
- B. Electric Door Wire Harnesses: Provide electric/data transfer wiring harnesses with standardized plug connectors to accommodate up to twelve (12) wires. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Provide sufficient number and type of concealed wires to accommodate electric function of specified hardware. Provide a connector for through-door electronic locking devices and from hinge to junction box above the opening. Wire nut connections are not acceptable. Determine the length required for each electrified hardware component for the door type, size and construction, minimum of two per electrified opening.
 - 1. Provide one each of the following tools as part of the base bid contract:
 - a. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - Electrical Connecting Kit: QC-R001.
 - b. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - Connector Hand Tool: QC-R003.
 - 2. Manufacturers:

- a. Hager Companies (HA) - Quick Connect.
- b. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) – QC-C Series.
- c. Stanley Hardware (ST) – WH Series.

2.4 DOOR OPERATING TRIM

- A. Flush Bolts and Surface Bolts: ANSI/BHMA A156.3 and A156.16, Grade 1, certified.
 - 1. Flush bolts to be furnished with top rod of sufficient length to allow bolt retraction device location approximately six feet from the floor.
 - 2. Furnish dust proof strikes for bottom bolts.
 - 3. Surface bolts to be minimum 8" in length and U.L. listed for labeled fire doors and U.L. listed for windstorm components where applicable.
 - 4. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.
 - 5. Manufacturers:
 - a. Door Controls International (DC).
 - b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
 - c. Trimco (TC).
- B. Door Push Plates and Pulls: ANSI/BHMA A156.6 certified door pushes and pulls of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.
 - 1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
 - 2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
 - 3. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
 - 4. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.
 - 5. Manufacturers:
 - a. Hiawatha, Inc. (HI).
 - b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
 - c. Trimco (TC).

2.5 CYLINDERS AND KEYING

- A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.

1. Manufacturers:
 - a. dormakaba Best (BE).
- B. Cylinders: Original manufacturer cylinders complying with the following:
 1. Mortise Type: Threaded cylinders with rings and cams to suit hardware application.
 2. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
 3. Bored-Lock Type: Cylinders with tailpieces to suit locks.
 4. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
 5. Keyway: Match Facility Restricted Keyway.
- C. Interchangeable Cores: Provide small format interchangeable cores as specified, core insert, removable by use of a special key; usable with other manufacturers' cylinders.
- D. Keying System: Each type of lock and cylinders to be factory keyed.
 1. Supplier shall conduct a "Keying Conference" to define and document keying system instructions and requirements.
 2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
 3. Existing System: Field verify and key cylinders to match Owner's existing system.
- E. Key Quantity: Provide the following minimum number of keys:
 1. Change Keys per Cylinder: Two (2)
 2. Master Keys (per Master Key Level/Group): Five (5).
 3. Construction Keys (where required): Ten (10).
 4. Construction Control Keys (where required): Two (2).
- F. Construction Keying: Provide construction master keyed cylinders.
- G. Construction Keying: Provide temporary keyed construction cores.
- H. Key Registration List (Bitting List):
 1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
 2. Provide transcript list in writing or electronic file as directed by the Owner.

2.6 MECHANICAL LOCKS AND LATCHING DEVICES

- A. Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 Certified Products Directory (CPD) listed. Locksets are to be manufactured with a corrosion resistant steel case and be field-reversible for handing without disassembly of the lock body.

1. Where specified, provide status indicators with highly reflective color and wording for “locked/unlocked” or “vacant/occupied” with custom wording options if required. Indicator to be located above the cylinder with the inside thumb-turn not blocking the visibility of the indicator status. Indicator window size to be a minimum of 2.1” x 0.6” with a curved design allowing a 180 degree viewing angle with protective covering to prevent tampering.
2. Manufacturers:
 - a. Corbin Russwin Hardware (RU) – ML2000 Series.
 - b. Sargent Manufacturing (SA) – 8200 Series.
 - c. Yale Commercial(YA) – 8800FL Series.
 - d. **Best Access (Addendum 2)**

2.7 ELECTROMECHANICAL LOCKING DEVICES

2.8 LOCK AND LATCH STRIKES

- A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
 1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
 2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
 3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
 4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.
- B. Standards: Comply with the following:
 1. Strikes for Mortise Locks and Latches: BHMA A156.13.
 2. Strikes for Bored Locks and Latches: BHMA A156.2.
 3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
 4. Dustproof Strikes: BHMA A156.16.

2.9 ELECTRIC STRIKES

- A. Standard Electric Strikes: Electric strikes tested to ANSI/BHMA A156.31, Grade 1, for use on non-rated or fire rated openings. Strikes shall be of stainless steel construction tested to a minimum of 1500 pounds of static strength and 70 foot-pounds of dynamic strength with a minimum endurance of 1 million operating cycles. Provide strikes with 12 or 24 VDC capability, fail-secure unless otherwise specified. Where specified provide latchbolt and latchbolt strike monitoring indicating both the position of the latchbolt and locked condition of the strike.
 1. Manufacturers:

- a. Folger Adam (FO) - 742 Series.

2.10 CONVENTIONAL EXIT DEVICES

- A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:
1. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
 2. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.
 3. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
 4. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
 5. Energy Efficient Design: Provide lock bodies which have a holding current draw of 15mA maximum, and can operate on either 12 or 24 volts. Locks are to be field configurable for fail safe or fail secure operation.
 6. Electromechanical Options: Subject to same compliance standards and requirements as mechanical exit devices, electrified devices to be of type and design as specified in hardware sets. Include any specific controllers when conventional power supplies are not sufficient to provide the proper inrush current.
 7. Motorized Electric Latch Retraction: Devices with an electric latch retraction feature must use motors which have a maximum current draw of 600mA. Solenoid driven latch retraction is not acceptable.
 8. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.
 - a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
 - b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
 9. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise

indicated. Provide dust proof strikes where thermal pins are required to project into the floor.

10. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
 11. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
 12. Rail Sizing: Provide exit device rails factory sized for proper door width application.
 13. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.
- B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.
1. Manufacturers:
 - a. Corbin Russwin Hardware (RU) - ED4000 / ED5000 Series.
 - b. Sargent Manufacturing (SA) - 80 Series.
 - c. **Precision Hardware (Addendum 2)**

2.11 DOOR CLOSERS

- A. All door closers specified herein shall meet or exceed the following criteria:
1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.
 2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
 3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC/A117.1.
 4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
 5. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
 6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper

installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

- B. Door Closers, Surface Mounted (Large Body Cast Iron): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control.
 - 1. Manufacturers:
 - a. Corbin Russwin Hardware (RU) – DC8000 Series.
 - b. Norton Door Controls (NO) – 9500 Series.
 - c. Sargent Manufacturing (SA) – 281 Series.
 - d. **Dormakaba (Addendum 2)**
- C. Door Closers, Overhead Concealed (Narrow Profile): ANSI/BHMA 156.4 Grade 1 Certified Products Directory (CPD) listed door closers designed for narrow profile frames and doors. Closers to have fully concealed body in the frame head for offset hung applications, with separate and independent valves for closing speed and backcheck adjustments and a decorative cover plate.
 - 1. Manufacturers:
 - a. LCN Closers (LC) - 2030 Series.
 - b. Rixson Door Controls (RF) - 91DCP Series.
 - c. **Dormakaba (Addendum 2)**

2.12 ELECTROHYDRAULIC DOOR OPERATORS

- A. General: Provide low energy operators of size recommended by manufacturer for door size, weight, and movement; for condition of exposure; and for compliance with UL 325. Coordinate operator mechanisms with door operation, hinges, and activation devices.
 - 1. Fire-Rated Doors: Provide door operators for fire-rated door assemblies that comply with NFPA 80 for fire-rated door components and are listed and labeled by a qualified testing agency.
- B. Standard: Certified ANSI/BHMA A156.19.
- C. Performance Requirements:
 - 1. Opening Force if Power Fails: Not more than 15 lbf required to release a latch if provided, not more than 30 lbf required to manually set door in motion, and not more than 15 lbf required to fully open door.
 - 2. Entrapment Protection: Not more than 15 lbf required to prevent stopped door from closing or opening.

- D. Configuration: Surface mounted or in-ground as required. Door operators to control single swinging and pair of swinging doors.
- E. Operation: Power opening and spring closing operation capable of meeting ANSI A117.1 accessibility guideline. Provide time delay for door to remain open before initiating closing cycle as required by ANSI/BHMA A156.19. When not in automatic mode, door operator to function as manual door closer with fully adjustable opening and closing forces, with or without electrical power.
- F. Features: Operator units to have full feature adjustments for door opening and closing force and speed, backcheck, motor assist acceleration from 0 to 30 seconds, time delay, vestibule interface delay, obstruction recycle, and hold open time from 0 up to 30 seconds.
- G. Provide outputs and relays on board the operator to allow for coordination of exit device latch retraction, electric strikes, magnetic locks, card readers, safety and motion sensors and specified auxiliary contacts.
- H. Brackets and Reinforcements: Manufacturer's standard, fabricated from aluminum with nonferrous shims for aligning system components.
- I. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. LCN Closers (LC) - 4640 Series.
 - 2. Norton Door Controls (NO) - 6000 Series.
 - 3. Stanley Security Solutions (ST) – D-4990 Series.

2.13 ARCHITECTURAL TRIM

- A. Door Protective Trim
 - 1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
 - 2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1" LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
 - 3. Where plates are applied to fire rated doors with the top of the plate more than 16" above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer's catalog and template book for specific requirements for size and applications.
 - 4. Protection Plates: ANSI/BHMA A156.6 certified protection plates (kick, armor, or mop), fabricated from the following:
 - a. Stainless Steel: 300 grade, .050-inch thick.

