



## DFCM SOLICITATION ADDENDUM COVER PAGE

### DFCM Addendum No.3

**Date:** May 1, 2024

**To:** Interested Contractors

**From:** Carl Francis-DFCM Project Manager

**Reference:** Transchill Building Remodel  
Bridgerland Technical College  
DFCM Project 24139210

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*Note:* This Addendum shall be included as part of the Contract Documents. Items in this Addendum apply to all drawings and specification sections whether referenced or not involving the portion of the work added, deleted, modified, or otherwise addressed in the Addendum. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to Disqualification.

**3.1 Schedule Changes:** No schedule changes within this addendum.

**3.2 General Items:**

**I. GENERAL**

- Item #01 – Architectural Prior Approvals
- Item #02 – Alternate #01
- Item #03 – BCI’s
- Item #04 – Start Date
- Item #05 – Architect’s Project #

**3.3 Architectural:**

**II. ARCHITECTURAL**

- Item 1: Roof Warranties
- Item 2: Architect’s comment about fire sprinkler requirement question also addressed in the Mechanical Engineer’s addendum.
- Item 3: ADA Pedestals
- Item 4: RTU Curb Height
- Item 5: Door Hardware Specification
- Item 6: Frost Protection



5/1/24

Project:

**Bridgerland Technical College**  
**Transchill Building Remodel**

940 West 1400 North  
Logan, Utah 84321

**Addendum #03**

The data included herein is issued by the Architect as a clarification and addition to drawings, specifications, and contract documents relative to the above project. Except as effected by data herein, all other parts of the Contract Documents shall remain in full force and effect as issued by the Owner, **3/20/24**. (This Date Applies to all Project Bid Documents). It shall be the sole responsibility of the bidder to appropriately disseminate this data to all concerned prior to the assigned bid date and time. **Receipt of the addendum shall be recorded by the bidder in the appropriate space on the proposal form included in the Contract Documents.**

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## **I. GENERAL**

### **Item #01 – Architectural Prior Approvals**

The following manufacturers, trade names and products are allowed to bid on a name-brand-only basis with the provision that they completely satisfy every requirement of the drawings, specifications and all addenda and shall conform to the design, quality and standards specified, established and required for the complete and satisfactory installation and performance of the building and all its respective parts.

<b>PRODUCT</b>	<b>MANUFACTURER</b>	<b>STATUS</b>
Baby Changing Station	Babymedi	Approved.

### **Item #02 – Alternate #01**

DFCM was previously not aware that there was an Alternate as part of this job. The alternate is related to floor boxes to be added in a couple of spaces as described in the Alternates spec section as well as where shown/described on sheets EC-101, EC-102, EP-101 and EP-102. There should be a place in the bid for to enter this price on or before bid day.

### **Item #03 – BCI's**

Any reference to a requirement for BCI checks should be removed. The owner will not be requiring them on this job.

### **Item #04 – Start Date**

The awarded and contracted general contractor may start as soon as you have a NTP and have had the preconstruction meeting to coordinate your schedule with the Owner and Architect. Your schedule needs to consider the required contractual substantial completion date.

### **Item #05 – Architect's Project #**

The Architect's Project # noted in the Title Blocks may be incorrect on numerous sheets. The project # reference should be 23-28.

## **II. ARCHITECTURAL**

### **Item 1: Roof Warranties**

- Q: The plans show three different sections of the building with completion dates of 1979, 1998 and 2005. Please confirm that the portions of the roof that are planned to be modified under this contract are not still under original warranty. If there is an active roof warranty in place, please provide contact information for the company that holds the warranty.
- A: The existing roofs are not under any warranty that we can find.

### **Item 2: Architect's comment about fire sprinkler requirement question also addressed in the Mechanical Engineer's addendum.**

See the mechanical engineer's response to the question related to fire sprinkler requirements. To further clarify, it is important to note that this design scope is to be provided to the State Fire Marshal, funneled through the Architect, as a deferred design submittal. As such, it is the fire suppression subcontractor's full responsibility to design this scope to meet all fire code requirements and information found in the "211313 Fire Sprinklers Performance Specification". It is your responsibility to understand the project and its fire suppression needs and provide a bid that reflects that work and responsibility. The construction documents include a link to a 3D Matterport Scan that could be helpful in understanding existing conditions as you put your bid together.

### **Item 3: ADA Pedestals**

- Q: There are some ADA pedestals called out on sheet AS-101. Could you please provide some detail for these pedestals.
- A: This is specified in the Door Hardware specification section 087100.

### **Item 4: RTU Curb Height**

- Q: Schedule sheet ME601 states to provide an 18" curb and spec section 23 7413 – 7 states to use a 14" curb. Please verify which is correct.
- A: Refer to detail A1-AE-507 for curb height requirements. An 18" curb is called for on this detail (which is the State's standard) but in this case, the design intent could likely be achieved with a 14" curb as well. The important factors in the curb height, that we will be watching for, will be the minimum heights called for on this detail, which is 8" min from the finished roof surface to the fasteners and 12" min from the finished roof surface to the top of the curb. The Contractor shall coordinate as required to achieve these minimum dimensions. The curb height dimensions called for in the mechanical plans and specifications should be ignored in lieu of this information.

### **Item 5: Door Hardware Specification**

Per the owner's request, the Door Hardware Schedule (080671), Door Hardware (087100) and Integrated Access Control Hardware Devices (281500) have been updated. See the attached updated specification sections.

**Item 6: Frost Protection**

Per the new IBC 2021 adopted code, **frost** front protection needs to be provided at required exits.  
Please reference updated sheets AE-102, AE-302 and AE-506.

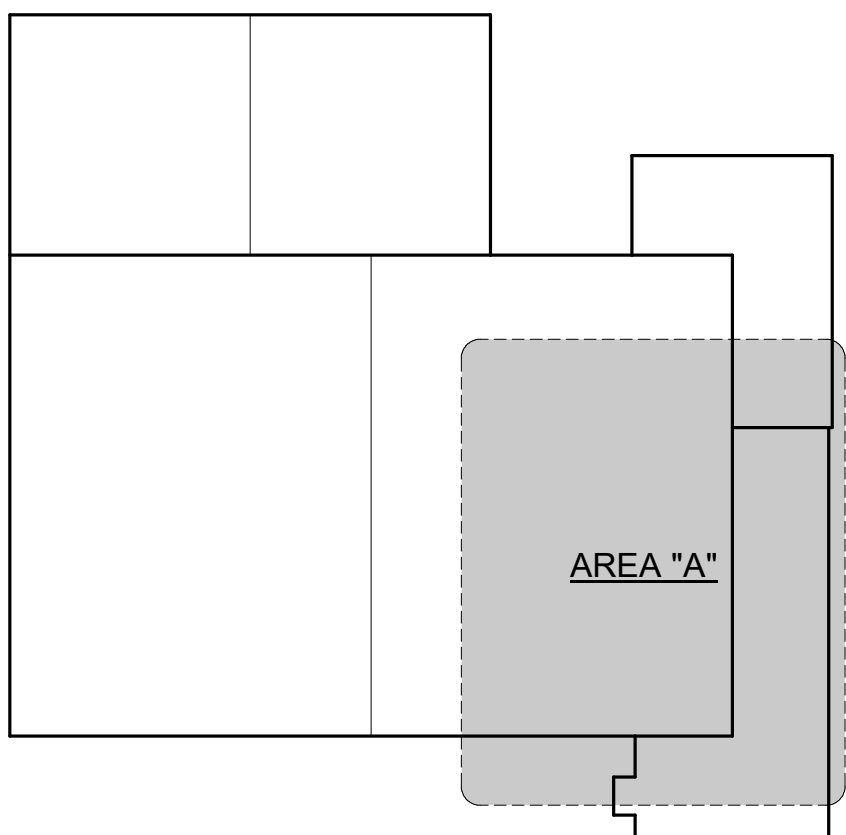
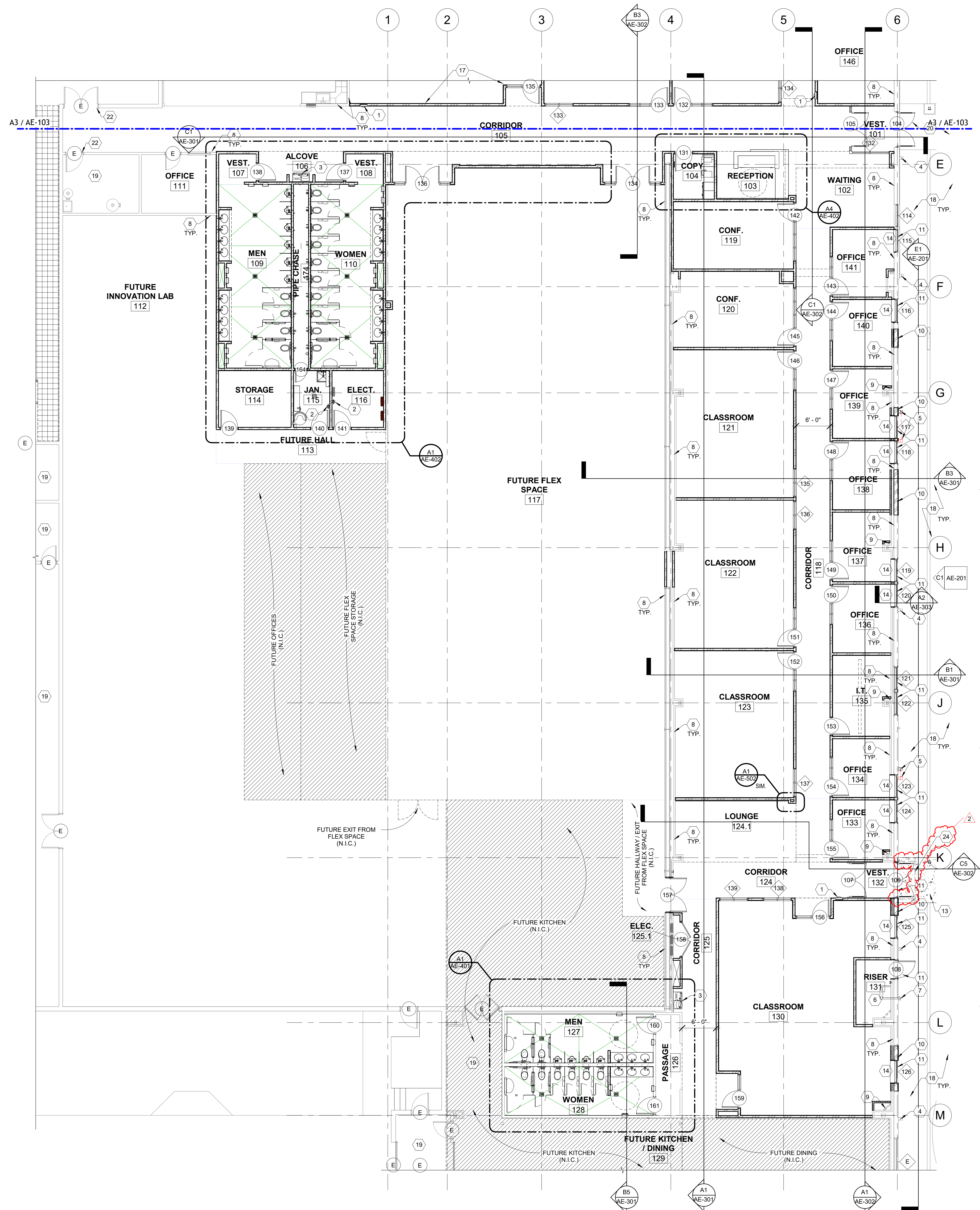
**EXISTING CONDITIONS NOTE (TYPICAL):**  
 NOTE THAT DUE TO THE ABSENCE OF ACCURATE RECORD DRAWINGS FOR THE ORIGINAL BUILDING DESIGN, MANY DESIGN DECISIONS MADE FOR THIS PROJECT HAVE BEEN BASED ON ASSUMPTIONS AND VISUAL INSPECTIONS OF EXISTING SITE CONDITIONS BY THE DESIGN TEAM - CONSEQUENTLY, DISPARITIES BETWEEN ASSUMED AND ACTUAL EXISTING CONDITIONS MAY ARISE - IT IS IMPERATIVE THAT THE CONTRACTOR CAREFULLY VERIFIES ALL EXISTING CONDITIONS AND COORDINATES THEM WITH THE NEW WORK - IF THE EXISTING CONDITIONS ARE FOUND TO DEVIATE FROM THE ASSUMPTIONS MADE IN THE DESIGN, RESULTING IN CONFLICTS, THE CONTRACTOR IS REQUIRED TO COORDINATE THE VERIFIED SITE CONDITIONS AS WELL AS THE RESULTING CONFLICTS WITH THE ARCHITECT (FOR RESOLUTION), BEFORE PROCEEDING WITH THE INSTALLATION OF NEW WORK.

**EXISTING CONCRETE SLAB PREP. (TYPICAL):**  
 NOTE THAT ALL EXISTING INTERIOR CONCRETE SLABS THAT ARE SCHEDULED FOR NEW FINISHED FLOORING SYSTEMS ARE TO BE PREPARED (GROUND / LEVELED / PATCHED / REPAIRED) AS REQUIRED BY NEW FLOORING SYSTEM MANUFACTURERS WRITTEN INSTRUCTIONS, AS WELL AS TO NOT ALLOW FOR ANY EXISTING SLAB IMPERFECTIONS TO BE PERCEPTIBLE ONCE NEW FLOORING SYSTEMS ARE IN PLACE - FIELD VERIFY ALL SUCH WORK AND COORDINATE AS REQ'D.

**EXISTING CONCRETE MODIFICATIONS (TYPICAL):**  
 NOTE THAT WHEREVER EXISTING CONCRETE FLOOR SLABS ARE BEING SAWCUT / REMOVED OR OTHERWISE MODIFIED (WHETHER OR NOT SPECIFICALLY SHOWN ON PLANS), THE CONTRACTOR IS RESPONSIBLE FOR HAVING THE AREAS WHERE SLAB MODIFICATIONS OCCUR BE X-RAYED / RADAR SCANNED AS TO UNDERSTAND WHERE EXISTING UNDER SLAB UTILITIES OR OTHER POTENTIAL CONFLICTS MAY OCCUR - COORDINATE ALL EXISTING CONDITIONS WITH NEW WORK AS REQ'D TO MINIMIZE THE POTENTIAL OF DAMAGING EXISTING BUILDING SYSTEMS NOT SCHEDULED FOR DEMOLITION - PATCH / INFILL SAWCUT AREAS PER D3/AE-505 - COORDINATE WITH MEP DRAWINGS.

**KEYED NOTES** REFERENCE AE-102 & AE-103

- SEMI-RECESSED FIRE EXTINGUISHER CABINET AND FIRE EXTINGUISHER - INSTALL AT 60" FROM FINISHED FLOOR TO TOP OF CABINET - CABINET MUST NOT EXTEND MORE THAN 4" OFF OF FACE OF WALL - SEE SPEC.
- FIRE EXTINGUISHER ON WALL BRACKET - INSTALL BRACKET AT 42" AFF - SEE SPEC.
- DUAL HEIGHT (ADA & STANDARD HEIGHTS) ELECTRIC WATER COOLER WITH BOTTLE FILLER.
- EXISTING DOWNSPOUT TO REMAIN.
- EXISTING DOWNSPOUT TO BE RELOCATED - MODIFY / PATCH / REPAIR DOWNSPOUT AND RAIN GUTTER AS REQ'D.
- EXISTING FIRE RISER TO REMAIN - PROTECT FROM DAMAGE.
- EXISTING FIRE DEPARTMENT CONNECT (FDC) TO REMAIN - PROTECT FROM DAMAGE.
- TYP. AT ALL EXISTING WALLS NOT SCHEDULED FOR DEMOLITION (REGARDLESS OF OCCURRENCE OF KEYNOTE ON PLAN), MODIFY EXISTING WALL SYSTEMS AS REQ'D TO PERFORM NEW WORK - PATCH / REPAIR / REFINISH AS REQ'D. FOR A FLUSH, FINISHED FINAL APPEARANCE - WHERE NEW SOUND RATED WALLS INTERSECT EXISTING WALLS, MODIFY EXISTING WALL AS REQ'D. TO MAINTAIN SOUND RATING.
- EXISTING STEEL ANGLE BRACE AT THIS LOCATION - PROVIDE NEW FURRED WALL AS REQ'D TO ENCLOSE BRACE - F.V. AND COORD. AS REQ'D.
- INFILL EXISTING WALL SYSTEM WHERE EXISTING WINDOWS / DOORS ARE SCHEDULED FOR DEMOLITION - ALL EXISTING WALL COMPONENTS ARE TO BE FIELD VERIFIED AND MATCHED - EXTERIOR METAL WALL PANELS TO BE PATCHED USING METAL WALL PANELS SALVAGED FROM THE DEMOLITION PROCESS WHERE NEW DOORS AND WINDOWS ARE BEING CUT INTO THIS WALL - EXTERIOR WALL PATCH LOCATIONS ARE TO BE WATER TIGHT AND MUST BE DONE AS TO BE AS AESTHETICALLY PLEASING AS POSSIBLE - CONTRACTOR IS TO SUBMIT PROPOSED METHOD OF METAL PANEL PATCH PRIOR TO PERFORMING THIS WORK.
- NEW WINDOW / DOOR SYSTEM TO BE CUT INTO EXISTING PEMB WALL - ALL EXISTING COMPONENTS INCLUDING GIRTS ARE TO BE REVISED AS TO ALLOW PROPER INSTALLATION - SEE E1/AE-201 FOR INTENDED PEMB FRAMING MODIFICATIONS - CONTRACTOR IS TO SUBMIT ACTUAL FRAMING CHANGES PRIOR TO PERFORMING THIS WORK.
- NEW WINDOW TO BE CUT INTO EXISTING EXTERIOR / BRICK WALL - FIELD VERIFY ALL EXISTING WALL COMPONENTS AND COORDINATE AS REQ'D - SALVAGE BRICK FOR REUSE IN BRICK INFILL AREAS.
- EXISTING SIDEWALK IN THIS AREA TO BE REMOVED AND REPLACED WITH A NEW 96" WIDE WALK - SEE SITE PLAN.
- NEW QUARTZ WINDOW SILL.
- PROVIDE NEW SIDEWALK TO CONNECT DOORWAY TO EXISTING COURTYARD CONCRETE SLAB - SEE SITE PLAN - REMOVE EXISTING LANDSCAPING AND MODIFY EXISTING IRRIGATION SYSTEM AS REQ'D. IN THIS AREA.
- INFILL / PATCH EXTG. WALL WHERE EXISTING STOREFRONT IS SCHEDULED FOR DEMOLITION - SALVAGE, CLEAN AND PREP EXISTING BRICK FROM DEMOLITION IN OTHER LOCATIONS FOR REUSE IN THIS AREA - ANY ADDITIONAL BRICK BEYOND THAT SALVAGED FROM DEMOLITION MUST MATCH EXTG. BRICK AS BEST AS POSSIBLE - BRICK INFILL IS TO BE TOOTHED IN AT ENDS.
- WHERE NEW WORK OCCURS IN THIS SPACE, MODIFY EXISTING ADJACENT MATERIALS / FINISHES - ANY NEW FINISHES MUST MATCH EXISTING - ANY FINISHES / ELEMENTS NOT SCHEDULED FOR DEMOLITION / NEW WORK MUST BE PROTECTED FROM DAMAGE.
- EXISTING SHRUBBERY / LANDSCAPING / IRRIGATION SYSTEM ETC. (NOT SHOWN) TO BE PROTECTED FROM DAMAGE - MODIFY AS REQ'D. WHERE NEW SIDEWALK WORK OCCURS.
- EXISTING SPACE - NO NEW ARCHITECTURAL WORK UNLESS NOTED OTHERWISE - COORDINATE WITH MEP DRAWINGS REQ'D.
- EXISTING SIDEWALK TO REMAIN AND BE PROTECTED FROM DAMAGE.
- NEW LOCATION OF PRV WATER STATION - SEE PLUMBING DRAWINGS - SAWCUT / PATCH CONCRETE SLAB - SEE D3/AE-505 FOR CONCRETE PATCH.
- ON CORRIDOR SIDE ONLY, EXISTING HOLLOW METAL DOOR / FRAME IS TO HAVE PAINT STRIPPED, DAMAGE PATCHED, AND IS TO BE REFINISHED.
- WHERE UNDERSLAB PIPE JOINTS OCCUR AT THE RELOCATED PRV SYSTEM, LEAVE 18" X 18" OPENING IN SLAB AND PROVIDE 22" X 22" X 1/4" REMOVABLE, CHECKERPLATE ALUMINUM PLATE (2-PIECE AT PIPE PENETRATION) BOLTED TO CONCRETE SLAB AS TO ALLOW FOR FUTURE ACCESS TO JOINTS WITHOUT THE NEED TO CUT THE SLAB.
- PER IBC 2021, CHAPTER 1009.5.1 - FROST PROTECTION AT REQUIRED EXITS - FROST PROTECTION SHALL BE PROVIDED AT EXTERIOR LANDINGS FOR ALL REQUIRED EXITS WITH OUTWARD-SWINGING DOORS. FROST PROTECTION SHALL ONLY BE REQUIRED TO THE EXTENT NECESSARY TO ENSURE THE UNOBSTRUCTED OPENING OF THE REQUIRED EXIT DOORS - SEE DETAIL A3/AE-506 FOR SPECIAL WORK TO BE DONE AT THIS LOCATION.



**KEY PLAN - AREA "A"**  
 1" = 80'-0"

**A4 LEVEL 1 - NEW - AREA "A"**  
 1/8" = 1'-0"

**ARCHITECTS INFORMATION**

**SPE ARCHITECTS**  
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 info@spe-architect.com  
 www.spe-architect.com

**PROFESSIONAL STAMP**

**CODE OFFICIAL STAMP**

**PROJECT NAME**

**BRIDGERLAND TECHNICAL COLLEGE  
 TRANSCHELL BUILDING REMODEL**

940 WEST 1400 NORTH  
 LOGAN, UTAH 84321

**REVISIONS**

NO.	DATE	DESCRIPTION
1	02/05/24	PERMIT SET
2	02/05/24	CONFORMING SET

**ISSUED:**

NO.	DATE	DESCRIPTION
01	02/05/24	PERMIT SET
02	02/05/24	CONFORMING SET

OWNER PROJECT #: 24139210  
 SPE PROJECT #: 22-38  
 DRAWN BY: GTE  
 CHECKED BY: SPE  
 DESIGNED BY: SPE  
 COPYRIGHT: © 2024 SPE ARCHITECTS

**AREA "A" FLOOR PLAN - NEW**

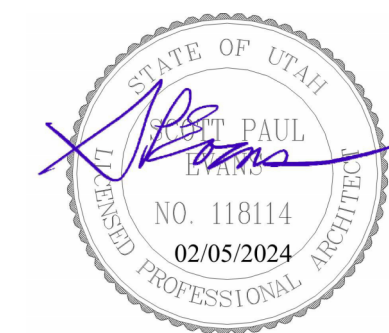
SHEET NUMBER  
**AE-102**

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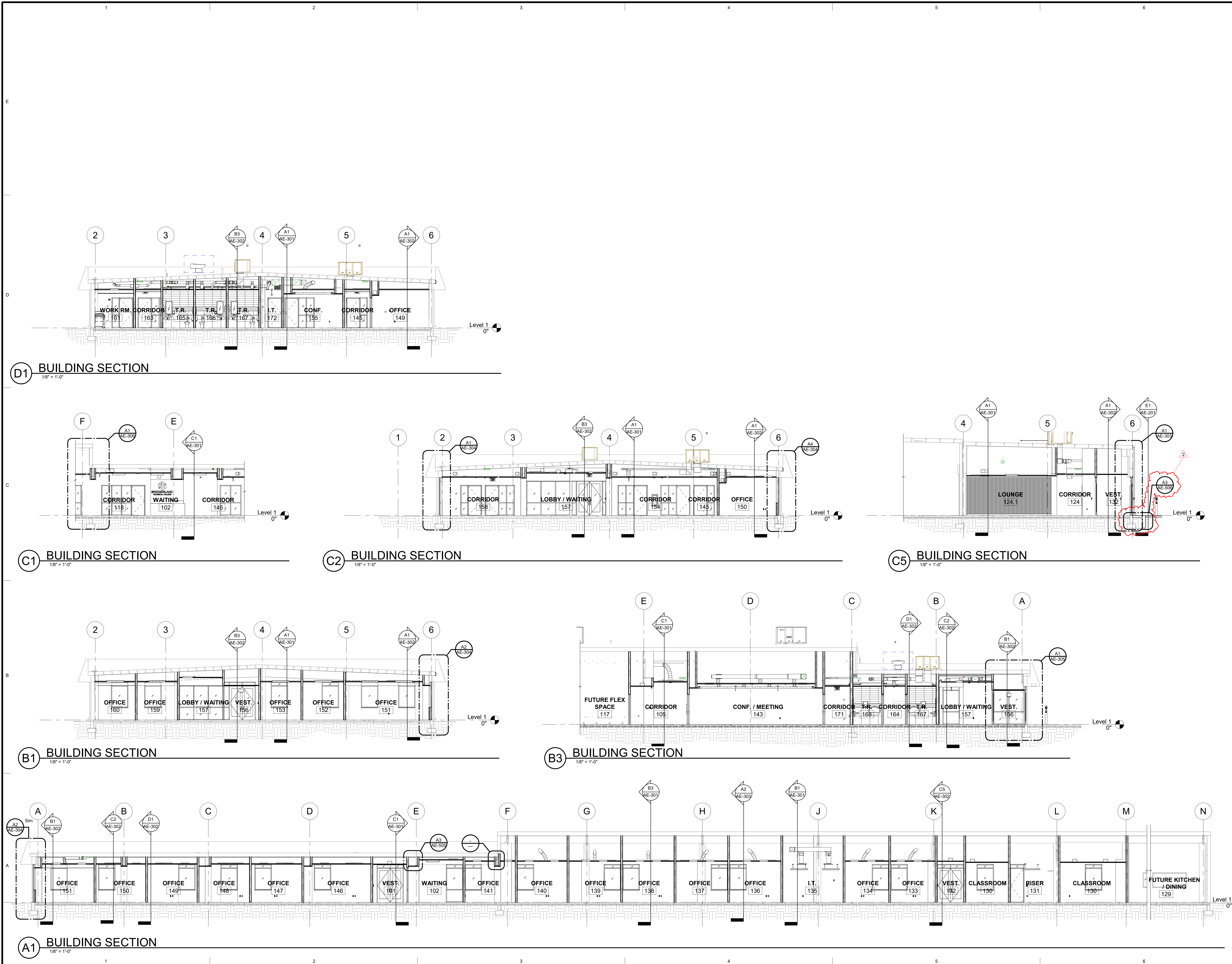
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ISSUED:  
 OWNER PROJECT #: 24199210  
 SPE PROJECT #: 22-38  
 DRAWN BY: GTE  
 CHECKED BY: SPE  
 DESIGNED BY: SPE  
 COPYRIGHT: © 2024 SPE ARCHITECTS

