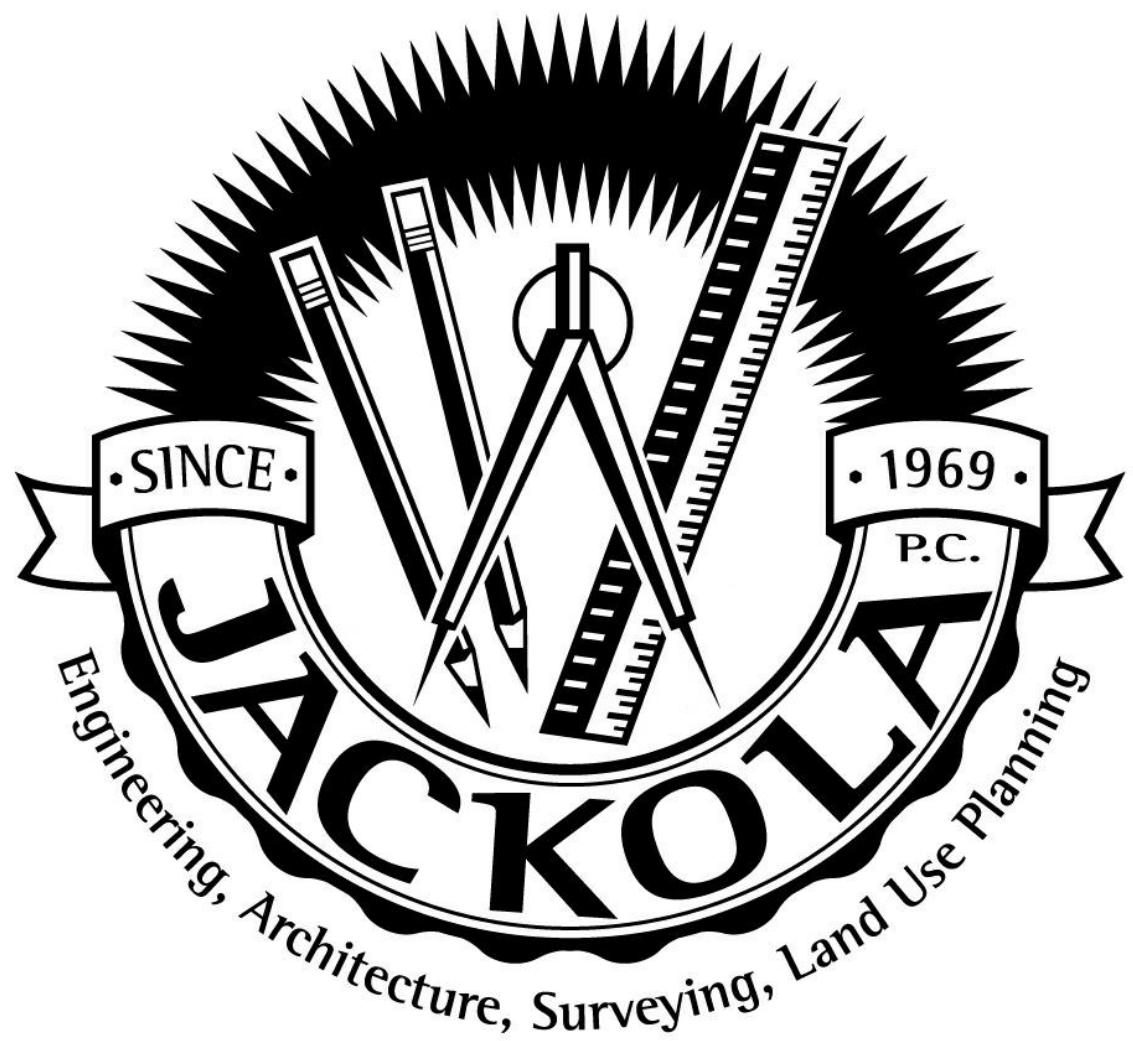


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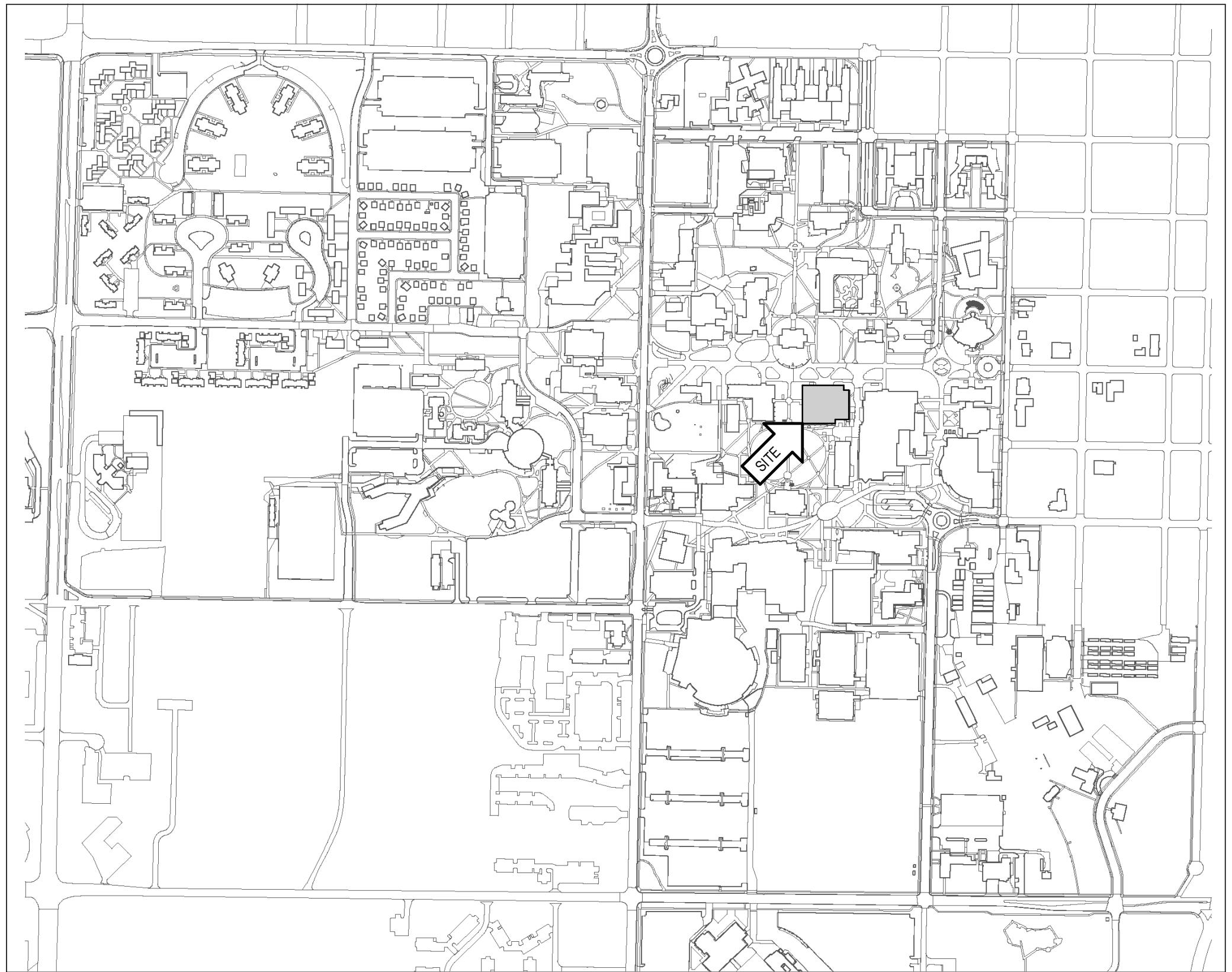
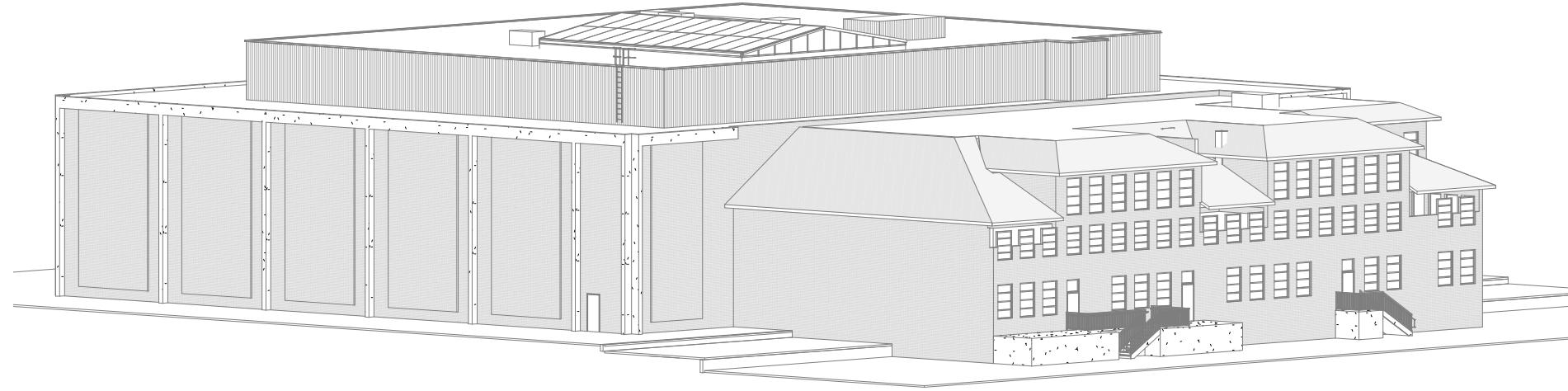
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PPA#: 25-1257

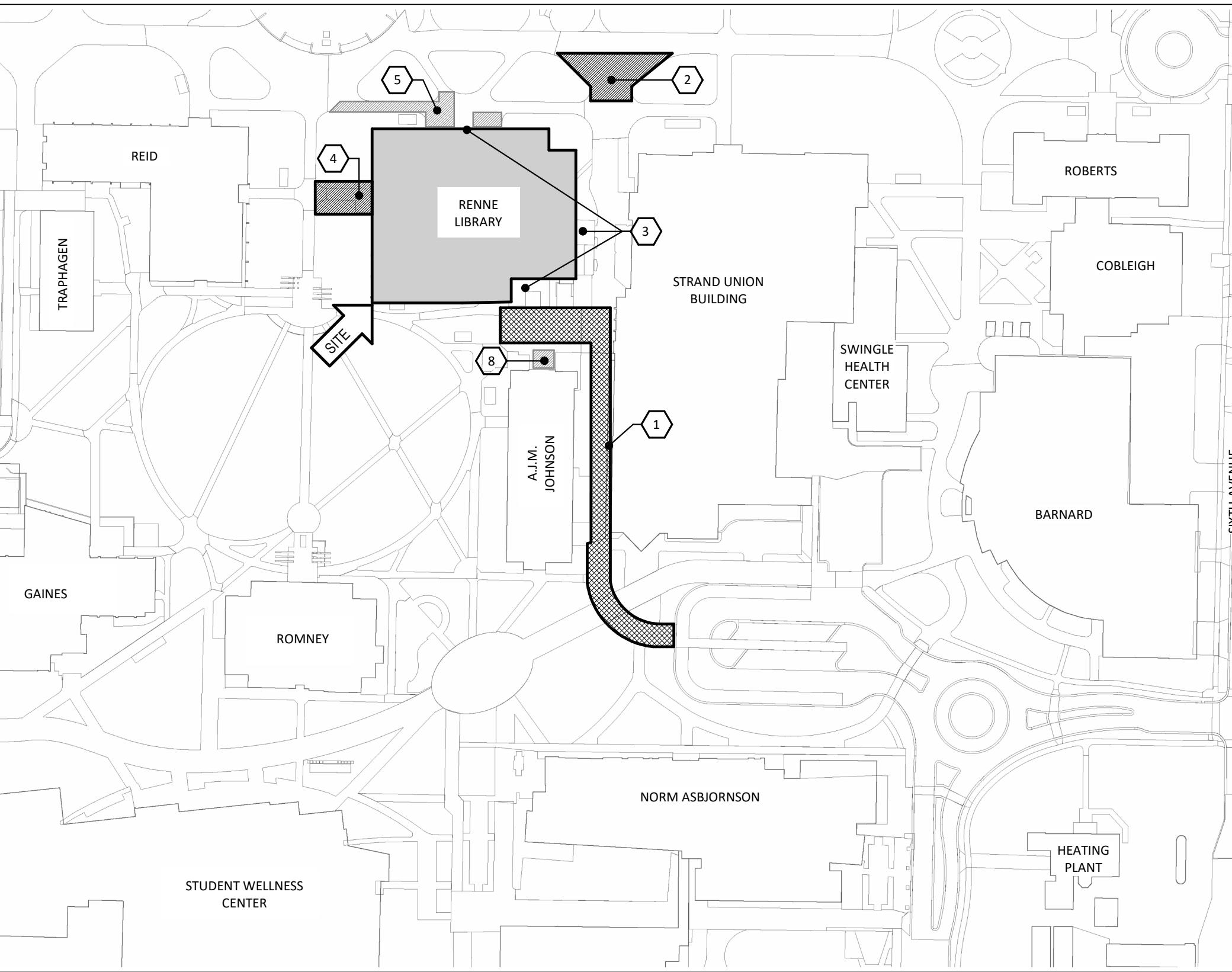


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SITE VICINITY MAP



SITE LOCATION MAP

INDEX OF DRAWINGS	
SHEET NUMBER	SHEET NAME
TITLE	PROJECT TITLE SHEET
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G-013	ACCESSIBILITY DETAILS
REMEDIATION	
REM01	SITE VICINITY MAP
REM02	ASBESTOS REMEDIATION
ARCHITECTURAL	
A-001	ARCHITECTURAL NOTES
AD112	LEVEL 2 DEMOLITION PLAN & RCP
AD211	INTERIOR ELEVATIONS DEMOLITION
A-112	LEVEL 2 FLOOR PLAN & RCP
A-113	LEVEL 2 FLOOR PLAN - ALTERNATE #1
A-132	LEVEL 2 FINISH FLOOR PLAN
A-211	INTERIOR ELEVATIONS
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EL602	LUMINAIRES & LIGHTING EQUIPMENT SCHEDULES
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T001	TECHNOLOGY INFORMATION
T101	TECHNOLOGY PLANS
T201	TECHNOLOGY EQUIPMENT ELEVATIONS
T501	TECHNOLOGY TYPICAL DETAILS
T611	TECHNOLOGY EQUIPMENT SCHEDULES
T621	TECHNOLOGY CABLEING SCHEDULES
FIRE PROTECTION	
FX001	GENERAL NOTES, DETAILS, AND LEGEND
FX101	LEVEL 2 FIRE SPRINKLER PLAN

### GENERAL CONDITIONS

- THE GENERAL CONTRACTOR IS TO GUARANTEE ALL WORK, INCLUDING WORK DONE BY SUBCONTRACTORS FOR A PERIOD OF ONE (1) YEAR COMMENCING WITH THE SUBSTANTIAL COMPLETION OF THE CONTRACT.
- ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH ALL GOVERNING CODES, ORDINANCES AND AUTHORITIES HAVING JURISDICTION. GENERAL CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND PAYING FOR ALL REQUIRED BUILDING PERMITS.
- THE GENERAL CONTRACTOR IS TO HAVE A FULL TIME QUALIFIED SUPERVISOR ON THE SITE AT ALL TIMES WHILE WORK IS BEING PERFORMED.
- ALL MATERIAL SPECIFIED IS TO BE NEW & INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND SPECIFICATIONS. GENERAL CONTRACTOR IS TO CONSTRUCT THE PROJECT IN ACCORDANCE WITH THE DOCUMENTS, WITHOUT ARCHITECT OR ENGINEER'S APPROVAL, ARE AT THE CONTRACTOR'S OWN RISK AND MAY RESULT IN THE WORK BEING DONE OVER AT CONTRACTOR'S EXPENSE (MATERIALS AND LABOR).
- THE GENERAL CONTRACTOR SHALL RETAIN AND CONTRACT DIRECTLY WITH A QUALIFIED ABATEMENT CONTRACTOR (AC) TO PERFORM ALL REQUIRED HAZARDOUS MATERIAL ABATEMENT WORK ASSOCIATED WITH THE PROJECT.
- THE GENERAL CONTRACTOR SHALL ALSO RETAIN AND CONTRACT DIRECTLY WITH A CERTIFIED PROFESSIONAL INDUSTRIAL HYGIENIST (PIH) TO PROVIDE ENVIRONMENTAL TESTING, AIR MONITORING, INSPECTIONS, AND DOCUMENTATION AS REQUIRED BY THE AH.

### GENERAL NOTES

- CONTRACTOR TO REVIEW AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS PRIOR TO COMMENCING WORK. ANY CONDITIONS NOT INDICATED ON CONTRACT DOCUMENTS ARE TO BE REPORTED TO THE ARCHITECT PRIOR TO BEGINNING WORK. NO SCALE DRAWINGS. VERIFY ALL DIMENSIONS IN FIELD. ALL BUILDING COMPONENTS ARE EXISTING TO REMAIN, UNLESS NOTED OTHERWISE. CONTACT ARCHITECT FOR FURTHER CLARIFICATION.
- CONTRACTOR TO CONTACT LOCAL UTILITIES, IF NECESSARY, SUBMIT ALL APPLICABLE PERMIT DOCUMENTS, QUALIFICATIONS, ETC., AND BE RESPONSIBLE FOR ALL FEES ASSOCIATED WITH PERMITS, UTILITY EXTENSIONS, TAP-INS, ETC.
- PROTECT IRRIGATION IN PLACE. CALL FOR LOCATION OF SPRINKLER HEADS IN ADVANCE OF WORK BEGINNING OR EQUIPMENT ARRIVAL. REPAIR DAMAGED LANDSCAPING AND IRIGATION SYSTEMS IN CONDITION EXISTING PRIOR TO THE START OF CONSTRUCTION.
- THE CONTRACTOR SHALL REMOVE ALL DEBRIS AS A RESULT OF THIS PROJECT. THE CONTRACTOR WILL REMOVE EXISTING EQUIPMENT, FIXTURES, ETC. IN THE SPACE PRIOR TO CONSTRUCTION AND RELOCATE PER OWNER.
- THE CONTRACTOR SHALL SCHEDULE HIS WORK AND MATERIAL AND EQUIPMENT DELIVERIES SO AS NOT TO INTERFERE WITH THE DAILY OPERATIONS OF THE REMAINDER OF THE FACILITY.
- THE CONTRACTOR SHALL PROTECT EXISTING FACILITIES, EQUIPMENT, FIXTURES, EXISTING SITE IMPROVEMENTS, SITE FURNISHINGS, SIGNAGE, PERMANENT SITE FEATURES, ETC. FROM DAMAGE DURING THE COURSE OF CONSTRUCTION. OWNER WILL PHOTOGRAPH AT PRECONSTRUCTION MEETING WALK-THROUGH PRIOR TO COMMENCEMENT OF WORK.
- REPAIRING OR REPLACING DAMAGED ITEMS IS CONTRACTOR'S RESPONSIBILITY. RESTORE DAMAGED COMPONENTS TO CONDITION EXISTING PRIOR TO THE START OF CONSTRUCTION.
- THE CONTRACTOR SHALL KEEP DESIGNATED BUILDING ENTRANCES, ALL STAIRWELLS, AND ELEVATORS CLEAR OF CONSTRUCTION MATERIAL, TOOLS, AND EQUIPMENT AT ALL TIMES. ALL SURFACES AND/OR FINISHES DAMAGED AS A RESULT OF AND ADJACENT TO THE WORK SHALL BE REPAIRED AND FINISHED TO THEIR ORIGINAL CONDITION.
- ACH SUBCONTRACTOR IS RESPONSIBLE TO COORDINATE AND SCHEDULE HIS WORK WITH THE GENERAL CONTRACTOR AND ALL OTHER SUBCONTRACTORS WHOSE WORK WILL BE AFFECTED.
- USE DETAILS MARKED 'TYPICAL' (TYP) WHEREVER APPLICABLE.
- ALL ITEMS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS SHALL BE PERFORMED IN A WORKMANLIKE MANNER BY PERSONS SKILLED IN THEIR RESPECTIVE TRADE AND WHO NORMALLY PARTICIPATE IN THE WORK OF THAT TRADE. CONTRACTOR SHALL NOT ALLOW ANYONE WHO IS NOT A MEMBER OF THE TRADE TO WORK ON THE PROJECT. CONTRACTOR TRADES TO ENSURE SMOOTH, UNINTERRUPTED CONSTRUCTION.
- CONTRACTOR SHALL SUBMIT FULL-SIZE SAMPLES OF ALL FINISH MATERIALS AND COLORS FOR APPROVAL BY THE OWNER'S REPRESENTATIVE. THE DRAWINGS MAY CALL OUT COLORS AND MATERIALS, BUT APPROVAL PRIOR TO PURCHASE IS REQUIRED.
- CONTRACTOR TO ACCESS SITE BY STREETS SHOWN. ACCESS MUST BE COORDINATED WITH MSU.
- CONTRACTOR SHALL OBTAIN APPROVAL OF ALL CONSTRUCTION STAGING SETUP FROM MSU PRIOR TO BEGINNING CONSTRUCTION. THE STAGING PLAN CAN BE PRESENTED AS A DRAWING AND NARRATIVE AT THE PRECONSTRUCTION MEETING AND UPDATED AT REGULAR A.O.C. MEETING.
- ALL CONTRACTOR VEHICLES PARKED ON CAMPUS, INCLUDING VEHICLES OWNED BY EMPLOYEES OF THE CONTRACTOR, SHALL BE PARKED IN DESIGNATED PARKING AREAS ONLY. ALL VEHICLES PARKED IN DESIGNATED PARKING AREAS MUST HAVE A VALID MSU PERMIT. VIOLATORS OF MSU VEHICLE REGULATIONS MAY BE TICKETED AND/OR TOWED.

### PROJECT INFORMATION:

#### OWNER / DEVELOPER

#### BUILDING DEPARTMENT

#### DESIGN PROFESSIONALS

STATE OF MONTANA - MONTANA STATE UNIVERSITY  
UNIVERSITY FACILITIES MANAGEMENT,  
MANAGED BY: PLANNING, DESIGN & CONSTRUCTION  
PO BOX 172706  
BOZEMAN, MT 59717-2760  
ATTN: ELIZABETH Pritchard  
EMAIL: ELIZABETH.Pritchard@montana.edu  
TEL: (406) 994-7089

MONTANA DEPARTMENT OF LABOR & INDUSTRY  
2250 HWY 93 SOUTH  
PO BOX 1134  
KALISPELL, MT 59903  
EMAIL: BUILDINGCODES@MT.GOV  
TEL: (406) 551-3669

ARCHITECT: CHELSEA HOLLING, AIA  
FIRE SUPPRESSION:  
COFFMAN ENGINEERS, INC.  
751 OSTERMAN DR, STE 104  
BOZEMAN, MT 59715  
EMAIL: JASON.ANDERSON@COFFMAN.COM  
TEL: (406) 582-1936

#### SITE LOCATION MAP LEGEND

- PRIMARY ACCESS ROUTE
- CONSTRUCTION STAGING AREA
- PROJECT LOCATION

- KEEP THE EAST, SOUTH, AND NORTH BUILDING ENTRY/EXIT OPEN. WEST BUILDING ENTRY/EXIT WILL BE FOR CONTRACTOR BUILDING ACCESS ONLY. IN CASE OF AN EMERGENCY, THE EAST, SOUTH, AND NORTH ENTRY/EXIT WILL NEED TO REMAIN FREE OF CONSTRUCTION DEBRIS AT ALL TIMES.
- CONSTRUCTION ZONE AND CONTRACTOR BUILDING ACCESS.
- STAGING AREA AND CONSTRUCTION ZONE FOR THE RENNE LIBRARY NORTHSIDE WINDOW UPDATES PROJECT.

DRAWN: RH, MC CHECKED: CH, KE

DATE: 01/30/2026

REVISIONS:

### PROJECT TITLE SHEET

G-001



KALISPELL | BOZEMAN | VANCOUVER  
406-755-3208 | 406-586-0707 | 360-852-8746  
info@jackola.com | jackola.com

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## INNOVATION LEARNING STUDIO MONTANA STATE UNIVERSITY

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PPA#: 25-1257

### BUILDING REQUIREMENTS FROM INTERNATIONAL EXISTING BUILDING CODE (IEBC) 2021

#### LEVEL 2 (INNOVATION LEARNING STUDIO):

**CHAPTER 6 - CLASSIFICATION OF WORK**  
SECTION 602 ALTERATION - LEVEL 1: LEVEL 1 ALTERATIONS INCLUDE THE REMOVAL AND REPLACEMENT OR THE COVERING OF EXISTING MATERIALS, ELEMENTS, EQUIPMENT OR FIXTURES USING NEW MATERIALS, ELEMENTS, EQUIPMENT OR FIXTURES THAT SERVE THE SAME PURPOSE. LEVEL 2 ALTERATIONS SHALL COMPLY WITH THE PROVISIONS OF CHAPTER 7 FOR LEVEL 1 ALTERATIONS.

**CHAPTER 5 - PRESCRIPTIVE COMPLIANCE METHOD**  
SECTION 503 ALTERATIONS, EXCEPT AS PROVIDED BY SECTION 202.4, 202.5 OR THIS SECTION, ALTERATIONS TO ANY BUILDING OR STRUCTURE SHALL COMPLY WITH THE REQUIREMENTS OF THE IBC FOR NEW CONSTRUCTION. ALTERATIONS SHALL BE SUCH THAT THE EXISTING BUILDING OR STRUCTURE IS NOT LESS COMPLYING WITH THE PROVISIONS OF THE IBC THAN THE EXISTING BUILDING OR STRUCTURE WAS PRIOR TO THE ALTERATION.

**SECTION 603 ALTERATION - LEVEL 2:** ALTERATIONS INCLUDE THE ADDITION OR ELIMINATION OF ANY DOOR OR WINDOW, THE RECONFIGURATION OR EXTENSION OF ANY SYSTEM, OR THE INSTALLATION OF ANY ADDITIONAL EQUIPMENT, AND SHALL APPLY WHERE THE WORK AREA IS EQUAL TO OR LESS THAN 50 PERCENT OF THE BUILDING AREA. LEVEL 2 ALTERATIONS SHALL COMPLY WITH THE PROVISIONS OF CHAPTER 7 FOR LEVEL 1 ALTERATIONS AS WELL AS THE PROVISIONS OF CHAPTER 8.

**CHAPTER 8 - ALTERATIONS LEVEL 2 COMPLIANCE METHOD**  
SECTION 801: NEW CONSTRUCTION ELEMENTS, COMPONENTS, SYSTEMS, AND SPACES SHALL COMPLY WITH THE REQUIREMENTS OF THE IBC.

EXCEPTIONS:

1. WHERE WINDOWS ARE ADDED THEY ARE NOT REQUIRED TO COMPLY WITH THE LIGHT AND VENTILATION REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE.
2. NEWLY INSTALLED ELECTRICAL EQUIPMENT SHALL COMPLY WITH THE REQUIREMENTS OF SECTION 806.
3. THE LENGTH OF DEAD-END CORRIDORS IN NEWLY CONSTRUCTED SPACES SHALL ONLY BE REQUIRED TO COMPLY WITH THE PROVISIONS OF SECTION 804.7.
4. THE MINIMUM CEILING HEIGHT OF THE NEWLY CREATED HABITABLE AND OCCUPYABLE SPACES AND CORRIDORS SHALL BE 7 FEET (2134 MM).
5. NEW STRUCTURAL MEMBERS AND CONNECTIONS SHALL BE PERMITTED TO COMPLY WITH ALTERNATIVE DESIGN CRITERIA IN ACCORDANCE WITH SECTION 302.

### BUILDING REQUIREMENTS FROM INTERNATIONAL BUILDING CODE (IBC) 2021

#### LEVEL 2 (INNOVATION LEARNING STUDIO):

USE AND OCCUPANCY CLASSIFICATION (CHAPTER 3)  
ASSEMBLY: B

**CHAPTER 10 - MEANS OF EGRESS**  
SECTION 1004 OCCUPANT LOAD:  
TABLE 1004.5 MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT: EDUCATIONAL CLASSROOM OCC. TYPE FLOOR AREA BY OCCUPANT TYPE - 20 NET SF: 1,173 SF/20 = 58 OCC. PROVIDED OCCUPANT LOAD: 57 OCCUPANTS

COMMON PATH OF EGRESS TRAVEL (CPET):  
EAST EXIT: 135' 7"  
WEST EXIT: 74' 1"

**SECTION 1005.3.2 OTHER EGRESS COMPONENTS:** THE CAPACITY, IN INCHES, OF MEANS OF EGRESS COMPONENTS OTHER THAN STAIRWAYS SHALL BE CALCULATED BY MULTIPLYING THE OCCUPANT LOAD SERVED BY SUCH COMPONENT BY A MEANS OF EGRESS CAPACITY FACTOR OF 0.2 INCH (5.1 MM) PER OCCUPANT.

0.2" PER OCCUPANT. LEVEL 2 OCCUPANT COUNT = 360  
0.2-INCH \* 360 OCC = 72" CORRIDOR WIDTH, MINIMUM

**SECTION 1006 NUMBER OF EXITS:**  
TWO EXITS FROM ANY SPACE SHALL BE PROVIDED WHERE THE DESIGN OCCUPANT LOAD EXCEEDS THE VALUES LISTED IN TABLE 1006.2.1

2 EXIT REQUIRED, 2 EXITS PROVIDED

**SECTION 1010.1.1 SIZE OF DOORS:** THE REQUIRED CAPACITY OF EACH DOOR OPENING SHALL BE SUFFICIENT FOR THE OCCUPANT LOAD AND SHALL PROVIDE A MINIMUM CLEAR OPENING WIDTH OF 32-INCHES.

**SECTION 1010.1.2 DIRECTION OF SWING:** SIDE-HINGED SWINGING DOORS, PIVOTED DOORS, AND BALANCED DOORS SHALL SWING IN THE DIRECTION OF EGRESS TRAVEL WHERE SERVING A ROOM OR AREA CONTAINING AN OCCUPANT LOAD OF 50 OR MORE.

**CHAPTER 12 - INTERIOR ENVIRONMENT**

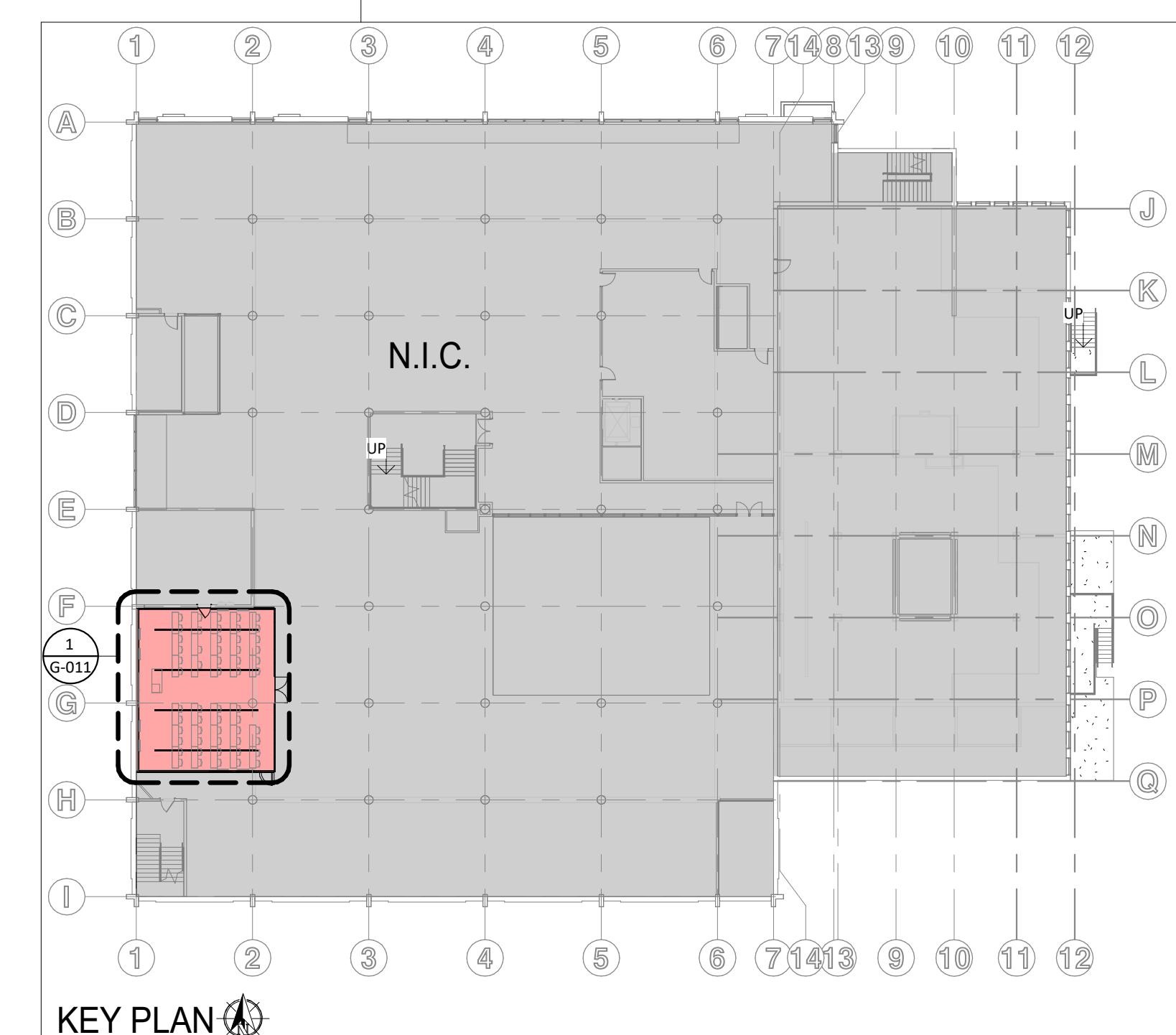
SECTION 1207.2 INTERIOR SPACE DIMENSIONS: OCCUPYABLE SPACES, HABITABLE SPACES AND CORRIDORS SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7 FEET 6 INCHES ABOVE THE FINISHED FLOOR.

NOTE: PLUMBING FIXTURE COUNT HAS NOT CHANGED.

NO CHANGE IS BEING MADE TO OCCUPANCY SIZE OR TYPE.

NO CHANGE TO EXIT DISTANCE OR PATH.

(P) LOCATION OF EXISTING ELECTRICAL PANEL. (TBC)



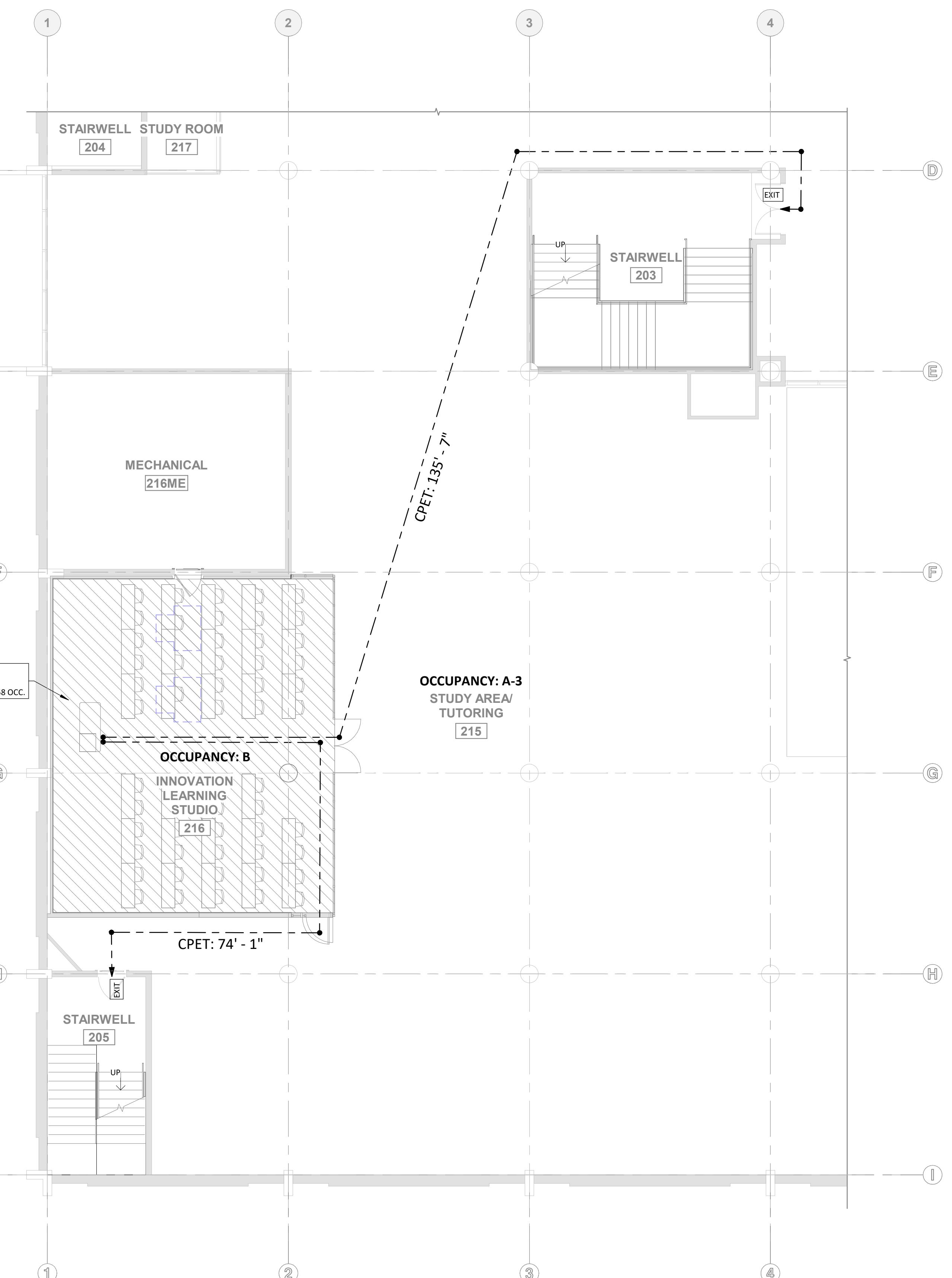
KEY PLAN

DRAWN: RH, MC CHECKED: CH, KE  
DATE: 01/30/2026

REVISIONS:

#### CODE REVIEW

**G-011**

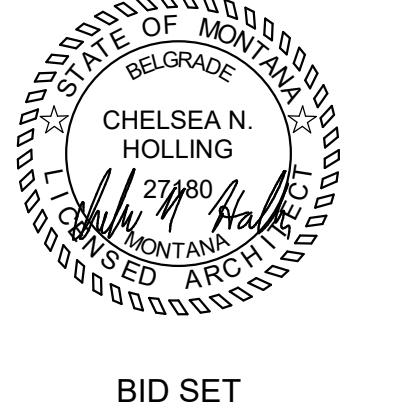


1 LEVEL 2 CODE REVIEW PLAN

1/8" = 1'-0"

0 4' 8' 16'

1,173 SQFT



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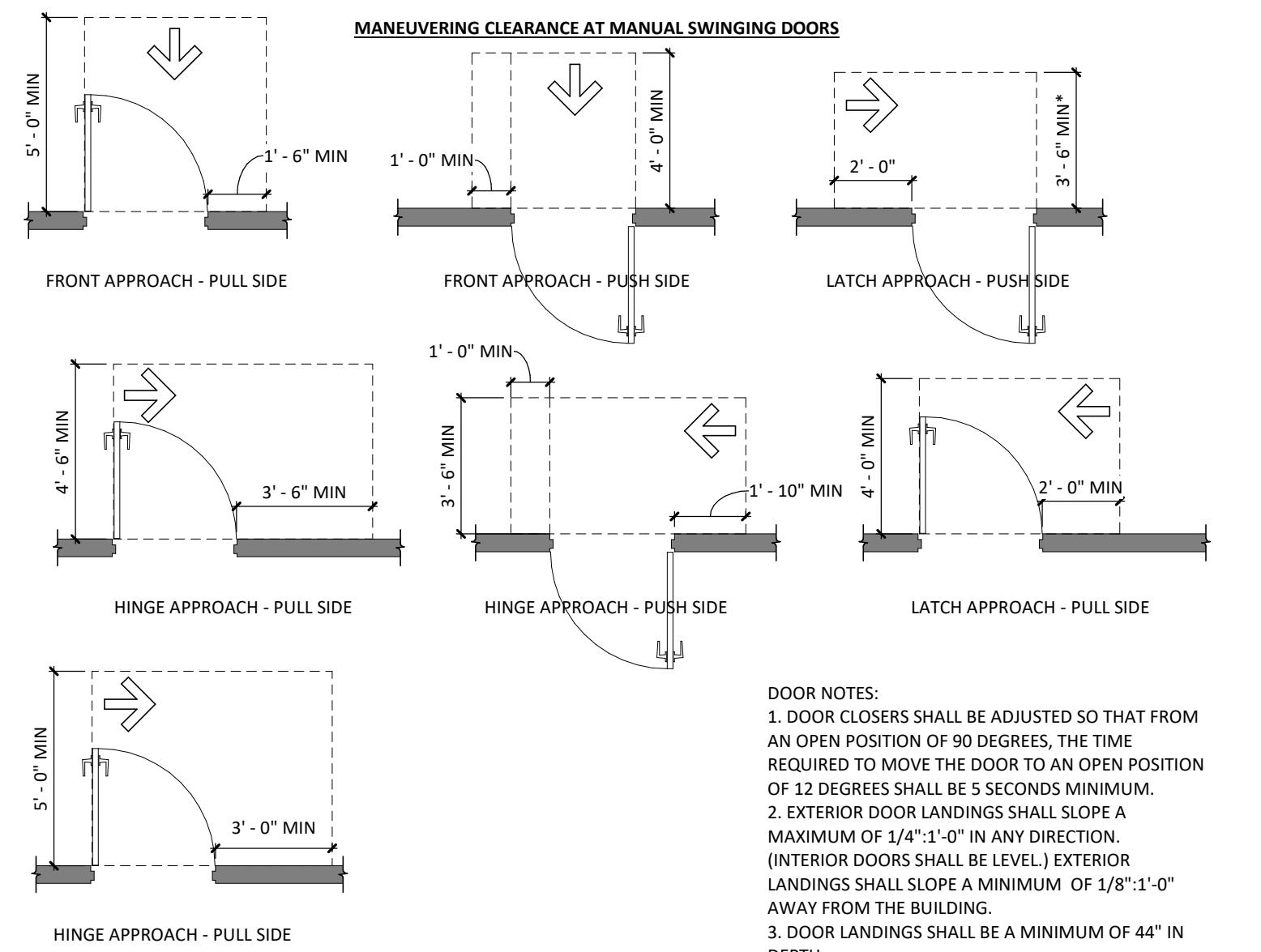
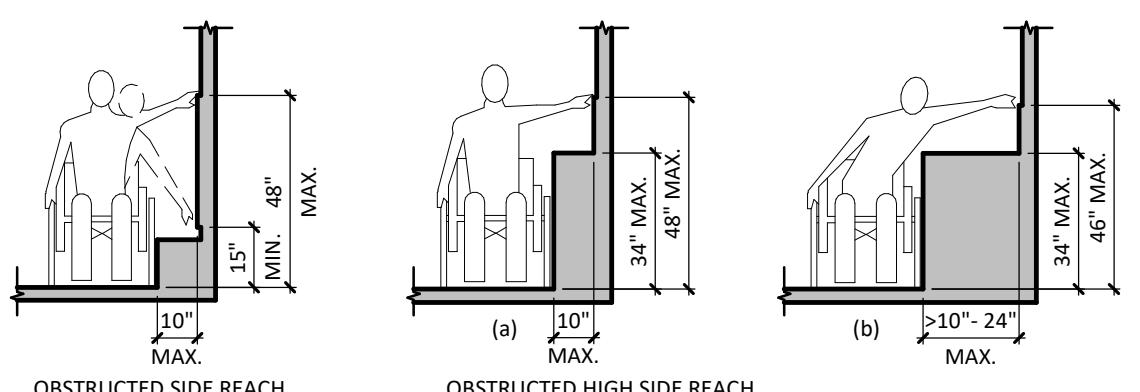
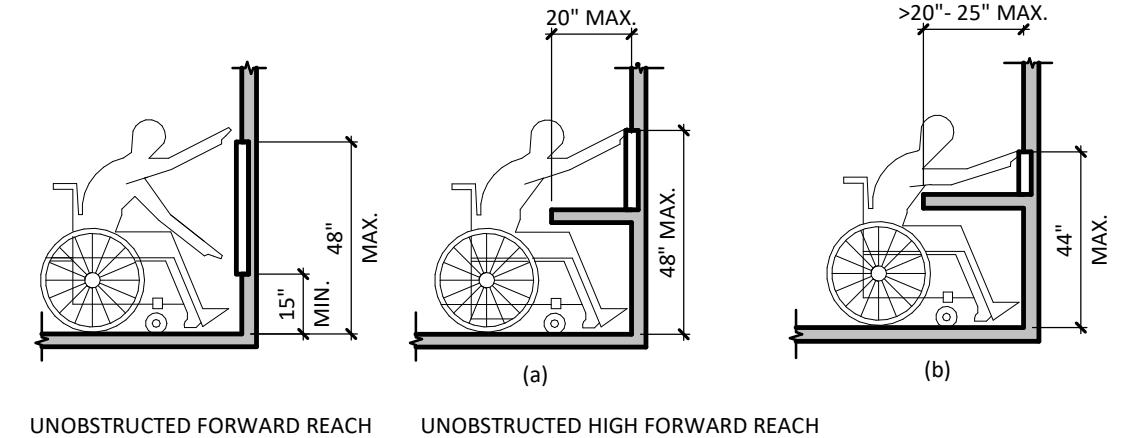
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DRAWN: RH, MC CHECKED: CH, KE  
DATE: 01/30/2026