5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
6. Manufacturers:
 - a. Hiawatha, Inc. (HI).
 - b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
 - c. Trimco (TC).

2.14 DOOR STOPS AND HOLDERS

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.
- B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.
 1. Manufacturers:
 - a. Hiawatha, Inc. (HI).
 - b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
 - c. Trimco (TC).

2.15 ARCHITECTURAL SEALS

- A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.
- B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.
 1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.
- C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.
 1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.

- D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.
- E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- F. Manufacturers:
 - 1. National Guard Products (NG).
 - 2. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).
 - 3. Reese Enterprises, Inc. (RE).

2.16 ELECTRONIC ACCESSORIES

- A. Door Position Switches: Door position magnetic reed contact switches specifically designed for use in commercial door applications. On recessed models the contact and magnetic housing snap-lock into a 1" diameter hole. Surface mounted models include wide gap distance design complete with armored flex cabling. Provide SPDT, N/O switches with optional Rare Earth Magnet installation on steel doors with flush top channels.
 - 1. Manufacturers:
 - a. Securitron (SU) - DPS Series.
- B. Linear Power Supplies: Provide Nationally Recognized Testing Laboratory Listed 12VDC or 24VDC (field selectable) filtered and regulated power supplies. Include battery backup option with integral battery charging capability in addition to operating the DC load in event of line voltage failure. Provide the least number of units, at the appropriate amperage level, sufficient to exceed the required total draw plus 50% for the specified electrified hardware and access control equipment.
 - 1. Manufacturers:
 - a. Alarm Controls (AK) - APS Series.
 - b. Securitron (SU) - BPS Series.

2.17 FABRICATION

- A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.18 FINISHES

- A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

- A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.
- B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

- A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
 - 1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
- B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
 - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
 - 2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
 - 3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
 - 4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

- C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."
- E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

- A. Field Inspection (Punch Report): Reference Division 01 Sections "Closeout Procedures" and "Cash Allowances". Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.
 - 1. Organization of List: Include separate Door Opening and Deficiencies and Corrective Action Lists organized by Mark, Opening Remarks and Comments, and related Opening Images and Video Recordings.
 - 2. Submit documentation of incomplete items in the following formats:
 - a. PDF electronic file.
 - b. Electronic formatted file integrated with the Openings Studio™ door opening management software platform.

3.5 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

- A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.
- B. Clean adjacent surfaces soiled by door hardware installation.

- C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

- A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

- A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
 - 1. Quantities listed are for each pair of doors, or for each single door.
 - 2. The supplier is responsible for handing and sizing all products.
 - 3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.
 - 4. At existing openings with new hardware the supplier shall field inspect existing conditions prior to the submittal stage to verify the specified hardware will work as required. Provide alternate solutions and proposals as needed.
- B. Manufacturer's Abbreviations:
 - 1. MK - McKinney
 - 2. PE - Pemko
 - 3. RO - Rockwood
 - 4. SA - SARGENT
 - 5. AD - Adams Rite
 - 6. FO - Folger Adam
 - 7. RF - Rixson
 - 8. NO - Norton
 - 9. SU - Securitron
 - 10. OT - Other

Hardware Sets

Set: 1.0

Doors: 1115, 1115a

Description: EXT CORR PR - ALUM - EAC

1 Continuous Hinge	KCFMXX-HD1 PT	PE	
1 Continuous Hinge	KCFMXX-HD1	PE	
1 Concealed Vert Rod Exit, Nightlatch	55 56 AD8410 106	US32D SA	⚡
1 Concealed Vert Rod Exit, Exit Only	AD8410 EO	US32D SA	
1 SFIC core	Key to existing facility		
2 Door Pull	BF168	US32D RO	
2 Concealed Closer	91N / PH91 - 90N [special template]	626 RF	
2 Door Stop	461	US26D RO	
1 Gasketing	by door / frame mfg		
1 ElectroLynx Harness	QC-C1500 [PS to hinge/strike]	MK	⚡
1 ElectroLynx Harness	QC-CXXP [Lock / exit to hinge]	MK	⚡
1 Electric Power Transfer	EL-CEPT	SU	⚡
1 Card Reader	BY owner - coordinated with security contractor	OT	
1 Wiring Diagram	WD-SYSPK	SA	
2 Position Switch	DPS-M/W-WH (as required)	SU	⚡
1 Power Supply	BPS-Series (Volt & Amp as req)	SU	⚡

Notes: Door normally closed and secured.

Authorized credential retracts the latchbolt to allow free entry, door relocks upon closing. REX (request to exit) switch in device rail allow for free exit at all times

Entry by key override at all times

Door is fail secure

During daytime hours exit device may be manually or electronically "dogged" to allow door to be push/pull (free access/egress).

Set: 2.0

Doors: 1000, 1100

Description: EXT CORR PR - ALUM - EAC-A/O

2 Continuous Hinge	KCFMXX-HD1 PT	PE
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**Center for Materials
And Manufacturing Sciences**

18144

**November 2020
Troy University, Troy, AL**

1 Concealed Vert Rod Exit, Nightlatch	55 56 AD8410 106	US32D SA	⚡
1 Concealed Vert Rod Exit, Exit Only	55 56 AD8410 EO	US32D SA	⚡
1 SFIC core	Key to existing facility		
2 Door Pull	BF168	US32D RO	
1 Surface Closer	281 CPS	EN SA	
1 Automatic Opener	6000 Series - Mtg as required	689 NO	⚡
2 Door Stop	461	US26D RO	
1 Gasketing	by door / frame mfg		
2 ElectroLynx Harness	QC-C1500 [PS to hinge/strike]	MK	⚡
2 ElectroLynx Harness	QC-CXXP [Lock / exit to hinge]	MK	⚡
2 Electric Power Transfer	EL-CEPT	SU	⚡
1 Card Reader	BY owner - coordinated with security contractor	OT	
1 Wiring Diagram	WD-SYSPK	SA	
1 Bollard Post	BTG6 54 - Cut for actuator & CR		⚡
1 Wall actuator (Touchless)	700	NO	⚡
2 Position Switch	DPS-M/W-WH (as required)	SU	⚡
1 Power Supply	BPS-Series (Volt & Amp as req)	SU	⚡

Notes: Door normally closed and secured.

Authorized credential retracts the latchbolt to allow free entry, door relocks upon closing. REX (request to exit) switch in device rail allow for free exit at all times

Entry by key override at all times

Door is fail secure

During daytime hours exit device may be manually or electronically "dogged" to allow door to be push/pull (free access/egress).

Bollard post @ door 1100 only - locate per architect.

Set: 3.0

Doors: 1008a, 1106a

Description: EXT - STAIR - ALUM

1 Continuous Hinge	KCFMXX-HD1	PE	
1 Rim Exit Device, Storeroom	16 70 AD8504 ETB	US32D SA	
1 SFIC core	Key to existing facility		

1 Concealed Closer	91N / PH91 - 90N [special template]	626	RF	
1 Door Stop	461	US26D	RO	
1 Threshold	271A Pemkote MSES25SS		PE	
1 Gasketing	by door / frame mfg			
1 Position Switch	DPS-M/W-WH (as required)		SU	⚡

Set: 4.0

Doors: 1010c

Description: EXT MEP PR

3 Hinge, Full Mortise	TA2314 NRP 4-1/2" x 4-1/2"	US32D	MK	
1 Dormitory Lock	70 8225 LE1B	US26D	SA	
1 SFIC core	Key to existing facility			
1 Surface Closer	281 CPS	EN	SA	
1 Kick Plate	K1050 10" X 2" LDW 4BE CSK	US32D	RO	
1 Threshold	1715AK MSES25SS		PE	
1 Gasketing	S88D		PE	
1 Rain Guard	346C x LAR		PE	
1 Sweep	315CN		PE	
1 Position Switch	DPS-M/W-WH (as required)		SU	⚡

Set: 5.0

Doors: 1300a, 1300b

Description: EXT ROOF ACCESS

3 Hinge (heavy weight)	T4A3386 NRP 4-1/2" x 4-1/2"	US32D	MK	
1 Dormitory Lock	70 8225 LE1B	US26D	SA	
1 SFIC core	Key to existing facility			
1 Surface Closer	281 P10	EN	SA	
1 Kick Plate	K1050 10" X 2" LDW 4BE CSK	US32D	RO	
1 Door Stop	461	US26D	RO	
1 Rain Guard (Frame mount)	347A		PE	
1 Rain Guard (Door mount)	68AR		PE	
1 Gasketing	S88D		PE	
1 Sweep	315CN		PE	
1 Position Switch	DPS-M/W-WH (as required)		SU	⚡

Notes: Free access from the roof into building at all times.
template closer for hold open @ 135 degrees

Set: 6.0

Doors: 1008, 1014, 1106, 1122, 1204, 1220, 1305, 1306

Description: STAIR - RATED

3 Hinge (heavy weight)	T4A3786 4-1/2" x 4-1/2"	US26D	MK
1 Rim Exit Device, Passage	12 8815 ETB	US32D	SA
1 Door Closer	281 Reg / PA	EN	SA
1 Kick Plate	K1050 10" X 2" LDW 4BE CSK	US32D	RO
1 Door Stop	409 / 446 [as required]	US32D	RO
1 Gasketing	S88D		PE