**BUILDING  
 SECTIONS**

SHEET NUMBER  
**AE-302**



**D1 BUILDING SECTION**  
 1/8" = 1'-0"

**C1 BUILDING SECTION**  
 1/8" = 1'-0"

**C2 BUILDING SECTION**  
 1/8" = 1'-0"

**C5 BUILDING SECTION**  
 1/8" = 1'-0"

**B1 BUILDING SECTION**  
 1/8" = 1'-0"

**B3 BUILDING SECTION**  
 1/8" = 1'-0"

**A1 BUILDING SECTION**  
 1/8" = 1'-0"

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PROFESSIONAL STAMP



CODE OFFICIAL STAMP

PROJECT NAME

**BRIDGERLAND TECHNICAL COLLEGE  
 TRANSCHILL BUILDING REMODEL**

940 WEST 1400 NORTH  
 LOGAN, UTAH 84321

REVISIONS

NO. DATE DESCRIPTION

1 02/05/24 PERMIT SET

2 02/05/24 CONFORMING SET

ISSUED

NO. DATE DESCRIPTION

01 02/05/24 PERMIT SET

02 02/05/24 CONFORMING SET

OWNER PROJECT #:

24139210

SPE PROJECT #:

22-38

DRAWN BY:

GTE

CHECKED BY:

SPE

DESIGNED BY:

SPE

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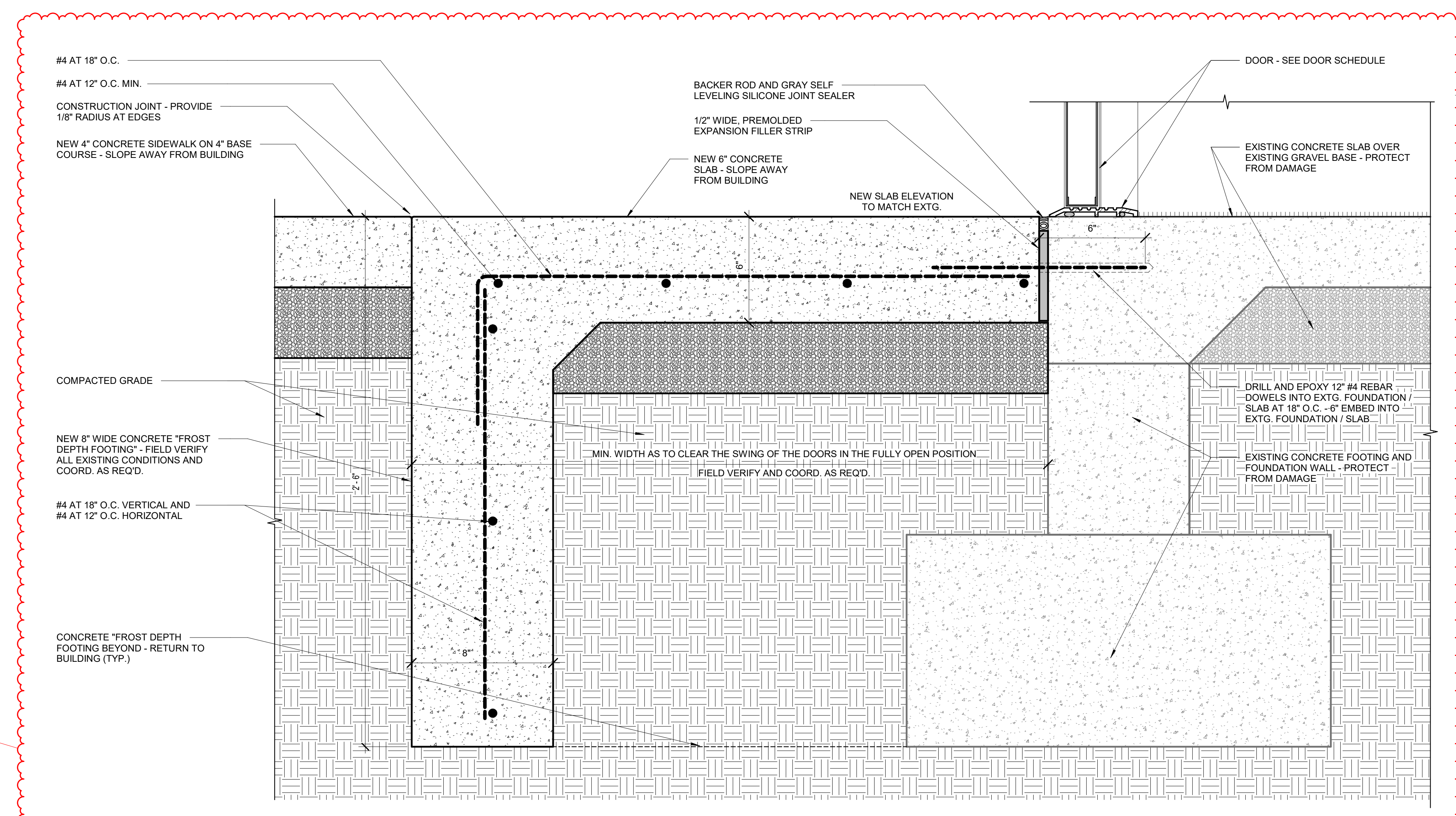
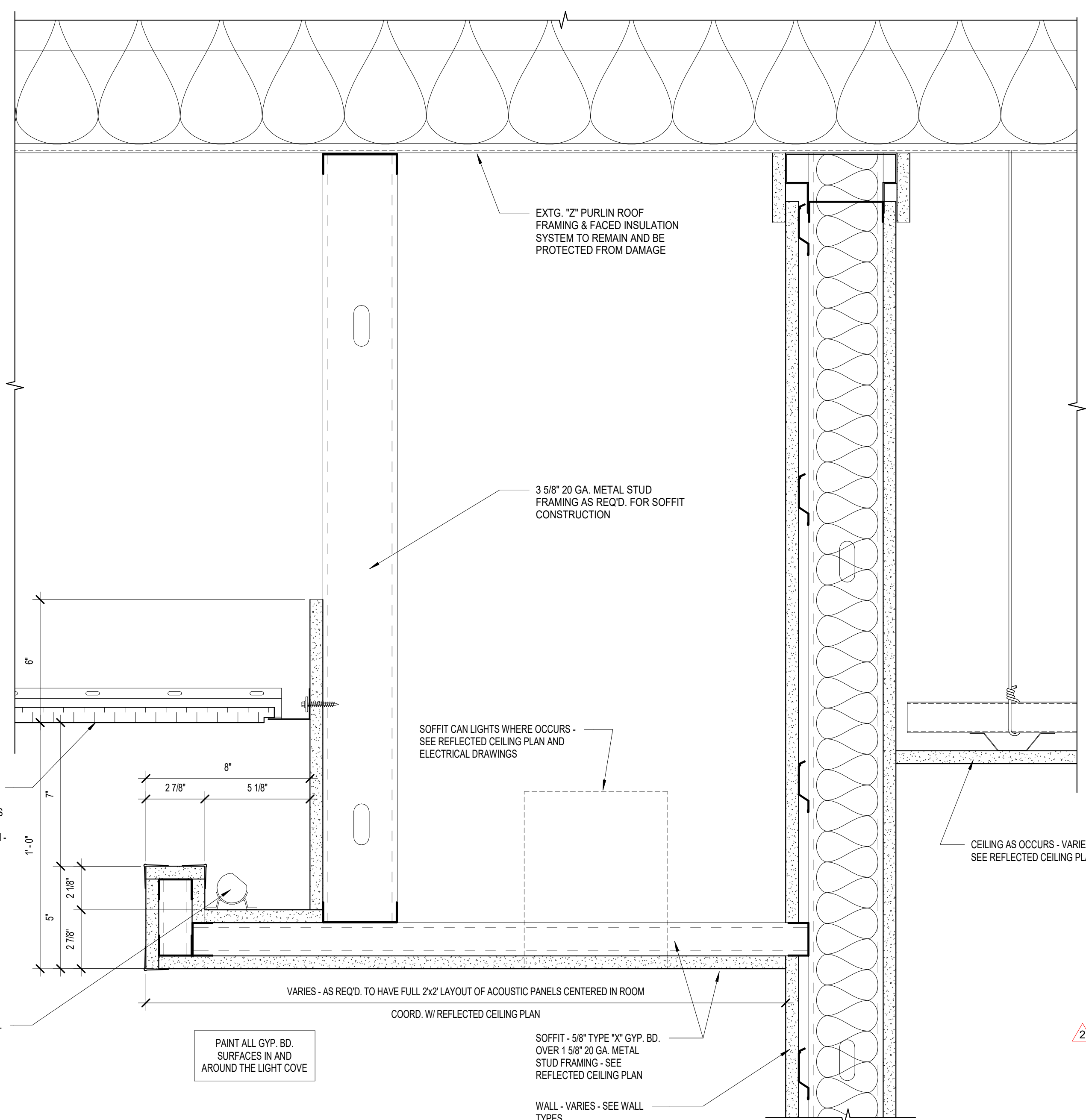
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SHEET NUMBER

AE-506

DETAILS

AE-506



**A1 LIGHT COVE DETAIL**  
 3" = 1'-0"

**A3 FROST PROTECTION @ ENTRY**  
 3" = 1'-0"

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SECTION 080671 – DOOR HARDWARE SCHEDULE

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 references specification sections relating to commercial door hardware for the following:
  - 1. Swinging doors.
  - 2. Sliding Doors.
  - 3. Other doors to the extent indicated.
- B. Commercial door hardware includes, but is not necessarily limited to, the following:
  - 1. Mechanical door hardware.
  - 2. Electromechanical and access control door hardware.
  - 3. Electromechanical and access control door hardware power supplies, back-ups and surge protection.
  - 4. Automatic operators.
  - 5. Cylinders specified for doors in other sections.
- C. Related Sections:
  - 1. Division 08 Section “Door Hardware”.
  - 2. Division 08 Section “Gate Hardware”.
  - 3. Division 10 Section “Parcel Lockers”.
  - 4. Division 26 Section “Electrical”.
  - 5. Division 28 Section “Access Control Hardware Devices”.
  - 6. Division 28 Section “Intercom Entry Systems”.
- 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. State Building Codes, Local Amendments.

- E. Standards: Reference Related Sections for requirements regarding compliance with applicable industry standards.

### 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.
  - 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. Keying Schedule: Prepared under the supervision of the Owner, separate schedule detailing final keying instructions for locksets and cylinders in writing. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner to approve submitted keying schedule prior to the ordering of permanent cylinders.
- D. 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.

- E. 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 Submittals. The manual to include the name, address, and contact information of the manufacturers providing the hardware and their nearest service representatives. The final copies delivered after completion of the installation test to include "as built" modifications made during installation, checkout, and acceptance.
- F. Warranties and Maintenance: Special warranties and maintenance agreements specified in the Related Sections.

#### 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. Installer Qualifications: Installers, trained by the primary product manufacturers, with a minimum [3] years documented experience installing both standard and electrified builders 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.
- C. 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 in good standing 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.
- D. Source Limitations: Obtain each type and variety of Door Hardware specified in the Related Sections from a single source, qualified supplier unless otherwise indicated.
- E. Regulatory Requirements: Comply with NFPA 70, NFPA 80, NFPA 101 and ANSI A117.1 requirements and guidelines as directed in the applicable model building code.
- F. 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.

#### 1.5 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: Division 08 Sections (Steel, Aluminum and Wood) 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.

#### 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. Refer to "PART 3 – EXECUTION" for required specification sections.

### PART 3 - EXECUTION

#### 3.1 DOOR HARDWARE SETS

- A. The door 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. Products listed in the hardware sets shall be supplied by and in accordance with the requirements described in the specification section as noted for each item.
1. Section 08 71 00 – Door Hardware.
  2. Section 28 15 00 – Access Control Hardware Devices.
- C. Manufacturer’s Abbreviations:
1. MK - McKinney
  2. PE - Pemko
  3. SU - Securitron
  4. RO - Rockwood
  5. SA - SARGENT
  6. SC - Schlage
  7. HS - HES
  8. RF - Rixson
  9. NO - Norton
  10. HD - HID
  11. OT - Other

**Hardware Sets**

**Set: 1.0**

Doors: 102, 104, 106

2	Continuous Hinge x EPT (AL)	CFM SLF-HD1 PT x Dr Ht		PE	087100
2	Electric Power Transfer	EL-CEPT	630	SU	087100
1	CVR Exit (exit only, ELR, RX, narrow)	43 55 56 AD8410	US32D	SA	087100
1	CVR Exit (NL, ELR, RX, narrow)	43 55 56 AD8410 x 106	US32D	SA	087100
1	Cylinder - Primus	Rim / Mortise, As Required	.626	SC	087100
2	Offset Pull (Grip Zone)	RM3411-72 x 12XHD MP	US32	RO	087100

2 Surf Overhead Stop	9-X36	630	RF	087100
1 Closer - Top Jamb	351 O	EN	SA	087100
1 Automatic Operator	6011 / 6061 (as req'd)	689	NO	087100
2 Brush Sweep	18061CNB		PE	087100
1 Threshold - 5" T-Break	252x3AFG		PE	087100
2 E-Lynx Harness (Frame)	QC-C3000P		MK	087100
2 E-Lynx Harness (Door)	QC-C*** (length / type as req'd)		MK	087100
1 Card Reader	Signo 40/40K x 03 Profile	BLK	HD	281500
1 Wiring Diagram	Elevation & Point to Point		OT	087100
1 Actuator Button	505		NO	087100
2 Door Position Switch	DPS-M / W-GY (as req'd)		SU	087100
1 Actuator Button with Post	500	689	NO	087100
1 Power Supply	AQL4-R8E1		SU	087100

Notes: WIDE STILE EXIT DEVICES ACCEPTABLE AT WIDE STILE DOORS

- Weatherstripping/Door edge gasketing furnished by Aluminum Door/Frame supplier.
- Furnish all necessary brackets/spacers and plates necessary for a complete and proper installation of hardware items listed.

Doors normally closed and locked.

Valid card read retracts latch on active leaf for entry. Key override available.

Doors can be unlocked on a time schedule set in EAC system, to act as push/pull.

When doors are unlocked, either actuator button opens active leaf automatically.

When doors are locked, inside actuator button retracts latch of active leaf and opens door automatically.

Door position switch indicates door status.

REX switch in push bar signals authorized egress.

Free egress at all times.

**Set: 2.0**

Doors: 101

1 Continuous Hinge (AL)	CFM SLF-HD1-M x Dr Ht		PE	087100
1 Storeroom Lock	10XG04 LL	US26D	SA	087100
1 Surf Overhead Stop	9-X36	630	RF	087100
1 Closer - Top Jamb	351 O	EN	SA	087100
1 Brush Sweep	18061CNB		PE	087100
1 Threshold - 5" T-Break	252x3AFG		PE	087100
1 Door Position Switch	DPS-M / W-GY (as req'd)		SU	087100

Notes:

- Weatherstripping/Door edge gasketing furnished by Aluminum Door/Frame supplier.
- Furnish all necessary brackets/spacers and plates necessary for a complete and proper installation of hardware items listed.

Door position switch indicates door status.

**Set: 3.0**

Doors: 108

3 Hinge (heavy weight)	T4A3386 (NRP)	US32D	MK	087100
1 Hinge x ETW (heavy weight)	T4A3386 QC_	US32D	MK	087100
1 EAC Cyl Lock Integrated Reader)	91 IN100-10G77-BIPS LL (BY Div 28)	US26D	SA	281500
1 Cylinder - Primus K-I-L	20-719-XP or As Required	.626	SC	087100
1 Hub	AH-Series (By Div 28)		HS	087100
1 Closer x Stop	351 PS	EN	SA	087100
1 Gasketing	2891AS (head)		PE	087100
2 Gasketing	290AS (jamb)		PE	087100
1 Rain Guard	346C (frame width)		PE	087100
1 Brush Sweep	18061CNB		PE	087100
1 Threshold - 6" T-Break	253x3AFG		PE	087100
1 E-Lynx Harness (Frame)	QC-C3000P		MK	087100
1 E-Lynx Harness (Door)	QC-C*** (length / type as req'd)		MK	087100
1 Door Position Switch	DPS-M / W-GY (as req'd)		SU	087100
1 Power Supply	3267		SA	087100

Notes: Install gasketing at head before installing closer.

Door normally closed and locked.

Valid card read unlocks outside lever for entry.

Key override available.

DPS indicates door status.

Inside lever has REX switch signaling valid egress.

Free egress at all times.

**Set: 4.0**

Doors: 103, 105, 107

2 Continuous Hinge (AL)	CFM SLF-HD1-M x Dr Ht		PE	087100
2 Push Bar x Offset Pull	RM251	US32D	RO	087100
2 Surf Overhead Stop	10-X36	630	RF	087100
1 Closer - Top Jamb	351 O	EN	SA	087100
1 Automatic Operator	6011 / 6061 (as req'd)	689	NO	087100
2 Actuator Button	505		NO	087100

Notes:

- Weatherstripping/Door edge gasketing furnished by Aluminum Door/Frame supplier.
- Furnish all necessary brackets/spacers and plates necessary for a complete and proper installation of hardware items listed.

OPERATION:

Either actuator button opens active leaf automatically.

**Set: 5.0**

Doors: 122, 135, 156, 159

3 Hinge (heavy weight)	T4A3786 (NRP)	US26D	MK	087100
1 Rim Exit (E-Lvr, Integrated Reader)	IN100-8877-BIPS ETL (By Div 28)	US32D	SA	281500
1 Cylinder - Primus	Rim / Mortise, As Required	.626	SC	087100
1 Hub	AH-Series (By Div 28)		HS	087100
1 Closer x Reg / PA Arm	351 UO	EN	SA	087100
1 Wall Stop	402 / 405 (as req'd)	US26D	RO	087100

Notes:

- Door normally closed and locked.
- Valid card read unlocks outside lever for entry.
- Key override available.
- Free egress at all times.

**Set: 6.0**

Doors: 134, 136, 157

5 Hinge (heavy weight)	T4A3786 (NRP)	US26D	MK	087100
1 Hinge x ETW (heavy weight)	T4A3786 QC_	US26D	MK	087100
1 SVR-LBR Exit (E-Lvr)	43 NB8774 ETL x 306	US32D	SA	087100
1 SVR-LBR Exit (exit only)	43 NB8710 EO	US32D	SA	087100
1 Cylinder - Primus	Rim / Mortise, As Required	.626	SC	087100
2 Closer x Stop/HO	351 PSH	EN	SA	087100
2 Kick Plate	K1050 10" 4BE CSK	US32D	RO	087100
1 E-Lynx Harness (Frame)	QC-C3000P		MK	087100
1 E-Lynx Harness (Door)	QC-C*** (length / type as req'd)		MK	087100
1 Card Reader	Signo 40/40K x 03 Profile	BLK	HD	281500

Notes:

- Doors normally closed and locked.
- Valid card read unlocks lever on active leaf for entry.



Key override available.  
 Free egress at all times.

**Set: 7.0**

Doors: 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 124, 131, 132, 133, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155

3 Hinge (heavy weight)	T4A3786 (NRP)	US26D	MK	087100
1 EAC Cyl Lock (Integrated Reader)	IN100-10G77-BIPS LL (By Div 28)	US26D	SA	281500
1 Cylinder - Primus K-I-L	20-719-XP or As Required	.626	SC	087100
1 Hub	AH-Series (By Div 28)		HS	087100
1 Wall Stop	402 / 405 (as req'd)	US26D	RO	087100

Notes:

Door normally closed and locked.  
 Valid card read at reader on door unlocks outside lever for entry.  
 Key override available.  
 Free egress at all times.

**Set: 8.0**

Doors: 123, 139, 141, 162

3 Hinge (heavy weight)	T4A3786 (NRP)	US26D	MK	087100
1 EAC Cyl Lock (Integrated Reader)	IN100-10G77-BIPS LL (By Div 28)	US26D	SA	281500
1 Cylinder - Primus K-I-L	20-719-XP or As Required	.626	SC	087100
1 Hub	AH-Series (By Div 28)		HS	087100
1 Closer x Reg / PA Arm	351 UO	EN	SA	087100
1 Kick Plate	K1050 10" 4BE CSK	US32D	RO	087100
1 Wall Stop	402 / 405 (as req'd)	US26D	RO	087100

Notes:

Door normally closed and locked.  
 Valid card read at reader on door unlocks outside lever for entry.  
 Key override available.  
 Free egress at all times.

**Set: 9.0**

Doors: 158, 165

6 Hinge	TA2714 (NRP)	US26D	MK	087100
2 Manual Flush Bolt	555/557 (as req'd)	US26D	RO	087100
1 Dust Proof Strike	570	US26D	RO	087100

1 Mortise Deadlock	4875	US26D	SA	087100
1 Cylinder - Primus	Rim / Mortise, As Required	.626	SC	087100
1 Flush Cup Pull	94C	US32D	RO	087100
2 Surf Overhead Stop	10-X36	630	RF	087100

**Set: 10.0**

Doors: 125, 126, 127, 128, 129, 130

3 Hinge	TA2314 (NRP)	US32D	MK	087100
1 Keyed Privacy Lock (OCC/VAC)	V21 8267 LNL	US26D	SA	087100
1 Cylinder - Primus	Rim / Mortise, As Required	.626	SC	087100
1 Kick Plate	K1050 10" 4BE CSK	US32D	RO	087100
1 Mop Plate	K1050 4" 4BE CSK	US32D	RO	087100
1 Wall Stop	402 / 405 (as req'd)	US26D	RO	087100

Notes: Omit mop plate at out-swing doors.  
 Match lever height of cylindrical locks (where cylindrical is used).  
 Cylinder only unlocks door from outside. It does not lock the door.

**Set: 11.0**

Doors: 140, 163

3 Hinge	TA2314 (NRP)	US32D	MK	087100
1 Keypad Cylindrical Lock	By Owner	US26D		087100
1 Cylinder - Primus K-I-L	20-719-XP or As Required	.626	SC	087100
1 Wall Stop	402 / 405 (as req'd)	US26D	RO	087100

Notes:  
 Valid PIN unlocks outside lever for entry.  
 Key override available.  
 Free egress at all times.

**Set: 12.0**

Doors: 164

3 Hinge	TA2314 (NRP)	US32D	MK	087100
1 Passage Latch	10XU15 LL	US26D	SA	087100
1 Wall Stop	402 / 405 (as req'd)	US26D	RO	087100

**Set: 13.0**

Doors: 137, 138, 160, 161

3 Hinge	TA2314 (NRP)	US32D	MK	087100
1 Pull x Plate	126x70C	US32D	RO	087100
1 Push Plate	70E	US32D	RO	087100
1 Automatic Operator	5211	689	NO	087100
1 Kick Plate	K1050 10" 4BE CSK	US32D	RO	087100
1 Mop Plate	K1050 4" 4BE CSK	US32D	RO	087100
1 Door Stop & Keeper	477	US26D	RO	087100
2 Actuator Button	505		NO	087100

Notes:

Either actuator button opens door automatically.

END OF SECTION 080671

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 08 Section "Hollow Metal Doors and Frames".
  - 2. Division 08 Section "Flush Wood Doors".
  - 3. Division 08 Section "Aluminum-Framed Entrances and Storefronts".
  - 4. Division 08 Section "Automatic Door Operators".
  - 5. Division 28 Section "Access Control Hardware Devices".
- 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. ANSI/UL 294 - Access Control System Units.
4. UL 305 - Panic Hardware.
5. ANSI/UL 437- 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 indicating compliance with the referenced testing 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 according 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 Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.
- C. 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. Warranty Period: Unless otherwise indicated, warranty shall be one year from date of Substantial Completion.



## 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. 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 BUTT HINGES

- A. Hinges: ANSI/BHMA A156.1 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: With the exception of electric through wire hinges, 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) - BB Series, 5-knuckle.
- b. McKinney (MK) - TA/T4A Series, 5-knuckle.
- c. dormakaba Best (ST) - F/FBB Series, 5-knuckle.

2.3 CONTINUOUS HINGES

- A. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 continuous geared hinge. with minimum 0.120-inch thick extruded 6063-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. Where specified, provide modular continuous geared hinges that ship in two or three pieces and form a single continuous hinge upon installation.
2. Manufacturers:
  - a. Hager Companies (HA).
  - b. Pemko (PE).
  - c. Dormakaba Best (ST).

2.4 POWER TRANSFER DEVICES

- A. Electrified Quick Connect Transfer Hinges: Provide electrified transfer hinges 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 with a 1-year warranty. 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. Hager Companies (HA) - ETW-QC (# wires) Option.
  - b. McKinney (MK) - QC (# wires) Option.
  - c. Dormakaba Best (ST) - C Option.

- B. 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 (PE) - EL-CEPT Series.

- b. Securitron (SU) - EL-CEPT Series.
  - c. Dormakaba Best (ST) EPT-12C Series.
- C. 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 (MK) - Electrical Connecting Kit: QC-R001.
    - b. McKinney (MK) - Connector Hand Tool: QC-R003.
  - 2. Manufacturers:
    - a. Hager Companies (HA) - Quick Connect.
    - b. McKinney (MK) - QC-C Series.
    - c. Dormakaba Best (ST) - WH Series.

## 2.5 DOOR OPERATING TRIM

- A. Flush Bolts and Surface Bolts: Provide products conforming to ANSI/BHMA A156.3 and A156.16, Grade 1.
- 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 (RO).
    - c. Trimco (TC).
- B. Door Push Plates and Pulls: ANSI/BHMA A156.6 door pushes and pull units 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. Pulls, where applicable, shall be provided with a 10" clearance from the finished floor on the push side to accommodate wheelchair accessibility.
5. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.
6. Manufacturers:
  - a. Hiawatha, Inc. (HI).
  - b. Rockwood (RO).
  - c. Trimco (TC).