REVISIONS:

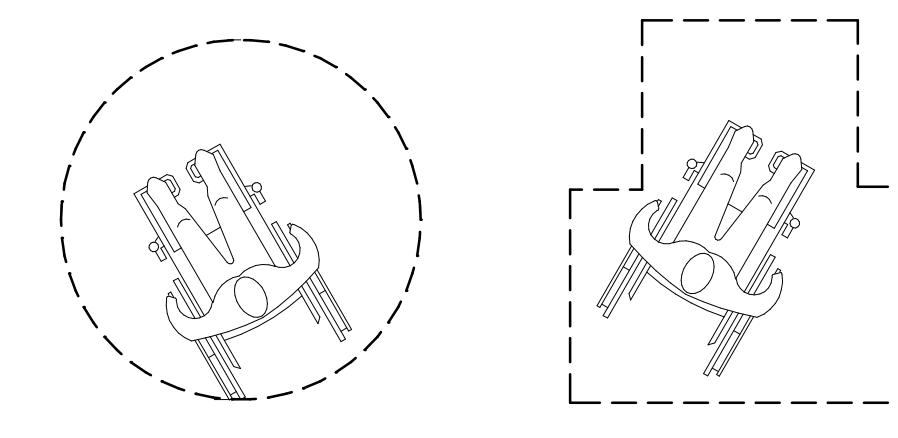
## ACCESSIBILITY DETAILS

G-013



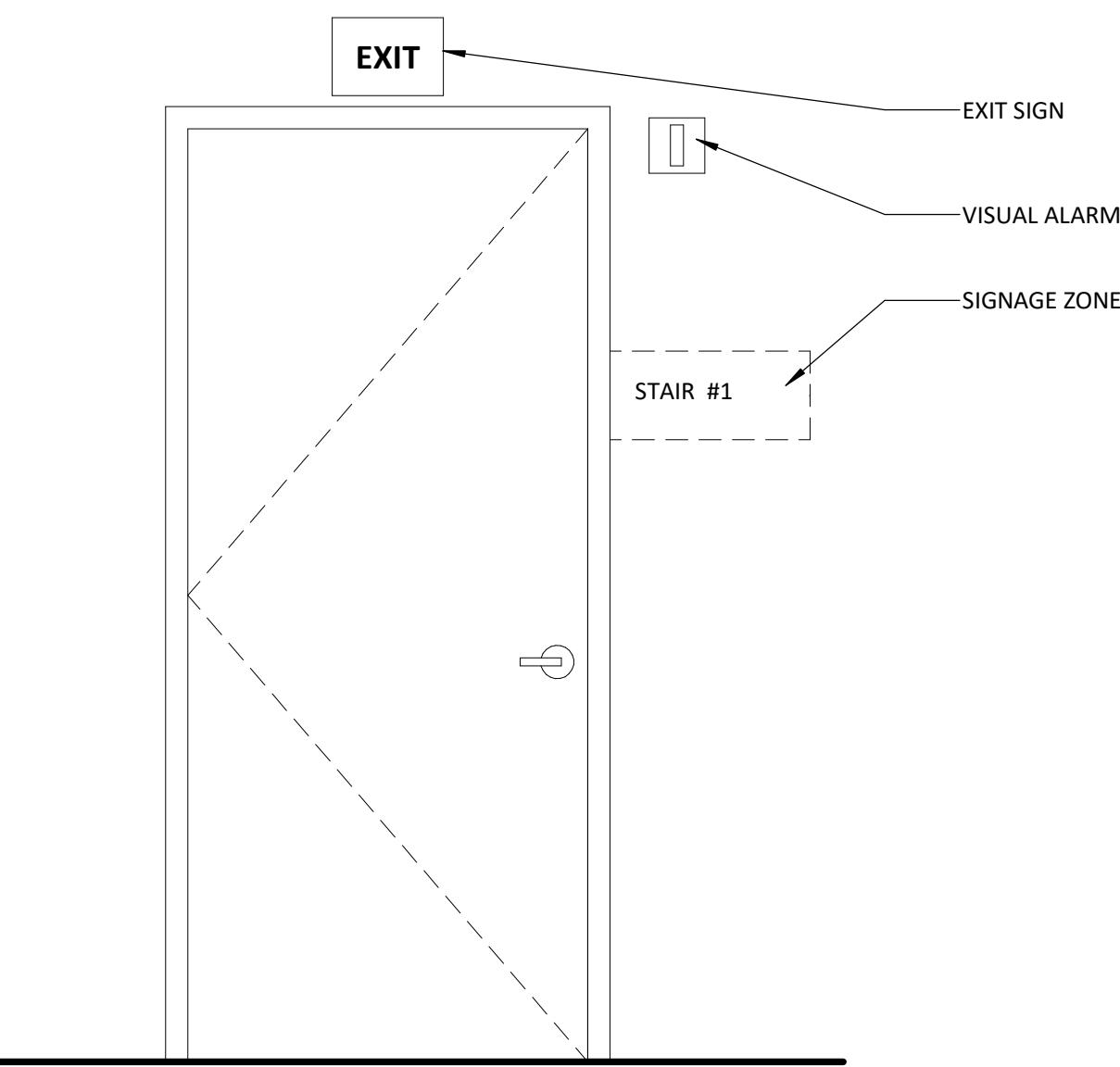
### 1 ADA REACH RANGES

1/4" = 1'-0"



### 2 WHEELCHAIR TURNING REQRMNTS.

NTS



### 3 TYP. MOUNTING HTS. @ EXIT DOOR

NTS

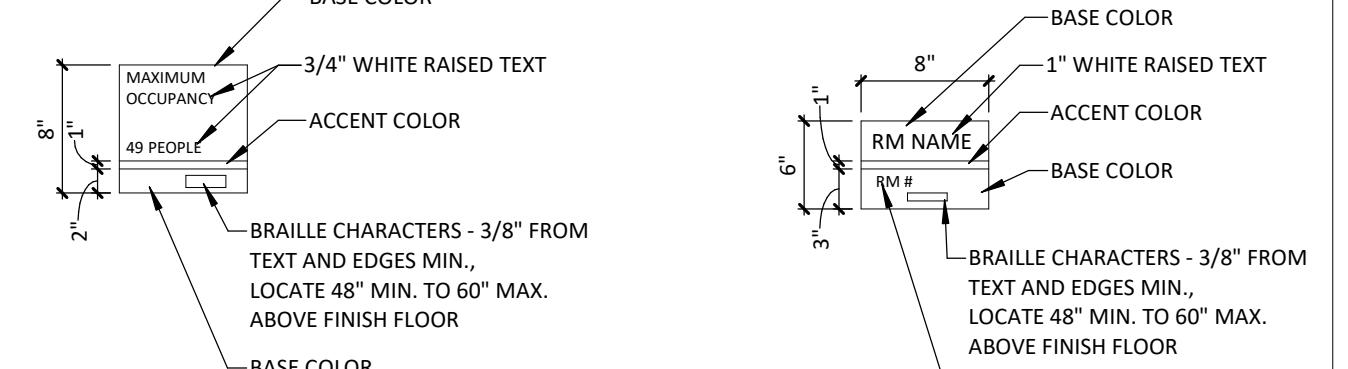


### 4 ACCESSIBLE SIGNAGE

1" = 1'-0"

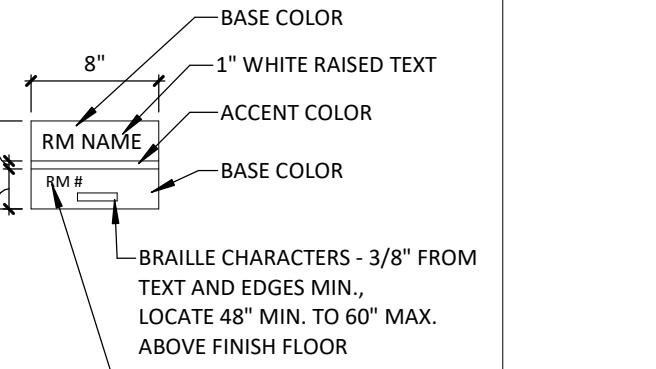
SIGN A

BASE AND ACCENT COLORS TO BE SELECTED FROM MANUFACTURERS STANDARD RANGE



SIGN B

BASE AND ACCENT COLORS TO BE SELECTED FROM MANUFACTURERS STANDARD RANGE

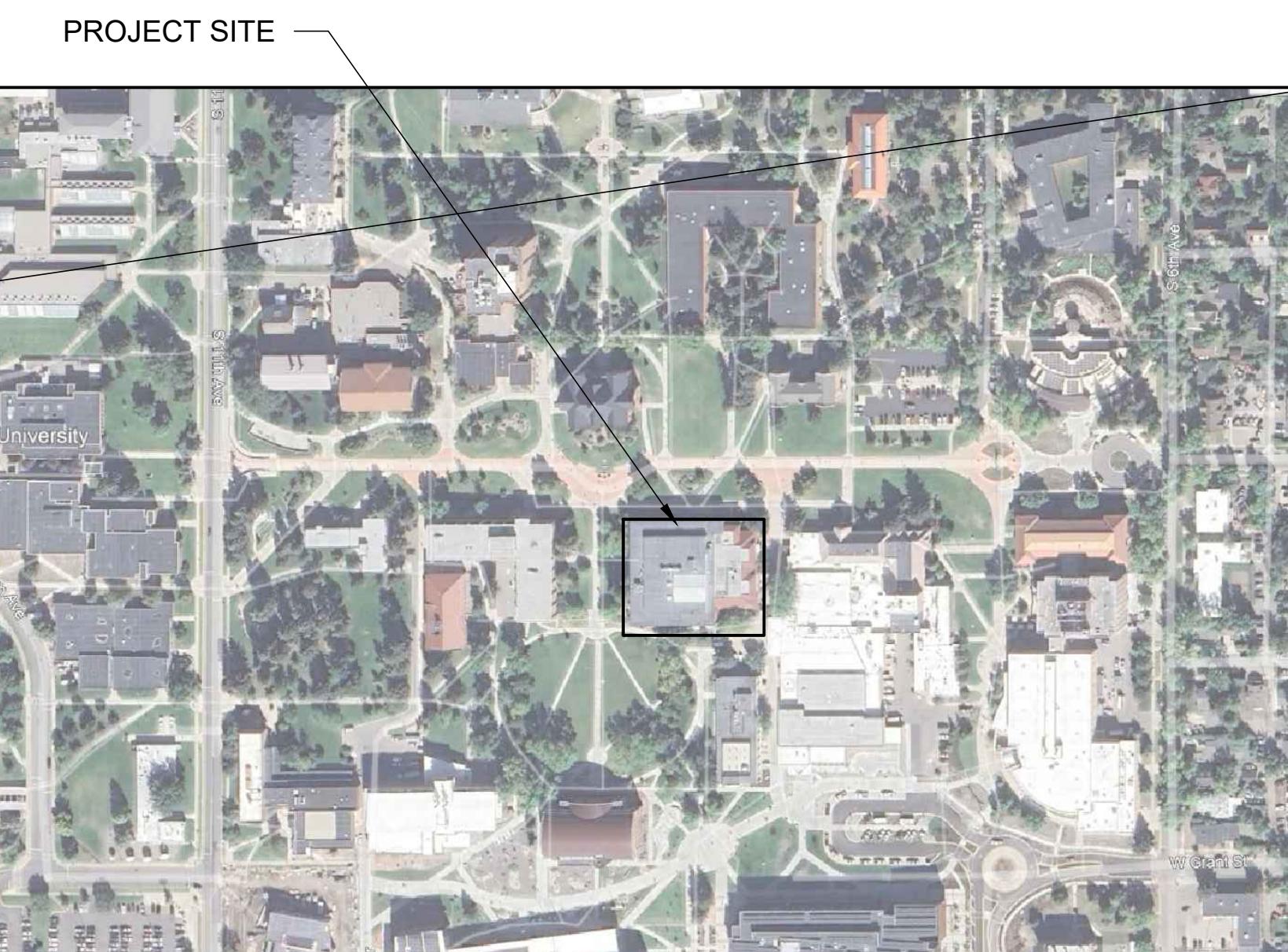
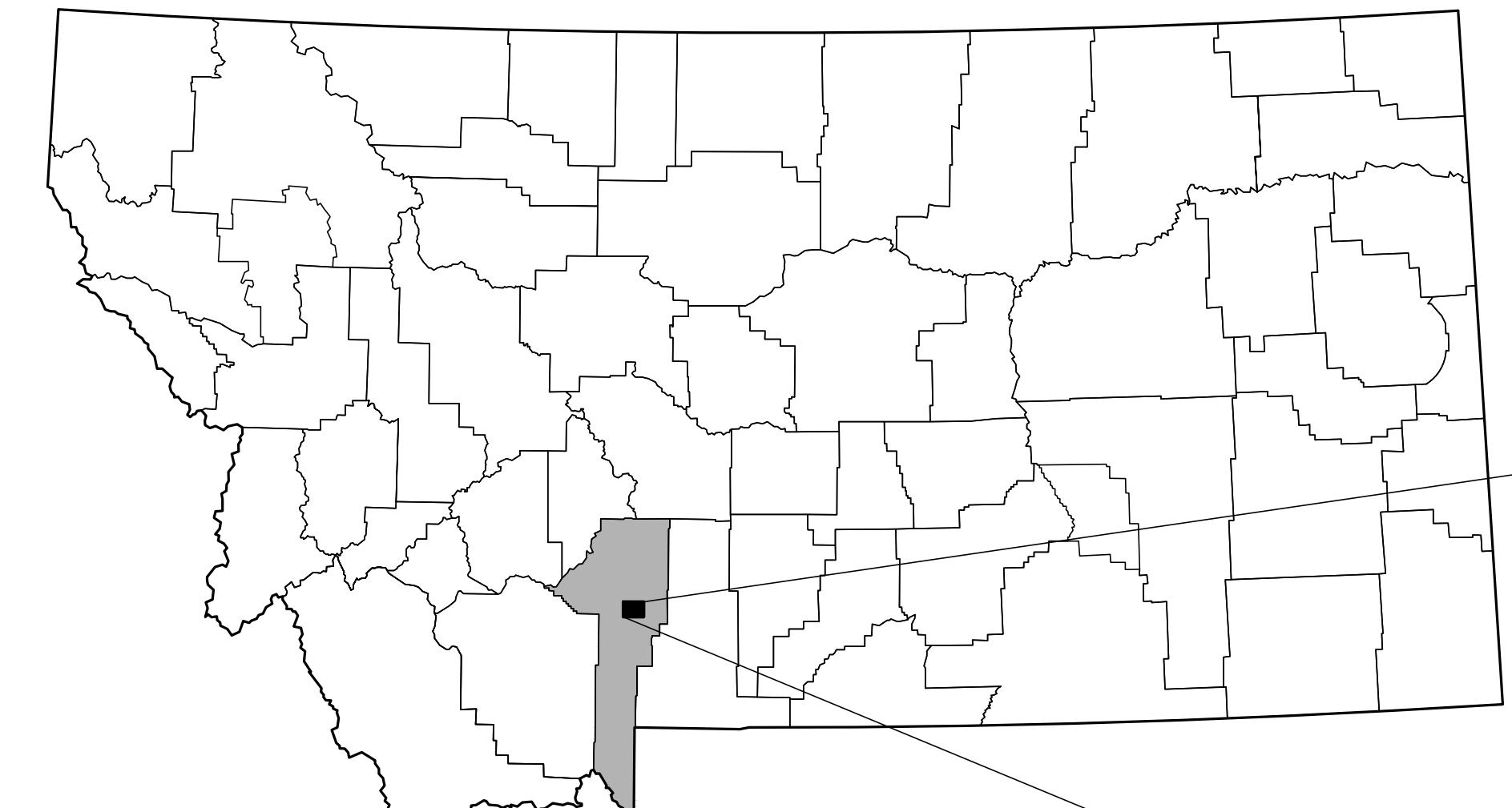


**REM01 – GENERAL NOTES:**

- 1) The project abatement contractor (AC) shall coordinate asbestos and lead-based paint (LBP) work activities, including any proposed changes, with the Owner or the Owner's Representative (hereafter collectively referred to as OR) and Owner's General Contractor (GC). Asbestos and LBP work, including associated selective demolition and/or abatement activities, if any - shall be performed by the AC, unless noted otherwise. Owner requires GC to utilize the services of a 3rd party professional industrial hygienist (PIH), and AC shall coordinate with PIH as noted below.
- 2) AC to comply with all applicable federal (EPA, OSHA), state (Montana DEQ), and local (Gallatin County, City of Bozeman) regulations, as well as requirements of the project documents. All asbestos work is to be completed by individuals holding current Montana accreditation as Asbestos Contractor/Supervisors or Asbestos Workers. All LBP work to be completed by individuals currently trained as required by OSHA for handling of LBP.
- 3) The intent of the project is to disturb asbestos and/or LBP only where necessary to complete the renovation work. AC to coordinate with OR/GC to determine locations where removal or disturbance of these materials will be completed by AC. Where disturbance and/or removal of asbestos or LBP is necessary, intact removal shall be favored when feasible. Where intact removal is infeasible, work practices shall be selected to limit the potential for exposure to workers, building occupants, and the environment while adhering to applicable regulatory requirements. As an example, dust generated during drilling an anchor point or hole into a surface with LBP may be captured with a HEPA-filtered vacuum, a foam-filled cup, etc.
- 4) It is understood disturbance of asbestos "target materials" required as part of AC's asbestos work for the project is likely to exceed DEQ's asbestos project quantity criteria (e.g., 10 SF, 3 LF, 3 CF of RACM). The inspection report denotes the anticipated condition of the asbestos target materials if impacted. However, since these determinations depend on conditions at the time of disturbance which cannot be known during the inspection, AC to determine friability during completion of the work. In the event the quantity of ACM to be disturbed exceeds DEQ's asbestos project quantity criteria, it is also understood some asbestos target materials may be feasibly removed as either Category I/II non-friable ACM. If the DEQ asbestos project quantity criteria are not exceeded for the overall project, a DEQ asbestos project permit may not be required for this project. AC to coordinate with PIH regarding likelihood of ACM being rendered friable (RACM) in quantities exceeding the DEQ asbestos project quantity thresholds. If DEQ's asbestos project quantity criteria are exceeded, any ACM which will be or is likely to be friable during completion of the work must be included on the asbestos project permit.
- 5) Prior to initiation of the scope of work, AC to provide all requested submittal information and receive written notice to proceed from OR. Required submittal information includes, but may not be limited to: 1) Copies of current Montana DEQ asbestos accreditation for all on-site project personnel conducting asbestos work. At least 1 individual must hold current Asbestos Contractor/Supervisor accreditation (meeting OSHA's definition of a Competent Person with regard to asbestos, per 29 CFR 1926.1101). All others may instead hold current Montana DEQ Asbestos Worker accreditations, at a minimum; 2) DEQ asbestos project permit, if required per Montana DEQ regulations; 3) Documentation of OSHA lead awareness training for all on-site project personnel conducting LBP work, per 29 CFR 1926.62, Appendix B, Paragraph L.
- 6) Asbestos and LBP "target materials" locations are shown in the project documents for informational purposes only. The actual locations where these materials will be disturbed (and the resulting quantities) may depend on the means and methods selected by the GC for completion of the project. AC shall satisfy themselves regarding the actual quantities to be included in the work during the pre-bid site walk and/or through coordination with OR and GC.
- 7) The PIH shall perform on-site oversight of AC throughout the project, which shall include initial inspections of work areas (e.g., regulated areas, containments, etc.) established by AC for each work area; periodic spot checks of AC's activities; and post-abatement clearance monitoring. PIH shall have stop-work authority over AC in the event noted deficiencies are not adequately addressed by the AC.
- 8) AC to perform asbestos and LBP work in areas noted in the project documents, as necessary for completion of the project (see General Note 6, above). AC to coordinate removal strategies with PIH prior to initiating preparation and/or removal activities, including agreement between AC and PIH regarding which materials will be removed as RACM (if any) and which can be removed as Category I/II non-friable ACM or non-ACM (< 1% asbestos), and methods for removal and/or disturbance of LBP materials. In the event a Montana DEQ asbestos project permit is required for the project, AC to coordinate alternate work practice requests submitted to DEQ, if any, with PIH. Changes to initial removal strategies agreed upon between AC and PIH must be approved in writing by the PIH prior to being initiated.
- 9) Discovery of additional and/or previously unidentified suspect/confirmed asbestos or LBP target materials, if any, shall be reported to the PIH and/or OR as quickly as practicable. Previously unidentified suspect target materials shall be assessed by the PIH or assumed to be asbestos-containing/LBP materials, at the discretion of the PIH and in coordination with the OR. Removal of additional target materials will be coordinated between the OR, PIH, and AC. Additional RACM shall be added to the asbestos project permit by the AC prior to removal, if applicable.
- 10) Electric and mechanical (heat, water, etc.) services at the site will be available for AC's use in completing the work, except where necessary to be deactivated to complete the work. Owner or GC will deactivate services as necessary to complete the work. AC to coordinate with OR and/or GC regarding which services to deactivate for each work area (if any) and whether or not the work may result in potential damage to the building systems.
- 11) AC to provide ground fault circuit interrupters (GFCI) for electrical equipment to be used during asbestos or LBP work which utilizes wet methods. AC shall not be allowed to begin work activities requiring electrical equipment and wet methods until GFCIs are present. AC to coordinate with OR and/or GC to ensure electrical circuits are de-energized as necessary to safely complete the work.
- 12) AC to prevent exposure to hazardous materials associated with their work for the Owner, PIH, GC and other trades, building occupants, the public, the environment, and AC's staff. This may include - but may not be limited to - use of appropriate work area demarcation, use of appropriate work practices (e.g., wet methods, HEPA-filtered vacuums, tools with point-of-cut dust collection and HEPA filtration, etc.), and/or various combinations of the following to prevent migration of contaminants from the work areas: drop sheets, critical barriers, mini-containments, negative pressure enclosures, etc.
- 13) AC to coordinate asbestos and LBP work with PIH prior to initiation of activities, including number and general layout of work areas (e.g., regulated areas, critical barriers, negative pressure enclosures, etc.). AC shall demarcate asbestos and LBP work areas in a manner consistent with OSHA requirements, and which minimizes the number of persons within the area and protects persons outside the area from exposure to contaminants which may be generated as a result of the work. Regulated areas, drop sheets, critical barriers, negative pressure enclosures, etc., shall be utilized in accordance with OSHA requirements for Class I - IV asbestos work (29 CFR 1926.1101) and OSHA requirements for disturbance of materials containing lead (29 CFR 1926.62), as appropriate.
- 14) Removal of asbestos materials and/or stripping of LBP from components shall be completed within negative pressure enclosures. Where asbestos and LBP target materials are impacted without causing potential exposure issues, or where LBP target materials are removed intact, critical barriers, containments, and negative-pressure enclosures may not be required. Where required, AC shall construct work area barriers, critical barriers, or negative pressure enclosures (as applicable) before asbestos or LBP work begins. This shall include use of 6-mil, fire-retardant plastic sheeting for work area critical barriers (2 layers at HVAC openings), mini-containments, or free-standing containment walls/ceilings. Containment walls and ceilings which cover existing surfaces shall consist of 4-mil (or heavier) fire-retardant plastic sheeting unless noted otherwise. Containment floors shall consist of 6-mil (or heavier) fire-retardant plastic sheeting, unless noted otherwise. AC shall construct critical barriers and containment walls and ceilings to extend to fixed surfaces where feasible in order to prevent contaminant leakage. AC shall inspect critical barriers and containments daily and repair failed seams, rips, tears, and/or other damage immediately upon discovery.
- 15) Where negative pressure enclosures are required or otherwise utilized, AC to ensure required air changes (4 per hour, minimum) and negative pressure (minimum of -0.02 column inches water pressure differential) are maintained in each containment from the time of the initial containment inspection (or prior to initiation of abatement activities, if no initial containment inspection is conducted) through satisfactory completion of post-abatement clearance monitoring for the respective containments. Negative air pressure shall be monitored with a manometer fitted with a recording strip or digital recorder. Negative pressure shall be achieved through use of HEPA-filtered negative air machines (NAM), with all exhaust vented to the building exterior. AC responsible for securing all exhaust locations. Additional NAMs shall be available for "scrubbing" in work areas with little or no air movement. At least 1 additional spare NAM shall be available on site for each active containment area, as a back-up in case of failure.
- 16) Unless otherwise noted, filtered make-up air locations on negative pressure containment areas (if any) shall consist of MERV 11 filters (minimum) with interior gravity (weighted) flaps to prevent fiber release in the event of loss of negative pressure within the containment. AC is responsible for securing make-up air locations.
- 17) Items to be left in place (e.g., cabinets, shelves, non-ACM materials, etc.) within each work area should be covered with plastic sheeting and sealed by AC prior to initiation of AC's asbestos or LBP work. Alternatively, uncovered materials which become contaminated may be thoroughly decontaminated by AC or disposed as contaminated waste. Note that non-porous surfaces (e.g., smooth painted walls) can typically be readily decontaminated, whereas porous surfaces (e.g., unpainted walls, most ceiling tiles, carpets, etc.) typically cannot be readily decontaminated. Contaminated materials not already scheduled for disposal may be subject to replacement (i.e., replaced with new materials of equal or greater quality) at AC's expense. Coordinate with OR and/or GC.
- 18) At Owner's option, the PIH shall collect and analyze work area and/or ambient air samples during AC's work; if air samples are occluded or result in concentrations above regulatory criteria, Owner or PIH may issue a stop-work order until AC satisfactorily addresses the deficiency. In any case, AC shall be responsible for conducting all required exposure monitoring for their own personnel.
- 19) AC shall not remove target materials or contaminated materials which cannot be safely and effectively cleaned up during the same work shift they were removed. Owner or PIH may issue a stop worker order if materials or work areas are left uncleared.
- 20) AC shall place all asbestos and LBP target material waste in rigid, air-tight and leak-tight containers. Alternatively, asbestos and/or LBP target material waste may be double bagged. For sharp or jagged waste, the first bag shall consist of a burlap or woven nylon sack to prevent tearing/ripping. The outer bag shall consist of 6-mil poly and must bear the appropriate labels as required by EPA, OSHA, and/or DEQ. All asbestos waste to be properly packaged, transported, and disposed by AC as asbestos special waste. In the absence of a leachable lead assessment indicating otherwise, AC shall package, transported, and dispose LBP target material waste as presumed hazardous waste, with regard to lead. AC may choose to undertake completion of a leachable lead assessment, at their own expense, following coordination with Owner and PIH. AC's leachable lead assessment methods and results must be reviewed by Owner and PIH to confirm the findings are usable in determining waste disposal requirements.
- 21) AC to complete asbestos and LBP work to minimize damage and leave clean edges where feasible (e.g., where ceiling/wall systems or floor tile will be left in place, etc.) to minimize deterioration of materials and allow for easier tie-in with replacement materials, as appropriate. Coordinate with OR and/or GC.
- 22) "Post-abatement" clearance monitoring may not be regulatorily required for some areas where asbestos and/or LBP work is conducted, so long as the asbestos work is limited to conditions less than the Montana DEQ "asbestos project" criteria, and if the LBP work is not expected to be considered a "lead abatement" as defined by EPA (40 CFR Part 745.223). However, Owner requires post-abatement clearance monitoring in all instances where asbestos or LBP are removed/abated, even when not regulatorily required. Clearance monitoring shall be completed by the PIH and shall include visual confirmation of asbestos or LBP target material removal and cleanup. Post-abatement asbestos clearance air sampling and analysis shall be completed in accordance with either the NIOSH 7400 Method for PCM or the AHERA Method for TEM. LBP clearance monitoring shall consist of collection of surface wipe samples from window sills and/or floors adjacent to LBP work areas, in general accordance with select portions of the methods outlined in 40 CFR 745.277(e)(8). Successful asbestos clearance criteria shall include no visible target material (or associated dust or debris) in the work area; airborne fiber concentrations of  $\leq 0.01 \text{ f/cc}$  for all asbestos clearance samples from a given PCM air sampling event; and airborne asbestos concentrations  $\leq 70 \text{ S/mm}^2$  for all asbestos clearance samples from a given TEM air sampling event. Successful LBP clearance criteria shall include no visible target material (or associated dust or debris) in the work area;  $< 5 \text{ \mu g/ft}^2$  lead for floor wipe samples;  $< 40 \text{ \mu g/ft}^2$  lead for window sill wipe samples; and  $< 100 \text{ \mu g/ft}^2$  lead for window trough wipe samples. PIH shall utilize overnight shipping and request expedited analytical turnaround for all laboratory analyses of samples. Alternatively, PIH may analyze PCM samples using a portable microscope, adhering to DEQ's analytical requirements. AC to coordinate clearance schedules with PIH and provide as much advanced notice as feasible.
- 23) Upon completion of the work, AC to submit to Owner and PIH documentation of proper disposal of asbestos waste (and LBP waste, if applicable) resulting from their work.

BOZEMAN, GALLATIN COUNTY, MONTANA

<b>PREPARED BY:</b> AIR WATER SOIL, LLC 1321 8TH AVENUE NORTH, SUITE 104 GREAT FALLS, MONTANA 59401 CONTACT: J. SCOTT VOSEN 406.315.2201
<b>APPROVED BY (PROJECT OWNER):</b> MONTANA STATE UNIVERSITY UNIVERSITY FACILITIES MANAGEMENT PLANNING, DESIGN & CONSTRUCTION P.O. BOX 172760 BOZEMAN, MONTANA 59717 CONTACT: ELIZABETH PRITCHARD 406.994.7089
<b>PROPERTY OWNER:</b> MONTANA STATE UNIVERSITY P.O. BOX 172760 BOZEMAN, MONTANA 59717



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26047-T2

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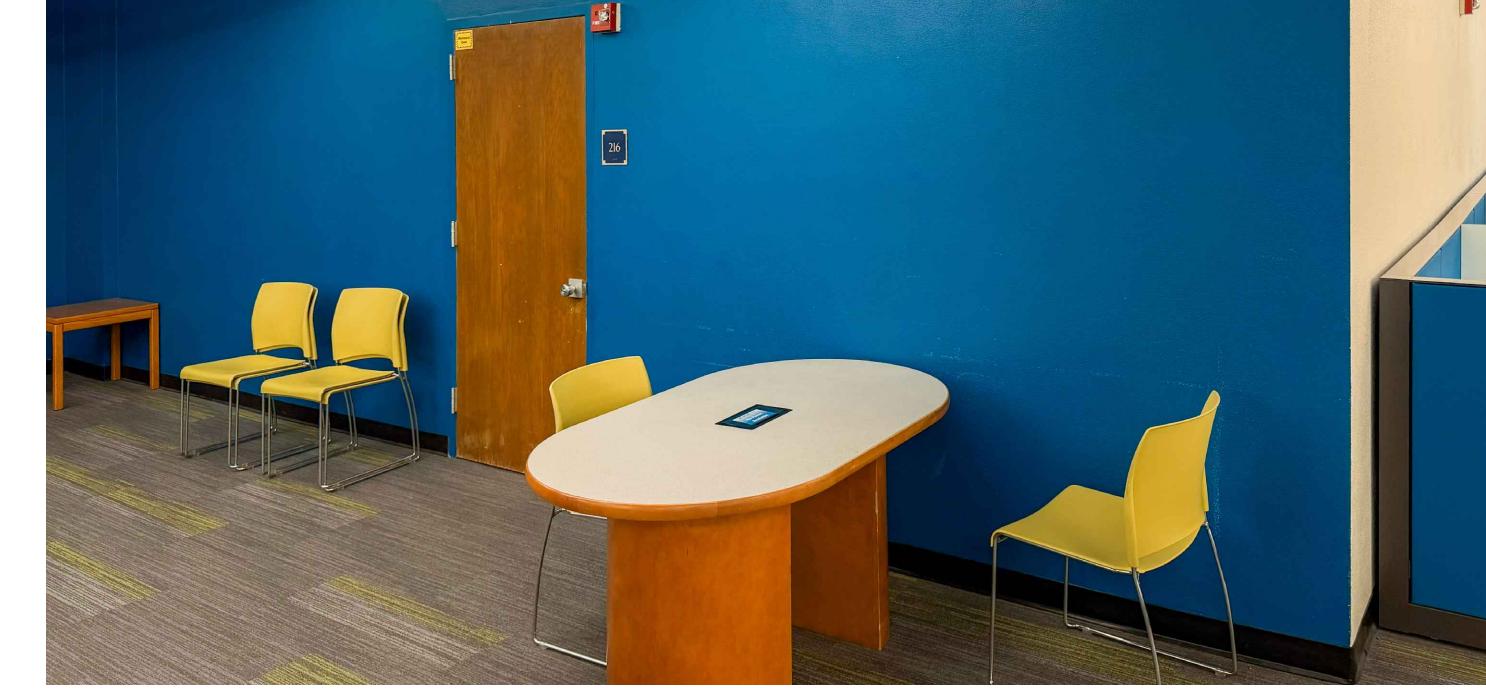
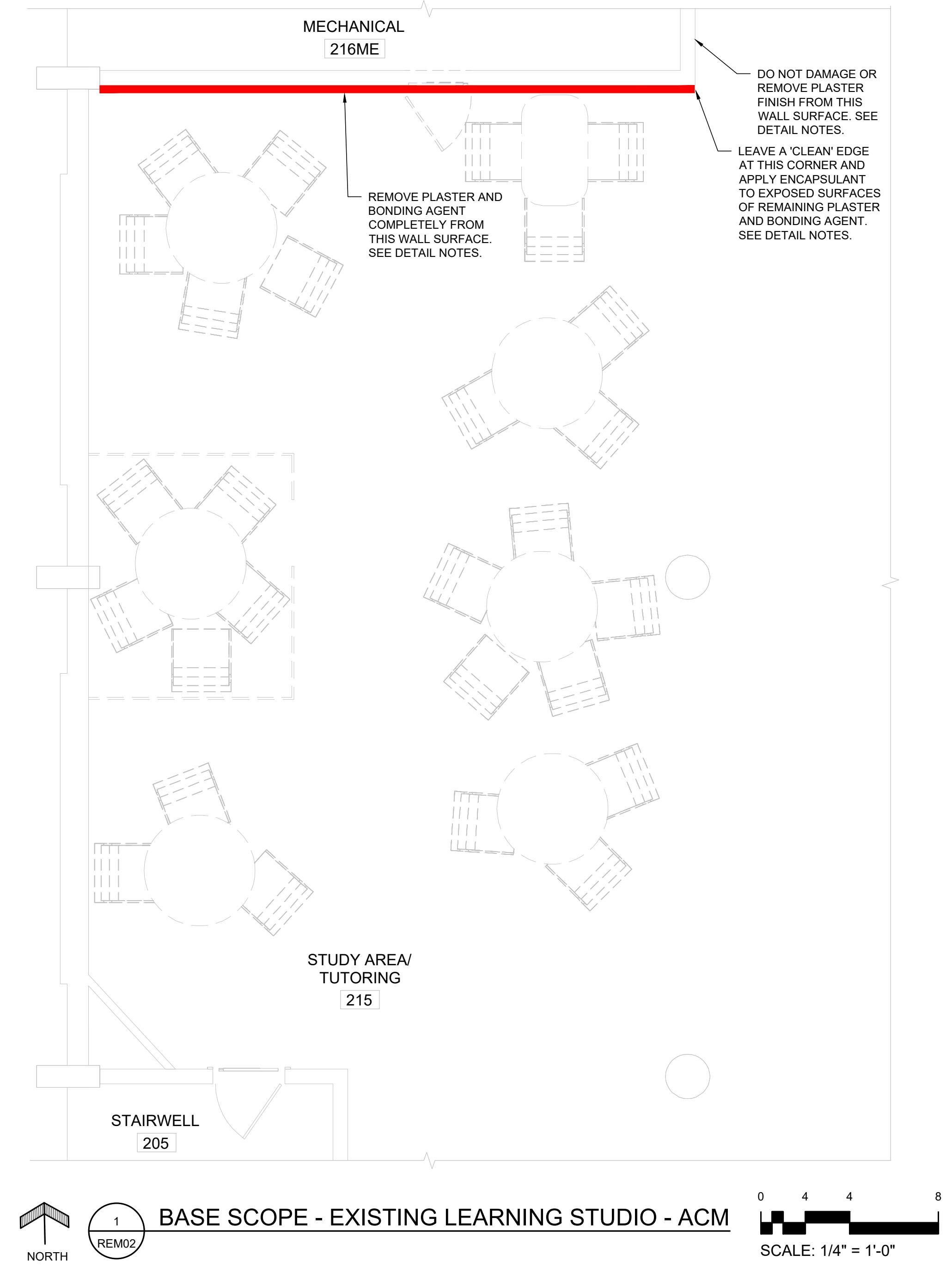
SITE VICINITY  
MAP



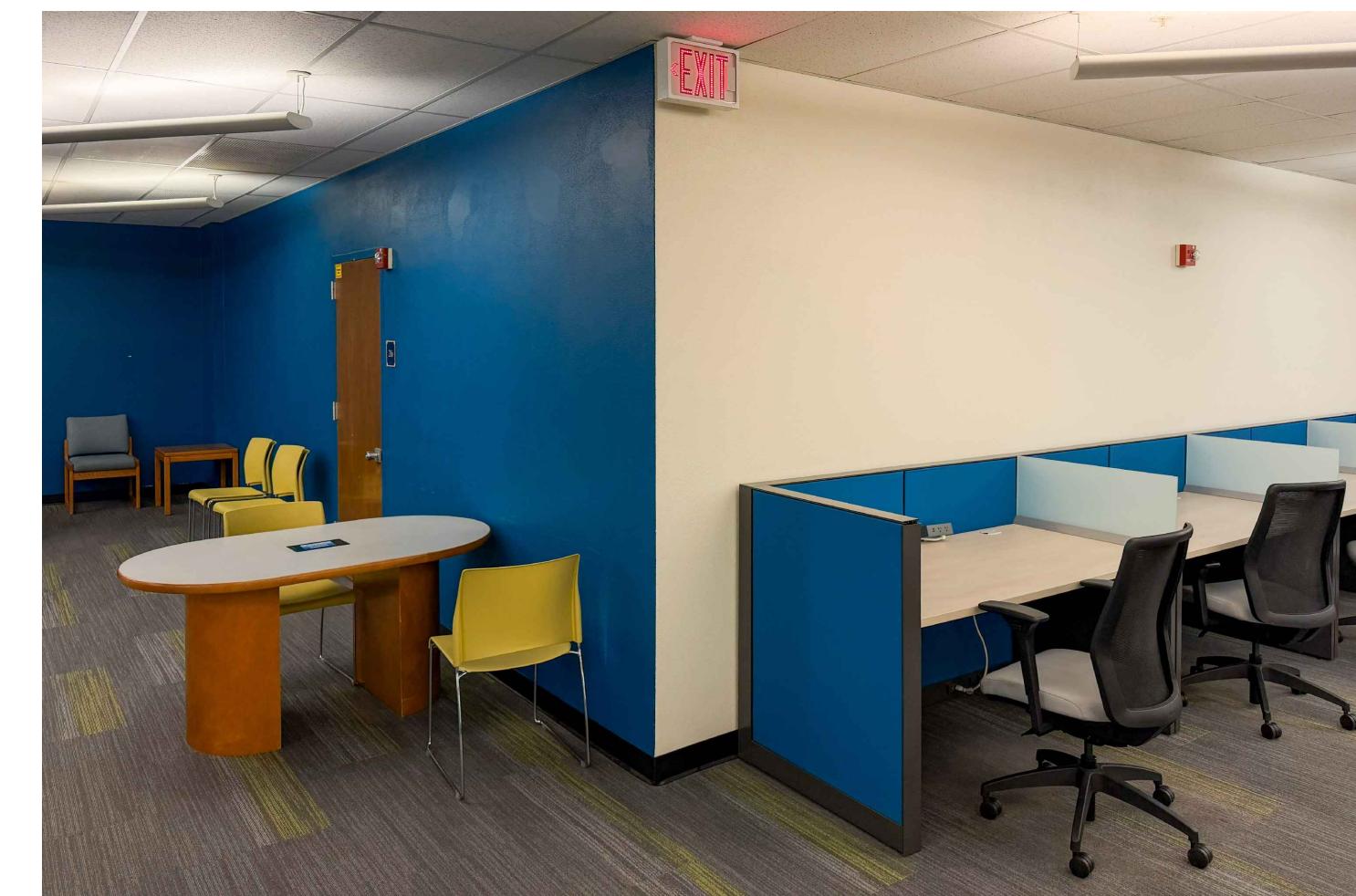
FIGURE  
REM01

**REM02 - DETAIL 1 - BASE SCOPE - EXISTING LEARNING STUDIO - ACM NOTES:**

- A) Owner will remove any unfastened equipment, furniture, supplies, etc., as necessary for GC/AC to complete the work.
- B) Disturbance of LBP is not anticipated in this area.
- C) If selective demolition activities are necessary and are likely to result in disturbance of asbestos or LBP, they should be conducted using the same controls and methods required for asbestos or LBP removal, respectively. This may include removal of the lay-in ceiling grid from the plaster wall system materials, for example. See below.
- D) The plaster wall system (P1.1) contains detectable asbestos. Although the plaster itself may be non-asbestos, a thin, white fibrous layer (presumed to be bonding agent) between the plaster and the concrete wall substrate was confirmed to contain 5% asbestos in 1 sample. The analytical laboratory was unsure whether the plaster itself contained asbestos, or if it was "contaminated" by the ACM bonding agent layer. As a result, the plaster was reported by the laboratory as potentially containing 0.5% asbestos, and the bonding agent was reported as containing 5% asbestos. The bonding agent was observed in only 1 of the plaster samples but is presumed to be present throughout the plaster system. Since the materials are inseparable, the overall plaster system is therefore considered ACM. The plaster system materials are anticipated to be friable during removal and are therefore expected to be removed as RACM.
- E) The plaster wall system is present on walls adjoining Room 216ME to the south and east. AC shall remove the plaster and bonding agent materials completely (i.e., to the concrete substrate) along the entire south wall, extending to the exact corner at the east wall (see REM02, Detail 1). A clean edge shall be left at the southeast corner.
- F) Immediately following abatement, and prior to post-abatement clearance monitoring, AC shall apply encapsulant to the exposed plaster and bonding agent materials at the southeast corner (i.e., the south end of the east wall). The intent of the encapsulant will be to limit the potential for fiber release during subsequent new construction. AC shall coordinate with the PIH regarding the selection of the specific bridging encapsulant or penetrating encapsulant to be used for this project.
- G) As discussed in the general notes, Owner requires negative pressure enclosures for removal of all interior asbestos materials (including ACM and non-ACM with detectable asbestos), regardless of condition.
- H) Non-asbestos waste materials, if any, may be disposed as general construction debris (with regard to asbestos) if removed from the work area prior to initiation of abatement activities, unless noted otherwise. Non-asbestos materials which are contaminated with asbestos (if any) shall be removed as asbestos during abatement and are NOT to be included in the general construction waste stream. All asbestos waste shall be transported and properly disposed by AC as asbestos special waste, as discussed in the General Notes.
- I) Clearance monitoring and clearance criteria must be completed as discussed in the General Notes.
- J) Following completion of abatement and encapsulation, GC shall use appropriate caution when installing the new construction, avoiding any impacts to the existing plaster and bonding agent materials at the southeast corner and along the wall east of Room 216ME. GC to promptly notify Owner or Owner's Rep in the event impacts to the existing plaster and/or bonding agent are experienced or expected to be unavoidable. See the Construction Documents for work in this area and how the new construction interfaces with the existing building.