Set: 7.0

Doors: 1011, 1005

Description: MEP [WIDE] - RATED

3 Hinge (heavy weight)	T4A3786 4-1/2" x 7"	US26D	MK
1 Storeroom Lock	70 8204 LE1B	US26D	SA
1 SFIC core	Key to existing facility		
1 Door Closer	281 Reg / PA	EN	SA
1 Kick Plate	K1050 10" X 2" LDW 4BE CSK	US32D	RO
1 Door Stop	409 / 446 [as required]	US32D	RO
1 Gasketing	S88D		PE

Set: 8.0

Doors: 1010, 1302, 1010b

Description: MEP PR

6 Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
2 Flush Bolt	555 [12" / 72" AFF]	US26D	RO
1 Dust Proof Strike	570	US26D	RO
1 Storeroom Lock	70 8204 LE1B	US26D	SA
1 SFIC core	Key to existing facility		
2 Door Closer	281 Reg / PA	EN	SA
2 Kick Plate	K1050 10" X 2" LDW 4BE CSK	US32D	RO
2 Door Stop	409 / 446 [as required]	US32D	RO
1 Gasketing	S88D		PE
1 Astragal	357SP X S88D		PE

Set: 9.0

Doors: 1105

Description: CHEM STOR - PR

6 Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK	
2 Flush Bolt	555 [12" / 72" AFF]	US26D	RO	
1 Dust Proof Strike	570	US26D	RO	
1 Storeroom Lock	70 8204 LE1B	US26D	SA	
1 SFIC core	Key to existing facility			
1 Strike (Prep for future electric strike)	SMAF 261 [Don-jo]	630	FO	⚡
2 Door Closer	281 Reg / PA	EN	SA	
2 Kick Plate	K1050 10" X 2" LDW 4BE CSK	US32D	RO	
2 Door Stop	409 / 446 [as required]	US32D	RO	
1 Gasketing	S88D		PE	
1 Astragal	357SP X S88D		PE	
1 ElectroLynx Harness	QC-CXXP [Lock / exit to hinge]		MK	⚡

Notes: Prep inactive door for future electric strike, confirm model # with owner prior to ordering

Set: 10.0

Doors: 1009, 1015, 1107, 1111, 1113, 1120, 1124, 1109

Description: LAB / CLASS - PR



1 Continuous Hinge	KCFMXX-HD1 PT		PE	
1 Continuous Hinge	KCFMXX-HD1		PE	
2 Flush Bolt	555 [12" / 72" AFF]	US26D	RO	
1 Dust Proof Strike	570	US26D	RO	
1 Deadlatch	4920AN	628	AD	
1 Exit Device Trim	3080 B LEVER	US32D	AD	
1 SFIC core	Key to existing facility			
1 Strike (Prep for future electric strike)	SMAF 261 [Don-jo]	630	FO	⚡
2 Concealed Closer	91N / PH91 - 90N [special template]	626	RF	
2 Door Stop	409 / 446 [as required]	US32D	RO	
1 Gasketing	by door / frame mfg			
1 ElectroLynx Harness	QC-CXXP [Lock / exit to hinge]		MK	⚡

Notes: Prep inactive door for future electric strike, confirm model # with owner prior to ordering

Set: 11.0

Doors: 1303

Description: BOARD ROOM - PR



1 Continuous Hinge	KCFMXX-HD1 PT	PE	
1 Continuous Hinge	KCFMXX-HD1	PE	
2 Flush Bolt	555 [12" / 72" AFF]	US26D	RO
1 Dust Proof Strike	570	US26D	RO
1 Deadlatch	4920AN	628	AD
2 Exit Device Trim	3080 B LEVER	US32D	AD
1 SFIC core	Key to existing facility		
1 Strike (Prep for future electric strike)	SMAF 261 [Don-jo]	630	FO 
2 Concealed Closer	91N / PH91 - 90N [special template]	626	RF
2 Door Stop	409 / 446 [as required]	US32D	RO
1 Gasketing	by door / frame mfg		
1 ElectroLynx Harness	QC-CXXP [Lock / exit to hinge]	MK	

Notes: Prep inactive door for future electric strike, confirm model # with owner prior to ordering

Set: 12.0

Doors: 1205, 1207, 1209, 1211, 1218, 1222, 1304, 1308

Description: LAB / CLASS - UN-EQ PR

1 Continuous Hinge	KCFMXX-HD1 PT	PE	
1 Continuous Hinge	KCFMXX-HD1	PE	
2 Flush Bolt	555 [12" / 72" AFF]	US26D	RO
1 Dust Proof Strike	570	US26D	RO
1 Deadlatch	4920AN	628	AD
2 Exit Device Trim	3080 B LEVER	US32D	AD
1 SFIC core	Key to existing facility		
1 Strike (Prep for future electric strike)	SMAF 261 [Don-jo]	630	FO 
2 Concealed Closer	91N / PH91 - 90N [special template]	626	RF
2 Door Stop	409 / 446 [as required]	US32D	RO
1 Gasketing	by door / frame mfg		
1 ElectroLynx Harness	QC-CXXP [Lock / exit to hinge]	MK	

Notes: Prep inactive door for future electric strike, confirm model # with owner prior to ordering

Set: 13.0

OMIT

Set: 14.0

Doors: 1005a, 1114, 1212, 1313


Description: ELEC - RATED

3 Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Rim Exit Device, Storeroom	12 70 8804 ETB	US32D	SA
1 SFIC core	Key to existing facility		
1 Door Closer	281 Reg / PA	EN	SA
1 Door Stop	409 / 446 [as required]	US32D	RO
1 Gasketing	S88D		PE

Set: 15.0

Doors: 1010a

Description: EXT MECH PR - ALUM - EAC

1 Continuous Hinge	KCFMXX-HD1 PT	PE	
1 Continuous Hinge	KCFMXX-HD1	PE	
2 Concealed Vert Rod Exit, Exit Only	AD8410 EO	US32D	SA
1 SFIC core	Key to existing facility		
2 Door Pull	BF168	US32D	RO
2 Concealed Closer	91N / PH91 - 90N [special template]	626	RF
2 Door Stop	461	US26D	RO
1 Gasketing	by door / frame mfg		
2 Position Switch	DPS-M/W-WH (as required)	SU	

Set: 16.0

Doors: 1007, 1112, 1210, 1311

Description: DATA

3 Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
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Troy University, Troy, AL**

1 Storeroom Lock	70 8204 LE1B	US26D	SA
1 SFIC core	Key to existing facility		
1 Door Closer	281 Reg / PA	EN	SA
1 Kick Plate	K1050 10" X 2" LDW 4BE CSK	US32D	RO
1 Door Stop	409 / 446 [as required]	US32D	RO
3 Silencer	608		RO

Set: 17.0

Doors: 1218a

Description: LAB

3 Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK	
1 Classroom Lock	70 8237 LE1B	US26D	SA	
1 SFIC core	Key to existing facility			
1 Strike (Prep for future electric strike)	SMAF 261 [Don-jo]	630	FO	⚡
1 Door Stop	409 / 446 [as required]	US32D	RO	
3 Silencer	608		RO	
1 ElectroLynx Harness	QC-C1500 [PS to hinge/strike]		MK	⚡
1 Mop Plate	K1050 4" X 1" LDW 4BE CSK	US32D	RO	
1 Kick Plate	K1050 10" X 2" LDW 4BE CSK	US32D	RO	

Notes: Prep frame for future electric strike, confirm model # with owner prior to ordering

Set: 18.0

Doors: 1001, 1118, 1216, 1312

Description: JAN [OHS]

3 Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Storeroom Lock	70 8204 LE1B	US26D	SA
1 Door Closer	281 PS	EN	SA
1 Kick Plate	K1050 10" X 2" LDW 4BE CSK	US32D	RO
1 Gasketing	S88D		PE

Set: 19.0

Doors: 1203, 1301

Description: ENTRY

3 Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK	
1 Office Lock	70 8205 LE1B	US26D	SA	
1 SFIC core	Key to existing facility			
1 Strike (Prep for future electric strike)	SMAF 261 [Don-jo]	630	FO	⚡
1 Door Closer	281 Reg / PA	EN	SA	
1 Kick Plate	K1050 10" X 2" LDW 4BE CSK	US32D	RO	
1 Door Stop	409 / 446 [as required]	US32D	RO	
1 Gasketing	S88D		PE	
3 Silencer	608		RO	
1 ElectroLynx Harness	QC-CXXP [Lock / exit to hinge]		MK	⚡

Notes: Prep frame for future electric strike, confirm model # with owner prior to ordering

Set: 20.0

Doors: 1102

Description: LAB - STC45

1 Continuous Hinge	KCFMXX-HD1 PT		PE	
1 Deadlatch	4920AN	628	AD	
1 Exit Device Trim	3080 B LEVER	US32D	AD	
1 SFIC core	Key to existing facility			
1 Strike (Prep for future electric strike)	SMAF 261 [Don-jo]	630	FO	⚡
1 Concealed Closer	91N / PH91 - 90N [special template]	626	RF	
1 Door Stop	409 / 446 [as required]	US32D	RO	
1 Acoustic Seal Set	PEMKOSTCSET-1A	BL	PE	
1 ElectroLynx Harness	QC-CXXP [Lock / exit to hinge]		MK	⚡

Notes: Prep frame for future electric strike, confirm model # with owner prior to ordering
Verify hardware requirements with STC door mfg.

