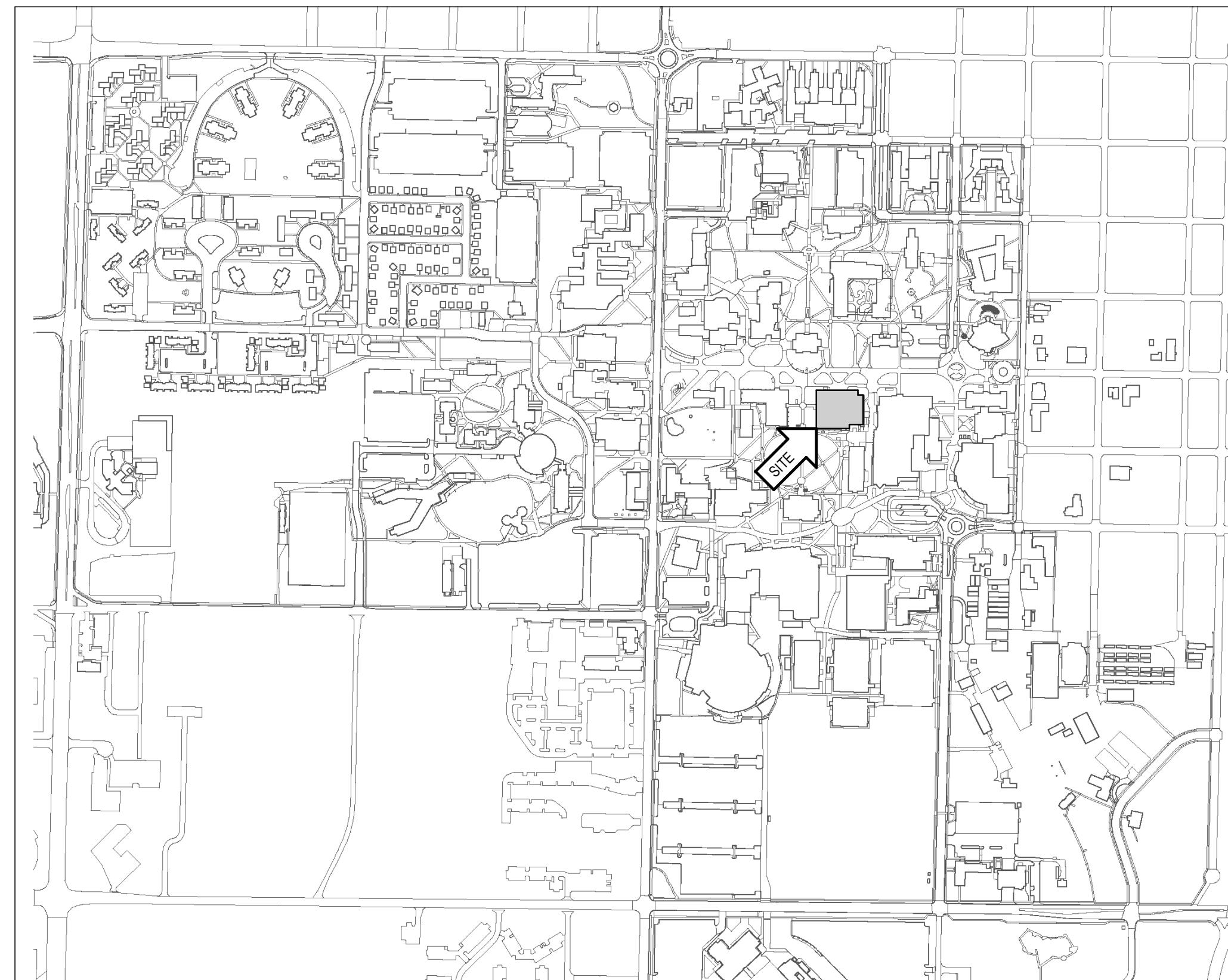
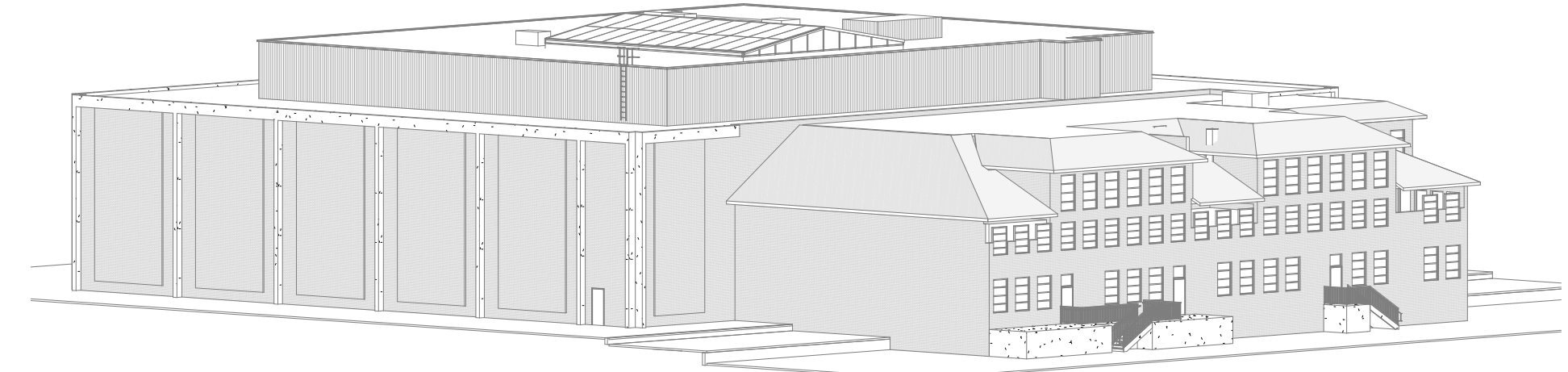
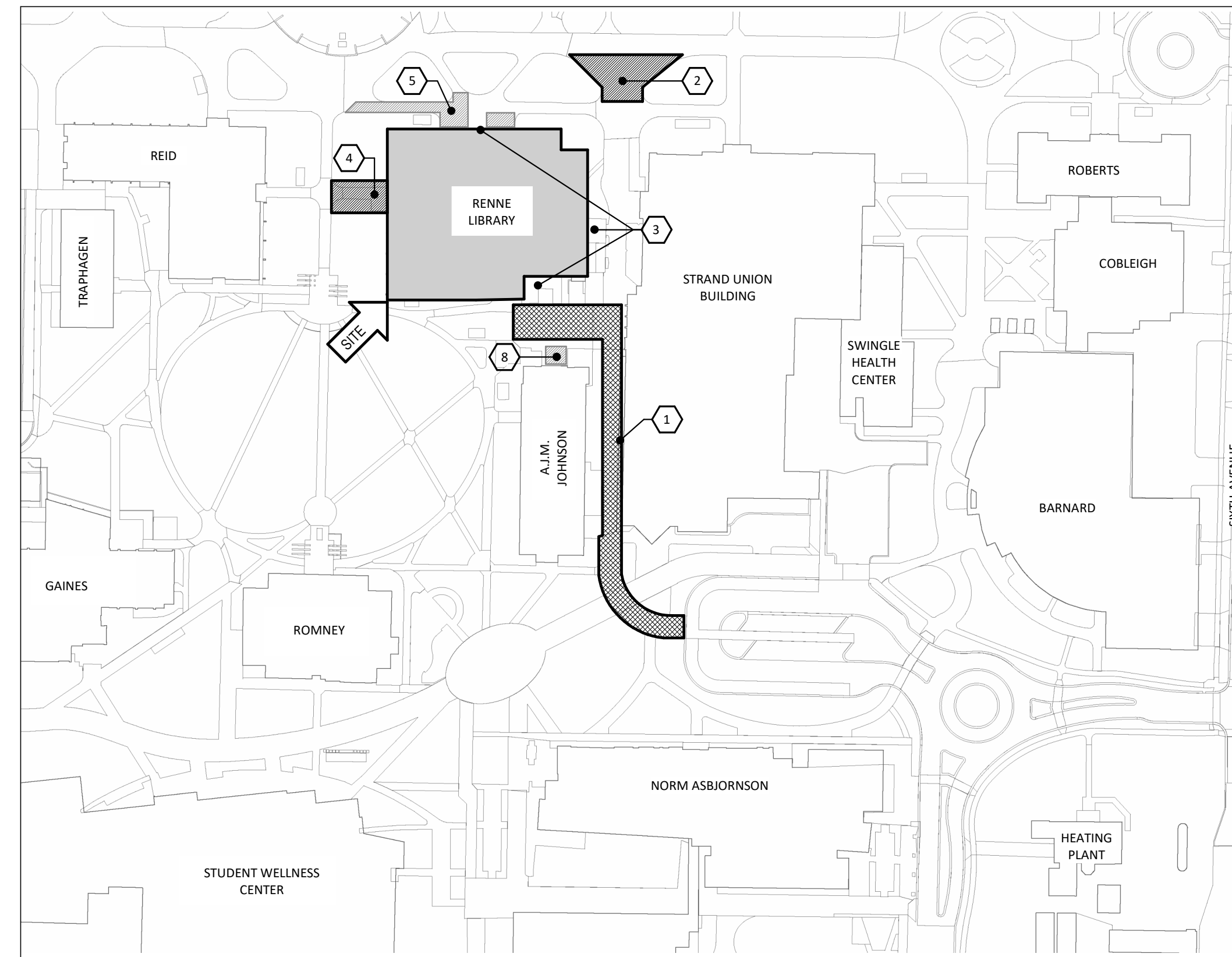


INNOVATION LEARNING STUDIO MONTANA STATE UNIVERSITY

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SITE VICINITY MAP



SITE LOCATION MAP

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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 PROJECT IN ACCORDANCE WITH THE DOCUMENTS. ANY DEVIATION FROM THE INTENT OF 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 AHJ.

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. DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS IN FIELD. AA 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 IRRIGATION SYSTEM TO 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.
- 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 AHJ.

- 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 COORDINATE WORK OF ALL TRADES TO ENSURE SMOOTH, UNINTERRUPTED CONSTRUCTION.
- WORDS WHICH HAVE WELL KNOWN TECHNICAL OR TRADE MEANINGS ARE USED IN THE DRAWINGS AND SPECIFICATIONS IN ACCORDANCE WITH SUCH RECOGNIZED MEANINGS.
- WITHIN THE DRAWINGS AND RELATED SPECIFICATIONS THERE SHALL BE THE FOLLOWING PRECEDENCE:
 - ADDENDA OR MODIFICATIONS TO THE DRAWINGS AND SPECIFICATIONS TAKE PRECEDENCE OVER THE ORIGINAL, WHEN ISSUED BY THE ARCHITECT.
 - SPECIFICATIONS SHALL TAKE PRECEDENCE OVER DRAWINGS.
 - WITHIN THE DRAWINGS THE LARGER SCALE TAKES PRECEDENCE OVER THE SMALLER, FIGURED DIMENSIONS OVER SCALED AND NOTED MATERIALS OVER GRAPHIC INDICATIONS.

- THE ARCHITECT OR ENGINEER SHALL BE IN THE FIRST INSTANCE THE SOLE INTERPRETER OF THE DRAWINGS AND SPECIFICATIONS WITH REGARD TO THEIR MEANING OR INTENT.
- CONSTRUCTION DOCUMENTS SHOW THE DESIGN INTENT OF THE PROJECT. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES AND PROCEDURES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ASPECTS OF SAFETY DURING BUILDING CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE AND BE RESPONSIBLE FOR PROTECTION WHERE NECESSARY TO PROTECT THE PUBLIC DURING THE CONSTRUCTION OF THE PROJECT.
- CONTRACTOR SHALL ALLOW FOR THE OWNER AND DESIGN TEAM TO ERECT THEIR OWN SIGNAGE AT THE EDGES OF THE PROPERTY WHICH MAY BE A WIND SCREEN MOUNTED TO THE CONTRACTOR'S SITE FENCE.
- 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.

- ALL WORK SHALL BE PERFORMED IN A MANNER SO AS NOT TO INCREASE/CAUSE A FIRE HAZARD.
- PROVIDE DEMOLITION AND PATCHING NOT SHOWN BUT REQUIRED FOR THE INSTALLATION OF NEW ARCHITECTURAL DETAILS OR AS REQUIRED FOR THE WORK.
- RENNE LIBRARY WILL BE IN USE DURING THE CONSTRUCTION PERIOD. ALL ACCESS AND EXITS SHALL BE LEFT CLEAR UNLESS AGREED TO IN ADVANCE WITH THE MSU PROJECT MANAGER. COORDINATE WITH THE MSU PROJECT MANAGER.
- CONTRACTOR SHALL BE ALLOWED TO USE WATER AND ELECTRICITY FROM RENNE LIBRARY AT NO COST TO THE CONTRACTOR.
- RENNE LIBRARY IS A CONTRIBUTING RESOURCE WITHIN THE MSU HISTORIC DISTRICT LISTED IN THE NATIONAL REGISTER OF HISTORIC PLACES. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE SECRETARY OF THE INTERIOR'S STANDARDS FOR THE REHABILITATION OF HISTORIC PROPERTIES.
- DUE TO THE AGE OF THE BUILDING, ACM AND LEAD IS SUSPECTED. ENVIRONMENTAL TESTING IS RECOMMENDED PRIOR TO START OF CONSTRUCTION.

SITE LOCATION MAP LEGEND

- PRIMARY ACCESS ROUTE
- CONSTRUCTION STAGING AREA
- PROJECT LOCATION

PROJECT INFORMATION:

OWNER / DEVELOPER
STATE OF MONTANA - MONTANA STATE UNIVERSITY
UNIVERSITY FACILITIES MANAGEMENT,
MANAGED BY: PLANNING, DESIGN & CONSTRUCTION
PLEW BUILDING 6TH & GRANT
PO BOX 172760
BOZEMAN, MT 59717-2760
ATTN: ELIZABETH PRITCHARD
EMAIL: ELIZABETH.PRITCHARD@MONTANA.EDU
TEL: (406) 994-7089

BUILDING DEPARTMENT
MONTANA DEPARTMENT OF LABOR & INDUSTRY
100 N PARK AVE
HELENA, MT 59601
EMAIL: BUILDINGCODES@MT.GOV
TEL: (406) 444-2840

DESIGN PROFESSIONALS

JACKOLA ENGINEERING & ARCHITECTURE, P.C.
2250 HWY 93 SOUTH
PO BOX 1134
KALISPELL, MT 59903
TEL: (406) 755-3208

ELECTRICAL & PLUMBING ENGINEER:
BLACKSHEEP
602 WEST HEMLOCK ST
BOZEMAN, MT 59715
EMAIL: ANDY.M@BLACKSHEEP.ENGINEERING
TEL: (406) 551-3669

MECHANICAL ENGINEER: BLAKE BARTUSIAK, PE

FIRE SUPPRESSION:
COFFMAN ENGINEERS, INC.
751 OSTERMAN DR., STE 104
BOZEMAN, MT 59715
EMAIL: JASON.ANDERSON@COFFMAN.COM
TEL: (496) 582-1936

KEYED SITE/STAGING NOTES

- PRIMARY ACCESS ROUTE: JOB RELATED TRAFFIC SHALL ENTER THE CONSTRUCTION AREA SITE ONLY BY THIS ROUTE. VEHICLES MAKING DELIVERIES TO THE PROJECT SITE MUST BE REMOVED FROM CAMPUS IMMEDIATELY AFTER UNLOADING. CONTRACTOR SHALL MINIMIZE INTERFERENCE WITH ADJACENT STREETS, SIDEWALKS, PARKING AREAS, AND OTHER ADJACENT OCCUPIED OR USED FACILITIES DURING CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL NOT BLOCK STREETS, SIDEWALKS, OR ACCESS TO DUMPSTER LOCATION AT ANY TIME.
- AVAILABLE CONSTRUCTION STAGING AREA: CONTRACTOR SHALL PROVIDE FENCING TO ENCLOSE ALL AREAS USED AS CONSTRUCTION STAGING AREAS, OR APPROVED EQUAL FENCING SHALL PREVENT ACCESS FROM UNAUTHORIZED PERSONNEL. THE CONTRACTOR NEED NOT MAKE USE OF THE ENTIRE CONSTRUCTION STAGING AREA SHOWN. THE CONTRACTOR SHALL RESTORE AREAS USED FOR CONSTRUCTION STAGING THAT ARE DAMAGED DURING THE COURSE OF CONSTRUCTION OPERATIONS. TO CURRENT MSU STANDARDS AS DIRECTED BY THE MSU PROJECT MANAGER. PRIOR TO SUBSTANTIAL COMPLETION, WHERE POSSIBLE, ALL STAGING SHALL BE ON HARD SURFACING.
- KEEP THE EAST, SOUTH, AND NORTH BUILDING ENTRY/EXIT OPEN. WEST BUILDING ENTRY/EXIT WILL BE USED 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 UPGRADES PROJECT.

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DATE: 01/30/2026

REVISIONS:

PROJECT TITLE SHEET

G-001

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 302.4, 302.5 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:

- WHERE WINDOWS ARE ADDED THEY ARE NOT REQUIRED TO COMPLY WITH THE LIGHT AND VENTILATION REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE.
- NEWLY INSTALLED ELECTRICAL EQUIPMENT SHALL COMPLY WITH THE REQUIREMENTS OF SECTION 806.
- THE LENGTH OF DEAD-END CORRIDORS IN NEWLY CONSTRUCTED SPACES SHALL ONLY BE REQUIRED TO COMPLY WITH THE PROVISIONS OF SECTION 804.7.
- THE MINIMUM CEILING HEIGHT OF THE NEWLY CREATED HABITABLE AND OCCUPIABLE SPACES AND CORRIDORS SHALL BE 7 FEET (2134 MM).
- 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 = 58
 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

