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January 31, 2019

**NOTICE OF ADDENDUM  
ADDENDUM NO. 2  
City of Madison, Engineering Department**

**CONTRACT NO. 7662  
PINNEY LIBRARY**

This addendum is issued to modify, explain or correct the original Drawings, Specifications, or Contract Documents marked as *Pinney Library, City of Madison, Contract #7662, as issued on November 30, 2018* and is hereby made a part of the contract documents.

This addendum consists of the following documents:

- **Drawing A601**
- **Drawing M400**
- **Drawing M551**
- **Drawing M600**
- **Drawing E200**
- **Drawing E201**
- **Drawing E500**
- **Drawing E700**
- **Drawing T000**
- **Drawing T101**
- **Drawing T502**
- **Drawing T602**
- **Specification Section 08 71 00 Door Hardware**
- **Specification Section 10 22 29 Full height Glazed Partition System**
- **Specification Section 26 09 33 Lighting Control Systems**
- **Proposal Specification, Section D: Special Provisions Page D-5**
- **Pre-Bid Walk Through sign-in sheets January 17 and 22, 2019**

Please attach these Addendum documents to the Drawings (Exhibit A), Specifications (Exhibit B), and Proposal Specifications in your possession.

1. **GENERAL CONTRACT CONDITIONS**

- A. **Section 109.7, Page D-5:** Revise the date to read - The Contractor shall have completed the geothermal field installation NO LATER THAN Tuesday, July 30, 2019.

2. **GENERAL QUESTIONS AND ANSWERS**



- A. **Section A: Page A-2.** The City of Madison is conducting an additional **Pre-Bid Walk Through** session at Pinney Library, 516 Cottage Grove Road, on **Monday February 4, 2019 at 9:00AM**. Contractors are invited to attend a short introductory meeting and a short tour of the project area, and then will be allowed to more thoroughly review the project area at their own pace. Please note: this is an active construction site. Proper clothing and protective equipment are required to participate. Staff from OPN Architects and the City of Madison will be on hand.
- B. The **Sign In sheets from the January 17 and 22, 2019** Pre-Bid Walk Through sessions are included for the information of all interested parties.
- C. **Question:** Spec section 01 32 33 requires time lapse photography for the duration of the contract. Is this required at the interior of the building only?  
**Answer:** The time lapse photography is only required at interior spaces. Mounting should capture the interior space as a priority. Mounting one camera near the library entrance doors would allow the view of the entire space to be maximized. Final coordination of the one camera location to be coordinated with the City's project/construction manager.
- D. **Question:** What are standard hours of work?  
**Answer:** Monday through Friday 7:00AM to 4:30 PM. All work outside of these hours to be coordinated and scheduled with the City's project/construction manager.
- E. **Question:** Will the Pinney General Contractor need to install a construction fence?  
**Answer:** The City is not certain when the existing fence will be removed. The Pinney General Contractor is not required to supply/install a construction fence unless the Contractor would like a fence at the geothermal field and/or outdoor area.
- F. **Question:** Please confirm if excess spoils from foundation excavations can remain on site or if these are required to be hauled away. If they are to be hauled away, please confirm the location indicated in the Soil Report is where to take it.  
**Answer:** We anticipate the excavation spoils to remain on site in the area of the work. This shall be reviewed with the City's project/construction manager ahead of commencement of subject work. If it is determined extra, contaminated spoils will be required to be removed from the site, and delivered to an acceptable landfill location, the City and Contractor will agree on a fair extra work change order request based on current industry standards for any additional cost incurred for disposal of contaminated soils.
- G. **Question:** Please confirm if excavated material for the geothermal field can remain onsite and could be used as backfill once complete or will it need to be removed from site. If it is required to be removed from the site, please confirm the location. Additionally, please confirm the elevation we are to bring the site back up to.  
**Answer:** We anticipate the geothermal excavations will remain on site in the area of the work. This shall be reviewed with the City's project/construction manager ahead of commencement of subject work. If it is determined extra, contaminated spoils will be required to be removed from the site, and delivered to an acceptable landfill location, the City and Contractor will agree on a fair extra work change order request based on current industry standards for any additional cost incurred for disposal of contaminated soils. Contractor shall make every effort to maintain the existing grade elevation at the geothermal field work area.
- H. **Question:** Spec Section 23 57 33 paragraph 1.7 indicates a unit price for additional geothermal wells is to be provided with the bid. There is not a space for the Unit Price listed on the Bid Form.  
**Answer:** No unit costs are required to be provided as part of this bid proposal.
- I. **Question:** Detail 2/S100 shows the contractor placing 6" of gravel base under the slab on grade. Please provide a specification for the fill material. In addition, please confirm the site will be graded by other to the bottom of the subgrade and no additional cuts of fills would be required to bring the area to grade.  
**Answer:** In regards to the "Free-Draining Granular Fill" identified in detail 2/S100, provide 6" compacted aggregate base course – City of Madison Gradation No. 2." The site will be graded by others according to the grading plan provided for reference only on sheet C-2.0. The contractor will be responsible for any cutting or filling beyond these base grades in order to provide a finished patio surface as indicated on the drawings.



3. **ACCEPTABLE EQUIVALENTS**

- A. Specification Section 09 51 00 Acoustical Ceilings:
  - i. Acoustic Tiles/Panels
    - USG Building Systems
- B. Specification Section 09 91 23 Interior Painting:
  - i. Paint Systems – Interior and Primers
    - Diamond Vogel
- C. Specification Section 09 96 00 High Performance Coatings
  - i. Epoxy Coating
    - Diamond Vogel

4. **SPECIFICATIONS**

- A. Specification Section 01 43 50 Air Barrier Systems
  - i. **Remove** entire section.
- B. Specification Section 08 71 00 Door Hardware
  - i. **Revise** Section 2.3 Mechanical Locks and Latches Item B to include Schlage's L Series Latitude for acceptable lever trim as indicated on updated specification.
  - ii. **Revise** Section 2.3 Mechanical Locks and Latches Item C.1 to include Item b. Schlage; An Allegion Group company for acceptable manufacturers.
  - iii. **Remove** the following portion of the specification "(PANIC HARDWARE REQUIRED AT COMMUNITY ROOM DOORS)." From Hardware Group 05 on page 7.
    - No panic hardware is required for Hardware Set 05.
  - iv. **Revise** door hardware group 10 to read "Hardware by Door Supplier" as indicated on updated specification.
  - v. **Revise** door hardware group 17 to read "Hardware by Door Supplier" as indicated on updated specification.
  - vi. **Add** door hardware group 25 as indicated on updated specification.
- C. Specification Section 10 22 29 Full height Glazed Partition System
  - i. **Revise** Section E: Swinging Door Hardware as indicated on updated specification.
- D. Specification Section 23 57 33 Geothermal Heat Exchangers
  - i. **Remove** Item A. from paragraph 1.7 Unit Price on lines 22 and 23. No unit price shall be included in the bid.
- E. Specification Section 26 09 33 Lighting Control Systems
  - i. **Revise** section 1.9 B to include item 2 for Low Voltage (0-10V) Controls as indicated in specifications.

5. **DRAWINGS**

- A. **Architectural**
  - i. Drawing A320
    - **Refer** to keynotes schedule on A100 or A101 for keynotes referenced on this sheet. (Sheet A320 is not reissued in this addendum)
  - ii. Drawing A601
    - **Revise** door hardware type on door schedule for door EX-02 to Hardware Group 25 as indicated on updated drawings.
- B. **Mechanical**
  - i. Drawing M400
    - **Revise** detail 1 as indicated on updated drawings.
  - ii. Drawing M551
    - **Revise** ENERGY RECOVERY UNIT - AHU-1 Control Diagram as indicated on updated drawings.
  - iii. Drawing M600
    - **Revise** Heat Pump Schedule as indicated on updated drawings.
- C. **Electrical**



- i. Drawing E200
    - **Add** disconnecting means for WCCU-100 and WCCU-200 as indicated on updated drawings.
    - **Add** a second circuit for the DDC panels as indicated on updated drawings.
  - ii. Drawing E201
    - **Add** disconnecting means for RCP-1 units as indicated on updated drawings.
    - **Add** a disconnecting means for WCCU-300 as indicated on updated drawings.
  - iii. Drawing E500
    - **Revise** AHU-1 Heat Coil to be fed from DP-Library as indicated on updated drawings.
  - iv. Drawing E700
    - **Revise** WH-1 breaker to be 30A from 20A as indicated on updated drawings.
- D. Technology**
- i. Drawing T000
    - **Revise** CM1 symbol description as indicated on updated drawings
  - ii. Drawing T101
    - **Add** keynote to reference screen projector as indicated on updated drawings.
    - **Revise** keynotes to clarify requirements per attached drawing.
  - iii. Drawing T502
    - **Revise** riser diagrams as indicated on updated drawings.
  - iv. Drawing T502
    - **Add** projector screen detail as indicated on updated drawings.
  - v. Drawing T602
    - **Revise** General Technology Equipment Schedule as indicated on updated drawings.

6. **PROPOSAL SPECIFICATIONS**

No revisions.

Please acknowledge this addendum in Section E on page E-1: Bidder's Acknowledgement on Bid Express.

Electronic version of these documents can be found on Bid Express at <https://www.bidexpress.com/> and the City of Madison web site at <http://www.cityofmadison.com/business/PW/contracts/openforBid.cfm>

If you are unable to download plan revisions associated with the addendum, please contact the Engineering office at 608-266-4751 to receive the material by another method.

**For questions regarding this bid, contact:**

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Sincerely,

Robert F. Phillips, P.E., City Engineer

**SECTION 08 71 00**  
**DOOR HARDWARE**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section includes:
1. Mechanical door hardware for the following:
    - a. Swinging doors.
    - b. Sliding D
  2. Cylinders for door hardware specified in other Sections.
  3. Electrified door hardware.

**1.2 ACTION SUBMITTALS**

- A. See Section 01 33 23 - Submittals, for submittal procedures.
- B. Product Data: For each type of product indicated.
- C. Pre-Procurement/Installation Meeting Requirement:
1. After submission of all door/frame/hardware submittals (and related low voltage door hardware submittals) Contractor will organize a meeting(s) with Owner, Architect, General Contractor, Electrician, Door/Frame/Hardware Supplier/Installer, Low-Voltage Supplier/Installer, and others as applicable to comprehensively review and explain each door opening's submitted hardware package operation. No procurement of door hardware (and related low voltage components) shall be procured until this meeting is completed; and until related submittals are returned to by the Owner/Architect team.
- D. Shop Drawings: Details of electrified door hardware.
- E. Samples: For each exposed product and for each color and texture specified.
- F. Other Action Submittals:
1. Door Hardware Schedule: Prepared by or under the supervision of Installer, detailing fabrication and assembly of door hardware, as well as installation procedures and diagrams. Coordinate final door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
    - a. Format: Use same scheduling sequence and format and use same door numbers as in the Contract Documents.
    - b. Content: Include the following information:
      - 1) Identification number, location, hand, fire rating, size, and material of each door and frame.
      - 2) Locations of each door hardware set, cross-referenced to Drawings on floor plans and to door and frame schedule.
      - 3) Complete designations, including name and manufacturer, type, style, function, size, quantity, function, and finish of each door hardware product.
      - 4) Description of electrified door hardware sequences of operation and interfaces with other building control systems.
  2. Keying Schedule: Prepared by or under the supervision of Installer, detailing Owner's final keying instructions for locks.