## 2.6 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.
- B. Cylinder Types: Original manufacturer cylinders able to supply the following cylinder formats and types:
  1. Threaded mortise cylinders with rings and cams to suit hardware application.
  2. Rim cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
  3. Bored or cylindrical lock cylinders with tailpieces as required to suit locks.
  4. Tubular deadlocks and other auxiliary locks.
  5. 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.
  6. Keyway: Match Facility Restricted Keyway.
- C. Security Cylinders: ANSI/BHMA A156.5, Grade 1 Certified Products Directory (CPD) listed security cylinders and keys able to be used together under the same facility master or grandmaster key system. Cylinders to be factory keyed.
  1. New security key systems shall not be established with products that have an expired patent. Expired systems shall only be specified and supplied to support existing systems.
  2. Manufacturers:
    - a. Schlage (SC) - Primus Everest.
    - b. No Substitution.
- 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).

F. Construction Keying: Provide construction master keyed cylinders.

G. 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.

## 2.7 MORTISE LOCKS AND LATCHING DEVICES

A. Mortise Locksets, Grade 1 (Heavy Duty): Provide ANSI/BHMA A156.13, Series 1000, Operational Grade 1 Certified Products Directory (CPD) listed mortise locksets. Listed manufacturers shall meet all functions and features as specified herein.

1. Manufacturers:
  - a. ASSA ABLOY ACCENTRA, formerly known as Yale (YA) - 8800FL Series.
  - b. Sargent Manufacturing (SA) - 8200 Series.
  - c. Schlage (SC) - L9000 Series.

## 2.8 CYLINDRICAL LOCKS AND LATCHING DEVICES

A. Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Operational Grade 1 Certified Products Directory (CPD) listed cylindrical locksets. Listed manufacturers shall meet all functions and features as specified herein.

1. Manufacturers:
  - a. Sargent Manufacturing (SA) - 10X Line.
  - b. Schlage (SC) - ND Series.

B. Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Operational Grade 1 Certified Products Directory (CPD) listed cylindrical locksets. Listed manufacturers shall meet all functions and features as specified herein.

## 2.9 STAND ALONE ACCESS CONTROL LOCKING DEVICES

A. Stand Alone Electronic Keypad Locksets: Internal, battery-powered, self-contained ANSI Grade 1 mortise or cylindrical lock consisting of electronically motor driven locking mechanism and integrated keypad without requirements for separate electronic programming devices. Locks to accept standard, interchangeable (removable) core, security and high security override cylinders. Provide keypad locks with a minimum 100 user codes furnished standard with 6 "AA" batteries and non-volatile memory.

1. 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.
2. Manufacturers:
  - a. Sargent Manufacturing (SA) - KP Series.

## 2.10 DEADLOCKS AND LATCHES

- A. Mortise Deadlocks, Small Case: ANSI/BHMA A156.36, Grade 1, small case mortise type deadlocks constructed of heavy gauge wrought corrosion resistant steel. Steel or stainless steel bolts with a 1" throw and hardened steel roller pins. Deadlocks to be products of the same source manufacturer and keyway as other specified locksets.
  1. Manufacturers:
    - a. Sargent Manufacturing (SA) - 4870 Series.
    - b. Schlage (SC) - L460 Series.

## 2.11 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.

## 2.12 CONVENTIONAL EXIT DEVICES

- A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:
  1. Exit devices shall have a five-year warranty.
  2. 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.
3. 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.
  4. 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.
  5. 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.
  6. 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.
  7. 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.
  8. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
  9. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
  10. Rail Sizing: Provide exit device rails factory sized for proper door width application.
  11. 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 exit devices. Listed manufacturers shall meet all functions and features as specified herein.
1. Electromechanical exit devices shall have the following functions and features:
    - a. Universal Molex plug-in connectors that have standardized color-coded wiring and are field configurable in fail safe or fail secure and operate from 12vdc to 24vdc regulated.
    - b. EcoFlex or equivalent technology that reduces energy consumption up to 92% as certified by GreenCircle.
    - c. Options to be available for request-to-exit or enter signaling, latchbolt and touchbar monitoring.
    - d. Field configurable electrified trim to fail-safe or fail-secure that operates from 12-24VDC.
    - e. Five-year limited warranty for electromechanical features.
  2. Manufacturers:
    - a. Sargent Manufacturing (SA) - 80 Series.
    - b. Von Duprin (VD) - 35A/98 XP Series.

## 2.13 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 (Heavy Duty): 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 or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard.
1. Heavy duty surface mounted door closers shall have a 30-year warranty.
  2. Manufacturers:
    - a. LCN Closers (LC) - 4040 Series.
    - b. Norton Rixson (NO) - 7500 Series.
    - c. Sargent Manufacturing (SA) - 351 Series.

## 2.14 ELECTROMECHANICAL DOOR OPERATORS

- A. Electromechanical Door Operators (Moderate Traffic): Provide ANSI/BHMA A156.19 Certified Products Directory (CPD) listed low energy operators that are UL325/991 certified and comply with requirements for the Americans with Disabilities Act (ADA). Operators shall accommodate openings up to 200 pounds and 48" wide.
1. Provide operators with features as follows:
    - a. Non-handed with push and pull side mounting.
    - b. Activation by wall switch, hands-free or radio frequency devices.
    - c. Adjustable opening force and closing power.
    - d. Two-year limited warranty.



- e. Wi-Fi interface.
  - f. Mounting backplate to simplify and speed up installation.
2. Operators shall have the following functionality:
- a. Adjustable Hold Open: Amount of time a door will stay in the full open position after an activation.
  - b. Infinite Hold Open: Door will hold open at set position until power is turned off.
  - c. Latch Assist: At closed position, after an activation, the door is pulled in. After the door has closed, the door is pulled in to assist with latch release/engagement.
  - d. Obstruction Detection: Door closes if it hits an obstruction while opening; door will reverse to open position if it hits an obstruction while closing. Door will stop once it hits an obstruction and will rest against the obstruction until removed.
  - e. Open Delay: Delays operator opening for locking hardware.
  - f. Outside Wall Switch Disable: When contact is closed, outside wall switch is disabled.
  - g. Power Close: Additional force to assist door closing between 7° and 2°.
  - h. Presence Detector Input: Input for external sensor to detect presence at door open or close position only.
  - i. Selector Mode Switch: Off disables the signal inputs unless Blow Open is activated, on activates the signal inputs, hold open activates the unit (unless Blow Closed is activated) to the hold open position.
  - j. Restroom Function: Built-in, configurable operator logic to support single use restroom applications without the need for external relays, logic modules, or door position switches.
  - k. Executive Mode Feature: When the door receives an activation signal it opens and remains open until either a second signal is received, or the door is manually moved in closing direction.
3. Manufacturers:
- a. ASSA ABLOY Entrance Systems (BE) - SW60 Series.
  - b. Norton Rixson (NO) - 5200 Series.

## 2.15 ELECTROHYDRAULIC DOOR OPERATORS

- A. Electrohydraulic Door Operators (High Traffic): Provide ANSI/BHMA A156.19 Certified Products Directory (CPD) listed low energy operators that meet ANSI/BHMA A156.4 requirements and are UL listed for use on fire rated doors and UL10C certified that comply with requirements for the Americans with Disabilities Act (ADA). Operators shall be verified by GreenCircle to offer energy savings of 19% when compared to similar products to accommodate openings up 250 pounds and 48" wide.
1. Provide operators with features as follows:
- a. Non-handed with push and pull side mounting.
  - b. Operates as mechanical surface closer during close cycles, when door is opened manually or if power is off.
  - c. Activation by push button, hands-free or radio frequency devices.

- d. On board electronics to collect usage and cycle count data to facilitate preventative maintenance/diagnostics.
  - e. Two-year limited warranty.
  - f. Wi-Fi interface.
  - g. Mounting backplate to simplify and speed up installation.
2. Operators shall have the following functionality:
- a. Adjustable Hold Open: Amount of time a door will stay in the full open position after an activation.
  - b. Blow Open for Smoke Ventilation: Door opens when signal is received from alarm system allowing air or smoke to flow through opening. Door will stay open until signal from alarm system is stopped.
  - c. Infinite Hold Open: Door will hold open at set position until power is turned off.
  - d. Obstruction Detection: Door closes if it hits an obstruction while opening; door will reverse to open position if it hits an obstruction while closing. Door will stop once it hits an obstruction and will rest against the obstruction until removed.
  - e. Open Delay: Delays operator opening for locking hardware.
  - f. Overload Safety Shut-Off: After two minutes of receiving a door activation signal, inverter times out and door closes to prevent motor/inverter damage.
  - g. Presence Detector Input: Input for external sensor to detect presence at door open or close position only.
  - h. Push & Go: As the door is manually opened, the operator "senses" movement and opens door to the full-open position.
  - i. Selector Mode Switch: Off disables the signal inputs unless Blow Open is activated, on activates the signal inputs, hold open activates the unit (unless Blow Closed is activated) to the hold open position.
  - j. Vestibule Delay: When the wall switch is pressed, first door in vestibule will open. Second door will open once vestibule door delay has expired. Delay is adjustable.
3. Manufacturers:
- a. Gyrotech Nabco - GT500 Series.
  - b. Norton Rixson (NO) - 6000 Series.

## 2.16 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 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 (RO).
  - c. Trimco (TC).

#### 2.17 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 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 (RO).
    - c. Trimco (TC).
- C. Overhead Door Stops and Holders: ANSI/BHMA A156.8, Grade 1 Certified Products Directory (CPD) listed overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.
  1. Manufacturers:
    - a. Norton Rixson (RF).
    - b. Rockwood (RO).
    - c. Sargent Manufacturing (SA).

#### 2.18 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 NFPA 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 (PE).
  - 3. Reese Enterprises, Inc. (RE).

## 2.19 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. Intelligent Switching Power Supplies: Provide power supplies with single, dual or multi-voltage configurations at 12 and/or 24VDC. Power Supply shall have battery backup function with an integrated battery charging circuit. The power supply shall have a standard, integrated Fire Alarm Interface (FAI). The power supply shall provide capability for secondary voltage, power distribution, direct lock control and network monitoring through add on modules. The power supply shall be expandable up to 16 individually protected outputs. Output modules shall provide individually protected, continuous outputs and/or individually protected, relay controlled outputs. Network modules shall provide remote monitoring functions such as status reporting, fault reporting and information logging.

1. Provide the least number of units, at the appropriate amperage level, sufficient to exceed the required total draw for the specified electrified hardware and access control equipment.
2. Manufacturers:
  - a. Securitron (SU) - AQL Series.

## 2.20 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.

## 2.21 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. DHI TDH-007-20: Installation Guide for Doors and Hardware.
  - 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 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.

### 3.5 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.

### 3.6 DEMONSTRATION

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

### 3.7 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.
- B. Refer to Section 080671, Door Hardware Sets, for hardware sets.

END OF SECTION 087100

SECTION 281500 - INTEGRATED ACCESS CONTROL HARDWARE DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes access control door hardware for the following:
  - 1. Swinging doors.
  - 2. Other doors to the extent indicated.
- B. Section includes, but is not necessarily limited to, the following for the integrated access control security and site management system:
  - 1. Electrified and Integrated Access Control Card Key Door Hardware
- C. Related Sections include the following:
  - 1. Division 08 Section "Door Hardware Schedule".
  - 2. Division 08 Section "Hollow Metal Doors and Frames."
  - 3. Division 08 Section "Flush Wood Doors".
  - 4. Division 08 Section "Aluminum-Framed Entrances and Storefronts".
  - 5. Division 08 Section "Door Hardware".
  - 6. Division 08 Section "Automatic Door Operators".
  - 7. Division 14 Section "Elevators" for security access to elevator floor selection controls.
  - 8. Division 26 Section "Electrical" for connections to electrical power system and for low-voltage wiring work.
  - 9. Division 27 Section "Communications" for connections to the LAN.
  - 10. Division 28 Section "Access Control" for access control devices and equipment installed at door openings and provided as part of a security and site management system.
  - 11. Division 28 Section "Intrusion Detection" for detection devices installed at door openings and provided as part of an intrusion detection system.
  - 12. Division 28 Section "Video Surveillance" for motion detection and video camera devices and equipment installed at door openings and provided as part of a security and site management system.
  - 13. Division 28 Section "Fire Detection and Alarm" for connections to building fire alarm system.
- D. References:
  - 1. ANSI A117.1 (1998) - Accessible and Usable Buildings and Facilities.
  - 2. IBC - International Building Code
  - 3. NFPA 70 (2002) - National Electrical Code.



4. NFPA 80 (1999) - Fire Doors and Windows.
  5. NFPA 101 (2006) - Life Safety Code.
  6. UL 294 - Access Control Systems.
  7. UL 1076 - Proprietary Burglar Alarm Units and Systems.
- E. Products installed, but not provided under this Section include the following. Coordination to remain a requirement of this Section.
1. Security or High Security keyed cylinders, including provisions for temporary construction keying, for mechanical override at access control locking hardware to be furnished under Division 8 Section "Door Hardware".

### 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. System Operational Descriptions: Complete system operational narratives for the integrated access controlled openings defining the owner's prescribed requirements for the opening functionality. Narratives include, but are not limited to, the following situations: normal secured/unsecured state of door; authorized access; authorized egress; unauthorized access; unauthorized egress; fire alarm and loss of power conditions, and interfaces with other building control systems.
- C. Shop Drawings: Details of electrified integrated locking hardware and access control firmware, 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 and firmware. 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.
  2. Electrical Coordination: Coordinate with related Electrical Sections the voltages and wiring details required at electrically controlled and operated hardware openings.
- D. Proof of Certification: Upon request provide a copy of manufacturer(s) official certification or accreditation document indicating proof of status as a qualified and authorized provider of the primary access control components.
- E. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete access control and site management installation in quantity as required in Division 01, Closeout Submittals. The manual to include the name, address, and telephone number of the supplier/integrator providing the installation and the nearest service representatives for each item of equipment included in the system. The final

copies delivered after completion of the installation test to include "as built" modifications made during installation, checkout, and acceptance.

1. As-Built Drawings: During system installation, the Contractor to maintain a separate hard copy set of drawings, elevation diagrams, and wiring diagrams of the access control system to be used for record drawings. This set to be kept up to date by the Contractor with all changes and additions to the access control system accurately recorded.

F. Warranties and Maintenance: Special warranties and maintenance agreements specified in this Section.

#### 1.4 QUALITY ASSURANCE

A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum of five (5) years of documented experience in providing access control and security systems equipment and software similar to that indicated for this Project and that have a proven record of successful in-service performance.

1. Software and access control systems components to have been previously and thoroughly tested together with proven installations similar in size and functionality to the design requirements indicated for this Project.

B. Supplier Qualifications: Supplier/Dealers, verifiably authorized and in good standing with the primary product manufacturers, with a minimum of three (3) years of experience supplying integrated access control systems similar in material, design, and scope to that indicated for this Project and whose work has resulted in construction with a proven record of successful in-service performance.

1. ASSA ABLOY access control products are required to be supplied only through designated "Authorized Channel Partners."

a. List Qualified ACP Companies

C. System Integrator Qualifications: Systems Integrators, verifiably factory trained and certified by the primary product manufacturers, with a minimum of three (3) years documented experience installing complete integrated access control systems similar in material, design, and scope to that indicated for this Project and whose work has resulted in construction with a proven record of successful in-service performance. Qualifications include, but are not necessarily limited, to the following:

1. References: Provide a list of references for similar projects including contact name, phone number, name and type of project.

2. Professional Staffing: Firms to have a dedicated access control systems integration department with full time, experienced professionals on staff experienced in providing on site consulting services for both electrified door hardware and integrated access control systems installations.

3. Factory Training: Installation and service technicians are to be competent factory trained and certified personnel capable of maintaining the system.

4. Service Center: Firms to have a service center capable of providing training, in-stock parts, and emergency maintenance and repairs at the Project site with 24-hour/7-days a week maximum response time.
- D. Installer Qualifications: Certified technicians, verifiably authorized with the primary product manufacturers for installation of IP-Enabled, Wireless, and Power-over-Ethernet Access Control products in accordance with documented instructions and NFPA 80.
1. ASSA ABLOY access control products are required to be installed only through designated "Preferred Installers."
- E. Source Limitations: Obtain the access control door hardware, system firmware and application software specified in this Section from a single source, qualified supplier/integrator 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 integrated access control door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.
- F. Regulatory Requirements: Comply with NFPA 70, NFPA 80, NFPA 101 and ANSI A117.1 requirements and guidelines as directed in the model building code including, but not limited to, the following:
1. Comply with NFPA 70 "National Electrical Code", including electrical components, devices, and accessories listed and labeled as defined in Article 100 by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
  2. Where indicated to comply with accessibility requirements, comply with Americans with Disabilities Act (ADA), "Accessibility Guidelines for Buildings and Facilities (ADAAG)," ANSI A117.1.
  3. Comply with NFPA 101 "Life Safety Code" for doors in a means of egress.
  4. Comply with NFPA 80 "Fire Doors and Windows" for fire labeled opening assemblies.
  5. The installed access control system shall conform to all local jurisdiction requirements.
- G. Keying Conference: Reference Division 8 Section "Door Hardware".
- H. Pre-Submittal Conference: Conduct conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier/Dealer, Systems Integrator, and Contractor to review proper methods and procedures for receiving, handling, and installing the access control system hardware. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedules.
1. Inspect and discuss Division 26 electrical roughing-in and similar preparatory work performed by other trades.
  2. Review and verify sequence of operation descriptions for each unique access controlled opening.
  3. Review and finalize construction schedule and verify availability of materials.
  4. Review the required inspecting, testing, commissioning, and demonstration procedures.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Do not store electronic access control hardware, software or related accessories at Project site without prior authorization.
  - 1. Access control firmware and software: Where approved and directed, inventory upon receipt and store electronic access control equipment in a secure, temperature and humidity controlled environment in original manufacturer's sealed containers.
- B. Tag each item or package separately with identification related to the final Access Control Door Schedule, and include basic installation instructions with each item or package.
- C. Deliver permanent keys, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner established at the "Pre-Submittal Conference".

1.6 COORDINATION

- A. Coordinate quantity and arrangement of assemblies with ceiling space configuration and with components occupying ceiling space, including structural members, pipes, air-distribution components, raceways, cable trays, recessed lighting fixtures, and other items.
- B. Access Control System Electrical Coordination: Coordinate the layout and installation of scheduled electrified door hardware, and related access control equipment, with required connections to source power junction boxes, power supplies, detection and monitoring hardware and fire alarm system.
  - 1. Door Hardware Interface: The card key access control system to interface and be connected to electronic door control hardware (electromechanical locks, electric strikes, magnetic locks, door position switches, other monitoring contacts, and related auxiliary control devices) as described under Division 8 "Door Hardware". Coordinate the installation and configuration of specified door hardware being monitored or controlled with the controls, software and access control hardware specified in this Section.
- C. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing electrified door hardware and access control system components. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing access control system hardware to comply with indicated requirements.
- D. Door and Frame Preparation: Related Division 08 Sections (Steel, Aluminum and Wood) 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 will not deprive Owner of other rights Owner may have under other provisions of

the Contract Documents and are 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 the installed access control system hardware and software that fails in materials or workmanship, including all related parts and labor, within specified warranty period after final testing and 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 (Electrified Access Control Door Hardware):
1. Two years for Electrified, Wiegand Output, and IP-Enabled Access Control Door Hardware.
- E. Maintenance Support and Extended Service Agreement: Submit for Owner's consideration an optional extended Service Agreement for the installed access control system, including support for software related issues. The extended Service Agreement is considered elective and is without manufacturer's requirement stipulating mandatory coverage for owner and/or vendor system support.
1. A published copy of this agreement to be included with the submittal package
  2. Support for the installed access control system components is provided through the vendor under a 24 hour technical assistance program.
  3. Access control and management system components are to be available on a one-day turn around time frame from the manufacturer.
  4. Primary systems manufacturer to offer and provide remote modem or internet access for direct factory support to the vendor. The factory level support to include diagnostics and troubleshooting support on systems related issues at no additional cost to the owner.
- F. Access Control Software Upgrades: Version upgrades and "fix" releases to the access control system software are available at no extra charge as long as the version of software provided under this specification remains the current manufacturer's version or for up to (2) years after a new version release.
1. Major access control software revisions that provide new functionality to the product provided free of charge for up to one (1) year from the date of substantial completion.
  2. Access control system software is to be upgradable as may be required or as necessary, to expand and manage the owner's site or sites. Upgrades are to be offered at a published flat fee for the primary system software, with single license modules included in the primary fee structure. System upgrades offered at a costing structure based upon the original number of licensed modules issued, or on those to be purchased at a future date, are not allowed.

3. As part of the submittal package, provide a list of available software upgrades and/or expansions modules. List to identify related costs for upgrades, or expansions to the original system, up to the next qualifying operational level.

#### 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 the installed access control system hardware and components.
- B. Maintenance Service: Beginning at Substantial Completion, and running concurrent with the specified warranty period, provide continuous (6) months full maintenance by skilled employees of the Systems Integrator. Include repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door opening operation. Provide parts and supplies as used in the manufacture and installation of original products.

#### 1.9 SCOPE OF WORK

- A. On-Line Electronic Access Control System: Furnish and install at the indicated locations the specified electrified and integrated door hardware and access control firmware and software for a completely operational access control and security site management system. System includes, but is not necessarily limited, to the following:
  1. Electrified integrated card reader locks and exit hardware, permanent and temporary override cylinders, network control processors, reader controller panels, I/O monitor/control interfaces, door position switches, remote card readers, keypads, and display terminals, access cards and credentials, system application software, special tools, operating manuals, and required cabling and accessories as detailed below and listed in the Access Control Hardware Sets at the end of Part 3.
    - a. Provide the appropriate number of reader controller panels and I/O monitoring/control expansion interfaces as needed to handle the number of card readers, locking devices, door status devices, and identified alarm inputs specified in this section, and as shown on the security drawings.
    - b. Provide manufacturer approved integrated card reader locks, exit hardware, and remote mounted card readers, keypads, and display terminals that are functionally compatible with the specified access control equipment interfaces.
  2. Access control system equipment to be installed in an enclosure box compatible with the specified components. This enclosure to include, but is not necessarily limited to, the network control processor, I/O monitor/control interface panels, power supplies, terminal strips, wire ducts, keyed lock cylinder, integrated outlet for A/C power, and standoffs.
    - a. Enclosure box to be located in the designated IT/Telecom room(s) with connection to local area network for communication back to the central server host.
  3. Owner to provide the following:

- a. Central server host computer, client workstations, and hardware peripherals to be from an approved, major line computer manufacturer. Specific information detailing compliance with system requirements to be included in the project submittal package as specified.
  - b. Owner will be responsible for ensuring that each computer hardware component includes the required interfaces, expansion boards, and peripherals that will be necessary to allow the system to operate as described within this specification and as indicated on the drawings.
  - c. Power Sourcing and Network Switches: Quantity as required to accommodate installed access control (and video surveillance) devices.
  - d. Network Control Processor Connections:
    - 1) LAN/Ethernet communication ports (jacks) and network interface cards as needed, CAT5e cabling from network router/switch to network control processor, outlet and cover plates and/or patch cables required for network connection within each designated IT/Telecom room.
    - 2) Required static IP addresses.
4. Power Supplies, including battery back up and separately fused surge protection, required for the electrified door hardware and access control equipment.
  5. Installation, final configuration and commissioning of electrified door and access control system hardware, communication firmware, power supplies and related accessories.
  6. System application software including installation, programming, and end user training of the access control system demonstrating operating, repair, and maintenance procedures. Include no fewer than 8 hours of on-site central server training for designated personnel (facilities maintenance, security, IT, administration) by a factory certified representative.
  7. Provide manufacturer required power controllers, interface boards, and programming that may be required for approved electric latch retraction exit devices supplied under Division 08 Section "Door Hardware."
  8. Electrical contractor, Division 26, to provide the following:
    - a. Source power wiring (120VAC) as required for the electrified locking and access control hardware, equipment, accessories and power supplies. This includes quad outlets as required on a dedicated circuit in the designated IT/Telecom room(s) and the related conduit, stub-in, junction boxes and connectors required for the source power delivery and connections.
    - b. Provide required conduit, stub-in, junction and back boxes for both the electrified locking hardware and access control equipment at each of the access controlled or monitored openings per plan drawings and specs. Supply and install conduit between each of the aforementioned devices and between the electrical junction boxes, power supplies and access control equipment located on or above the door opening.
      - 1) At wall mounted remote readers, provide conduit on the secured side of the door, 36" from the finish floor and 6" from the edge of the frame, to the related power supplies and access control equipment.
      - 2) At electrical hardware power transfers provide conduit on the secured side of the opening from the power transfer, thru-wire hinge, or serviceable panel location on the frame jamb to the related power supplies and access control equipment.

- c. Electrical Contractor to provide all 120VAC cabling connections and terminations from the electrical junction boxes to these electrical devices.
9. Access Control System Integrator to provide the following:
  - a. Low voltage wiring (12/24VDC) and communication cabling (RS-232/RS-485) from network control processors to reader controllers, I/O monitor/control interface panels, electrified and integrated locking hardware, remote card readers, keypads, or display terminals, monitoring and signaling switches, and power supplies. Work includes related connectors, final terminations, and hook-ups required for a complete and functional access controlled opening in accordance with applicable codes and specified system operational narratives.
10. Elevator Contractor to provide the following:
  - a. Interface or landing of interface cable onto the elevator call button will be performed by a certified elevator contractor.
  - b. Coordinate with access control systems integrator provisions for a card reader with output allowing the elevator call button to be activated. A validated card read will be required for activation.
11. Full and seamless integration of the site intrusion alarm service if applicable, with the installed site access control system software.
12. Final connections to fire alarm system, if required, by electrical and fire alarm system contractors.
13. Provide permits, submittals and approvals required by the authority having jurisdiction, prior to commencing with work.
14. Provide manufacturer required power controllers, interface boards, and programming that may be required for approved electric latch retraction exit devices supplied under Division 08 Section "Door Hardware."
15. Electrical contractor (Division 26) to provide the following:
  - a. Provide required conduit, stub-in, junction and back boxes for both the electrified locking hardware and access control equipment at each of the access controlled or monitored openings per plan drawings and specs. Supply and install conduit between each of the aforementioned devices and between the electrical junction boxes, power supplies and access control equipment located on or above the door opening.
    - 1) At off-line remote readers, provide conduit on the secured side of the door, 36" from the finish floor and 6" from the edge of the frame, to the related power supplies and access control equipment.
    - 2) At electrified hardware power transfers provide conduit on the secured side of the opening from the power transfer, thru-wire hinge, or serviceable panel location on the frame jamb to the related power supplies and access control equipment.
  - b. Electrical Contractor to provide all 120VAC cabling connections and terminations from the electrical junction boxes to these electrical devices.
16. Access Control System Supplier to provide the following:



- a. Low voltage wiring (12/24VDC) for the electrified locking hardware, remote card readers, monitoring and signaling switches, and power supplies. Work includes related connectors, final terminations and hook-ups required for a complete and functional access controlled opening in accordance with applicable codes and specified system operational narratives.
17. Typical System Requirements (Owner Provided): Central server host computer, client workstations, and hardware peripherals to be from an approved, major line computer manufacturer. Specific information detailing compliance with system requirements to be included in the project submittal package as specified.