Set: 21.0

Doors: 1101, 1103, 1104, 1202, 1201

Description: LAB

1 Continuous Hinge	KCFMXX-HD1 PT		PE	
1 Deadlatch	4920AN	628	AD	
1 Exit Device Trim	3080 B LEVER	US32D	AD	
1 SFIC core	Key to existing facility			
1 Strike (Prep for future electric strike)	SMAF 261 [Don-jo]	630	FO	⚡
1 Concealed Closer	91N / PH91 - 90N [special template]	626	RF	
1 Door Stop	409 / 446 [as required]	US32D	RO	
1 Gasketing	by door / frame mfg			
1 ElectroLynx Harness	QC-CXXP [Lock / exit to hinge]		MK	⚡

Notes: Prep frame for future electric strike, confirm model # with owner prior to ordering

Set: 22.0

Doors: 1012, 1013, 1108, 1110, 1307, 1309

Description: TOILET

3 Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Privacy Set	49 8265 LE1B	US26D	SA
1 Door Closer	281 Reg / PA	EN	SA
1 Mop Plate	K1050 4" X 1" LDW 4BE CSK	US32D	RO
1 Kick Plate	K1050 10" X 2" LDW 4BE CSK	US32D	RO
1 Door Stop	409 / 446 [as required]	US32D	RO
1 Gasketing	S88D		PE
1 Coat Hook	RM822	US32D	RO

Set: 23.0

Doors: 1116

Description: SHOWER

3 Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Privacy Set	49 8265 LE1B	US26D	SA
1 Door Closer	281 Reg / PA	EN	SA
1 Mop Plate	K1050 4" X 1" LDW 4BE CSK	US32D	RO
1 Kick Plate	K1050 10" X 2" LDW 4BE CSK	US32D	RO
1 Door Stop	409 / 446 [as required]	US32D	RO
1 Gasketing	S88D		PE
1 Coat Hook	RM822	US32D	RO

Set: 24.0

Doors: 1206, 1208

Description: RESTROOM

3 Hinge (heavy weight)	T4A3786 4-1/2" x 4-1/2"	US26D	MK
1 Pull Plate	BF 110 x 70C	US32D	RO
1 Push Plate	70C	US32D	RO
1 Door Closer	281 Reg / PA	EN	SA
1 Mop Plate	K1050 4" X 1" LDW 4BE CSK	US32D	RO
1 Kick Plate	K1050 10" X 2" LDW 4BE CSK	US32D	RO
1 Door Stop	409 / 446 [as required]	US32D	RO
1 Gasketing	S88D		PE

Set: 25.0

Doors: 1006

Description: STOR PR

6 Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Flush Bolt	555 [12" / 72" AFF]	US26D	RO
1 Dust Proof Strike	570	US26D	RO
1 Storeroom Lock	70 8204 LE1B	US26D	SA
1 SFIC core	Key to existing facility		
1 Strike (Prep for future electric strike)	SMAF 261 [Don-jo]	630	FO
2 Door Stop	409 / 446 [as required]	US32D	RO
2 Silencer	608		RO
1 ElectroLynx Harness	QC-C1500 [PS to hinge/strike]		MK



Notes: Prep inactive door for future electric strike, confirm model # with owner prior to ordering

Set: 26.0
OMIT

Set: 27.0

Doors: 1202a, 1308a,

Description: STOR

3 Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Storeroom Lock	70 8204 LE1B	US26D	SA

1 SFIC core	Key to existing facility		
1 Door Stop	409 / 446 [as required]	US32D	RO
3 Silencer	608		RO

Set: 28.0

Doors: 1002, 1004, 1203a, 1203b, 1203c, 1203d, 1203e, 1203f, 1301a, 1301b, 1301c, 1301d, 1301e, 1301f

Description: OFFICE

3 Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK	
1 Office Lock	70 8205 LE1B	US26D	SA	
1 SFIC core	Key to existing facility			
1 Strike (Prep for future electric strike)	SMAF 261 [Don-jo]	630	FO	⚡
1 Door Stop	409 / 446 [as required]	US32D	RO	
3 Silencer	608		RO	
1 ElectroLynx Harness	QC-C1500 [PS to hinge/strike]		MK	⚡

Notes: Prep frame for future electric strike, confirm model # with owner prior to ordering

Set: 29.0

Doors: 1201a

Description: CONF

3 Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK	
1 Classroom Lock	70 8237 LE1B	US26D	SA	
1 SFIC core	Key to existing facility			
1 Strike (Prep for future electric strike)	SMAF 261 [Don-jo]	630	FO	⚡
1 Door Stop	409 / 446 [as required]	US32D	RO	
3 Silencer	608		RO	
1 ElectroLynx Harness	QC-C1500 [PS to hinge/strike]		MK	⚡

Notes: Prep frame for future electric strike, confirm model # with owner prior to ordering

END OF SECTION 08 7100

SECTION 07 2100 - THERMAL INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Board insulation at masonry cavity wall construction, perimeter foundation wall, and where indicated on the drawings.
- B. Batt insulation in cavity of exterior stud walls
- C. Composite Ventilated Nailable Polyisocyanurate Board for Roof Decking.
- D. Batt insulation in cavity of interior stud walls.

1.02 RELATED REQUIREMENTS

- A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.
- B. Section 05 4000 - Cold-Formed Metal Framing: Board insulation as wall sheathing.
- C. Section 06 1000 - Rough Carpentry: Supporting construction for batt insulation.
- D. Section 07 2119 - SPRAY FOAM INSULATION: Plastic foam insulation other than boards.
- E. Section 07 2500 - Weather Barriers (Alternate): Separate air barrier and vapor retarder materials.
- F. Section 07 8400 - Firestopping: Insulation as part of fire-rated through-penetration assemblies.
- G. Section 09 2116 - Gypsum Board Assemblies:

1.03 REFERENCE STANDARDS

- A. ASTM C552 - Standard Specification for Cellular Glass Thermal Insulation 2015.
- B. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation 2015a.
- C. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation 2014.
- D. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing 2012.
- E. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board 2014.
- F. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2015a.
- G. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials 2014.
- H. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C 2012.
- I. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials; National Fire Protection Association; 2006.
- J. NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components 2012.
- K. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Underwriters Laboratories Inc.; Current Edition, Including All Revisions.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.
- C. Manufacturer's Installation Instructions: Include information on special environmental conditions required for installation and installation techniques.

1.05 FIELD CONDITIONS

- A. Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

PART 2 PRODUCTS

2.01 APPLICATIONS

- A. Insulation at Perimeter of Foundation: Extruded polystyrene (XPS) board.
- B. Insulation Inside Exterior Masonry Cavity Walls: Extruded polystyrene board.
- C. Insulation in cavity of exterior stud Framed Walls: Batt insulation with no vapor retarder.
- D. Insulation in cavity of interior metal stud walls. Batt insulation with no vapor retarder.

2.02 FOAM BOARD INSULATION MATERIALS

- A. Extruded Polystyrene Board Insulation: Extruded polystyrene board; ASTM C578; with either natural skin or cut cell surfaces, equal to Foamlar XPS 250 Type IV, and the following characteristics:
 - 1. Flame Spread Index (FSI 10, when tested in accordance with ASTM E84.
 - 2. Smoke Developed Index (SDI): 175, when tested in accordance with ASTM E84.
 - 3. R-Value: provide 1 1/2" thick no less that R-7.5.
 - 4. Board Size: 48 x 96 inch (1220 x 2440 mm).
 - 5. Board Size as required to coordinate with specified masonry anchor spacings.
 - 6. **OMIT (Addendum 2)**
 - 7. Board Edges: Square.
 - 8. Water Absorption, Maximum: 0.1 percent, by volume.
 - 9. Manufacturers: Basis of Design Foamular High R CW 1.55 density (25 PSI compressive strength)
 - 10. Substitutions: See Section 01 6000 - Product Requirements.
- B. Composite Ventilated Nailable Polyisocyanurate Board Insulation with Spacers and 5/8" CDX Plywood: Rigid cellular foam with spacers between foam and OSB or plywood; complying with ASTM C1289, IBC Chapter 26, and NBC. Section on Foam Insulation, Type V .
 - 1. Complies with fire resistance requirements shown on the drawings as part of an exterior non-load-bearing exterior assembly when tested in accordance with NFPA 285.
 - 2. Compressive Strength: 20 psi (138 kPa), minimum.
 - 3. Board Size: 48 by 96 inch (1220 by 2440 mm).
 - 4. Composite Insulation Board Thickness: 2" Base insulation + 2 1/2 Base insulation + 1" Air Space 5/8" CDX plywood.
 - 5. Thermal Resistance: R-value (RSI-value) of 25

6. Board Edges: Square.
7. Manufacturers:
 - a. Hunter Panels, LLC; [_____]: www.hpanels.com/#sle.
 - b. Atlas Nail Base Cross vent. Basis of Design
8. Coordination with Metal Deck
9. Coordinate with Section 07 3113 Asphalt shingles including underlay mount and ventilation requirements.

2.03 BATT INSULATION MATERIALS

- A. Mineral Wool Batt Insulation: NFPA 101, Class A rated interior finish. Flexible preformed batt or blanket, complying with ASTM C 665; Type 1, friction fit.
 1. Flame Spread Index: 0, when tested in accordance with ASTM E84.
 2. Smoke Developed Index: 0, when tested in accordance with ASTM E84.
 3. Combustibility: Non-combustible, when tested in accordance with ASTM E136, except for facing, if any.
 4. Water Vapor Permeance: 50 perms as tested in accordance with ASTM E96.
 5. Water Vapor Sorption: Sorption less than 1% by volume when tested in accordance with ASTM C1104.
 6. Fungi Resistance: Complies when tested in accordance with ASTM C1338.
 7. Provide in thickness as required to fill stud for all interior metal stud walls continuous from floor to structure above unless specifically noted otherwise. Provide insulated envelope for sound isolation. Coordinate with all trades.
 8. **Provide mineral wool insulation (minimum R-Value of 18) in exterior stud framed walls as shown on drawings. (Addendum 2)** All components shall be in accordance with applicable UL numbers.
 9. Provide insulation in all interior wall cavities in thickness of cavity for full height of wall.
 10. Manufacturers:
 - a. CertainTeed Corporation; [_____]: www.certainteed.com/#sle.
 - b. Johns Manville; [_____]: www.jm.com/#sle.
 - c. Owens Corning Corp: www.owenscorning.com. Basis of Design Thermafiber Ultrabatt Mineral Wool Insulation.
 - d. Knauf Insulation shall be approved subject to full compliance with the drawings and specifications.