**1.3 QUALITY ASSURANCE**

- A. Supplier Qualifications: The hardware supplier shall be a corporate member in good standing of The Door and Hardware Institute (DHI), employing at least one Architectural Hardware Consultant (AHC) who is currently participating in DHI's continuing education program (CEP).
- B. Source Limitations: Provide electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated. Manufacturers that perform electrical modifications and that are listed by a testing and inspecting agency acceptable to authorities having jurisdiction are acceptable.
- C. Fire-Rated Door Assemblies: Where fire-rated door assemblies are indicated, provide door hardware rated for use in assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C, unless otherwise indicated. Provide positive latching and self-closing, regardless if specified in sets.
- D. Items of hardware not definitely specified herein but necessary for completion of the work shall be provided. Such items shall be of type and quality suitable to the service required and comparable to the adjacent hardware. Where size and shape of members is such as to prevent the use of types specified, hardware shall be furnished of suitable

- 1 types having as nearly as practicable the same operation and quality as the type specified. Sizes shall be adequate  
2 for the service required.
- 3 E. Include such nuances as strike type, strike lip length, raised barrel hinges, mounting brackets, blade stop spacers,  
4 special templates, fasteners, shims, and coordination between conflicting products. All doors shall be provided with  
5 a stop.
- 6 F. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide  
7 door hardware that meet requirements of assemblies tested according to UL 1784 and installed in compliance with  
8 NFPA 105.
- 9 1. Air Leakage Rate: Maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at the tested pressure  
10 differential of 0.3-inch wg (75 Pa) of water.
- 11 G. Electrified Door Hardware: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to  
12 authorities having jurisdiction.
- 13 H. Means of Egress Doors: Latches do not require more than 15 lbf (67 N) to release the latch. Locks do not require use  
14 of a key, tool, or special knowledge for operation.
- 15 I. Accessibility Requirements: For door hardware on doors in an accessible route, comply with ICC/ANSI A117.1.
- 16 1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that  
17 operate with a force of not more than 5 lbf (22.2 N).
- 18 2. Comply with the following maximum opening-force requirements:
- 19 a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf (22.2 N) applied perpendicular to door.
- 20 b. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
- 21 3. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2 inch (13  
22 mm) high.
- 23 J. Keying Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project  
24 Management and Coordination."  
25

#### 26 **1.4 DELIVERY, STORAGE, AND HANDLING**

- 27 A. Deliver keys to Owner by registered mail or overnight package service.  
28

#### 29 **1.5 WARRANTY**

- 30 A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of  
31 door hardware that fail in materials or workmanship within specified warranty period.
- 32 1. Warranty Period: 1 year from date of Substantial Completion, unless otherwise indicated.  
33
- 34 a. Manual Closers: 25 years from date of Substantial Completion.  
35

### 36 **PART 2 - PRODUCTS**

#### 37 **2.1 SCHEDULED DOOR HARDWARE**

- 38 A. Provide door hardware for each door as scheduled in Part 3 "Door Hardware Schedule" Article to comply with  
39 requirements in this Section.
- 40 1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and named manufacturers'  
41 products.
- 42 2. Sequence of Operation: Provide electrified door hardware function, sequence of operation, and interface  
43 with other building control systems indicated.
- 44 B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of  
45 door hardware are indicated in Part 3 "Door Hardware Schedule" Article. Products are identified by using door  
46 hardware designations, as follows:
- 47 1. Named Manufacturers' Products: Manufacturer and product designation are listed for each door hardware  
48 type required for the purpose of establishing minimum requirements. Manufacturers' names are abbreviated  
49 in Part 3 "Door Hardware Schedule" Article.  
50

#### 51 **2.2 CONTINUOUS HINGES**

- 52 A. Continuous Hinges: BHMA A156.26; minimum 0.120-inch- (3.0-mm-) thick, hinge leaves with minimum overall width  
53 of 4 inches (102 mm); fabricated to full height of door and frame and to template screw locations; with components  
54 finished after milling and drilling are complete.
- 55 B. Continuous, Gear-Type Hinges: Extruded-aluminum, pinless, geared hinge leaves joined by a continuous extruded-  
56 aluminum channel cap; with concealed, self-lubricating thrust bearings.  
57

- 1           1.       Manufacturers: Subject to compliance with requirements, provide products by one of the following:  
2  
3           a.       Hager Companies.  
4           b.       McKinney Products Company; an ASSA ABLOY Group company.  
5           c.       Select Products Limited.  
6
- 7       **2.3       MECHANICAL LOCKS AND LATCHES**
- 8       A.       Strikes: Provide manufacturer's standard strike for each lock bolt or latchbolt complying with requirements indicated  
9           for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match lock or  
10          latch.  
11       B.       Lever trim: Lever trim to be determined. Price is to be based on Sargent's Studio collection with Rose trim (not  
12           including Gramercy, Wooster Square, or Grant Park designs) or Schlage's L Series Latitude.  
13       C.       Mortise Locks: BHMA A156.13; Grade 1; Series 1000.  
14          1.       Manufacturers: Subject to compliance with requirements, provide products by one of the following:  
15  
16           a.       SARGENT Manufacturing Company; an ASSA ABLOY Group company.  
17           b.       Schlage; an Allegion Group company.  
18
- 19       **2.4       AUXILIARY LOCKS**
- 20       A.       Narrow Stile Auxiliary Locks: BHMA A156.5; Grade 1; with strike that suits frame.  
21          1.       Manufacturers: Subject to compliance with requirements, provide products by one of the following:  
22  
23           a.       Adams Rite Manufacturing Co.; an ASSA ABLOY Group company.  
24
- 25       **2.5       ELECTRIC STRIKES**
- 26       A.       Electric Strikes: BHMA A156.31; Grade 1.  
27          1.       Manufacturers: Subject to compliance with requirements, provide products by one of the following:  
28           a.       HES.  
29           b.       Security Door Controls.  
30           c.       Von Duprin.  
31
- 32       **2.6       MANUAL FLUSH BOLTS**
- 33       A.       Manual Flush Bolts: BHMA A156.16; minimum 3/4-inch (19-mm) throw; designed for mortising into door edge.  
34          1.       Manufacturers: Subject to compliance with requirements, provide products by one of the following:  
35  
36           a.       Door Controls International, Inc.  
37           b.       Hager Companies.  
38           c.       Rockwood Manufacturing Company.  
39           d.       Trimco.  
40
- 41       **2.7       EXIT DEVICES**
- 42       A.       Exit Devices and Auxiliary Items: BHMA A156.3.  
43          1.       Manufacturers: Subject to compliance with requirements, provide products by one of the following:  
44  
45           a.       Corbin Russwin Architectural Hardware.  
46           b.       SARGENT Manufacturing Company.  
47
- 48       **2.8       LOCK CYLINDERS**
- 49       A.       Lock Cylinders: Tumbler type, constructed from brass or bronze, stainless steel, or nickel silver. Provide  
50           interchangeable core cylinders.  
51  
52          1.       Manufacturers: Subject to compliance with requirements, provide products by one of the following:  
53  
54           a.       SARGENT Manufacturing Company; an ASSA ABLOY Group company.  
55       B.       Construction Master Keys: Provide cylinders with feature that permits voiding of construction keys without cylinder  
56           removal. Provide 10 construction master keys.

1 C. Construction Cores: Provide construction cores that are replaceable by permanent cores. Provide 10 construction  
2 master keys.

3  
4 **2.9 KEYING**

5 A. Keying System: Factory registered, complying with guidelines in BHMA A156.28, Appendix A. Incorporate decisions  
6 made in keying conference.

7  
8 1. Existing System:

9 a. Master key or grand master key locks to Owner's existing Sargent RB system.

10 B. Keys: Brass.

11 1. Stamping: Permanently inscribe each key with a visual key control number and include the following notation:

12 a. Notation: Information to be furnished by Owner.

13 2. Quantity: In addition to one extra key blank for each lock, provide the following:

14 a. Cylinder Change Keys: Three.

15 b. Master Keys: Five.

16 c. Grand Master Keys: Five.

17 d. Control Keys: Two.

18  
19 **2.10 OPERATING TRIM**

20 A. Operating Trim: BHMA A156.6; stainless steel, unless otherwise indicated.

21 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

22  
23 a. Hager Companies.

24 b. Rockwood Manufacturing Company.

25 c. Trimco.

26  
27 **2.11 ACCESSORIES FOR PAIRS OF DOORS**

28 A. Coordinators: BHMA A156.3; consisting of active-leaf, hold-open lever and inactive-leaf release trigger; fabricated  
29 from steel with nylon-coated strike plates; with built-in, adjustable safety release; and with internal override.

30 B. Carry-Open Bars: BHMA A156.3; prevent the inactive leaf from opening before the active leaf; provide polished brass  
31 or bronze carry-open bars with strike plate for inactive leaves of pairs of doors unless automatic or self-latching bolts  
32 are used.

33 C. Astragals: BHMA A156.22.

34  
35 **2.12 SURFACE CLOSERS**

36 A. Surface Closers: BHMA A156.4; rack-and-pinion hydraulic type with adjustable sweep and latch speeds controlled by  
37 key-operated valves and forged-steel main arm. Comply with manufacturer's written recommendations for size of  
38 door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized  
39 closers, adjustable to meet field conditions and requirements for opening force.

40 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

41  
42 a. Corbin Russwin Architectural Hardware.

43 b. Norton Door Controls.

44 c. SARGENT Manufacturing Company.

45 d. Yale Security Inc.

46  
47 **2.13 AUTOMATIC OPERATORS**

48 A. Automatic Operators: BHMA A156.19

49  
50 1. Available Manufacturers:

51  
52 a. Stanley Magic Force (STA).

53  
54 **2.14 MECHANICAL STOPS AND HOLDERS**

55 A. Wall- and Floor-Mounted Stops: BHMA A156.16; polished cast brass base metal.

56 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. Hager Companies.
- b. Rockwood Manufacturing Company.
- c. Trimco.