## 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. Please note that ASSA ABLOY is transitioning the Yale Commercial brand to ASSA ABLOY ACCENTRA. This affects only the brand name; the products and product numbers will remain unchanged. The brand transition is expected to be complete in or about May of 2024, and products shipping after that time will be branded ASSA ABLOY ACCENTRA.
- 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 APERIO WIRELESS ACCESS CONTROL

- A. Wireless Access Control Cylindrical Locks: Wireless technology ANSI/BHMA A156.2 Series 4000 Grade 1 cylindrical lockset with integrated card reader and request-to-exit signaling in one complete unit. Separate DPS connects directly to lock electronics for door position (open/closed status) monitoring. Motor driven locking/unlocking control of the lever handle trim with 1/2" deadlocking stainless steel latch. Lock is U.L listed and labeled for use on up to 3 hour fire rated openings.
  1. Wireless access control cylindrical locks interface using local wireless connection between the lock unit and a nearby communication hub. Communication hub connected

- via RS-485 or Wiegand to a new or existing online electronic access control system platform.
  2. Fully-encrypted AES 128 wireless communication between lock and communication hub (IEEE 802.15.4, 2.4 GHz) with no proprietary programming device requirements. Locks will continue functional operation independent of wireless connection slowdown or failure.
  3. Integrated reader supports HID® 125kHz proximity credentials; or ISO 14443 A/B and ISO 15693 13.56 MHz contactless credentials: HID® iCLASS/iCLASS SE (full authentication, all formats), MIFARE Classic, DESFire EV1 (full authentication, all formats); or Near Field Communications (NFC); or HID® SIO enabled.
  4. Support for HID Mobile Access via Bluetooth Low Energy (BLE) short-range wireless communication.
  5. Power Source: 6 AA alkaline batteries power supply with LED indication of locked, programming mode and low capacity warning status conditions.
  6. Outside lever rigid except when valid user code is entered. Emergency override access capability with optional mechanical key cylinder retraction of lock latch bolt without necessary electronic activation.
  7. Communication Hub: Provide the necessary number of hubs which is connected to the access control system via RS-485 or Wiegand as required by the system. Provide hubs factory paired with the locks, but allow for field configuration as needed.
  8. Complete installation to include manufacturer's Installation Tool and USB Radio Dongle for initial lock set-up and configuration. Electronic on-line access control system platform, including communication cabling and software, by others.
  9. Manufacturers:
    - a. Corbin Russwin Hardware (RU) – IN100 – CL33800 Series.
    - b. Sargent Manufacturing (SA) – IN100 10 Line Series.
- B. Wireless Access Control Exit Hardware: Wireless technology ANSI/BHMA A156.3 Grade 1 rim and mortise exit device hardware with integrated card reader. Separate DPS connects directly to exit hardware electronics for door position (open/closed status) monitoring. Motor driven locking/unlocking control of the lever handle exit trim with 3/4" throw latch bolt. U.L listed and labeled for either panic or "fire exit hardware" for use on up to 3 hour fire rated openings. Available with or without keyed high security cylinder override trim.
1. Wireless access control exit hardware interfaces using local wireless connection between the electronic exit trim and a communication hub located directly above the door. Communication hub connected via RS-485 to a new or existing online electronic access control system platform.
  2. Fully-encrypted AES 128 wireless communication between lock and communication hub (IEEE 802.15.4, 2.4 GHz) with no proprietary programming device requirements. Locks will continue functional operation independent of wireless connection slowdown or failure.
  3. Integrated card reader supports 125kHz proximity credentials; 13.56 MHz contactless credentials: HID® iCLASS (full authentication, all formats, including SEOS), Mifare Classic (Sector and UID), DESFire, NFC-enabled mobile phones.
  4. Support for HID Mobile Access via Bluetooth Low Energy (BLE) short-range wireless communication.
  5. Lockdown capability with maximum 10 second response.
  6. Patent pending credential cache to ensure offline access.

7. Power Source: 6 AA alkaline batteries power supply with LED indication of locked, programming mode and low capacity warning status conditions.
8. Outside lever rigid except when in "passage" mode, or valid user code is entered. Emergency override access capability with optional mechanical key cylinder retraction of exit device latch without necessary electronic activation.
9. Complete installation to include manufacturer's Installation Tool and USB Radio Dongle for initial lock set-up and configuration. Electronic on-line access control system platform, including communication cabling and software, by others.
10. Manufacturers:
  - a. Corbin Russwin Hardware (RU) – IN100 – ED5000 Series.
  - b. Sargent Manufacturing (SA) - IN100 – 80 Series.

### 2.3 CABLES AND WIRING

- A. Comply with Division 27 Section "Conductors and Cables for Electronic Safety and Security."
- B. Data Line Supervision: System to include alarm initiation capability in response to opening, closing, shorting, or grounding of data transmission lines.
- C. Install appropriate number of conductor pairs, in the wire gage (AWG) recommended by manufacturer, corresponding to the electronic locking functions specified, amperage drawn and distances covered between the power supplies, power transfer devices, electrified hardware and access control equipment.

### 2.4 ACCESS CONTROL HARDWARE FINISHES

- A. Standard: Comply with BHMA A156.18.
- B. Protect mechanical finishes on exposed surfaces from damage by applying temporary protective coverings before shipping.
- C. Where specified, finishes on integrated card key locksets or exit hardware to incorporate an FDA recognized antimicrobial coating (i.e., MicroShield™) listed for use on equipment as a suppressant to the growth and spread of a broad range of bacteria, algae, fungus, mold and mildew.
- D. BHMA Designations: Comply with base material and finish as specified.

## 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 of the installed access control system.

- B. Examine roughing-in for electrical source power to verify actual locations of wiring connections before electrified and integrated access control door hardware installation.
- C. Examine roughing-in for LAN and control cable conduit systems to PCs, controllers, card readers, and other cable-connected devices to verify actual locations of conduit and back boxes before device installation.
- D. Notify architect of any discrepancies or conflicts between the specifications, drawings and scheduled access controlled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

### 3.2 PREPARATION

- A. Doors and frames at scheduled access controlled openings to be properly prepared to receive specified electrified and access control hardware and connections without additional in-field modifications.

### 3.3 INSTALLATION

- A. Install each item of electronic integrated door hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
- B. Mounting Heights: Mount electronic integrated 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."
- C. Boxed Power Supplies: Verify locations.
  - 1. Configuration: Provide the least number of power supplies required to adequately serve doors with access control hardware and equipment.
- D. Final connect the system control switches (integrated card key locking hardware, remote readers, keypads, display terminals, biometrics), and monitoring, and signaling equipment to the related Controller devices at each opening to properly operate the electrified door and access control hardware according to system operational narratives.
- E. Retrofitting: Install each door hardware and access control item 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.

- F. System Application Software: Install, and test application(s) software and databases for the complete and proper operation of systems involved. Assign software license(s) to Owner.

### 3.4 FIELD QUALITY CONTROL

- A. Field Inspection (Punch Report): Reference Division 01 Sections “Closeout Procedures”. 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.
- B. Commissioning and Testing Schedule: Prior to final acceptance of the access control system installation, the following testing and documentation to be performed and provided to the Owner.
  - 1. Inspection: Verify that units and controls are properly installed, connected, and labeled and that interconnecting wires and terminals are identified.
  - 2. Pre-testing: Program and adjust the system and pretest all components, wiring, and functions to verify they conform to specified requirements. Provide testing reports indicating devices tested, pass/fail status, and actions taken to resolve problem(s) on failed tests.
  - 3. Acceptance Test Schedule: Correct deficiencies identified by tests and observations and retest until specified requirements are met.
  - 4. Provide “as designed” drawings showing each device and wiring connection and electronic enclosure legends indicating cabling in and out.
  - 5. Provide a complete set of operating instructions for access control hardware devices and a complete software user manual. The documentation includes module reference guides for each electronic enclosure.

### 3.5 ADJUSTING

- A. Adjust and check each operating item of integrated access control door hardware, and each door opening to ensure proper secured operation and function of every unit. Replace units that cannot be adjusted to operate as intended.

### 3.6 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by access control system installation.
- B. Clean operating items as necessary to restore proper finish and provide final protection and maintain conditions that ensure access control door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

- A. Engage an authorized systems manufacturer representative to train Owner's maintenance personnel to adjust, operate, and maintain electronic integrated door hardware and the access control system.

3.8 ACCESS CONTROL HARDWARE SETS

- A. The access control system hardware sets listed below represent the design intent and direction of the owner, architect, and security consultant (as applicable). They are intended as a guideline only and should not be considered a detailed opening schedule. Discrepancies, conflicting, 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.
- B. The supplier is responsible for handing and sizing all products and providing the correct option for the appropriate door type and material where more than one is presented in the hardware sets. Quantities listed are for each pair of doors, or for each single door.
- C. Refer to Section 080671, Door Hardware Sets, for hardware sets.

END OF SECTION 281500

### **III. STRUCTURAL**

#### **Item 1: Roofing / Structure Upgrades**

- Q: Keyed note #4 on Sheets S-101 & S-102 says portions of the existing steel roof need to be replaced. On the roofing plan (Sheet AE-112 and AE-113) nothing is mentioned or described about removing the existing roofing membrane, insulation and steel deck to replace the deck as directed in the structural sheets. The roofers will not know they are to patch these areas. Also- this should be indicated in the demolition plans. Please clarify is this the proper understanding of what is to be done.
- A: The current note #04 is to be removed from structural sheets S-101 and S-102 and replaced with a different reference. See the attached revised plans. This was a prior note that does not apply as the framing is to be installed from the underside of the deck in order to keep the roof deck system in place. There are areas that are to be infilled for existing openings, these may or may not be pre-engineered roof deck. Existing conditions are not fully known due to lack of access. If so, the pre-engineered metal building supplier needs to be on the DFCM approved fabricator list.

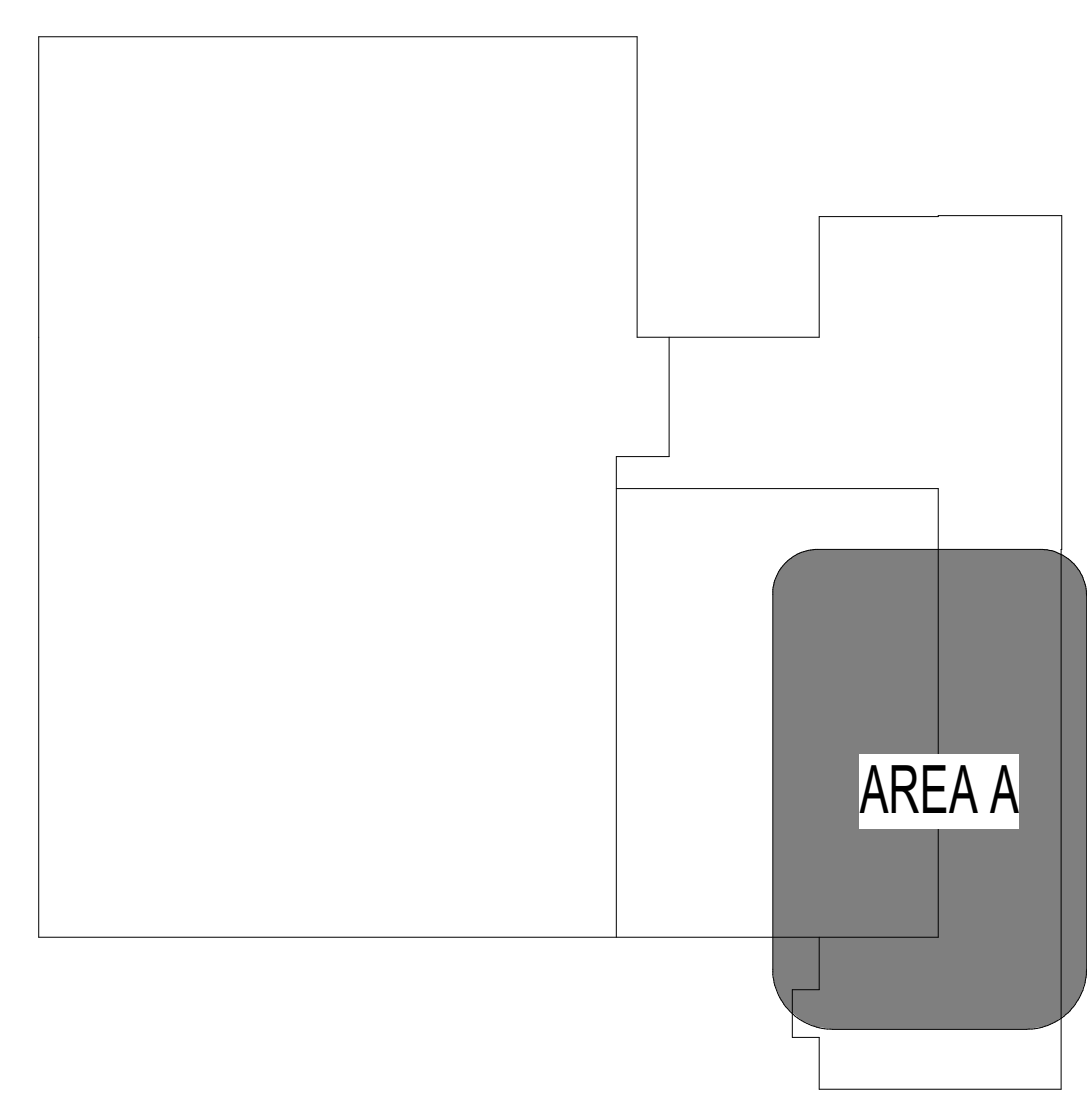


**EXISTING PLAN NOTES**

1. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCING WITH SHOP DRAWINGS OR FIELD INSTALLATION OF ANY STRUCTURAL ELEMENTS. ANY CONFLICTS THAT MIGHT OCCUR BETWEEN ACTUAL CONDITIONS AND THE CONTRACT DOCUMENTS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER.
2. THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING OF THE EXISTING STRUCTURE WHERE REQUIRED OR INDICATED.
3. NEW UNIT SHALL NOT INCREASE WEIGHT BY MORE THAN 5% OF THE ORIGINAL UNIT WEIGHT. CONTRACTOR TO NOTIFY ENGINEER OF RECORD FOR ANY EXISTING UNITS BEING REMOVED AND REPLACED WITH NEW MECHANICAL UNIT HEAVIER THAN 5% OF THE ORIGINAL WEIGHT PRIOR TO INSTALLATION.
4. SEE ARCHITECTURAL DRAWINGS FOR EXTERIOR WALL MODIFICATIONS REQUIRING NEW WIND GIRTS BY PRING SUPPLIER.

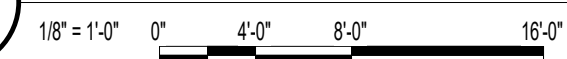
**EXISTING CONDITIONS NOTE (TYPICAL)**

1. NOTE THAT DUE TO THE ABSENCE OF ACCURATE RECORD DRAWINGS FOR THE ORIGINAL BUILDING DESIGN, MANY DESIGN DECISIONS MADE FOR THIS PROJECT HAVE BEEN BASED ON ASSUMPTIONS AND VISUAL INSPECTIONS OF EXISTING SITE CONDITIONS BY THE DESIGN TEAM - CONSEQUENTLY, DISPARITIES BETWEEN ASSUMED AND ACTUAL EXISTING CONDITIONS MAY ARISE. IT IS IMPERATIVE THAT THE CONTRACTOR CAREFULLY VERIFES ALL EXISTING CONDITIONS AND COORDINATES THEM WITH THE NEW WORK - IF THE EXISTING CONDITIONS ARE FOUND TO DEVIATE FROM THE ASSUMPTIONS MADE IN THE DESIGN, RESULTING IN CONFLICTS, THE CONTRACTOR IS REQUIRED TO COORDINATE THE VERIFIED SITE CONDITIONS AS WELL AS THE RESULTING CONFLICTS WITH THE ARCHITECT (FOR RESOLUTIONS), BEFORE PROCEEDING WITH THE INSTALLATIONS OF NEW WORK.



KEY PLAN - AREA A

1 ROOF FRAMING PLAN - AREA A



ARCHITECTS INFORMATION

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PROFESSIONAL STAMP  

 No. 10881225  
 JORDAN PERKES  
 STATE OF UTAH  
 04.29.24

CODE OFFICIAL STAMP

PROJECT NAME  
**BRIDGERLAND TECHNICAL COLLEGE  
 TRANSCHILL BUILDING REMODEL**

940 WEST 1400 NORTH  
 LOGAN, UTAH 84321

NO.	DATE	DESCRIPTION
1	02/01/24	Permit Review
2	04/29/24	Addendum A03

ISSUED:  
 NO. DATE DESCRIPTION  
 01 02/05/2024 PERMIT SET

OWNER PROJECT #: 24139210  
 SPE PROJECT #: 22-38  
 DRAWN BY: J.R.  
 CHECKED BY: J.P.  
 DESIGNED BY: J.P.  
 COPYRIGHT: © 2023 SPE ARCHITECTS

SHEET TITLE:  
**ROOF FRAMING  
 PLAN - AREA A**

SHEET NUMBER:  
**S-101**

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 801-355-5656  
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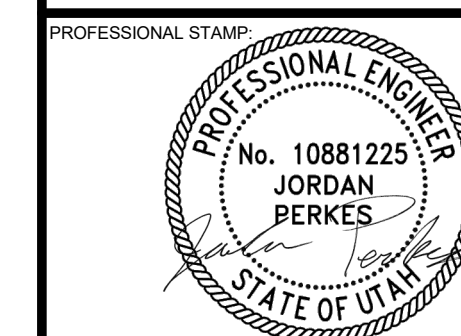
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04.29.24

CODE OFFICIAL STAMP

PROJECT NAME

BRIDGERLAND TECHNICAL COLLEGE  
TRANSCHILL BUILDING REMODEL

940 WEST 1400 NORTH  
LOGAN, UTAH 84321

REVISIONS

NO.	DATE	DESCRIPTION
1	02/05/24	Permit Review
2	04/29/24	Addendum #03

ISSUED:

NO.	DATE	DESCRIPTION
01	02/05/2024	PERMIT SET

OWNER PROJECT #: 24139210

SPE PROJECT #: 22-38

DRAWN BY: J.R.

CHECKED BY: J.P.

DESIGNED BY: J.P.

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SHEET TITLE

ROOF FRAMING  
PLAN - AREA B

SHEET NUMBER

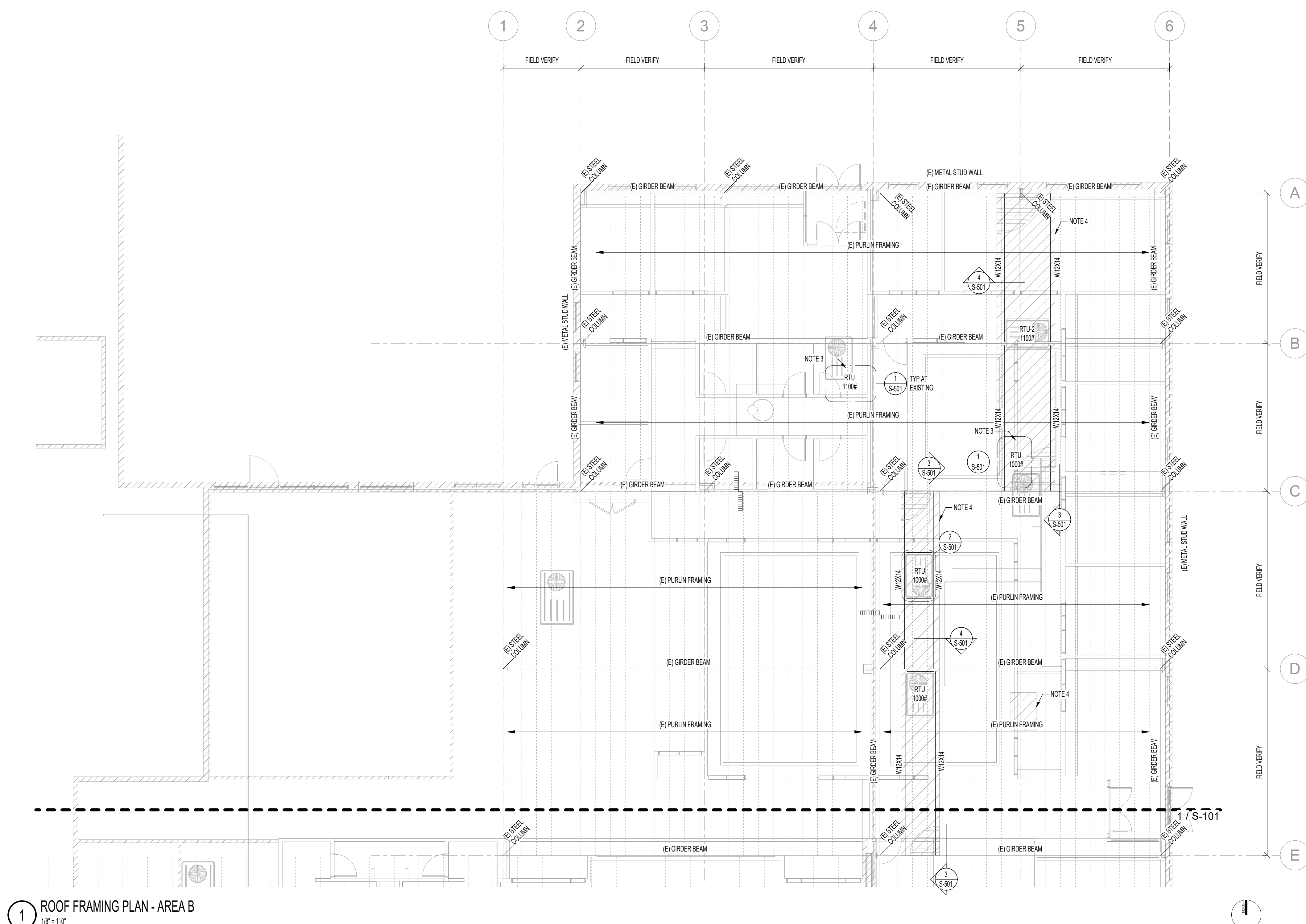
S-102

EXISTING PLAN NOTES

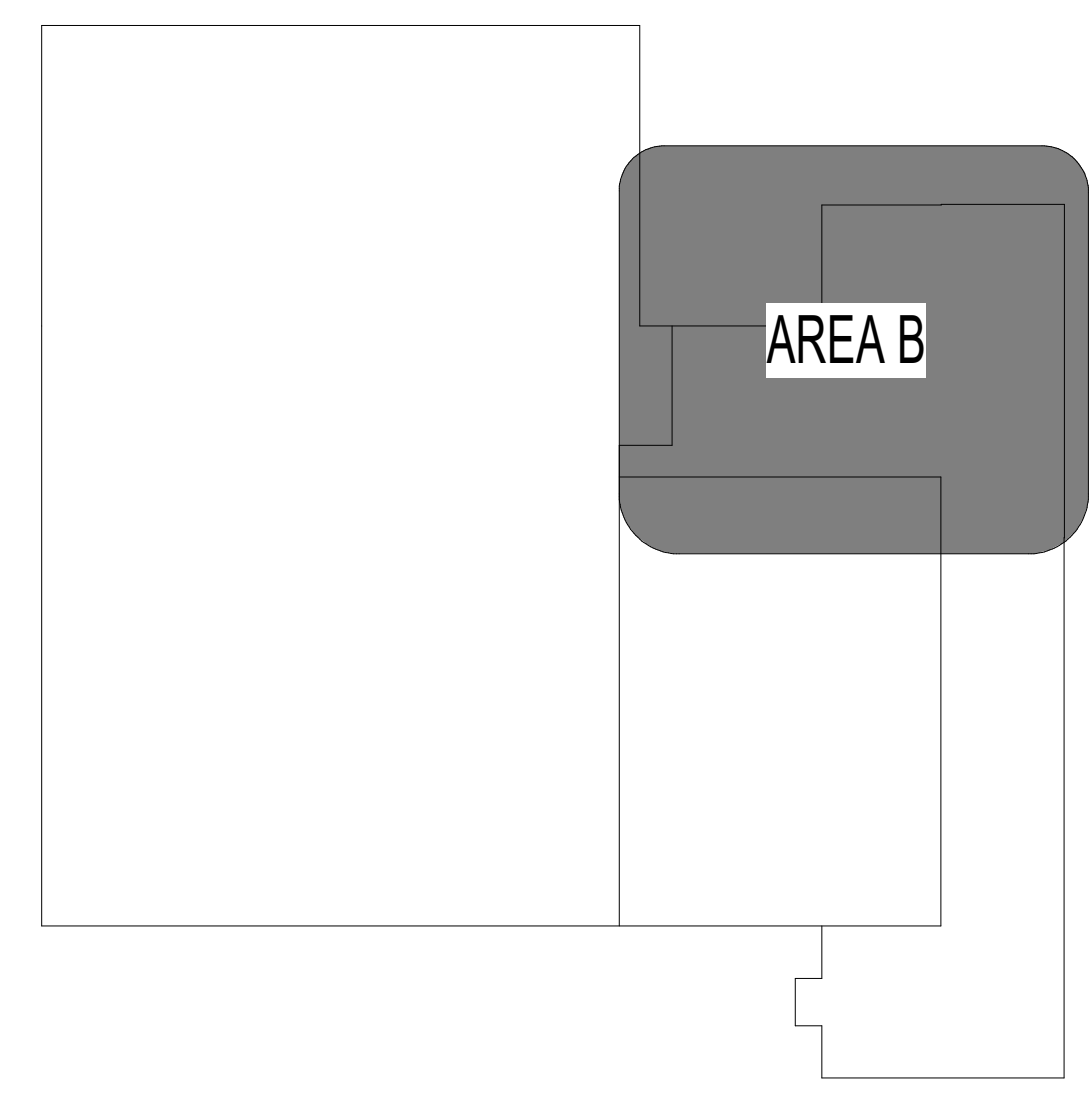
- THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCING WITH SHOP DRAWINGS OR FIELD INSTALLATION OF ANY STRUCTURAL ELEMENTS. ANY CONFLICTS THAT MIGHT OCCUR BETWEEN ACTUAL CONDITIONS AND THE CONTRACT DOCUMENTS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER.
- THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING OF THE EXISTING STRUCTURE WHERE REQUIRED OR INDICATED.
- NEW UNIT SHALL NOT INCREASE WEIGHT BY MORE THAN 5% OF THE ORIGINAL UNIT WEIGHT. CONTRACTOR TO NOTIFY ENGINEER OF RECORD FOR ANY EXISTING UNITS BEING REMOVED AND REPLACED WITH NEW MECHANICAL UNIT HEAVIER THAN 5% OF THE ORIGINAL WEIGHT PRIOR TO INSTALLATION.
- SEE ARCHITECTURAL DRAWINGS FOR EXTERIOR WALL MODIFICATIONS REQUIRING NEW WIND GRITS BY PERMITS SUPPLIER.