2.04 ACCESSORIES

- A. Wire Ties:
 1. Provide wire ties or other acceptable applications as required to hold batt insulation in place where gypsum wall board or other materials are not present at assembly. At underside of roof decking attach by methods required to secure batt insulation in place and comply with applicable UL numbers.
- B. Wire Mesh: Galvanized steel, hexagonal wire mesh, acceptable if meeting all applicable UL design requirements
- C. Adhesive: Type recommended by insulation manufacturer for application.
- D. Attic Ventilation System
 1. Provide continuous route for attic ventilation from eave vents up to ridge ventilation with preformed PVC attic ventilation system.

- a. System shall provide for adequate air ventilation to meet requirements of roof manufacturer's warranty and eave/ridge ventilation requirements for 9 square inch of free area per linear foot per side of eave and ridge.
- b. 100% recycled flame retardant PVC.
- c. Attachment of attic ventilation system (baffle vent) shall not penetrate roof membrane, but shall be fastened with noncorrosive fasteners at such intervals to support itself.
- d. Provide transition strips equal to Valley Vent by DCI Products over and around roof plane structural interruptions to provide continuous route for air flow and continuous layer of spray foam insulation.
- e. Install baffle prior to insulation at underside of roof decking in all locations except where structural solid wood decking occurs.
- f. Install baffles per all manufacturers instructions and comply with applicable UL design requirements.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation.
- B. Verify substrate surfaces are flat, free of honeycomb, fins, irregularities, or materials or substances that may impede adhesive bond.

3.02 BOARD INSTALLATION AT FOUNDATION PERIMETER

- A. Install boards horizontally on foundation perimeter.
- B. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

3.03 BOARD INSTALLATION AT CAVITY WALLS

- A. Apply adhesive to back of boards:
 - 1. Three continuous beads per board length.
 - 2. Full bed 1/8 inch (3 mm) thick.
- B. Install boards to fit snugly between wall ties.
- C. Install boards horizontally on walls.
 - 1. Place boards to maximize adhesive contact.
 - 2. Butt edges and ends tightly to adjacent boards and to protrusions.
- D. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.
- E. Coordinate work of this section with construction of weather barrier seal specified in Section 07 2500.
 - 1. Coordinate as required to ensure air barrier is installed continuously on top of sheathing prior to installation of masonry anchors.
- F. Refer to Section 04 2000 Unit Masonry. Coordinate with masonry and veneer anchors.

3.04 COMPOSITE VENTILATED NAILABLE POLYISOCYANURATE BOARD

INSTALLATION OVER STEEP SLOPE ROOF SHEATHING OR ROOF STRUCTURE

- A. Installation of composite ventilated, nailable polycyanurate board insulation over steep slope roof structure. Install per requirements of manufacturers of board for roof. Verify all regional wind uplift requirements on product submittals and install in compliance with requirements of their requirements and the manufacturers

requirements.

- B. Install in coordination with all other trades, including but not limited to rough carpentry, EIFS, shingle vents, asphalt roofing products, and metal decking.

3.05 BATT INSTALLATION

- A. Install insulation in accordance with manufacturer's instructions for all locations specified. .
- B. Install in exterior roof spaces without gaps or voids. Do not compress insulation.
- C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.
- D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.
- E. Install wire ties or other methods as approved to hold insulation batts in place where - refer to 2.04.

3.06 PROTECTION

- A. Do not permit installed insulation to be damaged prior to its concealment.

END OF SECTION

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SECTION 01 2300 – ALTERNATES

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Description of alternates
- B. Procedures for pricing alternates

1.2 ACCEPTANCE OF ALTERNATES

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option in accordance with the requirements of the Instruction for Bidders. Accepted alternates will be identified in the Owner-Contractor Agreement.
- B. Coordinate related work and modify surrounding work to integrate the work of each alternate.

1.3 SUMMARY

- A. Definition: An Alternate is an amount proposed by Bidders and stated on the Bid Form for certain construction activities defined in the Bidding Requirements that may be added or deducted from Base Bid amount if the Owner decides to accept a corresponding change in either the amount of construction to be complete, or in the products, materials, equipment, systems, or installation methods described in Contract Documents.
- B. Coordination: Coordinate related work and modify or adjust adjacent work as necessary to ensure that work affected by each accepted Alternate and/or contract option is complete and fully integrated into the project.
- C. Schedule: A "Schedule of Alternatives" is included at the end of this Section. Specification Sections referenced in the Schedule contain requirements for materials and methods necessary to achieve the Work described under each Alternate.
- D. Include as part of each Alternate, miscellaneous devices, accessory objects and similar items incidental to or required for a complete installation whether or not mentioned as part of the Alternate.

1.4 SCHEDULE OF ALTERNATES

1) West Elevation

- a. Includes all plant labor and materials required for the installation, assembly and construction of the facility as shown in West Elevation Alternate 2/A4.1a on sheet A4.1a in lieu of West Elevation Base Bid 2/A4.1 on sheet A4.1. If this alternate is not awarded, the façade will be constructed under the base bid according to

West Elevation Base Bid 2/A4.1 on sheet A4.1. Refer to drawing sheet A2.1 Level One Floor Plan General Notes for Base Bid and Alternate additional requirements for Door/Window.

2) East Elevation

- a. Includes all plant labor and materials required for the installation, assembly and construction of the facility as shown in East Elevation Alternate 1/A4.1a on sheet A4.1a in lieu of East Elevation Base Bid 1/A4.1 on sheet A4.1. If this alternate is not awarded, the façade will be constructed under the base bid according to East Elevation Base Bid 1/A4.1 on sheet A4.1

3) Basement (Level 0) Fit-out

- a. Includes all plant labor and materials required for the installation, assembly and construction of the facility Basement as shown in Level 0 Alternate Floor Plan 1/A2.0a on sheet A2.0a in lieu of Level 0 Floor Plan - Base Bid 1/A2.0 on sheet A2.0. If this alternate is not awarded, Level 0 will be constructed under the base bid according to Level 0 Floor Plan - Base Bid 1/A2.0 on sheet A2.0. Foundations and walls for the West elevation portico and steps are a part of the West Elevation Alternate.

4) Site Lighting

- a. Includes all plant labor and materials required for the 4 site lamp posts and lantern fixtures. The work required below grade for the installation of wiring, conduit, junction box and foundation remains a part of the base bid, and will be required if this alternate is not awarded. All new site utilities as shown in the contract documents shall be considered as part of the base bid.

5) Cupola

- a. Includes all plant labor & materials required for the installation of the Cupola shown and / or specified.

6) Lightning Protection

- a. Includes all plant labor and materials required for the installation of the lightning protection system as specified and shown.

7) Window Shades

- a. Includes all plant labor and materials required for the installation of window shades shown and specified in section 12 2115. If the alternate is not awarded, the wiring and conventions required for the installation of the shades remains a part of the base bid.

8) Metal Laboratory Casework

- a. Includes all plant labor and materials required for the installation of Metal Laboratory Casework as specified in specification section 12 3450 in lieu of the casework specified in Section 12 3553 Wood Laboratory Casework (which remains a part of the base bid if this alternate is not awarded), for the following spaces: 1101, 1103, 1105, 1107, 1109, 1111, 1113, 1120, 1124, 1202, 1205, 1207, 1209, 1211, 1218, & 1222. This alternate does not apply to casework in any other parts of the building which remains a part of the base bid or the Level 3 Fit-out Alternate shown and specified. MDF cabinetry to match Metal Laboratory Casework in color.

9) Interior Impact Protection

- a. Includes all plant labor and materials required for the installation of interior impact protection as specified in Section 10 2600 in the locations called for on the interior of the building.

10) Chiller Generator (*Addendum 2*)

- a. **Includes all plant labor and materials required to install 450 (500KW ALTNR) alternate generator as detailed and specified in Electrical Drawings/Specs. The work required below grade for the installation of wiring, conduit, junction box and foundation remains a part of the base bid, and will be required if this alternate is not awarded. All new site utilities as shown in the contract documents shall be considered as part of the base bid. (*Addendum 2*)**

11) Level 3 Fit-out (*Addendum 2*)

- a. Includes all plant labor and materials required for the installation, assembly and construction of the facility Level 3 as shown in Level 3 Alternate Floor Plan 1/A2.3a on sheet A2.3a in lieu of Level 3 Floor Plan - Base Bid 1/A2.3 on sheet A2.3. If this alternate is not awarded, Level 3 will be constructed under the base bid according to Level 3 Floor Plan - Base Bid 1/A2.3 on sheet A2.3. Roof, Pilasters, and Columns for the West elevation portico and steps are a part of the West Elevation Alternate. Note: If this Alternate is awarded all Laboratory casework for spaces 1304 & 1308 shall be metal as specified in section 12 3450. Other casework on Level 3 shall be as shown.