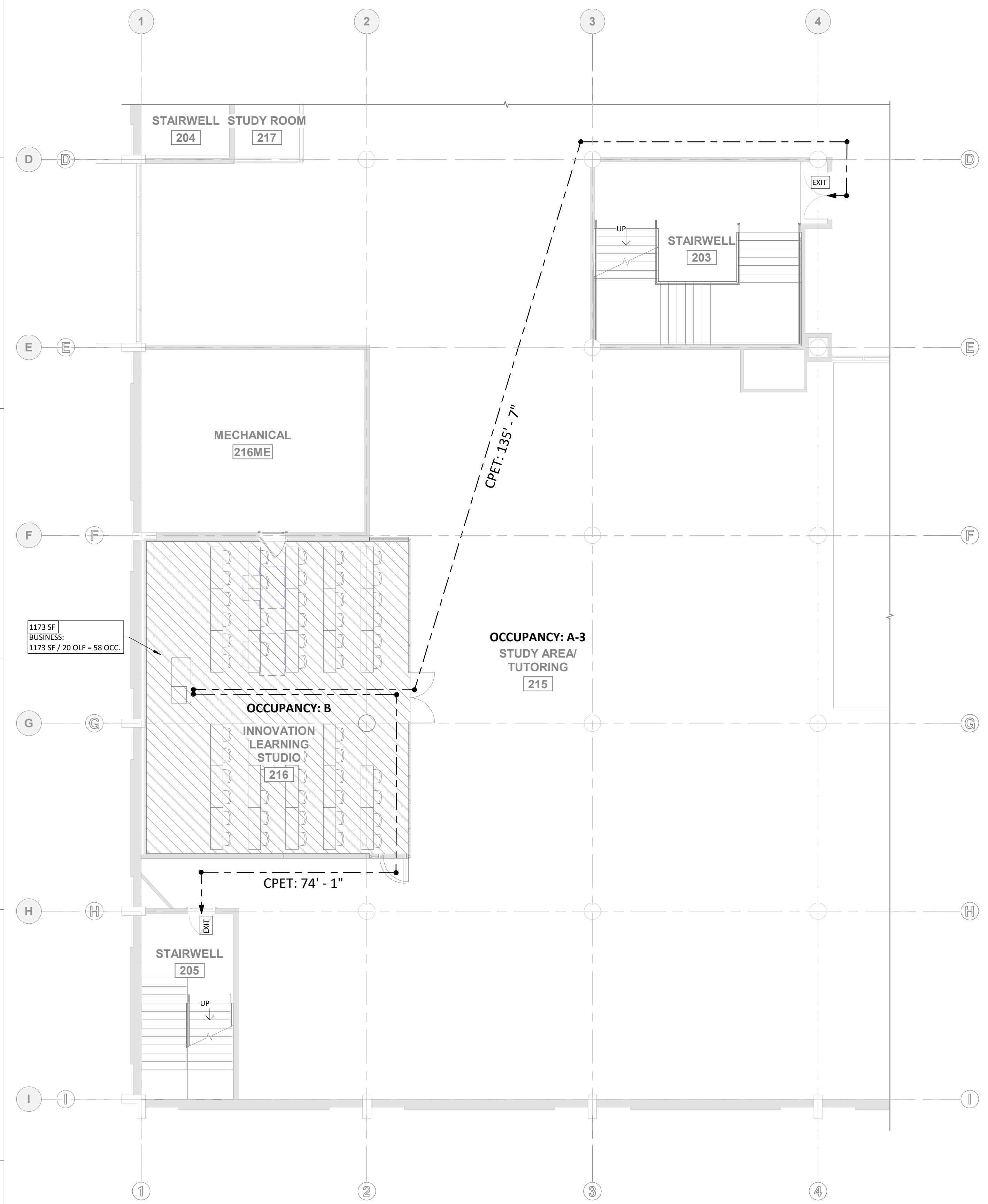
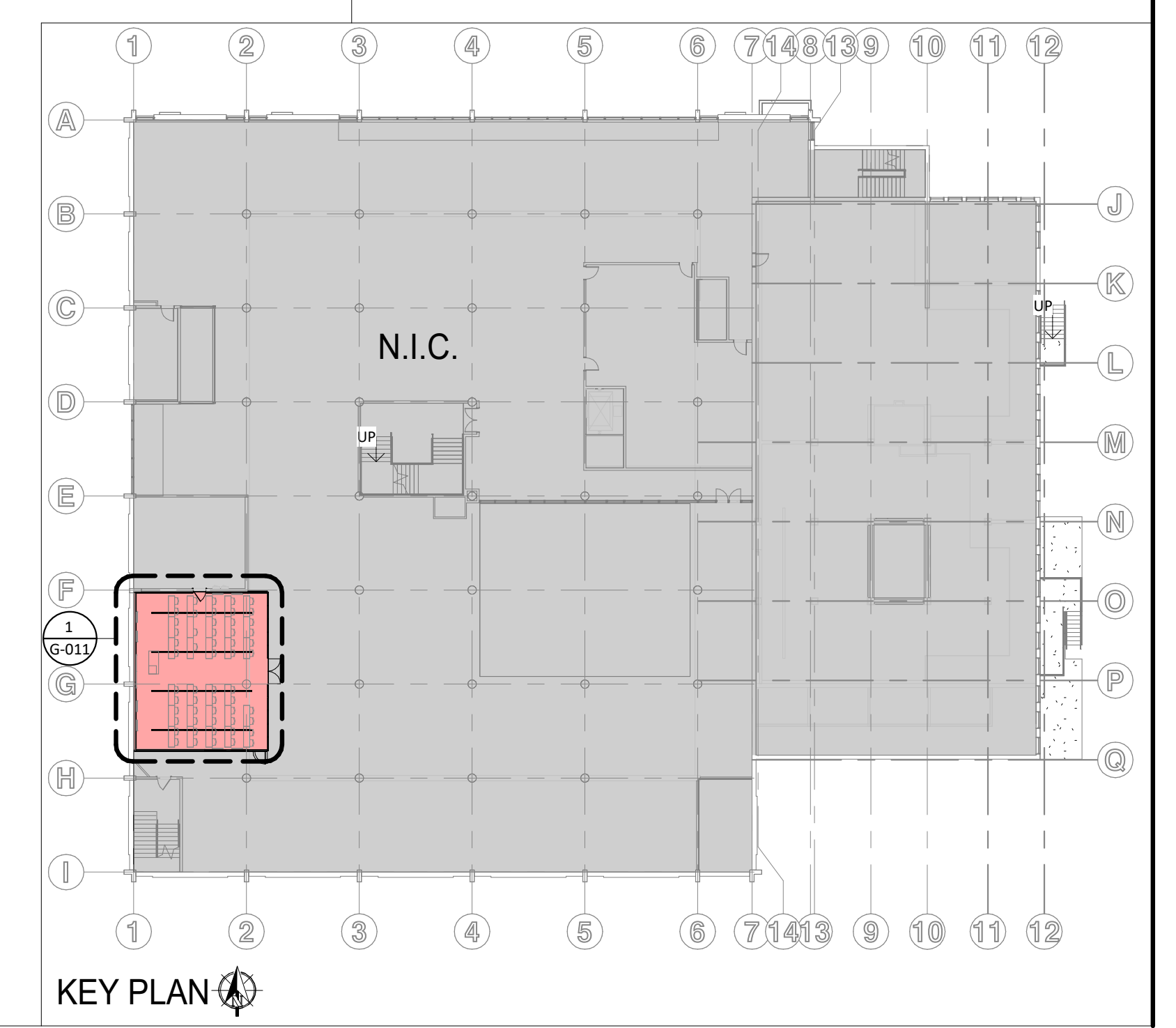
2 EXIT REQUIRED, 2 EXITS PROVIDED

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 1010.1.2.1 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: OCCUPIABLE 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)



1 LEVEL 2 CODE REVIEW PLAN
 1/8" = 1'-0"
 1,173 SQFT



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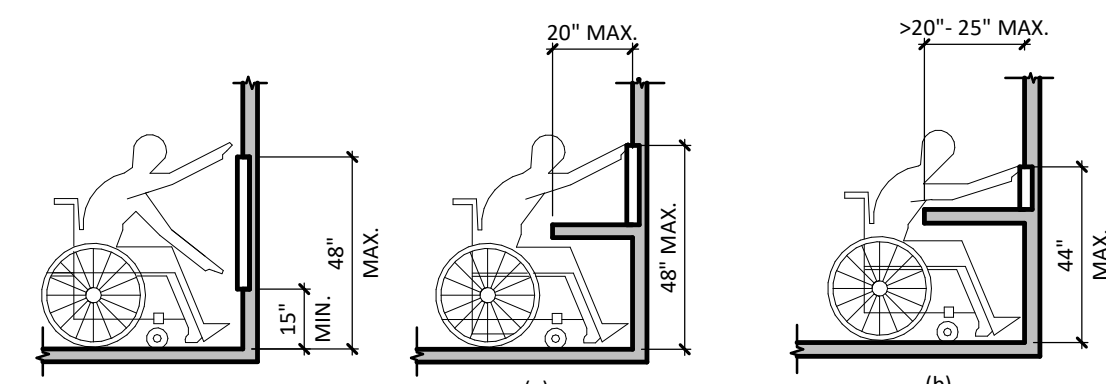
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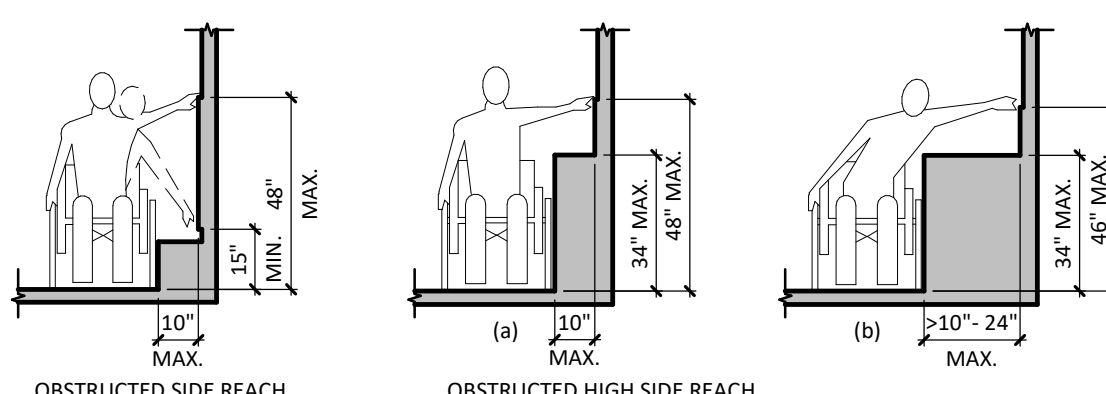
REVISIONS:

CODE REVIEW

G-011

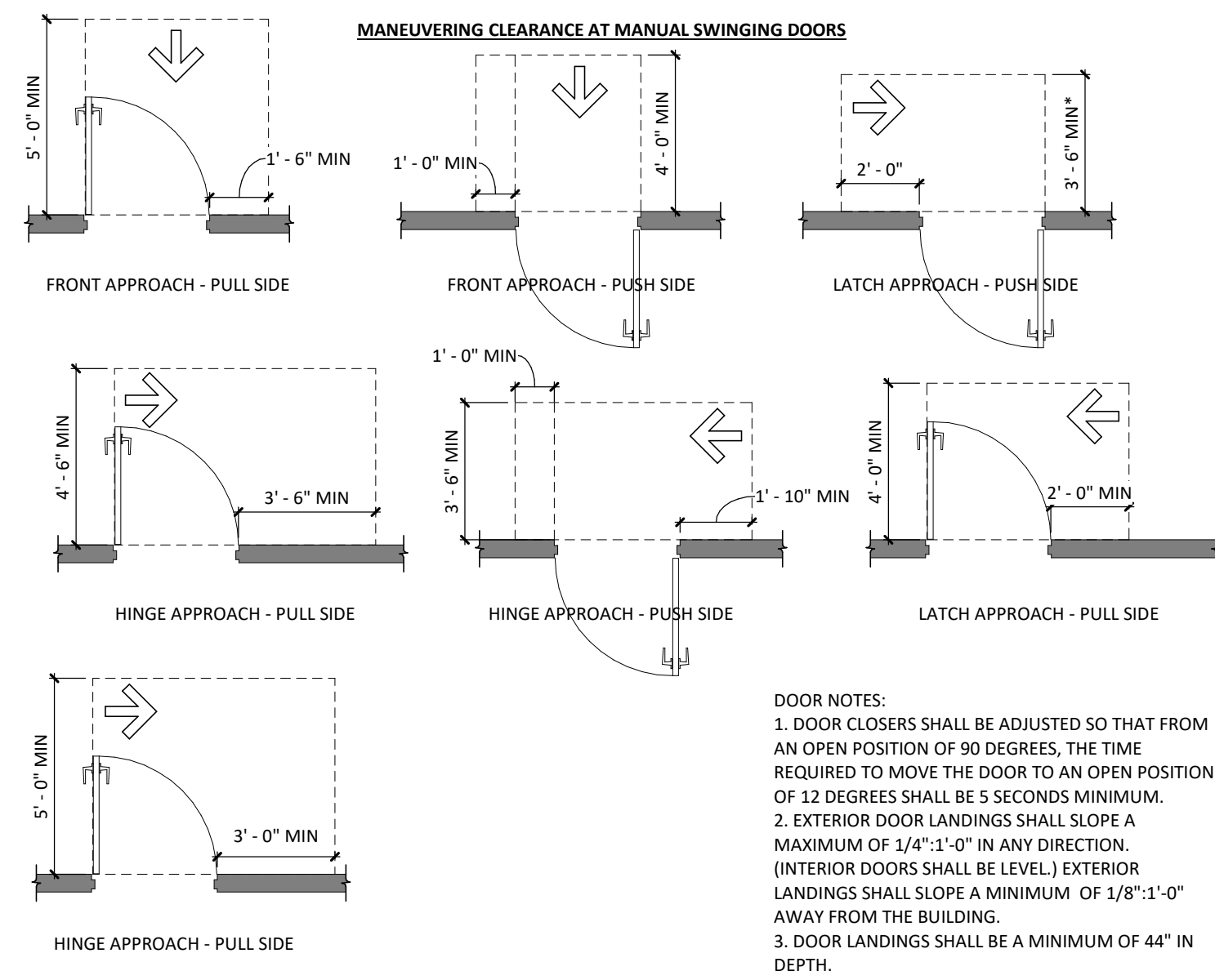


UNOBSTRUCTED FORWARD REACH UNOBSTRUCTED HIGH FORWARD REACH



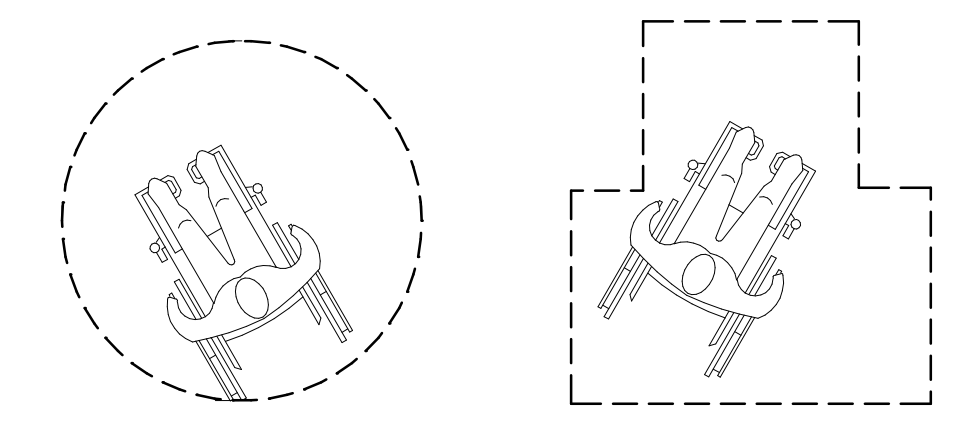
OBSTRUCTED SIDE REACH OBSTRUCTED HIGH SIDE REACH

1 ADA REACH RANGES
1/4" = 1'-0"



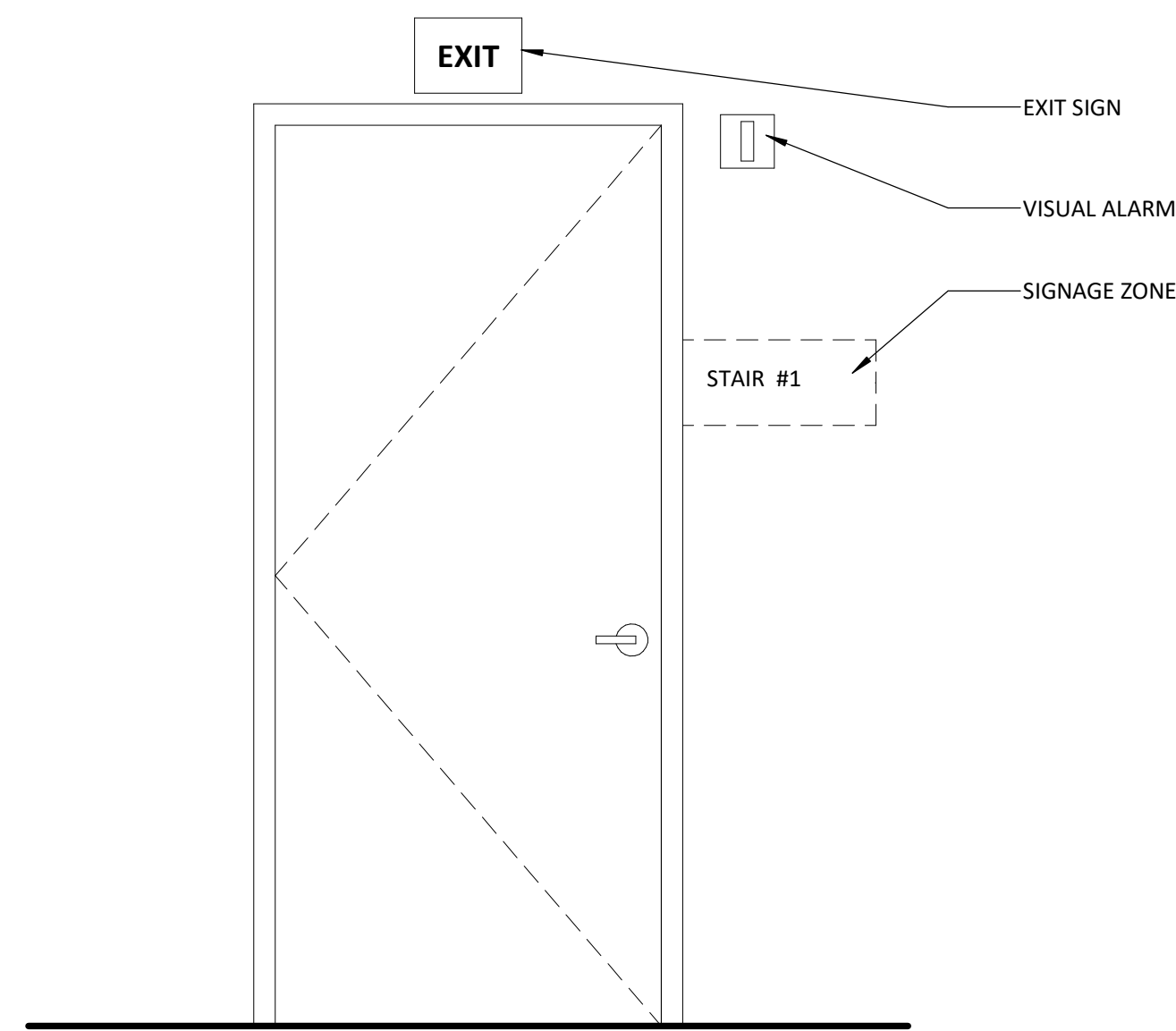
DOOR NOTES:
1. DOOR CLOSERS SHALL BE ADJUSTED SO THAT FROM AN OPEN POSITION OF 90 DEGREES, THE TIME REQUIRED TO MOVE THE DOOR TO AN OPEN POSITION OF 12 DEGREES SHALL BE 5 SECONDS MINIMUM.
2. EXTERIOR DOOR LANDINGS SHALL SLOPE A MAXIMUM OF 1/4":1'-0" IN ANY DIRECTION. (INTERIOR DOORS SHALL BE LEVEL.) EXTERIOR LANDINGS SHALL SLOPE A MINIMUM OF 1/8":1'-0" AWAY FROM THE BUILDING.
3. DOOR LANDINGS SHALL BE A MINIMUM OF 44" IN DEPTH.

5 DOOR CLEARANCE AND LANDING REQUIREMENTS
1/4" = 1'-0"

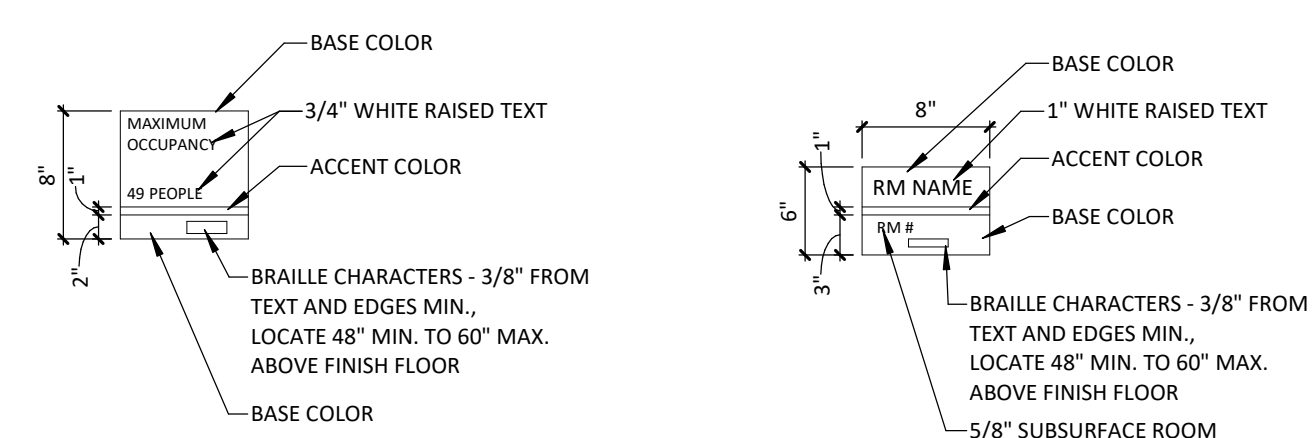


60" Ø SPACE FOR SINGLE WHEELCHAIR T-SHAPED SPACE FOR 180° TURNS

2 WHEELCHAIR TURNING REQRMNTS.
NTS



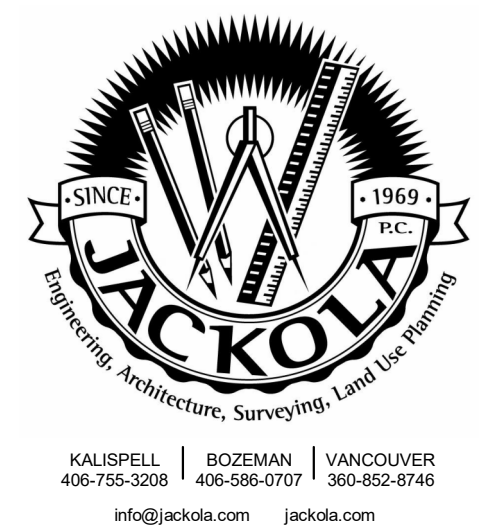
3 TYP. MOUNTING HTS. @ EXIT DOOR
NTS



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

4 ACCESSIBLE SIGNAGE
1" = 1'-0"



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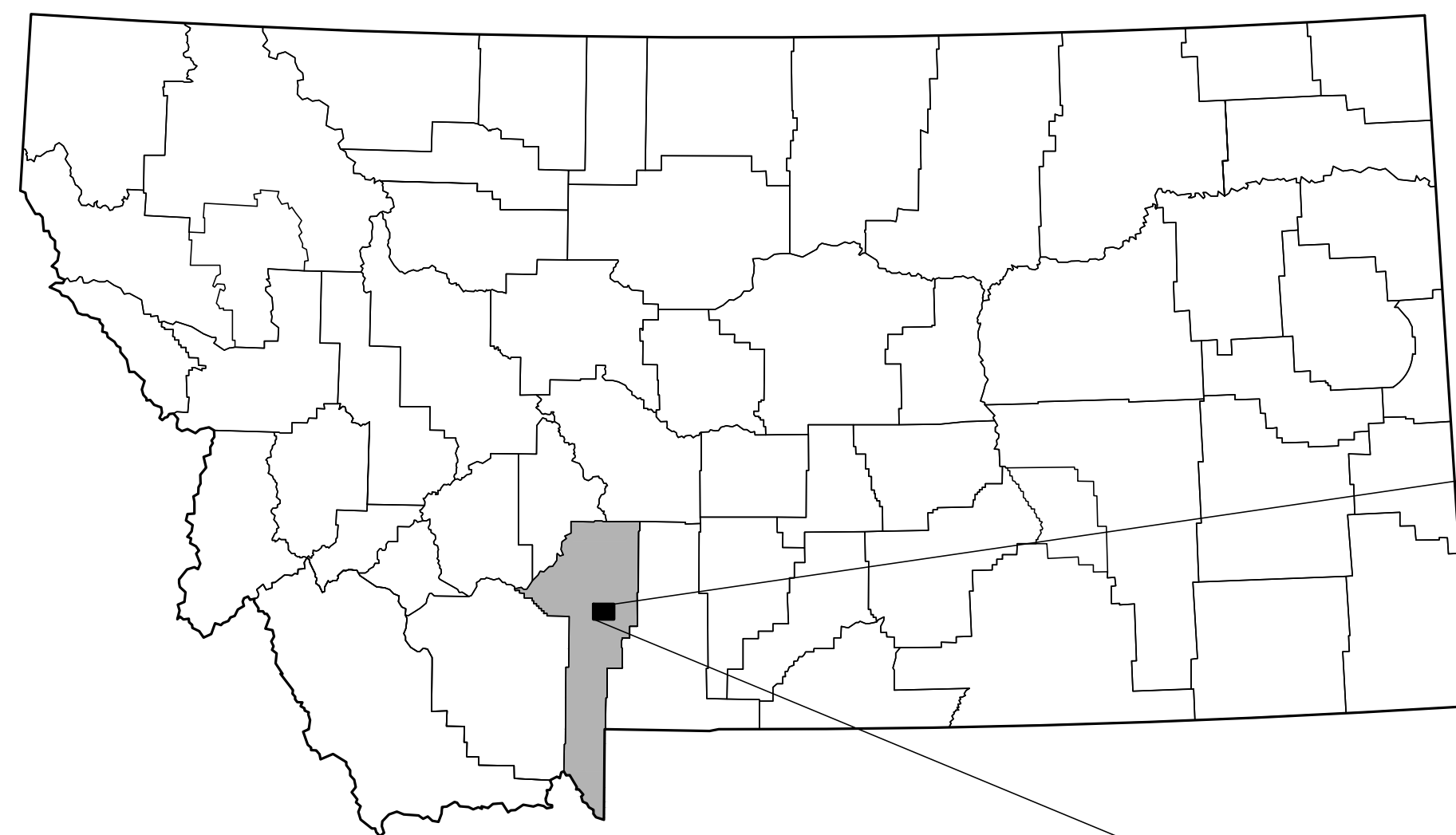
G-013