EXISTING CONDITIONS NOTE (TYPICAL)

- NOTE THAT DUE TO THE ABSENCE OF ACCURATE RECORD DRAWINGS FOR THE ORIGINAL BUILDING DESIGN, MANY DESIGN DECISIONS MADE FOR THIS PROJECT HAVE BEEN BASED ON ASSUMPTIONS AND VISUAL INSPECTIONS OF EXISTING SITE CONDITIONS BY THE DESIGN TEAM - CONSEQUENTLY, DISPARITIES BETWEEN ASSUMED AND ACTUAL EXISTING CONDITIONS MAY ARISE. IT IS IMPERATIVE THAT THE CONTRACTOR CAREFULLY VERIFES ALL EXISTING CONDITIONS AND COORDINATES THEM WITH THE NEW WORK. IF THE EXISTING CONDITIONS ARE FOUND TO DEVIATE FROM THE ASSUMPTIONS MADE IN THE DESIGN, RESULTING IN CONFLICTS, THE CONTRACTOR IS REQUIRED TO COORDINATE THE VERIFIED SITE CONDITIONS AS WELL AS THE RESULTING CONFLICTS WITH THE ARCHITECT (FOR RESOLUTIONS), BEFORE PROCEEDING WITH THE INSTALLATIONS OF NEW WORK.



1 ROOF FRAMING PLAN - AREA B  
1/8" = 1'-0"



KEY PLAN - AREA B



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## **IV. MECHANICAL**

See the attached addendum from the Mechanical Engineer.

# MECHANICAL ADDENDUM #03

---

**Project Name:** Bridgerland ATC Remodel

**To:** All Bidding Contractors  
**Addendum No:**

**WHW Project #:** 23118

**Date:** 04.26.24

**From:** WHW Engineering LLC  
8619 South Sandy Parkway  
Sandy, Utah 84070  
Phone (801) 466-4021 Fax (801) 466-8536

---

This Addendum forms and becomes a part of the Contract Documents and modifies the original Bidding Documents dated February 2024 as noted below. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of 2 pages and 1 specification section.

---

**I. CHANGES TO PRIOR ADDENDA:** None

**II. QUESTIONS AND ANSWERS:**

- a. Who is the current Controls Contractor? As the RTU's call out Bacnet factory installed controls, but do not see an approved Controls Contractor or brand.

**Answer:** Automated Logic by Controls Solutions Group, see attached specification section 230900.

- b. Could you please provide some call out or direction for the fire sprinkling in the building. Will the existing heads need to be modified or relocated?

**Answer:** Yes, all fire sprinklers will need to be re-configured in the areas being remodeled in this scope of work. Provide new sprinkler heads with flex connections at all remodeled areas. See fire sprinkler performance specification 211313 for additional information.

- c. Documents state to furnish a DDC controls system but does not tell us what brand/type is currently being used. Please provide what brand/type of a DDC control system is currently in the existing building.

**Answer:** Automated Logic by Controls Solutions Group, see attached specification section 230900.

**III. CHANGES/CLARIFICATIONS TO SPECIFICATIONS:**

- a. It appears that not all of the correct mechanical specifications were issued originally. Use the attached specification section 230900 HVAC Controls in place of the section that was issued originally.

**IV. CHANGES/CLARIFICATIONS TO DRAWINGS:** None

## **PRIOR APPROVALS**

THE FOLLOWING ITEMS, AS SUBMITTED, ARE CONSIDERED, IN GENERAL AND IN NAME ONLY, AS EQUAL TO THOSE ITEMS SPECIFIED. THIS REVIEW DOES NOT RELIEVE THE CONTRACTOR OR SUPPLIER OF THE RESPONSIBILITY OF CONFORMING TO THE DRAWINGS AND SPECIFICATIONS, NOR DOES IT RELIEVE THE CONTRACTOR OF THE REQUIREMENTS OF THE SPECIFICATIONS FOR COORDINATION WITH OTHER TRADES. ALL DIMENSIONS SHALL BE CONFIRMED AND CORRELATED AT THE JOBSITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING EXISTING CONDITIONS AND THE SUITABILITY OF "EQUAL" PRODUCTS FOR THE SPECIFIED APPLICATION.

<b><u>Description</u></b>	<b><u>Manufacturer</u></b>
Water Heaters	State and American
Service Sinks	Fiat Products
Water Closets	Sloan Valve Co
Urinals	Sloan Valve Co
Lavatories	Sloan Valve Co
Sensor Faucets	Sloan Valve Co
Volume Dampers	United Enertech
Flex Duct	JP Lamborn
Exhaust Fans	S&P Ventilation

End of Mechanical Addendum

**SECTION 230900 – HVAC CONTROLS****PART 1 - GENERAL****1.1 SECTION INCLUDES**

- A. Building Management System (BMS), utilizing direct digital controls, tied into the existing Automated Logic BTECH Campus head end..

**1.2 RELATED WORK SPECIFIED ELSEWHERE**

- A. Products Not Furnished or Installed But Integrated with the Work of This Section:
  - 1. Packaged rooftop units
- B. Work Required Under Other Divisions Related to This Section:
  - 1. Power wiring to line side of motor starters, disconnects or variable frequency drives.
  - 2. Provision and wiring of smoke detectors and other devices relating to fire alarm system.
  - 3. Campus LAN (Ethernet) connection adjacent to JACE network management controller.

**1.3 RELATED SECTIONS**

- A. Section 23 05 00 - Basic Mechanical Materials and Methods: Performance and reference standards for products and materials required for the Project.

**1.4 SYSTEM DESCRIPTION**

- A. Scope: Furnish all labor, materials and equipment necessary for a complete and operating Building Management System (BMS), utilizing Direct Digital Controls as shown on the drawings and as described herein. Drawings are diagrammatic only. All controllers furnished in this section shall communicate on a peer-to-peer bus over an open protocol BACNET bus.
- B. All products of the BMS shall be provided with the following agency approvals. Verification that the approvals exist for all submitted products shall be provided on request, with the submittal package.

**1.5 SUBMITTALS**

- A. Product Data: Manufacturer's data sheets on each product to be used, including:
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
  - 3. Installation methods.
- B. Submit documentation of contractor qualifications, including those indicated in "Quality Assurance" if requested by the A-E.

## Transchill Building Remodel

- C. Electronic copies of shop drawings of the entire control system shall be submitted and shall consist of a complete list of equipment and materials, including manufacturers' catalog data sheets and installation instructions. Samples of written Controller Checkout Sheets and Performance Verification Procedures for applications similar in scope shall be included for approval.
- D. Shop drawings shall also contain complete wiring and schematic diagrams, sequences of operation, control system bus layout and any other details required to demonstrate that the system has been coordinated and will properly function as a system. Terminal identification for all control wiring shall be shown on the shop drawings.
- E. Upon completion of the work, provide x complete sets of ' as-built' drawings and other project-specific documentation in 3-ring hard-backed binders and on Flash media.
- F. Any deviations from these specifications or the work indicated on the drawings shall be clearly identified in the Submittals.

**1.6 QUALITY ASSURANCE**

- A. **Single Source Responsibility of Supplier:** The Control System Contractor shall be responsible for the complete installation and proper operation of the control system. The Control System Contractor shall exclusively be in the regular and customary business of design, installation and service of computerized building management systems similar in size and complexity to the system specified. The Control System Contractor shall be the manufacturer of the primary DDC system components or shall have been the authorized representative for the primary DDC components manufacturer for at least 5 years. All control panels shall be assembled by the Control System Contractor in a UL-Certified 508A panel shop.
- B. **Equipment and Materials:** Equipment and materials shall be cataloged products of manufacturers regularly engaged in the production and installation of HVAC control systems. Products shall be manufacturer's latest standard design and have been tested and proven in actual use.

**1.7 PRE-INSTALLATION MEETINGS**

- A. Convene minimum two weeks prior to starting work of this section.

**1.8 DELIVERY, STORAGE AND HANDLING**

- A. Maintain integrity of shipping cartons for each piece of equipment and control device through shipping, storage and handling as required to prevent equipment damage. Store equipment and materials inside and protected from weather.

**1.9 JOB CONDITIONS**

- A. **Cooperation with Other Trades:** Coordinate the Work of this section with that of other sections to insure that the Work will be carried out in an orderly fashion. It shall be this Contractor's responsibility to check the Contract Documents for

## Transchill Building Remodel

possible conflicts between his Work and that of other crafts in equipment location, pipe, duct and conduit runs, electrical outlets and fixtures, air diffusers and structural and architectural features.

**1.10 SEQUENCING**

- A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

**PART 2 - PRODUCTS****2.1 MANUFACTURERS**

- A. Acceptable Manufacturer:
  - 1. Automated Logic
    - a. Control Solutions Group
    - b. Prior approved equal

**2.2 GENERAL**

- A. The Building Management System (BMS) shall be comprised of a network of interoperable, stand-alone digital controllers, a network area controller, graphics and programming and other control devices for a complete system as specified herein.
- B. The installed system shall provide secure password access to all features, functions and data contained in the overall BMS.

**2.3 OPEN, INTEROPERABLE, INTEGRATED ARCHITECTURE**

- A. The intent of this specification is to provide a peer-to-peer networked, stand-alone, distributed control system utilizing Open protocols in one open, interoperable system.
- B. The supplied computer software shall employ object-oriented technology (OOT) for representation of all data and control devices within the system.
- C. All components and controllers supplied under this contract shall be true "peer-to-peer" communicating devices. Components or controllers requiring "polling" by a host to pass data shall not be acceptable.
- D. The supplied system shall incorporate the ability to access all data using HTML5 enabled browsers without requiring proprietary operator interface and configuration programs or browser plug-ins. An Open Database Connectivity (ODBC) or Structured Query Language (SQL) compliant server database is required for all system database parameter storage. This data shall reside on the Operating System Server located in the Facilities Office on the LAN. Systems requiring proprietary database and user interface programs shall not be acceptable.
- E. A hierarchical topology is required to assure reasonable system response times and to manage the flow and sharing of data without unduly burdening the customer's internal Intranet network. Systems employing a "flat" single tiered architecture shall

## Transchill Building Remodel

not be acceptable.

**2.4 BAS SERVER HARDWARE**

- A. Standard Client: The thin-client Web Browser BAS GUI shall be Microsoft Internet Explorer (10.0 or later) running on Microsoft 7+. No special software shall be required to be installed on the PCs used to access the BAS via a web browser.

**2.5 SYSTEM NETWORK CONTROLLER (SNC)**

- A. These controllers are designed to manage communications between the programmable equipment controllers (PEC), application specific controllers (ASC) and advanced unitary controllers (AUC) which are connected to its communications trunks, manage communications between itself and other system network controllers (SNC) and with any operator workstations (OWS) that are part of the BAS, and perform control and operating strategies for the system based on information from any controller connected to the BAS.
- B. The controllers shall be fully programmable to meet the unique requirements of the facility it shall control.

**2.6 PROGRAMMABLE EQUIPMENT CONTROLLER (PEC)**

- A. HVAC control shall be accomplished using BACnet based devices. The controller platform shall provide options and advanced system functions, programmable and configurable using Niagara 4 Framework, that allow standard and customizable control solutions required in executing the "Sequence of Operation".
- B. All PECs shall be application programmable and shall at all times maintain their certification. All control sequences within or programmed into the PEC shall be stored in non-volatile memory, which is not dependent upon the presence of a battery to be retained.
- C. The PEC shall provide LED indication of communication and controller performance to the technician, without cover removal.
- D. Each PEC shall have expansion ability to support additional I/O requirements through the use of remote input/output modules.

**2.7 ADVANCED UNITARY CONTROLLER (AUC)**

- A. The advanced unitary controller (AUC) platform shall be designed specifically to control HVAC - ventilation, filtration, heating, cooling, humidification, and distribution. Equipment includes: constant volume air handlers, VAV air handlers, packaged RTU, heat pumps, unit vents, fan coils, natural convection units and radiant panels. The control shall use BACnet based devices. The controller platform shall provide options and advanced system functions, programmable and configurable using Niagara 4 Framework, that allow standard and customizable control solutions required in executing the "Sequence of Operation".

**2.8 OTHER CONTROL SYSTEM HARDWARE**



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- A. Motorized control dampers that will not be integral to the equipment shall be furnished by the Control System Contractor. Control damper frames shall be constructed of galvanized steel, formed into changes and welded or riveted. Dampers shall be galvanized, with nylon bearings. Blade edge seals shall be vinyl. Blade edge and tip seals shall be included for all dampers. Blades shall be 16-gauge minimum and 6 inches wide maximum and frame shall be of welded channel iron. Damper leakage shall not exceed 10 CFM per square foot, at 1.5 inches water gauge static pressure. Honeywell is basis of design.
- B. Control damper actuators shall be furnished by the Control System Contractor. Two-position or proportional electric actuators shall be direct-mount type sized to provide a minimum of 5 in-lb torque per square foot of damper area. Damper actuators shall be spring return type. Operators shall be heavy-duty electronic type for positioning automatic dampers in response to a control signal. Motor shall be of sufficient size to operate damper positively and smoothly to obtain correct sequence as indicated. All applications requiring proportional operation shall utilize truly proportional electric actuators. Honeywell is basis of design.
- C. Wall Mount Room Temperature sensors: Each room temperature sensor shall provide temperature indication to the digital controller, provide the capability for a software-limited occupant set point adjustment (warmer-cooler slider bar or switch) and limited operation override capability. Room Temperature Sensors shall be 20,000-ohm thermistor type with a temperature range of -40 to 140 degrees F (-38 to 60 degrees C). The sensor shall be complete with a decorative cover and suitable for mounting over a standard electrical utility box. These devices shall have an accuracy of 0.5 degrees F (.024 degrees C) over the entire range. Honeywell is basis of design.
- D. Duct-mounted and Outside Air Temperature Sensors: 20,000-ohm thermistor temperature sensors with an accuracy of  $\pm$  0.2 degrees C. Outside air sensors shall include an integral sun shield. Duct-mounted sensors shall have an insertion measuring probe of a length appropriate for the duct size, with a temperature range of -40 to 160 degrees F (-38 to 71 degrees C) The sensor shall include a utility box and a gasket to prevent air leakage and vibration noise. For all mixed air and preheat air applications, install bendable averaging duct sensors with a minimum 8 feet (2438 mm) long sensor element. These devices shall have accuracy of 0.5 degrees F (.024 degrees C) over the entire range. Honeywell is basis of design.
- E. Temperature Control Panels: Furnish temperature control panels of code gauge steel with locking doors for mounting all devices as shown. All electrical devices within a control panel shall be factory wired. Control panel shall be assembled by the BMS in a UL-Certified 508A panel shop. A complete set of 'as-built' control drawings (relating to the controls within that panel) shall be furnished within each control panel.
- F. Pipe and Duct Temperature sensing elements: 20,000-ohm thermistor temperature sensors with and accuracy of  $\pm$ 1% accuracy. Their range shall be -5 to 250 degrees F (-20 to 121 degrees C). Limited range sensors shall be acceptable provided they are capable of sensing the range expected for the point at the specified accuracy.

## Transchill Building Remodel

Thermal wells with heat conductive gel shall be included. Honeywell is basis of design.

- G. Relays: Start/stop relay model shall provide either momentary or maintained switching action as appropriate for the motor being started. All relays shall be plugged in, interchangeable, mounted on a sub base and wired to numbered terminals strips. Relays installed in panels shall all be DPDT with indicating lamp. Relays installed outside of controlled devices shall be enclosed in a NEMA enclosure suitable for the location. Relays shall be labeled with UR symbol. RIB-style relays are acceptable for remote enable/disable.
- H. Control Power Transformers: Provide step-down transformers for all DDC controllers and devices as required. Transformers shall be sized for the load, but shall be sized for 50 watts, minimum. Transformers shall be UL listed Class 2 type, for 120 VAC/24 VAC operation. Honeywell is basis of design.
- I. Line voltage protection: All DDC system control panels that are powered by 120 VAC circuits shall be provided with surge protection. This protection is in addition to any internal protection provided by the manufacturer. The protection shall meet UL, ULC 1449, IEEE C62.41B. A grounding conductor, (minimum 12 AWG), shall be brought to each control panel.

## **2.9 BAS SERVER & WEB BROWSER GUI - SYSTEM OVERVIEW**

- A. The BAS Contractor shall provide system software based on server/thin-client architecture, designed around the open standards of web technology. The BAS server shall communicate using Ethernet and TCP. Server shall be accessed using a web browser over Owner intranet and remotely over the Internet.
- B. The intent of the thin-client architecture is to provide the operator(s) complete access to the BAS system via a web browser. The thin-client web browser Graphical User Interface (GUI) shall be browser and operating system agnostic, meaning it will support HTML5 enabled browsers without requiring proprietary operator interface and configuration programs or browser plug-ins. Microsoft, Firefox, and Chrome browsers (current released versions), and Windows as well as non-Windows operating systems.
- C. The BAS server software shall support at least the following server platforms (Windows 7, 8.1, Server 12). The BAS server software shall be developed and tested by the manufacturer of the system stand-alone controllers and network controllers/routers.
- D. The web browser GUI shall provide a completely interactive user interface and shall provide a HTML5 experience.
- E. Software Components: All software shall be the most current version. All software components of the BAS system software shall be provided and installed as part of this project.
- F. BAS Server Database: The BAS server software shall utilize a Java Database

## Transchill Building Remodel

Connectivity (JDBC) compatible database such as: MS SQL 8.0, Oracle 8i or IBM DB2. BAS systems written to Non -Standard and/or Proprietary databases are NOT acceptable.

## 2.10 WEB BROWSER GRAPHICAL USER INTERFACE

- A. Web Browser Navigation: The Thin Client web browser GUI shall provide a comprehensive user interface. Using a collection of web pages, it shall be constructed to "feel" like a single application, and provide a complete and intuitive mouse/menu driven operator interface. It shall be possible to navigate through the system using a web browser to accomplish requirements of this specification. The Web Browser GUI shall (as a minimum) provide for navigation, and for display of animated graphics, schedules, alarms/events, live graphic programs, active graphic set point controls, configuration menus for operator access, reports and reporting actions for events.
- B. Login: On launching the web browser and selecting the appropriate domain name or IP address, the operator shall be presented with a login page that will require a login name and strong password. Navigation in the system shall be dependent on the operator's role-based application control privileges.
- C. Navigation: Navigation through the GUI shall be accomplished by clicking on the appropriate level of a navigation tree (consisting of an expandable and collapsible tree control like Microsoft's Explorer program) and/or by selecting dynamic links to other system graphics. Both the navigation tree and action pane shall be displayed simultaneously, enabling the operator to select a specific system or equipment and view the corresponding graphic. The navigation tree shall as a minimum provide the following views: Geographic, Network, Groups and Configuration.
- D. Action Pane: The Action Pane shall provide several functional views for each subsystem specified. A functional view shall be accessed by clicking on the corresponding button:
- E. Color Graphics: The Web Browser GUI shall make extensive use of color in the graphic pane to communicate information related to set points and comfort. Animated .gifs or .jpg, vector scalable, active set point graphic controls shall be used to enhance usability. Graphics tools used to create Web Browser graphics shall be non-proprietary and conform to the following basic criteria:
- F. Hierarchical Schedules: Utilizing the Navigation Tree displayed in the web browser GUI, an operator (with proper access credentials) shall be able to define a Normal, Holiday or Override schedule for an individual piece of equipment or room, or choose to apply a hierarchical schedule to the entire system, site or floor area. For example, Independence Day ' Holiday' for every level in the system would be created by clicking at the top of the geographic hierarchy defined in the Navigation Tree. No further operator intervention would be required and every control module in the system with would be automatically downloaded with the ' Independence Day' Holiday. All schedules that affect the system/area/equipment highlighted in the Navigation Tree shall be shown in a summary schedule table and graph.

## Transchill Building Remodel

- G. Alarms: Alarms associated with a specific system, area, or equipment selected in the Navigation Tree, shall be displayed in the Action Pane by selecting an ' Alarms' view.
- H. Trends: As system is engineered, all points shall be enabled to trend. Trends shall both be displayed and user configurable through the Web Browser GUI. Trends shall comprise analog, digital or calculated points simultaneously. A trend log's properties shall be editable using the Navigation Tree and Graphic Pane.
- I. Security Access: Systems that Security access from the web browser GUI to BAS server shall require a Login Name and Strong Password. Access to different areas of the BAS system shall be defined in terms of Role-Based Access Control privileges.

## 2.11 GRAPHICAL PROGRAMMING

- A. The system software shall include a Graphic Programming Language (GPL) for all DDC control algorithms resident in all control modules. Any system that does not use a drag and drop method of graphical icon programming shall not be accepted. All systems shall use a GPL method used to create a sequence of operations by assembling graphic microblocks that represent each of the commands or functions necessary to complete a control sequence. Microblocks represent common logical control devices used in conventional control systems, such as relays, switches, high signal selectors etc., in addition to the more complex DDC and energy management strategies such as PID loops and optimum start. Each microblock shall be interactive and contain the programming necessary to execute the function of the device it represents.
- B. Graphic programming shall be performed while on screen and using a mouse; each microblock shall be selected from a microblock library and assembled with other microblocks necessary to complete the specified sequence. Microblocks are then interconnected on screen using graphic "wires," each forming a logical connection. Once assembled, each logical grouping of microblocks and their interconnecting wires then forms a graphic function block which may be used to control any piece of equipment with a similar point configuration and sequence of operation.
- C. Graphic Sequence: The clarity of the graphic sequence shall be such that the operator has the ability to verify that system programming meets the specifications, without having to learn or interpret a manufacturer's unique programming language. The graphic programming shall be self-documenting and provide the operator with an understandable and exact representation of each sequence of operation.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

## Transchill Building Remodel

**3.2 PREPARATION**

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

**3.3 GENERAL**

- A. Install system and materials in accordance with manufacturer's instructions, and as detailed on the project drawing set.
- B. Line and low voltage electrical connections to control equipment shown specified or shown on the control diagrams shall be furnished and installed by the Control System Contractor in accordance with these specifications.
- C. Equipment furnished by the Mechanical Contractor that is normally wired before installation shall be furnished completely wired. Control wiring normally performed in the field will be furnished and installed by the Control System Contractor.
- D. All control devices mounted on the face of control panels shall be clearly identified as to function and system served with permanently engraved phenolic labels.

**3.4 WIRING**

- A. All electrical control wiring to the control panels shall be the responsibility of the Control System Contractor.
- B. All wiring shall be in accordance with the Project Electrical Specifications (Division 16), the National Electrical Code and any applicable local codes. All control wiring shall be installed in raceways.
- C. Excess wire shall not be looped or coiled in the controller cabinet.
- D. Incorporate electrical noise suppression techniques in relay control circuits.
- E. There shall be no drilling on the controller cabinet after the controls are mounted inside.
- F. Careful stripping of wire while inside the cabinet is required to ensure that no wire strand fragments land on circuit boards.
- G. Use manufacturer-specified wire for all network connections.
- H. Use approved optical isolation and lightning protection when penetrating building envelope.
- I. Read installation instructions carefully. Any unavoidable deviations shall be approved by owner's rep prior to installation.

**3.5 ACCEPTANCE TESTING**

## Transchill Building Remodel

- A. Upon completion of the installation, the Control System Contractor shall load all system software and start-up the system. The Control System Contractor shall perform all necessary calibration, testing and de-bugging and perform all required operational checks to insure that the system is functioning in full accordance with these specifications.
- B. The Control System Contractor shall perform tests to verify proper performance of components, routines and points. Repeat tests until proper performance results. This testing shall include a point-by-point log to validate 100% of the input and output points of the DDC system operation.
- C. System Acceptance: Satisfactory completion is when the Control System Contractor has performed successfully all the required testing to show performance compliance with the requirements of the Contract Documents to the satisfaction of the Owner's Representative. System acceptance shall be contingent upon completion and review of all corrected deficiencies.

**3.6 OPERATOR TRAINING**

- A. During system commissioning and at such time acceptable performance of the Control System hardware and software has been established, the Control System Contractor shall provide on-site operator instruction to the owner's operating personnel. Operator instruction shall be done during normal working hours and shall be performed by a competent representative familiar with the system hardware, software and accessories.
- B. The Control System Contractor shall provide 48 total hours of comprehensive training in multiple sessions for system orientation, product maintenance and troubleshooting, programming and engineering. These classes are to be spread out during the 1st year warranty period. The first class starting after final commissioning and the last class is to be in the last month of 1-year warranty period.

**3.7 WARRANTY PERIOD SERVICES**

- A. Equipment, materials and workmanship incorporated into the work shall be warranted for a period of one year from the time of system acceptance.
- B. Within this period, upon notice by the Owner, any defects in the BMS due to faulty materials, methods of installation or workmanship shall be promptly repaired or replaced by the Control System Contractor at no expense to the Owner.
- C. Maintenance of Computer Software Programs: The Control System Contractor shall maintain all software during the standard first year warranty period. In addition, all factory or sub-vendor upgrades to software during the first year warranty period shall be added to the systems, when they become available, at no additional cost. In addition to first year standard warranty, software provided by Control System Contractor shall come with a 5 Year Software Maintenance license. All SNC and BAS Servers are included in this coverage. Labor to implement upgrades in years two through five are not included in standard warranty.

## Transchill Building Remodel

- D. Maintenance of Control Hardware: The Control System Contractor shall inspect, repair, replace, adjust, and calibrate, as required, the controllers, control devices and associated peripheral units during the warranty period. The Control System Contractor shall then furnish a report describing the status of the equipment, problem areas (if any) noticed during service work, and description of the corrective actions taken. The report shall clearly certify that all hardware is functioning correctly.
- E. Service Period: Calls for service by the Owner shall be honored within 24 hours and are not to be considered as part of routine maintenance.
- F. Service Documentation: A copy of the service report associated with each owner-initiated service call shall be provided to the owner.