PART 2 PRODUCTS – NOT USED
PART 3 EXECUTION - NOT USED
END OF SECTION

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PROPOSAL FORM

To be turned in at 3:00

All values written on the exterior of the envelope shall only affect the items herein

To: Troy University Date: _____ (Awarding Authority)

In compliance with your Advertisement for Bids and subject to all the conditions thereof, the undersigned

(Legal Name of Bidder)

hereby proposes to furnish all labor and materials and perform all work required for the construction of
WORK Associated with the Center for Materials and Manufacturing Sciences

_____ in accordance with Drawings and Specifications, dated November 2020,
_____ prepared by Seay, Seay & Litchfield, P.C., Architect/Engineer.

The Bidder, which is organized and existing under the laws of the State of _____,
having its principal offices in the City of _____, is:
a Corporation ☐ a Partnership ☐ an individual ☐ (other) ☐ _____.

LISTING OF PARTNERS OR OFFICERS: If Bidder is a Partnership, list all partners and their addresses; if Bidder is a Corporation, list the names, titles, and business addresses of its officers;

BIDDER'S REPRESENTATION: The Bidder declares that it has examined the site of the Work, having become fully informed regarding all pertinent conditions, and that it has examined the Drawings and Specifications (including all Addenda received) for the Work and the other Bid and Contract Documents relative thereto, and that it has satisfied itself relative to the Work to be performed.

ADDENDA: The Bidder acknowledges receipt of Addenda Nos. _____ through _____ inclusively.

Sales Taxes are not included in the below Base Bid Items, Unit Prices and Allowances per Act 2013-205 signed into law May 9th, 2013. Refer to Form C-3 and C3-A.

ALTERNATES:

Alternate 1) West Elevation	\$ _____
Alternate 2) East Elevation	\$ _____
Alternate 3) Basement (Level 0) Fit-Out	\$ _____
Alternate 4) Site Lighting	\$ _____
Alternate 5) Cupola	\$ _____
Alternate 6) Lightning Protection	\$ _____

Alternate 7) Window Shades \$ _____

Alternate 8) Metal Laboratory Casework \$ _____

Alternate 9) Interior Impact Protection \$ _____

Alternate 10) Chiller Generator (Add. 2) \$ _____

Alternate 11) Level 3 Fit-out \$ _____

UNIT PRICES:

UNIT PRICE 1: Removal of Unsuitable Soil/Engineered Fill \$ _____/Cu. Yd.

UNIT PRICE 2: Over Excavated Footing/Lean Concrete \$ _____/Cu. Yd.

BID SECURITY: The undersigned agrees to enter into a Construction Contract and furnish the prescribed Performance and Payment Bonds and evidence of insurance within fifteen calendar days, or such other period stated in the Bid Documents, after the contract forms have been presented for signature, provided such presentation is made within 30 calendar days after the opening of bids, or such other period stated in the Bid Documents. As security for this condition, the undersigned further agrees that the funds represented by the Bid Bond (or cashier's check) attached hereto may be called and paid into the account of the Awarding Authority as liquidated damages for failure to so comply.

Attached hereto is a: *(Mark the appropriate box and provide the applicable information.)*

☐ Bid Bond, executed by _____ as Surety,

☐ a cashier's check on the _____ Bank of _____,

for the sum of _____ Dollars

(\$ _____) made payable to the Awarding Authority.

BIDDER'S ALABAMA LICENSE:

State License for General Contracting: _____

License Number Bid Limit Type(s) of Work

CERTIFICATIONS: The undersigned certifies that he or she is authorized to execute contracts on behalf of the Bidder as legally named, that this proposal is submitted in good faith without fraud or collusion with any other bidder, that the information indicated in this document is true and complete, and that the bid is

made in full accord with State law. Notice of acceptance may be sent to the undersigned at the address set forth below.

The Bidder also declares that a full list of all proposed major subcontractors and suppliers will be submitted at a time subsequent to the bids as established by the Architect in the Bid Documents but in no event shall this time exceed twenty-four (24) hours after receipt of bids.

Legal Name of Bidder

Mailing Address

*** By (Legal Signature)**

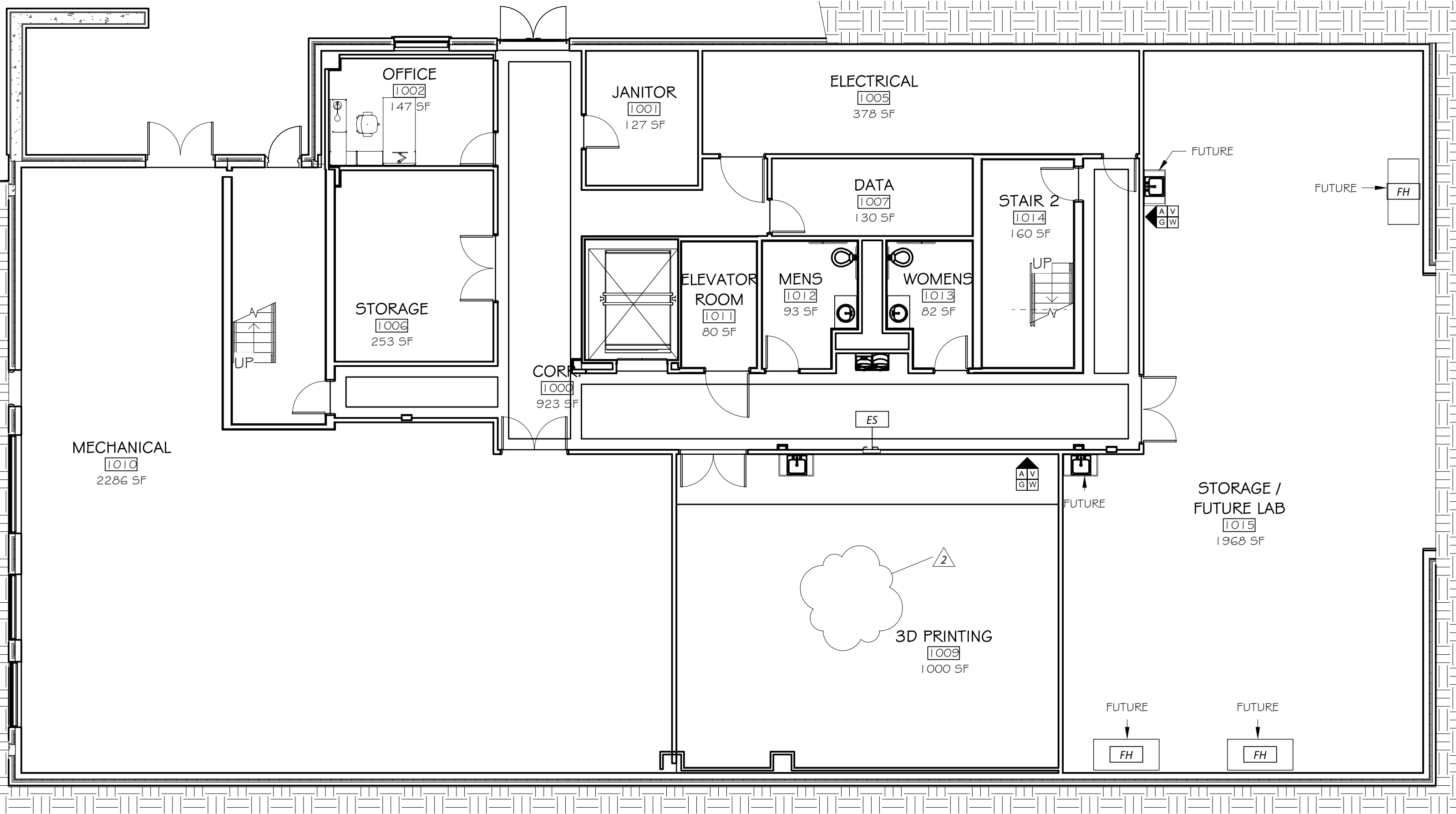
* Name (type or print) _____ (Seal)