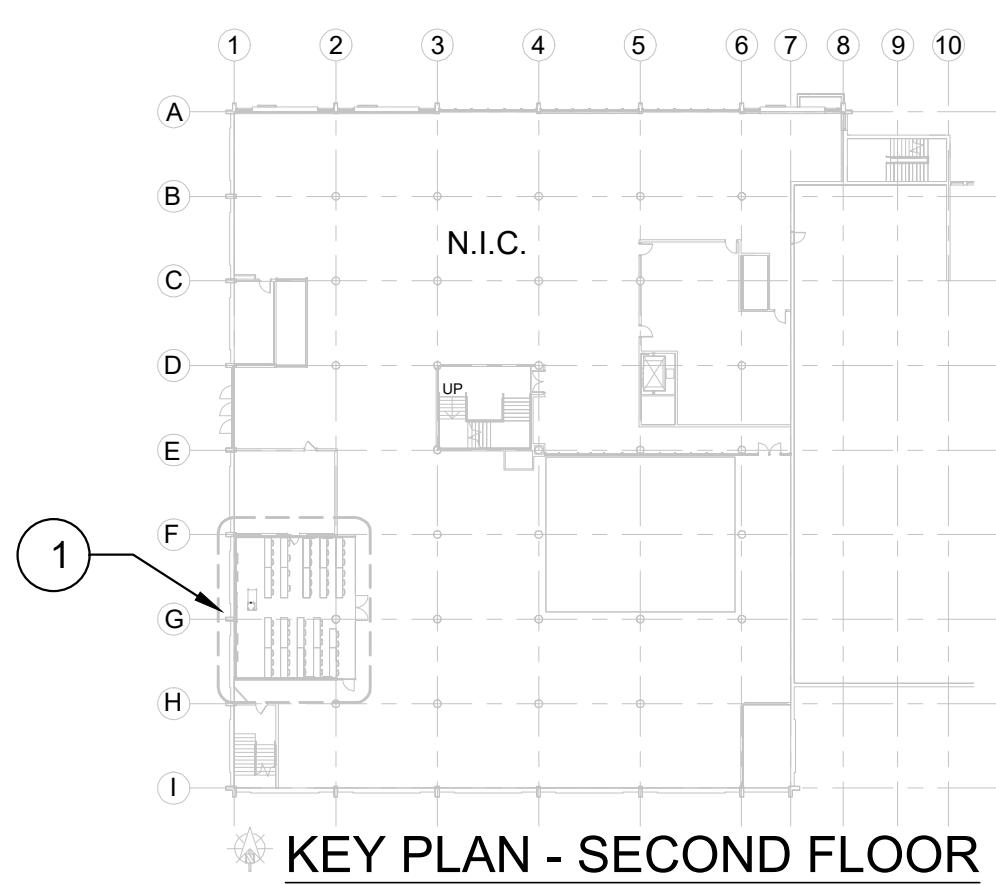
**PHOTO 1:**  
REMOVE PLASTER WALL SYSTEM AND UNDERLYING RACM BONDING AGENT COMPLETELY FROM THE WALL ALONG THE SOUTH SIDE OF ROOM 216ME (PAINTED BLUE IN PHOTO). SEE DETAIL NOTES.



**PHOTO 2:**  
DO NOT DAMAGE OR REMOVE THE PLASTER FINISH ON THE WALL ALONG THE EAST SIDE OF ROOM 216ME (PAINTED WHITE/CREAM IN PHOTO). SEE DETAIL NOTES.



**PHOTO 3:**  
PLASTER WALL SYSTEM ON CONCRETE WALL SUBSTRATE. VIEW IS ABOVE THE EXISTING LEARNING STUDIO LAY-IN CEILING, LOOKING TOWARD THE WEST END OF THE WALL ALONG THE SOUTH SIDE OF ROOM 216ME. PLASTER EXTENDS APPROXIMATELY 4 TO 6 INCHES ABOVE THE CEILING GRID.





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BID SET

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## ABBREVIATIONS

<b>A</b>	FOS	FACE OF STUDS	MATL	MATERIAL
AFF	ABOVE FINISH FLOOR	FIN	FINISH	MAX
ACT	ACOUSTICAL CEILING TILE	FF	FINISH FLOOR	MECH
ADI	ADJUSTABLE	FEC	FIRE EXTINGUISHER/AND	MECHANICAL, MECHANICAL ROOM
AB	ANCHOR BOLT	FL	FLASHING	MTL
ALUM	ALUMINUM	FLR	FLOOR	MIN
ALT	ALTERNATE	FD	FLOOR DRAIN	MIRR
ANOD	ANODIZED	FT	FOOT, FEET	MISC
APPROX	APPROXIMATE	FTG	FOOTING	N
ARCH	ARCHITECT	FURN	FURNITURE	NOM
		FUT	FUTURE	NOT APPLICABLE
		FBO	FURNISHED BY OTHERS	NOT IN CONTRACT
		FRP	FIBER REINFORCED PANEL	NOT TO SCALE
				NUMBER
<b>B</b>				
BSMT	BASEMENT	GA	GAUGE	<b>U</b>
BATH	BATHROOM	GALV	GALVANIZED	TEL
BM	BEAM	GEN	GENERAL	TV
BNG	BEARING	GL	GLASS	TEMP
BEDRM	BEDROOM	GYB	GYPSUM WALL BOARD	TOP
BET	BETWEEN	GYPC	GYPCRETE	TOS
BLDG	BUILDING			TOW
BO	BOTTOM OF			TOP
BOT	BOTTOM			MASONRY
BN	BOUNDARY NAILING			T
BS	BOTH SIDES			TYP
<b>C</b>				
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED	HALL	HALLWAY	
CPT	CARPET	HDW	HARDWARE	
CLG	COOLING	HVAC	HEATING, VENTILATING, & AIR CONDITIONING	
CT	CERAMIC TILE	HT	HEIGHT	
CLR	CLEAR	HM	HOLLOW METAL	
CLST	CLOSET	HORIZ	HORIZONTAL	
COL	COLUMN	HWT	HOT WATER TANK	
CONC	CONCRETE	HR	HOUR	
CONST	CONSTRUCTION			
CONT	CONTINUOUS			
CONTR	CONTRACT, CONTRACTOR			
CORR	CORRIDOR			
CJ	CONTROL JOINT			
CMU	CONCRETE MASONRY UNIT			
<b>D</b>				
DEMO	DEMOLISH, DEMOLITION	IBC	INTERNATIONAL BUILDING CODE	
DTL	DETAIL	INCL	INCLUDE, INCLUDED (ING)	
DIA	DIAMETER	INFO	INFORMATION	
DIM	DIMENSION	ID	INSIDE DIAMETER	
DW	DISHWASHER	INSUL	INSULATE/INSULATION	
DIV	DIVISION	INT	INTERIOR	
DL	DEAD LOAD			
DR	DOOR			
DN	DOWN			
DS	DOWNSPOUT			
DWG	DRAWING			
DF	DRINKING FOUNTAIN			
D	DRYER			
<b>E</b>				
EA	EACH	LBL	LABEL	
E	EAST	LAM	LAMINATED	
ELEC	ELECTRIC	LNDRY	LAUNDRY	
ELEV	ELEVATION, ELEVATOR	LAV	LAVATORY	
EQ	EQUAL	LVL	LEVEL	
EQUIP	EQUIPMENT	LL	LIVE LOAD	
EXIST	EXISTING	LR	LIVING ROOM	
EXP	EXPANSION	LOC'N	LOCATION	
EJ	EXPANSION JOINT			
EXT	EXTERIOR			
<b>F</b>				
FOB	FACE OF BRICK	MFR	MANUFACTURER	
FOC	FACE OF CONCRETE	MAS	MASONRY	
FOM	FACE OF MASONRY	MO	MASONRY OPENING	

## SYMBOLS USED AS ABBREVIATIONS

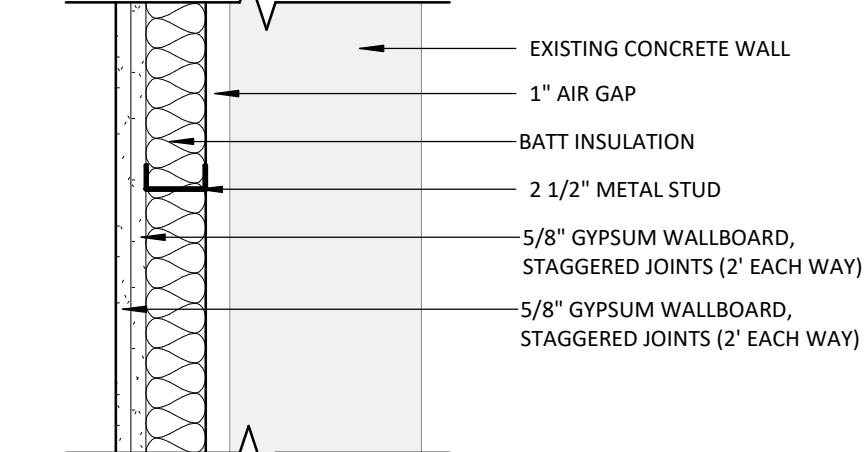
!	QUAN	QUANTITY
Q		

## SYMBOLS & MATERIALS

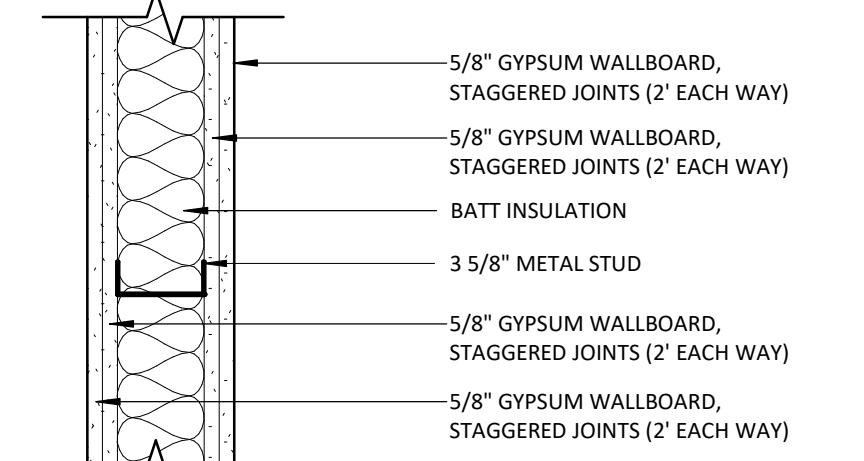
	STRUCTURAL FILL		FINISHED WOOD
	UNDISTURBED EARTH		PLYWOOD
	DISTURBED EARTH		RIGID INSULATION
	GRAVEL		BATT INSULATION
	SPRAYFOAM INSULATION		SAND, PLASTER, GROUT
	CONCRETE BLOCK VENEER		METAL
	BRICK VENEER		EIFS
	ROUGH WOOD		STEEL
	NOT IN CONTRACT (N.I.C.)		BLOCKING
	WINDOW TYPE		DOOR NUMBER
	ROOM NUMBER		WALL TYPE
	ITEM IDENTIFICATION SHEET WHERE ITEM IS CUT		REVISION NUMBER
	NORTH ARROW		KEY NOTE
	DEMOLITION NOTE		FINISH TAG
	EQUIPMENT TAG		ELEMENTS TO BE DEMOLISHED
	EXISTING TO REMAIN		FLOOR TRANSITION
	ROOM FINISH KEY		

AD-102

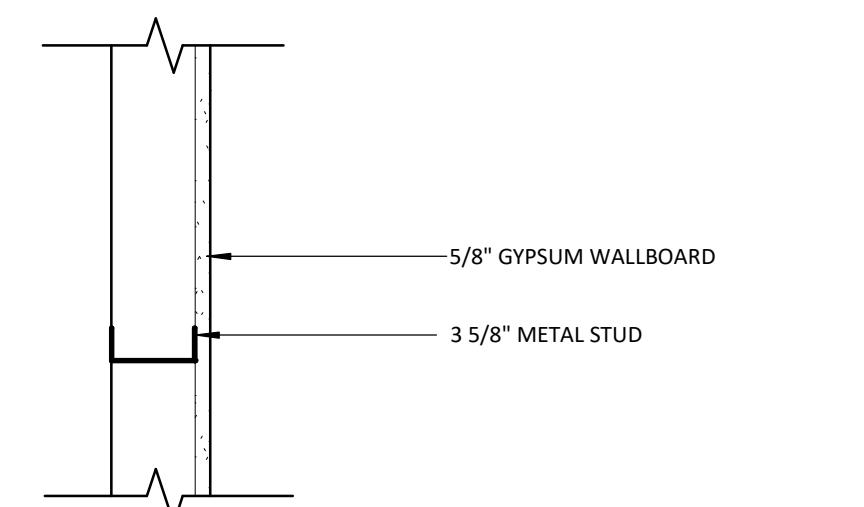
LEVEL 1 DISCIPLINE DESIGNATOR  
DENOTES DEMO PLANS (OMIT ON NON DEMO SHEETS)  
LEVEL 2 DISCIPLINE DESIGNATOR  
\*NOTE\*  
THE SYMBOLS ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.



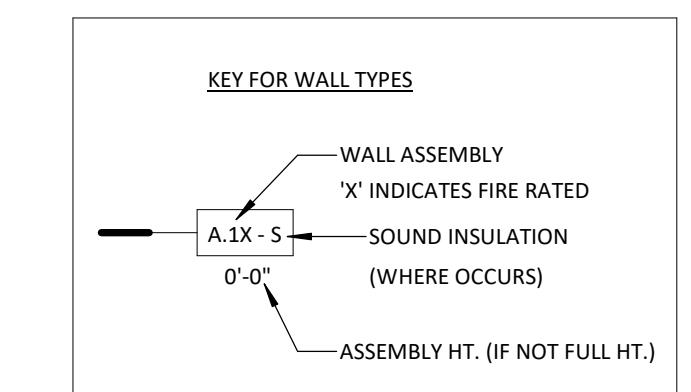
**B.1 STC 40-45 RATED INT. WALL**  
SCALE: 1 1/2" = 1'



**B.2 STC 50-54 RATED INT. WALL**  
SCALE: 1 1/2" = 1'



**F.1 FURRED INT. WALL**  
SCALE: 1 1/2" = 1'



ARCHITECTURAL SHEET INDEX	
A-001	ARCHITECTURAL NOTES
AD112	LEVEL 2 DEMOLITION PLAN & RCP
AD211	INTERIOR ELEVATIONS DEMOLITION
A-112	LEVEL 2 FLOOR PLAN & RCP
A-113	LEVEL 2 FLOOR PLAN - ALTERNATE #1
A-132	LEVEL 2 FINISH FLOOR PLAN
A-211	INTERIOR ELEVATIONS
A-521	FINISH DETAILS
A-601	WINDOW & DOOR SCHEDULES & DETAILS

DRAWN: RH, MC CHECKED: CH, KE

DATE: 01/30/2026

REVISIONS:

ARCHITECTURAL NOTES

**A-001**

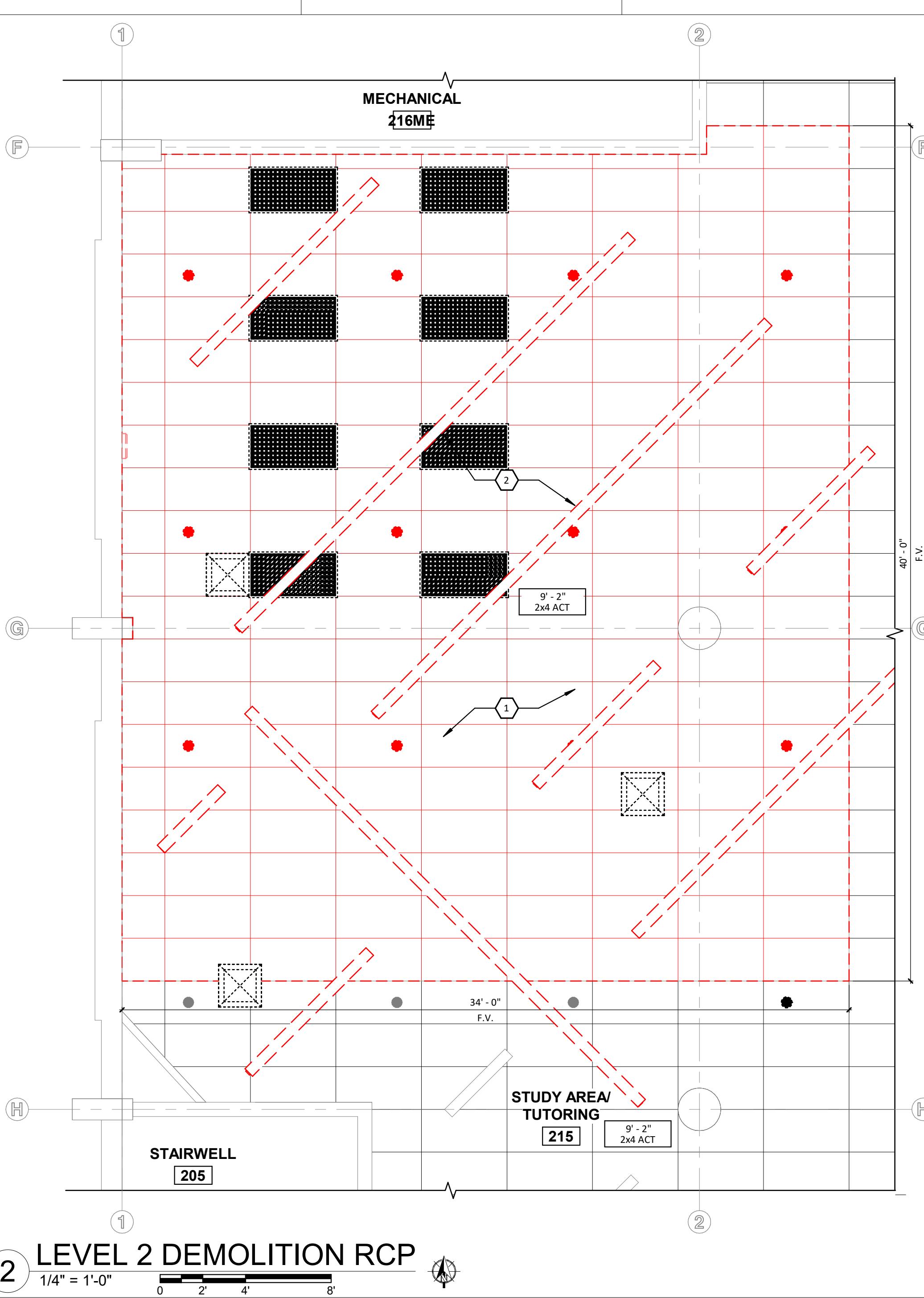
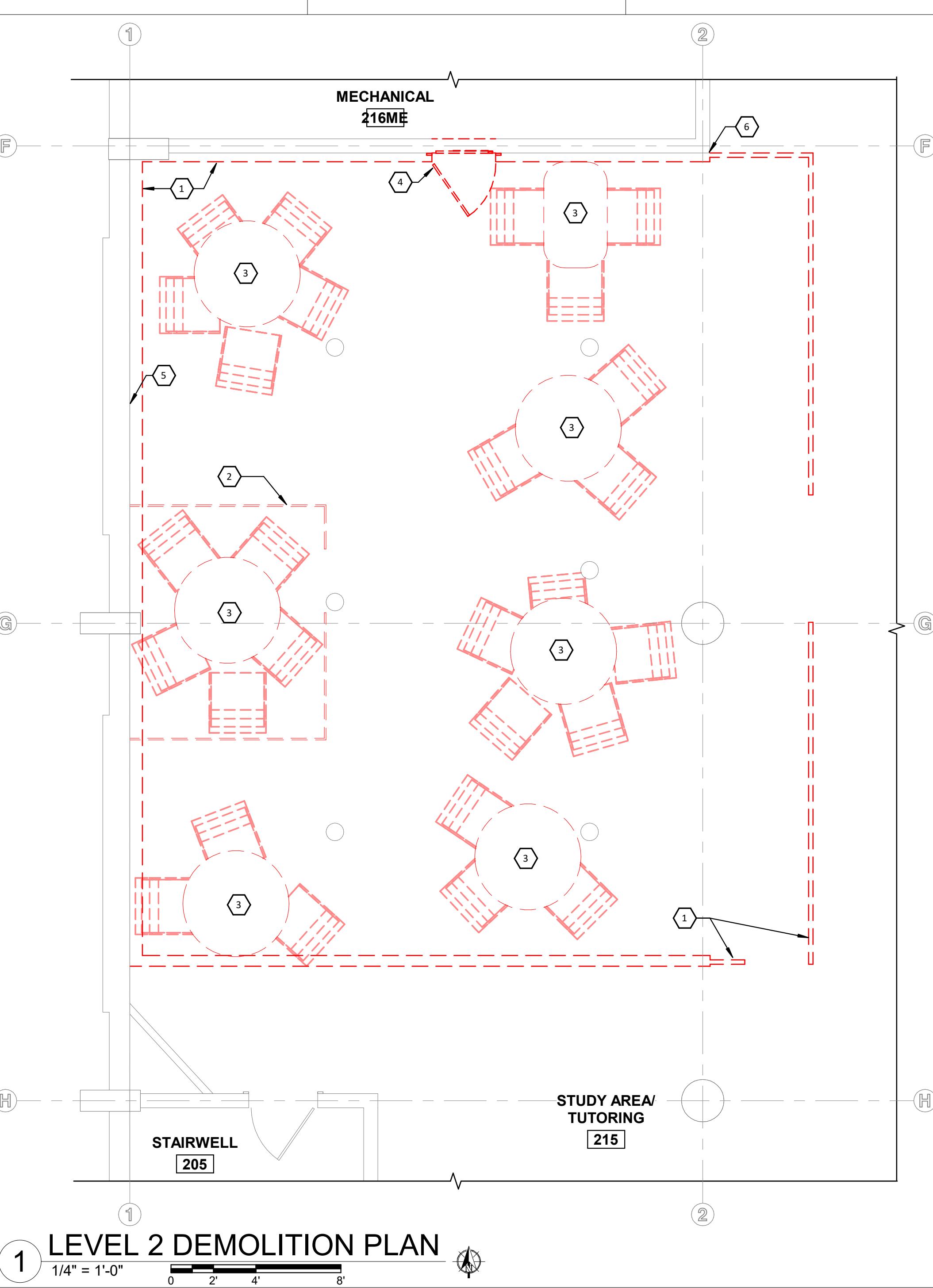


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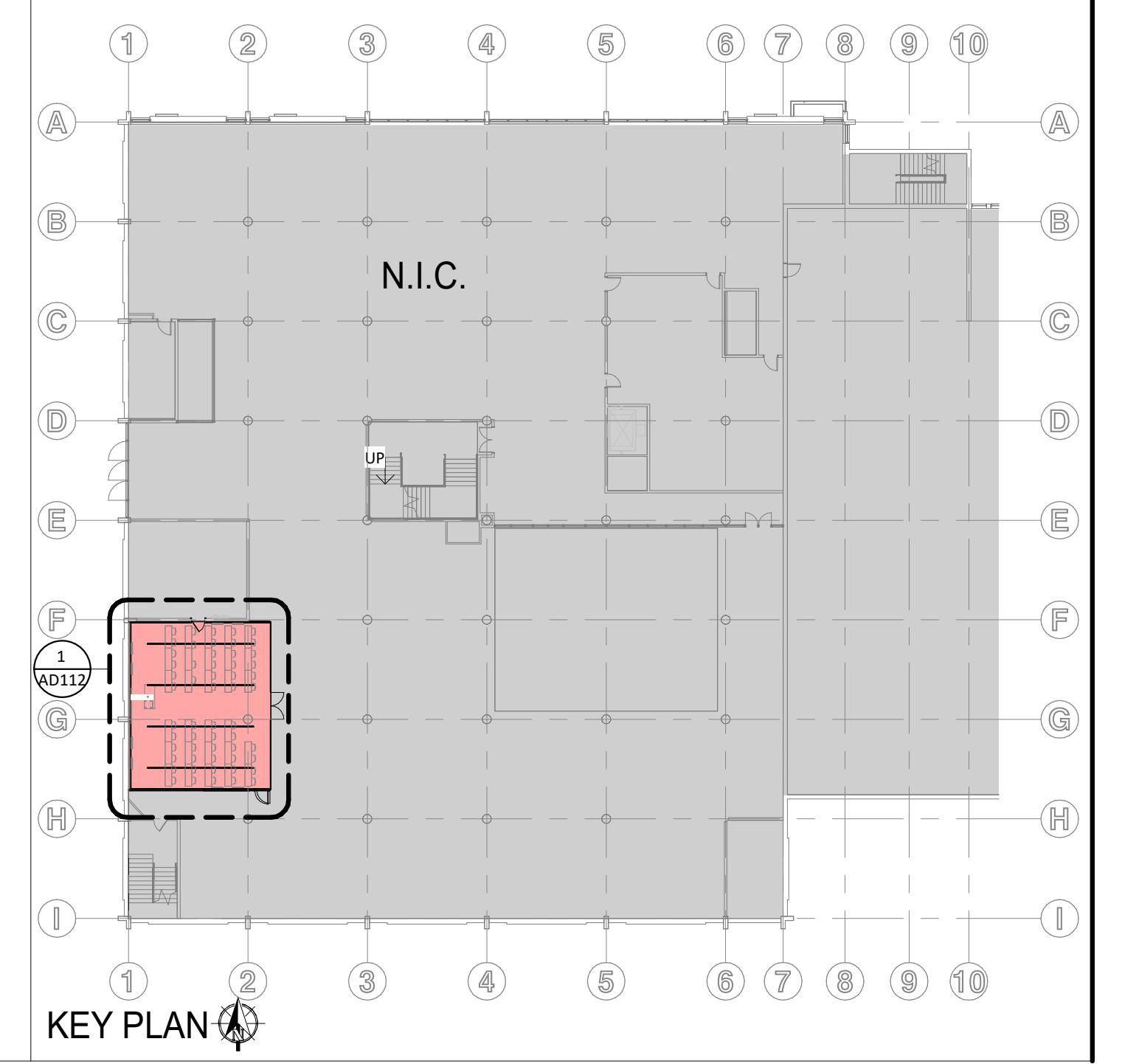
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GENERAL PLAN NOTES:	
A.	SEE G-001 PROJECT TITLE SHEET FOR GENERAL NOTES.
B.	PROTECT EXISTING BUILDING OUTSIDE OF THIS SCOPE OF WORK AT ALL TIMES.
C.	SEE OTHER SHEETS IN THIS SET FOR ADDITIONAL INFORMATION.
D.	CONTRACTOR SHALL INCLUDE CUTTING AND PATCHING FOR ALL INSTANCES WHERE REQUIRED, WHETHER OR NOT SHOWN/INDICATED ON THESE CONSTRUCTION DOCUMENTS.
E.	THE EXISTING BUILDING MAY NOT BE LEVEL AND PLUMB. CONTRACTOR SHALL FIELD VERIFY AND PROVIDE CONCEALED SHIMS, ETC AS NECESSARY TO MAKE NEW WORK LEVEL AND PLUMB, UNLESS SPECIFICALLY NOTED OTHERWISE.
LEVEL 2 DEMO PLAN KEYNOTES	
1.	REMOVE CARPET FLOORING WHERE NEW WALLS ARE TO BE INSTALLED. RECYCLE WHERE POSSIBLE, DISPOSE OTHERWISE. CARPET ON EITHER SIDE OF WALL TO REMAIN. TAKE CARE TO REMOVE CARPET ONLY UNDER WALL ITSELF.
2.	REMOVE EXISTING PARTITION WALL, SALVAGE AND HAND OVER TO MSU.
3.	CONTRACTOR TO REMOVE ALL TABLES AND CHAIRS, SALVAGE AND RETURN TO OWNER.
4.	DEMOLISH DOOR AND FRAME. PREP FOR NEW STC RATED DOOR AND FRAME.
5.	REMOVE POE CLOCK, SALVAGE AND RETURN TO OWNER.
6.	CONTRACTOR TO ENSURE THAT ABATEMENT ALONG SOUTH WALL STOPS WITH A CLEAN EDGE AT THE CORNER OF THE SOUTH WALL AND EAST WALL. DO NOT DAMAGE THE EXISTING FINISH ON EAST WALL IN ANY WAY. REFER TO REMEDIATION DRAWINGS.
LEVEL 2 DEMO RCP KEYNOTES	
1.	REMOVE ALL EXISTING ACT PANELS AND GRID TO THE NEXT GRID IN THEIR ENTIRETY.
2.	REMOVE EXISTING CEILING MOUNTED LIGHT FIXTURES, SALVAGE AND HAND OVER TO MSU.
CEILING PLAN LEGEND	
EXIST	2x4 ACOUSTIC CEILING TILE
DEMO ACT	2x4 ACOUSTIC CEILING TILE



LEVEL 2  
DEMOLITION  
PLAN & RCP

AD112



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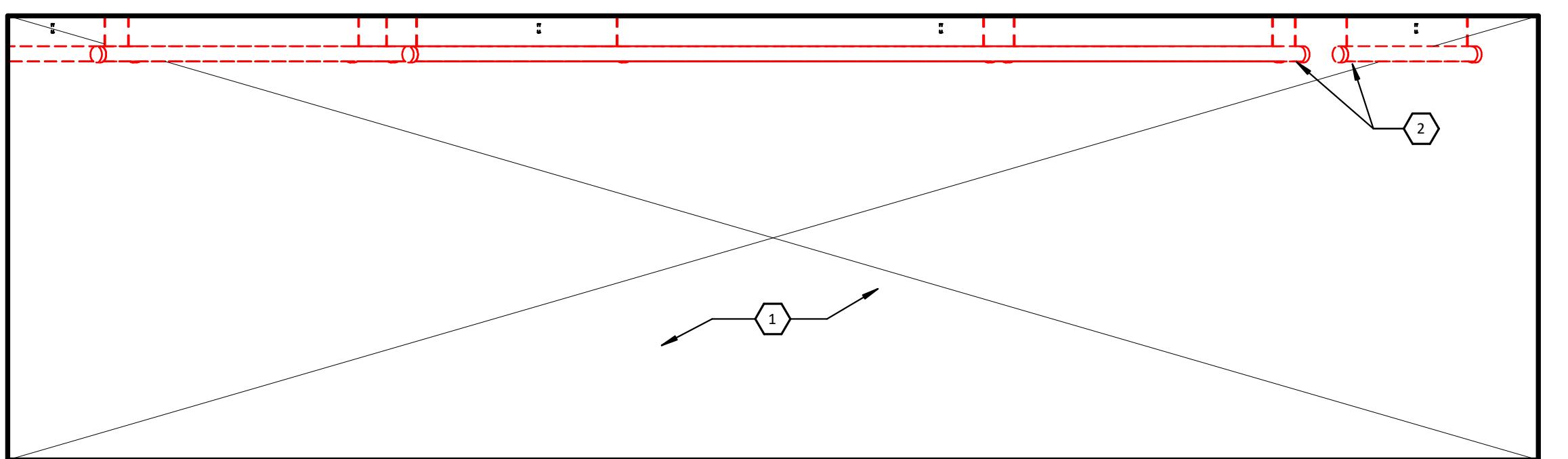
**GENERAL DEMO ELEVATION NOTES:**

- A. SEE G-001 PROJECT TITLE SHEET FOR GENERAL NOTES.
- B. PROTECT EXISTING BUILDING OUTSIDE OF THIS SCOPE OF WORK AT ALL TIMES.
- C. SEE OTHER SHEETS IN THIS SET FOR ADDITIONAL INFORMATION.
- D. CONTRACTOR SHALL INCLUDE CUTTING AND PATCHING FOR ALL INSTANCES WHERE REQUIRED, WHETHER OR NOT SHOWN/INDICATED ON THESE CONSTRUCTION DOCUMENTS.
- E. THE EXISTING BUILDING MAY NOT BE LEVEL AND PLUMB. CONTRACTOR SHALL FIELD VERIFY AND PROVIDE CONCEALED SHIMS, ETCH AS NECESSARY TO MAKE NEW WALL LEVEL AND PLUMB UNLESS SPECIFICALLY OTHERWISE STATED.
- F. CONDUIT THAT IS DIRECTLY CONNECTED TO COMPONENTS THAT ARE TO BE REMOVED ARE TIED INTO EXISTING ELECTRICAL THAT IS TO REMAIN OR TERMINATES WITHIN THE CEILING. REROUTE OR DEMO PER ELECTRICAL. SEE ELECTRICAL.
- G. CONTRACTOR TO VERIFY WITH MSU EXISTING CONDUIT PATH AND EQUIPMENT FOLLOWING REMOVAL OF DEVICES BY MSU PRIOR TO DEMO.

**INTERIOR ELEVATION DEMO KEYNOTES**

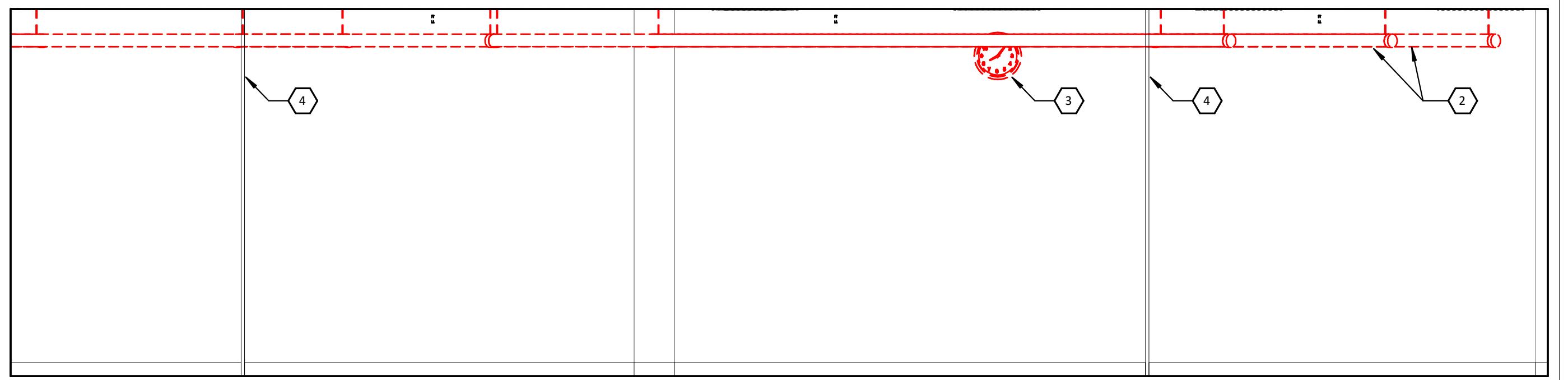
- 1 OPEN TO BEYOND
- 2 REMOVE EXISTING CEILING MOUNTED LIGHT FIXTURES, SALVAGE AND HAND OVER TO MSU.
- 3 REMOVE POE CLOCK, SALVAGE AND RETURN TO OWNER.
- 4 EXISTING CONDUIT TO REMAIN
- 5 EXISTING STROBE BOX TO BE REMOVED AND EXTENDED ON NEW FURRED WALL IN THE SAME LOCATION.
- 6 EXISTING ROOM SIGN TO BE REMOVED BY CONTRACTOR AND REINSTALLED ON NEW FURRED WALL
- 7 DEMOLISH DOOR AND FRAME. PREP FOR NEW STC RATED DOOR AND FRAME.

**BID SET**



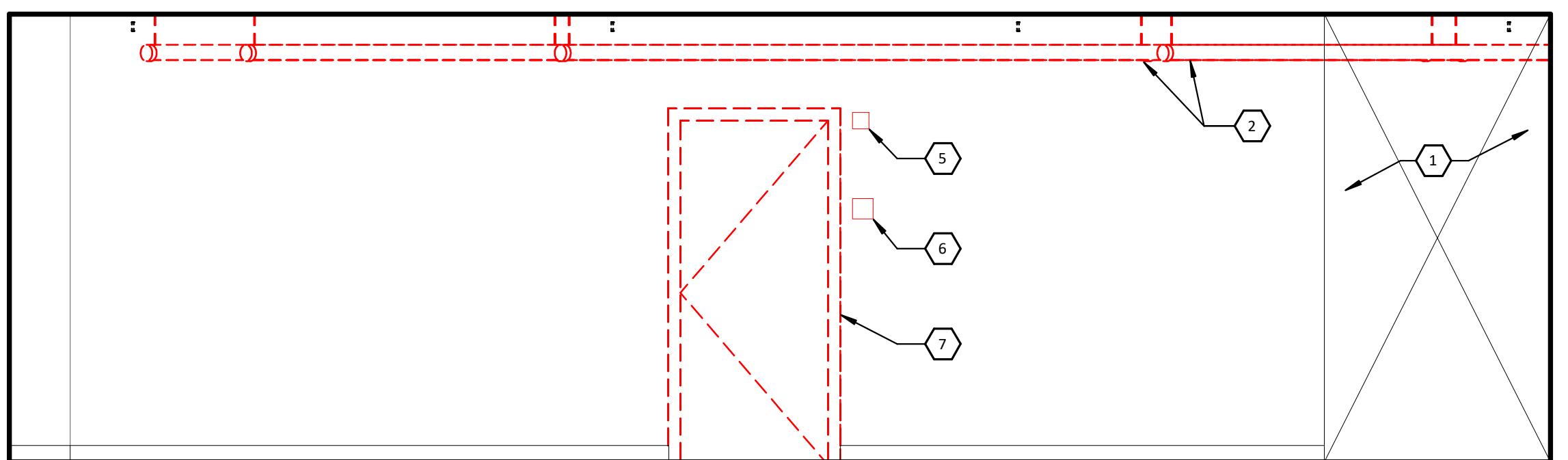
**1 INNOVATION LEARNING STUDIO - SOUTH DEMO**

3/8" = 1'-0"



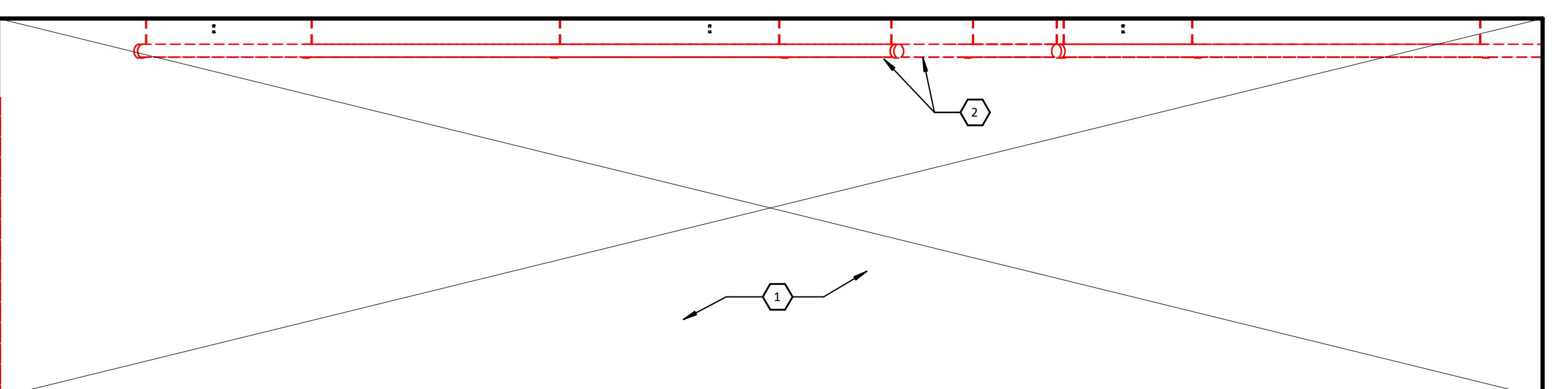
**2 INNOVATION LEARNING STUDIO - WEST DEMO**

3/8" = 1'-0"



**3 INNOVATION LEARNING STUDIO - NORTH DEMO**

3/8" = 1'-0"



**4 INNOVATION LEARNING STUDIO - EAST DEMO**

3/8" = 1'-0"

**INTERIOR  
ELEVATIONS  
DEMOLITION**

**AD211**



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 C. SEE OTHER SHEETS IN THIS SET FOR ADDITIONAL INFORMATION.  
 D. CONTRACTOR SHALL INCLUDE CUTTING AND PATCHING FOR ALL INSTANCES WHERE REQUIRED, WHETHER OR NOT SHOWN/INDICATED ON THESE CONSTRUCTION DOCUMENTS.  
 E. THE EXISTING BUILDING MAY NOT BE LEVEL AND PLUMB. CONTRACTOR SHALL FIELD VERIFY AND PROVIDE CONCEALED SHIMS, ETCS AS NECESSARY TO MAKE NEW WORK LEVEL AND PLUMB UNLESS SPECIFICALLY NOTED OTHERWISE.  
 F. THE INTENT IS TO REPLACE CEILING TILES AND FRAME AS PART OF THIS PROJECT. ENSURE THAT NO ADDITIONAL CEILING TILES AND FRAME, OUTSIDE THE SCOPE OF THE PROJECT, GET DAMAGED AS PART OF THIS PROJECT.