**3.8 WARRANTY ACCESS**

- A. The Owner shall grant to the Control System Contractor reasonable access to the BMS during the warranty period. Remote access to the BMS (for the purpose of diagnostics and troubleshooting, via the Internet, during the warranty period) will be allowed.

**3.9 OPERATION & MAINTENANCE MANUALS**

- A. See Division 1 for requirements. O&M manuals shall include the following elements, as a minimum:
  - 1. As-built control drawings for all equipment.
  - 2. As-built Network Communications Diagram.
  - 3. General description and specifications for all components.
  - 4. Completed Performance Verification sheets.
  - 5. Completed Controller Checkout/Calibration Sheets.

**3.10 PROTECTION**

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

**END OF SECTION 230900**

## **V. ELECTRICAL**

See the attached addendum from the Electrical Engineer.





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## ELECTRICAL ADDENDUM – #03

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<b>To:</b>	Greg Evans	<b>From:</b>	Mason Hordubay
<b>Company:</b>	SPE Architects	<b>Phone:</b>	(801) 708-7073
<b>Address:</b>	P.O. Box 517, Kaysville, UT 84037		
<b>Date:</b>	May 1 <sup>st</sup> , 2024		
<b>Project</b>	Bridgerland ATC Remodel	<b>Project #:</b>	23-28

---

The following is a description of Electrical Addendum – 02 changes to the electrical construction documents:

### **SPECIFICATIONS:**

**PAGE 182:** Updated the system description in section 280730. 'ACCESS CONTROL SYSTEM', to note that the full access control system will be fully integrated and installed as a complete package by the access/security control contractor.

### **DRAWINGS:**

**EP101:** Updated pushbutton locations to show on the exterior bollard and updated power connection locations to the correct leaf of each door.

**EP102:** Updated pushbutton locations to show on the exterior bollard and updated power connection locations to the correct leaf of each door.

**EC101:** Added data drops in locations of all card readers that are anticipated from updated door hardware schedule. Added keynote specifying whether the card reader is integrated into the door, or separate, located nearby.

**EC102:** Added data drops in locations of all card readers that are anticipated from updated door hardware schedule. Added keynote specifying whether the card reader is integrated into the door, or separate and located nearby.

**EC501:** Updated 'TELECOM CABLE SCHEDULE' to show new data cabling for door hardware/card readers with updated cable lengths. Updated 'TELECOM CABLE SUMMARY SCHEDULE' with updated cable quantities and lengths.

**EY101:** Added note on sheet clarifying the scope of the access control contractor including the installation of data cabling needed for each door hardware set. Updated access control for the following doors:

106, 107:

Updated doors to show only 1 leaf is to have ADO equipment and the card reader mounted on the bollard.

108, 142, 145, 146, 151, 152, 156, 159:

Updated doors to show integrated card reader locksets from updated door hardware schedule.

139, 140, 141:

Updated the door and access control tags to accurately represent the intended use of each door.



**EY102:** Added note on sheet clarifying the scope of the access control contractor including the installation of data cabling needed for each door hardware set. Updated access control for the following doors:

102, 103, 104, 105:

Updated doors to show only 1 leaf is to have ADO equipment and the card reader mounted on the bollard.

120, 121, 122, 132, 133, 135:

Updated doors to show integrated card reader locksets from updated door hardware schedule.

**EY502:** Updated detail '1' to clarify that card readers are no longer provided by owner, but by contractor. Added detail '8' which depicts typical rough-in details for ADO push plate mounted on a bollard.



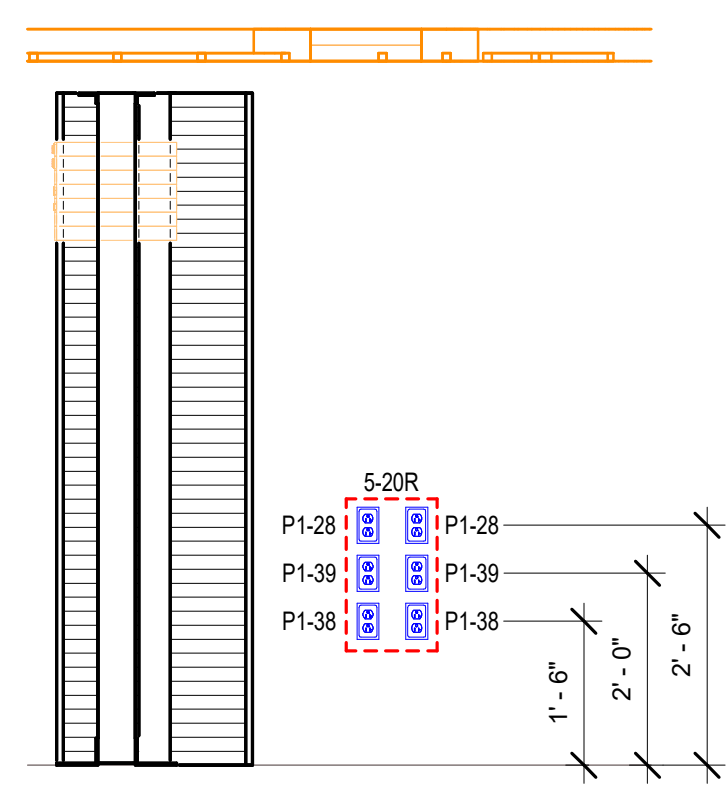
**BID ALTERNATE #1:**  
 PROVIDE LINE ITEM PRICING FOR THE FOLLOWING SCOPE OF WORK:

**CLASSROOM 130**  
 1. SAW CUT FLOOR IN OUTLINE SHOWN. FURNISH AND INSTALL FLOOR BOX WITH (1) 1" CONDUIT FOR POWER, (1) 1" CONDUIT FOR DATA, AND (1) 1-1/2" CONDUIT FOR AV. CONDUIT SHALL ROUTE FROM BACKBOX BEHIND THE TV TO FLOOR BOX. WHERE TWO OR THREE FLOOR BOXES ARE FURNISHED, PROVIDE POWER (1"), DATA (1"), AND AV (1-1/2") CONDUITS BETWEEN FLOOR BOXES. COORDINATE WITH GENERAL CONTRACTOR TO PATCH AND REPAIR DAMAGED FLOOR. REFER TO FLOOR BOX SCHEDULE FOR ADDITIONAL INFORMATION.

**CLASSROOM 142**  
 2. SAW CUT FLOOR IN OUTLINE SHOWN. FURNISH AND INSTALL FLOOR BOX WITH (1) 1" CONDUIT FOR POWER, (1) 1" CONDUIT FOR DATA, AND (1) 1-1/2" CONDUIT FOR AV. CONDUIT SHALL ROUTE FROM BACKBOX BEHIND THE TV TO FLOOR BOX. WHERE TWO OR THREE FLOOR BOXES ARE FURNISHED, PROVIDE POWER (1"), DATA (1"), AND AV (1-1/2") CONDUITS BETWEEN FLOOR BOXES. COORDINATE WITH GENERAL CONTRACTOR TO PATCH AND REPAIR DAMAGED FLOOR. REFER TO FLOOR BOX SCHEDULE FOR ADDITIONAL INFORMATION.

- POWER GENERAL NOTES:**
- ALL 120V, 20AMP OUTLETS THAT ARE WITHIN 6' OF ANY SINK SHALL BE GFCI.
  - THE DIVISION 26 CONTRACTOR SHALL DETERMINE THE EXACT ROUTING OF ALL CONDUITS IN THE FIELD. THIS PLAN REPRESENTS A SCHEMATIC REPRESENTATION OF DEVICE LOCATIONS AND CONDUIT RUNS.
- TELECOMMUNICATION GENERAL NOTES:**
- NO EXPOSED COMMUNICATIONS CONDUIT ALLOWED IN BUILDING UNLESS APPROVED IN ADVANCED BY OWNER/ARCHITECT.
  - ALL TELECOMMUNICATIONS OUTLETS SHALL BE LABELED IN ACCORDANCE WITH TIA/EIA 606-B. LABELING SHALL BE PROVIDED AT BOTH THE OUTLET AND THE TERMINATING END IN THE COMMUNICATIONS ROOM.
  - ALL DATA OUTLETS SHALL COMPLY WITH TIA/EIA 568, 1-D, AND TIA/EIA 569-D, AND BE WIRED IN ACCORDANCE WITH TIA/EIA 568-C.2
  - ALL CONDUIT FOR TELECOMMUNICATIONS PURPOSES SHALL BE EMT AND SHALL BE SIZED PER ANSI/TIA/EIA 569-D. MINIMUM CONDUIT SIZE FOR ANY TELECOMMUNICATIONS CABLE SHALL BE 1". CONDUIT SHALL NOT BE FILLED TO GREATER THAN 50% OF ITS MAXIMUM CABLE CARRYING CAPACITY.
  - THE DIVISION 27 CONTRACTOR SHALL DETERMINE THE EXACT ROUTING OF ALL CONDUITS IN THE FIELD. THIS PLAN REPRESENTS A SCHEMATIC REPRESENTATION OF DEVICE LOCATIONS, CONDUIT, AND CABLE TRAY RUNS.
  - DATA/COMMUNICATION CONDUITS TO BE RAN SUCH THAT MAXIMUM DATA CABLE LENGTH (NOT CONDUIT LENGTH) IS NOT TO EXCEED 90 METERS BETWEEN DATA OUTLET AND NEAREST DATA ROOM.
  - EXISTING DATA/COMMUNICATION CABLES IN EXISTING TO REMAIN AREAS ARE TO BE PROTECTED AND RECONNECTED TO NEW DATA RACKS. CONTRACTOR TO FIELD VERIFY AND COORDINATE WITH OWNER.
  - THERE ARE THREE DIFFERENT AND SEPERATE NETWORKS/RACKS TO BE PROVIDED:
    - BUSINESS
    - SCHOOL
    - AUXILIARY
- COORDINATE WITH OWNER PRIOR TO INSTALL TO CONFIRM CABLING AND CONNECTIONS AND DATA REQUIREMENTS.

- KEYED NOTES**
- P1 RELOCATED PANELBOARD 'A'. REROUTE ALL CONDUIT AND CABLING TO NEW LOCATION. REUSE EXISTING CONDUIT AND FEEDER. PROVIDE NEW CONDUIT AND NEC SIZED WIRING AS NEEDED TO NEW LOCATION. EXISTING BREAKER TO REMAIN.
- P6 SAW CUT FLOOR IN OUTLINE SHOWN. FURNISH AND INSTALL FLOOR BOX WITH (1) 1" CONDUIT FOR POWER, (1) 1" CONDUIT FOR DATA, AND (1) 1-1/2" CONDUIT FOR AV. CONDUIT SHALL ROUTE FROM BACKBOX BEHIND THE TV TO FLOOR BOX. WHERE TWO FLOOR BOXES ARE FURNISHED, PROVIDE POWER (1"), DATA (1"), AND AV (1-1/2") CONDUITS BETWEEN FLOOR BOXES. COORDINATE WITH GENERAL CONTRACTOR TO PATCH AND REPAIR DAMAGED FLOOR. REFER TO FLOOR BOX SCHEDULE FOR ADDITIONAL INFORMATION.
- P7 PROVIDE FOURPLEX RECEPTACLE IN AV CEILING ENCLOSURE. REFER TO AV DRAWINGS FOR EXACT LOCATION.
- P9 PROVIDE POWER FOR AUTOMATIC PROJECTOR SCREEN. REFER TO AV DRAWINGS FOR ADDITIONAL INFORMATION.
- P10 REFER TO MECHANICAL PLANS FOR EXHAUST FAN CONTROL REQUIREMENTS.
- P11 THIS AREA IS NOT WITHIN THE SCOPE OF THIS PROJECT. EXISTING POWER AND COMMUNICATION DEVICES ARE TO REMAIN AND BE REUSED.
- P14 PROVIDE 3/4" CONDUIT, WIRE AND JUNCTION BOXES FOR ADA PUSH BUTTON SYSTEM AND PUSH BUTTONS PROVIDED BY OTHERS. ELECTRICAL CONTRACTOR TO MAKE FINAL CONNECTIONS. REFER TO ARCHITECTURAL DRAWINGS FOR COORDINATION. COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.
- P15 FURNISH AND INSTALL BACK BOXES AND CONDUIT WITH PULL STRING FOR FUTURE DATA CONNECTION LOCATIONS. PROVIDE BLANK PLATE COVERS TO COVER BACK BOXES.
- P17 JUNCTION BOX FOR LOW VOLTAGE WIRING WITH POLISHED CHROME COVER PLATE LOCATED NEXT TO EACH URINAL OR TOILET VALVE. DO NOT INSTALL JUNCTION BOXES UNTIL THE EXACT LOCATIONS AND FINISHES ARE APPROVED BY THE ARCHITECT.
- P18 PROVIDE A GFCI RECEPTACLE UNDER THE COUNTER FOR AUTO SINK FAUCET. PLUMBING CONTRACTOR SHALL PROVIDE AC TRANSFORMER PLUG WITH NECESSARY LOW VOLTAGE WIRING. RECEPTACLE WILL ALSO PROVIDE POWER FOR SOAP DISPENSERS.
- P19 PROVIDE A JUNCTION BOX UNDER THE COUNTER FOR AUTO FLUSH TOILETS. PLUMBING CONTRACTOR SHALL PROVIDE TRANSFORMER WITH LOW VOLTAGE WIRING.
- P20 PROVIDE A JUNCTION BOX UNDER THE COUNTER FOR AUTO FLUSH URINALS. PLUMBING CONTRACTOR SHALL PROVIDE TRANSFORMER WITH LOW VOLTAGE WIRING.
- P21 PROVIDE A JUNCTION BOX IN THE PLUMBING CHASE FOR AUTO FLUSH TOILETS. PLUMBING CONTRACTOR SHALL PROVIDE TRANSFORMER WITH LOW VOLTAGE WIRING.
- P22 PROVIDE A JUNCTION BOX IN THE PLUMBING CHASE FOR AUTO FLUSH URINALS. PLUMBING CONTRACTOR SHALL PROVIDE TRANSFORMER WITH LOW VOLTAGE WIRING.
- P24 JUNCTION BOX FOR LOW VOLTAGE WIRING WITH COVER PLATE LOCATED IN PLUMBING CHASE, BEHIND EACH URINAL OR TOILET.



**2 DATA RACK OUTLET ELEVATIONS**  
 1/2" = 1'-0"

**1 LEVEL 1 - POWER - AREA "A"**  
 1/8" = 1'-0"

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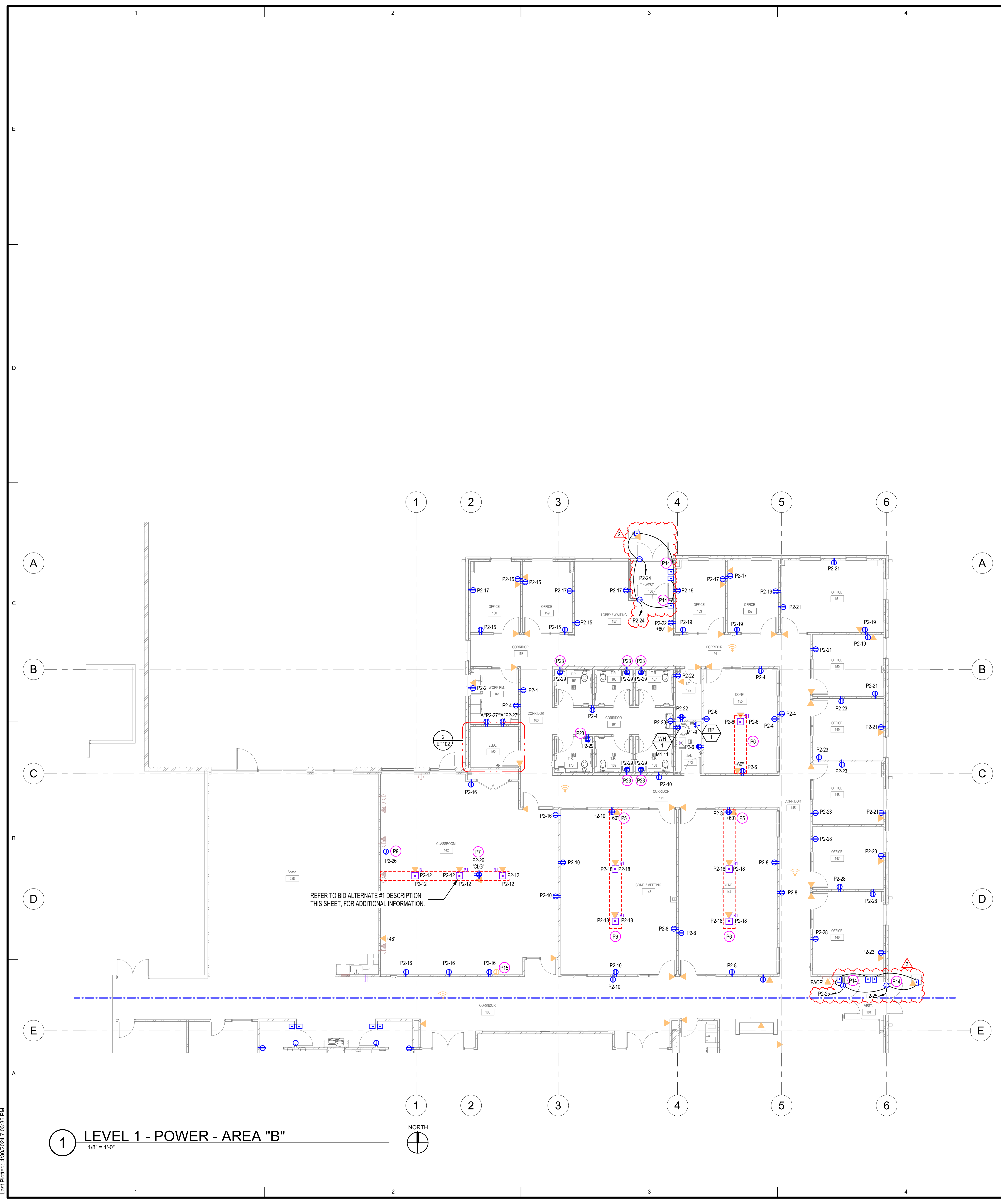
NO.	DATE	DESCRIPTION
01	02/05/24	PERMIT SET

OWNER PROJECT #: 24139210  
 SPE PROJECT #: 22-38  
 DRAWN BY: MH  
 CHECKED BY: SH  
 DESIGNED BY: MH  
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SHEET TITLE  
**LEVEL 1 - POWER  
 - AREA "A"**

SHEET NUMBER  
**EP101**

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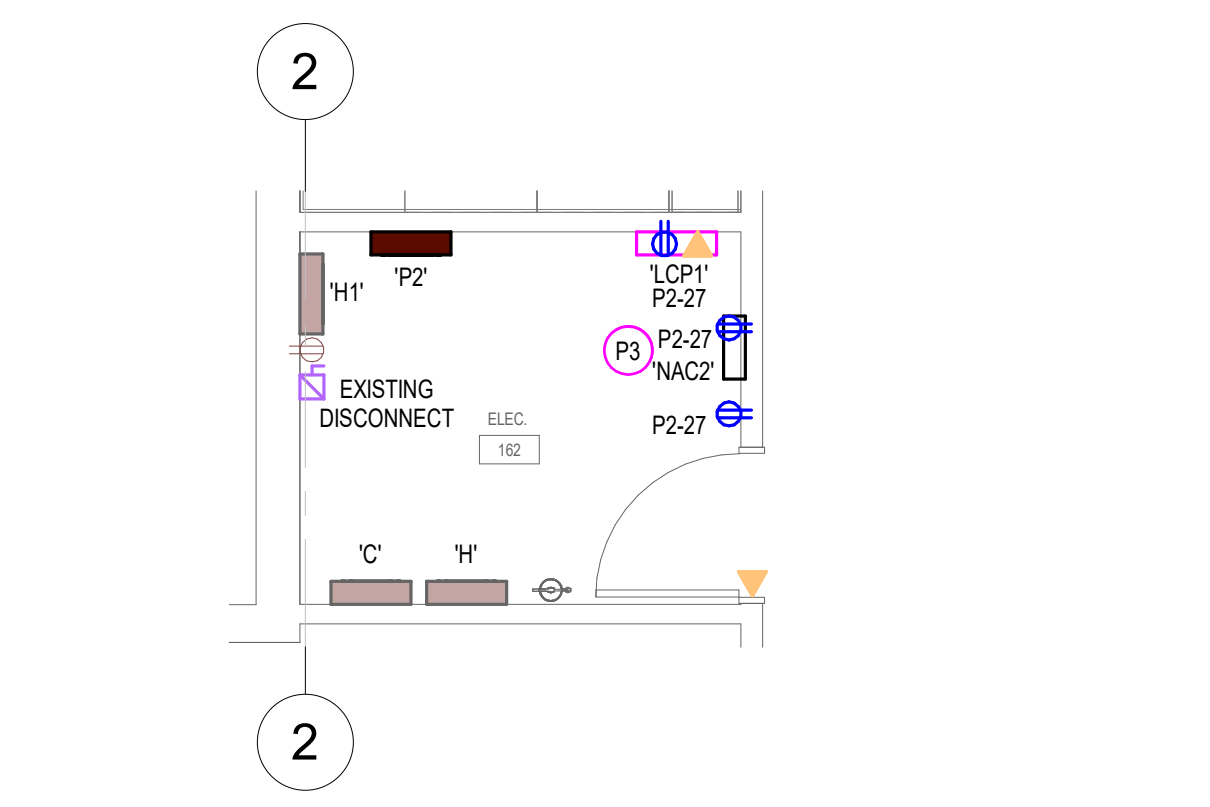


**BID ALTERNATE #1:**  
 PROVIDE LINE ITEM PRICING FOR THE FOLLOWING SCOPE OF WORK:

**CLASSROOM 130**  
 1. SAW CUT FLOOR IN OUTLINE SHOWN. FURNISH AND INSTALL FLOOR BOX WITH (1) 1" CONDUIT FOR POWER, (1) 1" CONDUIT FOR DATA, AND (1) 1-1/2" CONDUIT FOR AV. CONDUIT SHALL ROUTE FROM BACKBOX BEHIND THE TV TO FLOOR BOX. WHERE TWO OR THREE FLOOR BOXES ARE FURNISHED, PROVIDE POWER (1"), DATA (1"), AND AV (1-1/2") CONDUITS BETWEEN FLOOR BOXES. COORDINATE WITH GENERAL CONTRACTOR TO PATCH AND REPAIR DAMAGED FLOOR. REFER TO FLOOR BOX SCHEDULE FOR ADDITIONAL INFORMATION.

**CLASSROOM 142**  
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  - ALL CONDUIT FOR TELECOMMUNICATIONS PURPOSES SHALL BE EMT AND SHALL BE SIZED PER ANSI/TIA/EIA 569-D. MINIMUM CONDUIT SIZE FOR ANY TELECOMMUNICATIONS CABLE SHALL BE 1". CONDUIT SHALL NOT BE FILLED TO GREATER THAN 50% OF ITS MAXIMUM CABLE CARRYING CAPACITY.
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  - THERE ARE THREE DIFFERENT AND SEPERATE NETWORKS/RACKS TO BE PROVIDED:
    - BUISNESS
    - SCHOOL
    - AUXILIARY
- COORDINATE WITH OWNER PRIOR TO INSTALL TO CONFIRM CABLING AND CONNECTIONS AND DATA REQUIREMENTS.
- KEYED NOTES**
- P3 RELOCATED 'NAC2' PANEL.
- P5 PROVIDE 1" CONDUIT STUB FROM AV BACK BOX TO NEAREST CABLE TRAY
- P6 SAW CUT FLOOR IN OUTLINE SHOWN. FURNISH AND INSTALL FLOOR BOX WITH (1) 1" CONDUIT FOR POWER, (1) 1" CONDUIT FOR DATA, AND (1) 1-1/2" CONDUIT FOR AV. CONDUIT SHALL ROUTE FROM BACKBOX BEHIND THE TV TO FLOOR BOX. WHERE TWO FLOOR BOXES ARE FURNISHED, PROVIDE POWER (1"), DATA (1"), AND AV (1-1/2") CONDUITS BETWEEN FLOOR BOXES. COORDINATE WITH GENERAL CONTRACTOR TO PATCH AND REPAIR DAMAGED FLOOR. REFER TO FLOOR BOX SCHEDULE FOR ADDITIONAL INFORMATION.
- P7 PROVIDE FOURPLEX RECEPTACLE IN AV CEILING ENCLOSURE. REFER TO AV DRAWINGS FOR EXACT LOCATION.
- P9 PROVIDE POWER FOR AUTOMATIC PROJECTOR SCREEN. REFER TO AV DRAWINGS FOR ADDITIONAL INFORMATION.
- P14 PROVIDE 3/4" CONDUIT, WIRE AND JUNCTION BOXES FOR ADA PUSH BUTTON SYSTEM AND PUSH BUTTONS PROVIDED BY OTHERS. ELECTRICAL CONTRACTOR TO MAKE FINAL CONNECTIONS. REFER TO ARCHITECTURAL DRAWINGS FOR COORDINATION. COORDINATE EXACT PULL STRING WITH ARCHITECT PRIOR TO ROUGH-IN.
- P15 FURNISH AND INSTALL BACK BOXES AND CONDUIT WITH PULL STRING FOR FUTURE DATA CONNECTION LOCATIONS. PROVIDE BLANK PLATE COVERS TO COVER BACK BOXES.
- P23 PROVIDE A GFCI RECEPTACLE UNDER THE SINK FOR AUTO SINK FAUCET. PLUMBING CONTRACTOR SHALL PROVIDE AC TRANSFORMER PLUG WITH NECESSARY LOW VOLTAGE WIRING. RECEPTACLE WILL ALSO PROVIDE POWER FOR SOAP DISPENSERS.