REM01 – GENERAL NOTES:

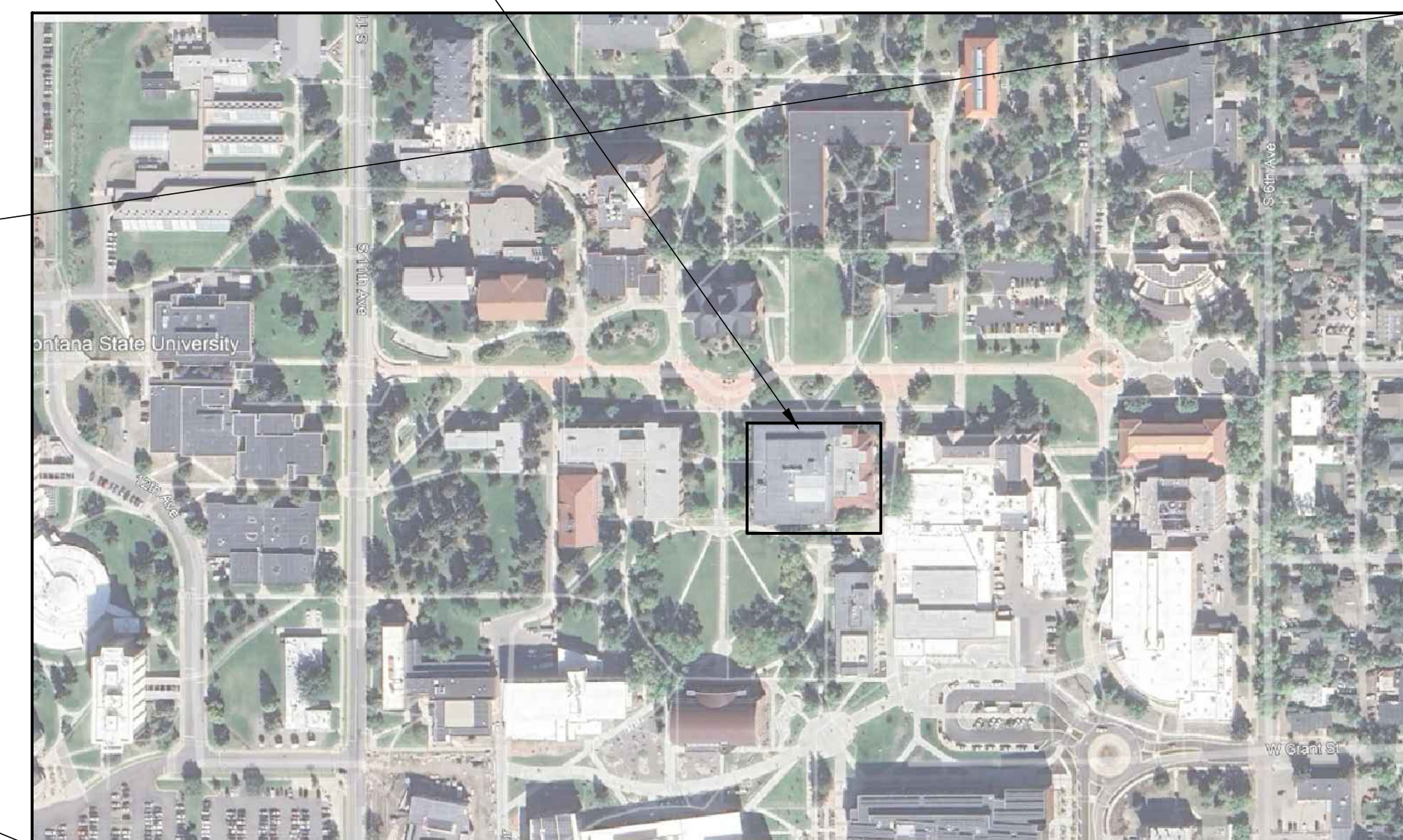
- 1) The project abatement contractor (AC) shall coordinate asbestos and lead-based paint (LBP) work activities, including any proposed changes, with the Owner or the Owner's Representative (hereafter collectively referred to as OR) and Owner's General Contractor (GC). Asbestos and LBP work, including 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 uncleaned.
- 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, transport, 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 ≤ 0.01 f/cc for all asbestos clearance samples from a given PCM air sampling event; and airborne asbestos concentrations ≤ 70 S/mm² 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 $\mu\text{g}/\text{ft}^2$ lead for floor wipe samples; < 40 $\mu\text{g}/\text{ft}^2$ lead for window sill wipe samples; and < 100 $\mu\text{g}/\text{ft}^2$ 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



PROJECT SITE



PREPARED BY:
AIR WATER SOIL, LLC
1321 8TH AVENUE NORTH, SUITE 104
GREAT FALLS, MONTANA 59401
CONTACT: J. SCOTT VOSEN
406.315.2201

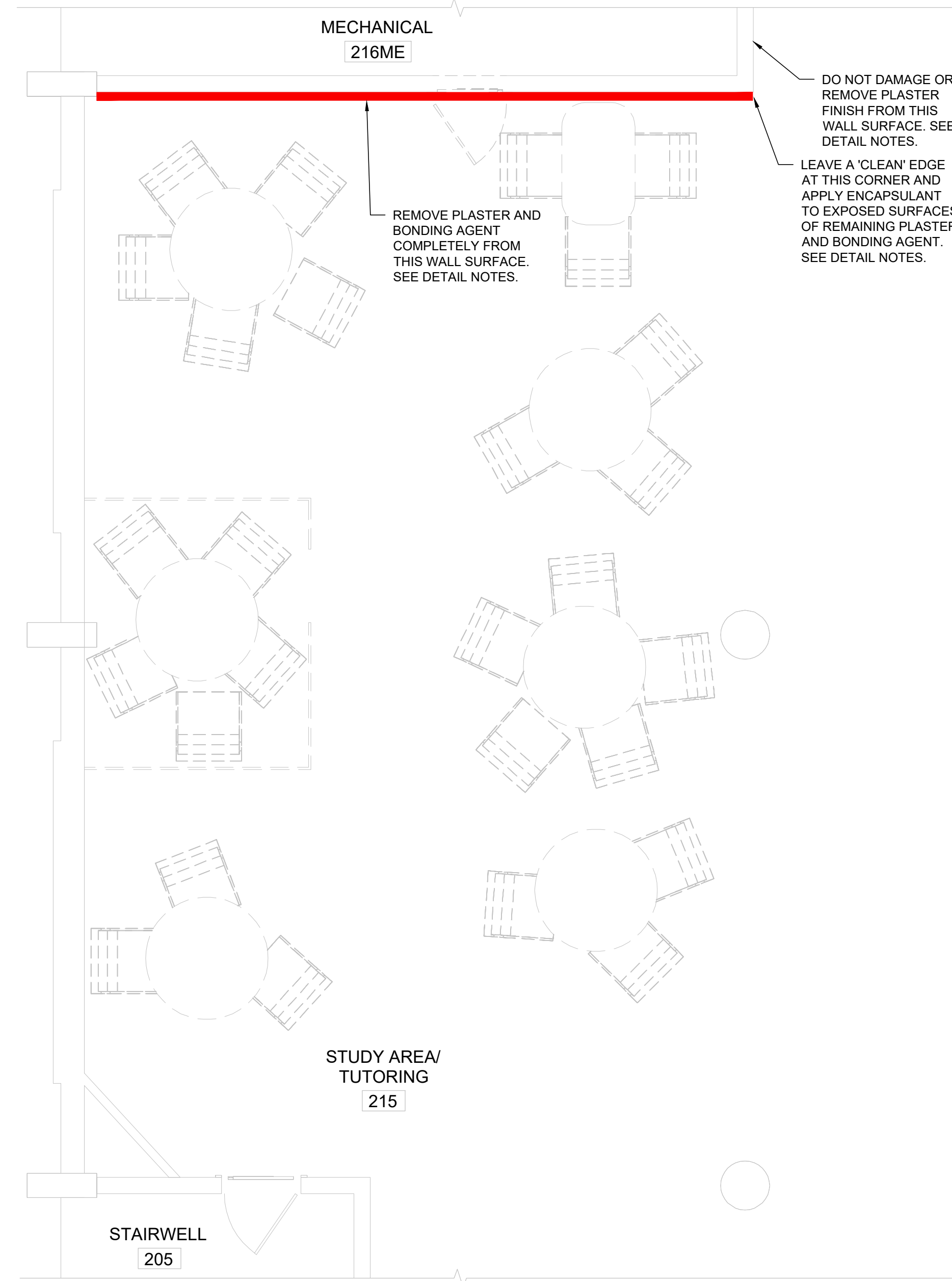
APPROVED BY (PROJECT OWNER):
MONTANA STATE UNIVERSITY
UNIVERSITY FACILITIES MANAGEMENT
PLANNING, DESIGN & CONSTRUCTION
P.O. BOX 172760
BOZEMAN, MONTANA 59717
CONTACT: ELIZABETH PRITCHARD
406.994.7089

PROPERTY OWNER:
MONTANA STATE UNIVERSITY
P.O. BOX 172760
BOZEMAN, MONTANA 59717

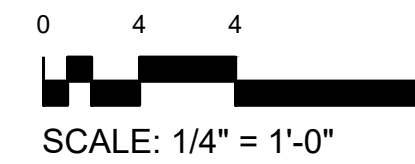


REM02 – DETAIL 1 – BASE SCOPE – EXISTING LEARNING STUDIO – ACM NOTES:

- 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.



BASE SCOPE - EXISTING LEARNING STUDIO - ACM



LEGEND

P1.1 - PLASTER WALL SYSTEM. THE OVERALL SYSTEM INCLUDES A PLASTER BASE LAYER AND A PRESUMED BONDING AGENT LAYER. THE BONDING AGENT LAYER IS CONFIRMED TO CONTAIN 5% ASBESTOS, AND THE PLASTER BASE LAYER MAY ALSO CONTAIN DETECTABLE ASBESTOS. SINCE THE MATERIALS ARE INSEPARABLE, THE OVERALL SYSTEM IS CONSIDERED ACM. THE PLASTER SYSTEM MATERIALS ARE ANTICIPATED TO BE FRIABLE DURING REMOVAL AND ARE THEREFORE EXPECTED TO BE REMOVED AS RACM.

AC TO REMOVE THE PLASTER AND BONDING AGENT FROM THE AREA INDICATED BY THE RED LINE ON THIS SHEET. SEE PHOTOS BELOW AND DETAIL NOTES ON THIS SHEET FOR MORE INFORMATION.



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.

Montana State University, Bozeman, Montana 59715
 MSU Renne Library - Innovation Learning Studio (PPA 25-1257)
Asbestos and Lead-Based Paint Remediation Sheets
Montana State University

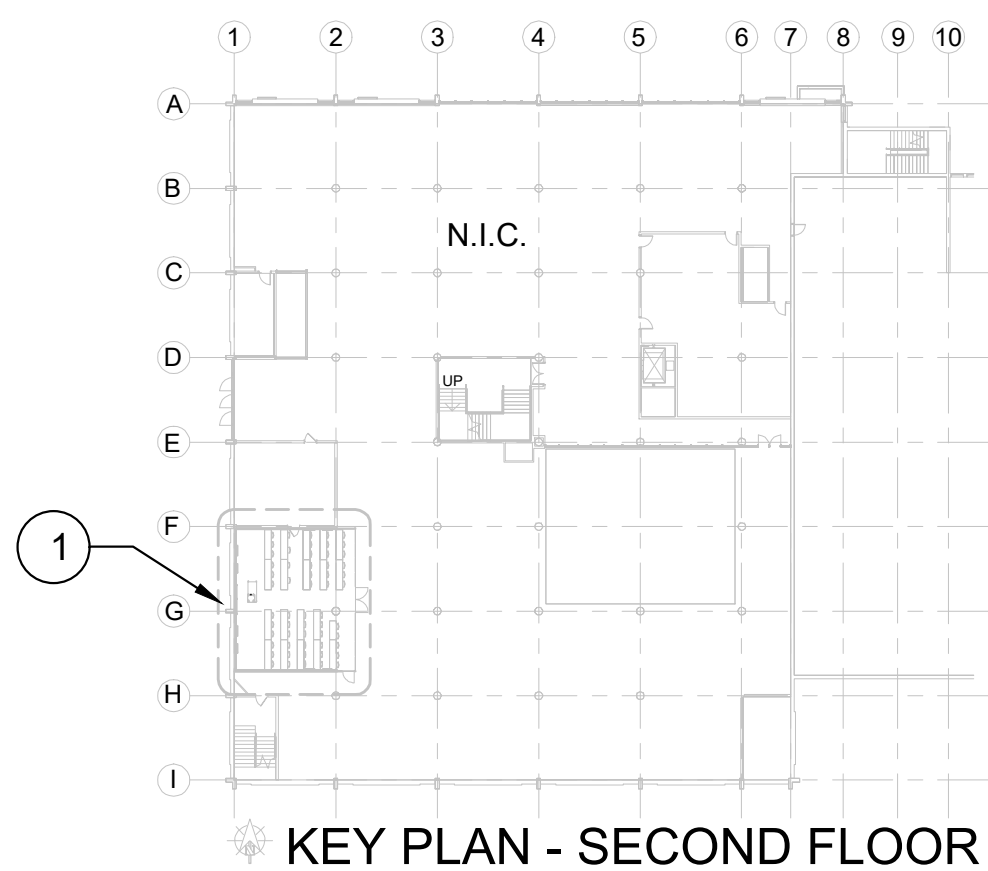
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1.26.2026
26047-T2

DRAWN BY
DRESCH
CHECKED BY
JSV

ASBESTOS
REMEDATION

FIGURE
REM02



KEY PLAN - SECOND FLOOR

ABBREVIATIONS

A	AFF ABOVE FINISH FLOOR ACT ACOUSTICAL CEILING TILE ADJ ADJUSTABLE AB ANCHOR BOLT ALUM ALUMINUM ALT ALTERNATE ANOD ANODIZED APPROX APPROXIMATE ARCH ARCHITECT	FOS FACE OF STUDS FIN FINISH FF FINISH FLOOR FEC FIRE EXTINGUISHER/AND OR CABINET FLASHING FL FLOOR FD FLOOR DRAIN FT FOOT, FEET FTG FOOTING FND FOUNDATION FURN FURNITURE FUT FUTURE FBO FURNISHED BY OTHERS FRP FIBER REINFORCED PANEL	MATL MATERIAL MAX MAXIMUM MECH MECHANICAL, MECHANICAL ROOM MTL METAL MIN MINIMUM MIRR MIRROR MISC MISCELLANEOUS	I	TEL TELEPHONE TV TELEVISION TEMP TEMPERED, TEMPORARY T&G TONGUE AND GROOVE TOB TOP OF BRICK TOS TOP OF SLAB TOW TOP OF WALL TOM TOP OF MASONRY T TREAD TYP TYPICAL
B	BSMT BASEMENT BATH BATHROOM BM BEAM BRG BEARING BEDRM BEDROOM BET BETWEEN BLDG BUILDING BO BOTTOM OF BOT BOTTOM BN BOUNDARY NAILING BS BOTH SIDES	FND FOUNDATION FURN FURNITURE FUT FUTURE FBO FURNISHED BY OTHERS FRP FIBER REINFORCED PANEL	NOM NOMINAL N NORTH NA NOT APPLICABLE NIC NOT IN CONTRACT NTS NOT TO SCALE NO NUMBER	U	UAS UPWARD ACTING SECTIONAL DOOR UBC UNIFORM BUILDING CODE UNO UNLESS NOTED OTHERWISE UTIL UTILITY
C	CFCI CONTRACTOR FURNISHED CONTRACTOR INSTALLED CPT CARPET CLG CEILING CT CERAMIC TILE CLR CLEAR CLST CLOSET COL COLUMN CONC CONCRETE CONST CONSTRUCTION CONT CONTINUOUS CONTR CONTRACT, CONTRACTOR CORR CORRIDOR CJ CONTROL JOINT CMU CONCRETE MASONRY UNIT	GA GAUGE GALV GALVANIZED GEN GENERAL GL GLASS GWB GYPSUM WALL BOARD GYPC GYPCRETE	OC ON CENTER OFCI OWNER FURNISHED CONTRACTOR INSTALLED OFF OFFICE OFOI OFFICE FURNISHED OWNER INSTALLED OPG OPENING OPP OPPOSITE OD OUTSIDE DIAMETER OF OUTSIDE FACE O/O OUT TO OUT	V	VAPOR BARRIER VNR VENER VERT VERTICAL VG VERTICAL GRAIN VCT VINYL COMPOSITION TILE
D	DEMO DEMOLISH, DEMOLITION DTL DETAIL DIA DIAMETER DIM DIMENSION DW DISHWASHER DIV DIVISION DL DEAD LOAD DR DOOR DN DOWN DS DOWNSPOUT DWG DRAWING DF DRINKING FOUNTAIN D DRYER	HALL HALLWAY HDW HARDWARE HVAC HEATING, VENTILATING, & AIR CONDITIONING HT HEIGHT HM HOLLOW METAL HORIZ HORIZONTAL HWT HOT WATER TANK HR HOUR	ON CENTER OWNER FURNISHED CONTRACTOR INSTALLED OFFICE OFFICE FURNISHED OWNER INSTALLED OPENING OPPOSITE OUTSIDE DIAMETER OUTSIDE FACE OUT TO OUT	W	WAINSCOT WC WATER CLOSET WIN WINDOW WP WATERPROOF (ING) WRB WEATHER RESISTANT BARRIER WWF WELDED WIRE FABRIC WWM WELDED WIRE MESH WT WEIGHT W WEST, WASHER W/ WITH W/D WASHER / DRYER
E	EA EACH E EAST ELEC ELECTRIC ELEV ELEVATION, ELEVATOR EQ EQUAL EQUIP EQUIPMENT EXIST EXISTING EXP EXPANSION EJ EXPANSION JOINT EXT EXTERIOR	IBC INTERNATIONAL BUILDING CODE INCL INCLUDE, INCLUDED (ING) INFO INFORMATION ID INSIDE DIAMETER INSUL INSULATE, INSULATION INT INTERIOR	PNT PAINT, PAINTED PNL PANEL PH PHASE PLAS PLASTIC P-LAM PLASTIC LAMINATE PL PLATE PLYWD PLYWOOD PVC POLYVINYL CHLORIDE PREFIN PREFINISHED PROP PROPERTY	X	SECTION ELEVATION DETAIL ITEM IDENTIFICATION SHEET WHERE ITEM IS CUT NORTH ARROW
F	FOB FACE OF BRICK FOC FACE OF CONCRETE FOM FACE OF MASONRY	JAN JANITOR JC JANITOR'S CLOSET JT JOINT	QUAN QUANTITY	Y	WAINSCOT WC WATER CLOSET WIN WINDOW WP WATERPROOF (ING) WRB WEATHER RESISTANT BARRIER WWF WELDED WIRE FABRIC WWM WELDED WIRE MESH WT WEIGHT W WEST, WASHER W/ WITH W/D WASHER / DRYER