### LEVEL 2 FLOOR PLAN KEYNOTES

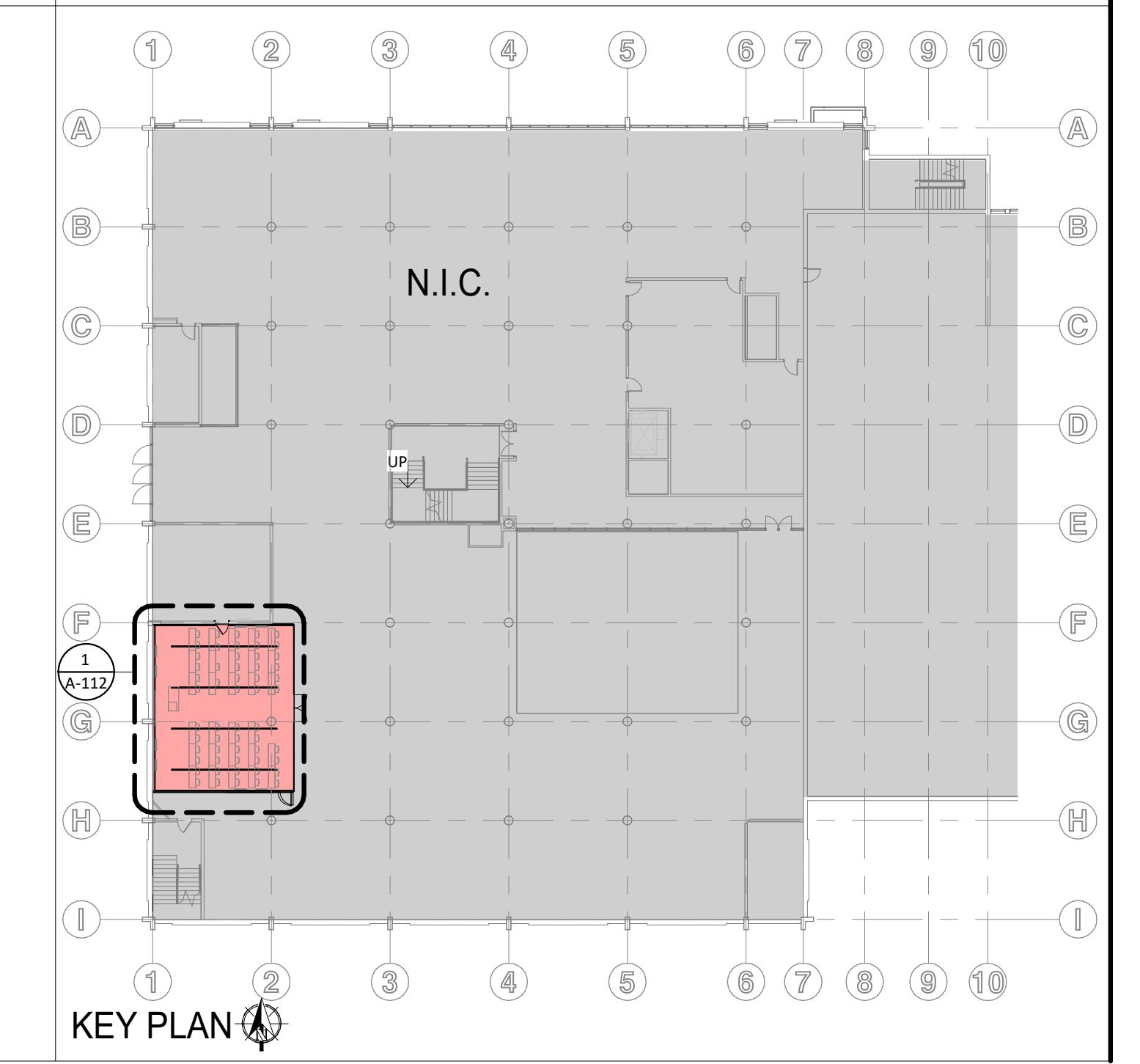
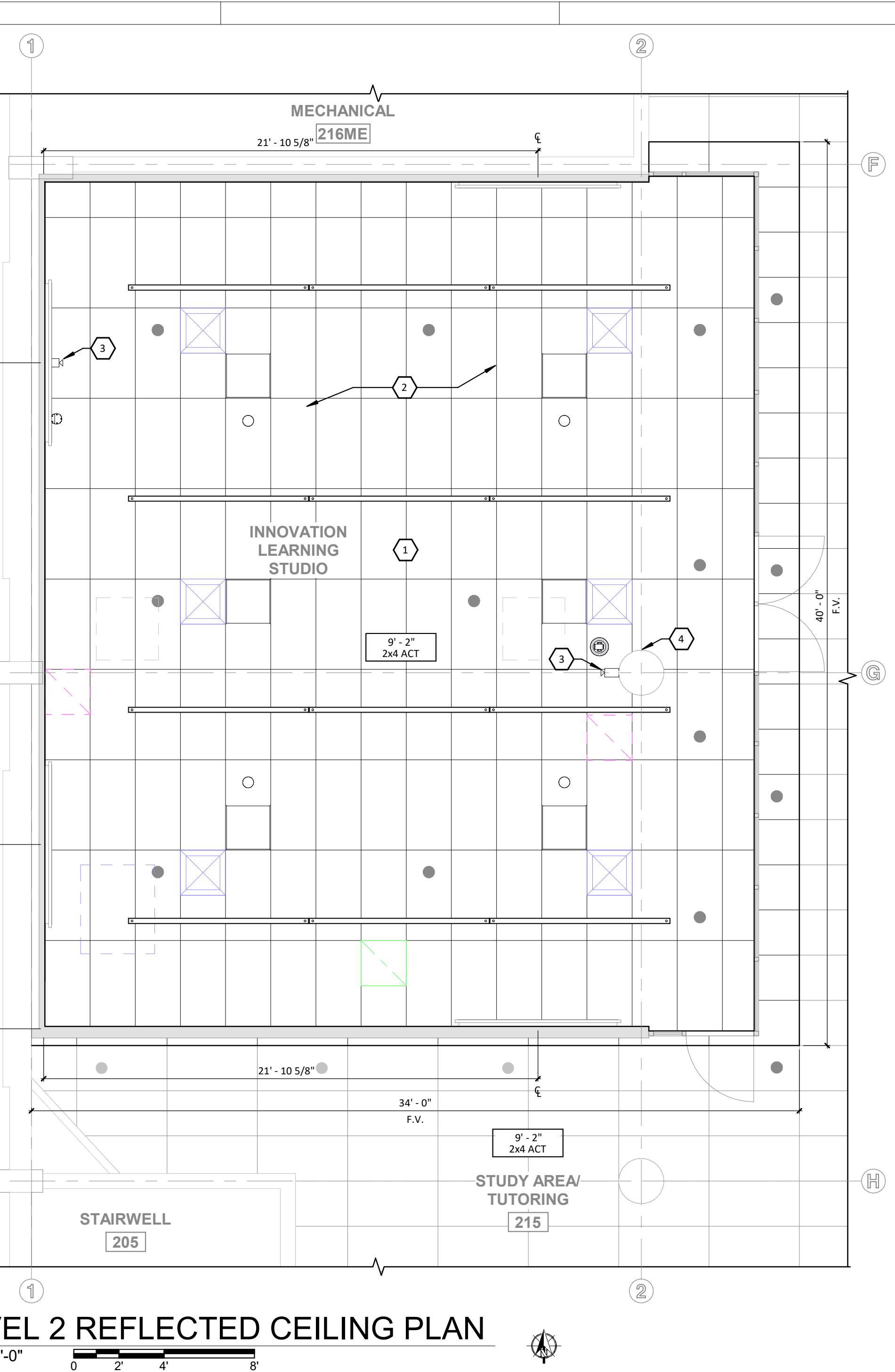
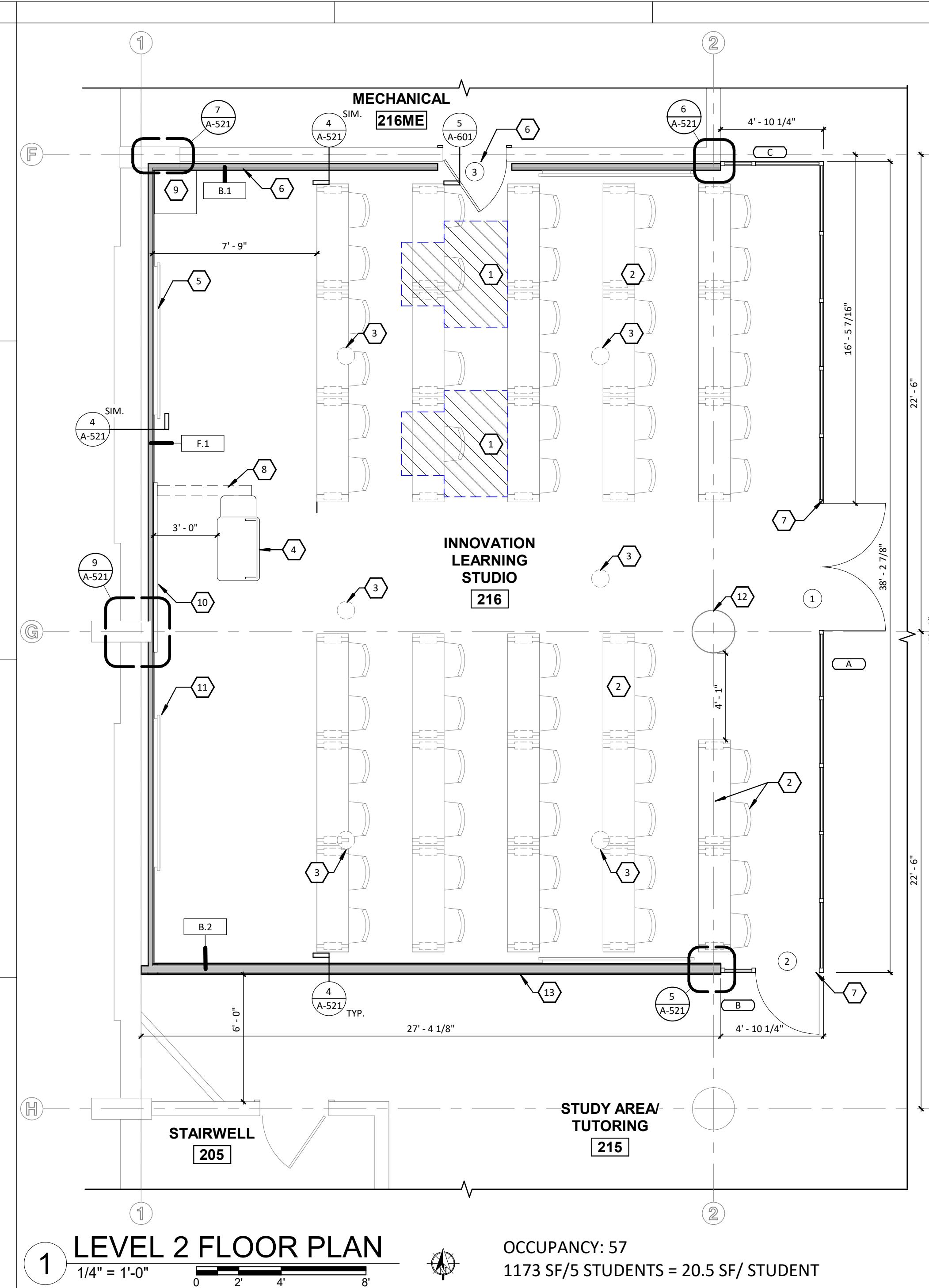
- ADA ACCESSIBLE LOCATION.
- ALL FURNITURE OFCII AND SHOWN FOR SCHEMATIC LAYOUT ONLY.
- EXISTING FLOOR OUTLETS TO REMAIN. SEE ELECTRICAL FOR OUTLETS AT FRAMED WALLS AND COLUMNS.
- WHEELCHAIR ACCESSIBLE, HEIGHT ADJUSTABLE INSTRUCTOR STATION WITH DEDICATED COMPUTER AND CONNECTIONS TO MSU NETWORK. SMART PODIUM LOCATION WILL REQUIRE POWER/NETWORK/AV PATHWAY. SEE ELECTRICAL DRAWINGS. OFCI.
- NEW MECHANICAL ROOM DOOR WILL BE CLOSED, PER FUNCTIONAL USE OF ROOM.
- PACK THE ENTIRE PERIMETER ON BOTH SIDES OF ALL PENETRATIONS THROUGH EXISTING CONCRETE WALL (DUCTS, PIPES, CONDUIT, ETC) FOR ACOUSTIC REQUIREMENTS, WITH MINERAL WOOL AND SEAL USING SPRAY SEALANT SUCH AS HILTI CP-572.
- SEAL THE PERIMETER OF DOORS USING HEAD AND JAMB GASKETS AND DOOR BOTTOM.
- UMBILICAL WIRE RACEWAY. SEE ELECTRICAL.
- AV BACK IN NORTH WEST CORNER, PROVIDED BY MSU. SEE ELECTRICAL D9C.
- 4' x 8' WHITEBOARD, NO TRAY, CFCI BASIS OF DESIGN: OPTIMA GREAT WHITE MAGNETIC WHITEBOARD, PROVIDE BLOCKING WHERE NECESSARY TO ENSURE PROPER INSTALLATION OF WHITEBOARD.
- WALL MOUNTED TV AND MOUNT PROVIDED BY MSU. CONTRACTOR TO INSTALL TV MOUNT. MSU TO INSTALL TV. INSTALL FOR BOTTOM OF TV TO ALIGN WITH TOP OF CHAIR RAIL, SEE 1A-211. SEE 2/112 FOR INSTALL LOCATION ON WALL. OFCI.
- EXISTING COLUMN TO REMAIN.
- 4" BLACK RUBBER BASE ON INTERIOR AND EXTERIOR SIDE OF WALL.

### LEVEL 2 RCP KEYNOTES

- ADJUSTABLE LIGHTING CONTROLS, SEE ELEC.
- USE INTERNALLY LINED SHEET METAL DUCTS FOR SUPPLY AND RETURN IN STUDIO. DO NOT USE FLEX DUCTS OR OPEN RETURN AIR GRILLES.
- CEILING MOUNTED CAMERA. SEE ELECTRICAL.
- EXISTING COLUMN TO REMAIN.

### CEILING PLAN LEGEND

ACT	2X4 ACOUSTIC CEILING TILE, WITH 15/16" GRID
ACT EXISTING	2X4 ACOUSTIC CEILING TILE



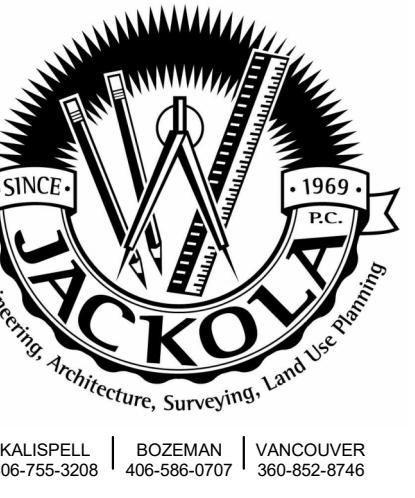
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REVISIONS:

**LEVEL 2 FLOOR  
PLAN & RCP**

**A-112**



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# ENTIRE SHEET IS ALTERNATE #1

**GENERAL PLAN NOTES:**

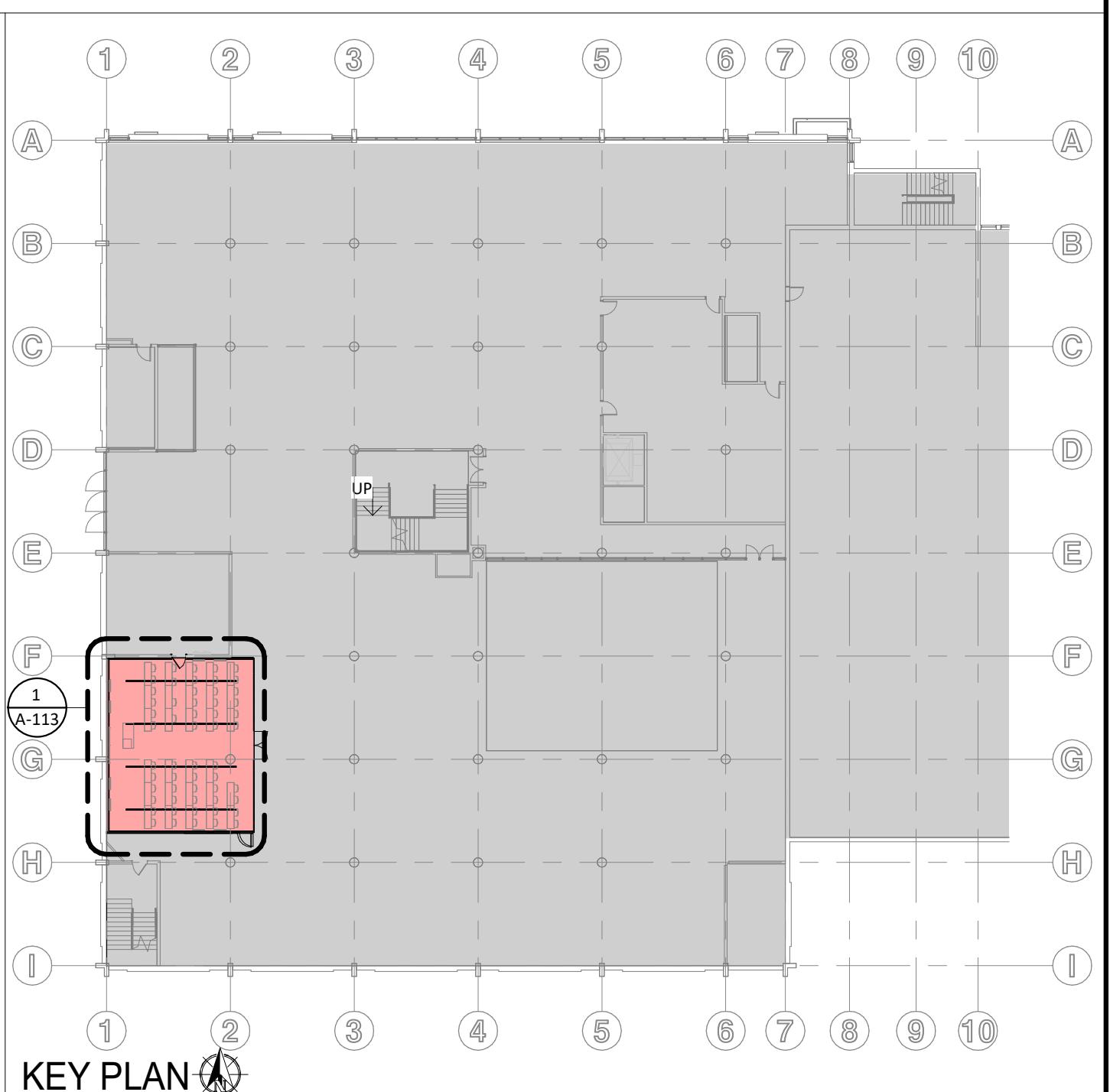
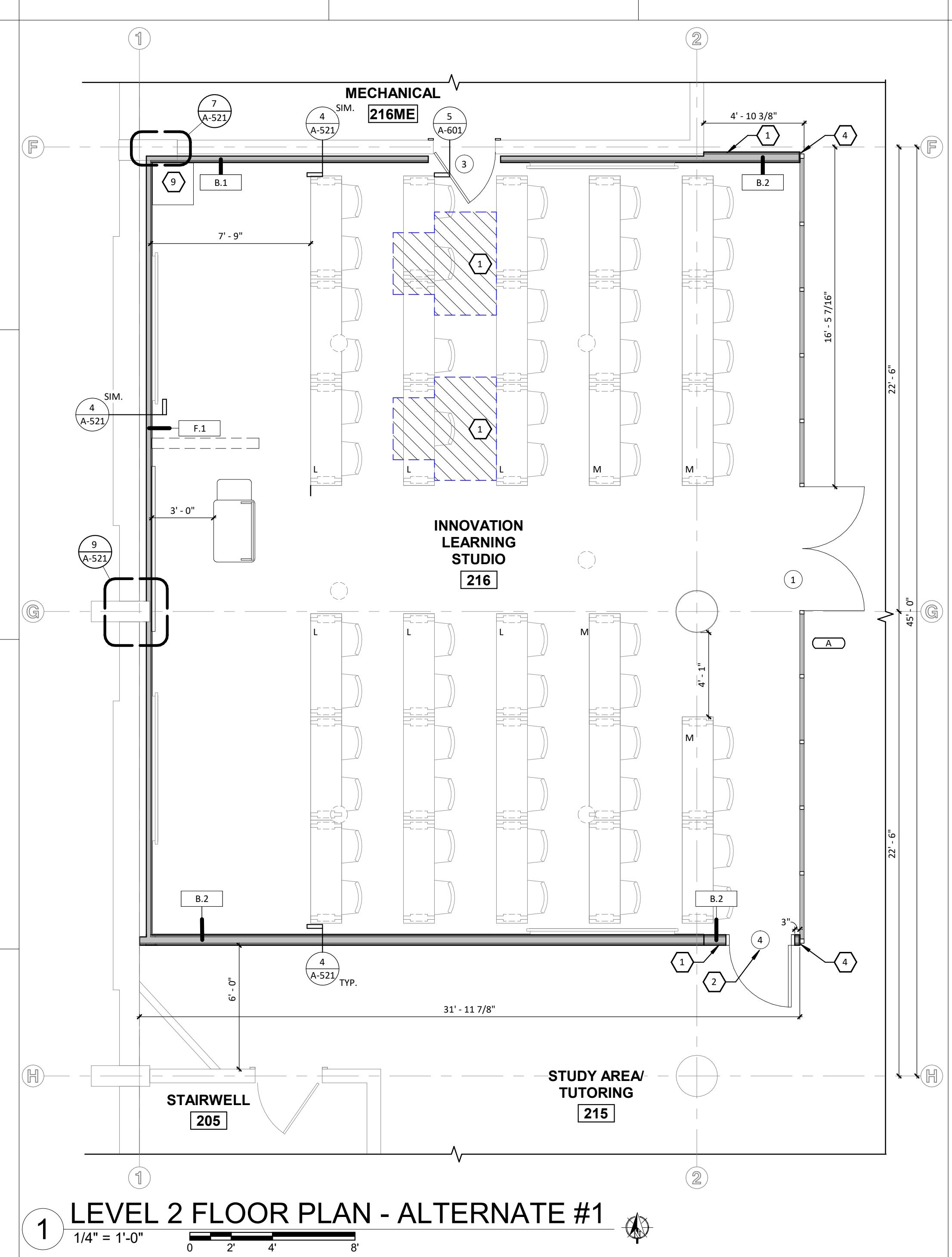
- SEE G-001 PROJECT TITLE SHEET FOR GENERAL NOTES.
- PROTECT EXISTING BUILDING OUTSIDE OF THIS SCOPE OF WORK AT ALL TIMES.
- SEE OTHER SHEETS IN THIS SET FOR ADDITIONAL INFORMATION.
- CONTRACTOR SHALL INCLUDE CUTTING AND PATCHING FOR ALL INSTANCES WHERE REQUIRED, WHETHER OR NOT SHOWN/INDICATED ON THESE CONSTRUCTION DOCUMENTS.
- THE EXISTING BUILDING MAY NOT BE LEVEL AND PLUMB. CONTRACTOR SHALL FIELD VERIFY AND PROVIDE CONCEALED SHIMS, ETC AS NECESSARY TO MAKE NEW WORK LEVEL AND PLUMB ASLESS AS PRACTICAL, NOTED OTHERWISE.
- ALL TABLES AND CHAIRS ARE CFC.
- THE INTENT IS TO REPLACE CEILING TILES AND FRAME AS PART OF THIS PROJECT. ENSURE THAT NO ADDITIONAL CEILING TILES AND FRAME, OUTSIDE THE SCOPE OF THE PROJECT, GET DAMAGED AS PART OF THIS PROJECT.
- NOT ALL KEYNOTES USED ON THIS SHEET. REFERENCE A-112.
- ALTERNATE #1 DOES NOT CHANGE THE SCOPE OF THE CEILING WORK ON A-112.

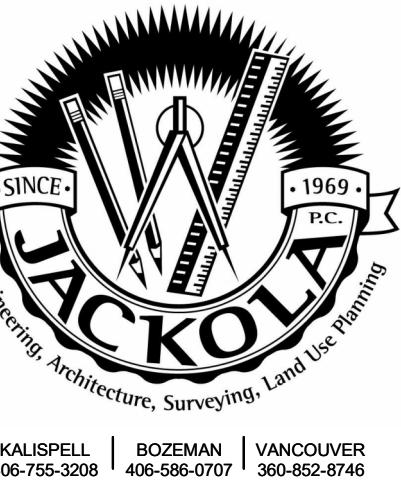
## LEVEL 2 FLOOR PLAN KEYNOTES ALT#1

- FRAMED WALL REPLACES STOREFRONT WALL IN BASE BID. MATCH WALL FINISH OF ADJACENT WALL.
- HOLLOW METAL DOOR REPLACED STOREFRONT DOOR IN BASE BID.
- INTERIOR FINISH OF B.2 TO ALIGN WITH INTERIOR FINISH OF B.1
- WRAP GWB AT ENDS OF WALL WHERE THEY INTERSECT WITH STOREFRONT SYSTEM.

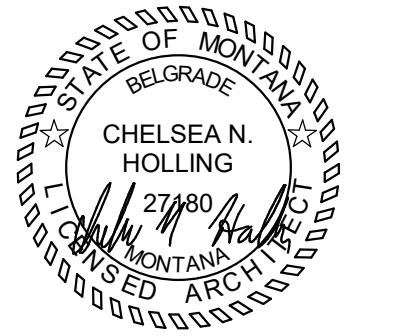
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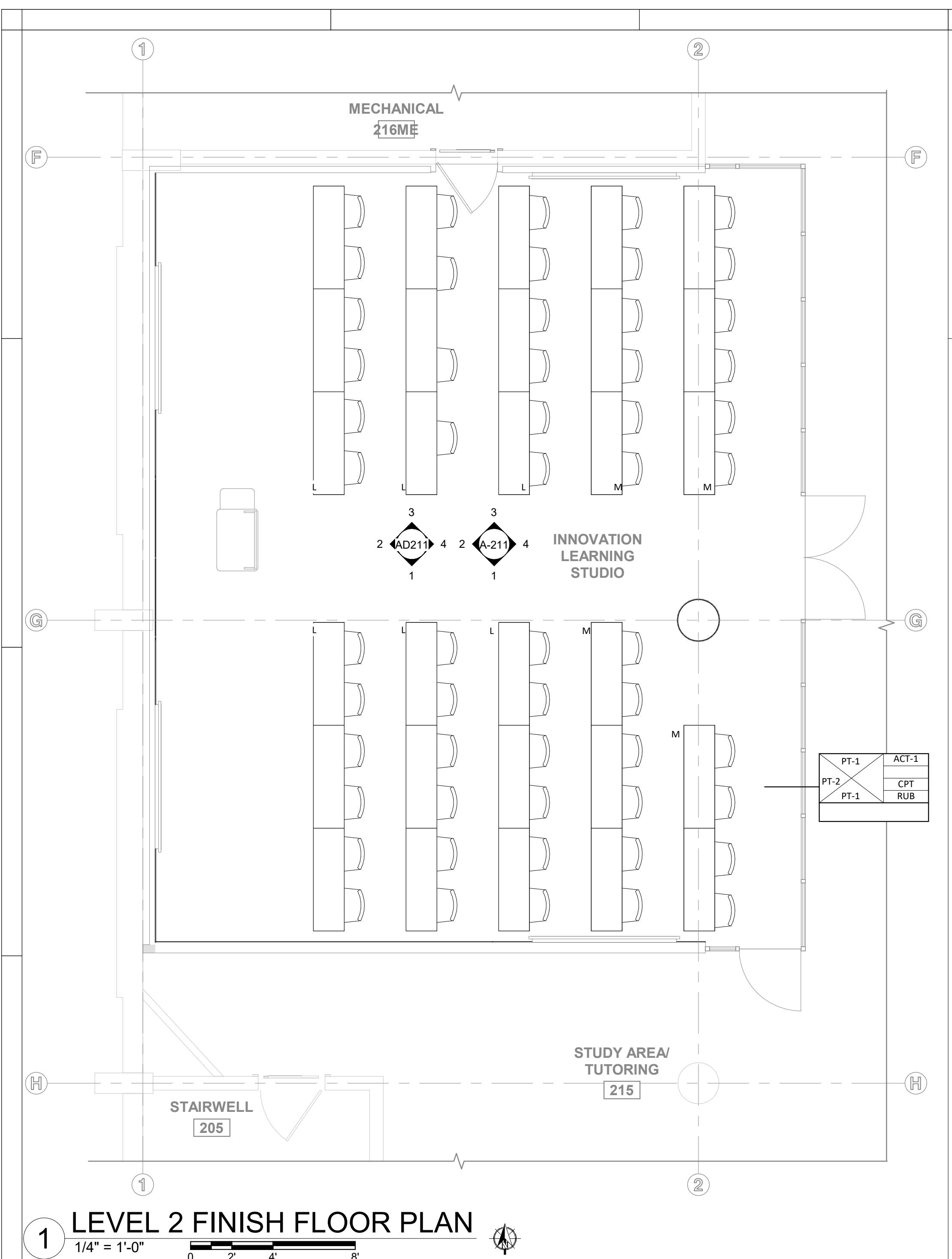


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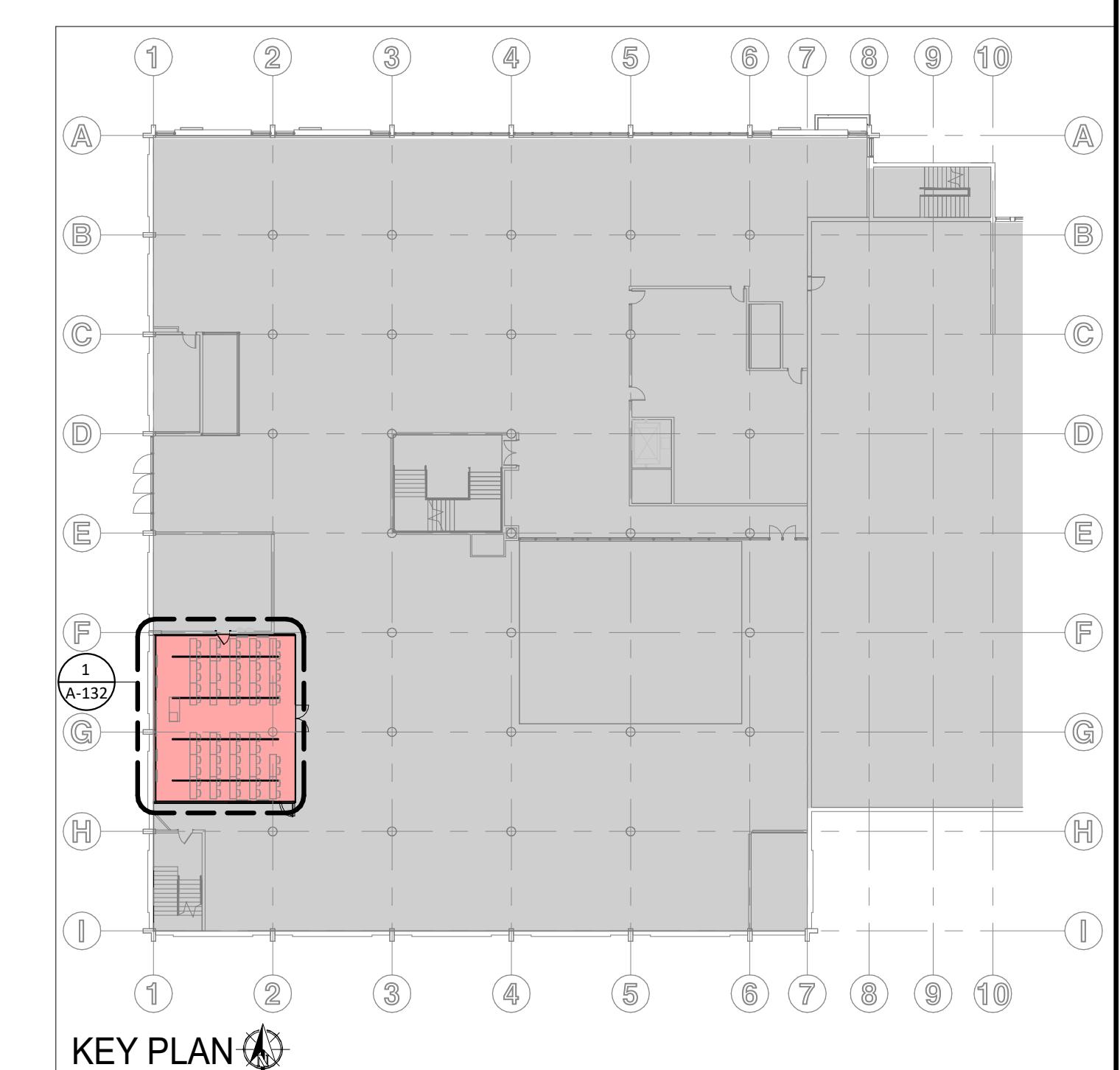
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### ROOM FINISH KEY

WALL	CEILING
WALL	SILL
WALL	FLOOR
WALL	BASE
NOTES	

FINISH SCHEDULE						
TAG	KEY	COLOR	MANUFACTURER	STYLE	NOTE	
ACT-1	ACOUSTIC CEILING TILE	WHITE	ARMSTRONG	CIRRUS 581	24" X 48" SQUARE LAY-IN 15/16, 0.70 NRC	
MET	DOOR	FIRST STAR	IAC ACOUSTICS	PAINTED METAL		
PT-1	PAINT	LINEN WHITE 912	BENJAMIN MOORE	EGGSHELL		
PT-2	PAINT	SW 6503 BOSPORUS	SHERWIN WILLIAMS	EGGSHELL	PROMAR 200	
RUB	RUBBER BASE	BLACK	JOHNSONITE	DURACOVE 4"	THERMOPLASTIC RUBBER 1/8"	
SS-1	SOLID SURFACE	CARBON CONCRETE	CORIAN		CHAIR RAIL (9 5/8" H X 1 2/8" D)	



A-132

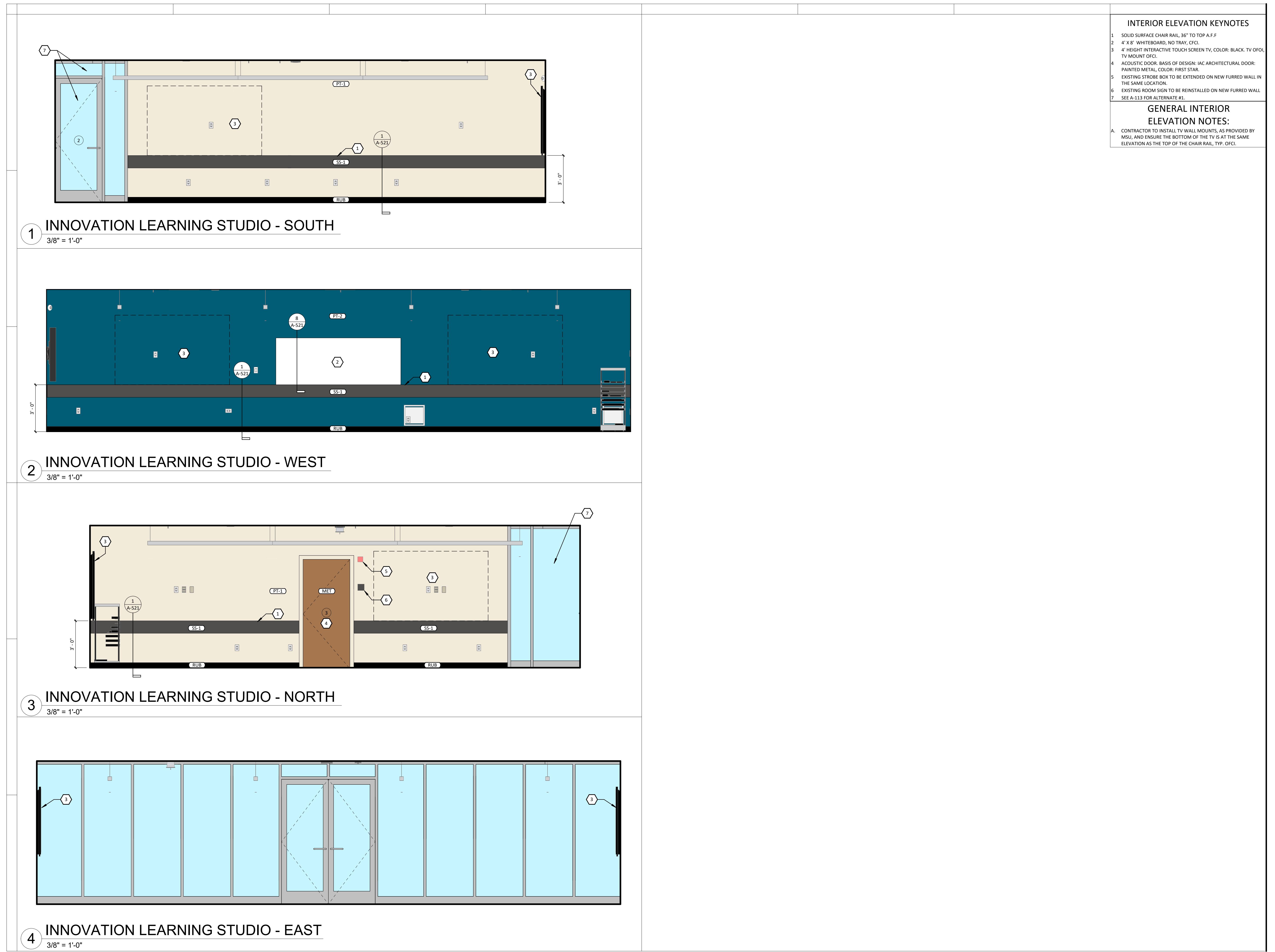


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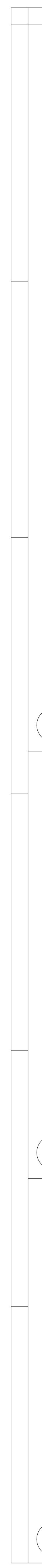
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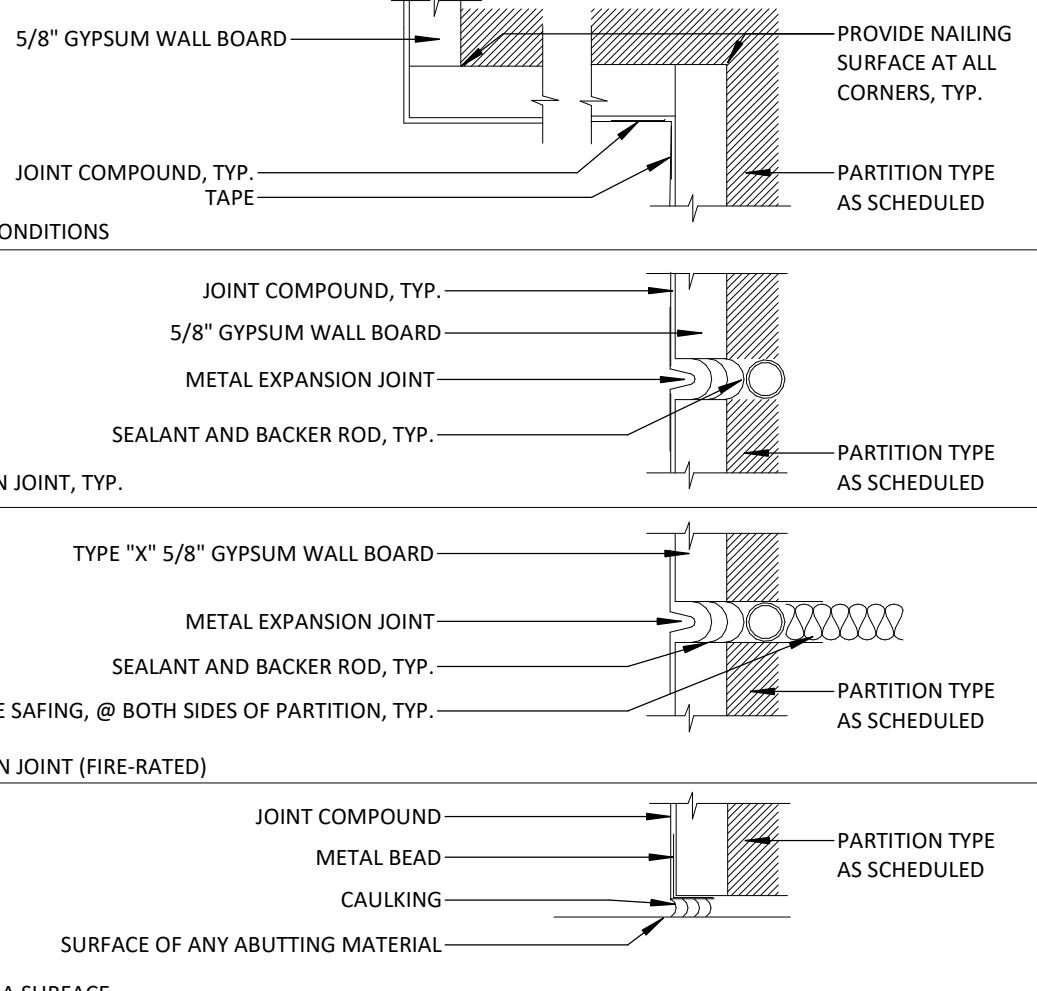
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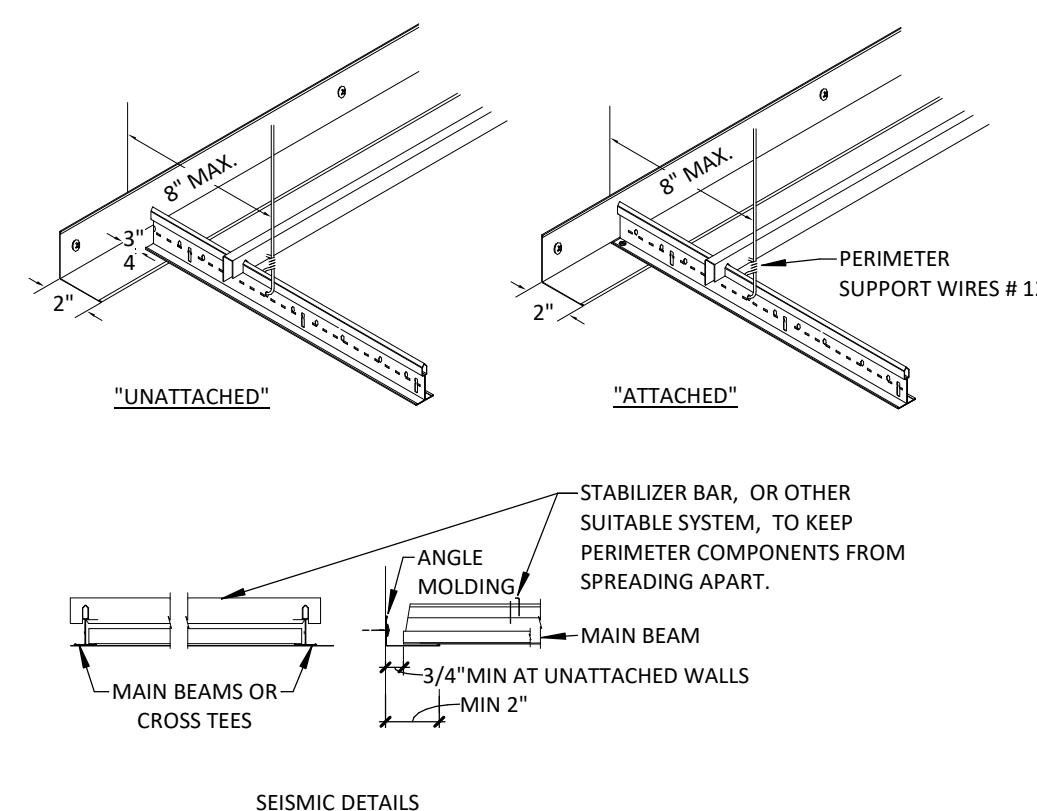
GENERAL INTERIOR NOTES:	
A.	GC TO COORDINATE WITH OWNER/EQUIPMENT SUPPLIER FOR REQUIRED DIM, CLEARANCES, AND OTHER REQUIREMENTS PRIOR TO CASEWORK CONSTRUCTION/INSTALL.
B.	ALL PRODUCTS ARE TO BE INSTALLED PER MANUFACTURERS INSTRUCTIONS, USING MANUFACTURERS ADHESIVES, TOOLS AND METHODS.
C.	GWB TO HAVE SMOOTH TEXTURE. ALL GWB EDGES TO HAVE 3/4" SQUARE EDGE.
D.	ALL WALL SUPPORTED CABINERY, WHITEBOARDS AND SHELVING TO HAVE BLOCKING.
E.	PROVIDE TRANSITION STRIPS AT ALL LOCATIONS WHERE DISSIMILAR FLOOR MATERIALS MEET.
F.	FLOOR THRESHOLDS AND TRANSITION STRIPS MUST BE ADA ACCESSIBLE.
G.	PROVIDE STAINLESS STEEL TRANSITION STRIPS/REDUCERS AT ALL LOCATIONS WHERE CERAMIC TILE MEETS A DIFFERENT MATERIAL.
H.	PROVIDE APPROPRIATE TRANSITION STRIPS/REDUCERS AT ALL OTHER LOCATIONS BETWEEN DIFFERENT MATERIALS UNLESS NOTED OTHERWISE. SEE TRANSITION CALL OUTS. ALL TRANSITIONS TO MEET ADA REQUIREMENTS. INSTALLATION TECHNIQUES SHALL CONFORM TO TILE COUNCIL OF AMERICA HANDBOOK AND REQUIREMENTS OF ANSI A137.1.
I.	COORDINATE LOCATIONS OF ELECTRIC SWITCHES, PANELS, WATER SERVICE, TELEPHONE SERVICE, ETC. WITH UTILITIES COMPANIES. COORDINATE ALL WORK WITH THE MECHANICAL, PLUMBING & ELECTRICAL CONTRACTORS.
J.	ALL INDIVIDUAL CONTRACTORS MUST COMPLY WITH GOVERNING CODES. REFER TO SPECIFICATIONS AND FINISH SCHEDULES FOR FURTHER FINISH MATERIAL/PRODUCT INFORMATION.
K.	SEE ELEVATIONS FOR ADDITIONAL FINISHES FOR CEILING HEIGHTS AND ADDITIONAL FINISHES SEE RCP'S.
L.	FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.
M.	ALL FLOOR TRANSITIONS ARE TO OCCUR DIRECTLY BEHIND DOOR UNLESS NOTED OTHERWISE.
N.	ALL METAL ACCESS PANELS, COVER PLATES, VENTS AND GRILLES TO BE PAINTED TO MATCH THE SURFACE IT IS LOCATED ON, UNLESS PREFINISHED.