**2.15 OVERHEAD STOPS AND HOLDERS**

- A. Overhead Stops and Holders: BHMA A156.8.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Rixson.
    - b. Rockwood Manufacturing Company.
    - c. SARGENT Manufacturing Company; an ASSA ABLOY Group company.

**2.16 DOOR GASKETING**

- A. Door Gasketing: BHMA A156.22; air leakage not to exceed 0.50 cfm per foot (0.000774 cu. m/s per m) of crack length for gasketing other than for smoke control, as tested according to ASTM E 283; with resilient or flexible seal strips that are easily replaceable and readily available from stocks maintained by manufacturer.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Hager Companies.
    - b. National Guard Products.
    - c. Pemko Manufacturing Co.; an ASSA ABLOY Group company.
    - d. Reese Enterprises, Inc.

**2.17 THRESHOLDS**

- A. Thresholds: BHMA A156.21; fabricated to full width of opening indicated.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Hager Companies.
    - b. National Guard Products.
    - c. Pemko Manufacturing Co.; an ASSA ABLOY Group company.
    - d. Reese Enterprises, Inc.

**2.18 METAL PROTECTIVE TRIM UNITS**

- A. Metal Protective Trim Units: BHMA A156.6; fabricated from 0.050-inch- (1.3-mm-) thick stainless steel; with manufacturer's standard machine or self-tapping screw fasteners.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Hager Companies
    - b. Rockwood Manufacturing Company.
    - c. Trimco.

**2.19 AUXILIARY DOOR HARDWARE**

- A. Auxiliary Hardware: BHMA A156.16.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Hager Companies.
    - b. Rockwood Manufacturing Company.
    - c. Trimco.

**2.20 FABRICATION**

- A. Fasteners: Provide door hardware manufactured to comply with published templates prepared for machine, wood, and sheet metal screws. Provide screws that comply with commercially recognized industry standards for application intended, except aluminum fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.
  - 1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.
  - 2. Fire-Rated Applications:
    - a. Wood or Machine Screws: For the following:

- 1) Hinges mortised to doors or frames; use threaded-to-the-head wood screws for wood doors and frames.
- 2) Strike plates to frames.
- 3) Closers to doors and frames.
- b. Steel Through Bolts: For the following unless door blocking is provided:
  - 1) Surface hinges to doors.
  - 2) Closers to doors and frames.
  - 3) Surface-mounted exit devices.
- 3. Spacers or Sex Bolts: For through bolting of hollow-metal doors.
- 4. Fasteners for Wood Doors: Comply with requirements in DHI WDHS.2, "Recommended Fasteners for Wood Doors."
- 5. Gasketing Fasteners: Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.

**2.21 FINISHES**

- A. Provide finishes complying with BHMA A156.18 as indicated in door hardware schedule.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

**PART 3 - EXECUTION**

**3.1 INSTALLATION**

- A. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.
- B. Wood Doors: Comply with DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors."
- C. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.
  - 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
  - 2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
- D. Install each door hardware item to comply with manufacturer's 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. Do not install surface-mounted items until finishes have been completed on substrates involved.
  - 1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
  - 2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- E. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30 inches (750 mm) of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.
- F. Thresholds: Set thresholds for exterior doors and other doors indicated in full bed of sealant complying with requirements specified in Section 079200 "Joint Sealants."
- G. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they will impede traffic.
- H. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
- I. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
- J. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.
- K. 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.

**3.2 DOOR HARDWARE SCHEDULE**

**HARDWARE SET 01**

1	EA	CONTINUOUS HINGE	780-224HD	CLR	HAG
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1	1	EA	CLASSROOM	63-8237	626	SAR
2	1	EA	CLOSER	351 X PSH	689	SAR
3	1	EA	KICK PLATE	10" X 2" LDW	630	ROC
4	1	SET	SEALS	5050C	BLK	NGP
5	1	EA	AUTO DR BOTTOM	423N	AL	NGP

7 KICK PLATE DESCRIPTION: Refer to door elevation on A601 for kick plate size and location.

10 **HARDWARE SET 02**

11 HARDWARE BY DOOR SUPPLIER.

13 \*\*INCLUDE ADA COMPLIANT HOLD OPEN AT 113 (KICK DOWN STOPS ARE NOT ACCEPTABLE).

14 **HARDWARE SET 03**

15	1	EA	CONTINUOUS HINGE	780-224HD	CLR	HAG
16	1	EA	PASSAGE	8215	626	SAR
17	1	EA	CLOSER W/HOLD	351 X H	689	SAR
18	1	EA	WALL STOP	409	630	ROC
19	1	EA	KICKPLATE	10" X 2" LDW	630	ROC

21 KICK PLATE DESCRIPTION: Refer to door elevation on A601 for kick plate size and location.

24 **HARDWARE SET 04**

25	1	EA	CONTINUOUS HINGE	780-224HD	CLR	HAG
26	1	EA	CLASSROOM	63-8237	626	SAR
27	1	EA	WALL STOP	409	630	ROC
28	1	EA	KICKPLATE	10" X 2" LDW	630	ROC

30 KICK PLATE DESCRIPTION: Refer to door elevation on A601 for kick plate size and location.

33 **HARDWARE SET 05**

34	1	EA	CYLINDER	AS REQUIRED	624	SAR
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36 \*\*BALANCE OF HARDWARE BY DOOR SUPPLIER (PANIC HARDWARE REQUIRED AT COMMUNITY ROOM DOORS). INCLUDE  
37 CARD READER ACCESS AT DOORS: 109, 110, 111, AND 112.

40 **HARDWARE SET 06**

41	1	EA	CONTINUOUS HINGE	780-224HD	CLR	HAG
42	1	EA	CLASSROOM	63-8237	626	SAR
43	1	EA	OVERHEAD STOP	10 SERIES	630	RIX

46 **HARDWARE SET 07**

47	1	EA	CONTINUOUS HINGE	780-224HD	CLR	HAG
48	1	EA	PRIVACY	49-8265	626	SAR
49	1	EA	CLOSER	351	689	SAR
50	1	EA	WALL STOP	409	630	ROC
51	1	EA	KICKPLATE	10" X 2" LDW	630	ROC

53 \*\*ALLOW 180 DEGREE SWING WHERE APPLICABLE

56 **HARDWARE SET 08**

57	1	EA	CONTINUOUS HINGE	780-224HD	CLR	HAG
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1	1	EA	PRIVACY	49-8265	626	SAR
2	1	EA	CLOSER	351	689	SAR
3	1	EA	OVERHEAD STOP	1 SERIES	630	RIX
4	1	EA	KICKPLATE	10" X 2" LDW	630	ROC

KICK PLATE DESCRIPTION: Refer to door elevation on A601 for kick plate size and location.

**HARDWARE SET 09**

11	1	EA	BIPARTING TRACK	SIM200A	AL	PEMKO
12	5	EA	SIDE WALL BRACKET	281	---	PEMKO
13	1	EA	FASCIA	F134C	AL	PEMKO
14	1	EA	END PLATE	K134EP	AL	PEMKO
15	2	EA	PULL	RM753-4"	630	ROCKWOOD

\*\*REFER TO ARCHITECTURAL DRAWINGS FOR LENGTH OF FASCIA TO BE EXTENDED OVER OPENING

**HARDWARE SET 10**

HARDWARE BY DOOR SUPPLIER.

**HARDWARE SET 11**

25	1	EA	CONTINUOUS HINGE	780-224HD	CLR	HAG
26	1	EA	CLASSROOM	63-8237	626	SAR
27	1	EA	CLOSER	351	689	SAR
28	1	EA	WALL STOP	409	626	ROC
29	1	EA	KICK PLATE	10" X 2" LDW	630	ROC

**HARDWARE SET 12**

33	1	EA	CONTINUOUS HINGE	780-224HD	628	HAG
34	1	EA	PASSAGE	8215	626	SAR
35	1	EA	AUTO OPERATOR	9540	689	LCN
36	2	EA	WAVE ACTUATOR	8310-813	630	LCN
37	2	EA	FLUSH MOUNT BOX	8310-867F	---	LCN
38	1	EA	WALL STOP	403	626	ROC
39	1	EA	ELECTRIC STRIKE	6211	630	VON
40	1	EA	ARMOR PLATE	34" X 2" LDW	630	ROC

ARMOR PLATE DESCRIPTION: Refer to door elevation on A601 for armor plate size and location.

**HARDWARE SET 13**

46	1	EA	CONTINUOUS HINGE	BY OTHERS		
47	1	EA	EXIT DEVICE	AD8504 X ET*	630	SAR
48	1	EA	CYLINDER	AS REQUIRED	626	SAR
49	1	EA	AUTO OPERATOR	9540	689	LCN
50	1	EA	ACTUATOR	8310-856T	630	LCN
51	1	EA	FLUSH MOUNT BOX	8310-868F	---	LCN
52	1	EA	JAMB ACTUATOR	8310-818T	630	LCN
53	1	EA	FLUSH MOUNT BOX	8310-819F		
54	1	EA	STOP	BY OTHERS		
55	1	EA	SWEEP	BY OTHERS		
56	1	EA	THRESHOLD	BY OTHERS		
57	1	EA	ELECTRIC STRIKE	6300	630	VON