SYMBOLS USED AS ABBREVIATIONS

&	AND
∠	ANGLE
@	AT
CL	CENTERLINE
u	CHANNEL
∅	DIAMETER
PL	PLATE

SYMBOLS & MATERIALS

STRUCTURAL FILL	FINISHED WOOD
UNDISTURBED EARTH	PLYWOOD
DISTURBED EARTH	RIGID INSULATION
GRAVEL	BATT INSULATION
POURED CONCRETE	SPRAYFOAM INSULATION
CONCRETE BLOCK VENEER	SAND, PLASTER, GROUT
BRICK VENEER	METAL
EFS	STEEL
ROUGH WOOD	BLOCKING
SECTION	WINDOW TYPE
ELEVATION	DOOR NUMBER
DETAIL	ROOM NUMBER
ITEM IDENTIFICATION SHEET WHERE ITEM IS CUT	WALL TYPE
NORTH ARROW	REVISION NUMBER
ROOM FINISH KEY	KEY NOTE
	DEMOLITION NOTE
	FINISH TAG
	EQUIPMENT TAG
	ELEMENTS TO BE DEMOLISHED
	EXISTING TO REMAIN
	FLOOR TRANSITION

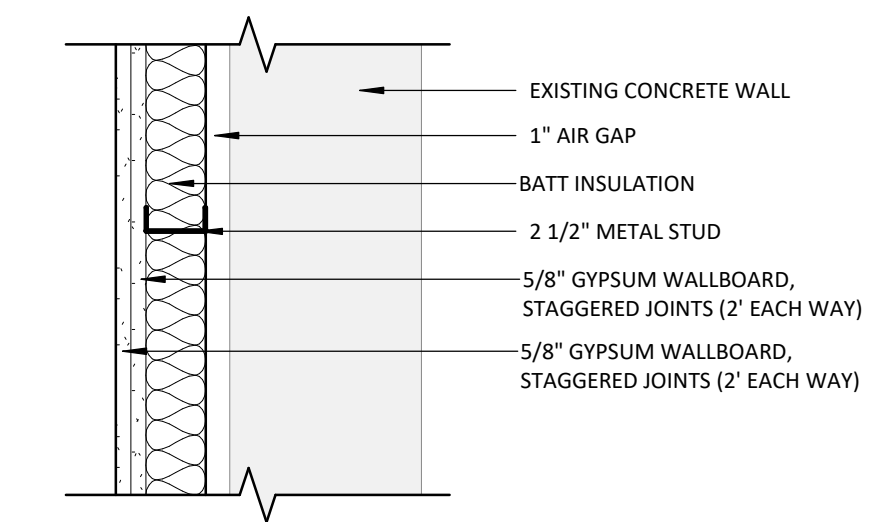
AD-102

LEVEL 1 DISCIPLINE DESIGNATOR
DENOTES DEMO PLANS (OMIT ON NON DEMO SHEETS)
LEVEL 2 DISCIPLINE DESIGNATOR

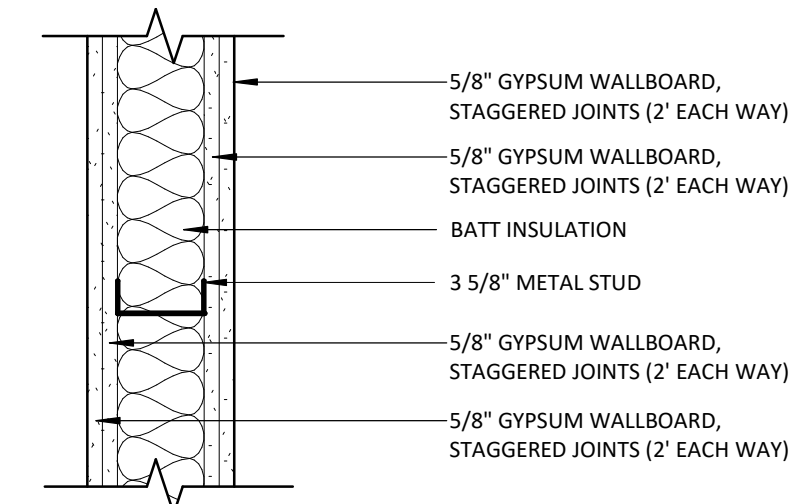
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PLAN TYPE SEQUENCE NUMBER
SHEET TYPE DESIGNATOR

NOTE

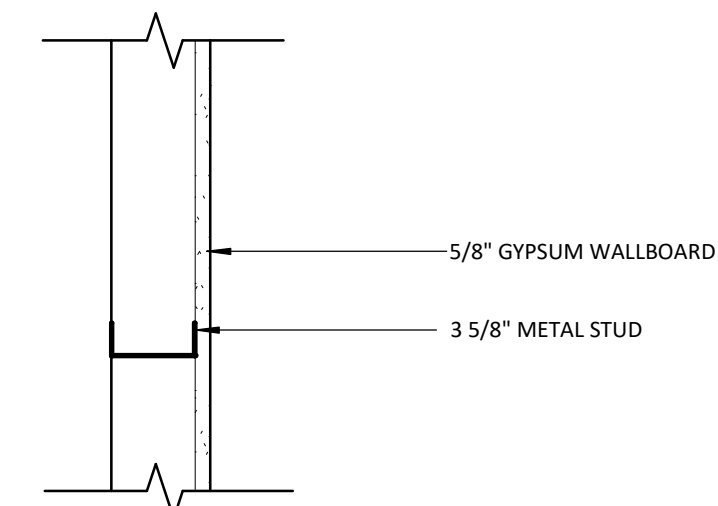
THE SYMBOLS ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.



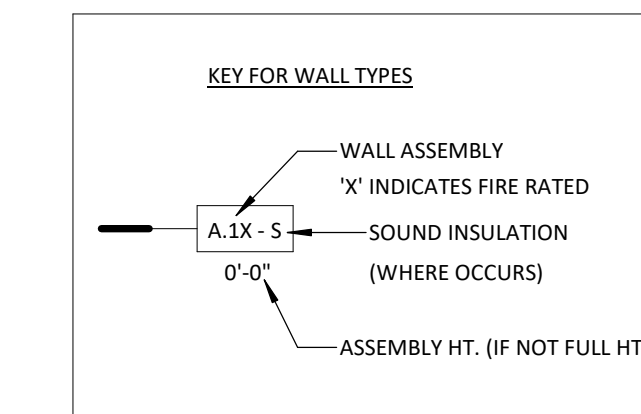
B.1 STC 40-45 RATED INT. WALL
SCALE: 1 1/2" = 1'



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



BID SET

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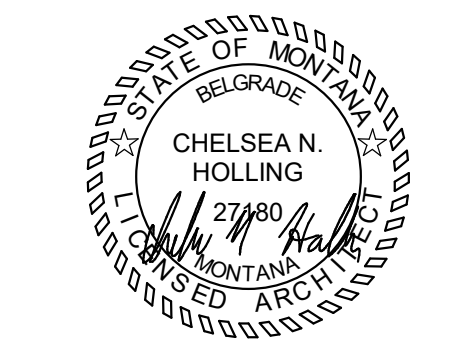
REVISIONS:

ARCHITECTURAL NOTES

A-001



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REVISIONS:

#	DESCRIPTION

LEVEL 2 DEMOLITION PLAN & RCP

AD112

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

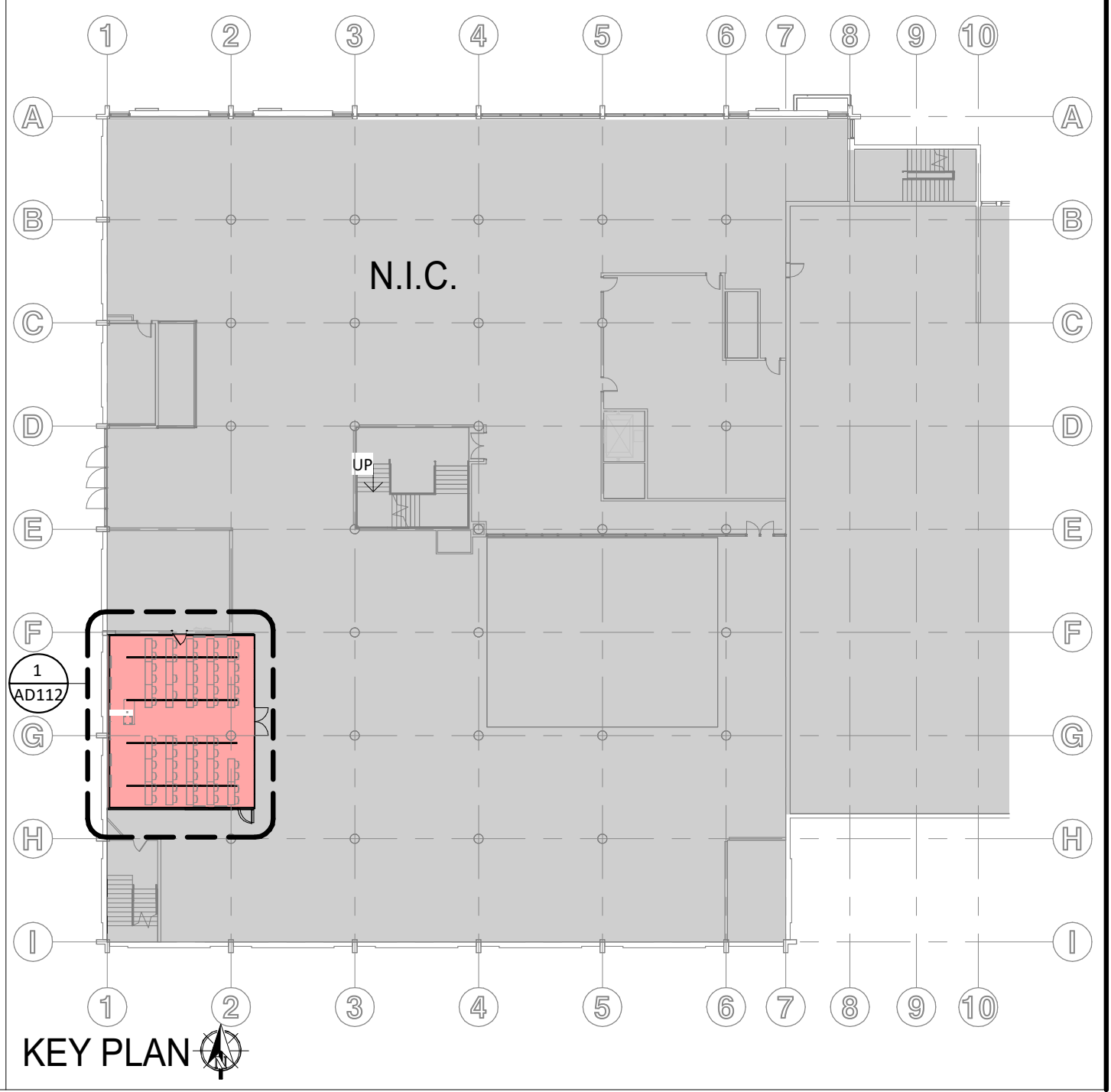
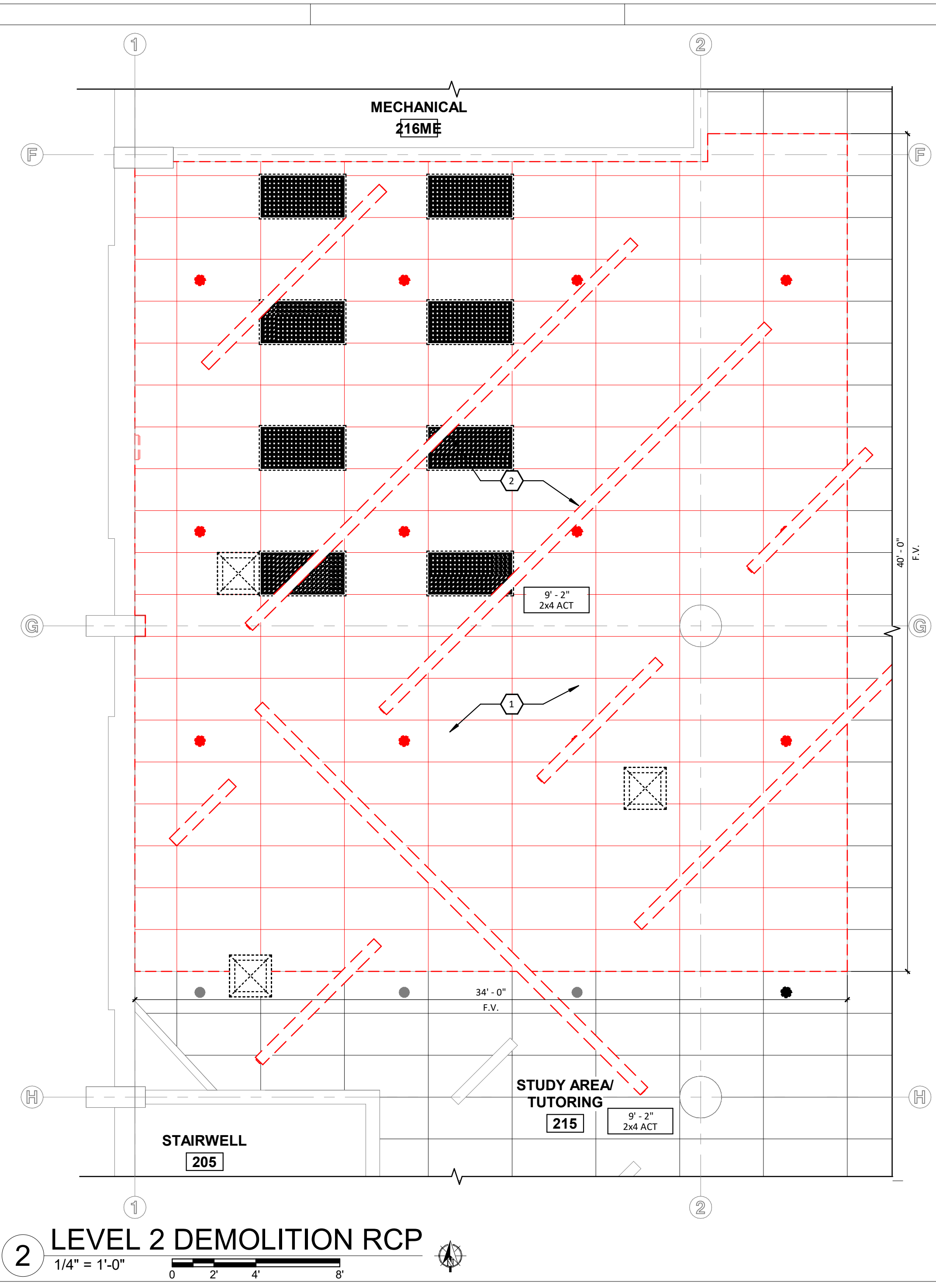
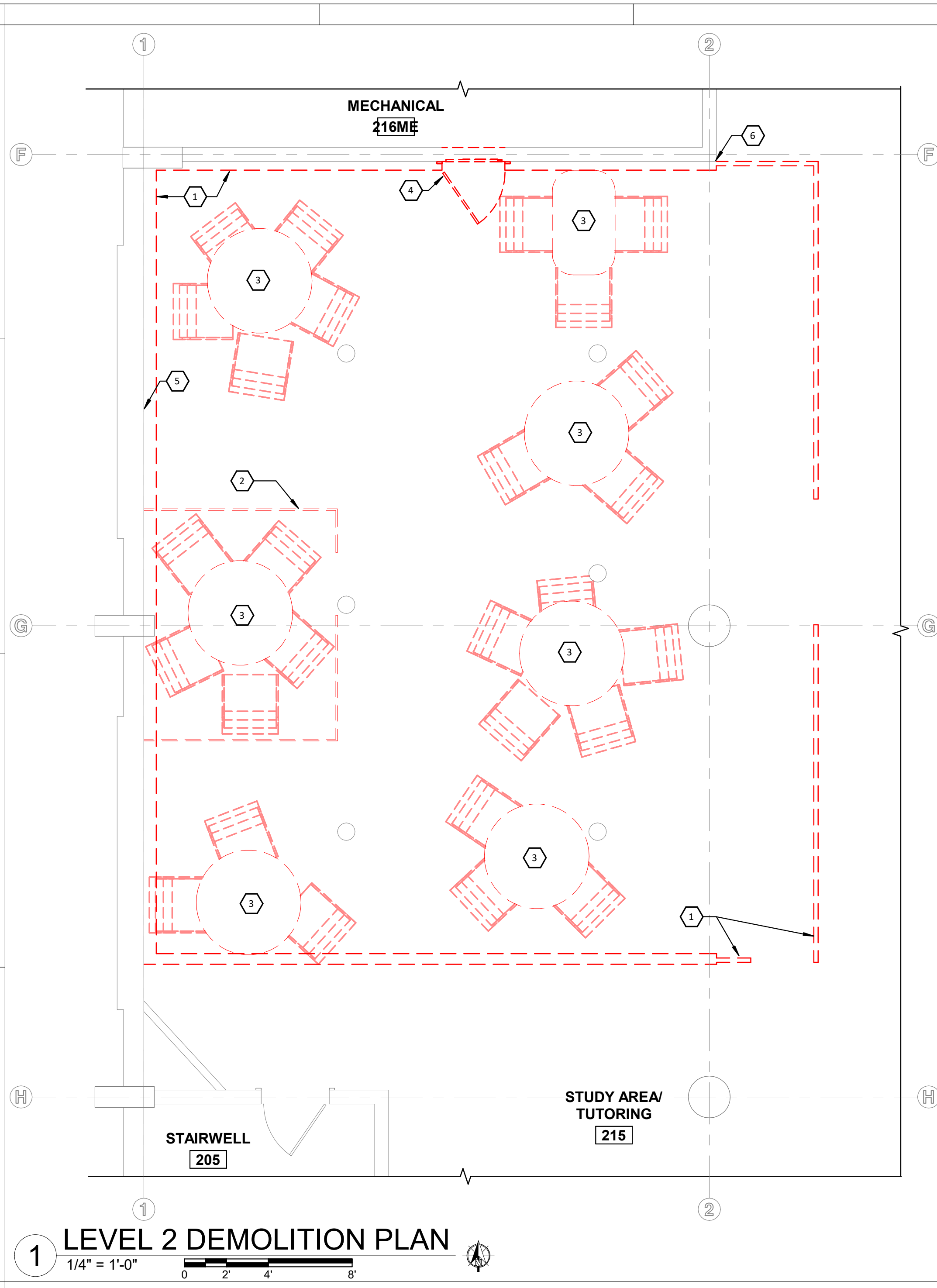
- 1 REMOVE CARPET FLOORING WHERE NEW WALLS ARE TO BE INSTALLED. RECYCLE WHERE POSSIBLE. DISPOSE OTHERWISE. CARPET ON EITHER SIDE OF WALL TO REMAIN. TAKE CARE TO REMOVE CARPET ONLY UNDER WALL ITSELF.
- 2 REMOVE EXISTING PARTITION WALL, SALVAGE AND HAND OVER TO MSU.
- 3 CONTRACTOR TO REMOVE ALL TABLES 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.