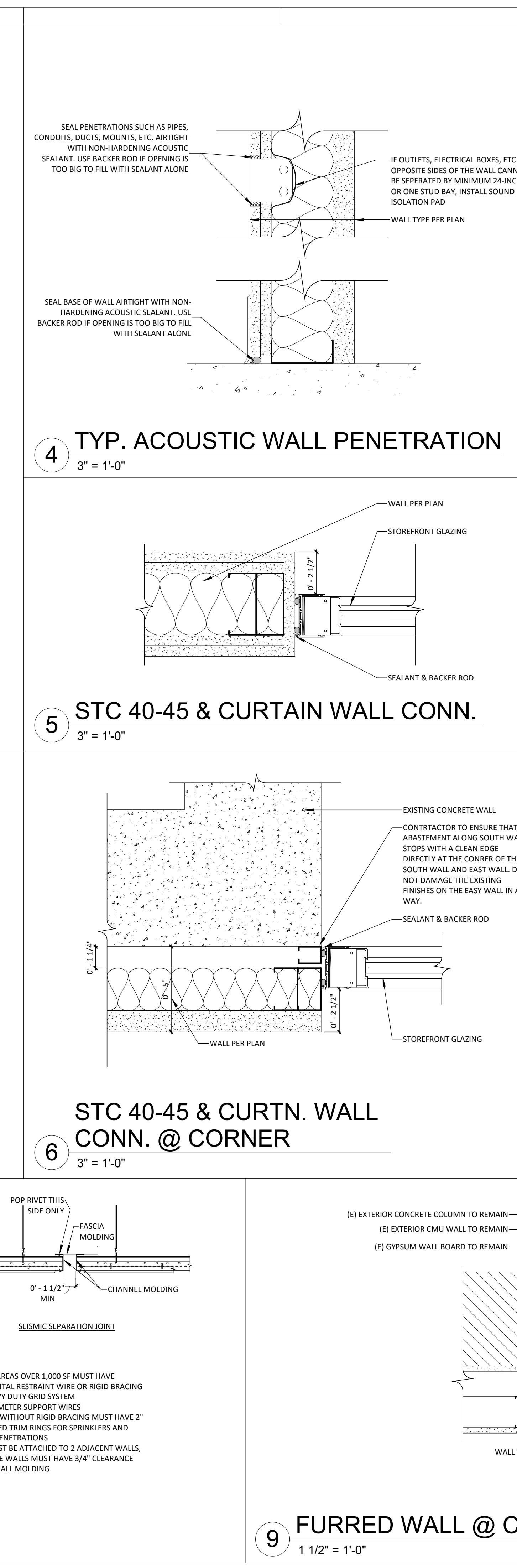
1 BASE & CHAIR RAIL DTL  
6" = 1'-0"



2 GYPSUM WALLBOARD DTL  
3" = 1'-0"



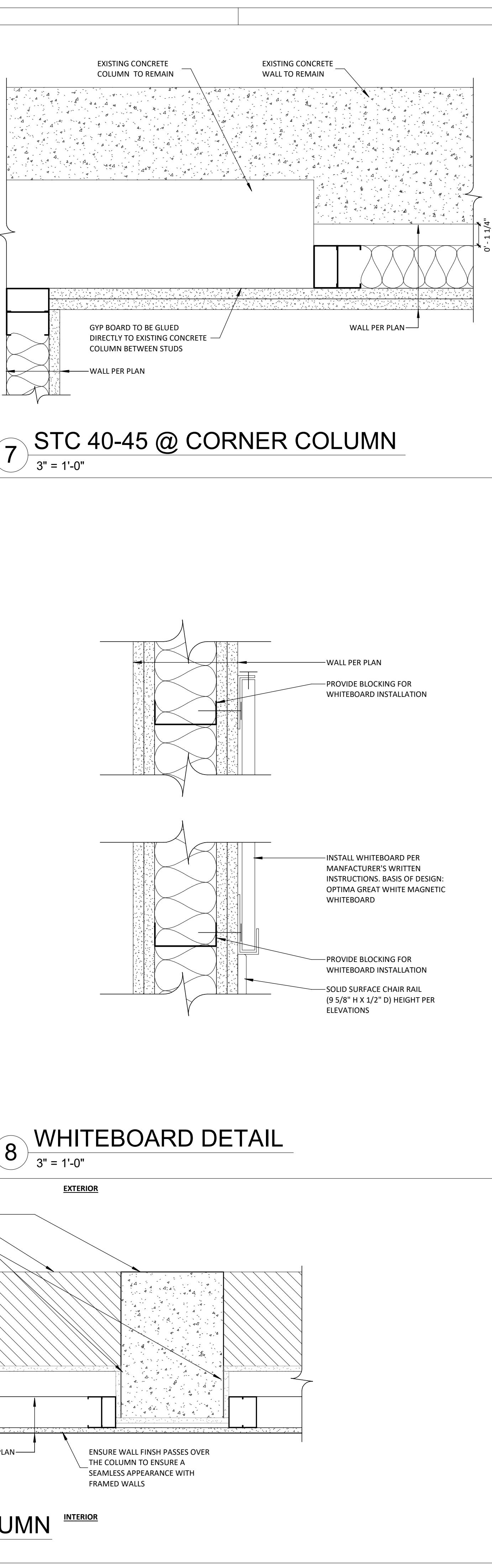
3 HUNG CEILING DETAILS - SEISMIC  
1 1/2" = 1'-0"



4 TYP. ACOUSTIC WALL PENETRATION  
3" = 1'-0"

5 STC 40-45 & CURTAIN WALL CONN.  
3" = 1'-0"

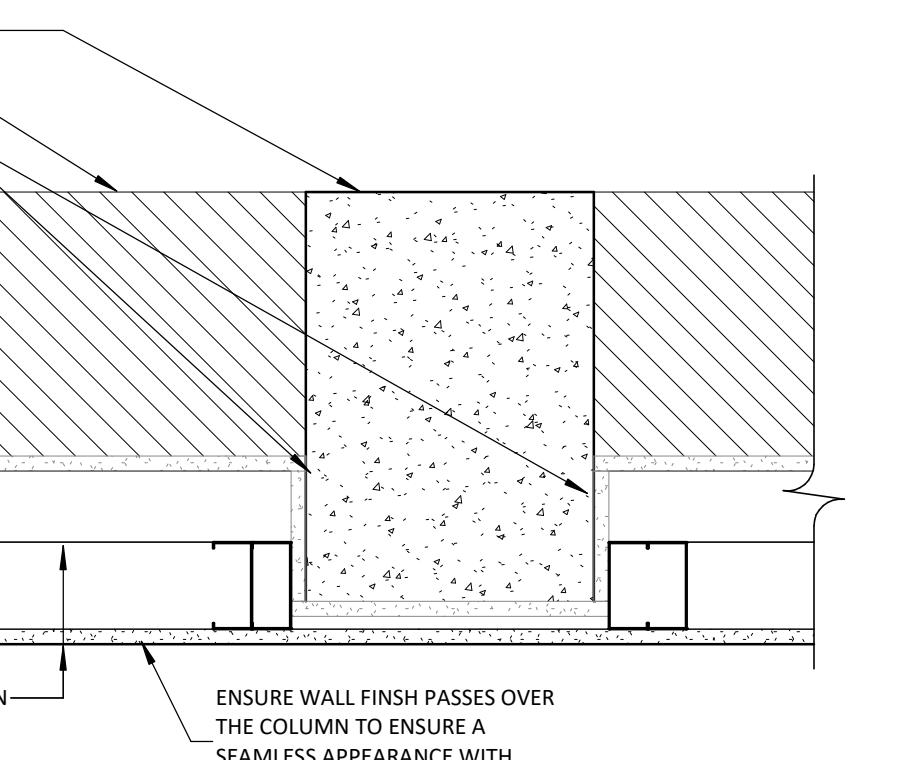
6 STC 40-45 & CURTN. WALL CONN. @ CORNER  
3" = 1'-0"



7 STC 40-45 @ CORNER COLUMN  
3" = 1'-0"

8 WHITEBOARD DETAIL  
3" = 1'-0"

EXTERIOR



9 FURRED WALL @ COLUMN  
1 1/2" = 1'-0"

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FINISH DETAILS

A-521



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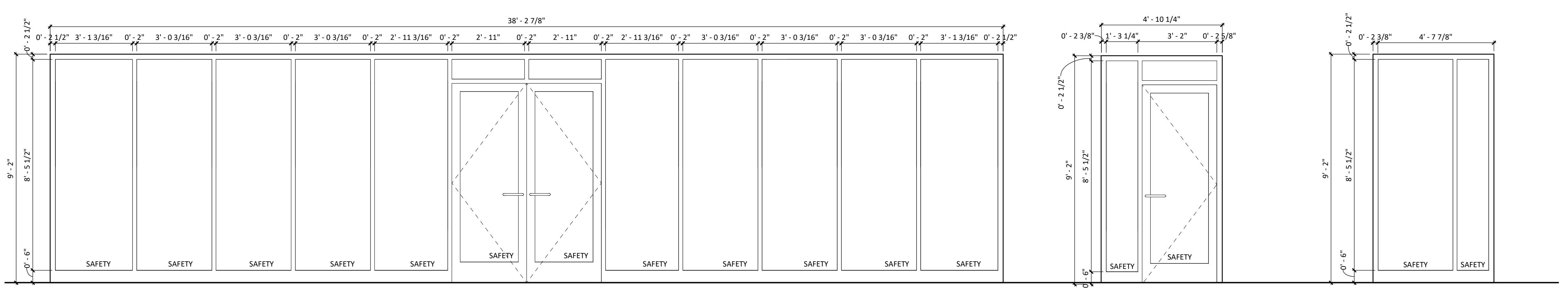
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## WINDOW & DOOR SCHEDULES & DETAILS

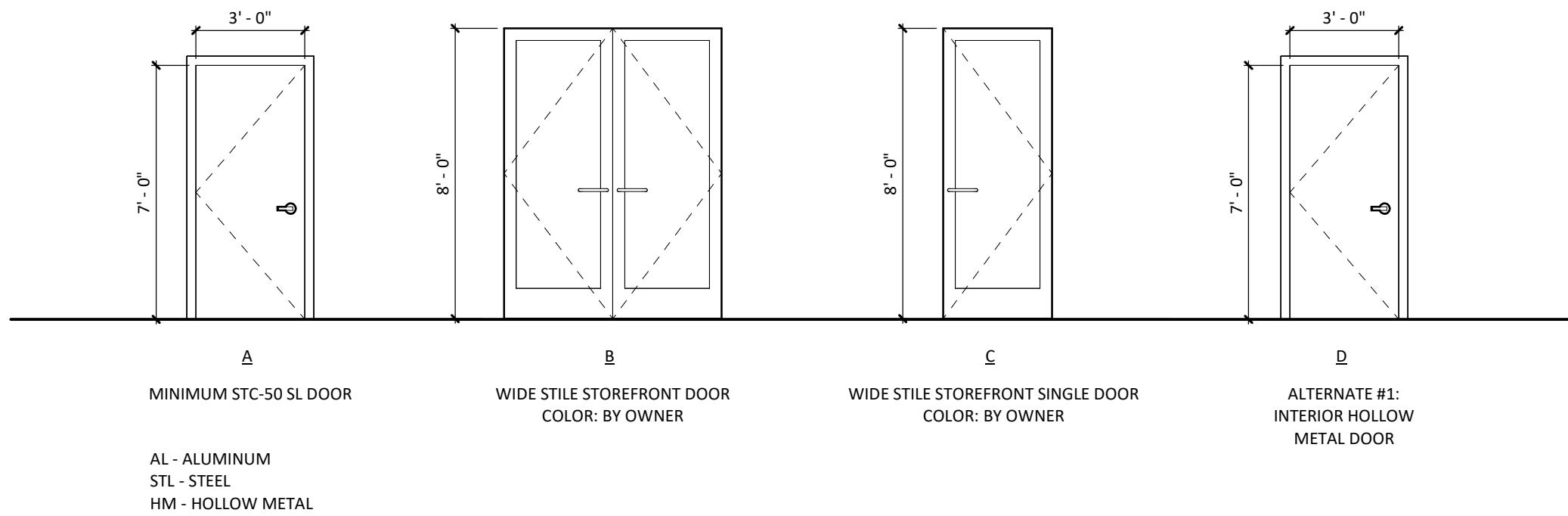
A-601



SAFETY GLAZING REQUIRED LOCATIONS:  
 - ALL DOORS  
 - GLAZING IN FIXED OR OPERABLE PANELS ADJACENT TO A DOOR WHERE THE NEAREST VERTICAL IS WITHIN 24" ARC OF EITHER VERTICAL EDGE OF DOOR IN A CLOSED POSITION AND WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60" ABOVE WALKING SURFACE  
 - GLAZING ADJACENT TO STAIRWAYS, LANDINGS AND RAMPS WITHIN 36" HORIZONTALLY OF WALKING SURFACE WHEN EXPOSED SURFACE OF GLASS IS LESS THAN 60" ABOVE THE WALKING SURFACE (EXCEPTION: IF HANDRAIL OR GUARD IS INSTALLED POSITIONED WITHIN 34° 30' ABOVE WALKING SURFACE, CAPABLE OF WITHSTANDING 50 LBS OF FORCE/ FT WITHOUT TOUCHING THE GLASS)  
 - GLAZING ADJACENT TO STAIRWAYS WITHIN 60" HORIZONTALLY OF THE BOTTOM TREAD OF THE STAIRWAY IN ANY DIRECTION WHEN THE EXPOSED SURFACE OF THE GLASS IS LESS THAN 60" ABOVE THE NOSE OF THE TREAD.

## 1 WINDOW LEGEND

1/4" = 1'-0"



## 2 DOOR LEGEND

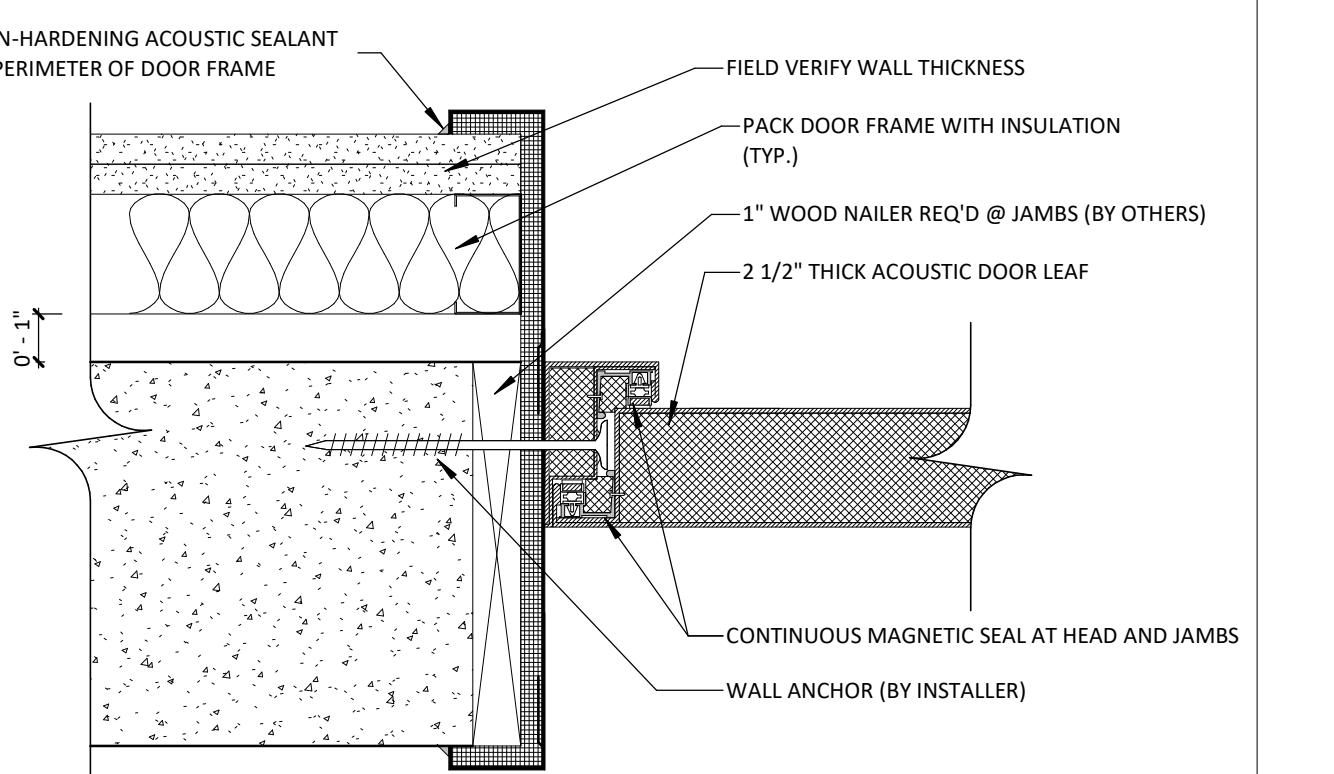
1/4" = 1'-0"

### DOOR SCHEDULE

DOOR NO.	FROM	TO	SIZE	ELEVATION TYPE	DOOR MAT.	FRAME MAT.	LITE	HWADRE	DOOR STOP (W:WALL, F: FLOOR)	REMARKS
1	STUDY AREA/ TUTORING	215 INNOVATION LEARNING STUDIO	216	Store Front Single Door	B	AL	AL	FULL	HDW-2 DOUBLE ENTRANCE	N/A
2	INNOVATION LEARNING STUDIO	216 STUDY AREA/ TUTORING	215	Store Front Single Door	C	AL	AL	FULL	HDW-1 SINGLE ENTRANCE	N/A
3	MECHANICAL ME	INNOVATION LEARNING STUDIO	216	3'-0" x 7'-0" x 1 3/4"	A	STL	AL	N/A	HDW-3 STORAGE	W
4	INNOVATION LEARNING STUDIO	216 STUDY AREA/ TUTORING	215	3'-0" x 7'-0" x 1 3/4"	D	HM	HM	N/A	HDW-1 SINGLE ENTRANCE	N/A
										AL - ALUMINUM STL - STEEL HM - HOLLOW METAL

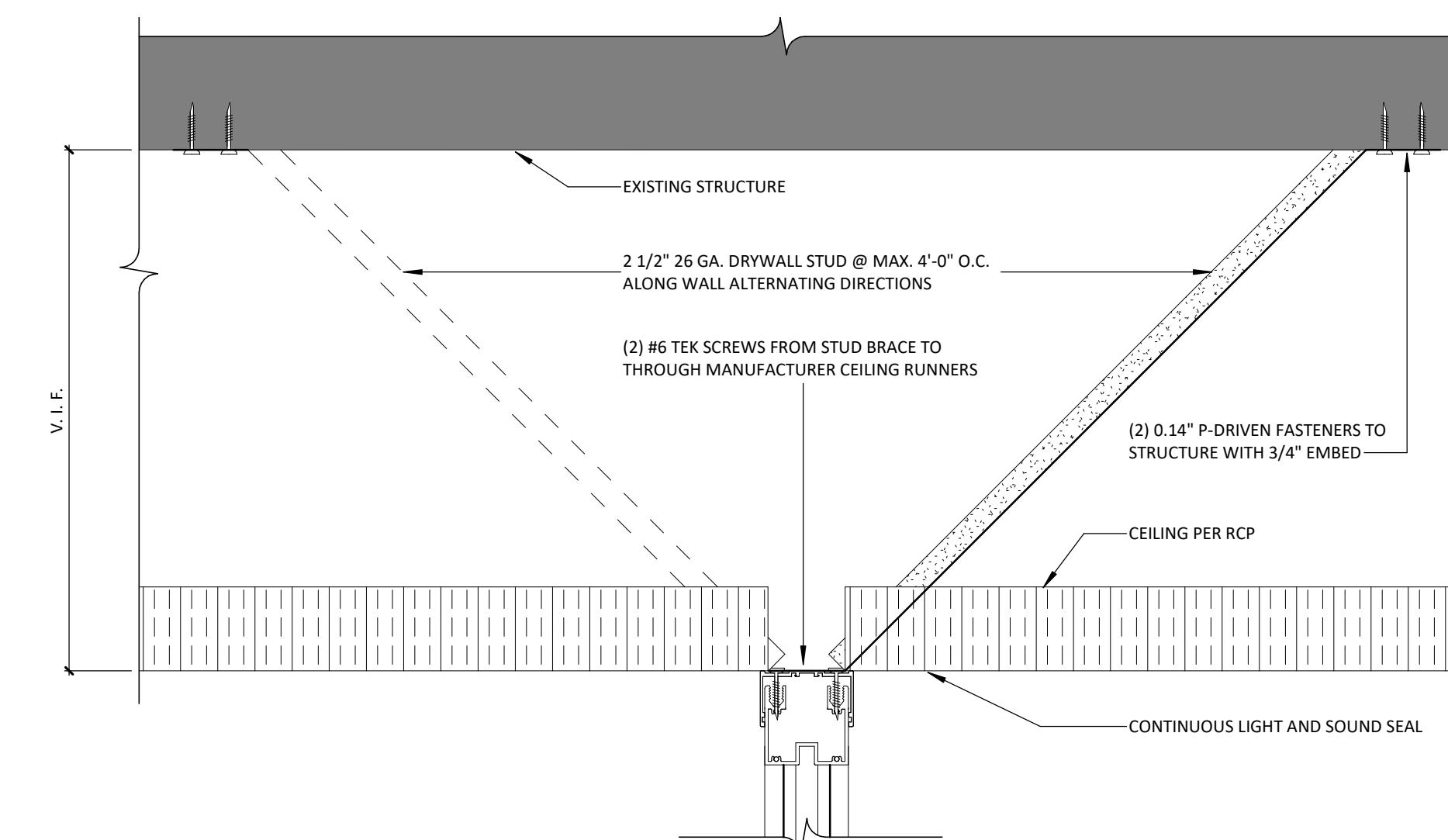
## 4 STC DOOR HEAD DETAIL

3" = 1'-0"



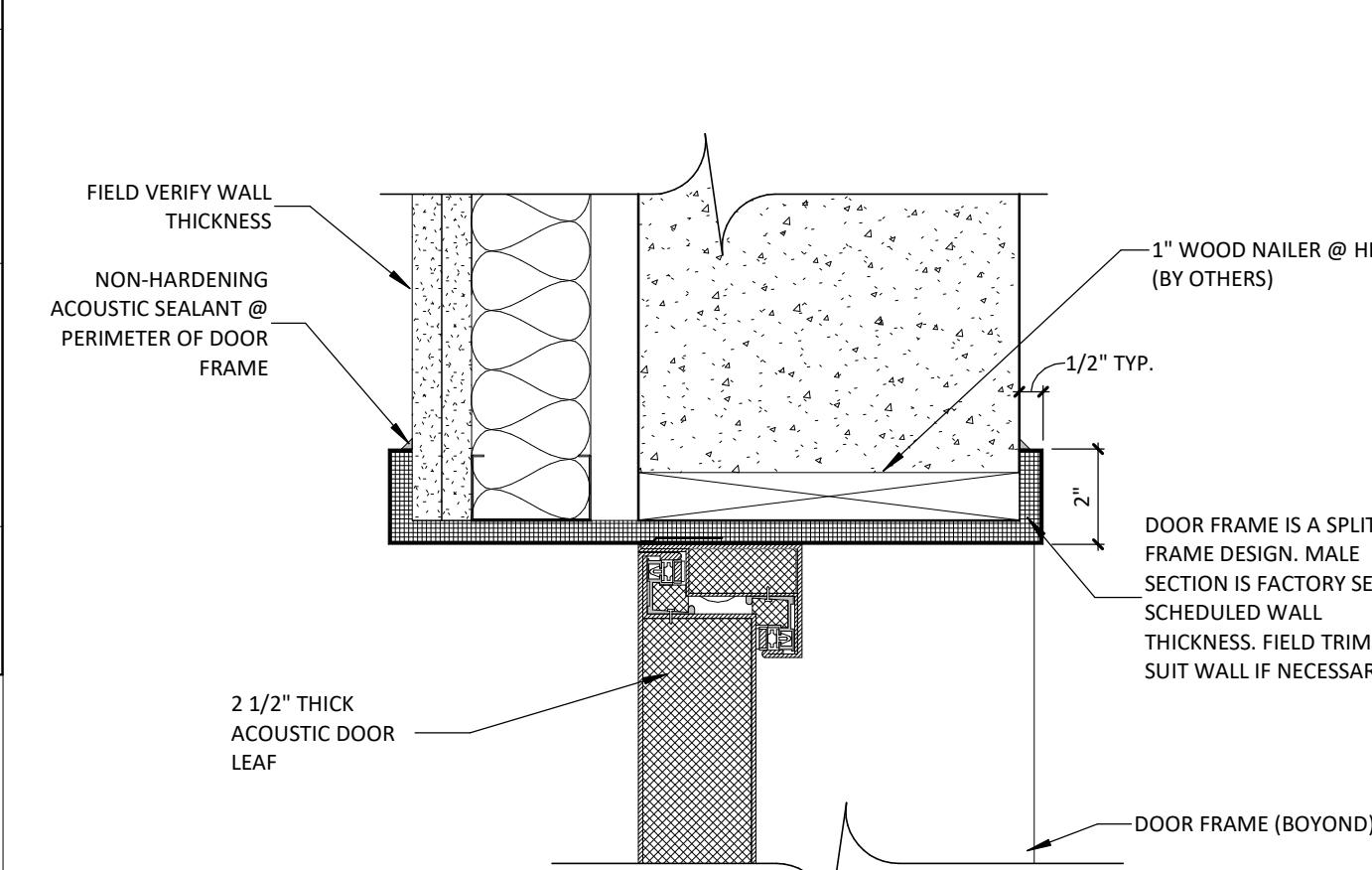
## 6 WINDOW HEAD DETAIL

3" = 1'-0"



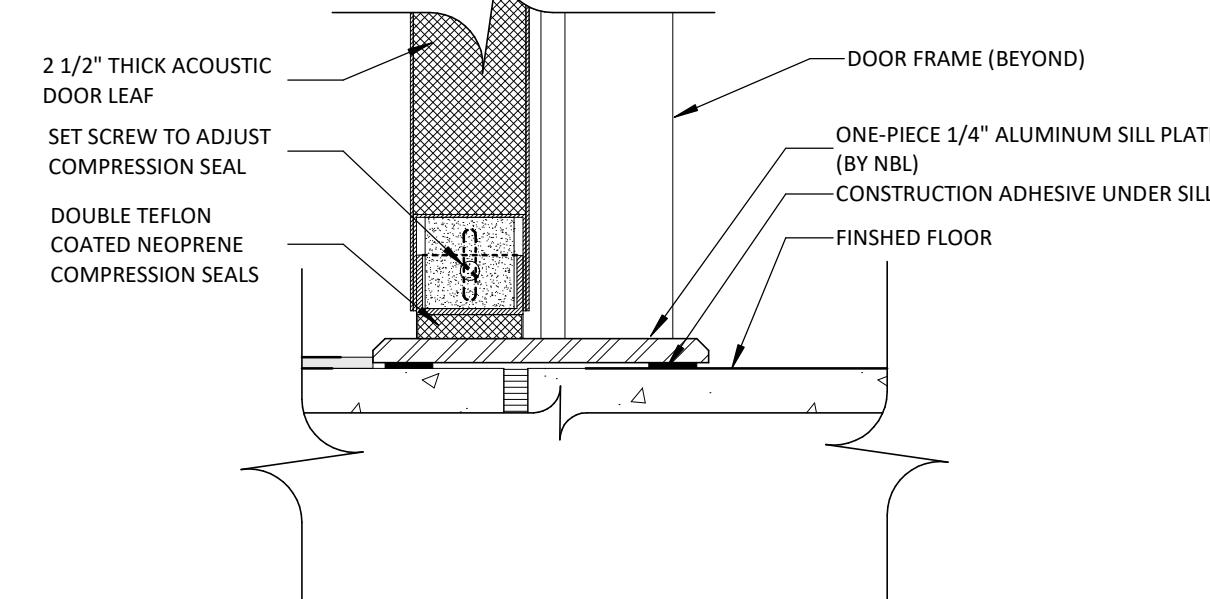
## 3 STC DOOR HEAD DETAIL

3" = 1'-0"



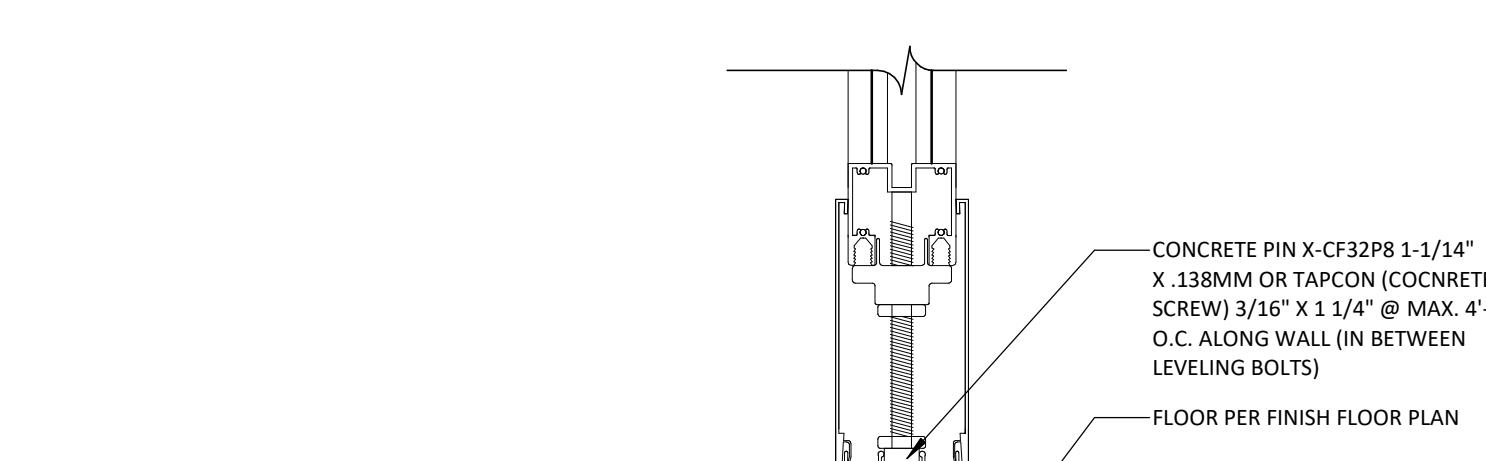
## 5 DOOR SILL DETAIL

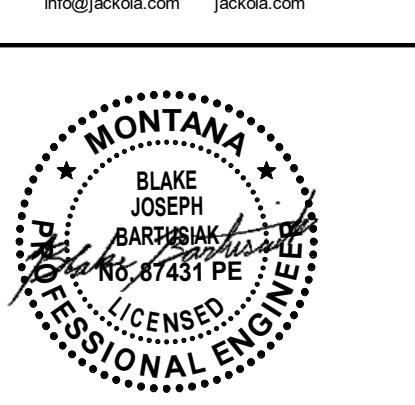
3" = 1'-0"



## 8 WINDOW SILL DETAIL

3" = 1'-0"





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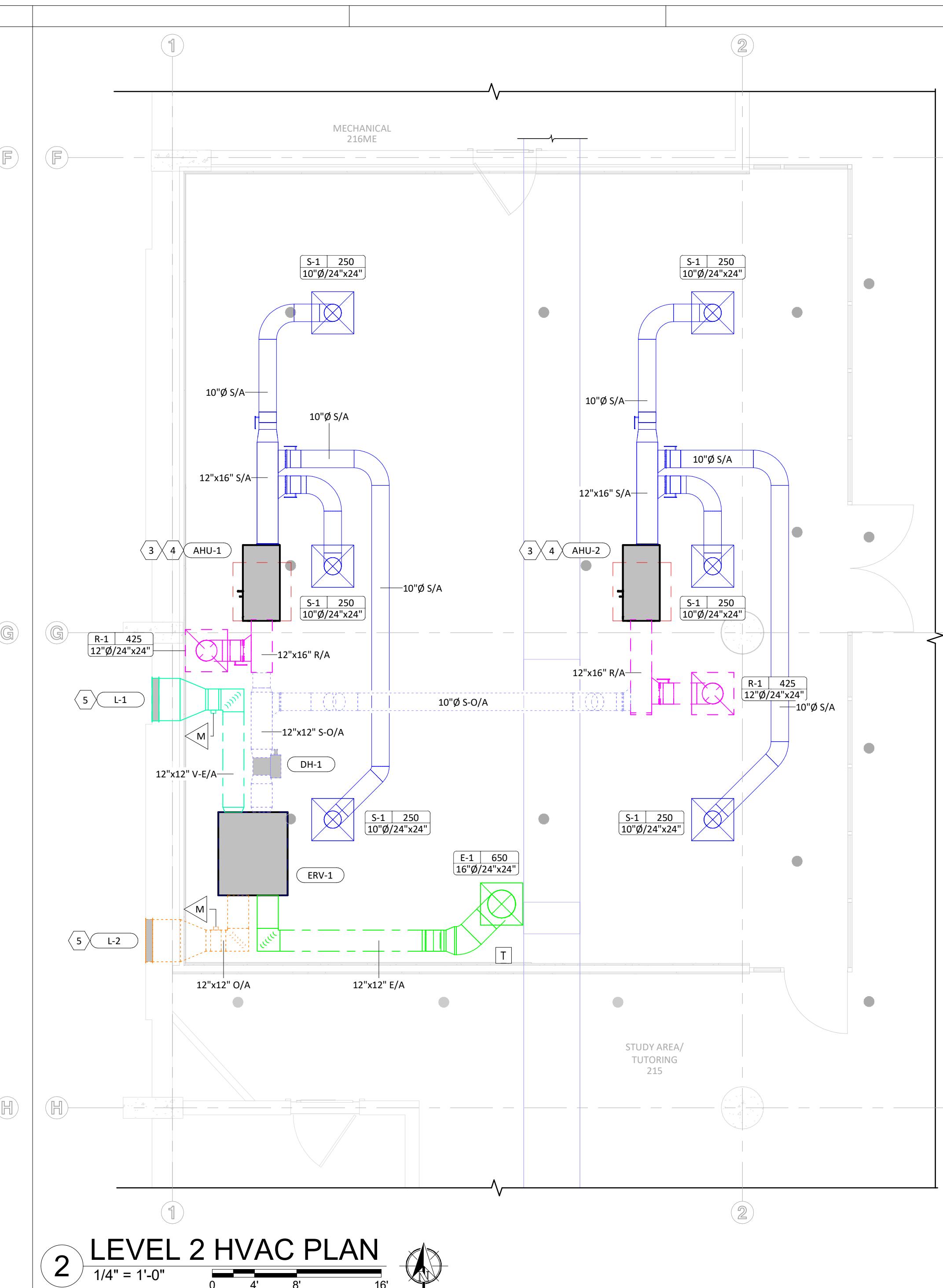
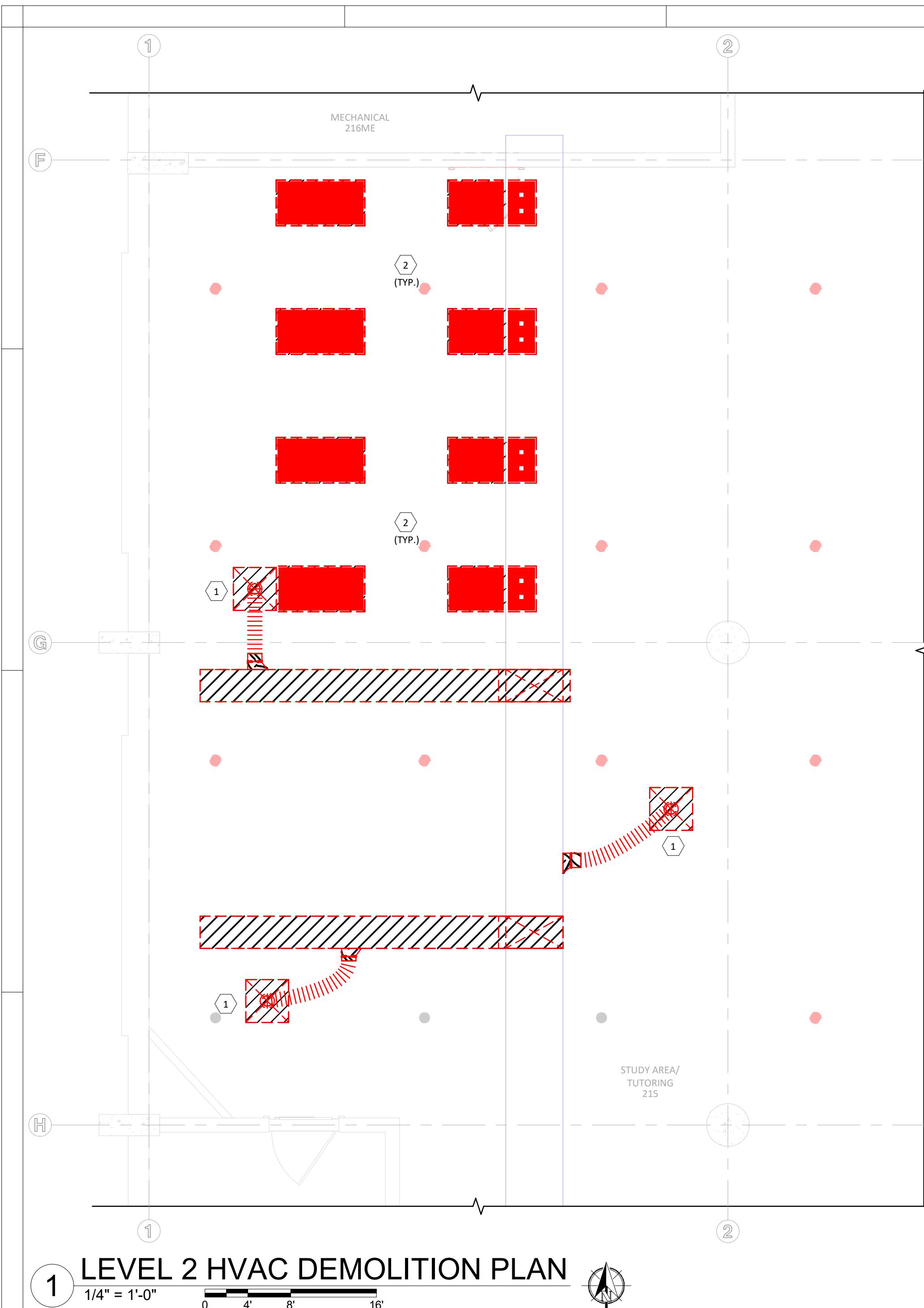
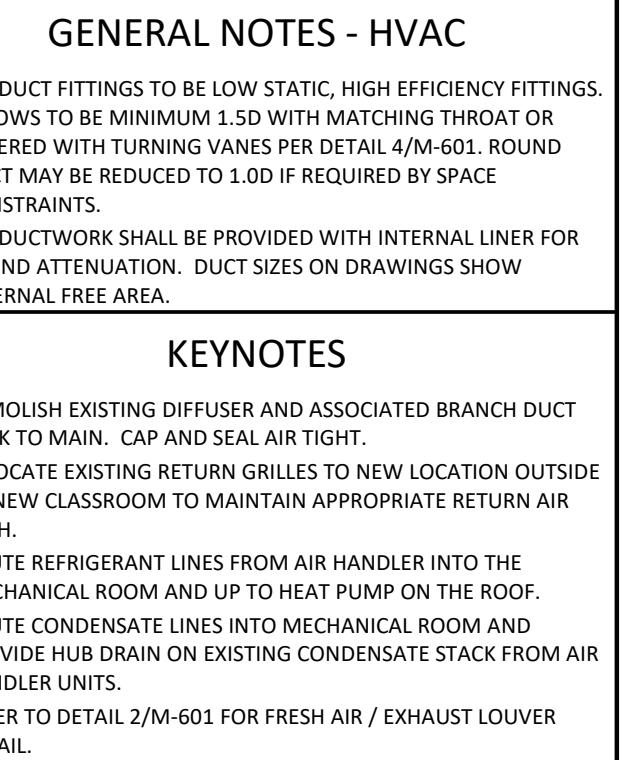
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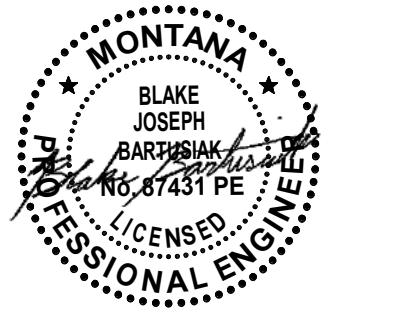
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LEVEL 2 HVAC PLAN

**M-112**



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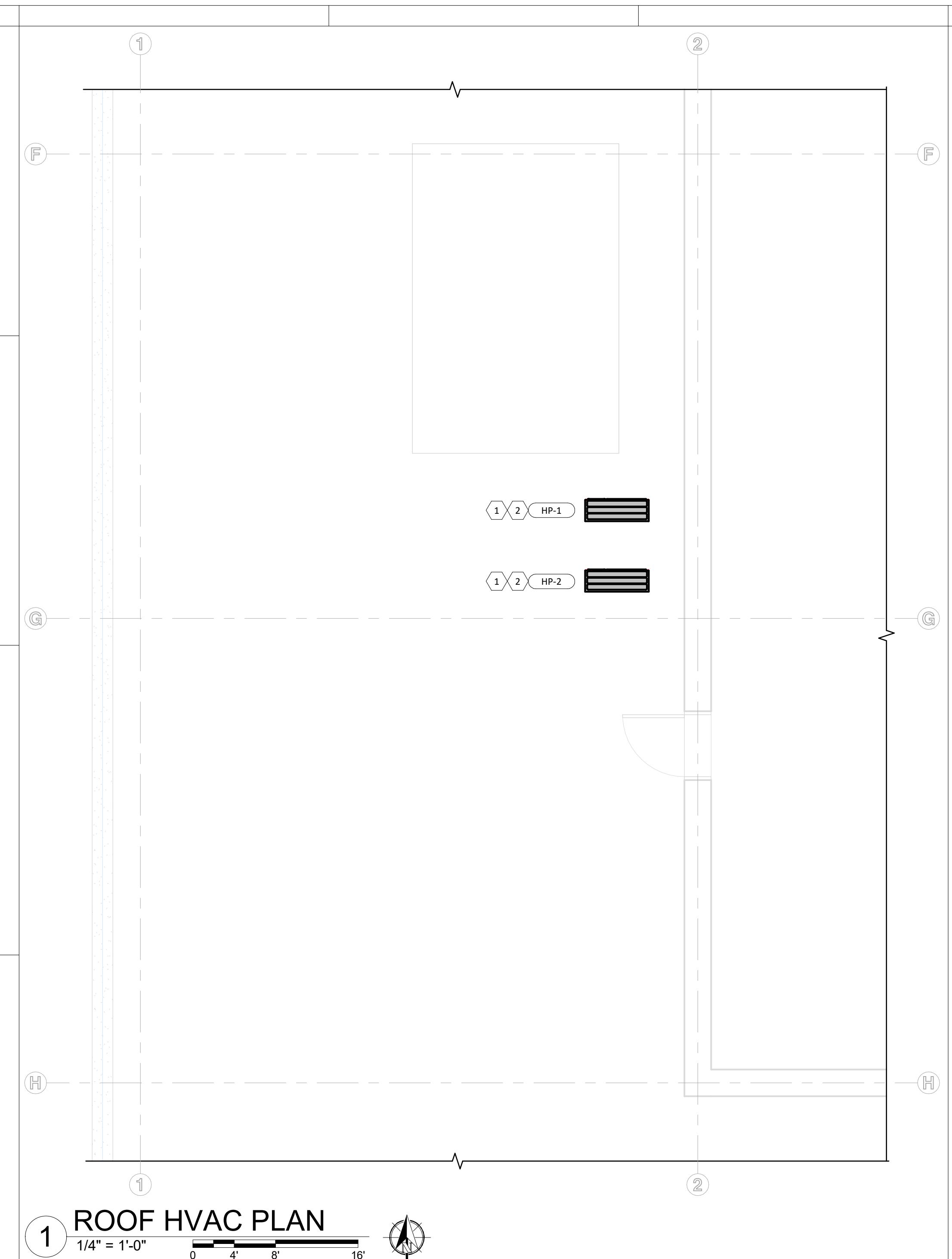


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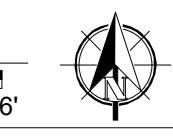
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### 1 ROOF HVAC PLAN

1/4" = 1'-0"



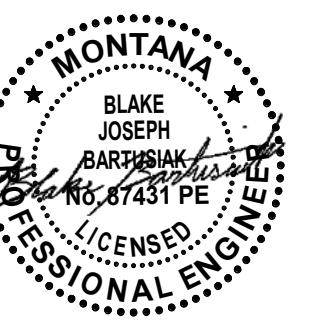
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REVISIONS:

ROOF HVAC  
PLAN

**M-135**



## INNOVATION LEARNING STUDIO

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MINI-SPLIT AIR HANDLER UNIT SCHEDULE																											
TAG	DESCRIPTION	BASIS OF DESIGN		SYSTEM INTERLOCK		SUPPLY AIRFLOW	OUTSIDE AIRFLOW	FAN		EVAPORATOR COOLING COIL			CONDENSER HEATING COIL		HEATING ELEMENT		ACCESSORIES			FILTER	ELECTRICAL DATA						
		MANUFACTURER	MODEL NO.	HEAT PUMP	ARRANGEMENT			PRESS	MOTOR	CAP @ DESIGN CONDITIONS	TOTAL	SENSIBLE	NOMINAL CAP	CAP @ DESIGN CONDITIONS	DESCRIPTION	POWER	AUXILIARY DRAIN PAN	OVERFLOW SWITCH	PUMP		POWERED BY ODU	TYPE	UNIT WEIGHT	FLA	VOLT	PH	REMARKS
		AHU-1	MULTI-POSITION AIR HANDLER UNIT	SAMSUNG	AC024BNZDCH/AA			HP-1	HORIZONTAL	750 CFM	325 CFM	0.58 in-wg	1	290.0 W	Yes	2 ton	22300 Btu/h	15800 Btu/h	27000 Btu/h		16200 Btu/h	ELECTRIC HEAT KIT	3 kW	Yes	Yes	Yes	110 lb
AHU-2	MULTI-POSITION AIR HANDLER UNIT	SAMSUNG	AC024BNZDCH/AA	HP-2	HORIZONTAL	750 CFM	325 CFM	0.58 in-wg	1	290.0 W	Yes	2 ton	22300 Btu/h	15800 Btu/h	27000 Btu/h	16200 Btu/h	ELECTRIC HEAT KIT	3 kW	Yes	Yes	Yes	110 lb	2.1 A	208 V	1	1	

REMARKS:  
1. PROVIDE WITH ELECTRIC HEAT KIT: VHK-103A. COORDINATE WITH EC TO PROVIDE POWER FOR HEAT KIT.

MINI-SPLIT HEAT PUMP SCHEDULE																														
TAG	DESCRIPTION	BASIS OF DESIGN		SYSTEM INTERLOCK		TYPE	COOLING			HEATING		COMPRESSOR		RATED OPERATING RANGE			ACCESSORIES			ELECTRICAL DATA										
		MANUFACTURER	MODEL NO.	INDOOR UNIT	OUTDOOR UNIT		NOMINAL CAP	CAP @ DESIGN CONDITIONS	TOTAL	SENSIBLE	NOMINAL CAP	CAP @ XX°F	REFRIGERANT	LOW AMBIENT KIT	HEATING	MIN	MAX	BASEPAN HEATER	HEAT PUMP STAND		SEER2	EER2	HSPF2	UNIT WEIGHT	FLA	MCA	MOPC	VOLT	PH	REMARKS
		HP-1	HEAT PUMP	SAMSUNG	AC024BXADCH/AA		AHU-1	HEAT PUMP	2 ton	22300 Btu/h	15800 Btu/h	27000 Btu/h	R410A	5.73 lb	Yes	-13.0 °F	0.0 °F	122 °F	Yes		Yes	16.9	9.7	7.9	160 lb	17 A	24 A	30 A	208 V	1
HP-2	HEAT PUMP	SAMSUNG	AC024BXADCH/AA	AHU-2	HEAT PUMP	2 ton	22300 Btu/h	15800 Btu/h	27000 Btu/h	R410A	5.73 lb	Yes	-13.0 °F	0.0 °F	122 °F	Yes	Yes	16.9	9.7	7.9	160 lb	17 A	24 A	30 A	208 V	1	1			

REMARKS:  
1. PROVIDE WITH WIND BAFFLES FOR LOW AMBIENT COOLING.