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1	1	EA	POSITION SWITCH	1078	GRY	GE
2	1	EA	CARD READER	BY SECURITY CONTRACTOR		
3	1	EA	REQUEST TO EXIT	BY SECURITY CONTRACTOR		
4						
5			**PROVIDE LEVER TRIM TO MATCH LEVERS USED INSIDE BUILDING.			
6						
7			<u>OPERATIONAL DESCRIPTION:</u> Door normally closed and locked. Valid credential allows entry. Door remains closed and locked			
8			upon loss of power. Free egress at all times.			
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11			<b><u>HARDWARE SET 14</u></b>			
12	1	EA	EXIT DEVICE	10xW-01	630	DET
13	1	EA	GATE PLATE	GTPL	630	DET
14	1	EA	STRIKE BRACKET	GTSTKBKT	630	DET
15	1	EA	LATCH PROTECTOR	GTPLGRD	630	DET
16	1	EA	GATE CLOSER	1350	BLK	RIX
17	1	EA	POSITION SWITCH	2500 SERIES	AL	GE
18	1	EA	MNTG BRACKET	1094A	AL	GE
19	1	EA	REQUEST TO EXIT	BY SECURITY CONTRACTOR		
20						
21			**BALANCE OF HARDWARE BY GATE DOOR SUPPLIER.			
22			**COORDINATE DETEX GATE PLATE REQUIREMENTS WITH GATE DOOR SUPPLIER.			
23						
24						
25			<b><u>HARDWARE SET 15</u></b>			
26			NOT USED			
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29			<b><u>HARDWARE SET 16</u></b>			
30	1	EA	CONTINUOUS HINGE	BY OTHERS		
31	1	EA	EXIT DEVICE	AD8504 X ET*	630	SAR
32	1	EA	CYLINDER	AS REQUIRED	626	SAR
33	1	EA	CLOSER	BY OTHERS		
34	1	EA	STOP	BY OTHERS		
35	1	EA	SWEEP	BY OTHERS		
36	1	EA	THRESHOLD	BY OTHERS		
37	1	EA	ELECTRIC STRIKE	6300	630	VON
38	1	EA	CARD READER	BY SECURITY CONTRACTOR		
39						
40			**PROVIDE LEVER TRIM TO MATCH LEVERS USED INSIDE BUILDING.			
41						
42			<u>OPERATIONAL DESCRIPTION:</u> Door normally closed and locked. Valid credential allows entry. Door remains closed and locked			
43			upon loss of power. Free egress at all times.			
44						
45						
46			<b><u>HARDWARE SET 17</u></b>			
47			HARDWARE BY DOOR SUPPLIER.			
48						
49						
50			<b><u>HARDWARE SET 18</u></b>			
51	1	EA	CONTINUOUS HINGE	780-224HD	628	HAG
52	1	EA	EXIT DEVICE	63-8804 X ET*	630	SAR
53	1	EA	CLOSER	351	689	SAR
54	1	EA	OVERHEAD HOLDER	1 SERIES	630	RIX
55	1	EA	ELECTRIC STRIKE	6300	630	VON
56	1	EA	KICK PLATE	10" X 2" LDW	630	ROC
57	1	EA	CARD READER	BY SECURITY CONTRACTOR		

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**\*\*PROVIDE LEVER TRIM TO MATCH LOCK TRIM.**

**OPERATIONAL DESCRIPTION:** Door normally closed and locked. Valid credential allows entry. Door remains closed and locked upon loss of power. Free egress at all times.

**KICK PLATE DESCRIPTION:** Refer to door elevation on A601 for kick plate size and location.

**HARDWARE SET 19**

2	EA	CONTINUOUS HINGE	780-224HD	628	HAG
2	EA	EXIT DEVICE	63-NB8706 X ET*	630	SAR
2	EA	CLOSER	351	689	SAR
2	EA	OVERHEAD HOLDER	1 SERIES	630	RIX
2	EA	KICK PLATE	10" X 1" LDW	630	ROC

**\*\*PROVIDE LEVER TRIM TO MATCH LOCK TRIM.**

**KICK PLATE DESCRIPTION:** Refer to door elevation on A601 for kick plate size and location.

**HARDWARE SET 20**

1	EA	CONTINUOUS HINGE	780-224HD	628	HAG
1	EA	EXIT DEVICE	63-8804 X ET*	630	SAR
1	EA	AUTO OPERATOR	9540	689	LCN
2	EA	WAVE ACTUATOR	8310-813	630	LCN
2	EA	FLUSH MOUNT BOX	8310-867F	---	LCN
1	EA	KEY SWITCH	8310-806K	BLK	LCN
1	EA	WALL STOP	403	626	ROC
1	EA	ELECTRIC STRIKE	6300	630	VON
1	EA	KICK PLATE	10" X 2" LDW	630	ROC
1	EA	CARD READER	BY SECURITY CONTRACTOR		

**OPERATIONAL DESCRIPTION:** Door normally closed and locked. Valid credential releases electric strike and also activates outside automatic operator actuator to allow entry. Inside wave actuator activates electric strike and automatic operator for egress. Door remains closed and locked upon loss of power. Free egress at all times.

**KICK PLATE DESCRIPTION:** Refer to door elevation on A601 for kick plate size and location.

**HARDWARE SET 21**

1	EA	CONTINUOUS HINGE	780-224HD	CLR	HAG
1	EA	STOREROOM	63-8204	626	SAR
1	EA	WALL STOP	409	630	ROC
1	EA	KICKPLATE	10" X 2" LDW	630	ROC

**\*\*ALLOW 180 DEGREE SWING.**

**KICK PLATE DESCRIPTION:** Refer to door elevation on A601 for kick plate size and location.

**HARDWARE SET 22**

1	EA	CONTINUOUS HINGE	780-224HD	628	HAG
1	EA	STOREROOM	63-8204	626	SAR
1	EA	AUTO OPERATOR	9530	689	LCN
2	EA	WAVE ACTUATOR	8310-813	630	LCN
2	EA	FLUSH MOUNT BOX	8310-867F	---	LCN

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1	1	EA	WALL STOP	403	626	ROC
2	1	EA	ELECTRIC STRIKE	6211	630	VON
3	1	EA	ARMOR PLATE	34" X 2" LDW	630	ROC
4	1	EA	POSITION SWITCH	1078	GRY	GE
5	1	EA	CARD READER	BY SECURITY CONTRACTOR		
6	1	EA	MOTION SENSOR	BY SECURITY CONTRACTOR		

7  
 8 OPERATIONAL DESCRIPTION: Door normally closed and locked. Valid credential releases electric strike and also activates out-  
 9 side automatic operator actuator to allow entry. Inside wave actuator activates electric strike and automatic operator for  
 10 egress. Door remains closed and locked upon loss of power. Free egress at all times.

11  
 12 ARMOR PLATE DESCRIPTION: Refer to door elevation on A601 for armor plate size and location.

13  
 14  
 15 **HARDWARE SET 23**

16	1	EA	CONTINUOUS HINGE	780-224HD	628	HAG
17	1	EA	STOREROOM	63-8204	626	SAR
18	1	EA	CLOSER W/HOLD	351 X H	689	SAR
19	1	EA	WALL STOP	409	626	ROC
20	1	EA	ELECTRIC STRIKE	6211	630	VON
21	1	EA	KICK PLATE	10" X 2" LDW	630	ROC
22	1	EA	POSITION SWITCH	1078	GRY	GE
23	1	EA	CARD READER	BY SECURITY CONTRACTOR		

24  
 25 OPERATIONAL DESCRIPTION: Door normally closed and locked. Valid credential allows entry. Door remains closed and locked  
 26 upon loss of power. Free egress at all times.

27  
 28 KICK PLATE DESCRIPTION: Refer to door elevation on A601 for kick plate size and location.

29  
 30  
 31 **HARDWARE SET 24**

32	1	EA	CONTINUOUS HINGE	780-224HD	CLR	HAG
33	1	EA	STOREROOM DEADBOLT	50-8251	626	SAR
34	1	EA	CLOSER	351	689	SAR
35	1	EA	WALL STOP	409	626	ROC
36	1	EA	ELECTRIC STRIKE	55-D	630	SDC
37	1	EA	KICKPLATE	10" X 2" LDW	630	ROC
38	1	EA	CARD READER	BY SECURITY CONTRACTOR		

39  
 40 **\*\*WHEN DEADBOLT THROWN, CARD READER WILL NOT OPEN DOOR.**

41  
 42 OPERATIONAL DESCRIPTION: Door normally closed and locked. Valid credential allows entry. Door remains closed and locked  
 43 upon loss of power. Free egress at all times.

44  
 45 KICK PLATE DESCRIPTION: Refer to door elevation on A601 for kick plate size and location.

46  
 47  
 48 **HARDWARE SET 25**

49	1	EA	CONTINUOUS HINGE	BY OTHERS		
50	1	EA	EXIT DEVICE	AD8504 X ET*	630	SAR
51	1	EA	CYLINDER	AS REQUIRED	626	SAR
52	1	EA	AUTO OPERATOR	9540	689	LCN
53	1	EA	ACTUATOR	8310-856T	630	LCN
54	1	EA	FLUSH MOUNT BOX	8310-868F	---	LCN
55	1	EA	JAMB ACTUATOR	8310-818T	630	LCN
56	1	EA	FLUSH MOUNT BOX	8310-819F		
57	1	EA	STOP	BY OTHERS		

1	1	EA	SWEEP	BY OTHERS		
2	1	EA	THRESHOLD	BY OTHERS		
3	1	EA	ELECTRIC STRIKE	6300	630	VON
4	1	EA	POSITION SWITCH	1078	GRY	GE

5  
6 \*\*PROVIDE LEVER TRIM TO MATCH LEVERS USED INSIDE BUILDING.

7  
8 OPERATIONAL DESCRIPTION: Door normally closed and locked. Valid credential allows entry. Door remains closed and locked  
9 upon loss of power. Free egress at all times.

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**END OF SECTION**

**SECTION 10 22 29**  
**FULL HEIGHT GLAZED PARTITION SYSTEM**

**PART 1 GENERAL**

**1.1 SECTION INCLUDES**

- A. Interior all-glass partition system.
- B. Interior all-glass entrance doors.
- C. Fittings, hardware, and accessories for all-glass partition/entrance door system.

**1.2 REFERENCE STANDARDS**

- A. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2017a.
- B. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.
- C. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2014.
- D. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2013.
- E. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 2005 (Reapproved 2015).
- F. ASTM C1036 - Standard Specification for Flat Glass; 2016.
- G. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2012.
- H. GANA (GM) - GANA Glazing Manual; 2009.

**1.3 SUBMITTALS**

- A. See Section 01 33 23 - Submittals, for submittal procedures.
- B. Product Data: Manufacturer's descriptive data and performance characteristics.
- C. Shop Drawings: Include plans, elevations, and details showing type and thickness of metal and glass, glazing, anchoring, and joining, hardware, trim, and accessories.
- D. Entrance Door Hardware Schedule: Prepared by or under supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams. Coordinate final entrance door hardware schedule with doors, sidelights, transoms, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.
- E. Samples:
  - 1. Two (2) samples, 2 inches by 3 inches, minimum, showing actual material and finish of exposed metal components.

**1.4 QUALITY ASSURANCE**

- A. Installer Qualifications:
  - 1. Minimum 5 years documented experience in work of this Section.
  - 2. Approved by partition system manufacturer.

**1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products to project site and store in manufacturer's protective cartons until openings are ready for door installation.
- B. Protect finished surfaces with wrapping paper or strippable coating during installation. Do not use adhesive papers or sprayed coatings that bond to substrate when exposed to sunlight or weather.

**1.6 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Provide five year manufacturer warranty against excessive degradation of finish. Include provision for replacement of units with excessive fading, chalking, or flaking.

**PART 2 PRODUCTS**

**2.1 MANUFACTURER**

- A. All-Glass Partition System:
  - 1. Basis of Design; Avanti Systems Inc., Solare Acoustic, Single-Glazed Partition System: [www.avantisystemsusa.com](http://www.avantisystemsusa.com)

- 1 a. Dorma USA, Inc.: <http://www.dorma.com>
- 2 b. Substitutions: See Section 01 6000 - Product Requirements.
- 3 B. All-Glass Entrance Doors:
- 4 1. Basis of Design; Avanti Systems Inc., Hinged, Glass, Swing Door: [www.avantisystemsusa.com](http://www.avantisystemsusa.com)
- 5 a. Dorma USA, Inc.: <http://www.dorma.com>
- 6 b. Substitutions: See Section 01 6000 - Product Requirements.