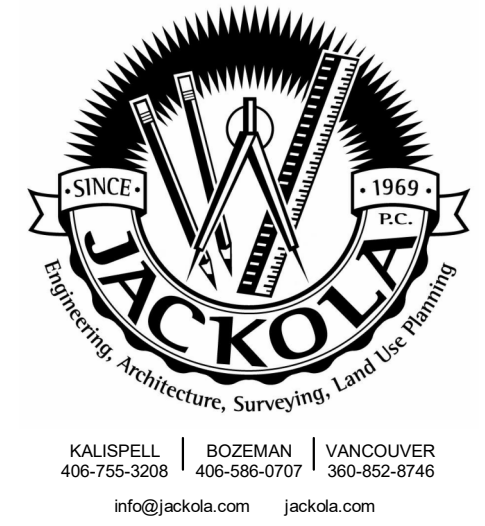
LEVEL 2 DEMO RCP KEYNOTES

- 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





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, ETC. AS NECESSARY TO MAKE NEW WORK LEVEL AND PLUMB, UNLESS SPECIFICALLY NOTED OTHERWISE.
- 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

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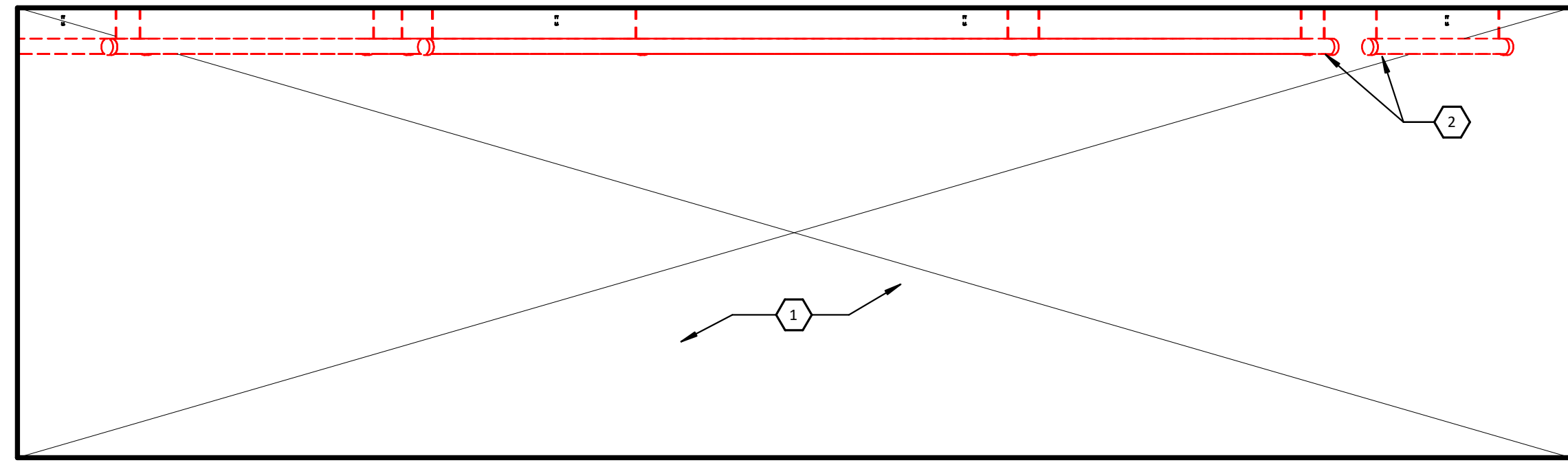
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DATE: 01/30/2026

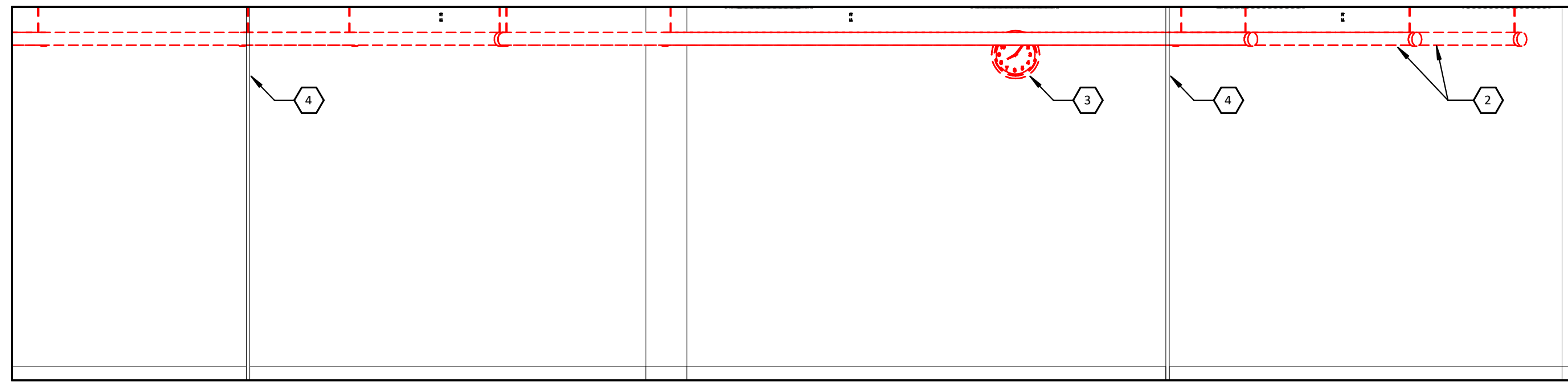
REVISIONS:

**INTERIOR
ELEVATIONS
DEMOLITION**

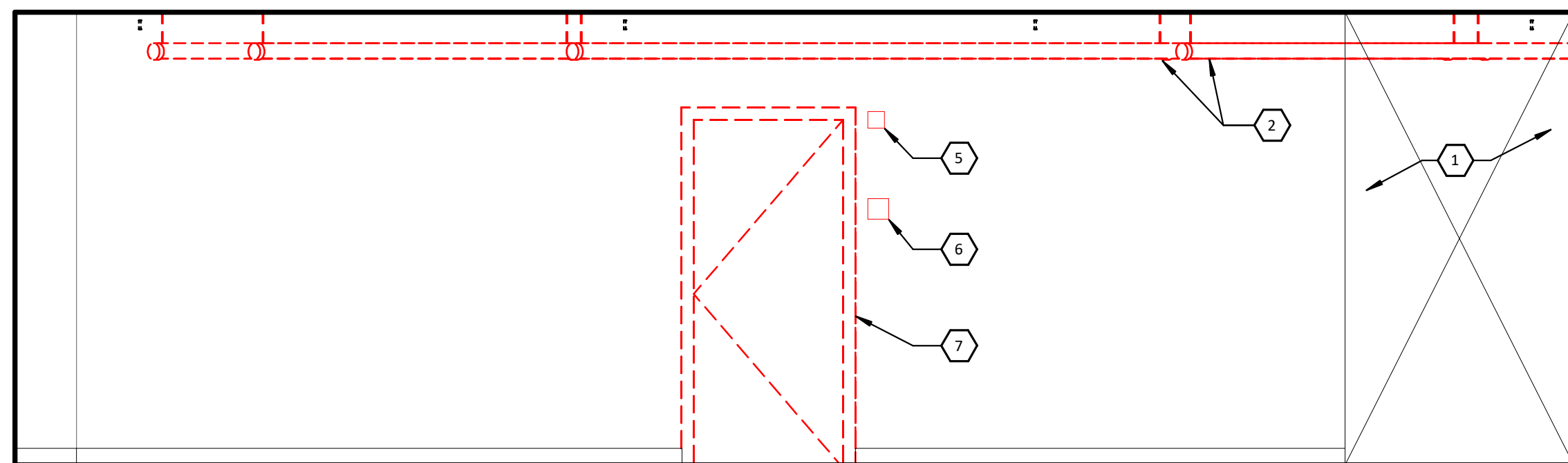
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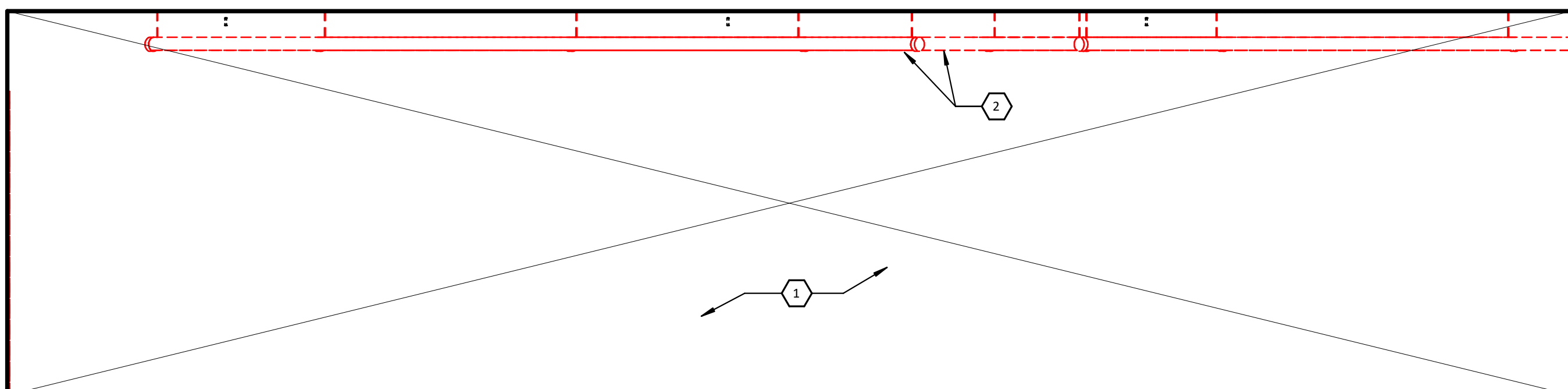
1 INNOVATION LEARNING STUDIO - SOUTH DEMO
3/8" = 1'-0"



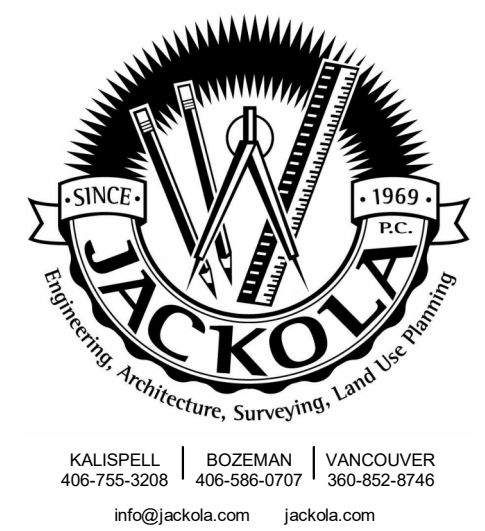
2 INNOVATION LEARNING STUDIO - WEST DEMO
3/8" = 1'-0"



3 INNOVATION LEARNING STUDIO - NORTH DEMO
3/8" = 1'-0"



4 INNOVATION LEARNING STUDIO - EAST DEMO
3/8" = 1'-0"



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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.
- G. 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

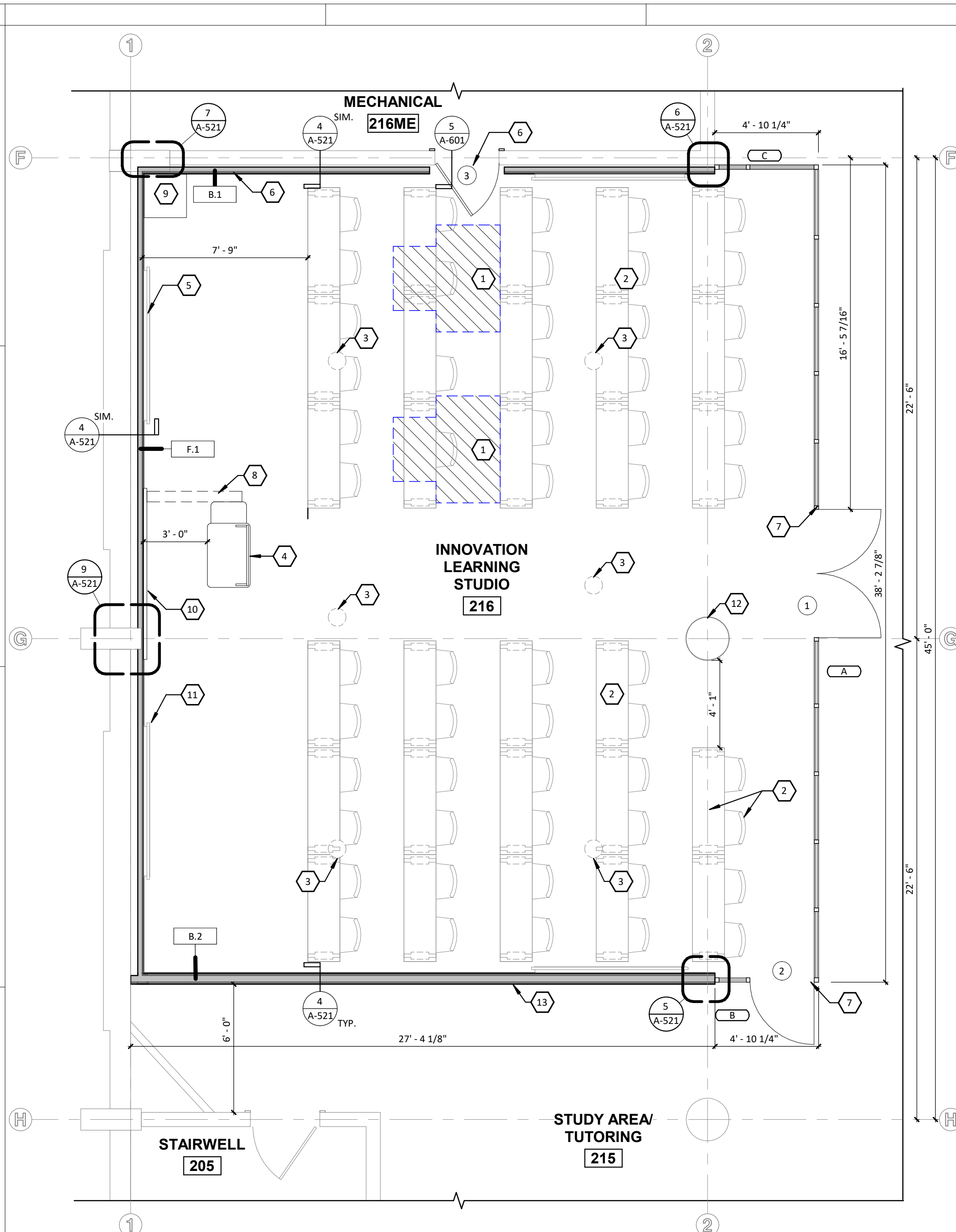
- 1 ADA ACCESSIBLE LOCATION.
- 2 ALL FURNITURE OF/OFI AND SHOWN FOR SCHEMATIC LAYOUT ONLY. EXISTING FLOOR OUTLETS TO REMAIN. SEE ELECTRICAL FOR OUTLETS AT FRAMED WALLS AND COLUMN.
- 3 WHEELCHAIR ACCESSIBLE, HEIGHT ADJUSTABLE INSTRUCTOR STATION WITH DEDICATED COMPUTER AND CONNECTIONS TO MSU NETWORK. SMART PODIUM LOCATION WILL REQUIRE POWER/NETWORK/AV PATHWAY. SEE ELECTRICAL DRAWINGS. OFOI.
- 5 NEW MECHANICAL ROOM DOOR WILL BE CLOSED, PER FUNCTIONAL USE OF ROOM.
- 6 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.
- 7 SEAL ENTIRE PERIMETER OF DOORS USING HEAD AND JAMB GASKETS AND DOOR BOTTOM.
- 8 UNIBLOCK WIRE RACEWAY. SEE ELECTRICAL.
- 9 AV RACK IN NORTH WEST CORNER, PROVIDED BY MSU. SEE ELECTRICAL/OFOI.
- 10 4' X 8' WHITEBOARD, NO TRAY, CFL. BASIS OF DESIGN: OPTIMA GREAT WHITE MAGNETIC WHITEBOARD. PROVIDE BLOCKING WHERE NECESSARY TO ENSURE PROPER INSTALLATION OF WHITEBOARD.
- 11 WALL MOUNTED TV, 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 1/A-211. SEE 2/112 FOR INSTALL LOCATION ON WALL. OFCI.
- 12 EXISTING COLUMN TO REMAIN.
- 13 4" BLACK RUBBER BASE ON INTERIOR AND EXTERIOR SIDE OF WALL.

LEVEL 2 RCP KEYNOTES

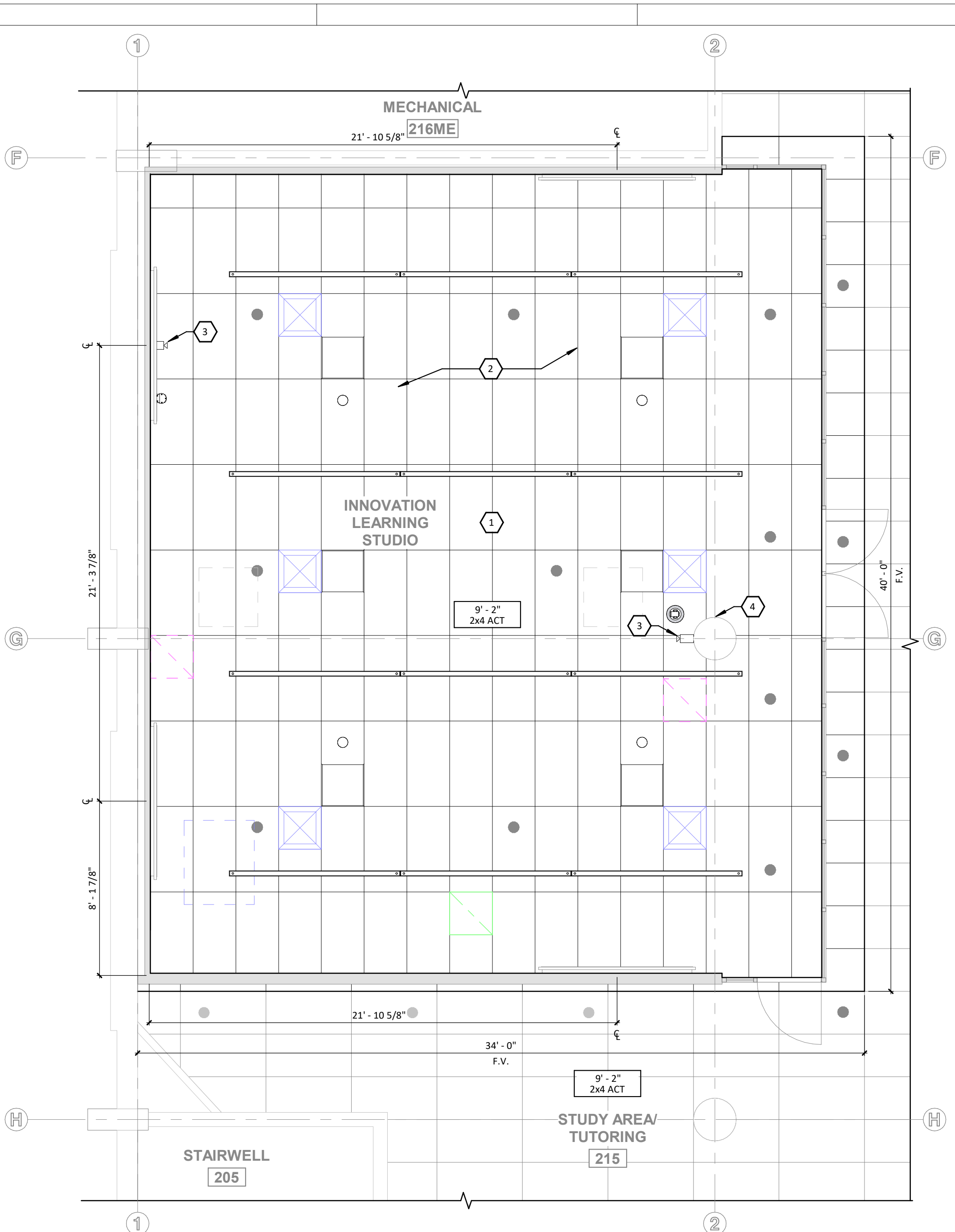
- 1 ADJUSTABLE LIGHTING CONTROLS, SEE ELEC.
- 2 USE INTERNALLY LINED SHEET METAL DUCTS FOR SUPPLY AND RETURN IN STUDIO. DO NOT USE FLEX DUCTS OR OPEN RETURN AIR GRILLES.
- 3 CEILING MOUNTED CAMERA. SEE ELECTRICAL.
- 4 EXISTING COLUMN TO REMAIN.

CEILING PLAN LEGEND

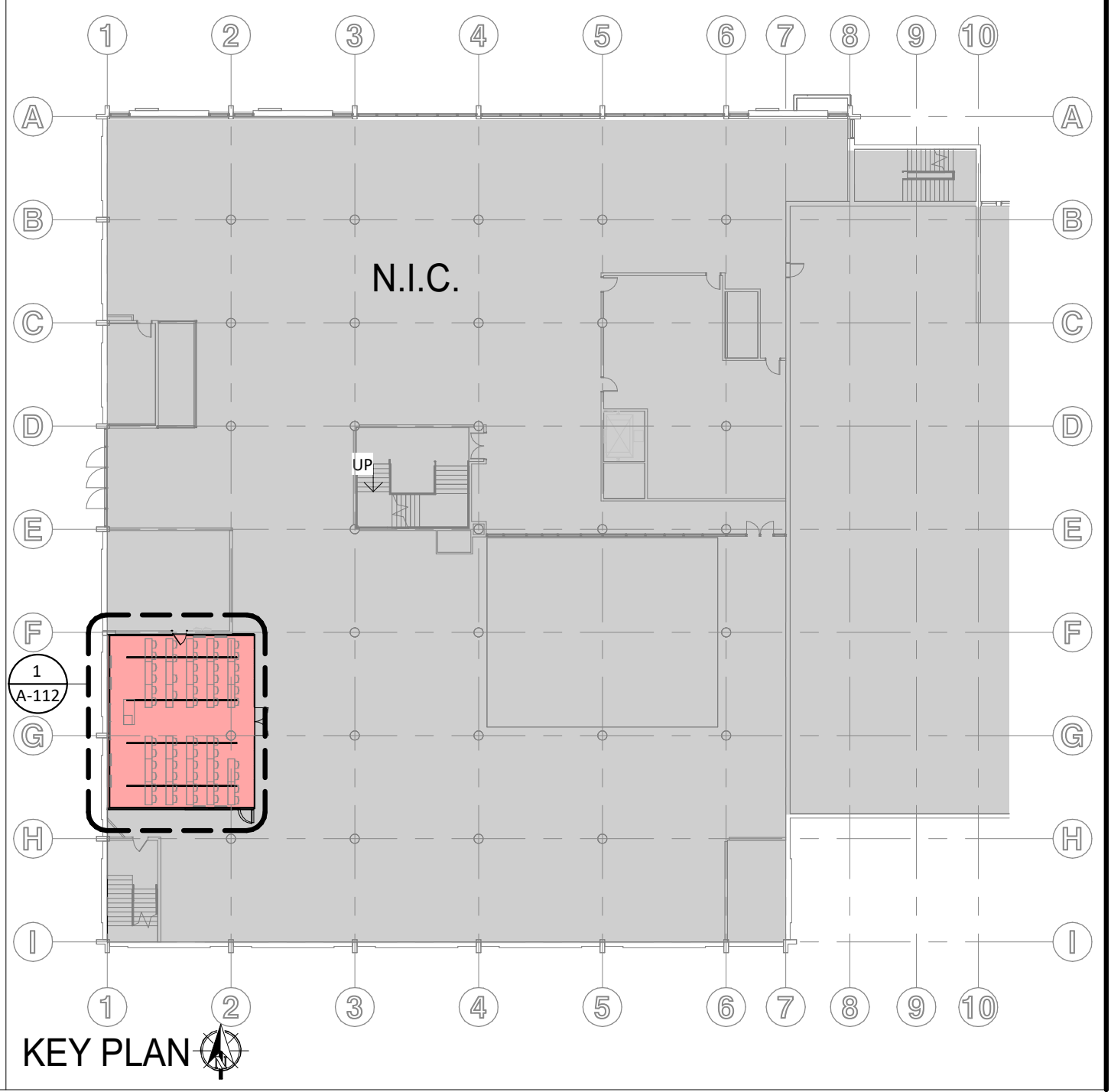
	ACT 2x4 ACOUSTIC CEILING TILE, WITH 15/16" GRID
	ACT EXISTING 2x4 ACOUSTIC CEILING TILE



1 LEVEL 2 FLOOR PLAN
 1/4" = 1'-0"
 OCCUPANCY: 57
 1173 SF/5 STUDENTS = 20.5 SF/ STUDENT



2 LEVEL 2 REFLECTED CEILING PLAN
 1/4" = 1'-0"



KEY PLAN

DRAWN: RH, MC CHECKED: CH, KE

DATE: 01/30/2026

REVISIONS:

LEVEL 2 FLOOR PLAN & RCP

A-112

ENTIRE SHEET IS ALTERNATE #1

- 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.
 - F. ALL TABLES AND CHAIRS ARE CFCI.
 - G. 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.
 - H. NOT ALL KEYNOTES USED ON THIS SHEET. REFERENCE A-112.
 - I. ALTERNATE #1 DOES NOT CHANGE THE SCOPE OF THE CEILING WORK ON A-112.