ENERGY RECOVERY UNIT SUMMARY SCHEDULE																											
TAG	DESCRIPTION	BASIS OF DESIGN		SUPPLY FAN		EXHAUST FAN		SUMMER DESIGN ENERGY RECOVERY			WINTER DESIGN ENERGY RECOVERY			EFFICIENCIES		FILTER		ELECTRICAL DATA									
		MANUFACTURER	MODEL NO.	TYPE	AIRFLOW	PRESS	AIRFLOW	PRESS	COOLING CAP	EAT(db)	LAT(db)	EAT(db)	CAP	EAT(db)	LAT(db)	FROST CONTROL	EAT(db)		TOTAL	TYPE	UNIT WEIGHT	FLA	MCA	MOPC	VOLT	PH	REMARKS
		ERV-1	ENERGY RECOVERY VENTILATOR	GREENHECK	MINICORE-5-VG-P	CORE	650 CFM	0.50 in-wg	650 CFM	0.50 in-wg	6580 Btu/h	92.0 °F	81.0 °F	86.0 °F	30140 Btu/h	-13.0 °F	37.4 °F		TIMED EXHAUST	25.1 °F	66%	MERV 8	215 lb	6.9 A	8.6 A	15 A	208 V

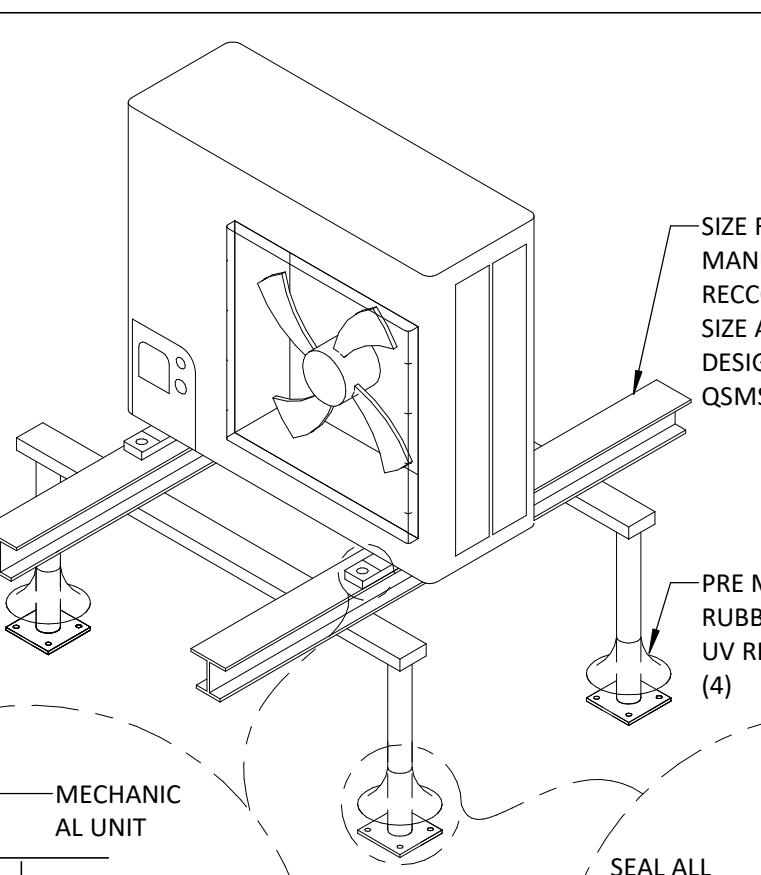
REMARKS:  
1. ERV SHALL BE CONTROLLED BY OCCUPANCY SCHEDULE.  
2. ERV SHALL RUN CONTINUOUSLY DURING OCCUPIED HOURS TO PROVIDE VENTILATION AIR TO SPACE.

ELECTRIC DUCT COIL SCHEDULE																			
TAG	DESCRIPTION	BASIS OF DESIGN		HEATING COIL			DUCT SIZE		ELECTRICAL DATA		REMARKS								
		MANUFACTURER	MODEL NO.	DESIGN FLOW	EAT(db)	LAT(db)	QTY	POWER	SCR	WIDTH			HEIGHT	DIA.	WEIGHT	FLA	MOPC	VOLT	PH
DH-1	ELECTRIC DUCT HEATER	ELECTRO INDUSTRIES	EM-WC1025H	650 CFM	37.4 °F	77.8 °F	1	9.6 kW	Yes	14"	115 lb	40.0 A	50 A	240 V	1				

REMARKS:  
1. DH-1 SHALL BE INTERCONNECTED TO AHU-1 & AHU-2 SO THAT DH-1 CAN NOT PROVIDE HEATING WHEN AHU-1 & AHU-2 ARE OPERATING IN COOLING MODE.

EXTERIOR AIR INLETS & OUTLETS SCHEDULE																			
TAG	DESCRIPTION	BASIS OF DESIGN		MATERIAL	TYPE	DESIGN CRITERIA			DIMENSIONS		DAMPER		INTERLOCK		REMARKS				
		MANUFACTURER	MODEL NO.			AIRFLOW	FREE AREA	VELOCITY	PD	WIDTH	HEIGHT	BIRDSCREEN	TYPE	VOLT		TAG			
L-1	LOUVER/DAMPER	GREENHECK	ESD-635	ALUMINUM	FIXED BLADE	650 CFM	1.11 SF	715 FPM	0.08 in-wg	24"	18"	Yes	MOTORIZED	24 V	ERV-1				
L-2	LOUVER/DAMPER	GREENHECK	ESD-635	ALUMINUM	FIXED BLADE	650 CFM	1.11 SF	715 FPM	0.08 in-wg	24"	18"	Yes	MOTORIZED	24 V	ERV-1				

REMARKS:  
1. AIRFLOW IS DIRECTIONAL.  
2. SEE MANUFACTURERS INSTRUCTIONS FOR INSTALLATION OF UNEQUAL ELBOWS.



SIZE FRAME PER MANUFACTURERS RECOMMENDATIONS FOR UNIT SIZE AND QUANTITY. BASIS OF DESIGN: DIVERSITECH QSMS1801

PRE MOULDED RUBBER ROOF JACK, UV RESISTANT TYP. (4)

SEAL ALL JOINTS

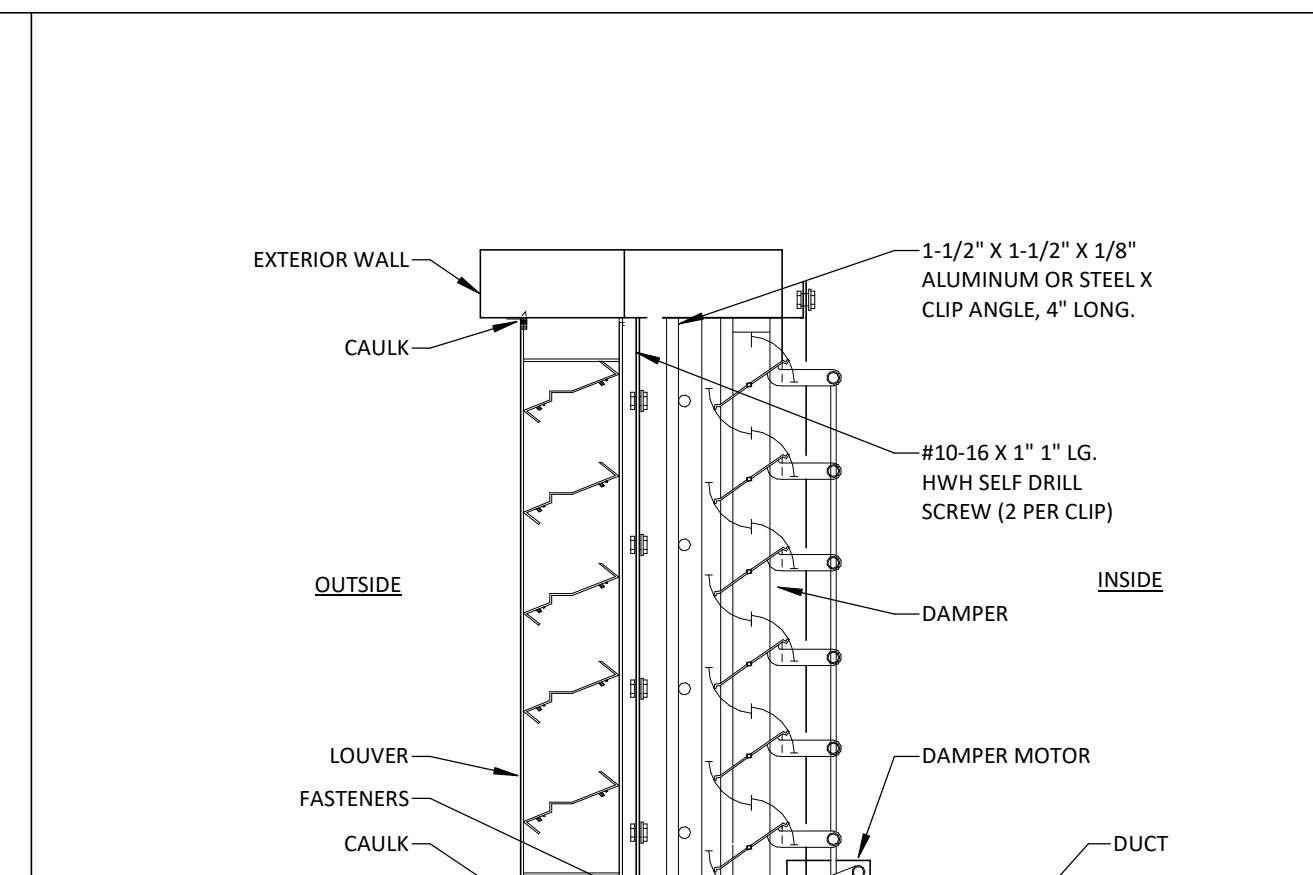
(4) 1/4" x 3-1/2" SIMPSON SDS SCREWS. SEE S1.0 FOR ADDITIONAL DETAILS.

MECHANICAL UNIT

BOLT UNIT TO STAND. WITH 1/4" STAINLESS STEEL 300 SERIES BOLTS, AND RESIN WASHER TO PREVENT PAINT SPOT AND ANTI VIBRATION PAD 1" x 1"

N.T.S.

1 HVAC UNIT STAND DETAIL



1-1/2" X 1-1/2" X 1/8" ALUMINUM OR STEEL X CLIP ANGLE, 4" LONG.

#10-16 X 1" LG. HWH SELF DRILL SCREW (2 PER CLIP)

OUTSIDE

INSIDE

DAMPER

CAULK

LOUVER

FASTENERS

CAULK

EXTENDED SILL

DAMPER MOTOR

LINKAGE

DUCT

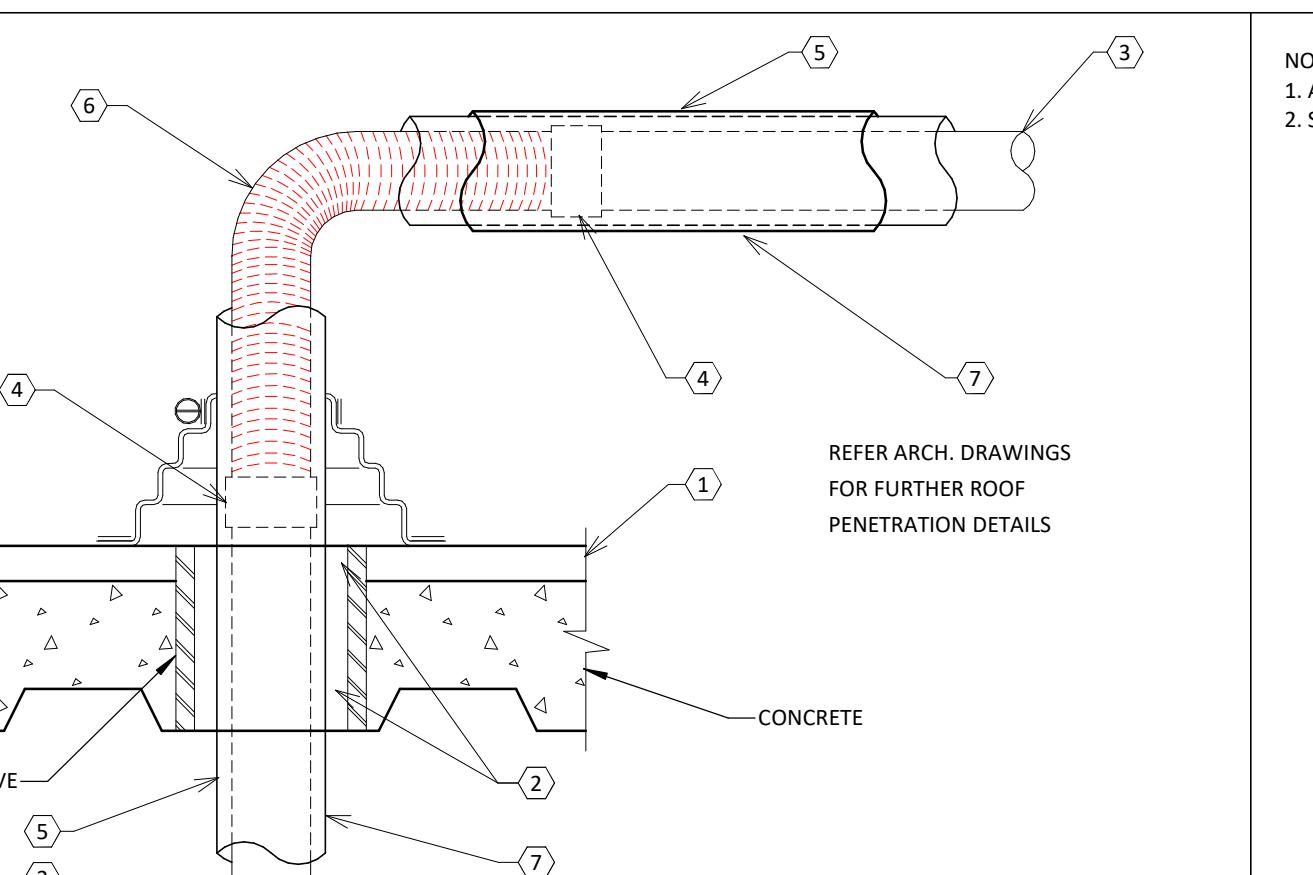
EXHAUST DAMPER

SLEEVE

CONCRETE

N.T.S.

2 FRESH AIR LOUVER AND DAMPER



1 INSULATION AND BUILT UP ROOFING

2 SEAL PENETRATION GAS TIGHT WITH INSULATION AND FLEXIBLE SEALANT COMPATIBLE WITH PIPE MATERIAL

3 STANDARD PIPE MATERIAL FOR REFRIGERANT LINES, SUPPORT PIPE AWAY FROM BUILDING.

4 SUITABLE ADAPTING COUPLING TO CONNECT COPPER REFRIGERANT LINE TO HOSE SECTION.

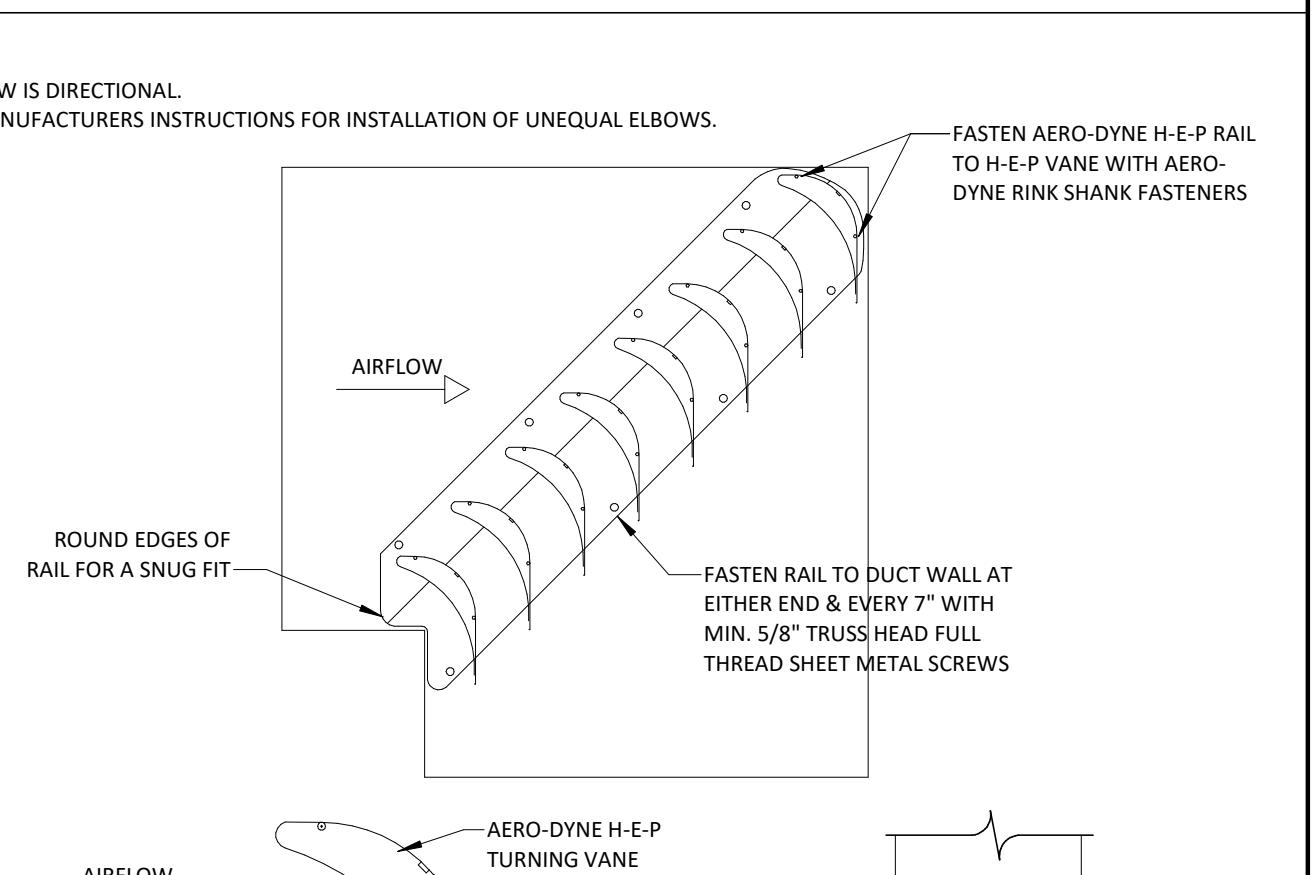
5 PIPE INSULATION SHALL BE CONTINUOUS THRU BOUNDARY SURFACE(ROOF) AND BEYOND.

6 NON-METAL HIGH PRESSURE HOSE SECTION. HOSE SECTION AND ABOVE ROOF PIPING SHALL BE COVERED W/INSULATION AND BANDED ALUMINUM PIPE JACKET.

7 PIPE SUPPORT POINT. ENSURE HOSE DOES NOT CARRY ANY PIPE LOAD FROM REFRIGERANT LINES, SEE NOTE 3.

N.T.S.

3 REFRIGERANT LINE PENETRATION



NOTES:  
1. AIRFLOW IS DIRECTIONAL.  
2. SEE MANUFACTURERS INSTRUCTIONS FOR INSTALLATION OF UNEQUAL ELBOWS.

ROUND EDGES OF RAIL FOR A SNUG FIT

FASTEN RAIL TO DUCT WALL AT EITHER END & EVERY 7' WITH MIN. 5/8" TRUSS HEAD FULL THREAD SHEET METAL SCREWS

FASTEN AERO-DYNE H-E-P RAIL TO H-E-P VANE WITH AERO-DYNE RINK SHANK FASTENERS

AERO-DYNE H-E-P TURNING VANE

CONTINUOUS ASSEMBLY CHANNELS

AERO-DYNE ASSEMBLY SLOT

AERO-DYNE H-E-P RAIL

AIRFLOW

N.T.S.

4 HIGH EFF. TURNING VANES DETAIL

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DATE: 10/21/2025

REVISIONS:

MECHANICAL SCHEDULES

M-601

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## Construction Documents

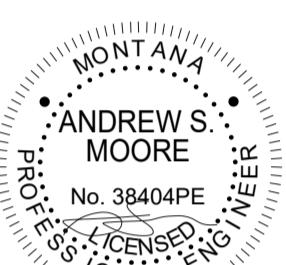
Date Issued | 10.20.2025  
Project Manager | Andrew Moore

Issue


**BLACK SHEEP**  
 Mechanical | Electrical | Plumbing | Lighting | Technology  
 602 W Hemlock | Bozeman, MT 59715  
 Blacksheep engineering | 406.586.0707

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ELECTRICAL,  
LIGHTING &  
TECHNOLOGY  
INDEX

E000

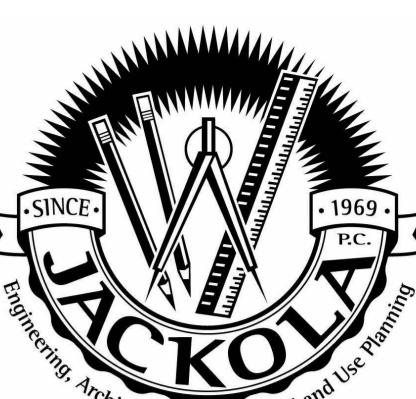
SHEET INDEX & REVISION HISTORY			
Sheet	Sheet Name	Rev.	Description
E000	ELECTRICAL, LIGHTING & TECHNOLOGY INDEX		
E101	ELECTRICAL PLANS		
E620	ELECTRICAL EQUIPMENT SCHEDULES		
EL101	LIGHTING PLANS		
EL602	LUMINAIRES & LIGHTING EQUIPMENT SCHEDULES		
T001	TECHNOLOGY INFORMATION		
T101	TECHNOLOGY PLANS		
T201	TECHNOLOGY EQUIPMENT ELEVATIONS		
T501	TECHNOLOGY TYPICAL DETAILS		
T502	TECHNOLOGY TYPICAL DETAILS		
T601	TECHNOLOGY ONE-LINE DIAGRAM		
T611	TECHNOLOGY EQUIPMENT SCHEDULES		
T621	TECHNOLOGY CABLING SCHEDULES		

ABBREVIATIONS			
A, AMP	Ampere	LV	Low Voltage
AIC	Amps Interrupting Capacity	LVR	Low Voltage Relay
AC	Alternating Current	MCB	Main Circuit Breaker
AFCI	Arc-Fault Circuit Interrupter	MDP	Main Distribution Panel
AFF	Above Finished Floor	MFGR	Manufacturer
AFG	Above Finished Grade	MIN	Minimum
ATS	Automatic Transfer Switch	MLO	Main Lug Only
AV	Audio Visual	MSB	Main Switchboard
AWG	American Wire Gauge	MV	Medium Voltage
BAS	Building Automation System	N	Neutral
BTU	British Thermal Units	N, N/A	New / Not Applicable
C, CDT	Conduit	NEMA	National Electrical Manufacturer Association
CB	Circuit Breaker	N.C.	Normally Closed
CKT	Circuit	N.O.	Normally Open
CL	Centerline	NTS	Not To Scale
CLG	Ceiling	OCPD	Overcurrent Protective Device
CO	Carbon Monoxide	P	Poles
C.O.	Conduit Only	PB	Pulbox
CT	Current Transformer	PH	Phase
CU	Copper	PNL	Panelboard
DDC	Digital Data Control	POE	Power Over Ethernet
DWG	Drawing	PWR	Power
(E)	Existing	RECEPT	Receptacle
E.C.	Electrical Contractor	RS	Rigid Steel
ELEC	Electric / Electrical	SD	Smoke Detector
EM	Emergency	SHT	Sheet
EMT	Electrical Metallic Tubing	SOH	Standard Outlet Height
EQ	Equal	SP	Spare
FA	Fire Alarm	SPC	Specification
FACP	Fire Alarm Control Panel	SPD	Surge Protective Device
FBO	Furnished by Others	SS	Surge Suppression
FLA	Full Load Amps	SW	Switch
FSD	Fire Smoke Damper	SWBD	Switchboard
G, GND	Ground	SWGR	Switchgear
G.C.	General Contractor	TEMP	Temporary
GEN	Generator	TVSS	Transient Voltage Surge Suppressor
GFCI	Ground-Fault Circuit Interrupter	TYP	Typical
HP	Horse Power	UG	Underground
IEC	Installed by Electrical Contractor	UON	Unless Otherwise Noted
IG	Isolated Ground	UPS	Uninterruptible Power Supply
J, JB	Junction Box	V	Voltage
KV	Kilovolt	VA	Volts Amperes
KVA	Kilovolt Ampere	W	Watt
KWH	Kilowatt Hour	WD	Warm Dim or Water Detector
LCP	Lighting Control Panel	WP	Weatherproof
LTC	Lighting	XFMR	Transformer

GENERAL NOTES			
1.	All work shall be installed in accordance with the latest National Electrical Code (NEC) and all local codes having jurisdiction. General work practices for construction shall be in accordance with NECA 1 standard for good workmanship in electrical construction (ANSI).		
2.	All materials provided by the contractor shall be new and free of defects, listed / labeled for the intended purpose by Underwriters (UL) or other organization that is acceptable to the AHJ.		
3.	The contractor is responsible for providing all equipment required to complete the project. Any bill of materials referenced in this plan set is for reference only to illustrate design intent.		
4.	The contractor is responsible for laying out all work to conform to NEC clearances, architectural, structural, mechanical, and site conditions, to avoid obstructions and to allow proper installation of each item. Coordinate with drawings of other trades to fit the actual space conditions.		
5.	Upon the completion of the work, the entire electrical system shall be tested and shall be shown to be in proper working condition in accordance with the intent of the specifications and drawings. It shall be the responsibility of the contractor to have all systems ready for operation and inspection by AHJ.		
6.	Electrical contractor to verify actual installed equipment electrical name plate data before energizing the circuit. Confirm electrical design values and actual equipment being installed in compliance with electrical code and manufacturer installation requirements.		
7.	Conduit runs are diagrammatic. Final location and routing shall be established by the contractor based on the installation conditions and shall be verified in the field. All conduit types and installation requirements shall be in accordance with the specifications. Where conductor and cable routing are not shown on the plans, contractor shall determine routing and lengths required.		
8.	Provide conduit fittings with bonding jumpers to allow for thermal expansion and contraction where necessary, per NEC 300.7(B).		
9.	Provide support for conductors in vertical conduits per NEC 300.19. Support conduit using steel pipe straps, lay-in adjustable hangers, clevis hangers, or split hangers. Hanger spacing shall be installed per NEC requirements for the type of conduit being installed.		
10.	Provide pull or junction boxes where required to facilitate the installation of conductors. Bends in conduit between pull boxes shall not exceed a total of 360-degrees.		
11.	Provide branch circuit wiring to all items requiring electrical connections. Where branch circuit wiring is not shown, connect items to circuits indicated. Unless indicated otherwise, all branch circuits shall be minimum #12 AWG.		
12.	Provide independent support for disconnect switches, control stations, boxes, panels, etc. where no walls or other structural surface exists.		
13.	Provide disconnect switches for HVAC equipment within eyesight of the equipment.		
14.	Contractor shall provide signage to all electrical boxes, junction boxes, disconnects, conduit runs, subpanels, and main service equipment.		
15.	Grounding system: Permanently and effectively ground all metallic conduit, supports, cabinets, panelboards, and system neutral conductors. Maintain continuity of equipment ground throughout the system. Ground clamps shall be approved type, specifically designed for grounding. Where grounding conductor is enclosed in conduit, ground clamp shall be of a type which grounds both conductor and conduit. All circuits in flexible metal or plastic conduit shall include a ground wire sized in accordance with NEC.		
16.	Conductors: Copper with color coding, #10 AWG and smaller to be solid or stranded, #8 AWG and larger to be stranded. Minimum #12 AWG unless otherwise indicated. Aluminum conductors permitted for feeders 100A and larger. Conductors must be installed in accordance with NEC and cannot be supported from ceiling support wires. All power conductors in conduit shall be THWN-2, XHHW-2, RHW-2, PVWIRE, or XLPE.		
17.	Submittals shall be provided by the installer for Blacksheep review and approved prior to ordering.		
18.	The EC may submit substitution requests for prior approval no less than 10 days prior to bid date. Blacksheep separates prior approval packages for luminaires & controls. The EC shall break out separate line items for each to prevent 'lockout' of pricing respective to this project.		
19.	It is the responsibility of the EC and GC to schedule the following milestones with the lighting designer, no less than 1 week prior to the requested date.		
A.	Rough-In Inspection - prior to drywall/finish work.		
B.	Programming Commercial Projects - to be scheduled first with the factory-authorized representative and then coordinated with Blacksheep for oversight and design intent.		

SYMBOL LEGEND			
Symbols listed below are for reference and for the use in understanding the design intent. Not all symbols listed below are necessarily used elsewhere in the construction documents. Cabling information is for reference only; All devices need to be assessed on an individual basis. Halftone symbols represent scope that is not included in the construction documents.			
Electrical		Lighting Luminaires	
NEMA 5-15R / 5-20R, Mounted Vertically, Non-Essential Power NEMA 5-15R / 5-20R, Mounted Horizontally, Non-Essential Power NEMA 5-15R Quadruplex Unfilled = Protected by GFCI Breaker Filled = GFCI Receptacle Unfilled = Weatherproof Receptacle Filled = Weatherproof Receptacle, In-Use		Bollard Ceiling Mounted Wall Mounted Uplight / In-Grade Recessed Downlight / Round or Square Pendant / Round or Square Art Light / Wall Mounted Linear LED Linear LED Vertical / Recessed or Surface Linear / Surface Linear / Suspended Step Light Track & Track Heads Monopoint / Ceiling or Wall Mounted Pole Mounted, Below / Round or Square Pole Mounted, Side / Round or Square Exit Sign / Ceiling Mounted Shade Denotes Face Read Arrow Denotes Directional Sign Wiremold Power Outlet Strip Non-Fused Disconnect Switch, Surface Mounted Fused Disconnect Switch, Surface Mounted Panelboard, Flush Mounted Panelboard, Surface Mounted Push Button / EPO = Emergency Power Off Manual Motor Start / Switch Inverter	
Fire & Life Safety		Lighting Control / Shades / Environmental	
Smoke Detector Combination Smoke/CO Detector Heat Detector Carbon Monoxide Detector Gas Detector Horn Strobe Strobe Sprinkler Flow Switch Tamper Switch		Lighting Control Panel Lighting Control Dimming Panel Lighting Repeater Lighting/Shade Keypad Occupancy Sensor Fireplace Control Dimmer Remote Dimmer - 3-Way Switch Non-Controlled Dimmer/Switch (Provided by the EC) Power Pack Low Voltage Driver Shade Panel Single Roller Motorized Shade Dual Roller Motorized Shade Motorized Drape Electronic Smart Glass	
General Drawing Symbols			
Callout View Tag Elevation Tag Section Head & Tail		Keynote Tag Mechanical Equipment Tag w/ Circuit ID Panel Tag Lighting Tag w/ Circuit ID Technology Tag w/ Cable ID	



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- C stub into stationary table leg. Reference furniture drawings for exact dimensions.
- 4" PVC conduit in trench. Cutting and backfill others.
- Route conduit to recessed junction box in wall at 6" AFF.

KALISPELL | BOZEMAN | VANC  
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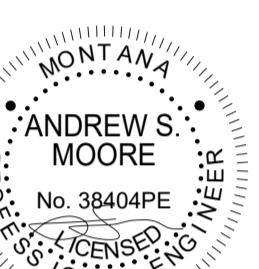
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# BLACK SHEEP

602 W Hemlock | Bozeman, MT 59715  
Blacksheep.engineering | 406.312.5714

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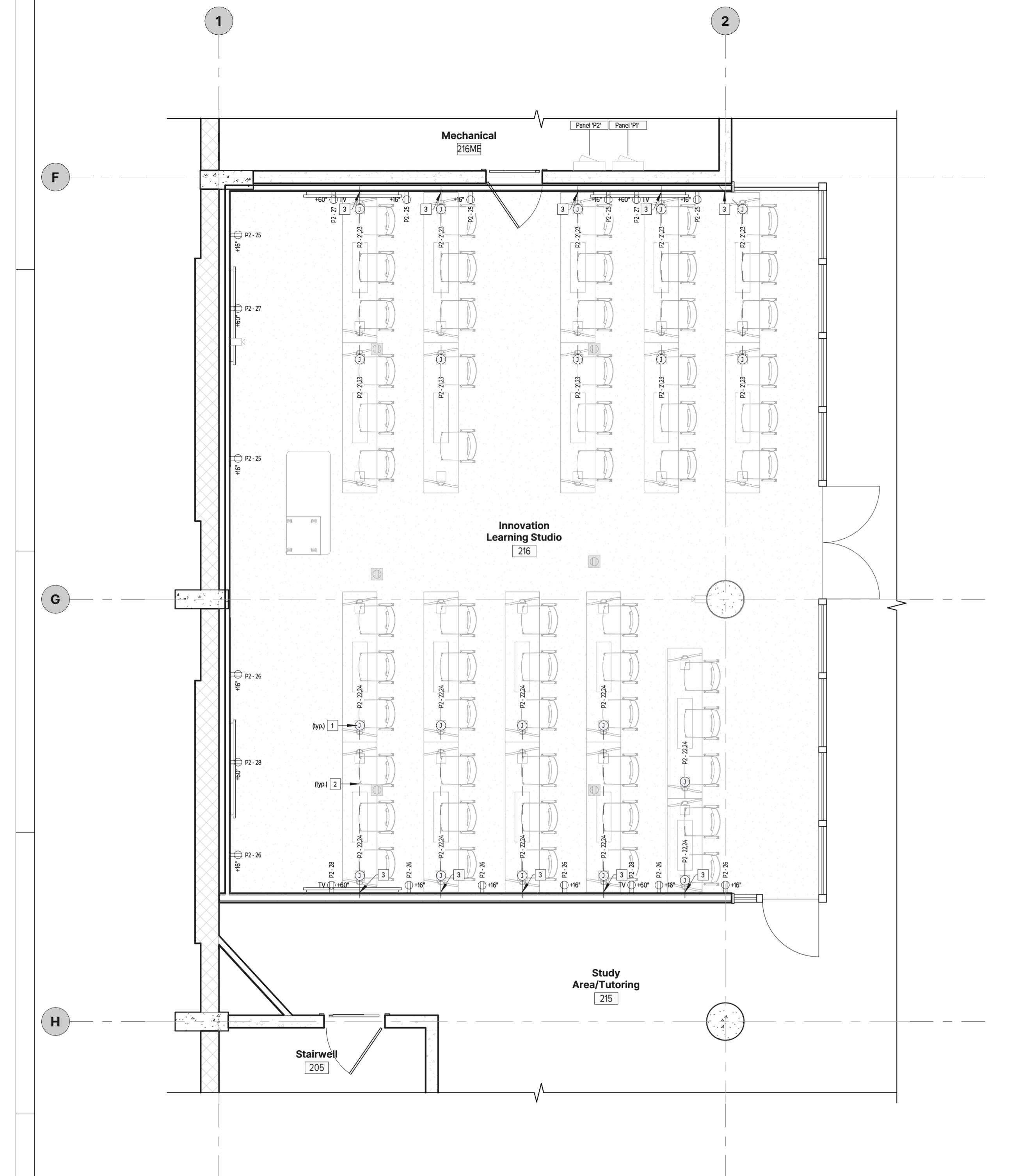


# Innovation Learning Studio

**Renne Library  
Bozeman, MT 59717**

# ELECTRICAL PLANS

# III101



## 1 Second Floor Electrical Plan

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APM | ACM

4.2.12.2.12.2.2.2

## REVISIONS:

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## ELECTRICAL

PROJECT #:Project Number



Luminaires																	
Type	Description	Manufacturer	Model	CCT	CRI	Dimming	Load	Lumens	Note								
B02b	Suspended Linear 8'	JESCO	LNSL-DI-96-80W-DSW1-LOUWH-WH/LIN-PD-KIT-PF-WH-8FT/LIN-PD-KIT-NF-WH-8FT	3500K	90+	0-10V	80 VA	2904 lm									
Lighting Control Devices																	
Type	Description	Manufacturer	Model	Note													
HJS	Vive Wireless Hub without BACnet, Up to 75 Devices, Surface Mount.	Lutron	HJS-0-SM	1, 2, 3, 4													
P2	Pico Remote - 2-Button with Raise/Lower	Lutron	HRST-W2B-XX	1, 2, 3, 4													
OS1	Radio Power Saver Wireless Occupancy Sensor - Corner Mounted	Lutron	LRFX-OCR2B-P	1, 2, 3, 4, 5													
PP-10	Vive PowPak 0-10V Dimming Module	Lutron	RMJS-8TN-DV-B	1, 2, 3, 4													
Notes:																	
<ol style="list-style-type: none"> <li>EC to install a complete working system.</li> <li>EC to provide startup, commissioning, and training services for lighting control system.</li> <li>Refer to specifications for additional control system requirements.</li> <li>EC to install Vive lighting control equipment according to plans to ensure the best connectivity to wireless control devices.</li> <li>Occupancy sensors to be installed in locations according to plans. They are to be installed at levels that allow the sensor to operate properly and are also unobstructed by building infrastructure and luminaires.</li> </ol>																	

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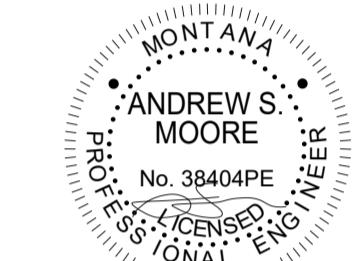
DATE: 10/20/2025

REVISED:

LUMINAIRES &  
LIGHTING  
EQUIPMENT  
SCHEDULES

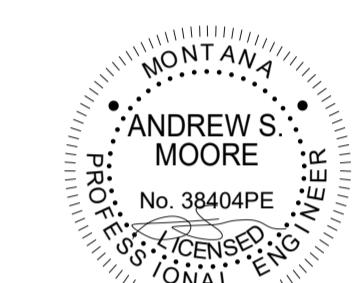
EL602

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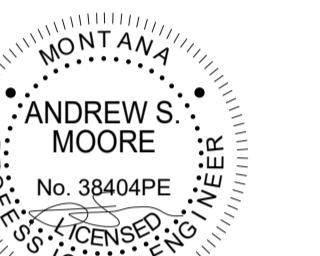
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## TECHNOLOGY INFORMATION

T001

Conduit Sizing	Conduit Size	Maximum Number of Cables
	1-1/4"	(8) Cat6A
	1-1/2"	(11) Cat6A
	2"	(19) Cat6A
	2-1/2"	(21) Cat6A
	3"	(55) Cat6A
	4"	(92) Cat6A

### Technology Responsibility Matrix

AV = University Audio/Video Department  
UIT = University IT Department  
GC = General Contractor or Subcontractor

Equipment	Description	Qty.	Furnished By	Installed By
Biamp Parle TCM-X - White	AVB Low-Profile Ceiling Microphone, White	2	AV	AV
Biamp Parle TCM-XEX - White	AVB Low-Profile Ceiling Extension Microphone, White	2	AV	AV
Biamp TB-1	Parle Ceiling Microphone Tile Bridge	4	AV	AV
Biamp TesiraCONNECT TC-5	5-Port Expansion Device	1	AV	AV
Biamp TesiraFORTE AVB VT4	Digital Audio Server	1	AV	AV
Extron 42-141-03	Full-Range Flat Field Speaker w/ Low Profile Enclosure & 70/100V Transformer	6	AV	AV
Extron 60-1271-12	DTP Transmitter for HDMI	2	AV	AV
Extron 60-1271-13	DTP Receiver for HDMI	4	AV	AV
Extron 60-1437-01	Four Output DTP Distribution Amplifier	1	AV	AV
Extron 60-1449-01	Mono 70/100V Amplifier, 60W	1	AV	AV
Extron 60-1562-13	7" Tabletop TouchLink Pro Touchpanel, White	1	AV	AV
Extron 60-1663-01	Six Input 4K/60 Seamless Presentation Switcher	1	AV	AV
Extron 60-1678-01	4K/60 HDMI Matrix Switcher with Audio De-Embedding	1	AV	AV
Extron 60-1911-01	IPCP Pro xi Control Processor	2	AV	AV
Newline ER8A50600-000	Newline Wall Mount	4	AV	GC
Newline TT-7524QP	75" Q Series High Performance Interactive Display	4	AV	AV
Vaddio 535-2000-240W	Thin Profile Wall Mount for RoboSHOT Cameras	1	AV	AV
Vaddio 999-99600-100W	RoboSHOT 12E w/ OneLINK HDMI System	1	AV	AV
Vaddio 999-99630-100W	RoboSHOT 30E HDBT w/ OneLINK HDM System	1	AV	AV

Cabletray Sizing	Flextray Series	Maximum Number of Cables
	Part Number	Size
	FT4X4	4" x 4"
	FT4X8	4" x 8"
	FT4X12	4" x 12"
	FT4X18	4" x 18"
	FT4X24	4" x 24"
		Commscope Cable UN884019304/10 (.285" Diam.)
		(100) Cat6A
		(200) Cat6A
		(300) Cat6A
		(450) Cat6A
		(601) Cat6A

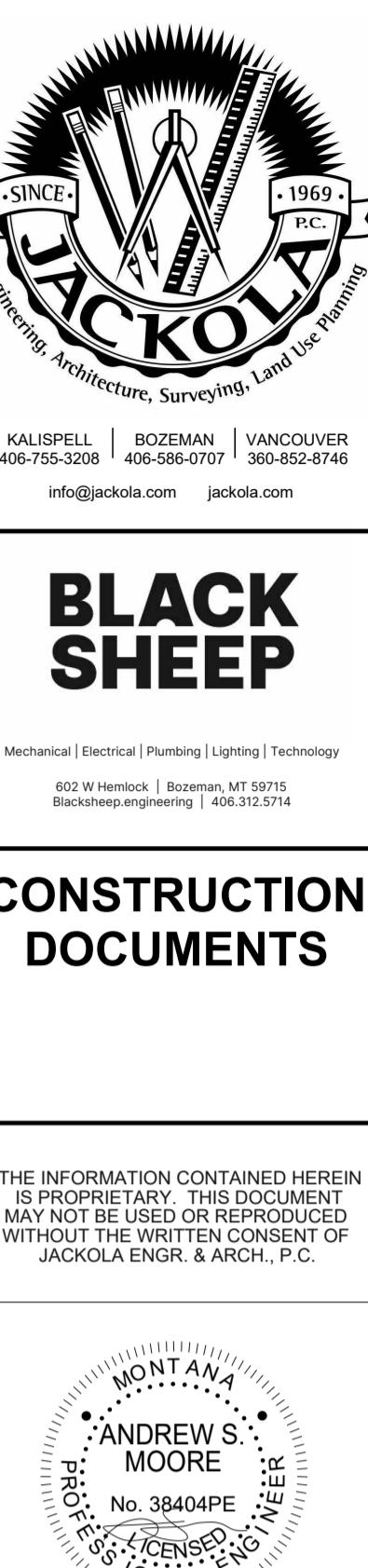
Cabletray Load Capacity	Flextray Series	Support Span / Load Capacity (Lbs/Ft Max.)
	Part Number	Size
	FT4X4	4" x 4"
	FT4X8	4" x 8"
	FT4X12	4" x 12"
	FT4X18	4" x 18"
	FT4X24	4" x 24"
		5'-0"    6'-0"    7'-0"    8'-0"

AV Equipment Rack, Accessories and Interconnect Cabling	1RU, 9.5" Deep Basic Rack Shelf, Gray	1	AV	AV
Extron 60-604-02	1RU, 9.5" Deep Basic Rack Shelf, Gray	1	AV	AV
Extron 60-604-21	1RU, 3.5" Deep Basic Rack Shelf, Gray	3	AV	AV
Middle Atlantic RFR-2428GE	Equipment Cabinet	1	AV	AV
Vaddio 999-2225-150	In-Ceiling Half Recessed Enclosure for RoboSHOT PTZ Camera	1	AV	AV

Cabling - Classroom AV; Category, Speaker, Line, Video, Etc.	AV System Cabling from Device to Device	1	AV	AV
Cabling - IT; Wiring to Telecommunications Rooms	University IT Category Cabling to TR	1	UIT	UIT
UIT Cabling	University IT Category Cabling to TR	1	UIT	UIT
Cabling - IT; Wiring within Telecommunication Rooms; Category Cabling, Patch Cables, Power Cables, Etc.	Interconnect Cabling within TR	1	UIT	UIT
TR Cabling	Interconnect Cabling within TR	1	UIT	UIT

Instructor's Lecterns	Lecterns	Lecterns w/ Integrated AV Equipment Storage	1	AV	AV
Network Equipment; Wireless Access Points, Network Switches and Licenses	Typical Existing Access Point	Existing Wireless Access Point	1	UIT	UIT
Pathway Equipment; Cable Tray, J-Hooks, and Supporting Hardware	Cabling Pathways	University IT and System Cabling Pathway Equipment	1	GC	GC
Rough-In Conduit, Junction Boxes, Mud Rings, Floor Boxes, Display Back Boxes and Supporting Hardware	Chief PAC525FW	In-Wall Storage Box with Flange, White	4	AV	GC
	FSR PWB-323-CV	Project Wall Box Decorative Cover	2	AV	AV
	FSR PWB-323-TRK	3" Depth Large Open Style Wall Box w/ Trim Ring	2	AV	GC
	Raco 260	4-1/16" Square Box, Large Capacity, Welded, 3-1/4" Depth w/ 12 Knockouts	5	GC	GC
	Raco 433	4-1/16" Square Single Device Cover, 5/8" Raised	2	GC	GC
	Raco 891	4-1/16" Square Single Device Cover, 1-1/2" Raised	2	GC	GC
	Typical 4" Conduit Sleeve for Penetrations	Typical 4" Conduit Sleeve for Penetrations	1	GC	GC
	Typical EMT 90° Bend	Typical 90° Bend for 1-1/4" EMT	9	GC	GC
	Typical EMT 1-1/4"	Typical 1-1/4" EMT for UIT & AV Cabling	9	GC	GC
Trim - AV; Faceplates, Quickports and Accessories	Typical 1G Cover Plate	Single Gang Cover Plate for Future AV System Cabling	2	AV	AV
	Typical Future AV Location	Future AV/Display Location	2	AV	AV
Trim IT; Faceplates, Quickports and Accessories	Commscope 1933674-3	6-Port Surface Mount Module for Back Box Locations	1	UIT	UIT
	Commscope FP-LBL-2P-448	Faceplate Kit, Labeled, 1-Gang, 2-Port, Light Almond	2	UIT	UIT
	Commscope SMB-2P-266	2-Port Universal Surface Mount Jack for Back Box Locations	1	UIT	UIT
	Commscope SMB-2P-266	2-Port Universal Surface Mount Jack for Display Locations	4	UIT	UIT
	Commscope SMB-2P-266	2-Port Universal Surface Mount Jack for Wireless Access Points	1	UIT	UIT
	Commscope USL10G-LAL	SL Series Modular Jack, RJ45, Cat6A Unshielded, Light Almond	4	UIT	UIT
	Typical 2-Port Data Jack	2-Port Data Jack Wiring and Trim Plate Location	2	UIT	UIT

Instructor's Lecterns	Lecterns	Lecterns w/ Integrated AV Equipment Storage	1	AV	AV
Network Equipment; Wireless Access Points, Network Switches and Licenses	Typical Existing Access Point	Existing Wireless Access Point	1	UIT	UIT
Pathway Equipment; Cable Tray, J-Hooks, and Supporting Hardware	Cabling Pathways	University IT and System Cabling Pathway Equipment	1	GC	GC
Rough-In Conduit, Junction Boxes, Mud Rings, Floor Boxes, Display Back Boxes and Supporting Hardware	Chief PAC525FW	In-Wall Storage Box with Flange, White	4	AV	GC
	FSR PWB-323-CV	Project Wall Box Decorative Cover	2	AV	AV
	FSR PWB-323-TRK	3" Depth Large Open Style Wall Box w/ Trim Ring	2	AV	GC
	Raco 260	4-1/16" Square Box, Large Capacity, Welded, 3-1/4" Depth w/ 12 Knockouts	5	GC	GC
	Raco 433	4-1/16" Square Single Device Cover, 5/8" Raised	2	GC	GC
	Raco 891	4-1/16" Square Single Device Cover, 1-1/2" Raised	2	GC	GC
	Typical 4" Conduit Sleeve for Penetrations	Typical 4" Conduit Sleeve for Penetrations	1	GC	GC
	Typical EMT 90° Bend	Typical 90° Bend for 1-1/4" EMT	9	GC	GC
	Typical EMT 1-1/4"	Typical 1-1/4" EMT for UIT & AV Cabling	9	GC	GC
Trim - AV; Faceplates, Quickports and Accessories	Typical 1G Cover Plate	Single Gang Cover Plate for Future AV System Cabling	2	AV	AV
	Typical Future AV Location	Future AV/Display Location	2	AV	AV
Trim IT; Faceplates, Quickports and Accessories	Commscope 1933674-3	6-Port Surface Mount Module for Back Box Locations	1	UIT	UIT
	Commscope FP-LBL-2P-448	Faceplate Kit, Labeled, 1-Gang, 2-Port, Light Almond	2	UIT	UIT
	Commscope SMB-2P-266	2-Port Universal Surface Mount Jack for Back Box Locations	1	UIT	UIT
	Commscope SMB-2P-266	2-Port Universal Surface Mount Jack for Display Locations	4	UIT	UIT
	Commscope SMB-2P-266	2-Port Universal Surface Mount Jack for Wireless Access Points	1	UIT	UIT



# Innovation Learning Studio

Renne Library  
Bozeman MT 59716

100

# TECHNOLOGY PLANS

# T101

## Notes

All AV equipment locations to be finalized with SLL AV before installation.

ized with

ence Keynotes

nal 4" Sleeve and penetration location to be determined on site.