## 2.2 GLAZED PARTITION SYSTEMS

- 9 A. Aluminum Extrusions:
  - 10 1. ASTM B221 (ASTM B221M), alloy 6063, T6 temper.
  - 11 2. Recycled Content: Minimum 40 percent, with minimum 20 percent classified as post consumer.
  - 12 3. Factory-Applied Polymer Finish: AAMA 2604, polyester powder coating, brushed stainless steel.
  - 13 4. Provide mullions in size and as indicated on drawings. Non-standard vertical mullions to be provided between glazing
  - 14 units on borrowed lights BL-5 and BL-6 as indicated on drawings to reduce deflection to less than 1/175 of clear span
  - 15 or 3/4", whichever is smaller.
  - 16 5. 3-1/2" heavy shoe base to be included at all locations.
- 17 B. Performance:
  - 18 1. Deflection Limits: Deflection normal to glazing plane is limited to 1/175 of clear span or 3/4", whichever is smaller.
  - 19 2. Acoustical performance: 35 STC
- 20 C. Glass:
  - 21 1. Clear Tempered Glass: ASTM C1036, Type 1-Transparent flat, Class 1-Clear, Quality Q3, and fully tempered in
  - 22 accordance with ASTM C1048, Kind FT, thickness 1/2 inch thick.
- 23 D. Swinging Doors:
  - 24 1. Fabricate manufacturer's standard hinged frame swinging doors.
  - 25 2. Provide acoustic door frame.
  - 26 3. Self-closing entrance door standard function with integral hold-open.
- 27 E. Swinging Door Hardware:
  - 28 1. Hinges and closers for doors provided by glass partition system manufacturer.
  - 29 2. Pushes, pulls and other hardware for glass doors provided by glass partition system manufacturer. Coordinate card
  - 30 access controls and power with building system and Electrical and Technology drawings.
    - 31 a. All-Glass Entrance Door: 103 as identified in drawings
    - 32 i. Double doors with closer, hold-open, and storeroom function lever trim (Exterior unlocked/locked with
    - 33 key, interior always open with lever)
    - 34 b. Wood Entrance Door: 105 as identified in drawings
    - 35 i. Single door with closer, hold-open, armor plate, card reader access control with ADA operator, and
    - 36 storeroom function lever trim (Door normally closed and locked. Valid credential releases electric strike
    - 37 and activates automatic operator to allow entry. Inside wave actuator activates electric strike and
    - 38 automatic operator for egress. Door remains closed and locked upon loss of power. Free egress at all
    - 39 times)
    - 40 c. All-Glass Entrance Door: 109, 110, 111, 112 as identified in drawings
    - 41 i. Single door with closer, hold-open, card reader access control and storeroom function lever trim (Door
    - 42 normally closed and locked. Valid credential allows entry. Door remains closed and locked upon loss of
    - 43 power. Free egress at all times.)
    - 44 d. All-Glass Entrance Door: 113 as identified in drawings
    - 45 i. Single door with closer, hold-open, and push/pull hardware
    - 46 e. Wood Entrance Door: 124 as identified in drawings
    - 47 i. Single door with closer, hold-open, kickplate, card reader access control and storeroom function lever
    - 48 trim (Door normally closed and locked. Valid credential allows entry. Door remains closed and locked
    - 49 upon loss of power. Free egress at all times.)
  - 50 3. Full Height Glazed Partition manufacturer to provide hardware that meets minimum standards established in Section
  - 51 08 71 00 Door Hardware for mechanical locks and latches, kickplates, armor plates, auxiliary locks, electric strikes,
  - 52 lock cylinders, keying, closers, automatic operators, and mechanical stops and holders.
  - 53 4. Hardware finish as specified in Section 08 71 00 Door Hardware.
  - 54 5. Pre-Procurement/Installation Meeting Requirement:
    - 55 i. After submission of all door/frame/hardware submittals (and related low voltage door hardware
    - 56 submittals) Contractor will organize a meeting(s) with Owner, Architect, General Contractor, Electrician,
    - 57 Door/Frame/Hardware Supplier/Installer, Low-Voltage Supplier/Installer, and others as applicable to

1 comprehensively review and explain each door opening's submitted hardware package operation. No  
2 procurement of door hardware (and related low voltage components) shall be procured until this  
3 meeting is completed; and until related submittals are returned to by the Owner/Architect team. This  
4 meeting will be coordinated with pre-procurement meeting identified in Section 08 71 00 Door  
5 Hardware.

6 F. Accessories: Provide manufacturer's standard accessory materials listed below.

- 7 1. Concealed fasteners, anchors and attachments.
- 8 2. Mounting and reinforcing brackets
- 9 3. Junction clips.
- 10 4. Reducers and adapters.
- 11 5. Infill and trim.

12  
13 **PART 3 EXECUTION**

14  
15 **3.1 EXAMINATION**

- 16 A. Verify that openings are acceptable.
- 17 B. Do not begin installation until substrates and openings have been properly prepared.
- 18 C. If substrate preparation is the responsibility of another installer or trade, notify Architect of unsatisfactory or detrimental  
19 conditions before proceeding.

20 **3.2 INSTALLATION**

- 21 A. Install in accordance with manufacturer's instructions and approved shop drawings.
- 22 B. Install components plumb and level, in proper plane, free from warp and twist.
- 23 C. Install glass and accessories in accordance with GANA Glazing Manual.

24  
25 **3.3 ADJUSTING**

- 26 A. Adjust doors to operate correctly, without binding to frame, sill or adjacent doors.
- 27 B. Adjust door hardware for smooth operation.

28  
29 **3.4 CLEANING**

- 30 A. Clean installed work to like-new condition.
- 31 B. Touch up minor scratches and abrasions to match original finish.

32  
33 **3.5 PROTECTION**

- 34 A. Protect installed products until completion of project.
- 35 B. Touch-up, repair or replace products damaged before Date of Substantial Completion.

36  
37 **END OF SECTION**  
38

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- 1 B. Submit a comprehensive package including devices, hardware, software, product specification, finishes,  
2 dimensions, installation instructions, warranty, system software requirements, and roles and responsibilities  
3 of all persons and groups involved in installation, execution, and commissioning.
- 4 C. Provide floor plan showing location, orientation, and coverage area of each control device, sensor, and  
5 controller/interface. For areas requiring multiple sensor devices for appropriate coverage, submit specific  
6 manufacturer-approved sensor layout as an overlay directly on the project drawings, either in print or  
7 approved electronic form.
- 8 D. Submit a list of devices and equipment that will be installed for each sequence of operation.
- 9 E. Submit project specific control wiring diagrams showing all equipment, line voltage, and control wiring  
10 requirements for all components including, but not limited to, dimmers, relays, low voltage switches,  
11 occupancy sensors, control stations, dimmer panels, relay panels, and communication interfaces and  
12 programming instructions for each sequence of operation. Include network cable specification and end-of-  
13 line termination details, if required.

14 **1.6 EXTRA STOCK**

- 15 A. Provide extra stock under provisions of Section 26 05 00.
- 16 B. Sensors, Controls, Power Supplies, and Relays: Five (5) percent of quantity installed. Minimum of two (2) of  
17 each configuration and type.
- 18 C. Relays and Dimmer Modules: Five (5) percent of quantity installed. Minimum of two (2) of each size and type.
- 19 D. Control Stations: One (1) of each configuration and type, except for LCD touch screens requiring factory setup  
20 prior to installation.

21 **1.7 PROJECT RECORD DOCUMENTS**

- 22 A. Submit project record documents under provisions of Section 26 05 00.
- 23 B. Accurately record location of all controls and devices. Include description of switching sequences and  
24 circuiting arrangements.

25 **1.8 OPERATION AND MAINTENANCE DATA**

- 26 A. Submit emergency, operation, and maintenance data under provisions of Section 26 05 00. Data shall also  
27 include the following:
- 28 1. Schedule for routine maintenance, inspection, and calibration of all lighting control devices and  
29 system components. Recommended schedule for inspection and recalibration of sensors.
- 30 2. Complete narrative describing intended operation and sequence for each control scenario and  
31 system component, updated to reflect all changes resulting from commissioning of systems.  
32 Narrative shall indicate recommended settings for devices where applicable.
- 33 3. Replacement part numbers for all system components.
- 34 B. Identify installed location and labeling for each luminaire controlled by automated lighting controls.
- 35 C. Submit software operating and maintenance manuals, program software backup on compact disc or  
36 compatible media with data files, device address list, and a printout of software application and graphic  
37 screens, where applicable.

1     **1.9     SYSTEM DESCRIPTION**

2           A.       Performance Statement: This specification section and the accompanying lighting design documents describe  
3                    the minimum material quality, required features, and operational requirements of the lighting control system  
4                    (LCS). These documents do not convey every wire that must be installed and every equipment connection  
5                    that must be made. Based on the performance required of the system, as presented in these documents, the  
6                    Contractor and system manufacturer/vendor are solely responsible for determining all equipment, wiring,  
7                    and programming required for a complete and operational system.

8           B.       The following control types and features are acceptable. Acceptable control locations are shown on the  
9                    drawings.

10           1.       Line Voltage Control: Control equipment consists of traditional line voltage wiring devices and  
11                    equipment such as switches, dimmers and combination occupancy/vacancy sensor switches, etc.

12           2.       Low Voltage Control: Control equipment consists of 0-10V wiring devices and equipment such as  
13                    dimmers, sensors, and light level sensing devices, etc.

14     **1.10     COMMISSIONING**

15           A.       Commissioning of a system or systems specified in this section is part of the construction process.  
16                    Documentation and testing of these systems, as well as training of the Owner's operation and maintenance  
17                    personnel, is required in cooperation with the Owner's Representative and the Commissioning Agent. Project  
18                    closeout is dependent on successful completion of all commissioning procedures, documentation, and issue  
19                    closure. Refer to Division 1 for detailed commissioning requirements.

20           B.       This project will have selected building systems commissioned. The Contractor is responsible to execute  
21                    commissioning. The commissioning process, equipment, and systems to be commissioned are defined in  
22                    Division 1.

23           C.       The Contractor shall notify the Commissioning Agent, Architect/Engineer and Owner's Representative ten  
24                    (10) working days prior to scheduled commissioning date.

25           D.       The commissioning process requires meeting attendance. Refer to Division 1 for meeting requirements.