- LEVEL 2 FLOOR PLAN KEYNOTES ALT#1**
- 1. FRAMED WALL REPLACES STOREFRONT WALL IN BASE BID. MATCH WALL FINISH OF ADJACENT WALL.
 - 2. HOLLOW METAL DOOR REPLACED STOREFRONT DOOR IN BASE BID.
 - 3. INTERIOR FINISH OF B.2 TO ALIGN WITH INTERIOR FINISH OF B.1
 - 4. WRAP GWB AT ENDS OF WALL WHERE THEY INTERSECT WITH STOREFRONT SYSTEM.

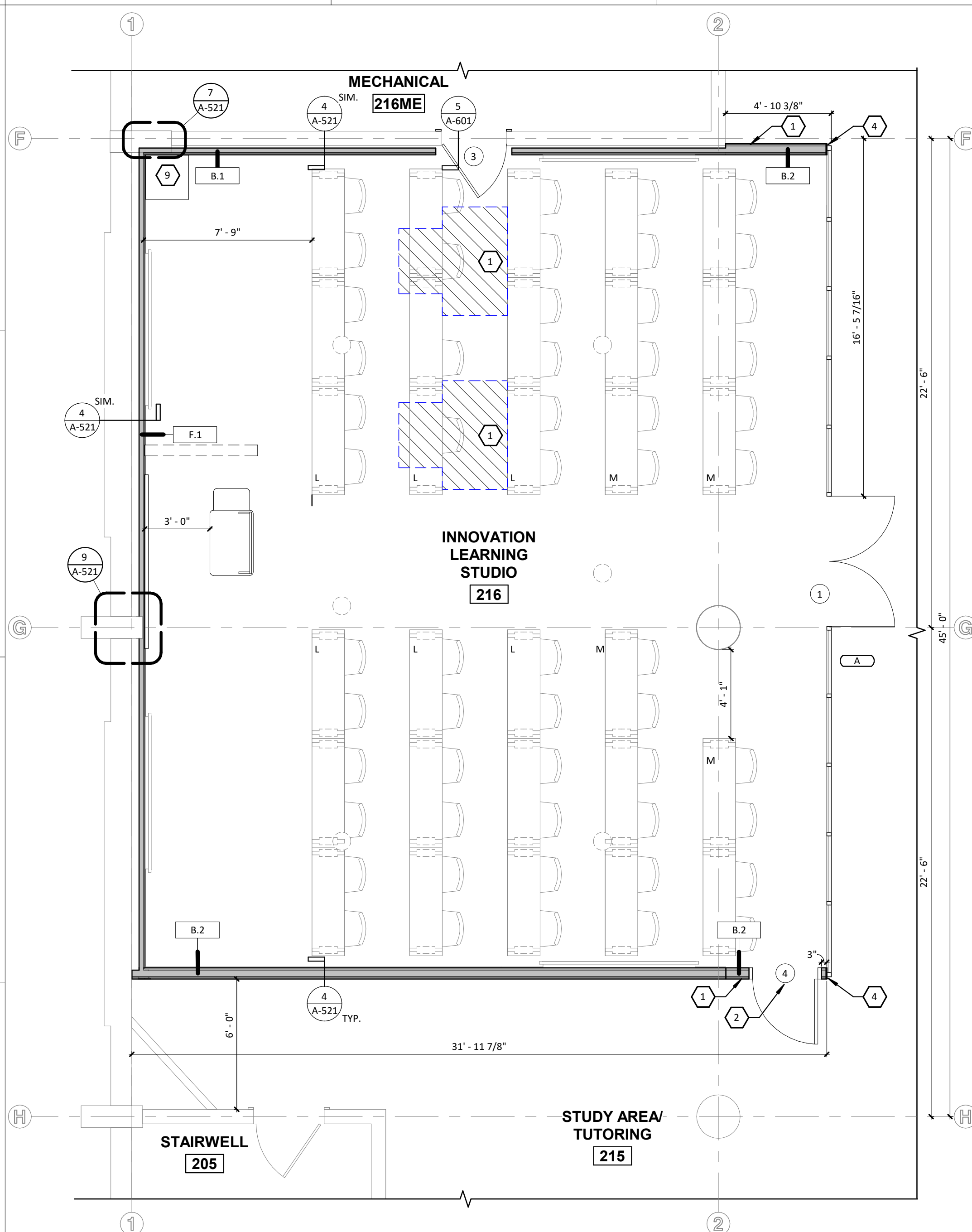


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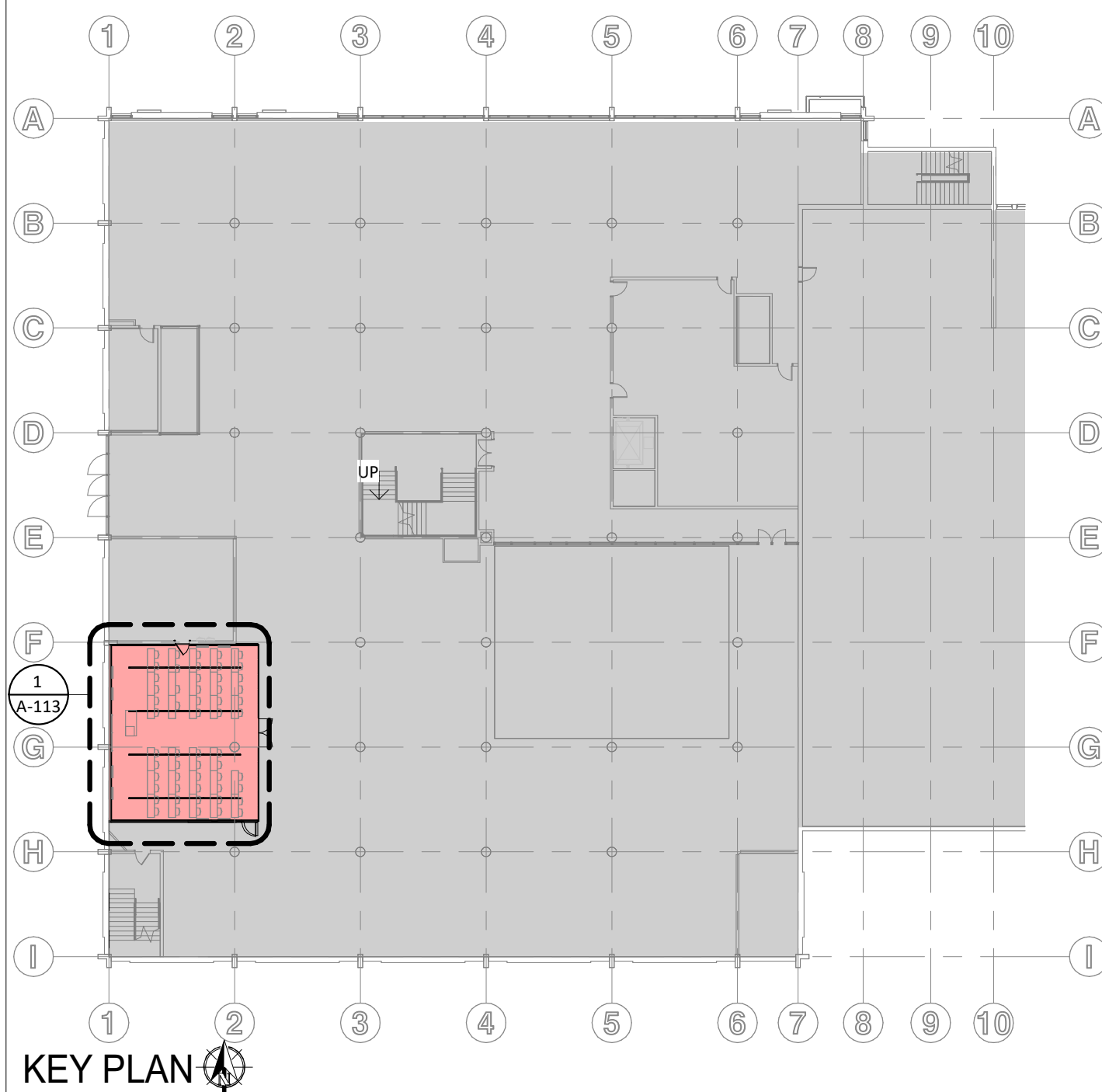
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1 LEVEL 2 FLOOR PLAN - ALTERNATE #1
1/4" = 1'-0"



DRAWN: KE CHECKED: CH

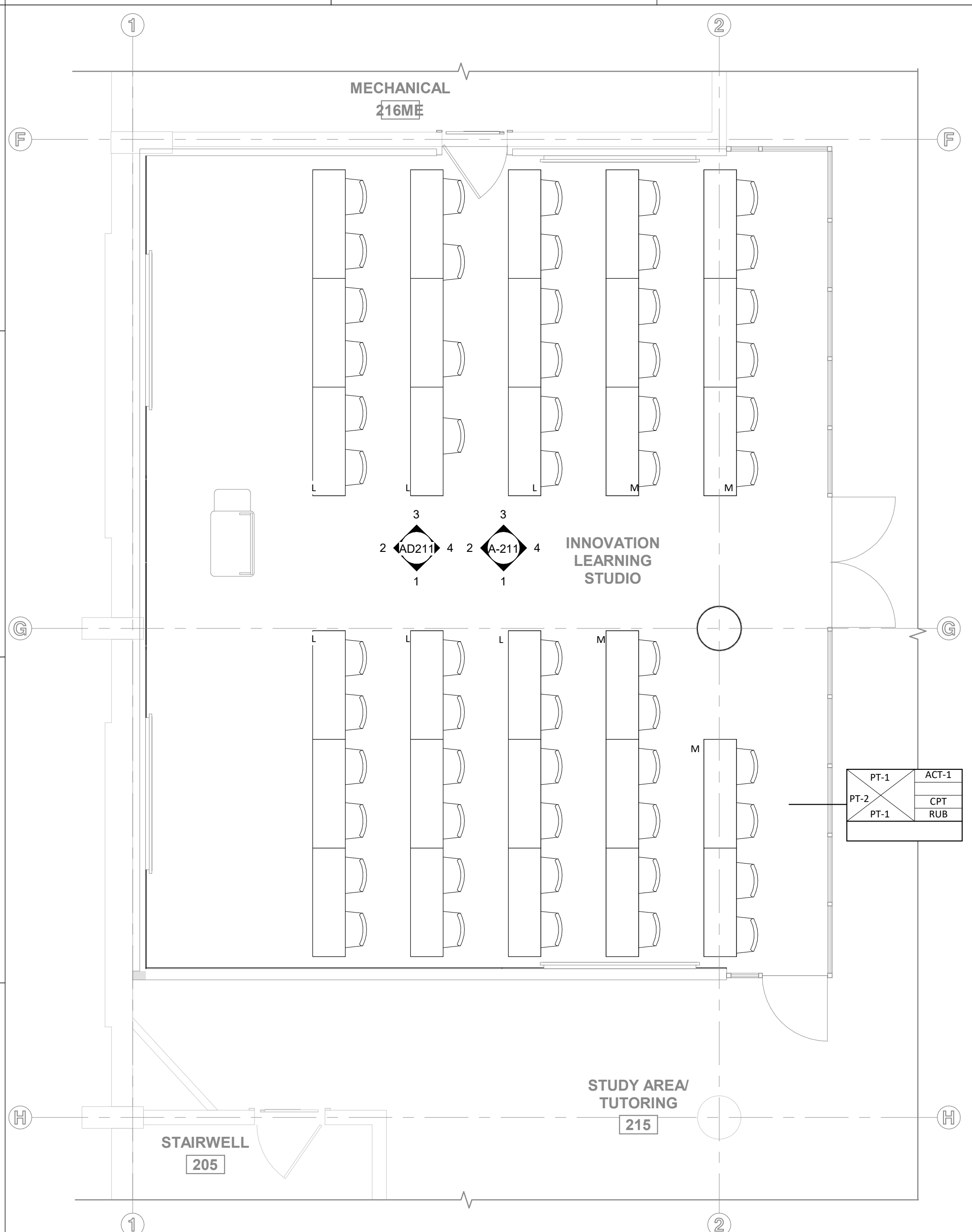
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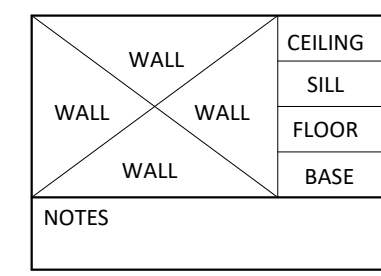
LEVEL 2 FLOOR PLAN - ALTERNATE #1

A-113



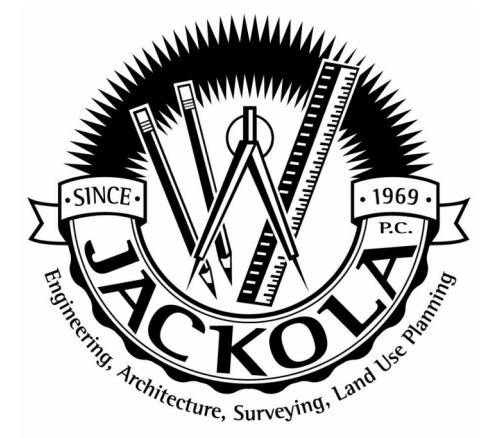
1 LEVEL 2 FINISH FLOOR PLAN
 1/4" = 1'-0"
 0 2 4 8

ROOM FINISH KEY



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" X 1/2" D)



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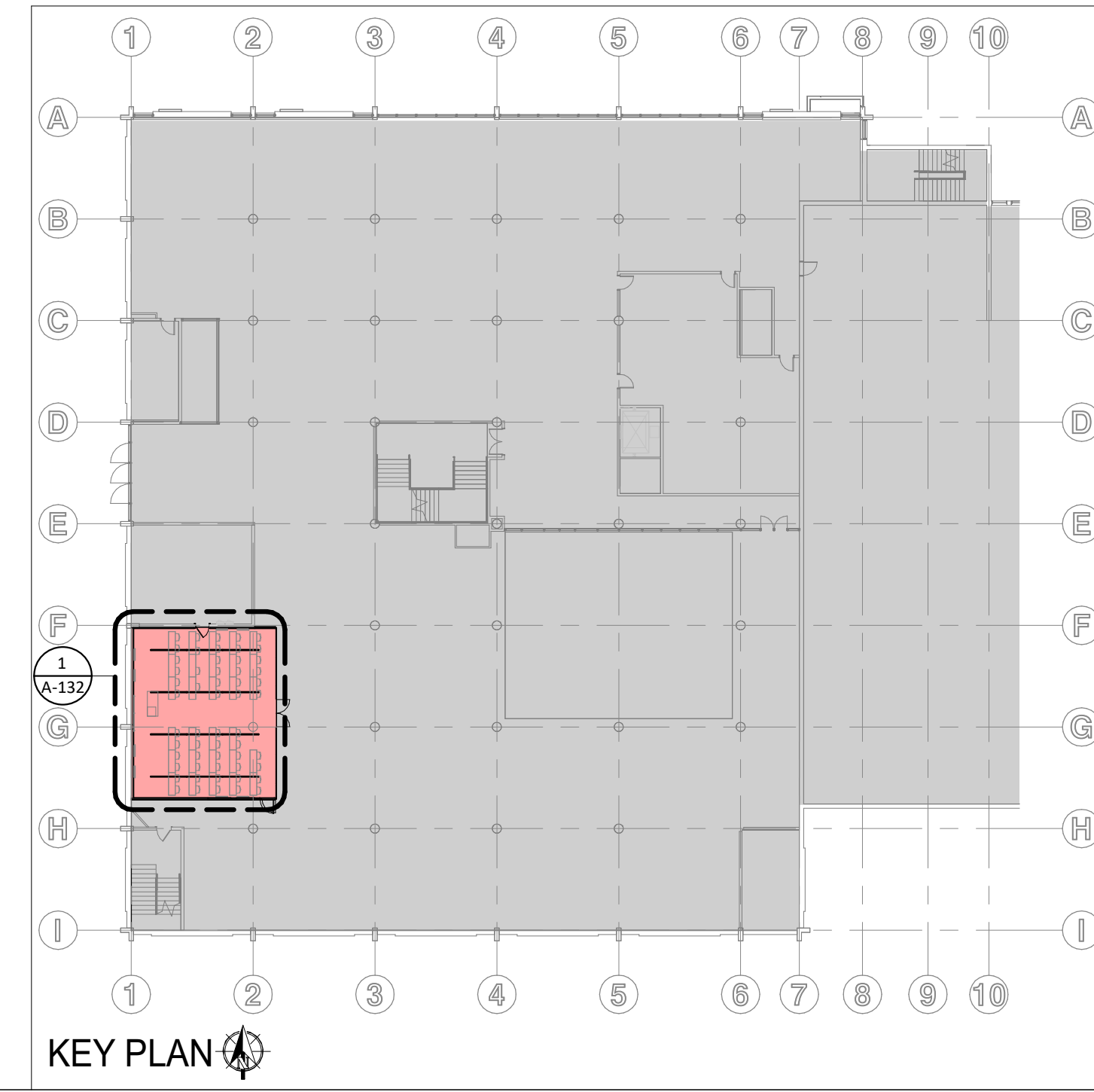
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LEVEL 2 FINISH FLOOR PLAN

A-132



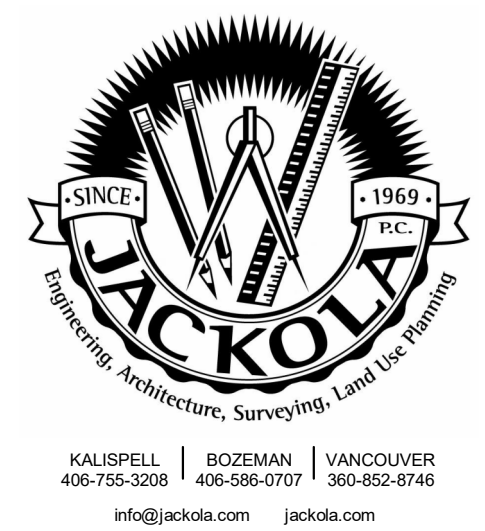
KEY PLAN

INTERIOR ELEVATION KEYNOTES

- SOLID SURFACE CHAIR RAIL, 36" TO TOP A.F.F
- 4' X 8' WHITEBOARD, NO TRAY, CFCI.
- 4' HEIGHT INTERACTIVE TOUCH SCREEN TV, COLOR: BLACK, TV OFOI, TV MOUNT OFCI.
- ACOUSTIC DOOR, BASIS OF DESIGN: IAC ARCHITECTURAL DOOR: PAINTED METAL, COLOR: FIRST STAR.
- EXISTING STROBE BOX TO BE EXTENDED ON NEW FURRED WALL IN THE SAME LOCATION.
- EXISTING ROOM SIGN TO BE REINSTALLED ON NEW FURRED WALL.
- SEE A-113 FOR ALTERNATE #1.

GENERAL INTERIOR ELEVATION NOTES:

A. CONTRACTOR TO INSTALL TV WALL MOUNTS, AS PROVIDED BY MSU, AND ENSURE THE BOTTOM OF THE TV IS AT THE SAME ELEVATION AS THE TOP OF THE CHAIR RAIL, TYP. OFCI.