# BLACK SHEEP

| Electrical | Plumbing | Lighting | Technology

2 W Hemlock | Bozeman, MT 59715  
sheep.engineering | 406.312.5714

# INSTRUCTION DOCUMENTS

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This architectural cross-section diagram illustrates a building's internal structure across levels F, G, and H. The diagram is labeled with various rooms and systems:

- Mechanical:** Located on levels F and G, featuring ductwork with dimensions  $1\frac{1}{4}'' \text{Ø (UIT)}$  and  $1\frac{1}{4}'' \text{Ø (AV)}$ . The label **216ME** is present.
- Innovation Learning Studio:** Located on levels G and H, featuring a large circular duct labeled **CCM1 216-17** and **CCM2 216-13**. It contains microphones labeled **MIC1 216-20** and **MIC2 216-21**, and speakers labeled **SP1 216-22** and **SP1 216-9**. A camera labeled **AP1** is also shown.
- Study Area/Tutoring:** Located on level H, featuring a circular duct labeled **CCM1 216-17** and **CCM2 216-13**. It contains microphones labeled **MIC1 216-18** and **MIC2 216-19**, and speakers labeled **SP1 216-22** and **SP1 216-9**.
- Stairwell:** Located on level H, labeled **205**.
- Study Area/Tutoring:** Located on level G, labeled **215**.

Vertical dimensions on the left side indicate  $1\frac{1}{4}'' \text{Ø (AV)}$  and  $1\frac{1}{4}'' \text{Ø (UIT)}$  for the ductwork. The diagram is marked with vertical lines labeled **1** and **2** at the top, and horizontal lines labeled **F**, **G**, and **H** on the left.

**1** Second Floor Technology Plan  
1/4" = 1'-0"

2 Second Floor Technology Ceiling Plan  
1/4" = 1'-0"

---

Other  CHECKED  Checked

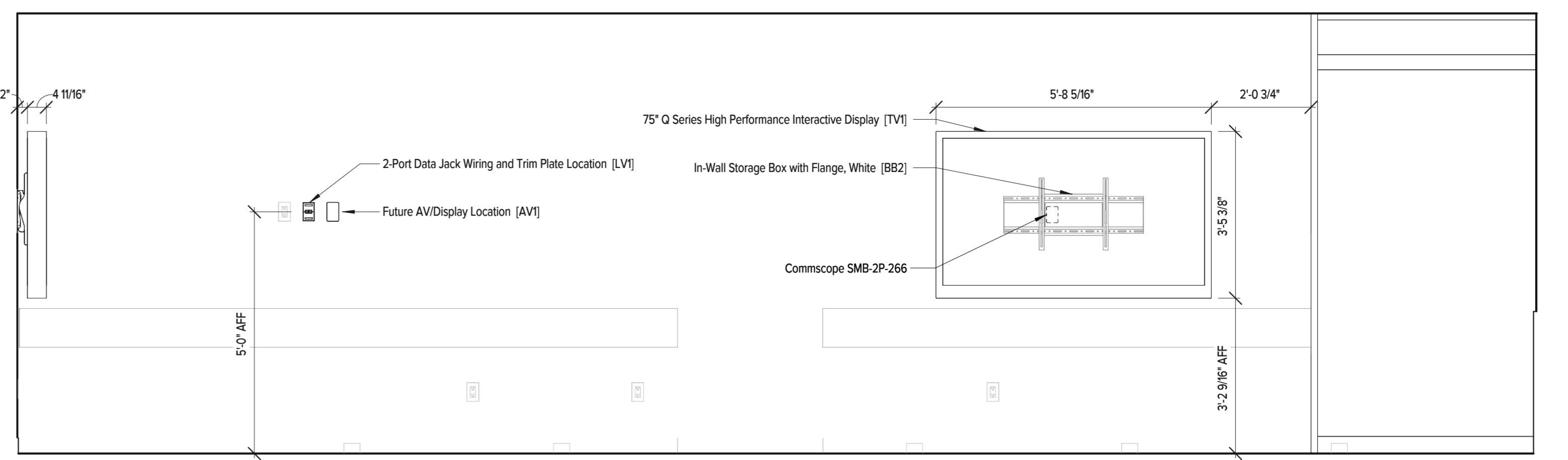
30/3025

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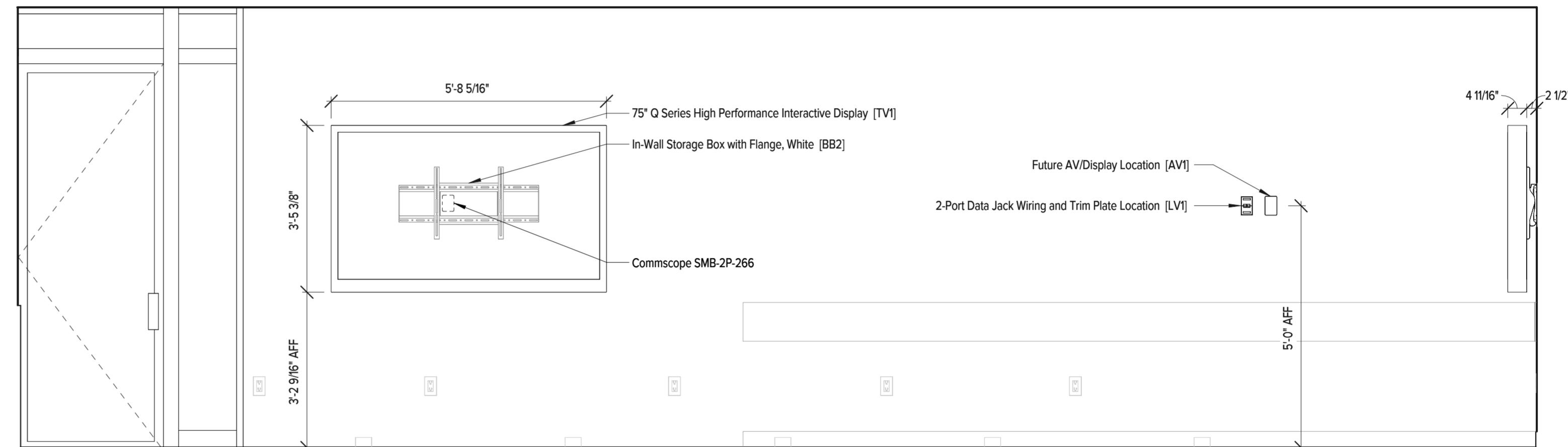
## TECHNOLOGY

T101

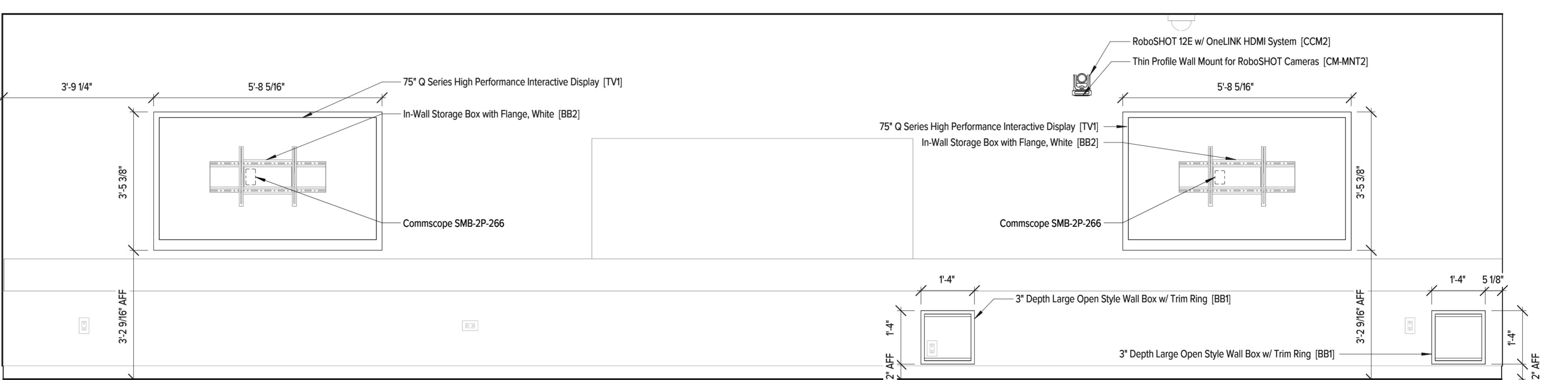
PROJECT #:Project Number



**1** Innovation Learning Studio 216 North Elevation  
1/2" = 1'-0"



**2** Innovation Learning Studio 216 South Elevation  
1/2" = 1'-0"



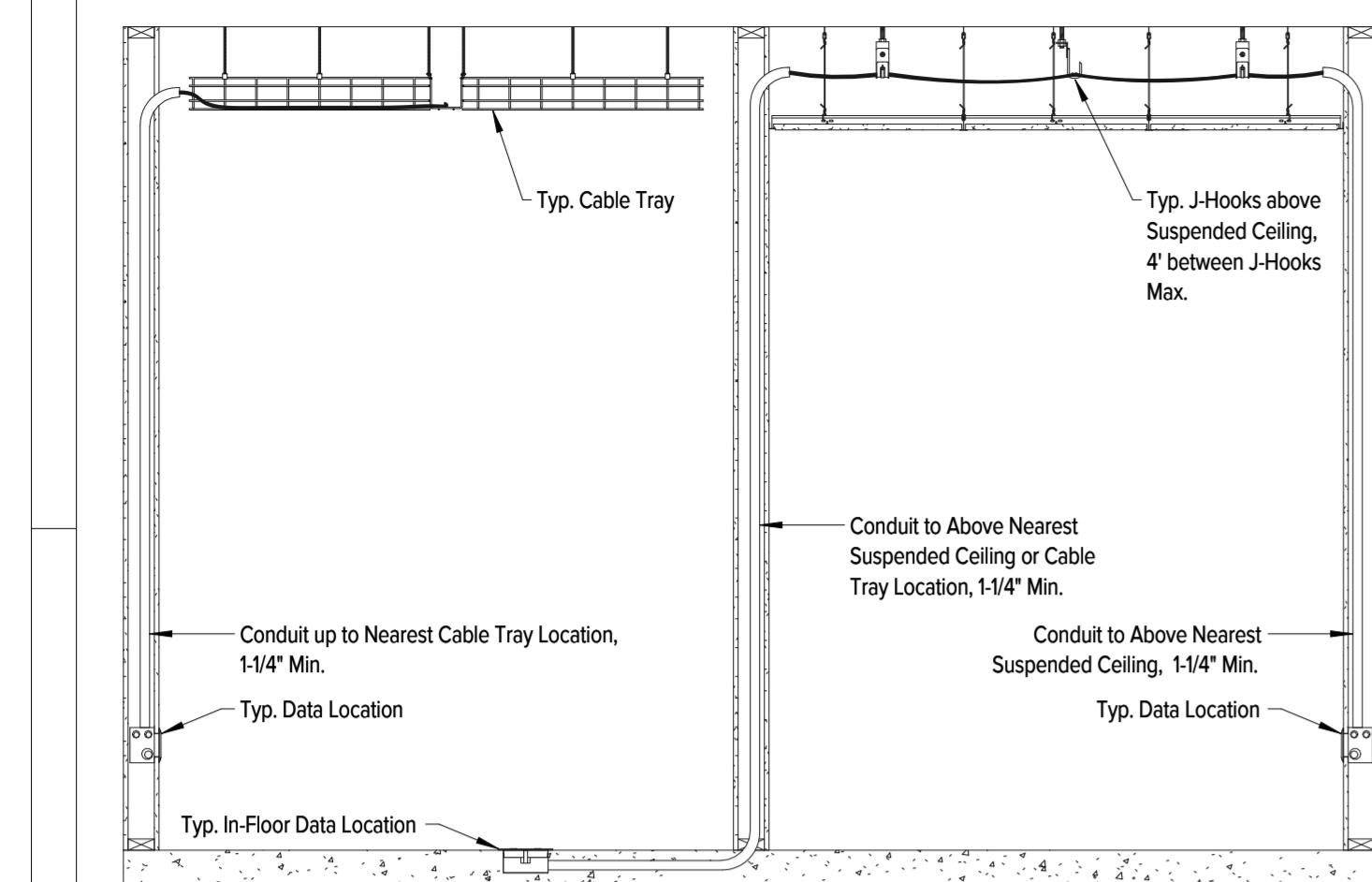
**3** Innovation Learning Studio 216 West Elevation  
1/2" = 1'-0"

DRAWN: Author | CHECKED: Checker  
DATE: 10/20/2025

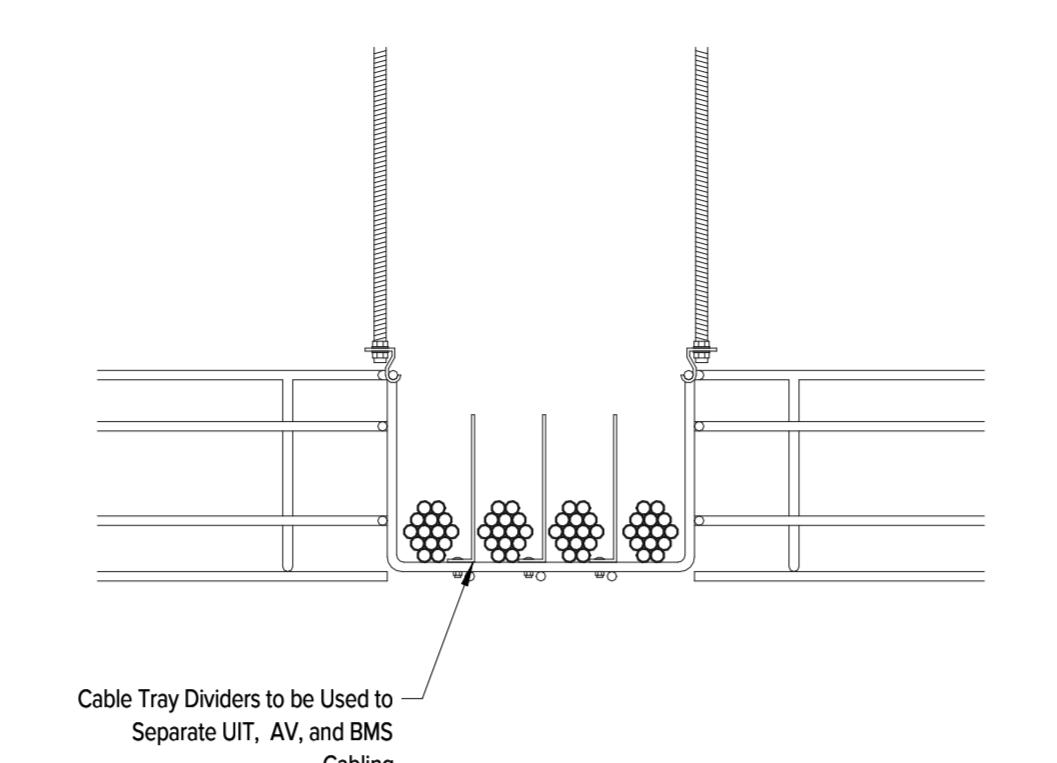
REVISIONS:

**TECHNOLOGY EQUIPMENT ELEVATIONS**

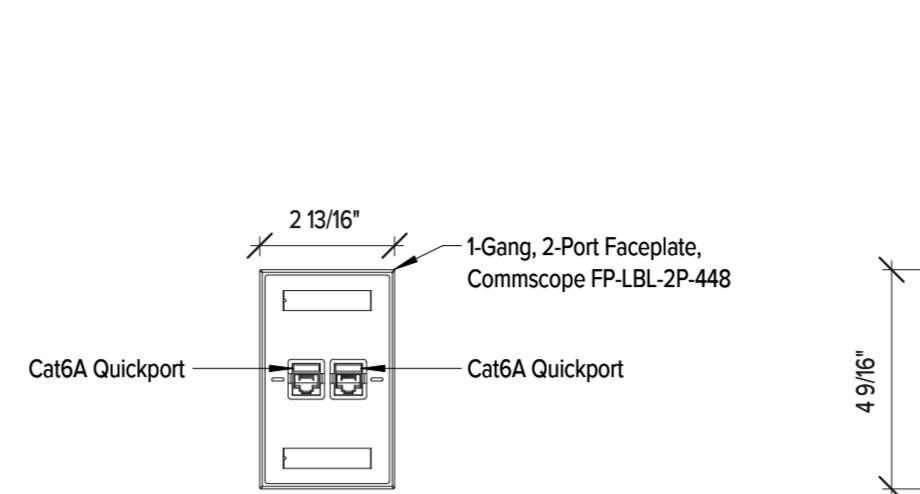
**T201**



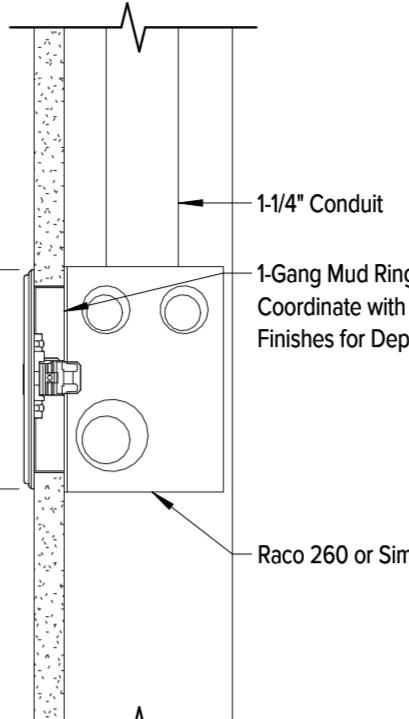
**1** Typ. Infrastructure Cabling Support Hardware



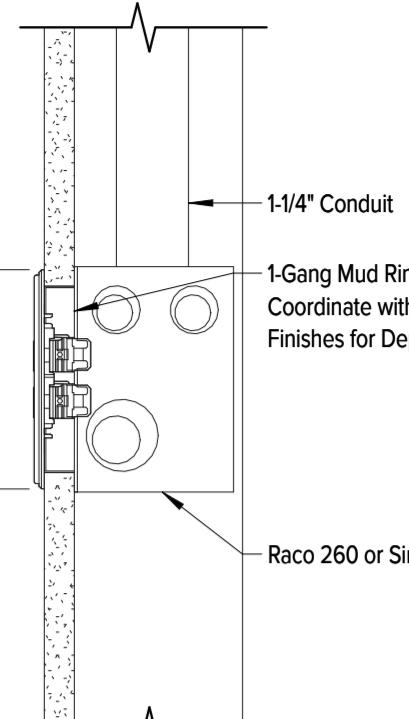
**2** Typ. Cable Tray Section  
3" = 1'-0"



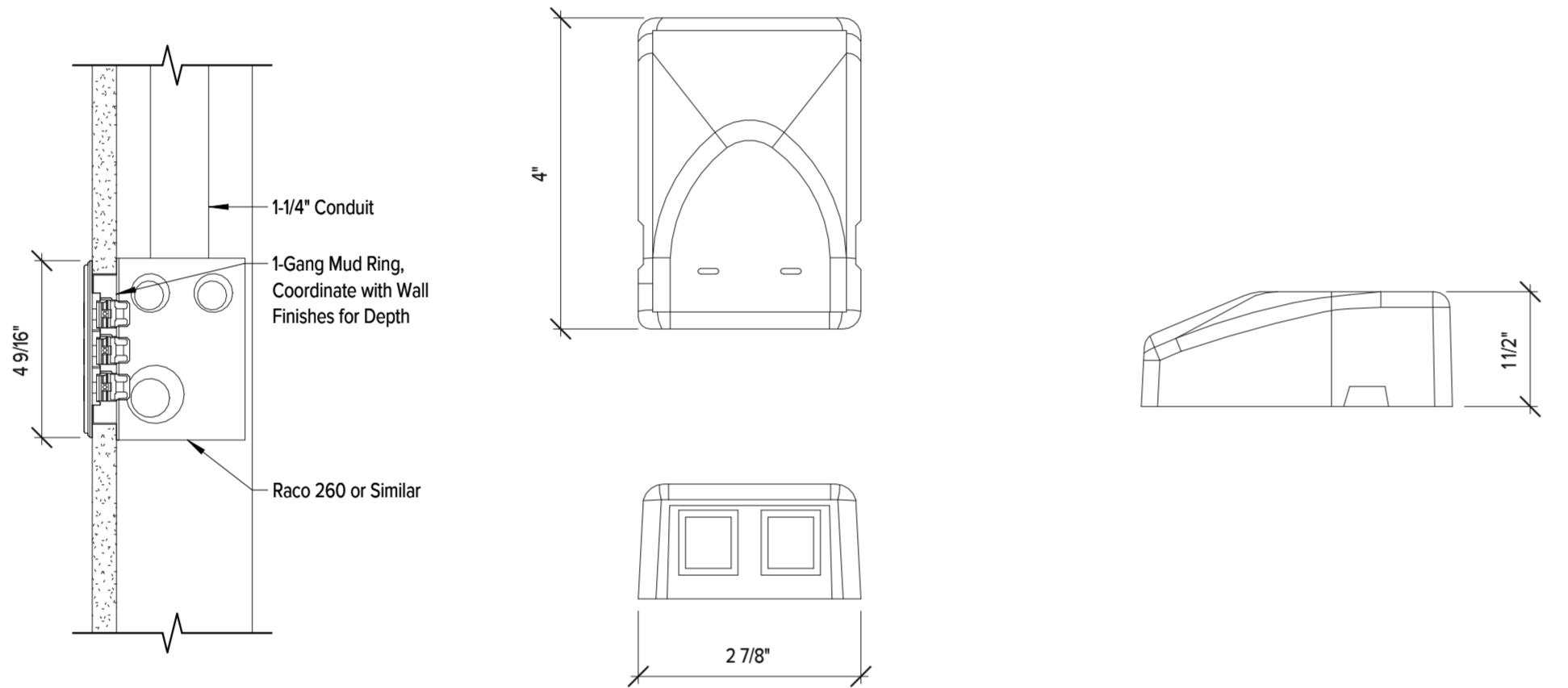
**3** Typ. 2-Port Data Trim Plate [LV1]  
3" = 1'-0"



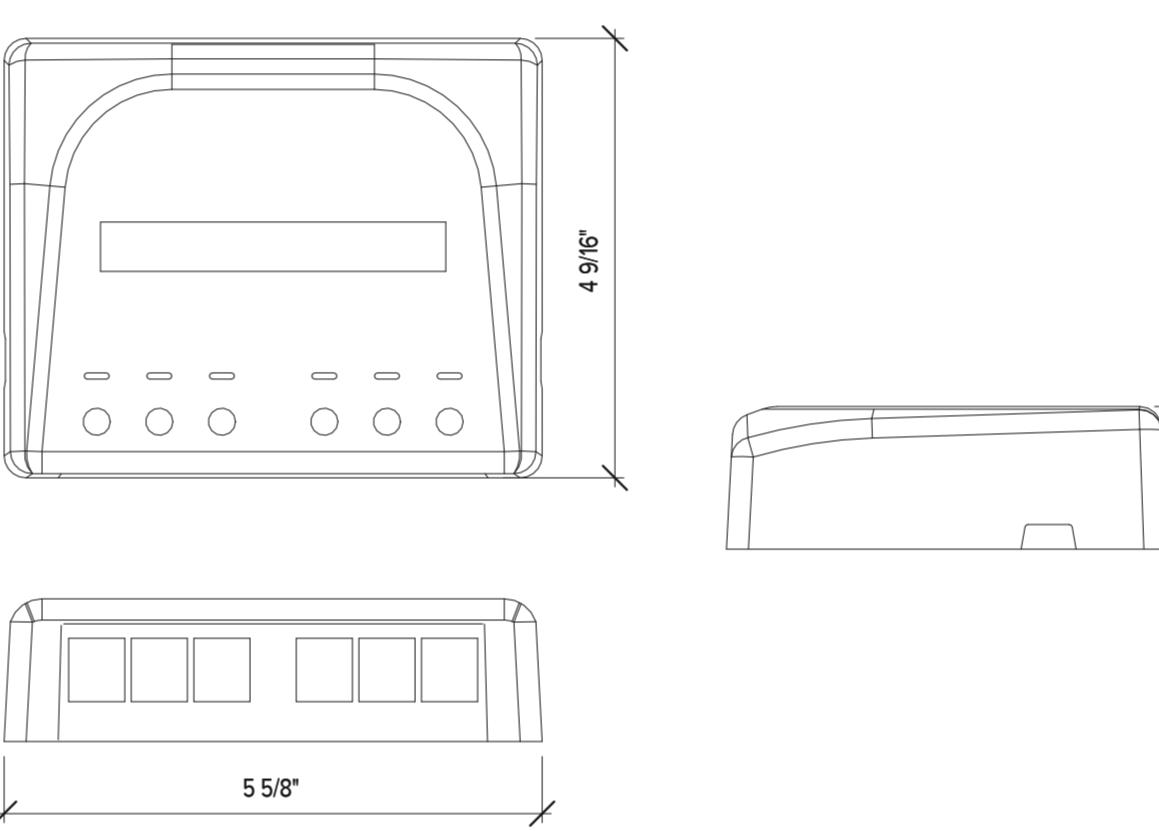
**4** Typ. 4-Port Data Trim Plate [LV2]  
3" = 1'-0"



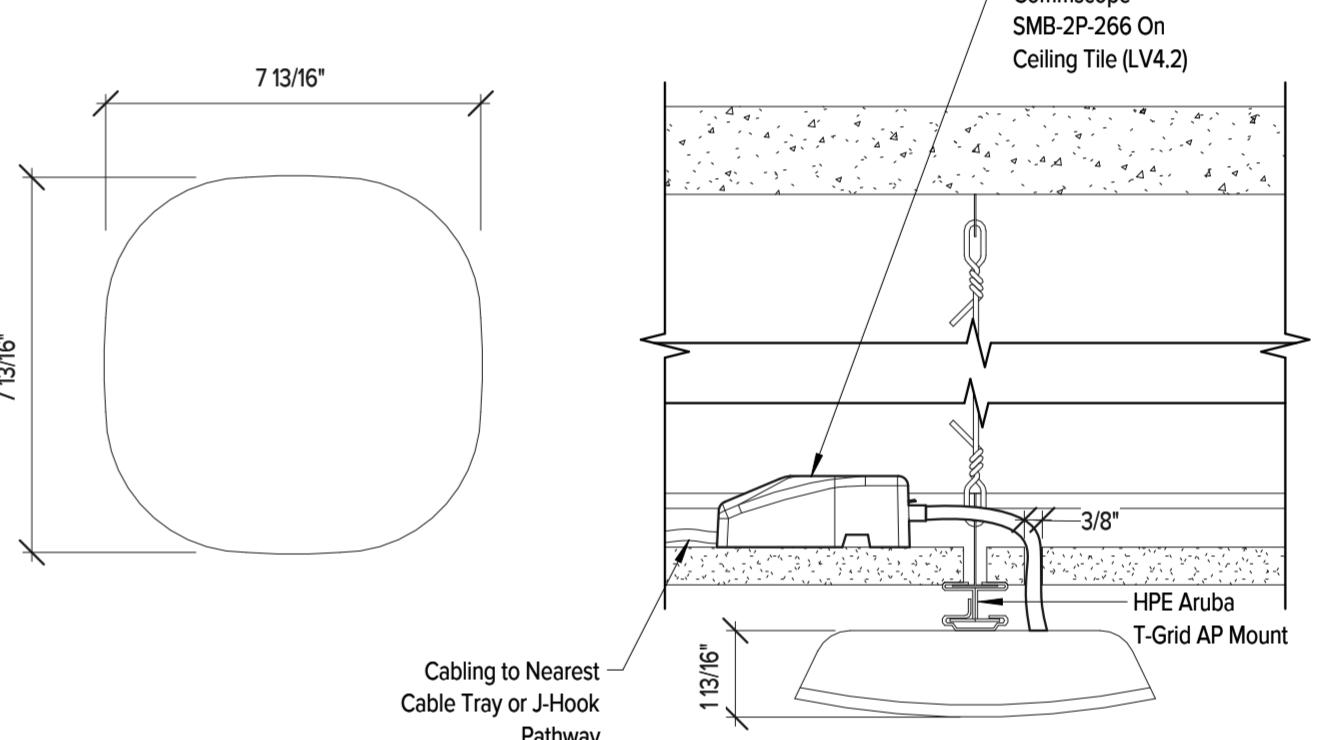
**5** Typ. 6-Port Data Trim Plate [LV3.1]  
3" = 1'-0"



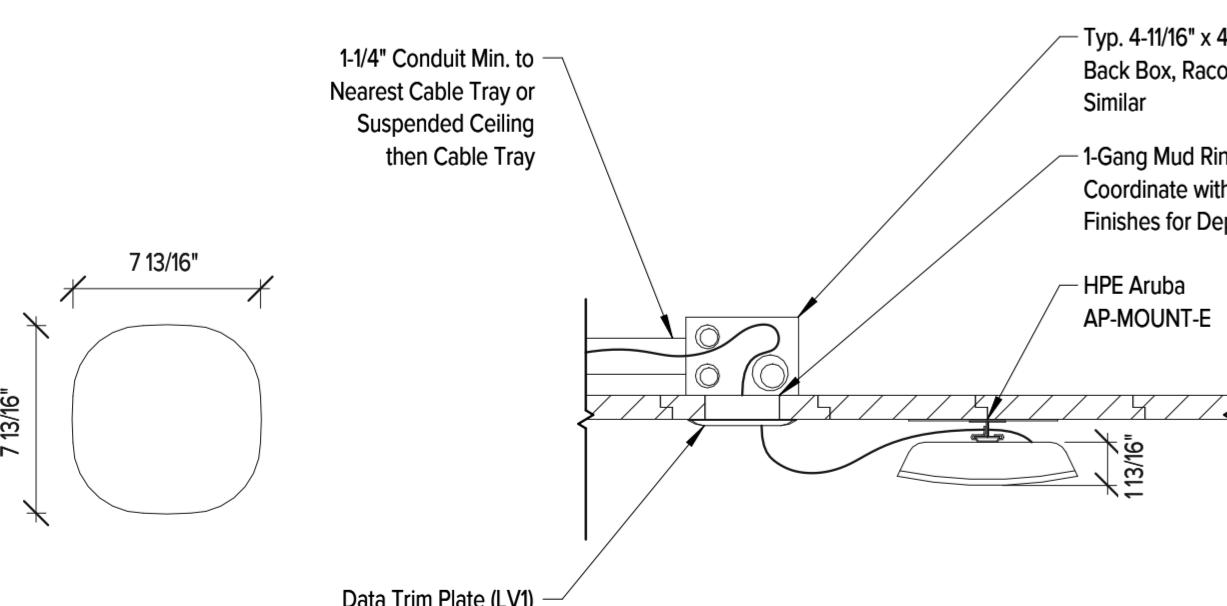
**7** Typ. CommScope SMB-2P-266 [LV4.1]  
6" = 1'-0"



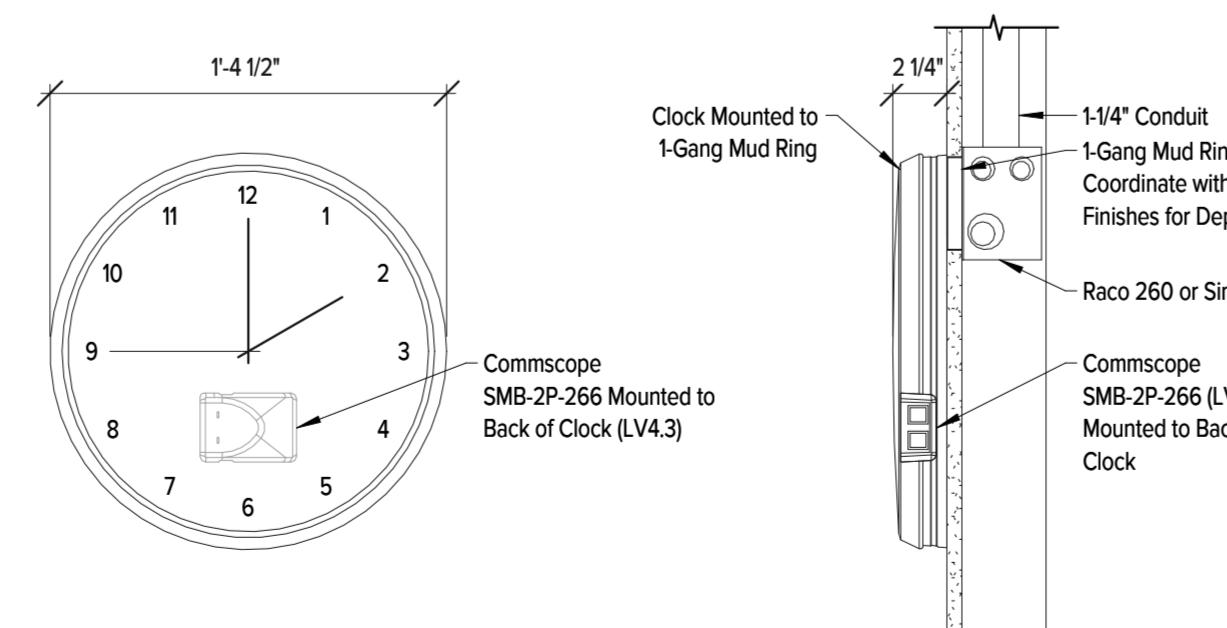
**6** Typ. CommScope 1-1933674-3 [LV5]  
6" = 1'-0"



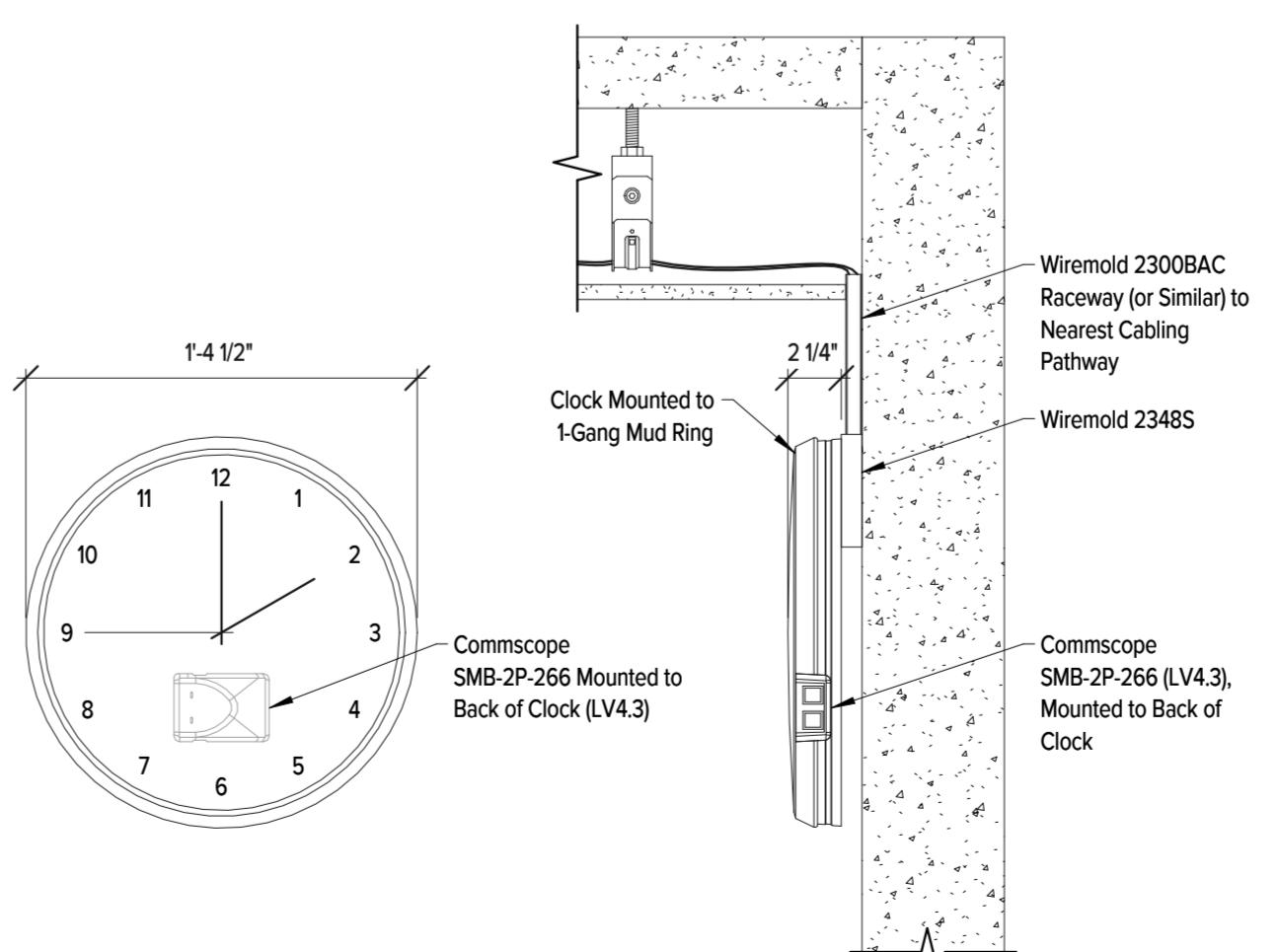
**8** Typ. Ceiling Mounted Interior Access Point [AP1 & LV4.2]  
3" = 1'-0"



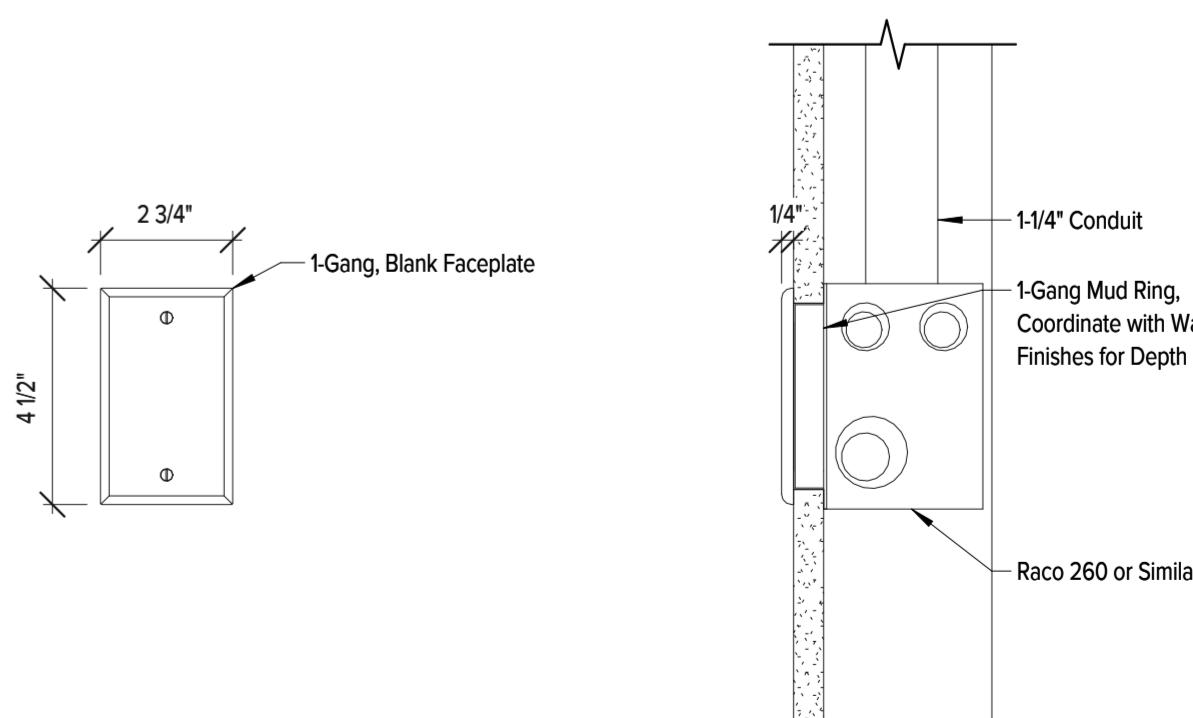
**9** Typ. Ceiling Mounted Interior Access Point [AP2]  
1 1/2" = 1'-0"



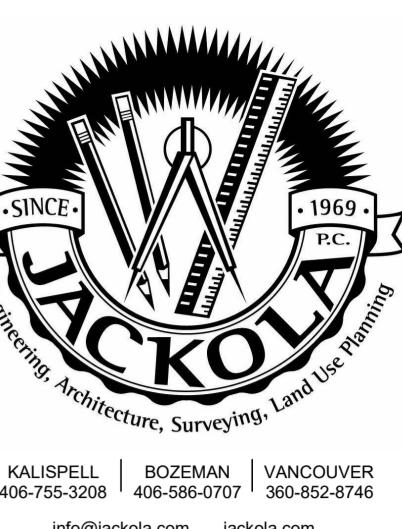
**10** Typ. PoE Clock [CLK1.1 & LV4.3]  
1 1/2" = 1'-0"



**11** Typ. PoE Clock [CLK1.2 & LV4.3]  
1 1/2" = 1'-0"



**12** Typ. Future AV Wiring Location [AV1]  
3" = 1'-0"



## BLACK SHEEP

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BOZEMAN, MT 59715

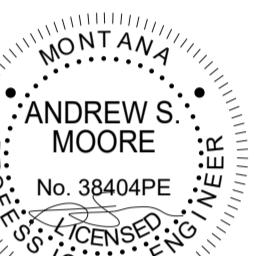
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## Innovation Learning Studio