* Title _____

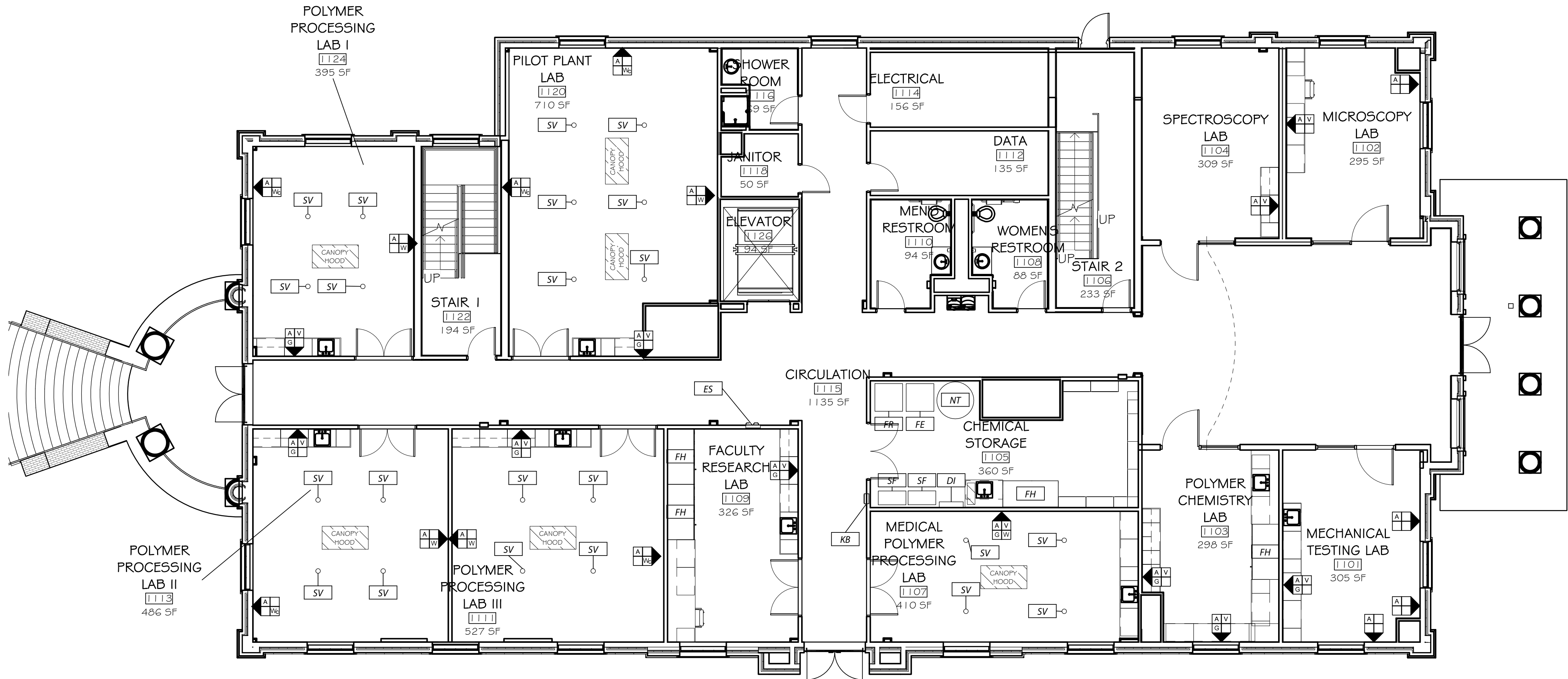
Telephone Number _____

* If other than the individual proprietor, or an above named member of the Partnership, or the above named president, vice-president, or secretary of the Corporation, attach written authority to bind the Bidder. Any modification to a bid shall be over the initials of the person signing the bid, or of an authorized representative.

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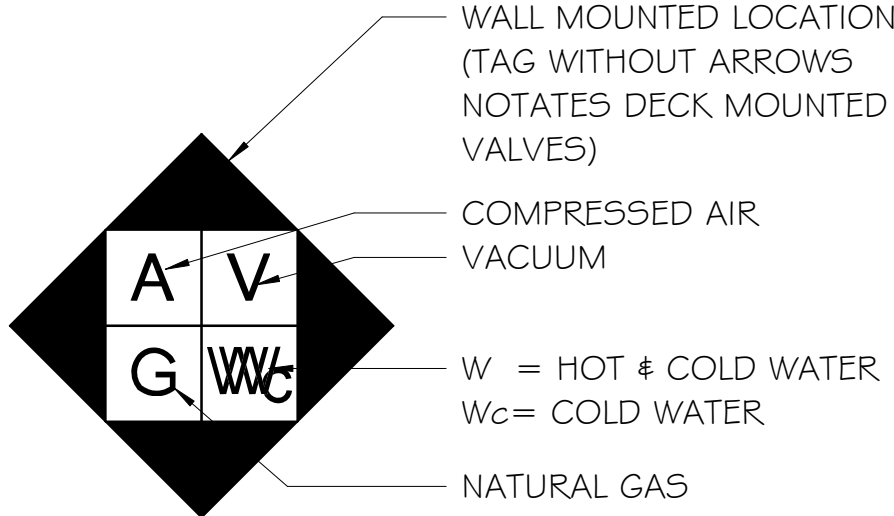
1
A10.0
MECHANICAL BASEMENT EQUIPMENT PLAN
1/8" = 1'-0"



2
A10.0
Faculty Research Lab - First Floor
1/8" = 1'-0"

EQUIPMENT LEGEND

LAB UTILITY TAG:



FH FUME HOOD (OFOI)

FUME HOOD UTILITIES (EACH):

- COMPRESSED AIR
- VACUUM
- NATURAL GAS
- COLD WATER

SV SNORKEL VENT (OFOI)

FL FLAME CABINET (OFOI)

AC ACID CABINET (OFOI)

SF STORAGE ROOM FLAME CABINET (OFOI)

FR REFRIGERATOR (OFOI)

FE FREEZER (OFOI)

ES EMERGENCY SHOWER (CFCI)

FEC FIRE EXTINGUISHER CABINET (CFCI)

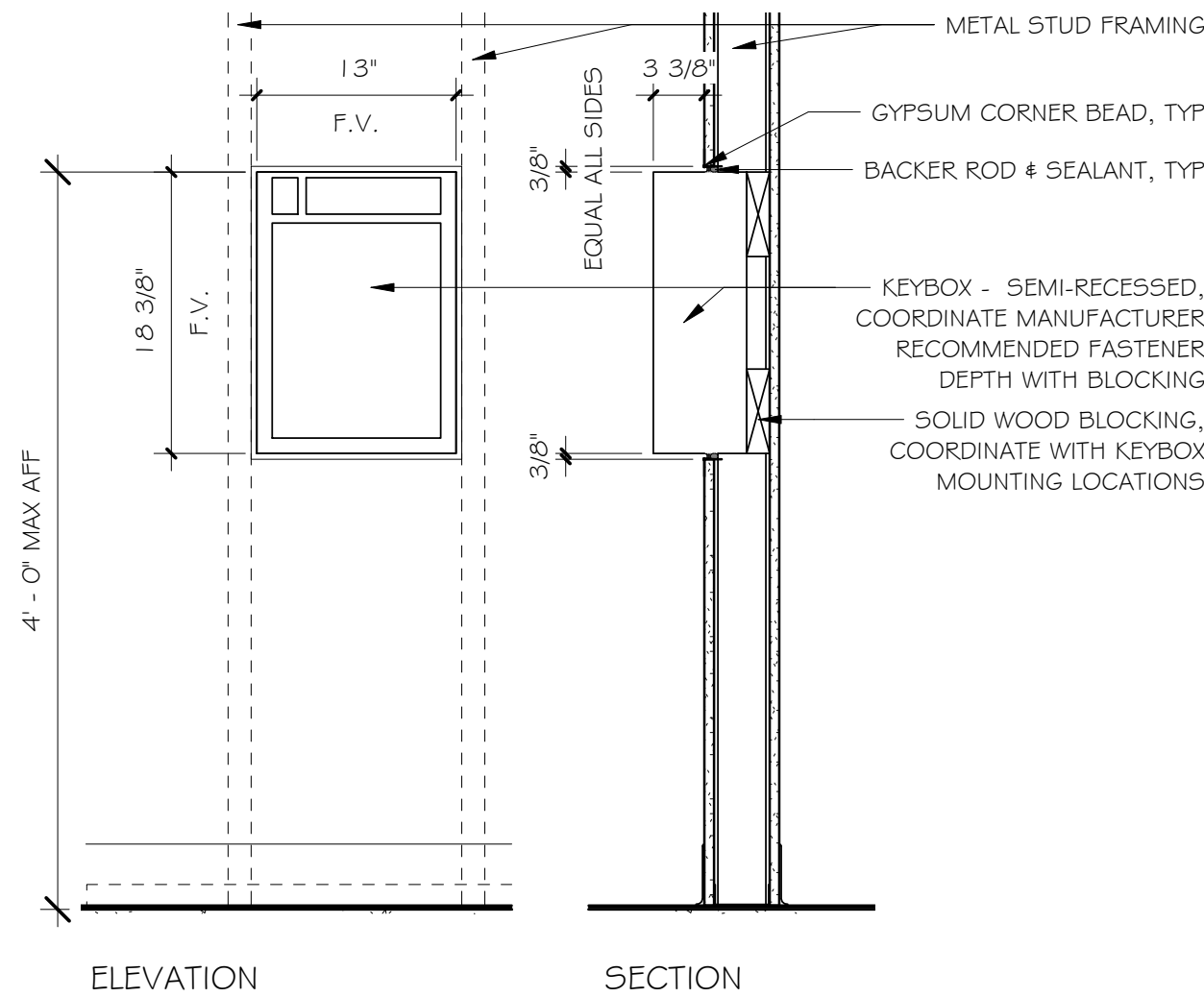
NT NITROGEN TANK (OFOI)

TV TELEVISION (OFOI)

KB KEY BOX (CFCI)