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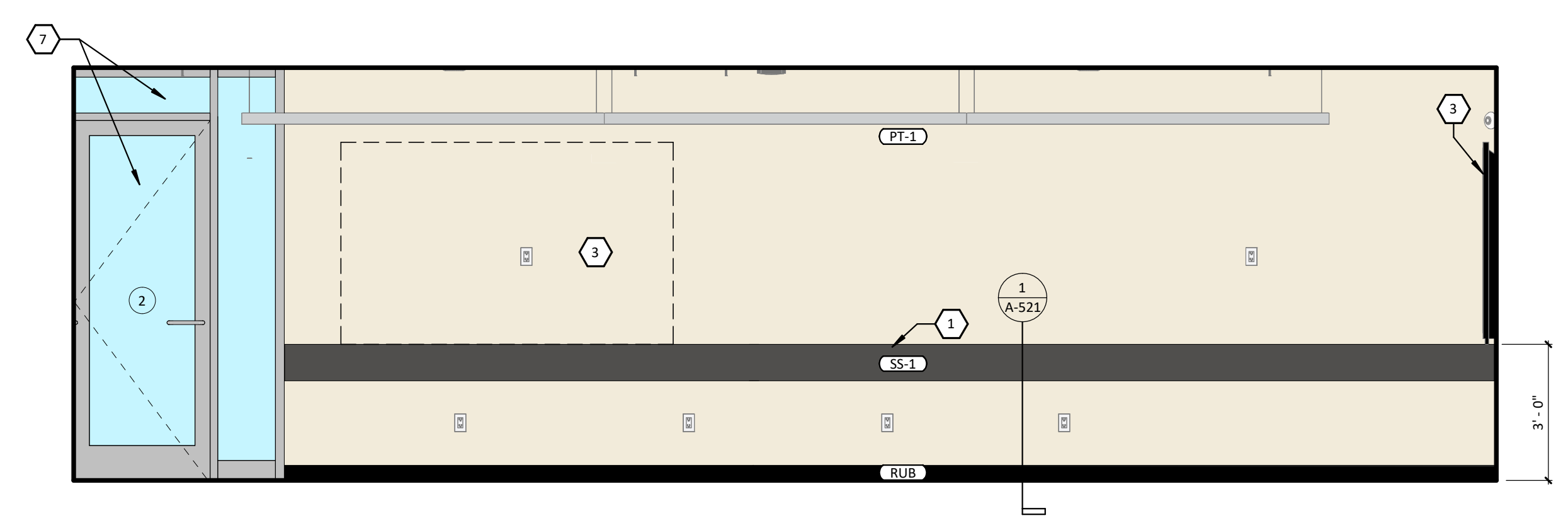
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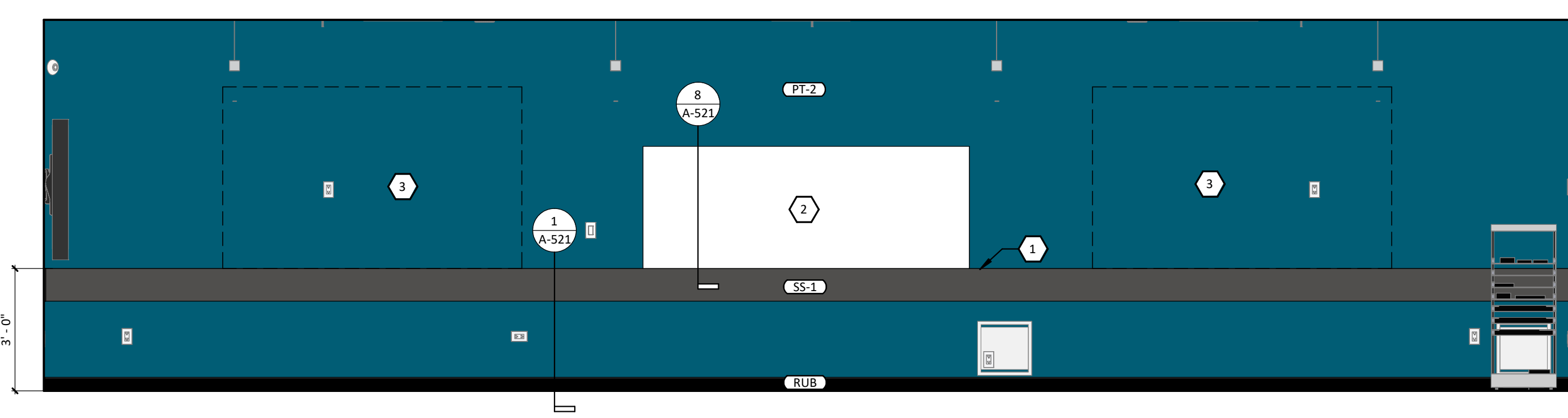
#	REVISIONS:

INTERIOR ELEVATIONS

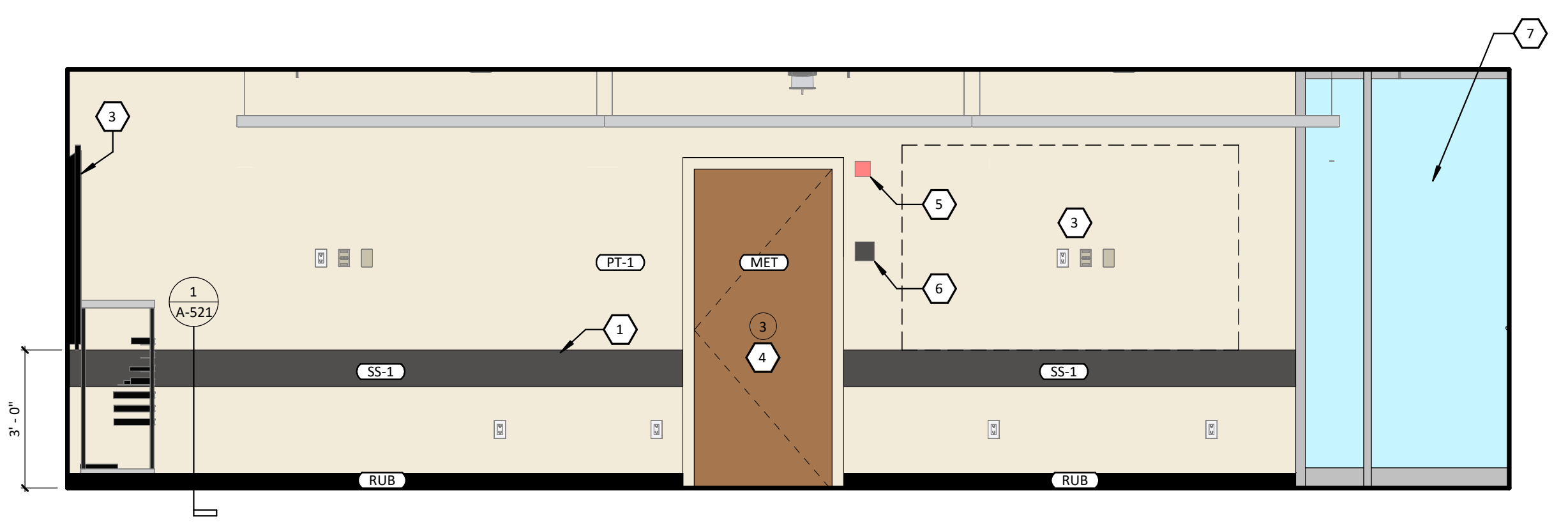
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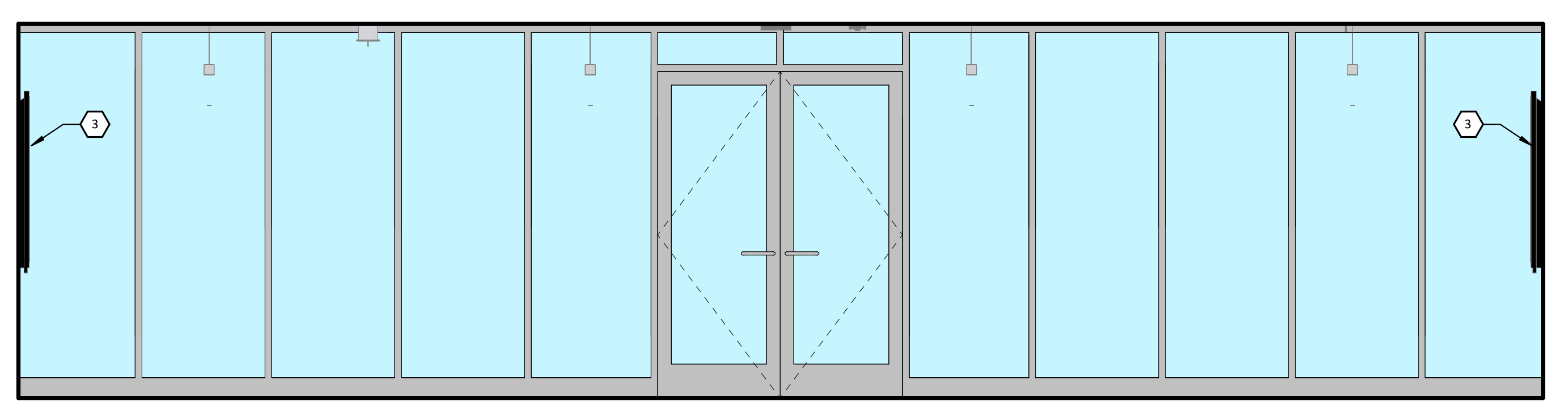
1 INNOVATION LEARNING STUDIO - SOUTH
3/8" = 1'-0"



2 INNOVATION LEARNING STUDIO - WEST
3/8" = 1'-0"

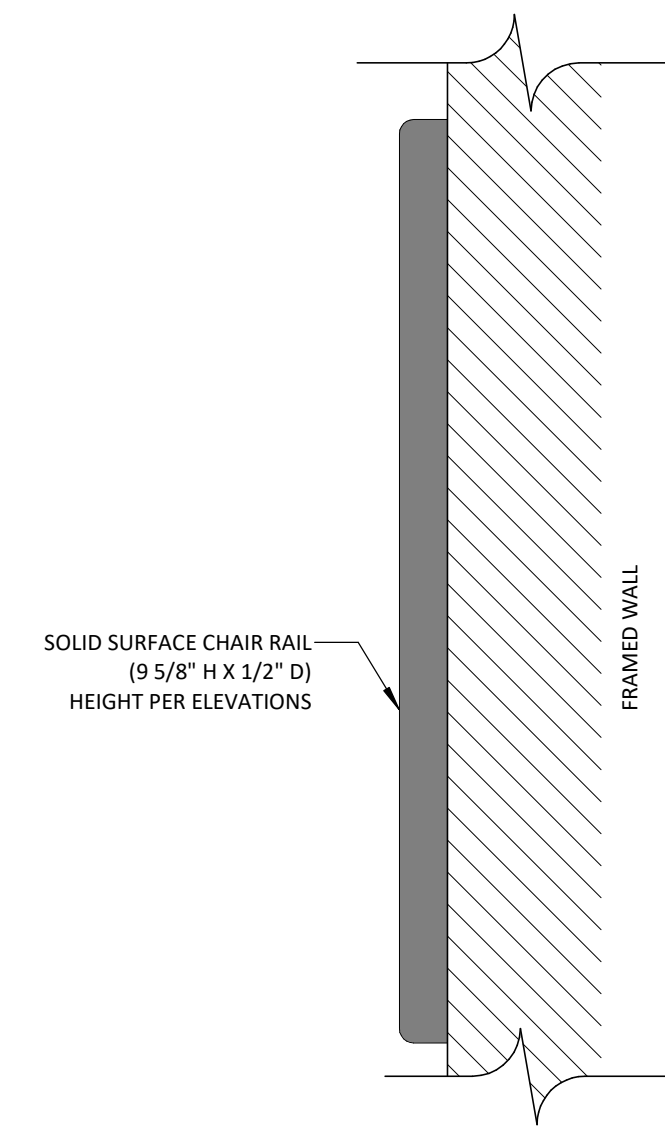


3 INNOVATION LEARNING STUDIO - NORTH
3/8" = 1'-0"

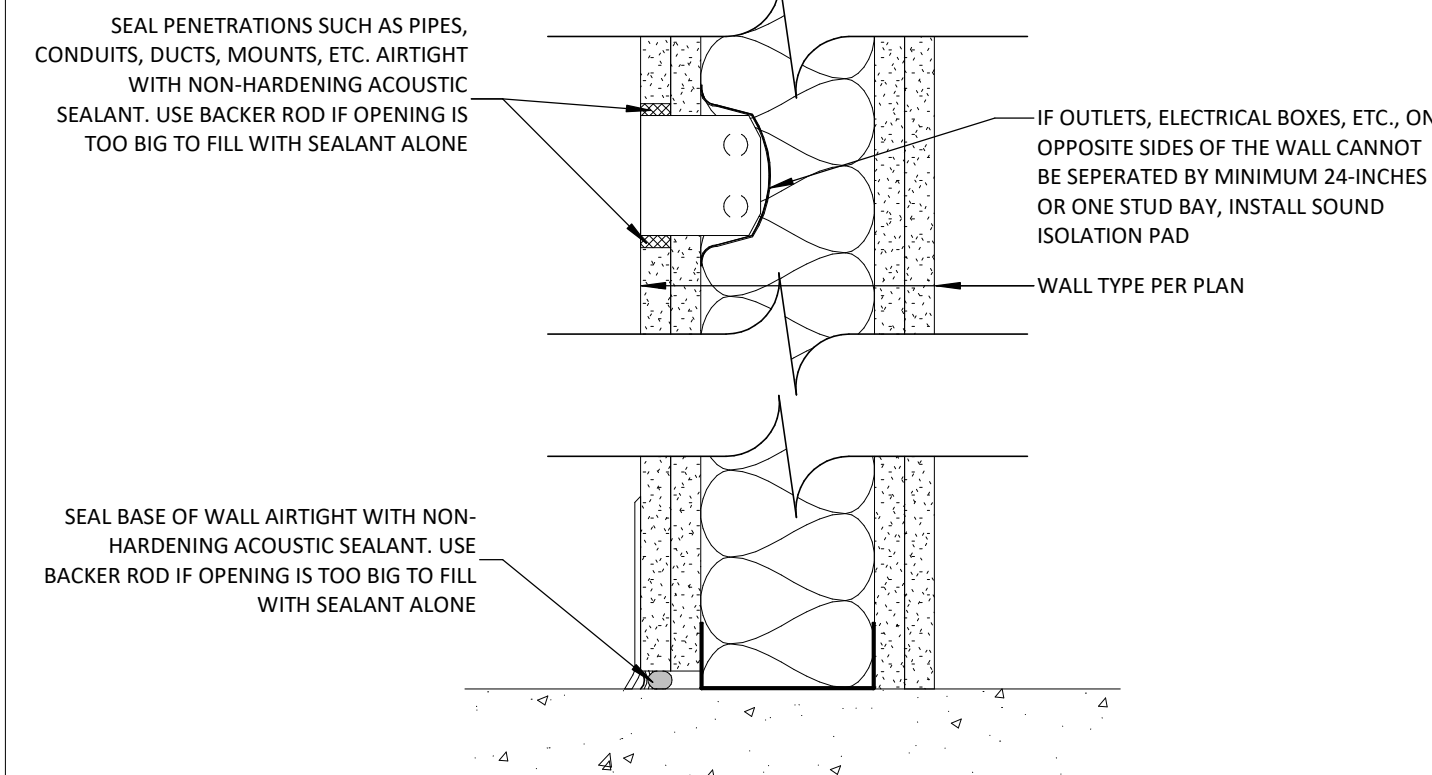
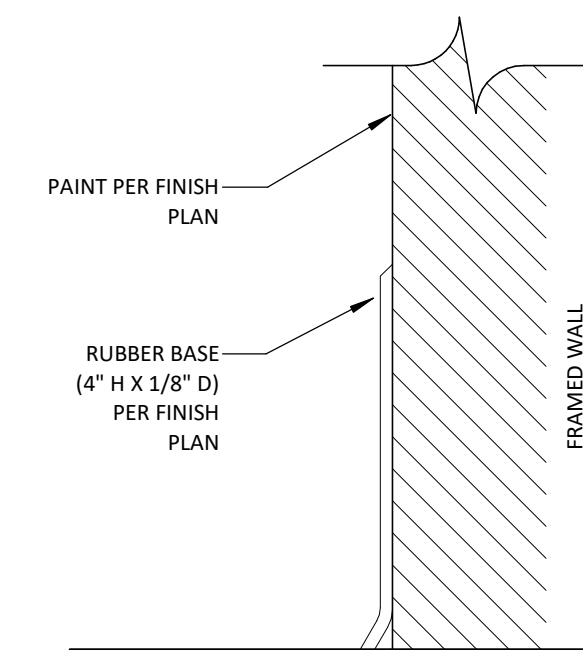


4 INNOVATION LEARNING STUDIO - EAST
3/8" = 1'-0"

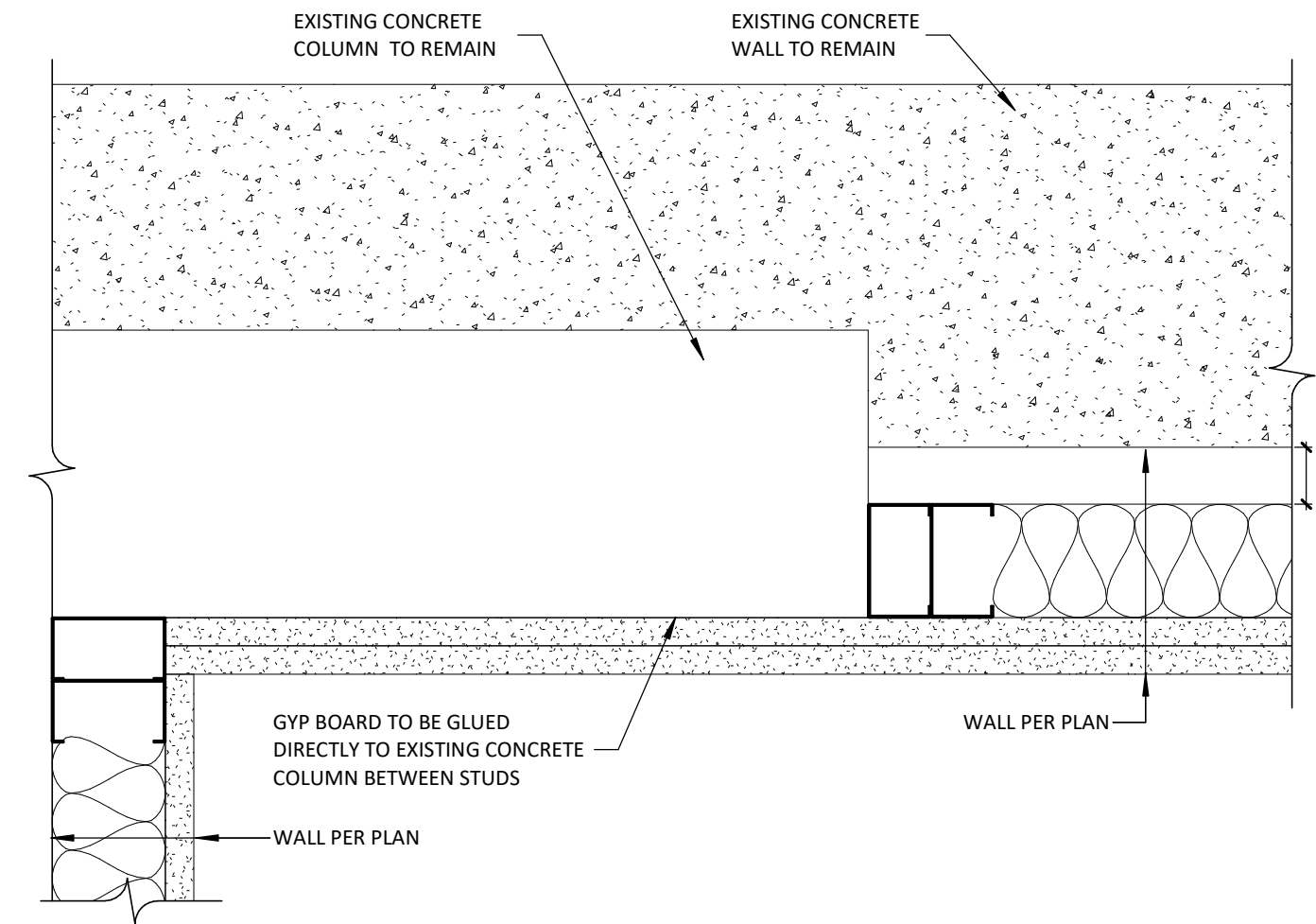
PROJECT #250112



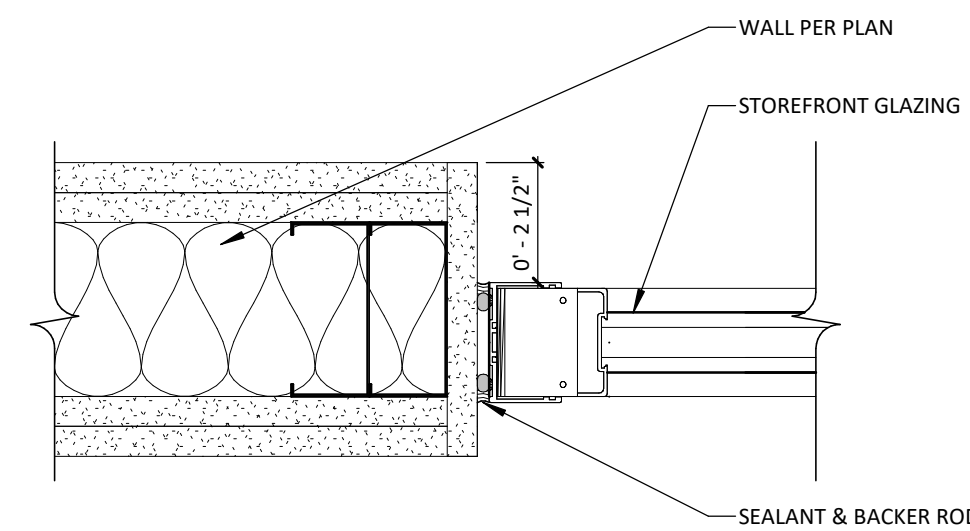
1 BASE & CHAIR RAIL DTL
6" = 1'-0"