26     **1.11     WARRANTY**

27           A.       Manufacturer shall warrant products under normal use and service to be free from defects in materials and  
28                    workmanship for a period of two (2) years from date of commissioning.

29           B.       Occupancy, vacancy, daylight sensors and controls shall have a five (5) year warranty from date of Substantial  
30                    Completion.

31     **PART 2 - PRODUCTS**

32     **2.1     LIGHTING CONTROLS**

33           A.       All items of material having a similar function (e.g., switches, dimmers, sensors, contactors, relays, etc.) shall  
34                    be of the same manufacturer, unless specifically stated otherwise on drawings or elsewhere in the  
35                    specifications.

36           B.       Color of lighting controls and sensors shall match the receptacle wiring devices specified in the space.

37           C.       The functions described in the lighting sequence of operation shall dictate the actual lighting control device  
38                    required to accomplish the functions described for the space.

1    **2.2    DEVICE COLOR**

2            A.       All switch, lighting controls, and coverplate colors shall be the same as wiring devices, unless indicated  
3                    otherwise.

4    **2.3    COVERPLATES**

5            A.       All switches and lighting controls shall be complete with coverplates that match material and color of the  
6                    wiring device coverplates in the space.

7            B.       Where several devices are ganged together, the coverplate shall be of the ganged style for the number of  
8                    devices used.

9            C.       Install nameplate identification as indicated in Section 26 05 53.

10           D.       Plate-securing screws shall be metal with head color matching the wall plate finish.

11   **2.4    WALL SWITCHES**

12           A.       Refer to Electrical Symbols List for device type.

13           B.       **[SW-1P]:** Single Pole Switch:

14                1.       Single throw, 120/277-volt, 20-amp maintained contact. Toggle handle, side and back wired.

15                2.       Approved Manufacturers: Hubbell HBL1221, Leviton 1221-2, Pass & Seymour PS20AC1, Cooper  
16                    AH1221.

17           C.       **[SW-1P-060]:** Spring Wound Local Timer Switch:

18                1.       125-volt, 20-amp rated. 0 to 60-minute off delay.

19                2.       Approved Manufacturers: Paragon SWPD60M, Tork A560M, Mark-Time 9008.

20           D.       **[SW-1P-ADJ]:** Local Timer Switch:

21                1.       User adjustable timeout, 120/277-volt, 800/1200 watt rating. No minimum load requirement.  
22                    Flashes lights one minute before timeout.

23                2.       Approved Manufacturers: Watt Stopper TS-400, Hubbell Automation TD200.

24           E.       **[SW-1P-K]:** Key Lock Single Pole Switch:

25                1.       Single throw, 120/277-volt, 20-amp maintained contact. Side and back wired. Provide key to Owner.

26                2.       Approved Manufacturers: Hubbell HBL1221L, Leviton 1221-2L, Pass & Seymour PS20AC1-L, Cooper  
27                    AH1221L.

28           F.       **[SW-1P-LH]:** Lighted Handle Single Pole Switch:

29                1.       120 volt maintained contact. Toggle handle. Light on when contact open (switch off). Side and back  
30                    wired.

31                2.       Approved Manufacturers: Hubbell HBL1221ILC, Leviton 1221-LHC, Pass & Seymour PS20AC1-CSL,  
32                    Cooper 2221LTW.

- 1           G.       **[SW-1P-M]:** Momentary Contact Single Pole Switch:
- 2                   1.       120/277-volt, 20 amp. Three position, two circuit. Center off toggle spring return handle.
- 3                   2.       Approved Manufacturers: Hubbell HBL1557, Leviton 1257, Pass & Seymour 1251, Cooper 1995.
- 4           H.       **[SW-1P-PL]:** Red Pilot Light Single Pole Switch:
- 5                   1.       120 volt maintained contact. Toggle handle. Pilot light on when contact closed (switch on). Side and
- 6                               back wired.
- 7                   2.       Approved Manufacturers: Hubbell HBL1221PL, Leviton 1221-PLR, Pass & Seymour PS20AC1-RPL,
- 8                               Cooper AH1221PL.
- 9           I.       **[SW-1P-WP]:** Weatherproof Single Pole Switch:
- 10                   1.       Single throw, 120/277-volt, 20-amp maintained contact. Toggle handle, side and back wired.
- 11                               Provide with weatherproof coverplate.
- 12                   2.       Approved Manufacturers: Hubbell1221/HBL1795, Leviton 1221-2, Taymac MM180, Pass & Seymour
- 13                               PS20AC1/CA1-GL, Cooper 2221.
- 14           J.       **[SW-2P]:** Two Pole Switch:
- 15                   1.       Single throw, 120/277-volt, 20-amp maintained contact. Toggle handle, side and back wired.
- 16                   2.       Approved Manufacturers: Hubbell HBL 1222, Leviton 1222-2, Pass & Seymour PS20AC2, Cooper
- 17                               2222.
- 18           K.       **[SW-3W]:** Three-way Switch:
- 19                   1.       120/277 volt, 20 amp. Toggle handle, side and back wired.
- 20                   2.       Approved Manufacturers: Hubbell 1223, Leviton 1223-2, Pass & Seymour PS20AC3, Cooper
- 21                               AH1223.
- 22           L.       **[SW-3W-EM]:** Emergency Three-way Switch:
- 23                   1.       120/277 volt, 20 amp. Red toggle handle, side and back wired.
- 24                   2.       Approved Manufacturers: Hubbell 1223R, Leviton 1223-2R, Pass & Seymour PS20AC3-RED, Cooper
- 25                               AH1223RD.
- 26           M.       **[SW-3W-K]:** Key Lock Three Way Switch:
- 27                   1.       Single throw, 120/277-volt, 20-amp maintained contact. Side and back wired. Provide key to Owner.
- 28                   2.       Approved Manufacturers: Hubbell HBL1223L, Leviton 1223-2L, Pass & Seymour PS20AC3-L, Cooper
- 29                               AH1223L.
- 30           N.       **[SW-4W]:** Four-way Switch:
- 31                   1.       120/277 volt, 20 amp. Toggle handle, side and back wired.
- 32                   2.       Approved Manufacturers: Hubbell 1224, Leviton 1224-2, Pass & Seymour PS20AC4, Cooper
- 33                               AH1224.

- 1 O. **[SW-4W-K]:** Key Lock Four Way Switch:
- 2 1. Single throw, 120/277-volt, 20-amp maintained contact. Side and back wired. Provide key to Owner.
- 3 2. Approved Manufacturers: Hubbell HBL1224L, Leviton 1224-2L, Pass & Seymour PS20AC4-L.
- 4 P. **[SW-A-TPCO]:** Three Position-Center Off Switch:
- 5 1. 120/277-volt, 20-amp, 2 pole maintained contact. Toggle handle, side and back wired.
- 6 2. Approved Manufacturers: Hubbell HBL1386, Leviton 1286, Pass & Seymour 1226, Cooper 2226.
- 7 Q. **[SW-COMB]:** Combination Single Pole Switch and GFCI Receptacle:
- 8 1. Single throw switch, 120-volt, 15-amp maintained contact. Toggle handle, side and back wired.
- 9 NEMA 5-15R GFCI receptacle with test and reset buttons.
- 10 2. Approved Manufacturers: Hubbell GFSP15, Leviton 7229, Pass & Seymour 1595-SWTTR, Cooper
- 11 VGFS15.
- 12 **2.5 WALL DIMMERS**
- 13 A. UL listed with integral air-gap switch for on/off control.
- 14 B. Integral EMI/RFI suppression.
- 15 C. Non-viewable heat sink.
- 16 D. Dimmer compatibility and wiring with the load being controlled shall be verified by Contractor prior to
- 17 purchase and installation.
- 18 E. Dimmer to match device color.
- 19 F. **[SW-D-6]:** 600-Watt Single Pole Incandescent Dimmer:
- 20 1. 120-volt, linear slider operator with positive off. Mount in single gang box.
- 21 2. Approved Manufacturers: Lutron N-600, Lightolier MP600, Pass & Seymour CD700.
- 22 G. **[SW-D-10]:** 1000-Watt Single Pole Incandescent Dimmer:
- 23 1. 120-volt, linear slider operator with positive off. Mount in single gang box.
- 24 2. Approved Manufacturers: Lutron N-1000, Lightolier MP1000, Pass & Seymour CD1100.
- 25 H. **[SW-D-15]:** 1500-Watt Single Pole Incandescent Dimmer:
- 26 1. 120-volt, linear slider operator with positive off. Mount in double gang box.
- 27 2. Approved Manufacturers: Lutron N-1500, Lightolier MP1500, Pass & Seymour CD1600.
- 28 I. **[SW-D-20]:** 2000-Watt Single Pole Incandescent Dimmer:
- 29 1. 120-volt, linear slider operator with positive off. Mount in double gang box.
- 30 2. Approved Manufacturers: Lutron N-2000, Lightolier MP2000, Pass & Seymour CD2000.

- 1 J. **[SW-D-LED]:** LED Electronic Driver Dimmer:
- 2 1. Decora style linear slider operator with positive off. Color to match adjacent devices. Luminaire  
3 manufacturer shall list compatible dimmer manufacturers and models. 0-10V dimmers shall comply  
4 with IEC 60629 Annex E.
- 5 2. Approved Manufacturers: Compatible with provided LED driver.
- 6 K. **[SW-D3-6]:** 600-Watt Three-Way Incandescent Dimmer:
- 7 1. 120-volt, linear slider operator with positive off. Mount in single gang box.
- 8 2. Approved Manufacturers: Lutron N-603P, Lightolier MP600 MPR-3, Pass & Seymour CD1100.
- 9 L. **[SW-D3-10]:** 1000-Watt Three-Way Incandescent Dimmer:
- 10 1. 120-volt, linear slider operator with positive off. Mount in single gang box.
- 11 2. Approved Manufacturers: Lutron N-1003P, Lightolier MP1000 MPR-3, Pass & Seymour CD1103P.
- 12 M. **[SW-D3-15]:** 1500-Watt Three-Way Incandescent Dimmer:
- 13 1. 120-volt, linear slider operator with positive off. Mount in double gang box.
- 14 2. Approved Manufacturers: Lutron N-1503P, Lightolier MP1500 MPR-3, Pass & Seymour CD11603P.
- 15 N. **[SW-D3-20]:** 2000-Watt Three-Way Incandescent Dimmer:
- 16 1. 120-volt, linear slider operator with positive off. Mount in double gang box.
- 17 2. Approved Manufacturers: Lutron N-2003P, Lightolier MP2000 MPR-3, Pass & Seymour CD2000.
- 18 O. **[SW-D3-LED]:** LED Electronic Driver Three-Way Dimmer:
- 19 1. Decora style linear slider operator with positive off. Color to match adjacent devices. Luminaire  
20 manufacturer shall list compatible dimmer manufacturers and models. 0-10V dimmers shall comply  
21 with IEC 60929 Annex E.
- 22 2. Approved Manufacturers: Compatible with provided LED driver.
- 23 P. **[SW-OD]:** Wall 0-10V Dimmer / Occupancy sensor:
- 24 1. Wall switch with auto on/off. 120VAC load rating of 0-800 W for electronic ballast, LED. 277VAC  
25 load rating of 0-1,800 W for electronic ballast, LED. adjustable OFF delay. 0-10V dimming with up  
26 to 30ma sink. Automatic ON/OFF or occupancy on to predetermined dimming level go to last  
27 dimming setting upon occupancy.
- 28 2. Approved Manufacturers: Sensor Switch WSX D Series or equal
- 29 Q. **[SW-VD]:** Wall 0-10V Dimmer / Vacancy sensor:
- 30 1. Wall switch with manual on/auto off. 120VAC load rating of 0-800 W for electronic ballast, LED.  
31 277VAC load rating of 0-1,800 W for electronic ballast, LED. adjustable OFF delay. 0-10V dimming  
32 with up to 30ma sink. manual ON/automatic OFF.
- 33 2. Approved Manufacturers: Sensor Switch WSX D Series or equal