DI DEIONIZED WATER SYSTEM (CFCI)
BASIS OF DESIGN: LABCONCO WATERPRO
POLISHING SYSTEM, MODEL: 900521

DB GLASS DISPLAY BOARD (CFCI) SPEC SECTION 10 1200



3
A10.0
KEYBOX DETAIL
1" = 1'-0"

Rev.	Description	Date
2	Add. 2	12/11/2020

Job Number 18144

Date 11/17/2020

Drawn By CS,JB,DB,LG

Checked By JS, FL

Project Title

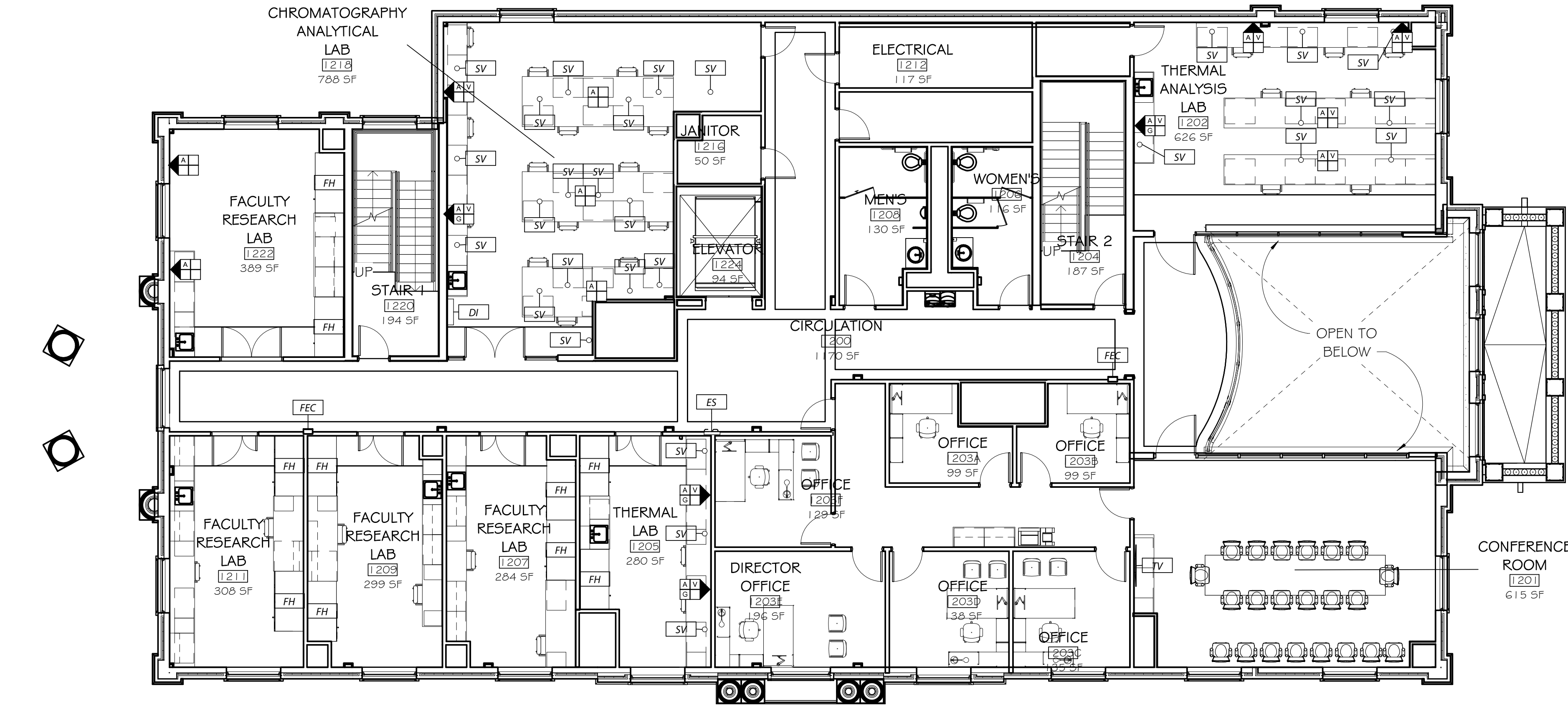
CENTER FOR MATERIALS AND
MANUFACTURING SCIENCES
TROY UNIVERSITY | TROY, AL

Sheet Title
FURNITURE,
FIXTURES &
EQUIPMENT
PLANS

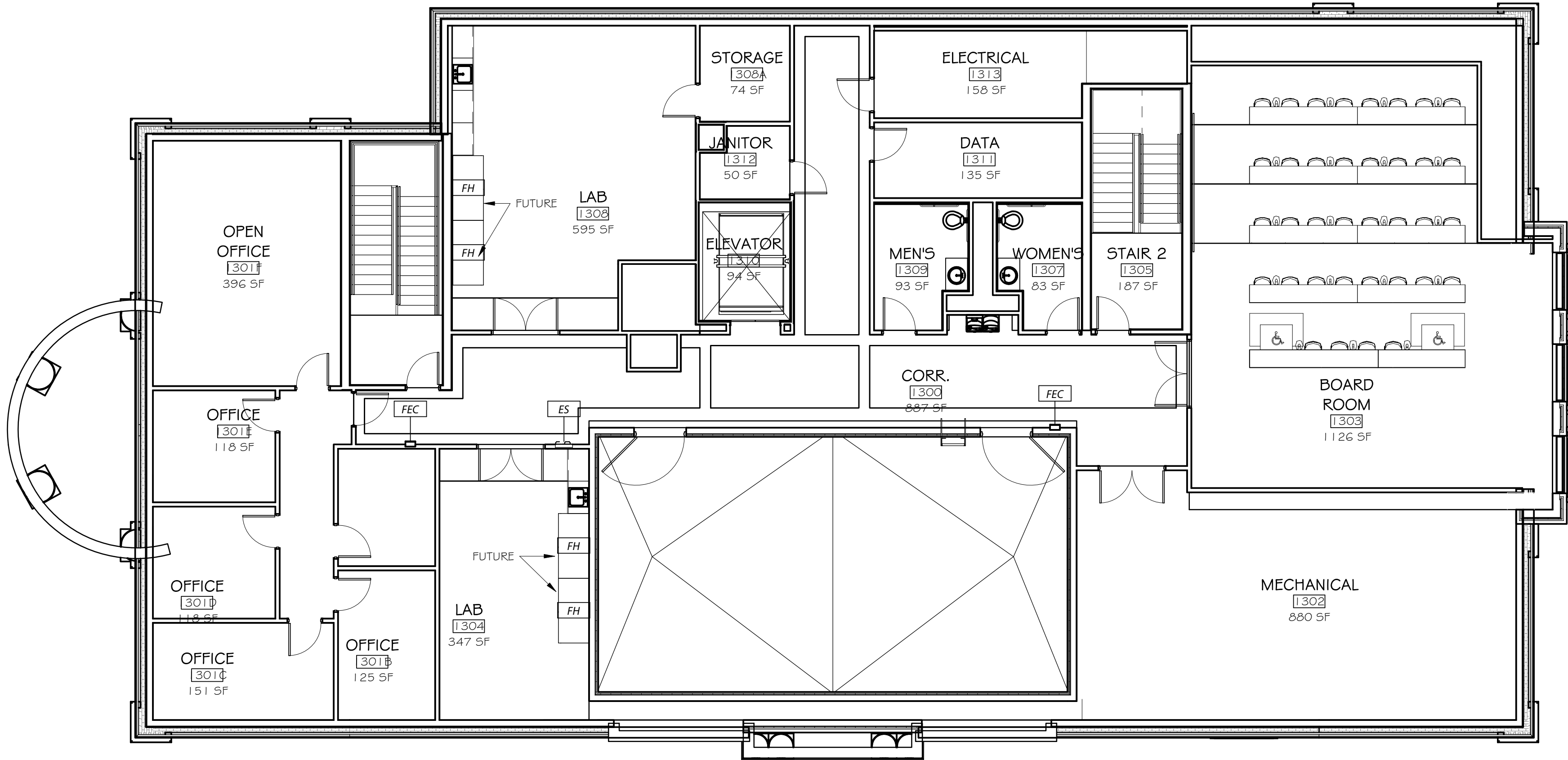
Sheet Number

A10.0





1 SECOND FLOOR EQUIPMENT PLAN
1/8" = 1'-0"



2 ATTIC FLOOR EQUIPMENT PLAN - ALTERNATE
1/8" = 1'-0"

EQUIPMENT LEGEND

LAB UTILITY TAG:

WALL MOUNTED LOCATION (TAG WITHOUT ARROWS NOTATES DECK MOUNTED VALVES)

COMPRESSED AIR

VACUUM

W = HOT & COLD WATER
Wc= COLD WATER

NATURAL GAS

FH FUME HOOD (OFOI)

SV SNORKEL VENT (OFOI)

FL FLAME CABINET (OFOI)

AC ACID CABINET (OFOI)

SF STORAGE ROOM FLAME CABINET (OFOI)

FR REFRIGERATOR (OFOI)

FE FREEZER (OFOI)

ES EMERGENCY SHOWER (CFCI)

FEC FIRE EXTINGUISHER CABINET (CFCI)

NT NITROGEN TANK (OFOI)

TV TELEVISION (OFOI)

KB KEY BOX (CFCI)

DI DEIONIZED WATER SYSTEM (CFCI)
BASIS OF DESIGN: LABCONCO WATERPRO POLISHING SYSTEM, MODEL: 900521

DB GLASS DISPLAY BOARD (CFCI) SPEC SECTION 10 1200

FUME HOOD UTILITIES (EACH):

- COMPRESSED AIR
- VACUUM
- NATURAL GAS
- COLD WATER

Rev.	Description	Date
2	Add. 2	12/11/2020

Job Number	18144
Date	11/17/2020
Drawn By	CS,JB,DB,LG
Checked By	JS, FL

Project Title	CENTER FOR MATERIALS AND MANUFACTURING SCIENCES TROY UNIVERSITY TROY, AL
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Sheet Title	FURNITURE, FIXTURES & EQUIPMENT PLANS
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Sheet Number	A10.1
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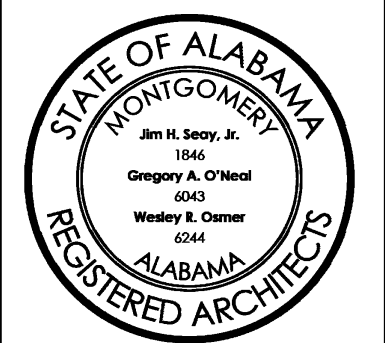


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