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CODE OFFICIAL STAMP

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 TRANSCHILL BUILDING REMODEL**

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NO.	DATE	DESCRIPTION
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2	01/12/24	ADDENDUM #10

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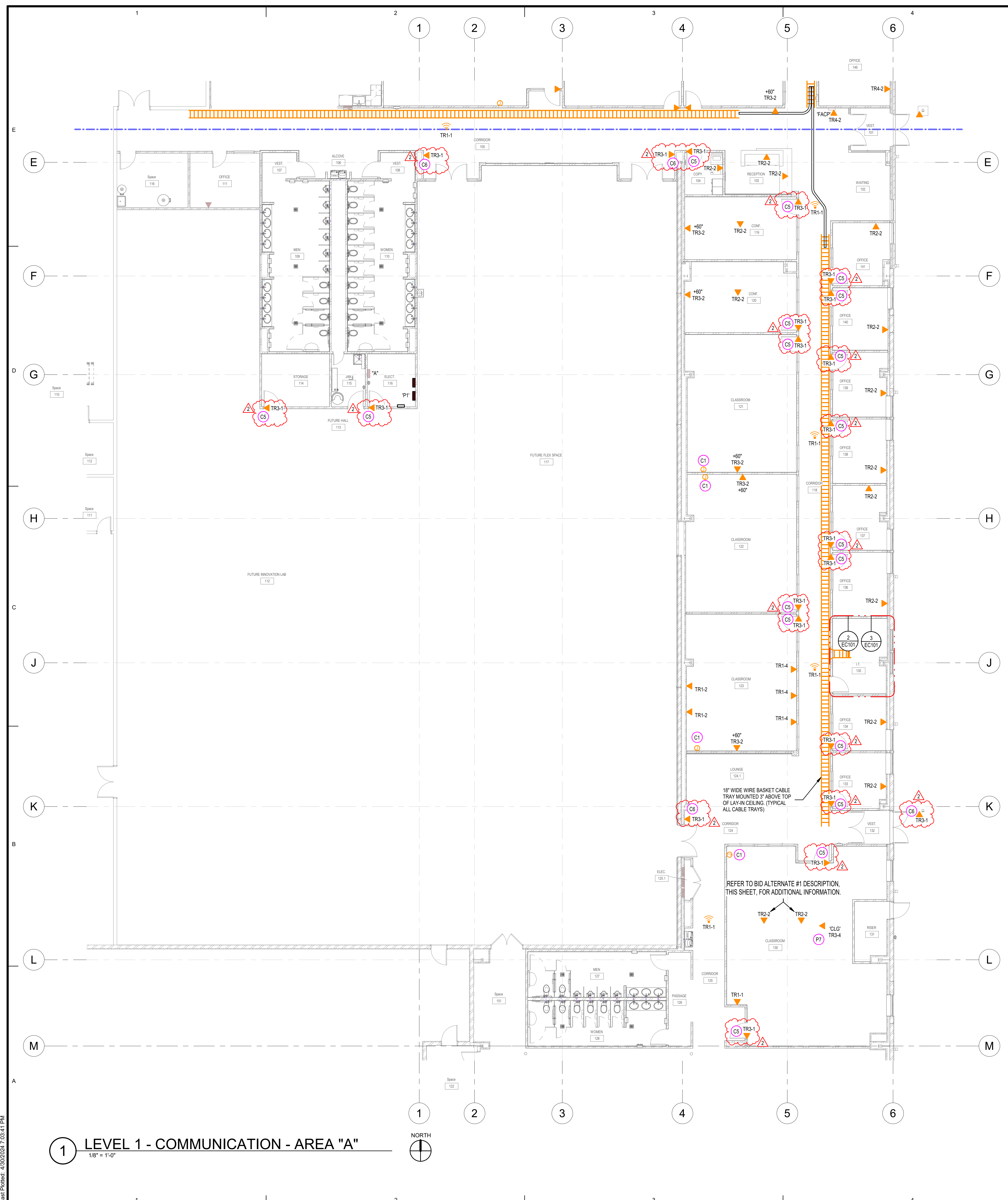
NO.	DATE	DESCRIPTION
01	02/05/24	PERMIT SET

OWNER PROJECT #: 24139210  
 SPE PROJECT #: 22-38  
 DRAWN BY: MH  
 CHECKED BY: SH  
 DESIGNED BY: MH  
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SHEET TITLE:  
**LEVEL 1 - POWER  
 - AREA "B"**

SHEET NUMBER:  
**EP102**

Last Plot: 4/30/2024 7:03:38 PM



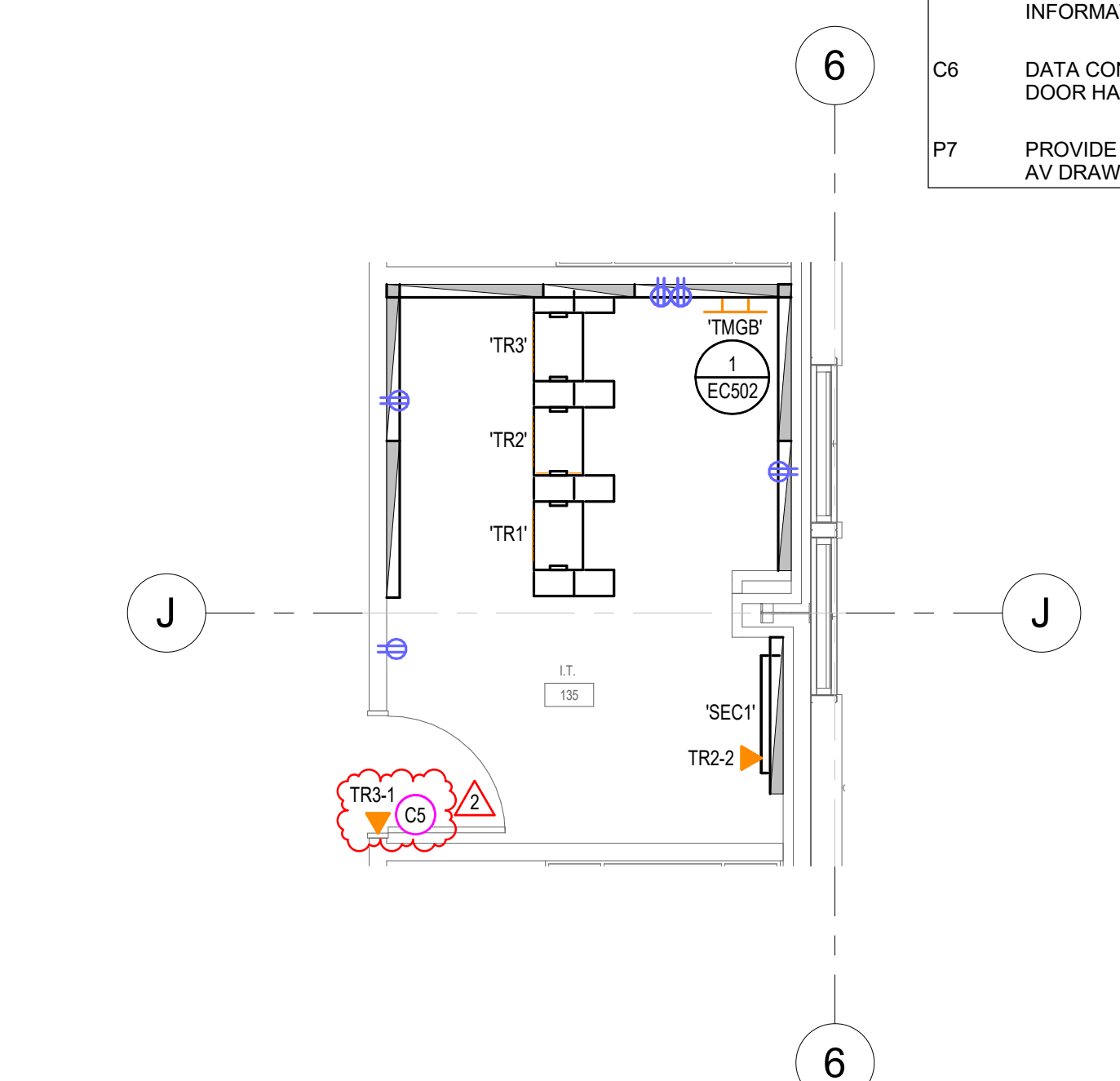
**BID ALTERNATE #1:**  
 PROVIDE LINE ITEM PRICING FOR THE FOLLOWING SCOPE OF WORK:

**CLASSROOM 130**  
 1. SAW CUT FLOOR IN OUTLINE SHOWN. FURNISH AND INSTALL FLOOR BOX WITH (1) 1" CONDUIT FOR POWER, (1) 1" CONDUIT FOR DATA, AND (1) 1-1/2" CONDUIT FOR AV. CONDUIT SHALL ROUTE FROM BACKBOX BEHIND THE TV TO FLOOR BOX. WHERE TWO OR THREE FLOOR BOXES ARE FURNISHED, PROVIDE POWER (1"), DATA (1"), AND AV (1-1/2") CONDUITS BETWEEN FLOOR BOXES. COORDINATE WITH GENERAL CONTRACTOR TO PATCH AND REPAIR DAMAGED FLOOR. REFER TO FLOOR BOX SCHEDULE FOR ADDITIONAL INFORMATION.

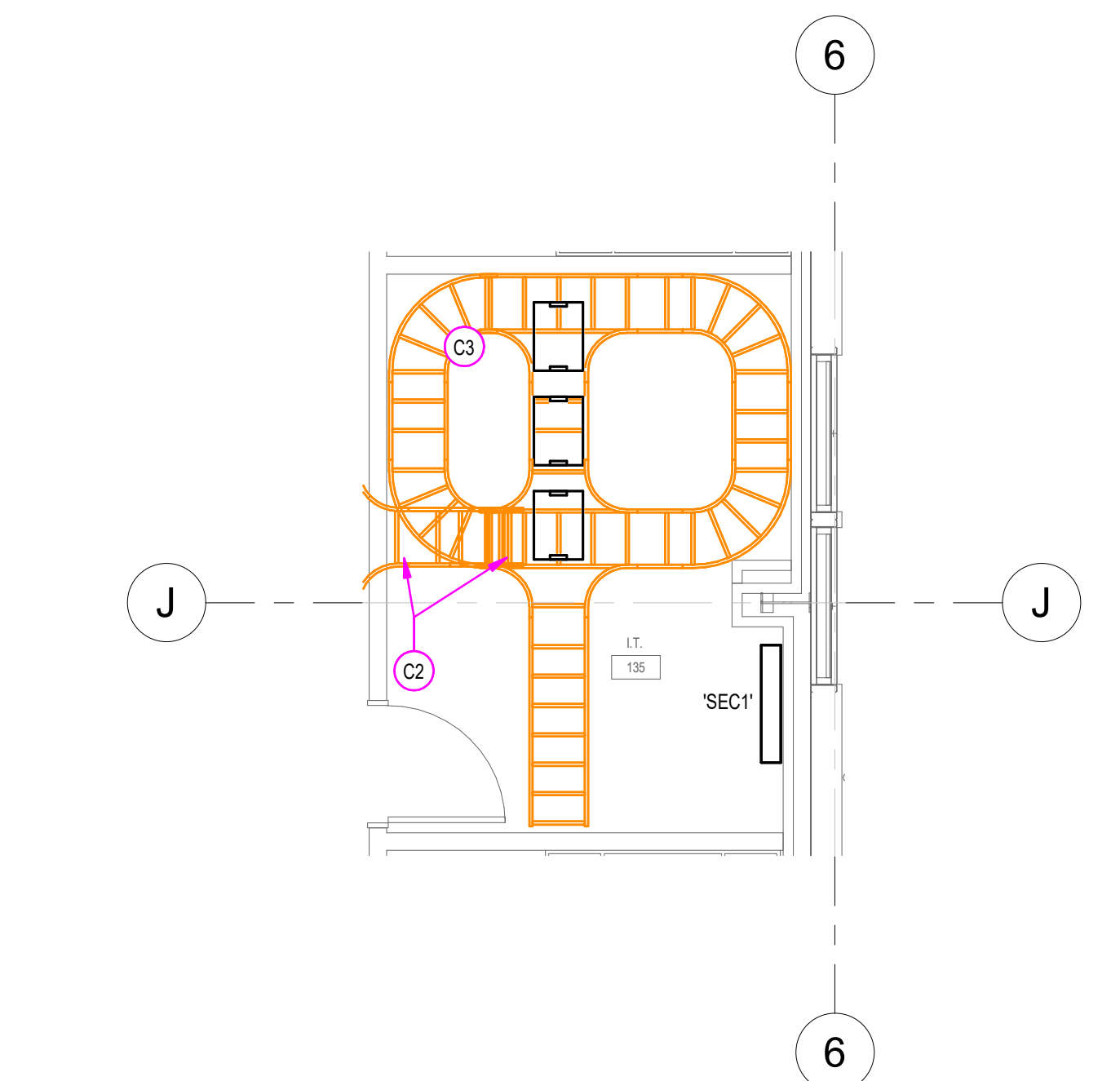
**CLASSROOM 142**  
 2. SAW CUT FLOOR IN OUTLINE SHOWN. FURNISH AND INSTALL FLOOR BOX WITH (1) 1" CONDUIT FOR POWER, (1) 1" CONDUIT FOR DATA, AND (1) 1-1/2" CONDUIT FOR AV. CONDUIT SHALL ROUTE FROM BACKBOX BEHIND THE TV TO FLOOR BOX. WHERE TWO OR THREE FLOOR BOXES ARE FURNISHED, PROVIDE POWER (1"), DATA (1"), AND AV (1-1/2") CONDUITS BETWEEN FLOOR BOXES. COORDINATE WITH GENERAL CONTRACTOR TO PATCH AND REPAIR DAMAGED FLOOR. REFER TO FLOOR BOX SCHEDULE FOR ADDITIONAL INFORMATION.

- TELECOMMUNICATION GENERAL NOTES:**
- NO EXPOSED COMMUNICATIONS CONDUIT ALLOWED IN BUILDING UNLESS APPROVED IN ADVANCED BY OWNER/ARCHITECT.
  - ALL TELECOMMUNICATIONS OUTLETS SHALL BE LABELED IN ACCORDANCE WITH TIA/EIA 606-B. LABELING SHALL BE PROVIDED AT BOTH THE OUTLET AND THE TERMINATING END IN THE COMMUNICATIONS ROOM.
  - ALL DATA OUTLETS SHALL COMPLY WITH TIA/EIA 568 1-D, AND TIA/EIA 569-D, AND BE WIRED IN ACCORDANCE WITH TIA/EIA 568-C.2.
  - ALL CONDUIT FOR TELECOMMUNICATIONS PURPOSES SHALL BE EMT AND SHALL BE SIZED PER ANS/TIA/EIA 569-D. MINIMUM CONDUIT SIZE FOR ANY TELECOMMUNICATIONS CABLE SHALL BE 1". CONDUIT SHALL NOT BE FILLED TO GREATER THAN 50% OF ITS MAXIMUM CABLE CARRYING CAPACITY.
  - THE DIVISION 27 CONTRACTOR SHALL DETERMINE THE EXACT ROUTING OF ALL CONDUITS IN THE FIELD. THIS PLAN REPRESENTS A SCHEMATIC REPRESENTATION OF DEVICE LOCATIONS, CONDUIT, AND CABLE TRAY RUNS.
  - DATA/COMMUNICATIONS CONDUITS TO BE RAN SUCH THAT MAXIMUM DATA CABLE LENGTH (NOT CONDUIT LENGTH) IS NOT TO EXCEED 90 METERS BETWEEN DATA OUTLET AND NEAREST DATA ROOM.
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  - THERE ARE THREE DIFFERENT AND SEPERATE NETWORKS/RACKS TO BE PROVIDED:
    - BUSINESS
    - SCHOOL
    - AUXILIARY
 COORDINATE WITH OWNER PRIOR TO INSTALL TO CONFIRM CABLEING AND CONNECTIONS AND DATA REQUIREMENTS.

- KEYED NOTES**
- FURNISH AND INSTALL BACK BOXES AND CONDUIT WITH PULL STRING TO CABLE TRAY FOR FUTURE DATA CONNECTION LOCATIONS. PROVIDE BLANK FACE PLATE COVERS TO COVER BACK BOXES.
  - CABLE TRAY TO WATERFALL DOWN TO CABLE RUNWAY IN ROOM AND DOWN TO DATA RACK.
  - 18" CABLE RUNWAY MOUNTED ABOVE RACKS AND ALONG WALLS AS INDICATED. PROVIDE VERTICAL RUNWAY TO CONNECT FLOOR CONDUITS TO UPPER RUNWAY SYSTEM.
  - DATA CONNECTION FOR INTEGRATED CARD READER ON DOOR. REFER TO SYSTEMS SHEETS AND DOOR HARDWARE SCHEDULE FOR MORE INFORMATION.
  - DATA CONNECTION FOR CARD READER. REFER TO SYSTEMS SHEETS AND DOOR HARDWARE SCHEDULE FOR MORE INFORMATION.
  - PROVIDE FOURPLEX RECEPTACLE IN AV CEILING ENCLOSURE. REFER TO AV DRAWINGS FOR EXACT LOCATION.

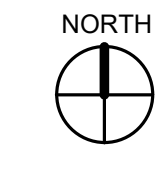


**2 ENLARGED IT ROOM 135**  
 1/4" = 1'-0"



**3 ENLARGED IT ROOM 135 - CABLE TRAY**  
 1/4" = 1'-0"

**1 LEVEL 1 - COMMUNICATION - AREA "A"**  
 1/8" = 1'-0"



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PROFESSIONAL STAMP

CODE OFFICIAL STAMP

PROJECT NAME:  
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NO.	DATE	DESCRIPTION
1	02/05/24	PERMIT SET

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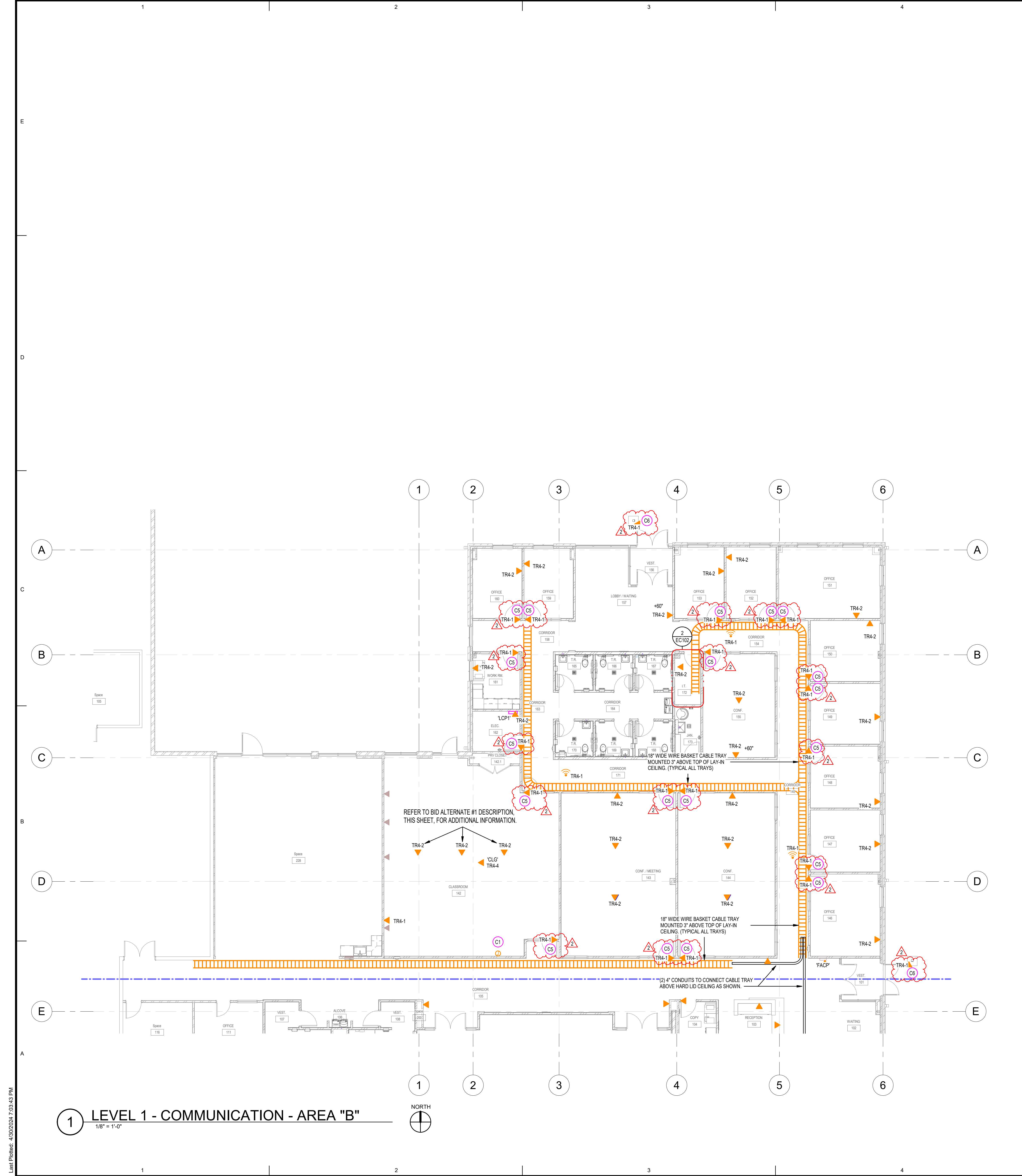
NO.	DATE	DESCRIPTION
01	02/05/24	PERMIT SET

OWNER PROJECT #: 24139210  
 SPE PROJECT #: 22-38  
 DRAWN BY: MH  
 CHECKED BY: SH  
 DESIGNED BY: MH  
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SHEET TITLE:  
**LEVEL 1 - COMMUNICATION - AREA "A"**

SHEET NUMBER:  
**EC101**

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**BID ALTERNATE #1:**  
 PROVIDE LINE ITEM PRICING FOR THE FOLLOWING SCOPE OF WORK:

**CLASSROOM 130**  
 1. SAW CUT FLOOR IN OUTLINE SHOWN. FURNISH AND INSTALL FLOOR BOX WITH (1) 1" CONDUIT FOR POWER, (1) 1" CONDUIT FOR DATA, AND (1) 1-1/2" CONDUIT FOR AV. CONDUIT SHALL ROUTE FROM BACKBOX BEHIND THE TV TO FLOOR BOX. WHERE TWO OR THREE FLOOR BOXES ARE FURNISHED, PROVIDE POWER (1"), DATA (1"), AND AV (1-1/2") CONDUITS BETWEEN FLOOR BOXES. COORDINATE WITH GENERAL CONTRACTOR TO PATCH AND REPAIR DAMAGED FLOOR. REFER TO FLOOR BOX SCHEDULE FOR ADDITIONAL INFORMATION.

**CLASSROOM 142**  
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- ALL DATA OUTLETS SHALL COMPLY WITH TIA/EIA 568 1-D, AND TIA/EIA 569-D, AND BE WIRED IN ACCORDANCE WITH TIA/EIA 568-C.2.
- ALL CONDUIT FOR TELECOMMUNICATIONS PURPOSES SHALL BE EMT AND SHALL BE SIZED PER ANS/TIA/EIA 569-D. MINIMUM CONDUIT SIZE FOR ANY TELECOMMUNICATIONS CABLE SHALL BE 1". CONDUIT SHALL NOT BE FILLED TO GREATER THAN 50% OF ITS MAXIMUM CABLE CARRYING CAPACITY.
- THE DIVISION 27 CONTRACTOR SHALL DETERMINE THE EXACT ROUTING OF ALL CONDUITS IN THE FIELD. THIS PLAN REPRESENTS A SCHEMATIC REPRESENTATION OF DEVICE LOCATIONS, CONDUIT, AND CABLE TRAY RUNS.
- DATA/COMMUNICATION CONDUITS TO BE RAN SUCH THAT MAXIMUM DATA CABLE LENGTH (NOT CONDUIT LENGTH) IS NOT TO EXCEED 90 METERS BETWEEN DATA OUTLET AND NEAREST DATA ROOM.
- EXISTING DATA/COMMUNICATION CABLEING IN EXISTING TO REMAIN AREAS ARE TO BE PROTECTED AND RECONNECTED TO NEW DATA RACKS. CONTRACTOR TO FIELD VERIFY AND COORDINATE WITH OWNER.
- THERE ARE THREE DIFFERENT AND SEPERATE NETWORKS/RACKS TO BE PROVIDED:
  - BUSINESS
  - SCHOOL
  - AUXILIARY

COORDINATE WITH OWNER PRIOR TO INSTALL TO CONFIRM CABLEING AND CONNECTIONS AND DATA REQUIREMENTS.

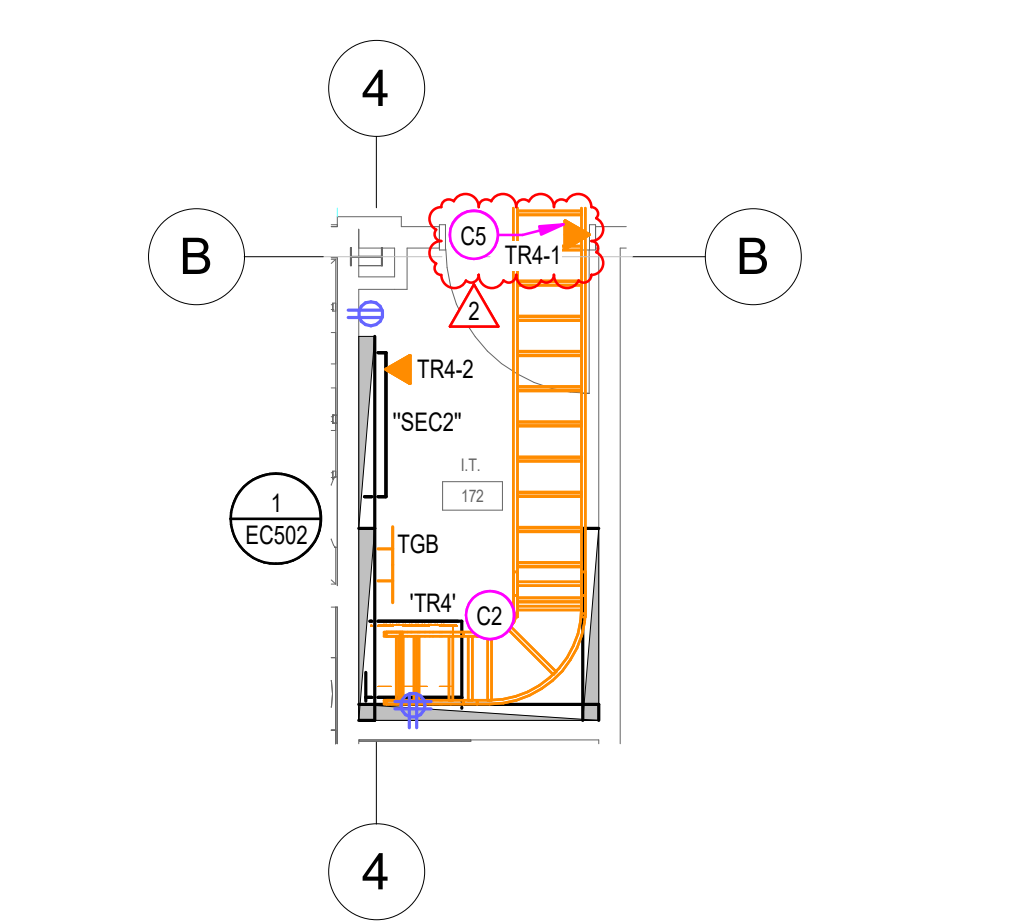
**KEYED NOTES**

C1 FURNISH AND INSTALL BACK BOXES AND CONDUIT WITH PULL STRING TO CABLE TRAY FOR FUTURE DATA CONNECTION LOCATIONS. PROVIDE BLANK FACE PLATE COVERS TO COVER BACK BOXES.