- 1     **2.6     LOCAL DAYLIGHTING CONTROLS**
- 2             A.     Standalone Interior Photo Sensors:
- 3                     1.     **[SW-LS]:** Daylight Level Sensor - On/Off Control - One Zone:
- 4                             a.     On/Off control. Range of 10-200 FC. Adjustable deadband prevents cycling. Adjustable  
5                                     time delay.
- 6                             b.     Approved Manufacturers: Watt Stopper LS-102, Sensor Switch CM-PC, Hubbell  
7                                     Automation DLCPC Series, Greengate PPS-4.
- 8                     2.     **[SW-LS-3Z]:** Daylight Level Sensor and Controller - On/Off Control - Three Zones:
- 9                             a.     On/off control of up to three 10-amp zones. Range of 10 to 200 FC. Adjustable deadband  
10                                     prevents cycling. Adjustable time delay.
- 11                             b.     Approved Manufacturers: Watt Stopper LCO-203/LS-290C, Hubbell Automation  
12                                     LUXSTATOCM/LUXSTATLS, LC&D Micro GR/2404 iDH/Pcell, Sensor Switch N-CMPC.
- 13                     3.     **[SW-LS-D]:** Daylight Level Sensor and Controller - 0-10V Dimming - One Zone:
- 14                             a.     Dimming control of one 0-10V zone. Range of 10 to 200 FC. Adjustable deadband prevents  
15                                     cycling. Adjustable time delay. Coordinated with dimming ballast prior to submittal.
- 16                             b.     Approved Manufacturers: Watt Stopper LS-301, Hubble Automation DLC7, Sensor Switch  
17                                     N-CMADC.
- 18                     4.     **[SW-LS-D-3Z]:** Daylight Level Sensor and Controller - Dimming - Three Zones:
- 19                             a.     Dimming control of up to three zones of 0-10V. Range of 10 to 200 FC. Adjustable  
20                                     deadband prevents cycling. Adjustable time delay. Coordinate with dimming ballasts prior  
21                                     to submittal.
- 22                             b.     Approved Manufacturers: Watt Stopper LCD-203/LS-290C, Hubbell Automation  
23                                     LUXSTATDCM/LUXSTATLS, LC&D Micro GR/2404 IDIM/Pcell, Sensor Switch N-CMADC.
- 24                     5.     Sensor shall detect changes in ambient light level and provide triggering of lighting groups in area  
25                                     based on sequence of operation.
- 26                     6.     Sensor shall be configurable via DIP switches at device or via handheld wireless remote  
27                                     programming unit. Settings shall include:
- 28                             a.     Ambient sensitivity range between 1 and 1,000 foot-candles.  
29                             b.     Time delay of 5 to 300 seconds.  
30                             c.     Trigger setpoints with deadband adjustment.
- 31                     7.     Sensor shall provide on/off setpoints in quantity as specified on drawings and as shown in the  
32                                     sequence of operation.
- 33                     8.     Sensor shall be ceiling- or wall-mounted for range and viewing angle meeting application  
34                                     requirements as outlined in the sequence of operation.
- 35                     9.     Output signal from sensor shall be linear with light level.

- 1           B.       **[SW-LS-PC]: Standalone Exterior Photo Sensors:**
- 2                   1.       Sensor shall be within a weatherproof enclosure, with design operation in temperatures of -30°F to
- 3                               +130°F. Sensor shall have threaded stem for box mounting, with knuckle to permit aiming of
- 4                               receptor after installation. Sensor shall be mounted facing north.
- 5                   2.       Sensor shall contain an integral switching contactor rated for 277-volt operation, with loads of up
- 6                               to 1,800 VA. Contacts shall be configured for zero-crossing closure to provide 100,000 cycle
- 7                               minimum operation.
- 8                   3.       Sensor shall detect changes in daylight levels to provide triggering of exterior lighting equipment
- 9                               based on the sequence of operation.
- 10                  4.       Sensor shall be field configurable at the device or via handheld wireless remote controller.
- 11                               Configurable settings shall include:
- 12                               a.       Ambient sensitivity range of 5 to 1,500 foot-candles.
- 13                               b.       Adjustable setpoint.
- 14                               c.       Deadband adjustment by percentage of setpoint.
- 15                               d.       Time delay of up to five minutes.
- 16                  5.       Sensor shall be equipped with a lens cover that can be applied for system testing during daylight
- 17                               conditions.
- 18                  6.       Approved Manufacturers: Paragon, Tork, Intermatic.

19   **2.7       INDOOR OCCUPANCY AND VACANCY SENSORS**

- 20           A.       General Description: Wall- or ceiling-mounting, solid-state units with a separate power supply/relay unit.
- 21                   1.       All occupancy sensors shall be line voltage type, unless part of the lighting control system.
- 22                   2.       Operation: Unless otherwise indicated, turn lights on when covered area is occupied and off when
- 23                               unoccupied, with a time delay for turning lights off, adjustable over a minimum range of 1 to 30
- 24                               minutes. Vacancy sensors require a manual switch operation to turn lights on and off, with a time
- 25                               delay for turning lights off when unoccupied.
- 26                   3.       Sensor Output: Contacts rated to operate the connected relay, complying with UL 773A.
- 27                   4.       Relay Unit: Dry contacts rated for 20 A driver load at 120 and 277 VAC and for 1 hp at 120 VAC.
- 28                   5.       Mounting:
- 29                               a.       Sensor: Suitable for mounting in any position on a standard outlet box.
- 30                               b.       Relay: Externally mounted through a 1/2-inch knockout in a standard electrical enclosure.
- 31                               Mount relay above accessible ceiling near entry door to room or area.
- 32                               c.       Time Delay and Sensitivity Adjustments: Recessed and concealed.
- 33                   6.       Indicator: LED to show when motion is being detected during testing and normal operation of the
- 34                               sensor.
- 35                   7.       Bypass Switch: Override the on function in case of sensor failure.

- 1                    8.        Power Supply and Slave Packs: Provide as required for sensor quantity and switching scheme.  
2                               Mount to standard 1/2" knockout on electrical box above accessible ceiling near entry door to room  
3                               or area. Sensor power shall be from emergency circuit if emergency lighting is in the area.
- 4                    9.        Detection Coverage (Room): Detect occupancy anywhere in an area based on hand motion.
- 5                    10.      Detection Coverage (Corridor): Detect occupancy based on a half-step motion.
- 6                    11.      Warranty: Five (5) year warranty.
- 7                    B.        Dual-Technology Type: Detect occupancy by using a combination of PIR and ultrasonic detection methods in  
8                               area of coverage. Particular technology or combination of technologies that controls on and off functions  
9                               shall be selectable in the field by operating controls on unit.
- 10                   1.        **[SW-VS-D] or [SW-OC-D]:** 360 Degree Coverage Pattern:
- 11                              a.        Frequency greater than 40 KHz. Dual sensing verifications (requires both technologies to  
12                              activate), either technology maintains on status. Integrated ambient light level sensor (2  
13                              to 200 FC range), adjustable sensitivity and time delay, integrated isolated relay contact.  
14                              Sensor shall control all circuits in area, unless noted otherwise. Initial settings: ambient  
15                              sensor 40 FC.
- 16                              b.        Approved Manufacturers: Watt Stopper DT 300 Series, Hubbell OMNI-DT2000 or  
17                              ATD2000C, Greengate OAC-DT, Leviton OSC##-MOW.
- 18                   2.        **[SW-VS-D-W] or [SW-OC-D-W]:** Wall Mounted on Adjustable Swivel Mount:
- 19                              a.        Wall or ceiling sensor with adjustable settings to allow manual on/auto off or auto  
20                              on/auto off. Integrated ambient light level sensor (2 to 100 FC range).
- 21                              b.        Approved Manufacturers: Watt Stopper DT-200 Series, Hubbell LODTRP, Leviton OSM12-  
22                              -M series.
- 23                   3.        **[SW-O]:** Wall Switch:
- 24                              a.        Wall switch with manual on/auto off. 120/277 VAC load rating of 0-800 W for ballast, LED  
25                              or tungsten. 5-, 15-, 30-minute adjustable OFF delay. Coverage of minor motion in 12' x  
26                              15' pattern.
- 27                              b.        Approved Manufacturers: Watt Stopper DW-100 Series, Hubbell LHMTS, Leviton OSSMT  
28                              series.
- 29                   4.        **[SW-O2]:** Wall Switch:
- 30                              a.        Multi-relay wall switch with manual on/auto off for two separate loads. 120/277 VAC load  
31                              relay rating of 0-800 W for ballast, LED or tungsten. 5-, 15-, 30-minute adjustable OFF  
32                              delay. Coverage of minor motion in 12' x 15' pattern.
- 33                              b.        Approved Manufacturers: Watt Stopper DW-200 Series, Hubbell LHMTD, Leviton OSSMD  
34                              series.
- 35                   5.        Sensitivity Adjustment: Separate for each sensing technology.
- 36                   6.        Detection Coverage:
- 37                              a.        Task Areas: Detect occupancy anywhere in an area based on hand motion.