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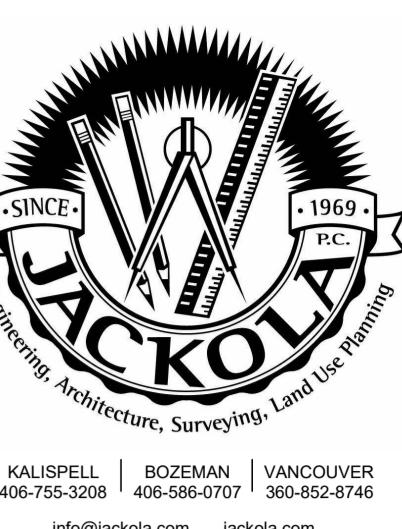
DATE: 10/20/2025

REVISIONS:

## TECHNOLOGY EQUIPMENT SCHEDULES

**T611**

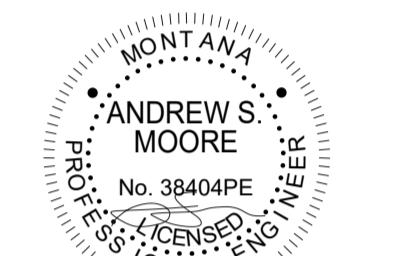
Technology Devices	Manufacturer	Model	Description	Qty.	Type
Audio					
Extron		60-1449-01	Mono 70/100V Amplifier, 60W	1	AMP1
Biamp	TesiraFORTE AVB VT4		Digital Audio Server	1	AVB1
Biamp	TesiraCONNECT TC-5		5-Port Expansion Device	1	EXP1
Biamp	Parle TCM-X - White		AVB Low-Profile Ceiling Microphone, White	2	MIC1
Biamp	Parle TCM-XEX - White		AVB Low-Profile Ceiling Extension Microphone, White	2	MIC2
Biamp	TB-1		Parle Ceiling Microphone Tile Bridge	4	MIC-MNT1
Extron	42-141-03		Full-Range Flat Field Speaker w/ Low Profile Enclosure & 70/100V Transformer	6	SP1
Back Box					
FSR	PWB-323-TRK		3" Depth Large Open Style Wall Box w/ Trim Ring	2	BB1
FSR	PWB-323-CV		Project Wall Box Decorative Cover	2	BB-CVR1
Control					
Extron	60-1911-01		IPCP Pro xi Control Processor	2	PROCI
Extron	60-1562-13		7" Tabletop TouchLink Pro Touchpanel, White	1	TP1
Data					
Typical			Existing Access Point	1	AP1
Commscope	FP-LBL-2P-448		Faceplate Kit, Labeled, 1-Gang, 2-Port, Light Almond	2	FP1
Typical	2-Port Data Jack		2-Port Data Jack Wiring and Trim Plate Location	2	LV1
Commscope	SMB-2P-266		2-Port Universal Surface Mount Jack for Wireless Access Points	1	LV4.2
Commscope	SMB-2P-266		2-Port Universal Surface Mount Jack for Display Locations	4	LV4.5
Commscope	SMB-2P-266		2-Port Universal Surface Mount Jack for Back Box Locations	1	LV4.6
Commscope	1-1933674-3		6-Port Surface Mount Module for Back Box Locations	1	LV5
Commscope	USL10G-LAL		SL Series Modular Jack, RJ45, Cat6A Unshielded, Light Almond	4	QPI
Headend					
Middle Atlantic	RFR-2428GE		Equipment Cabinet	1	ER1
Extron	60-604-21		1RU, 3.5" Deep Basic Rack Shelf, Gray	3	SHLF1
Extron	60-604-02		1RU, 9.5" Deep Basic Rack Shelf, Gray	1	SHLF2
Video					
Typical			Future AV/Display Location	2	AV1
Chief	PAC525FW		In-Wall Storage Box with Flange, White	4	BB2
Vaddio	999-99630-100W		RoboSHOT 30E HDBT w/ OneLINK HDMI System	1	CCM1
Vaddio	999-99600-100W		RoboSHOT 12E w/ OneLINK HDMI System	1	CCM2
Vaddio	999-2225-150		In-Ceiling Hall Recessed Enclosure for RoboSHOT PTZ Camera	1	CM-MNT1
Vaddio	535-2000-240W		Thin Profile Wall Mount for RoboSHOT Cameras	1	CM-MNT2
Typical	1G Cover Plate		Single Gang Cover Plate for Future AV System Cabling	2	FP2
Newline	EP88AS06000-000		Newline Wall Mount	4	MNT1
Extron	60-1678-01		4K/60 HDMI Matrix Switcher with Audio De-Embedding	1	MTRX1
Extron	60-1663-01		Six Input 4K/60 Seamless Presentation Switcher	1	MTRX2
Newline	TT-7524QP		75" Q Series High Performance Interactive Display	4	TV1
Extron	60-1437-01		Four Output DTP Distribution Amplifier	1	V-AMP1
Extron	60-1271-13		DTP Receiver for HDMI	4	V-RX1
Extron	60-1271-12		DTP Transmitter for HDMI	2	V-TX1



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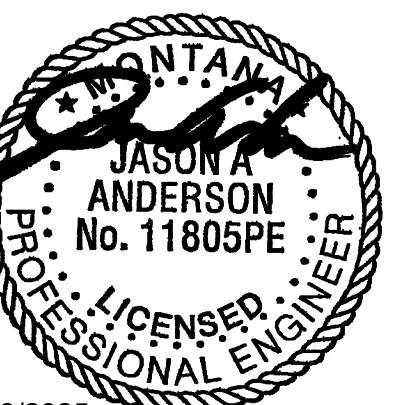
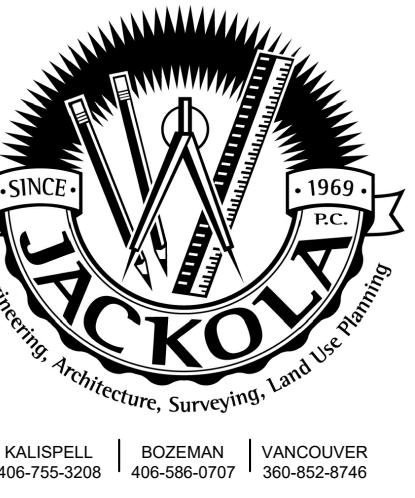
REVISIONS:

**TECHNOLOGY CABLING SCHEDULES**

**T621**

Typical Technology Device Cabling Types				
Manufacturer	Model	Description	Type	Cabling Types
Audio				
Biamp	Parle TCM-X - White	AVB Low-Profile Ceiling Microphone, White	MIC1	(1) UN884019314 Cable
Biamp	Parle TCM-XEX - White	AVB Low-Profile Ceiling Extension Microphone, White	MIC2	(1) UN884019314 Cable
Extron	42-141-03	Full-Range Flat Field Speaker w/ Low Profile Enclosure & 70/100V Transformer	SP1	(1) 16/4 Speaker Cable
Data				
Typical		Existing Access Point	AP1	(1) Commscope UC1AAA2-0CF00X (Length TBD)
Typical	2-Port Data Jack	2-Port Data Jack Wiring and Trim Plate Location	LV1	(2) Commscope UN884019314 Cables
Commscope	SMB-2P-266	2-Port Universal Surface Mount Jack for Wireless Access Points	LV4.2	(2) Commscope UN884019314 Cables
Commscope	SMB-2P-266	2-Port Universal Surface Mount Jack for Display Locations	LV4.5	(2) Commscope UN884019314 Cables
Commscope	SMB-2P-266	2-Port Universal Surface Mount Jack for Back Box Locations	LV4.6	(2) Commscope UN884019314 Cables
Commscope	1-933674-3	6-Port Surface Mount Module for Back Box Locations	LV5	(6) Commscope UN884019314 Cables
Video				
Vaddio	999-99630-100W	RoboSHOT 30E HDBT w/ OneLINK HDMI System	CCM1	(1) Commscope UN884019314
Vaddio	999-99600-100W	RoboSHOT 12E w/ OneLINK HDMI System	CCM2	(1) Commscope UN884019314
Newline	TT-7524QP	75" Q Series High Performance Interactive Display	TV1	(4) Shielded CAT6 Cables

Technology Devices Wiring				
Room #	Room Name	Manufacturer	Model	Description
216	Innovation Learning Studio	Commscope	1-933674-3	6-Port Surface Mount Module for Back Box Locations
216	Innovation Learning Studio	Commscope	SMB-2P-266	2-Port Universal Surface Mount Jack for Display Locations
216	Innovation Learning Studio	Typical	2-Port Data Jack	2-Port Data Jack Wiring and Trim Plate Location
216	Innovation Learning Studio	Commscope	SMB-2P-266	2-Port Universal Surface Mount Jack for Display Locations
216	Innovation Learning Studio	Commscope	SMB-2P-266	2-Port Universal Surface Mount Jack for Back Box Locations
216	Innovation Learning Studio	Commscope	SMB-2P-266	2-Port Universal Surface Mount Jack for Display Locations
216	Innovation Learning Studio	Typical	2-Port Data Jack	2-Port Data Jack Wiring and Trim Plate Location
216	Innovation Learning Studio	Commscope	SMB-2P-266	2-Port Universal Surface Mount Jack for Wireless Access Points
216	Innovation Learning Studio	Newline	TT-7524QP	75" Q Series High Performance Interactive Display
216	Innovation Learning Studio	Typical	Future AV Location	Future AV/Display Location
216	Innovation Learning Studio	Newline	TT-7524QP	75" Q Series High Performance Interactive Display
216	Innovation Learning Studio	Vaddio	999-99600-100W	RoboSHOT 12E w/ OneLINK HDMI System
216	Innovation Learning Studio	Newline	TT-7524QP	75" Q Series High Performance Interactive Display
216	Innovation Learning Studio	Typical	Future AV Location	Future AV/Display Location
216	Innovation Learning Studio	Newline	TT-7524QP	75" Q Series High Performance Interactive Display
216	Innovation Learning Studio	Vaddio	999-99630-100W	RoboSHOT 30E HDBT w/ OneLINK HDMI System
216	Innovation Learning Studio	Biamp	Parle TCM-X - White	AVB Low-Profile Ceiling Microphone, White
216	Innovation Learning Studio	Biamp	Parle TCM-XEX - White	AVB Low-Profile Ceiling Extension Microphone, White
216	Innovation Learning Studio	Biamp	Parle TCM-X - White	AVB Low-Profile Ceiling Microphone, White
216	Innovation Learning Studio	Biamp	Parle TCM-XEX - White	AVB Low-Profile Ceiling Extension Microphone, White
216	Innovation Learning Studio	Extron	42-141-03	Full-Range Flat Field Speaker w/ Low Profile Enclosure & 70/100V Transformer
216	Innovation Learning Studio	Commscope	SMB-2P-266	2-Port Universal Surface Mount Jack for Display Locations



# INNOVATION LEARNING STUDIO

## MONTANA STATE UNIVERSITY

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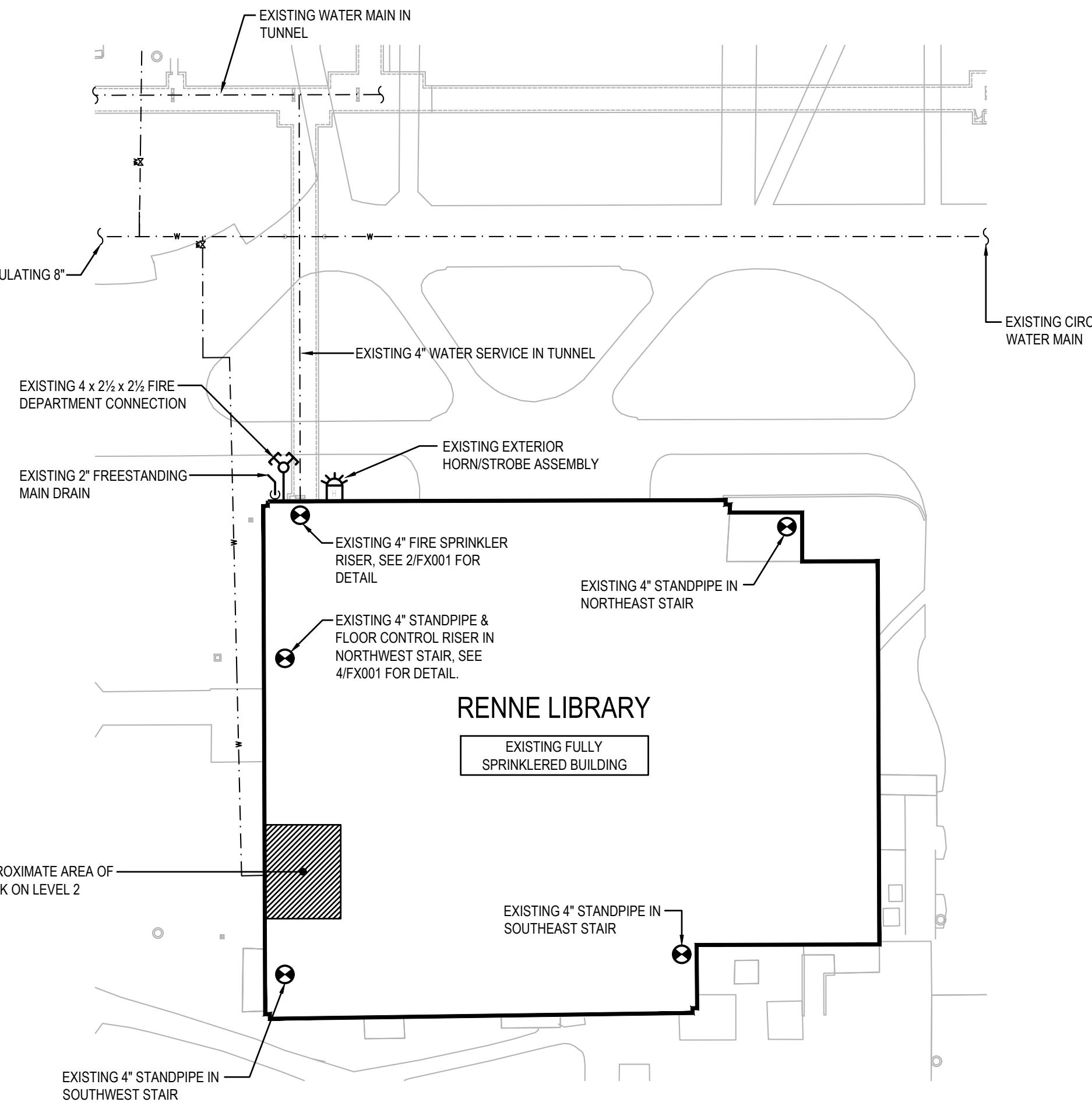
REVISIONS:

GENERAL NOTES,  
DETAILS, AND  
LEGEND

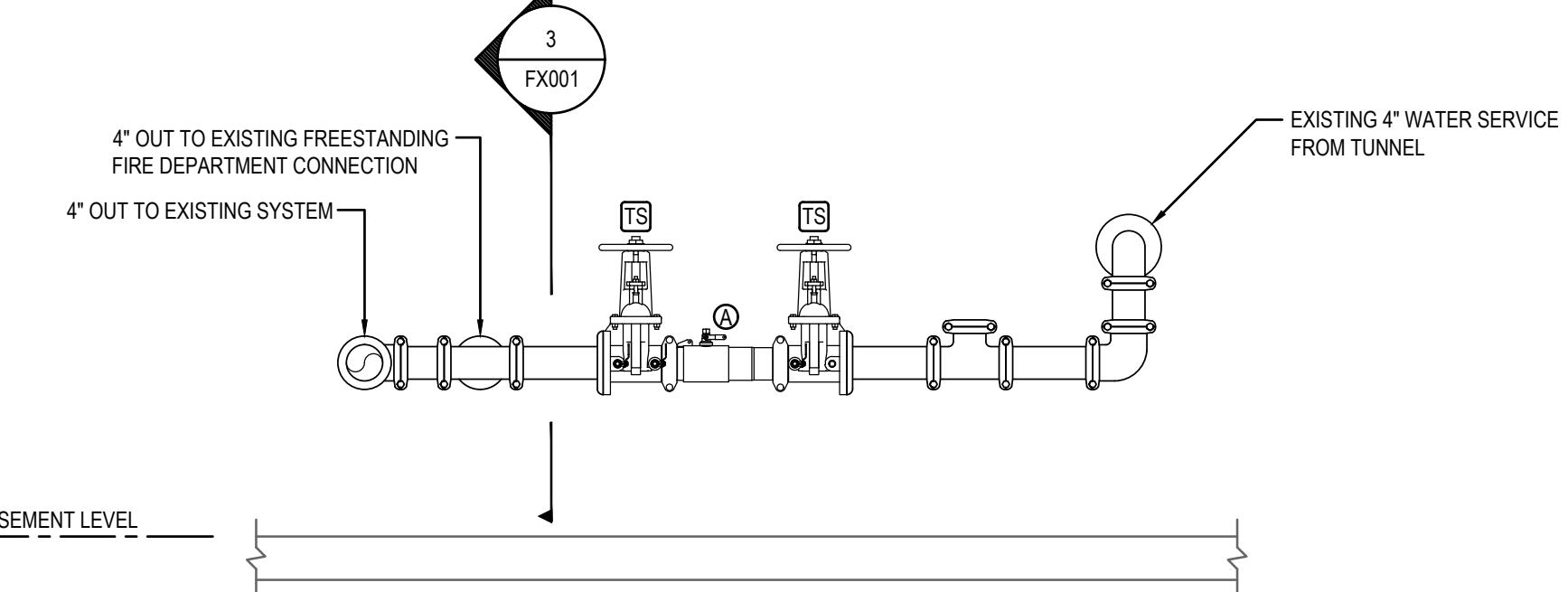
**COFFMAN**  
ENGINEERS

751 Osterman Drive  
Suite 104  
Bozeman, MT 59715  
ph 406.582.1936  
www.coffman.com

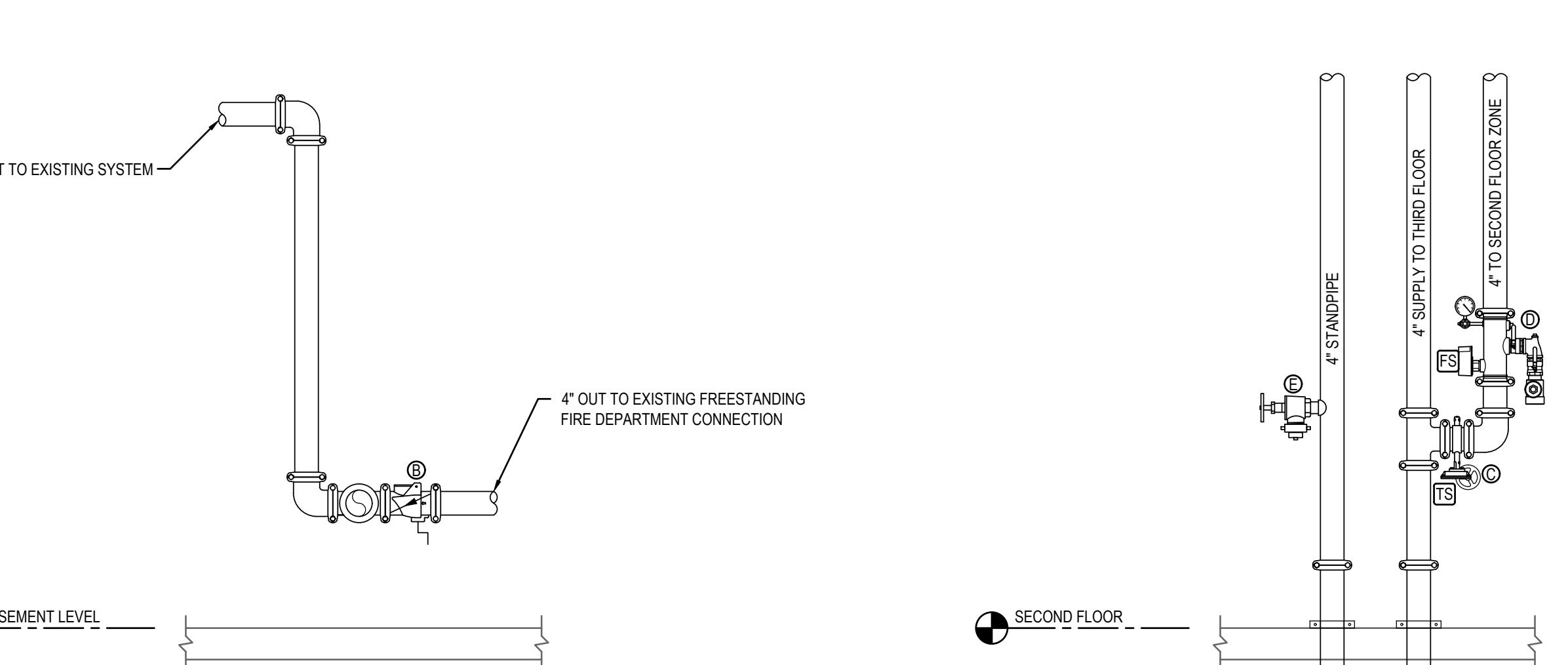
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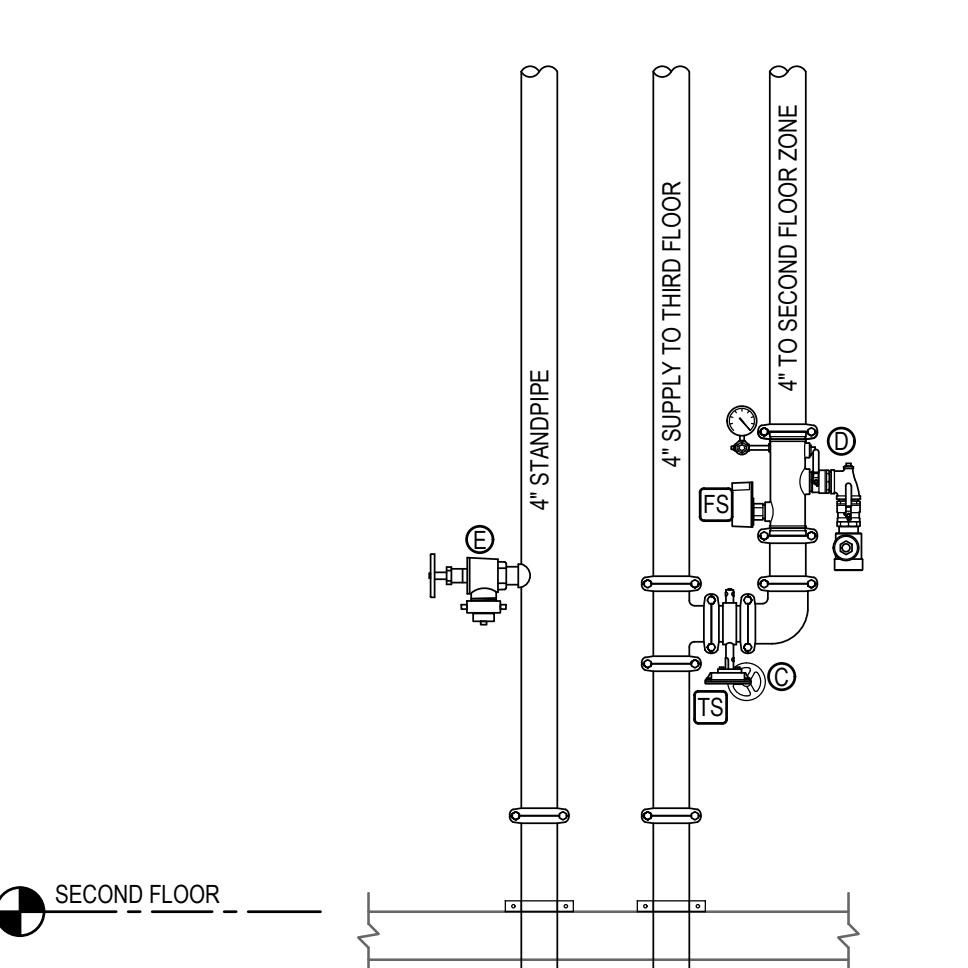
1 EXISTING FIRE SPRINKLER REFERENCE SITE PLAN  
SCALE: 1" = 40'



2 FIRE SPRINKLER RISER DETAIL - NORTH  
SCALE: 1/2" = 1'



3 FIRE SPRINKLER RISER DETAIL - WEST  
SCALE: 1/2" = 1'



4 STANDPIPE DETAIL - NORTHWEST STAIR  
SCALE: 1/2" = 1'

### GENERAL FIRE SUPPRESSION SYSTEM NOTES

- SCOPE OF WORK: MODIFY THE EXISTING WET PIPE SPRINKLER SYSTEM AS REQUIRED IN THE AREA OF WORK AS SHOWN ON THE DRAWINGS. CONTRACTOR SHALL PROVIDE ALL EQUIPMENT, LABOR, AND MATERIAL FOR AN ACCEPTED AUTOMATIC SPRINKLER SYSTEM, INCLUDING FIRE PROTECTION PIPING, HANGERS, SPRINKLERS, DRAINS, AND ALL OTHER ASSOCIATED EQUIPMENT INDICATED OR NOT ON THESE DRAWINGS AND THE SPECIFICATIONS. FOR A COMPLETE FIRE SUPPRESSION SYSTEM COMPLYING WITH NFPA 13 AND ANY OTHER LISTED CODES OR REFERENCE.
- THE FIRE PROTECTION SYSTEMS SHALL BE DESIGNED, INSTALLED, TESTED, AND FLUSHED IN ACCORDANCE WITH THE FOLLOWING:
  - INTERNATIONAL BUILDING CODE (IBC - 2021 EDITION WITH LOCALLY ADOPTED MODIFICATIONS)
  - NFPA 13 (STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS) - 2019 EDITION
  - PROJECT SPECIFICATIONS
- THE FIRE SUPPRESSION SYSTEM SHOWN ON THE PLANS IS CONCEPTUAL ONLY AND PROVIDED TO CONVEY DESIGN INTENT. THE CONTRACTOR SHALL PROVIDE A COMPLETE SPRINKLER SYSTEM IN THE AREA(S) OF WORK. COORDINATE FINAL PIPE ROUTING AND SPRINKLER LOCATIONS WITH ALL OTHER TRADES AS REQUIRED. THE CONTRACTOR SHALL INSTALL THE SYSTEM IN ACCORDANCE WITH ALL APPLICABLE CODES, THE MANUFACTURER'S RECOMMENDATIONS, AND PER THE EQUIPMENT'S LISTING.
- DRAWINGS AND REFLECTED CEILING PLANS ARE PROVIDED FOR REFERENCE ONLY. SEE ARCHITECTURAL, ELECTRICAL, MECHANICAL, AND STRUCTURAL DRAWINGS FOR CEILING TYPES AND HEIGHTS, LIGHTING FIXTURE LOCATIONS, DUCTS, BEAMS, AND OTHER OBSTRUCTIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL JOB CONDITIONS AND DIMENSIONS ON DRAWINGS PRIOR TO EXECUTION OF THIS CONTRACT AND COORDINATE WITH ALL TRADES.
- FIRE SPRINKLER PIPING SHALL COMPLY WITH NFPA 13 AND THE PROJECT SPECIFICATIONS. ALL PIPING IN FINISHED AREAS SHALL BE CONCEALED UNLESS OTHERWISE NOTED ON THE PLANS OR IN THE SPECIFICATIONS.
- ALL NEW SPRINKLERS SHALL BE INSTALLED IN THE CENTER OF TILE IN AREAS WITH 2x2 SUSPENDED CEILING TILES. SPRINKLERS SHALL BE INSTALLED IN QUARTER POINTS OR IN THE CENTER OF CEILING TILE IN AREAS WITH 2x4 SUSPENDED CEILING TILES.
- ALL SPRINKLERS SHALL BE QUICK RESPONSE UNLESS OTHERWISE NOTED OR REQUIRED BY CODE. IN THE AREAS OF WORK, SPRINKLERS SHALL BE WHITE RECESSED PENDENTS U.O.N.
- IT IS THE INTENT OF THIS DESIGN TO NOT CORE DRILL STRUCTURAL MEMBERS EXCEPT WHERE INDICATED FOR FLOOR SLABS AND CMU WALLS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CORE DRILLING. ALL PENETRATIONS IN WALLS SHALL BE SEALED TO THE FULL THICKNESS OF THE PENETRATION WITH APPROVED FIRE STOPPING MATERIAL OF EQUAL OR GREATER FIRE RESISTANCE. SEE ARCHITECTURAL PLANS FOR LOCATION OF SMOKE AND FIRE BARRIER WALLS.
- PROVIDE HANGERS AND BRANCHLINE RESTRAINT THROUGHOUT THE AREA(S) OF WORK IN ACCORDANCE WITH NFPA 13. ADDITIONALLY, PROVIDE PROPER CLEARANCES, SLEEVES, OR FLEXIBLE COUPLINGS AROUND PIPING WHERE REQUIRED IN ACCORDANCE WITH NFPA 13.
- SPARE SPRINKLERS SHALL BE PROVIDED IN ACCORDANCE WITH NFPA 13.
- PROVIDE LABEL TAG INDICATING "NORMALLY OPEN" OR "NORMALLY CLOSED" ON ALL VALVES INCLUDING AND NOT LIMITED TO ALL RISER AND TRIM, SECTIONAL VALVES, INSPECTOR'S TEST VALVES, AND DRAINS.
- ALL FIRE PROTECTION DEVICES AND EQUIPMENT SHALL BE ULLISTED OR FM APPROVED AND INSTALLED PER THE LISTING AND MANUFACTURER'S INSTALLATION REQUIREMENTS.
- PROVIDE AUXILIARY LOW POINT DRAINS FOR THE WET PIPE SYSTEM IN ACCORDANCE WITH NFPA 13. WHERE AUXILIARY DRAINS ARE INSTALLED BEHIND A HARD-LID CEILING, PROVIDE AN ACCESS PANEL DIRECTLY BEHIND THE DRAIN. LOCATIONS OF AUXILIARY DRAINS SHALL BE CLEARLY INDICATED ON THE WORKING DRAWINGS.
- THE FIRE SUPPRESSION SYSTEM SHALL BE SUPERVISED IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE AND NFPA 72. ALL FIRE PROTECTION SYSTEM WATER FLOW AND CONTROL VALVE SUPERVISORY SWITCHES SHALL BE MONITORED BY THE BUILDING'S FIRE ALARM SYSTEM. COORDINATE WITH THE FIRE ALARM CONTRACTOR SUCH THAT ELECTRICAL CONNECTIONS CAN BE MADE BETWEEN THESE DEVICES AND THE BUILDING'S FIRE ALARM SYSTEM.
- IT IS THE OWNER'S RESPONSIBILITY TO PROVIDE ADEQUATE HEAT TO PREVENT FREEZING THROUGHOUT WET PIPE SPRINKLER SYSTEM AREAS AND IN ENCLOSURES FOR DRY PIPE AND OTHER TYPES OF VALVES CONTROLLING WATER SUPPLIES TO SPRINKLER SYSTEMS.
- PROVIDE INSPECTION AND TESTING IN ACCORDANCE WITH NFPA 13 AND THE PROJECT SPECIFICATIONS.
- NO INSTALLATION OF ANY PIPING OR EQUIPMENT IS TO BEGIN PRIOR TO APPROVAL OF PLANS BY THE AUTHORITY HAVING JURISDICTION AND THE OWNER'S REPRESENTATIVE.

### SEISMIC BRACING REQUIREMENTS

EARTHQUAKE BRACING SHALL CONFORM WITH N.F.P.A. #13, INTERNATIONAL BUILDING CODE, NEHRP, AND ASCE/SEI 7 CRITERIA	
DESCRIPTION OF SITE CONDITIONS	
MAPPED SPECTRAL ACCELERATION FOR SHORT PERIODS	$S_{Ss} = 0.680$
MAPPED SPECTRAL ACCELERATION FOR 1-SECOND PERIOD	$S_{1s} = 0.214$
SITE CLASS	D
SEISMIC OCCUPANCY CATEGORY OF BUILDING	II
MAXIMUM SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS	$S_{Dss} = 0.569$
MAXIMUM SPECTRAL RESPONSE ACCELERATION AT 1-SECOND PERIODS	$S_{D1s} = 0.569$
SEISMIC DESIGN CATEGORY BASED ON $S_{Dss}$	D
SEISMIC DESIGN CATEGORY BASED ON $S_{D1s}$	D
SEE CALCULATIONS BELOW FOR DETERMINATION OF FORCE FACTOR FOR SEISMIC DESIGN CATEGORY 'C' & 'D'.	
COMPONENT IMPORTANCE FACTOR	$I_p = 1.50$
COMPONENT RESPONSE MODIFICATION FACTOR	$R_p = 4.50$
COMPONENT AMPLIFICATION FACTOR	$A_p = 2.50$
HEIGHT IN STRUCTURE OF POINT OF ATTACHMENT W/ RESPECT TO THE BASE	$Z = 50'$
AVERAGE ROOF HEIGHT OF STRUCTURE WITH RESPECT TO THE BASE	$H = 50'$
$F_p = 0.4 \cdot A_p \cdot S_{Dss} \cdot W_p \cdot (1+2Z)$	$F_p = S_{Dss} \cdot W_p$
$F_p = C_p \cdot W_p$	$F_p = 0.569 \cdot W_p$
ASCE 7 ALLOWS A REDUCTION FACTOR OF 1.4 FOR STRESS BASED DESIGN:	
$F_p = 0.406 \cdot W_p$	

### BRANCHLINE RESTRAINT REQUIREMENTS

SEISMIC COEFFICIENT, $C_p = 0.406$	STEEL BRANCH LINE SIZE
SEE SEISMIC CALCULATIONS FOR $C_p$ VALUES	1" 1 1/4" 1 1/2" 2"
MAXIMUM SPACING OF BRANCH LINE RESTRAINTS	43" 46" 49" 53"
WHERE NOT REQUIRED:	
NO RESTRAINT REQUIRED IF HANGER ROD IS LESS THAN 6" LONG MEASURED BETWEEN THE TOP OF THE PIPE AND THE POINT OF ATTACHMENT TO THE BUILDING STRUCTURE.	
WHERE REQUIRED:	
-ON ALL BRANCH LINES (WITH HANGER ROD >6") AT INTERVALS NOT EXCEEDING THOSE SPECIFIED IN TABLE ABOVE BASED ON BRANCH LINE DIAMETER AND THE VALUE OF $C_p$ . SPRIG-UPS 4" OR LONGER SHALL BE RESTRAINED AGAINST LATERAL MOVEMENT.	
RESTRAINT SHALL BE PROVIDED BY USE OF ONE OF THE FOLLOWING:	
1) A LISTED SWAY BRACE ASSEMBLY	
2) A WRAPAROUND U HOOK	
3) #12, 440-LB WIRE INSTALLED AT LEAST 45° FROM THE VERTICAL PLANE AND ANCHORED ON BOTH SIDES OF THE PIPE.	
4) A HANGER NOT LESS THAN 45° FROM VERTICAL INSTALLED WITHIN 6" OF THE VERTICAL HANGER ARRANGED FOR RESTRAINT AGAINST UPWARD MOVEMENT, PROVIDED IT IS UTILIZED SUCH THAT $L_H$ DOES NOT EXCEED 300, WHERE THE ROD SHALL EXTEND TO THE PIPE OR HAVE A SURGE CLIP RESTRAINT.	
5) OTHER APPROVED MEANS	
-WIRES USED FOR PIPING RESTRAINTS SHOULD BE ATTACHED TO THE BRANCH LINE WITH TWO TIGHT TURNS AROUND THE PIPE AND FASTENED WITH FOUR TIGHT TURNS WITHIN 1-1/2" (SEE DETAIL), AND ATTACHED TO THE STRUCTURE WITH MEANS APPROVED BY NFPA.	
-RESTRAINT SHALL BE LOCATED WITHIN 2 FT OF A HANGER. THE HANGER CLOSEST TO THE RESTRAINT SHALL BE OF A TYPE THAT RESISTS UPWARD MOVEMENT OF A BRANCH LINE SUCH AS A SURGE CLIP.	

### SEISMIC CLEARANCE REQUIREMENTS

PROVIDE CLEARANCE AT ALL PIPING EXTENDING THROUGH WALLS, FLOORS, FOUNDATIONS. NO CLEARANCE REQUIRED AT GYPSUM BOARD OR EQUALLY FRAGILE CONSTRUCTION THAT IS NOT REQUIRED TO HAVE A FIRE RESISTANCE RATING.	
NOMINAL PIPE SIZE	CORE DRILL HOLE OR PIPE SLEEVE SIZE
INCH MM	INCH MM
1/2" 22	3 60
1" 32	4 100
1 1/4" 40	4 100
1 1/2" 50	4 100
2" 65	6 150
3" 80	6 150
4" 100	8 200
6" 150	10 250

AT CONTRACTORS OPTION FLEXIBLE COUPLINGS MAY BE INSTALLED WITHIN 12" OF THE WALL SURFACE ON EACH SIDE, OR WITHIN 12" ABOVE FLOOR AND 24" BELOW FLOOR, AND THE CLEARANCES NOTED ARE NOT REQUIRED.

FIRE CAULK HOLE AND PROVIDE SPLIT CHROME WALL PLATES AT ALL EXPOSED WALL LOCATIONS.

(NOTE THAT AT NON-RATED FRAGILE GYPSUM BOARD WALLS NO CLEARANCE IS REQUIRED)

### HANGER SPACING REQUIREMENTS

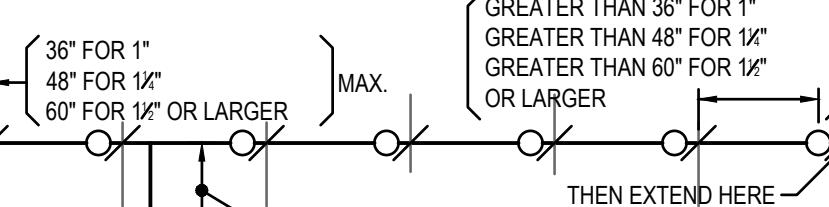
MAXIMUM DISTANCE BETWEEN HANGERS (FT-IN) - N.F.P.A. #13							
NOMINAL PIPE SIZE	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"

STEEL PIPE N/A 12.0 12.0 15.0 15.0 15.0 15.0 15.0

NOTE:

TYPICAL HANGER SYMBOLS AS SHOWN ON PIPING PLAN MAY NOT REFLECT ACTUAL FIELD INSTALLATION. FINAL HANGER INSTALLATION SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF N.F.P.A. #13.

DISTANCE FROM SPRINKLER TO HANGER - N.F.P.A. #13 - MAX PRESSURES ≤ 100 PSI (ALL SPRINKLER TYPES)



MAXIMUM LENGTH OF UNSUPPORTED ARM OVER WITHOUT SUPPORT: 24" FOR STEEL OVER 12'

THEN EXTEND HERE

GREATER THAN 36" FOR 1"

GREATER THAN 48" FOR 1 1/4"

GREATER THAN 60" FOR 1 1/2"

OR LARGER

MAX.

36" FOR 1"

48" FOR 1 1/4"

60" FOR 1 1/2"

60" FOR 2" OR LARGER

MAX.

36" FOR 1"

48" FOR 1 1/4"

60" FOR 1 1/2"

60" FOR 2" OR LARGER

MAX.

36" FOR 1"

48" FOR 1 1/4"

60" FOR 1 1/2"

60" FOR 2" OR LARGER

MAX.

36" FOR 1"

48" FOR 1 1/4"

60" FOR 1 1/2"

60" FOR 2" OR LARGER

MAX.

36" FOR 1"

48" FOR 1 1/4"

60" FOR 1 1/2"

60" FOR 2" OR LARGER

MAX.

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## GENERAL DEMOLITION NOTES

1. THE EXISTING FIRE SPRINKLER SYSTEM SHOWN IS BASED ON AS-BUILT DOCUMENTATION AND A NON-DESTRUCTIVE WALK THROUGH OF THE BUILDING. ALL COMPONENTS OF THE EXISTING FIRE SPRINKLER SYSTEM ARE NOT SHOWN ON THE PLANS. THE EXISTING COMPONENTS SHOWN ON THE PLANS MAY NOT BE SHOWN IN THE EXACT LOCATION OR CORRECT ORIENTATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS.
2. THE REQUIRED DEMOLITION IS NOT LIMITED TO WHAT IS INDICATED ON THE PLANS ALONE, BUT SHALL INCLUDE ALL NECESSARY WORK INDICATED ELSEWHERE IN THE DRAWINGS AND SPECIFICATIONS TO ACCOMPLISH THE INTENT OF THE CONTRACT DOCUMENTS.
3. THE EXISTING WET PIPE FIRE SPRINKLER SYSTEM OUTSIDE OF THE AREA(S) OF WORK SHALL REMAIN U.O.N.
4. DEMOLISH THE EXISTING WET PIPE SPRINKLER SYSTEM AS INDICATED ON THE DRAWINGS IN THE AREA(S) OF WORK.

## GENERAL FIRE SPRINKLER NOTES

1. THE FIRE SPRINKLER SYSTEM SHOWN IS CONCEPTUAL ONLY AND PROVIDED TO CONVEY DESIGN INTENT. THE CONTRACTOR SHALL PROVIDE A COMPLETE SPRINKLER SYSTEM IN THE AREA(S) OF WORK. COORDINATE FINAL PIPE ROUTING AND SPRINKLER LOCATIONS WITH ALL OTHER TRADES AS REQUIRED. THE CONTRACTOR SHALL INSTALL THE SYSTEM IN ACCORDANCE WITH ALL APPLICABLE CODES, THE MANUFACTURER'S RECOMMENDATIONS, AND PER THE EQUIPMENT'S LISTING.
2. PREFERRED SPRINKLER LOCATIONS ARE SHOWN ON THE CONTRACT DRAWINGS. THE FIRE SPRINKLER CONTRACTOR MAY DEVIATE FINAL SPRINKLER LOCATIONS FROM PLANS BASED ON ACTUAL FIELD CONDITIONS, FINAL PIPE ROUTING, AND HANGER INSTALLATION, PROVIDED THAT PROPER COVERAGE AND SPACING IS MAINTAINED FOR THE LIGHT HAZARD OCCUPANCIES. CONTRACTOR SHALL 'RED-LINE' THE AS-BUILT DRAWINGS AND PROVIDE TO THE ARCHITECT/ENGINEER AT PROJECT CLOSE-OUT.
3. SPRINKLERS SHALL BE INSTALLED IN THE CENTER OF TILE IN AREAS WITH 2'x2' SUSPENDED CEILING TILES. SPRINKLERS SHALL BE INSTALLED IN QUARTER POINTS OR IN THE CENTER OF TILE IN AREAS WITH 2'x4' SUSPENDED CEILING TILES.
4. PROVIDE WHITE RECESSED PENDENT SPRINKLERS IN THE AREA OF WORK U.O.N.
5. ALL CEILING HEIGHTS ARE NOTED.
6. ALL GROOVED COUPLINGS SHALL BE ZERO FLEX/RIGID U.O.N AND/OR REQUIRED BY CODE.
7. EXISTING FIRE SPRINKLER SYSTEM PIPING, DENOTED: 
8. NEW FIRE SPRINKLER SYSTEM PIPING, DENOTED: 
9. ALL ROOMS ARE CLASSIFIED AS LIGHT HAZARD OCCUPANCY (0.10 GPM/SQ FT OVER REMOTE AREA - 100 GPM HOSE) PER NFPA 13.

## PLAN KEY NOTES

1. DEMOLISH EXISTING PENDENT SPRINKLER AND ASSOCIATED DROP (TYPICAL).
2. EXISTING PENDENT SPRINKLER TO REMAIN (TYPICAL).
3. PROVIDE NEW PENDENT SPRINKLER IN STUDIO ROOM (TYPICAL).
4. PROVIDE NEW PENDENT SPRINKLER IN EXISTING STUDY AREA TO MAINTAIN COVERAGE FOR A LIGHT HAZARD OCCUPANCY.
5. HANG NEW 1" SPRINKLER PIPING IN ACCORDANCE WITH NFPA 13 (TYPICAL).
6. INSTALL A 1½x1 MECHANICAL TEE AND PIPE AS SHOWN

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DRAWN: NSB      CHECKED: JAA

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DATE: 10/25/2023

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## REVISIONS:

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# LEVEL 2 FIRE SPRINKLER PLAN

GRAPHIC SCALE : 1/8" = 1'-0"



The graphic scale bar consists of a horizontal line divided into 8 equal segments. The first segment is labeled "0'" at its left end. The fourth segment is labeled "4'". The eighth segment is labeled "8'". The 12th segment is labeled "16'". The 16th segment is labeled "24'". The segments are alternating in color between white and black.

1 FIRE SPRINKLER DEMOLITION PLAN - LEVEL 2  
SCALE: 1/8" = 4'

SCALE: 1/8" =

A black and white compass rose icon. It features a circle with a vertical line pointing upwards, representing North. The word "NORTH" is printed in capital letters below the circle.

## 2 FIRE SPRINKLER FLOOR PLAN - LEVEL 2

SCALE: 1/8" = 1'

A circular compass rose icon with a black arrow pointing upwards, labeled 'NORTH' below it.

## KEY PLAN

PROJECT #:250488

# FX101