C2 CABLE TRAY TO WATERFALL DOWN TO CABLE RUNWAY IN ROOM AND DOWN TO DATA RACK.

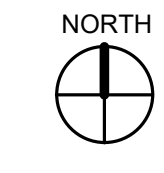
C5 DATA CONNECTION FOR INTEGRATED CARD READER ON DOOR. REFER TO SYSTEMS SHEETS AND DOOR HARDWARE SCHEDULE FOR MORE INFORMATION.

C6 DATA CONNECTION FOR CARD READER. REFER TO SYSTEMS SHEETS AND DOOR HARDWARE SCHEDULE FOR MORE INFORMATION.



**2 ENLARGED IT ROOM 172**  
 1/4" = 1'-0"

**1 LEVEL 1 - COMMUNICATION - AREA "B"**  
 1/8" = 1'-0"



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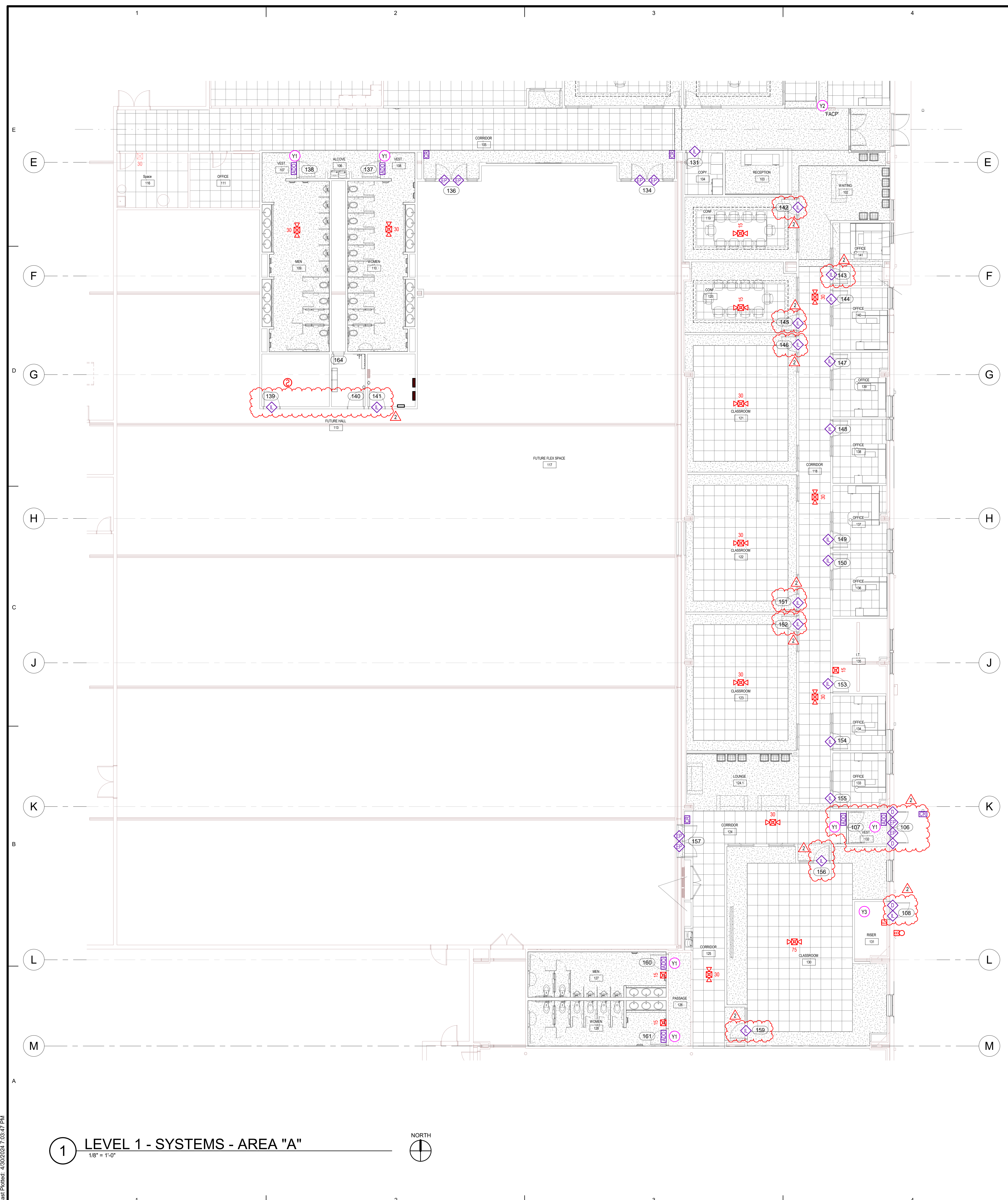
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 SPE PROJECT #: 22-38  
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SHEET TITLE:  
**LEVEL 1 - COMMUNICATION - AREA "B"**

SHEET NUMBER:  
**EC102**

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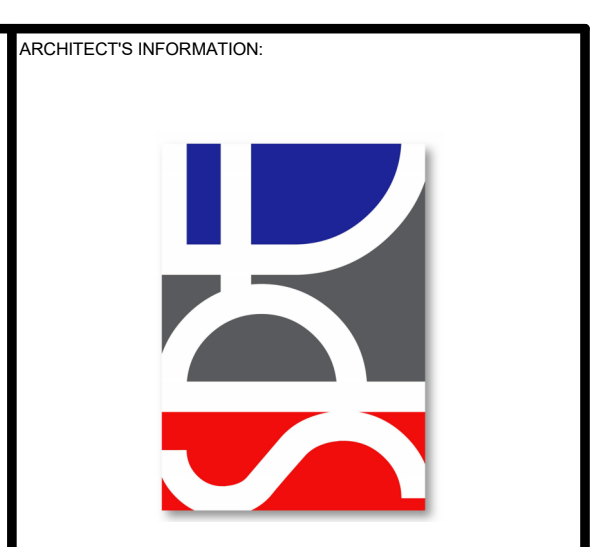




**IMPORTANT NOTE:**  
 ACCESS CONTROL/SECURITY CONTRACTOR IS RESPONSIBLE FOR THE COMPLETE INSTALLATION AND INTEGRATION OF THE ACCESS CONTROL SYSTEM INCLUDING THE FURNISHING AND INSTALLATION OF ALL DATA CABLING AND CONDUIT RELATED TO EACH DOOR HARDWARE SET. REFER TO SPECIFICATIONS FOR MORE INFORMATION.

- SYSTEMS GENERAL NOTES:**
- COORDINATE ALL WALL MOUNTED LOCATIONS WITH THE ARCHITECT.
  - DO NOT LOCATE ANY FIRE ALARM DEVICES BEHIND DOORS OR SHELVING. REFER TO THE ARCHITECTURAL DRAWINGS FOR SHELVING LOCATIONS.
  - THE DIVISION 28 CONTRACTOR SHALL DETERMINE THE EXACT ROUTING OF ALL CONDUITS IN THE FIELD. THIS PLAN REPRESENTS A SCHEMATIC REPRESENTATION OF DEVICE LOCATIONS, AND CONDUIT RUNS.
  - ALL CONDUITS THAT TERMINATE ABOVE THE CEILING SHALL TERMINATE WITH NYLON BUSHING.
  - CONTRACTOR SHALL COORDINATE ALL CEILING MOUNTED DEVICES WITH THE LIGHTING PLANS. RELOCATE DEVICES AS NECESSARY. RELOCATED DEVICES SHALL COMPLY WITH ALL NFPA SPACING REQUIREMENTS.
  - ALL FIRE ALARM DEVICE LOCATIONS, EQUIPMENT LOCATIONS, RISER DIAGRAM, ETC., ARE SCHEMATIC IN NATURE AND ARE SHOWN TO PROVIDE INTENT OF THE FIRE ALARM SYSTEM TO BE PROVIDED. FIRE ALARM SYSTEM SUPPLIER SHALL PROVIDE BID AND SHOP DRAWINGS THAT INCLUDE A FULL CODE COMPLIANT DESIGN INCLUDING ALL NOTIFICATION AND INITIATION DEVICES REQUIRED WHETHER SHOWN OR NOT.
  - FIRE ALARM, ASSOCIATED CONDUIT, WIRING AND DEVICES ARE TO REMAIN AND TO BE FULLY PROTECTED AND REMAIN FULLY OPERATIONAL DURING CONSTRUCTION PROCESS.

- KEYED NOTES**
- Y1 REFER TO POWER PLANS FOR ADA PUSH-BUTTON REQUIREMENTS.
  - Y2 EXISTING FIRE ALARM CONTROL PANEL (FACP) AND ASSOCIATED CONDUIT AND WIRING TO REMAIN AND BE REUSED. CAREFULLY PROTECT FACP AND ASSOCIATED CONDUIT AND WIRING DURING CONSTRUCTION.
  - Y3 EXISTING RISER, EXISTING WATER FLOW INDICATORS, TAMPER SWITCHES, AND MONITOR MODULES TO REMAIN AND BE REUSED.



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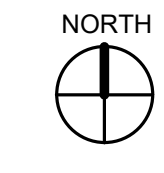
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**CEILING PLAN -  
 LEVEL 1 -  
 SYSTEMS - AREA  
 "A"**

SHEET NUMBER:  
**EY101**

**1 LEVEL 1 - SYSTEMS - AREA "A"**  
 1/8" = 1'-0"



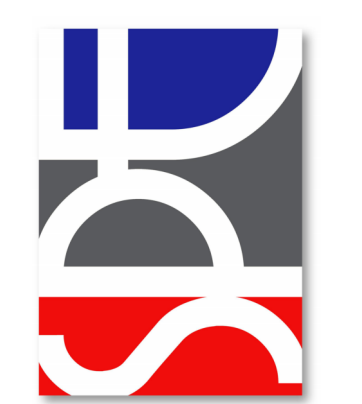
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**IMPORTANT NOTE:**  
ACCESS CONTROL/SECURITY CONTRACTOR IS RESPONSIBLE FOR THE COMPLETE INSTALLATION AND INTEGRATION OF THE ACCESS CONTROL SYSTEM INCLUDING THE FURNISHING AND INSTALLATION OF ALL DATA CABLING AND CONDUIT RELATED TO EACH DOOR HARDWARE SET. REFER TO SPECIFICATIONS FOR MORE INFORMATION.

- SYSTEMS GENERAL NOTES:**
- COORDINATE ALL WALL MOUNTED LOCATIONS WITH THE ARCHITECT.
  - DO NOT LOCATE ANY FIRE ALARM DEVICES BEHIND DOORS OR SHELVING. REFER TO THE ARCHITECTURAL DRAWINGS FOR SHELVING LOCATIONS.
  - THE DIVISION 28 CONTRACTOR SHALL DETERMINE THE EXACT ROUTING OF ALL CONDUITS IN THE FIELD. THIS PLAN REPRESENTS A SCHEMATIC REPRESENTATION OF DEVICE LOCATIONS, AND CONDUIT RUNS.
  - ALL CONDUITS THAT TERMINATE ABOVE THE CEILING SHALL TERMINATE WITH NYLON BUSHING.
  - CONTRACTOR SHALL COORDINATE ALL CEILING MOUNTED DEVICES WITH THE LIGHTING PLANS. RELOCATE DEVICES AS NECESSARY. RELOCATED DEVICES SHALL COMPLY WITH ALL NFPA SPACING REQUIREMENTS.
  - ALL FIRE ALARM DEVICE LOCATIONS, EQUIPMENT LOCATIONS, RISER DIAGRAM, ETC., ARE SCHEMATIC IN NATURE AND ARE SHOWN TO PROVIDE INTENT OF THE FIRE ALARM SYSTEM TO BE PROVIDED. FIRE ALARM SYSTEM SUPPLIER SHALL PROVIDE BID AND SHOP DRAWINGS THAT INCLUDE A FULL CODE COMPLIANT DESIGN INCLUDING ALL NOTIFICATION AND INITIATION DEVICES REQUIRED WHETHER SHOWN OR NOT.
  - FIRE ALARM, ASSOCIATED CONDUIT, WIRING AND DEVICES ARE TO REMAIN AND TO BE FULLY PROTECTED AND REMAIN FULLY OPERATIONAL DURING CONSTRUCTION PROCESS.
- KEYED NOTES** (P)
- Y1 REFER TO POWER PLANS FOR ADA PUSH-BUTTON REQUIREMENTS.
- Y2 EXISTING FIRE ALARM CONTROL PANEL (FACP) AND ASSOCIATED CONDUIT AND WIRING TO REMAIN AND BE REUSED. CAREFULLY PROTECT FACP AND ASSOCIATED CONDUIT AND WIRING DURING CONSTRUCTION.

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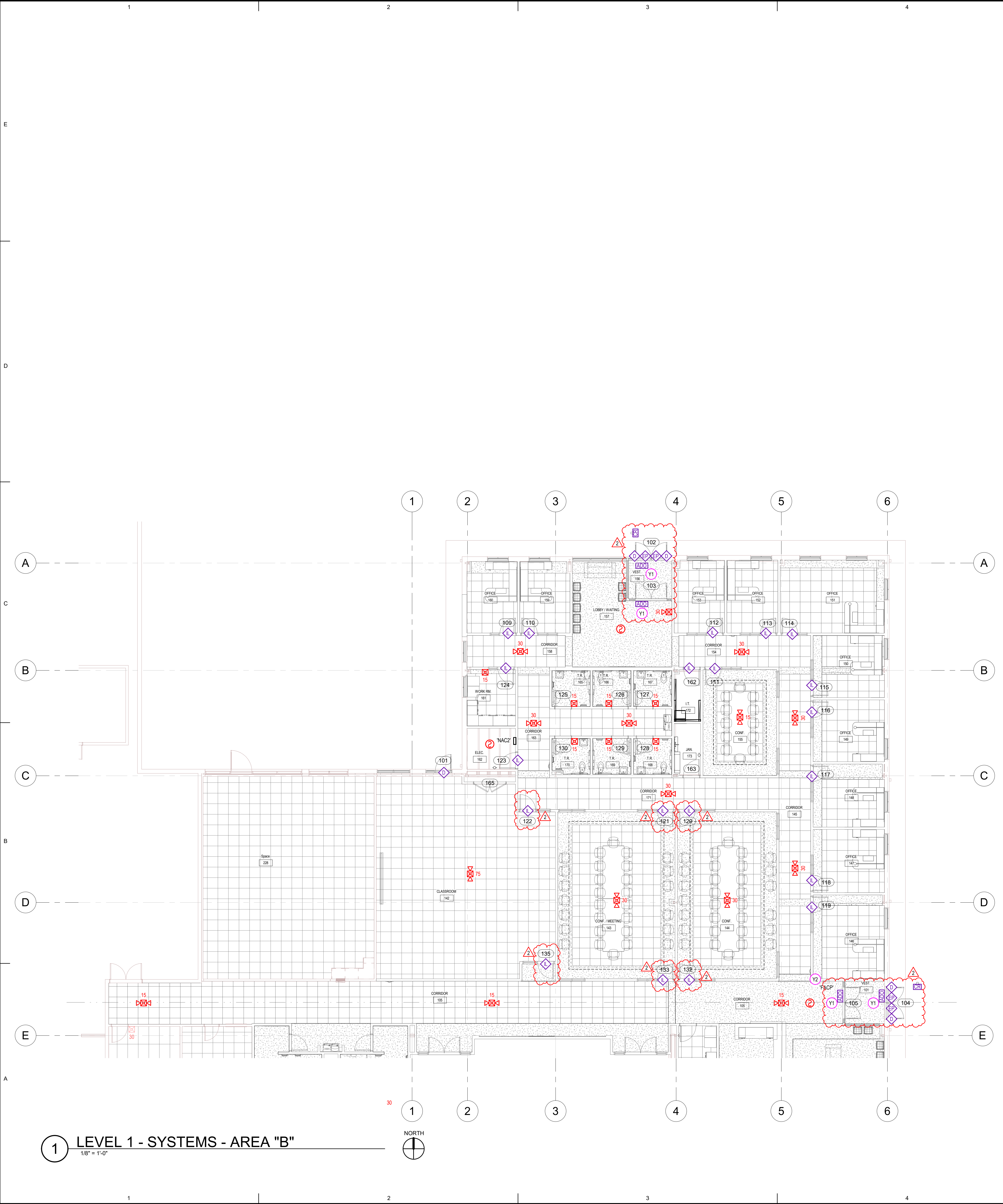
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SHEET TITLE:  
**CEILING PLAN -  
LEVEL 1 -  
SYSTEMS - AREA  
"B"**

SHEET NUMBER:  
**EY102**



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**ABBREVIATIONS:**

ADO - AUTOMATIC DOOR OPERATOR  
 AFF - ABOVE FINISHED FLOOR  
 AP - ACCESS CONTROL PANEL  
 CR - CARD READER  
 DHS - DOOR HARDWARE SUPPLIER  
 DPS - DOOR POSITION SWITCH  
 EPT - ELECTRIC POWER TRANSFER  
 ES - ELECTRIC STRIKE  
 MAG LOCK - MAGNETIC LOCK  
 RX - EXIT DEVICE  
 PB - DOOR RELEASE PUSH BUTTON (MANUAL REX)  
 RFI - REQUEST FOR INFORMATION

**ACCESS CONTROL COORDINATION REQUIREMENTS:**

**CODE REFERENCES AND REQUIREMENTS:**  
 2016 NFPA 101 - LIFE SAFETY CODE  
 • 7.2.1.5.6(5) REQUIRES THAT LOSS OF POWER WILL UNLOCK THE ELECTRICALLY CONTROLLED DOOR HARDWARE.  
 • 7.2.1.6.2(4) REQUIRES THAT ACTIVATION OF THE BUILDING FIRE ALARM SYSTEM UNLOCK ALL DOORS LOCATED IN THE PATH OF EGRESS. 2016 NFPA 80 - FIRE DOORS AND OTHER OPENING PROTECTIVES  
 2016 NFPA 60 - FIRE DOORS AND OTHER OPENING PROTECTIVES  
 • 6.1.3.4 REQUIRES THAT POWER OPERATED FIRE DOORS HAVE A RELEASING DEVICE TO AUTOMATICALLY RELEASE POWER UPON FIRE ALARM.  
 • 6.4.4.3 REQUIRES THAT FIRE RATED DOORS BE POSITIVELY LATCHED TO MAINTAIN THE FIRE RATING. ALL ELECTRIC STRIKES USED IN FIRE RATED DOORS MUST BE FAIL SECURE.  
 2012 IBC - INTERNATIONAL BUILDING CODE  
 • 1010.1.9.8 REQUIRES ELECTROMAGNETICALLY LOCKED DOORS HAVE A SENSOR RELEASE SWITCH EITHER AUTOMATIC OR BY A READILY ACCESSIBLE WALL MOUNTED PUSHBUTTON TO RELEASE THE LOCK WITHIN 5' OF THE DOOR.  
**INTEGRATION WITH FIRE ALARM**  
 ALL MAGNETIC LOCKS SHALL BE UNLOCKED DURING A GENERAL FIRE ALARM. THIS ACTION IS NOT REQUIRED IF SYSTEM IS IN ALARM BY MEANS OF A MANUAL PULL STATION. AUTOMATIC DETECTION DEVICES SUCH AS SMOKE DETECTORS OR SPRINKLER FLOW REQUIRE UNLOCKING AND THE DOOR MUST REMAIN UNLOCKED UNTIL FIRE ALARM SYSTEM RESET. CONTRACTOR SHALL INCLUDE ALL FIRE ALARM INTERFACE EQUIPMENT SUCH AS ADDRESSABLE CONTROL MODULES OR BY CONTACT CLOSURE SIGNALING TO THE ACCESS CONTROL PANELS AS NECESSARY TO MEET THE CODE REQUIREMENTS. ALL DOORS IN STAIRWELLS MUST ALLOW FOR RE-ENTRY.  
**\*\*TO ENSURE A COMPLETE AND OPERATING ACCESS CONTROL SYSTEM AND TO ELIMINATE DELAYS, INSUFFICIENT OR UNNECESSARY WORK BY ALL OF THE ENTITIES INVOLVED, THE FOLLOWING STEPS SHALL BE COMPLETED. THE FAILURE TO DO SO RESULTING IN ADDED COSTS AND LOST TIME WILL BE BORN SOLELY BY THE CONTRACTOR. NO ADDITIONAL PAYMENTS WILL BE MADE BY THE OWNER TO COVER WORK DESCRIBED BELOW.\*\***

- DURING THE BIDDING PROCESS:**
- THE ELECTRICAL CONTRACTOR SHALL REVIEW THE FLOORPLAN DRAWINGS AND DETAILS ON THIS SHEET. THE FLOORPLANS WILL INDICATE WHICH DOORS HAVE ACCESS CONTROL EQUIPMENT REQUIRING ROUGH-IN. DEVICE LOCATIONS REQUIRING JUNCTION BOXES WILL BE SHOWN ON THE FLOORPLANS, BUT ALL CONDUIT AND HARDWARE REQUIREMENTS CAN ONLY BE DETERMINED BY REFERRING TO THE SPECIFIC DOOR ROUGH-IN DETAILS AND THE ARCHITECTURAL DOOR HARDWARE SPECIFICATION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION.
  - THE ELECTRICAL CONTRACTOR SHALL REVIEW THE ARCHITECTURAL DOOR HARDWARE SCHEDULE, DOOR HARDWARE SPECIFICATIONS, AND DEFINED EGRESS PATHS. IDENTIFY ACCESS CONTROLLED DOORS LOCATED IN FIRE RATED WALLS AND IN PATHS OF EGRESS REQUIRING ADDITIONAL CONTROL DEVICES.
  - THE ELECTRICAL CONTRACTOR SHALL VERIFY WHICH DOORS USING AN ELECTRIFIED EXIT DEVICE WILL REQUIRE 120V AT THE DOOR. THIS IS MANUFACTURER SPECIFIC AND MUST BE CONFIRMED WITH THE GENERAL CONTRACTOR ACCORDING TO WHICH HARDWARE SUPPLIER BEING USED.
- POST-BID, DURING THE SUBMITTAL PROCESS:**
- DURING THE SUBMITTAL PROCESS, THE ELECTRICAL CONTRACTOR SHALL REVIEW THE APPROVED DOOR HARDWARE SUBMITTAL TO CONFIRM THE FINAL HARDWARE SETS PRIOR TO ANY ROUGH-IN. ANY QUESTIONS SHALL BE ISSUED BY FORMAL RFI.
  - MEET WITH THE ACCESS CONTROL VENDOR TO REVIEW ALL FINAL INTEGRATION AND ROUGH-IN REQUIREMENTS. ONLY AFTER CONFIRMING THE FINAL DOOR HARDWARE AND ACCESS CONTROL SYSTEM REQUIREMENTS SHALL ANY ROUGH-IN WORK BEGIN.

**GENERAL NOTES:**

- THE DOOR DETAILS SHOWN BELOW ARE GENERAL ROUGH-IN DETAILS AND NOT ALL DEVICES SHOWN MAY BE PRESENT FOR EACH DOOR. CONTRACTOR SHALL REFER TO THE DOOR HARDWARE SCHEDULE IN THE ARCHITECTS DRAWINGS AND SPECS TO DETERMINE WHAT DEVICES ARE PRESENT FOR EACH DOOR REQUIRING CARD ACCESS DOOR EQUIPMENT.
- NOT ALL DOOR STYLE DETAILS SHOWN BELOW MAY BE INCLUDED IN THE PROJECT.
- ALL CONDUIT SHALL BE CONCEALED UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS.
- THE DOOR ROUGH-IN INFORMATION SHOWN ON THESE DRAWINGS ARE SCHEMATIC IN NATURE AND CANNOT ACCOUNT FOR ALL SPECIFIC VENDOR REQUIREMENTS, OR ACTUAL DOOR HARDWARE PROVIDED. COORDINATE SPECIFIC LOCATIONS WITH SECURITY CONTRACTOR AND APPROVED DOOR HARDWARE SCHEDULES PRIOR TO ROUGH-IN. CONTRACTOR IS RESPONSIBLE FOR A COMPLETE CONDUIT RACEWAY SYSTEM AT THE DOOR AND BACK TO LOCAL ELECTRICAL ROOM.
- IF REX IS NOT INCLUDED IN DOOR HANDLE OR EXIT DEVICE, PROVIDE BOX FOR WALL MOUNTED REX DEVICE. VERIFY WITH DOOR HARDWARE PRIOR TO ROUGH-IN.
- PROVIDE CONDUIT AND DEVICE BACK BOX ROUGH-IN AT ALL CARD READER DOOR LOCATIONS. CONDUIT SHALL BE 3/4" UNLESS OTHERWISE NOTED AND ALL BOXES SHALL BE 4 SQUARE WITH A SINGLE GANG MUD RING FOR DEVICES OR JUST A SINGLE GANG BOX IF INSTALLED AT THE DOOR FRAME.
- A SINGLE FIRE ALARM CONTROL MODULE MAY BE USED TO CONTROL THE POWER TO MULTIPLE DOORS IF COORDINATED WITH THE ACCESS CONTROL SYSTEM VENDOR TO WIRE DOORS SEPARATE FROM OTHER DOORS TOGETHER ON THE SAME POWER SUPPLY LOOP.
- IF NO ACCESSIBLE CEILING SPACE IS NEAR THE CONTROLLED DOOR, ALL CONDUITS ARE TO BE RUN CONTINUOUS TO THE DOOR ACCESS CONTROL PANEL UNLESS A LOCATION IS DETERMINED TO BE ACCEPTABLE TO THE ENGINEER PRIOR TO INSTALLATION.

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SHEET TITLE:  
**ACCESS CONTROL DETAILS**

SHEET NUMBER:  
**EY502**