- 1 E. Ultrasonic Type: Ceiling mounting. Detect occupancy by sensing a change in pattern of reflected ultrasonic  
2 energy in area of coverage.
- 3 1. **[SW-OC-U]:** 360 Degree 20' x 20' Hand Motion Coverage Pattern:
- 4 a. Frequency greater than 32 KHz solid state, adjustable sensitivity and time delay, integral  
5 isolated 1-amp relay contact, temperature and humidity resistant receivers. Sensor shall  
6 control all circuits in area, unless noted otherwise.
- 7 b. Approved Manufacturers: Watt Stopper WT-1100 series, Hubbell OMNI-US or ATU series,  
8 Leviton OSC series, Greengate ODC-U series.
- 9 2. **[SW-OC-U2]:** 35' x 30' Hand Motion Coverage Pattern:
- 10 a. Frequency greater than 32 KHz solid state, adjustable sensitivity and time delay, integral  
11 isolated relay contact, temperature and humidity resistant receivers. Sensor shall control  
12 all circuits in area, unless noted otherwise.
- 13 b. Approved Manufacturers: Watt Stopper WT-2200 series, Hubbell OMNI-US or ATU series,  
14 Leviton OSC series, Greengate ODC-U series.
- 15 3. **[SW-OC-U-A]:** 360 Degree Two-Sided Corridor Coverage Pattern:
- 16 a. Frequency greater than 32 KHz solid state, adjustable sensitivity and time delay, integral  
17 isolated relay contact, temperature and humidity resistant receivers. Sensor shall control  
18 all circuits in area, unless noted otherwise.
- 19 b. Approved Manufacturers: Watt Stopper WT-2250 Series, Hubbell OMNI-US or ATU series,  
20 Greengate ODC-U Series.
- 21 4. **[SW-OC-U-W]:** Wall Mounted:
- 22 a. Wall switch with adjustable settings to allow manual on/auto off or auto on/auto off.
- 23 b. Approved Manufacturers: Watt Stopper UW-100 Series, Hubbell AU1277I,
- 24 5. Crystal controlled with circuitry that causes no detection interference between adjacent sensors.

25 **2.8 EMERGENCY TRANSFER DEVICES**

- 26 A. Loss of power on normal circuit shall switch load to emergency power source.
- 27 B. Provide suitable NEMA 1 enclosure and mounting per manufacturer specification.
- 28 C. **[ETD]:** Emergency Lighting Control Override - Single Luminaire:
- 29 1. Rated 2 amps at 120 volt incandescent and 10 amps at 277 volt fluorescent.
- 30 2. Approved Manufacturers: Bodine GTD, Iota ETS, Watt Stopper ELCU-100.
- 31 D. **[ETD-2]:** Emergency Lighting Control Override - Branch Loads:
- 32 1. Rated 1000 watts at 120 volt incandescent and 20 amp at 277 volt fluorescent.
- 33 2. Approved Manufacturers: Bodine GTD20, Chloride Lightstar, Dual-Lite ATSD, Nine24 ELCR, Highlites  
34 HEPC.

- 1 E. **[ETD-D]:** Emergency Lighting Dimming Control Override:
- 2 1. Loss of power on normal circuit shall switch luminaires on at 100% rated light output.
- 3 2. Approved Manufacturers: Nine24 BLTCv3, nLight nPP16D (ER)

4 **2.9 TIME SWITCH**

- 5 A. **[TC-30]:** Time switch, 7-day, electronic, 30 setpoints available, LCD display, 12 or 24-hour format, minimum  
6 200 hours battery backup, one SPDT 15-amp contact, UL listed.
- 7 1. Approved Manufacturers: Paragon EC71/30S, Tork EW101S, Intermatic ET70115C.
- 8 B. **[TC-7]:** Time switch, 7-day, 2 channel, electronic, two SPDT 15-amp contacts, two separate programs with 16  
9 setpoints available, LCD display, 12 or 24-hour format, minimum 100 hours carry-over, UL listed.
- 10 1. Approved Manufacturers: Paragon EC72, Tork DTS 200A, Intermatic ET70215C.

11 **2.10 CONDUCTORS AND CABLES**

- 12 A. Control Wiring:
- 13 1. Where installed with the line-voltage wiring, control wiring shall be copper conductors not smaller  
14 than No. 16 AWG with insulation voltage rating and temperature rating equal to that of the line-  
15 voltage wiring, complying with Division 26 Section 26 05 13 "Wire and Cable."
- 16 2. Tap conductors to switches or relays: Stranded copper conductors of 16 AWG or solid 16 or 18 AWG  
17 with insulation rating equal to that of the line-voltage wiring.
- 18 3. Tap conductors to dimming ballasts: Solid copper conductors of 18 AWG with insulation voltage  
19 rating equal to that of the line-voltage wiring and insulation temperature rating not less than 90°C.
- 20 4. Network cabling as required by manufacturer.
- 21 B. Splices and Taps:
- 22 1. Tapping or wire trap connectors shall be used to splice all Class 1 and Class 2 control wiring. Twist-  
23 on, wire-nut type connectors are not allowed.

24 **PART 3 - EXECUTION**

25 **3.1 PRE-CONSTRUCTION MEETING**

- 26 A. Schedule a pre-construction meeting with the controls representative, installing contractor,  
27 Architect/Engineer, and Owner to explain the proposed lighting control systems.

28 **3.2 EXAMINATION**

- 29 A. Verify that surfaces are ready to receive work.
- 30 B. Verify field dimensions and coordinate physical size of all equipment with the architectural requirements of  
31 the spaces into which they are to be installed. Allow space for adequate ventilation and circulation of air.
- 32 C. Verify that required utilities are available, in proper location, and ready for use.
- 33 D. Beginning of installation means installer accepts existing conditions.

1    **3.3    INSTALLATION**

- 2            A.        Install in accordance with manufacturer's instructions and approved shop drawings.
- 3            B.        All wiring shall be installed in conduit.
- 4            C.        All branch load circuits shall be live tested before connecting the loads to the lighting control panel.

5    **3.4    SUPPORT SERVICES**

6            A.        System Startup:

- 7                1.        Manufacturer shall provide factory authorized technician to confirm proper installation and  
8                            operation of all system components.

9            B.        Testing:

- 10               1.        System shall be completely functional tested by a factory-authorized technician. All loads shall be  
11                            tested live for continuity and freedom from defects, and all control wiring shall be tested for  
12                            continuity and connections prior to energizing the system components.

- 13               2.        Programming of initial zones, schedules, lighting levels, control station groups, and sensor settings  
14                            shall be performed by a factory-authorized technician. Lighting Control Sequence of Operation shall  
15                            serve as a basis for programming, However, all final decisions regarding groups and schedules shall  
16                            be at the direction of the Owner. The following procedures shall be performed at a minimum:

- 17                    a.        Confirm occupancy sensor placement, sensitivity, and time delay settings to meet  
18                            specified performance criteria.

- 19                    b.        Confirm daylight sensor placement, sensitivity, deadband, and delay settings to meet  
20                            specified performance criteria.

- 21                    c.        Confirm that schedules and time controls are configured to meet specified performance  
22                            criteria and Owner's operating requirements.

- 23                3.        Verify occupancy/vacancy and daylight sensor operation is correct after furniture and equipment is  
24                            installed in each area. Make adjustments to sensor settings and time delays to allow proper  
25                            operation.

- 26                4.        Verify occupancy/vacancy sensors are located to provide complete coverage for the area served  
27                            with no nuisance switching.

- 28                    a.        Relocate sensors or provide additional sensors as necessary to provide adequate  
29                            coverage.

- 30                    b.        Mask occupancy sensors where necessary to prevent nuisance switching from adjacent  
31                            areas.

32            C.        Training:

- 33                1.        Manufacturer shall provide competent factory-authorized technician to train Owner personnel in  
34                            the operation, maintenance and programming of the lighting control system. Submit training plan  
35                            with notification seven (7) days prior to proposed training dates.

- 36                2.        Training duration shall be no less than three (3) days, with one (1) day being scheduled at least two  
37                            (2) weeks after initial training.



The Contractor shall have completed the geothermal field installation **NO LATER THAN Tuesday, July 30, 2019.**

The Contractor shall have reached a level of Construction Closeout **NO LATER THAN Friday, January 31, 2020.**

The Contractor shall review Specifications 01 29 76 Progress Payment Procedures and 01 77 00 Closeout Procedures and be completely familiar with the progress payment milestones and definitions related to construction closeout and contract closeout.

### **SECTION 109.9 LIQUIDATED DAMAGES**

The fixed, agreed upon, liquidated damages for failure to complete all work within the Contract Time, shall be calculated in accordance with Article 109 of Standard Specifications, per working day.

### **NON STANDARD BID ITEMS**

#### **BID ITEM 90000 – BASE BID**

**DESCRIPTION:** The BASE BID shall include the complete installation of all building, mechanical, site, and utility components; the accepted testing, and commissioning of all systems; and the completion, and turn-in of all deliverables as outlined in the plans and specifications.

(excluding Alternate 1)

**METHOD OF MEASUREMENT:** The BASE BID shall be measured as Lump Sum of the required construction and installations described in the plans and specifications. Partial Payments shall be requested as indicated in Specifications 01 29 73-Schedule of Values and 01 29 76- Progress Payment Procedures.

**BASIS OF PAYMENT:** The BASE BID shall be paid at the contract unit price. Partial payments shall be reviewed and authorized as described in the above referenced specifications.

#### **BID ITEM 90001 – ALTERNATE 1**

**DESCRIPTION:** ALTERNATE NO. 1: North Garden scope as shown on sheets A320 and A321 and related M.E.P. and Structural drawings and related specifications.

**METHOD OF MEASUREMENT:** The ALTERNATE NO. 1 shall be measured as Lump Sum of the required construction and installations described in the plans and specifications. Partial Payments shall be requested as indicated in Specifications 01 29 73-Schedule of Values and 01 29 76-Progress Payment Procedures.

**BASIS OF PAYMENT:** The ALTERNATE NO. 1 shall be paid at the contract unit price. Partial payments shall be reviewed and authorized as described in the above referenced specifications.

### **POINTS OF CONTACT**

We ask all Contractors with questions and concerns regarding the bidding documents shall contact the Project Architect by e-mail so we may properly log, track, and respond to all issues. Please reference Pinney Library – City Contract #7662.

The Project Architect for this contract is:

OPN Architects  
Ryan Frank, AIA  
PH: 608-819-0848  
Email: rfrank@opnarchitects.com

The City Project Manager for this contract is:

City of Madison  
Amy Scanlon, Project Manager  
PH: 608-267-0743  
Email: ascanlon@cityofmadison.com

**Contract #7662 PINNEY LIBRARY  
Pre-Bid Building/Site Tour January 17, 2019**

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Dan Schwitz	Hoopes Corp.	dschwitz@hoopescorp.com	608-212-4874

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Kile Schneider	Air Temperature Services	KSCHNEIDER@AirTemperature.com	608-516-8609
Matt Pitzner Chaise Engelhardt	United Electric Inc	mstp@unitedelectricwi.com	920-696-3580
FONT RECEIPTS	Freibergs Landscaping	freibergslandscaping@gmail.com	608-438-9253

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