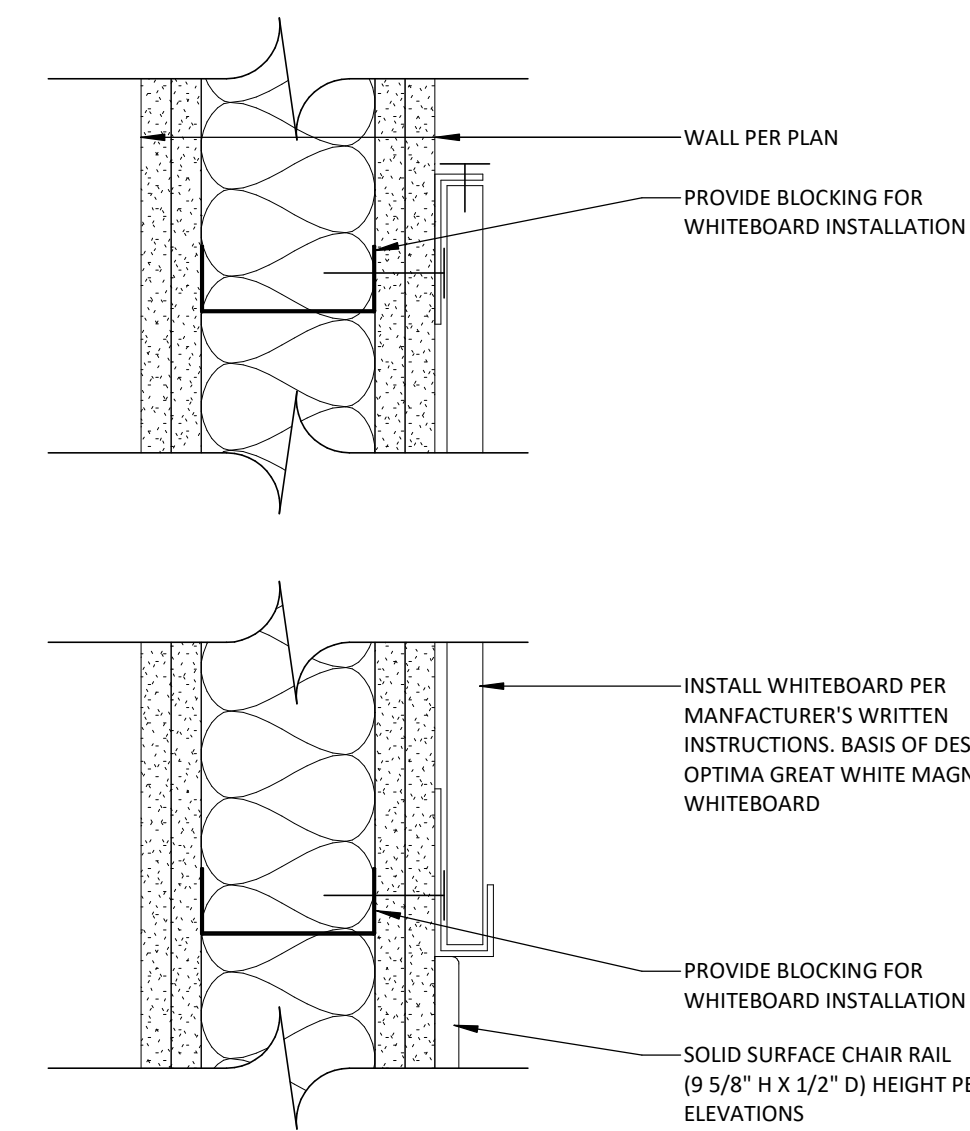
4 TYP. ACOUSTIC WALL PENETRATION
3" = 1'-0"



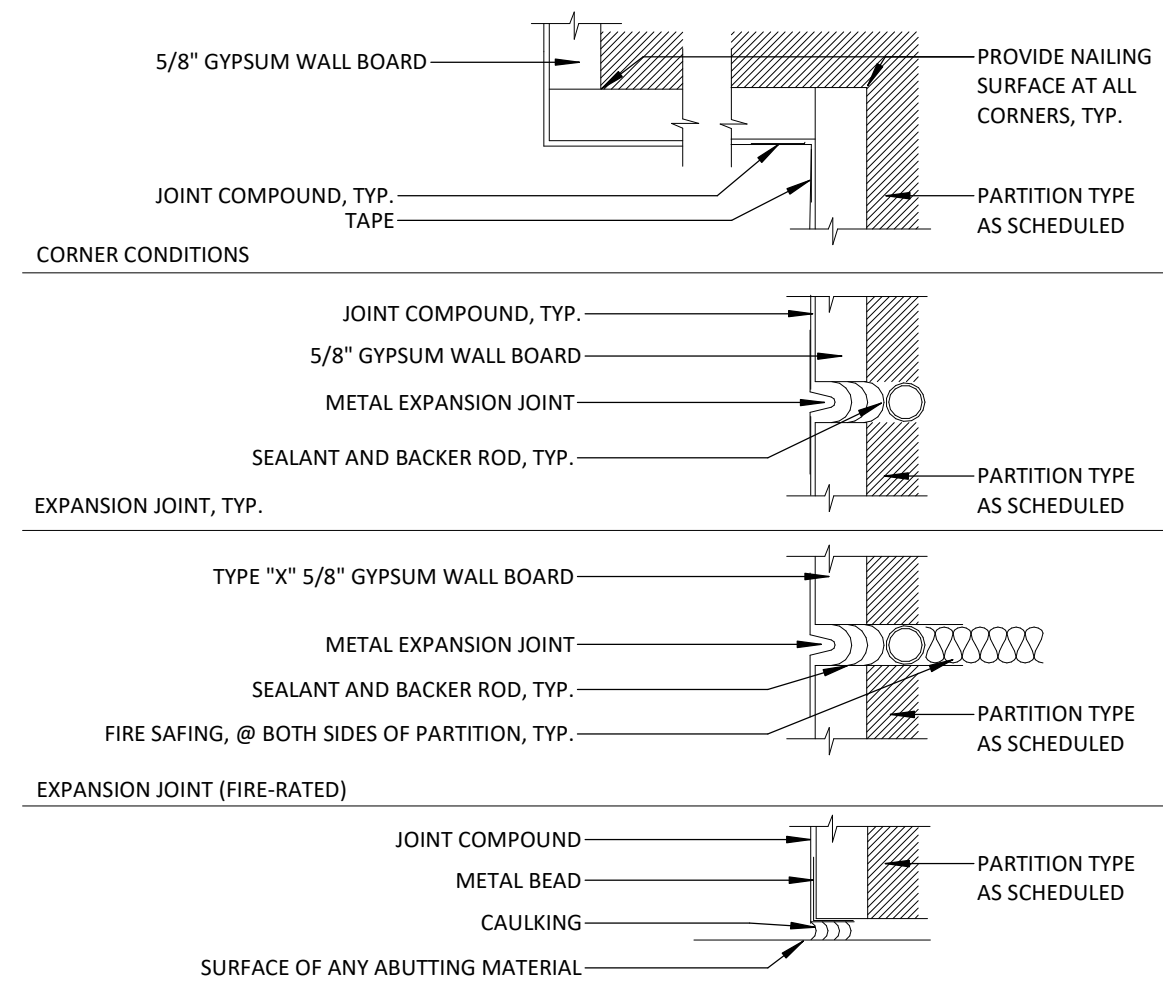
7 STC 40-45 @ CORNER COLUMN
3" = 1'-0"



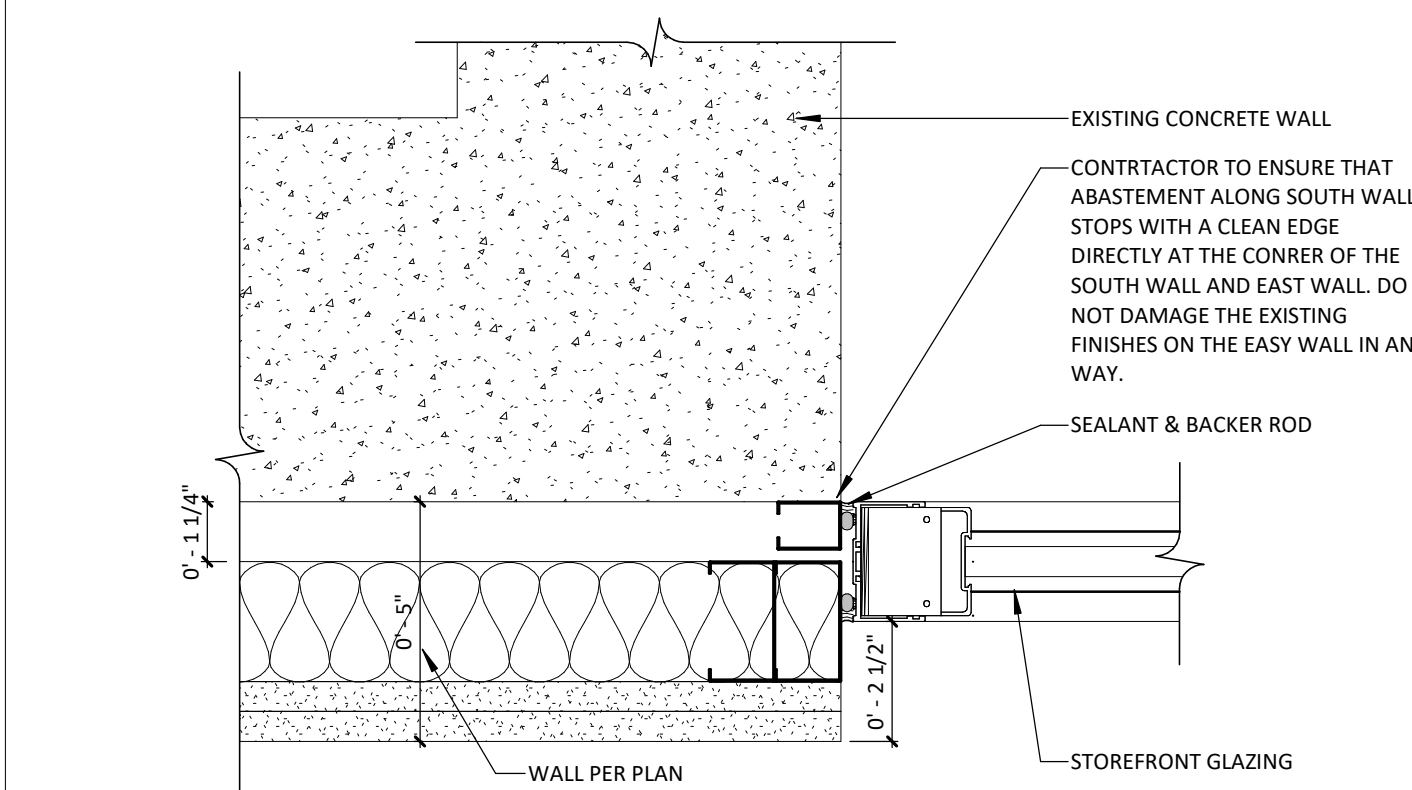
5 STC 40-45 & CURTAIN WALL CONN.
3" = 1'-0"



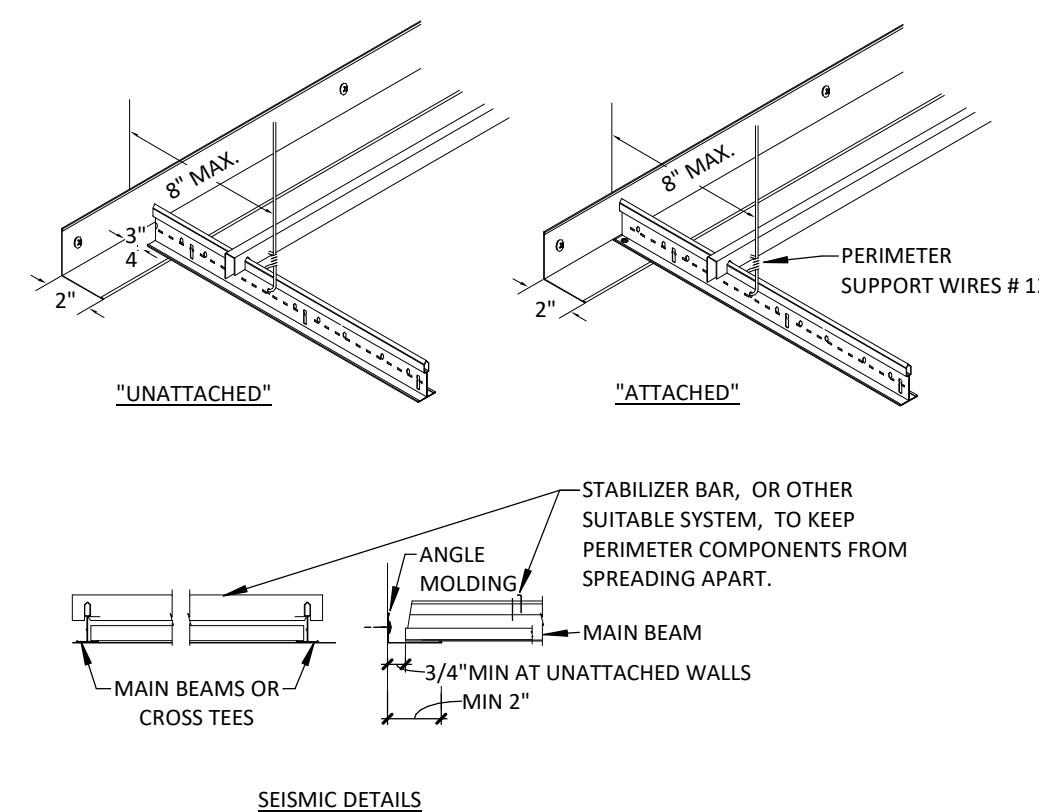
8 WHITEBOARD DETAIL
3" = 1'-0"



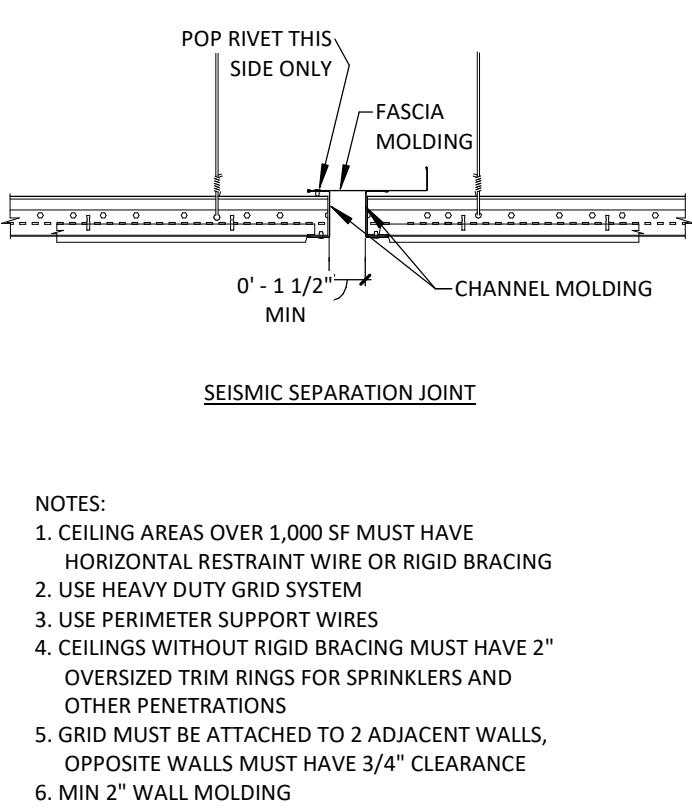
2 GYPSUM WALLBOARD DTL
3" = 1'-0"



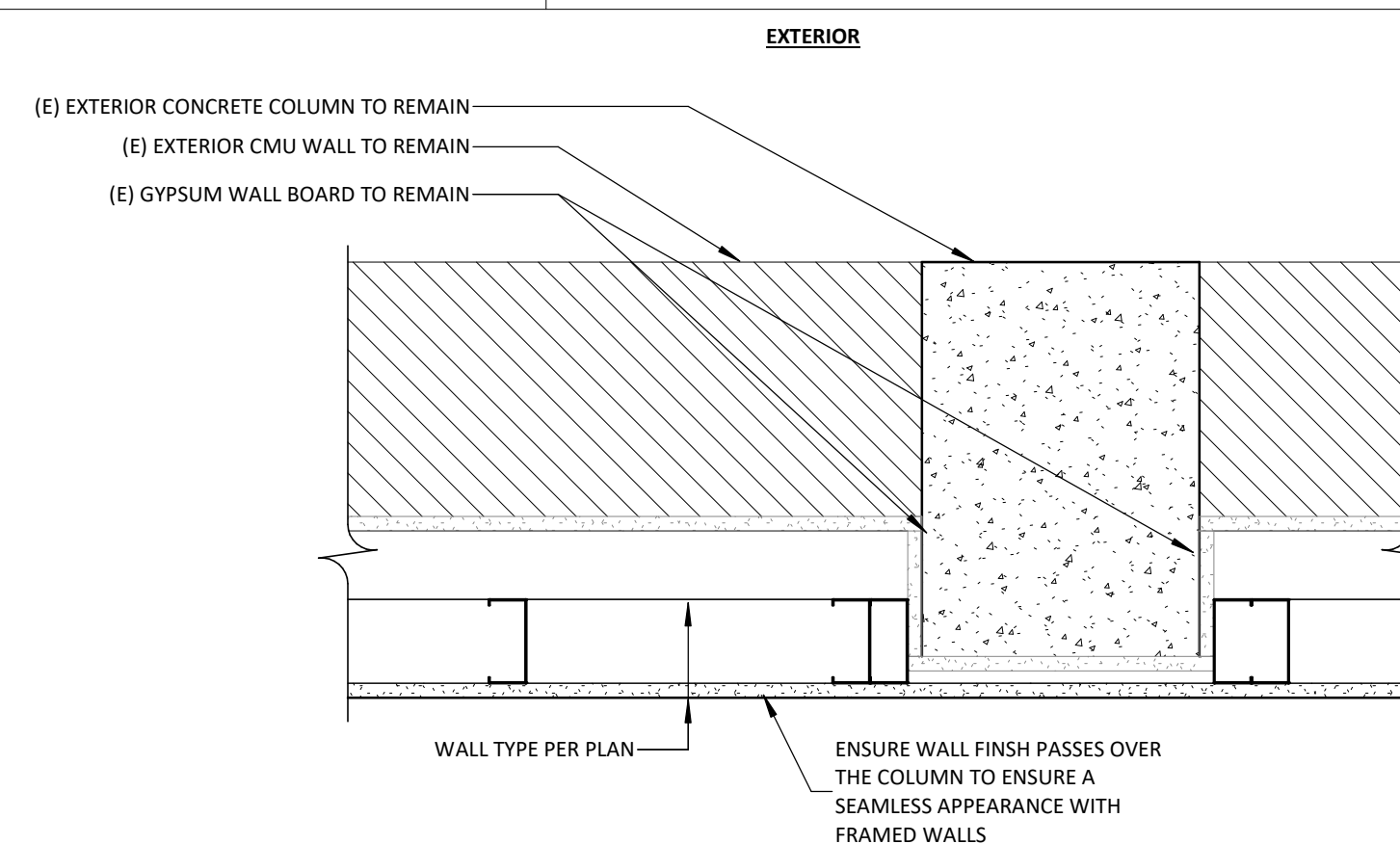
6 STC 40-45 & CURTAIN WALL CONN. @ CORNER
3" = 1'-0"



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

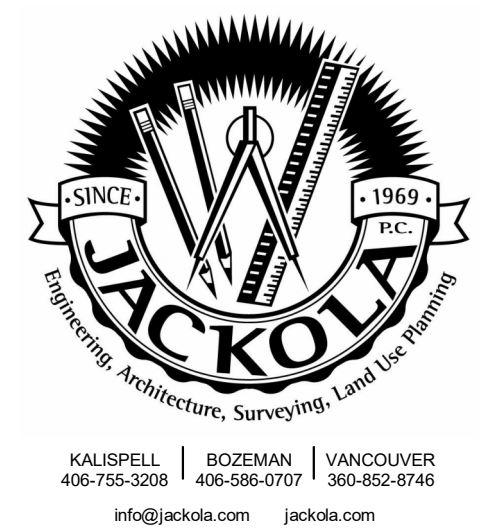


9 FURRED WALL @ COLUMN
1 1/2" = 1'-0"



GENERAL INTERIOR NOTES:

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



BID SET

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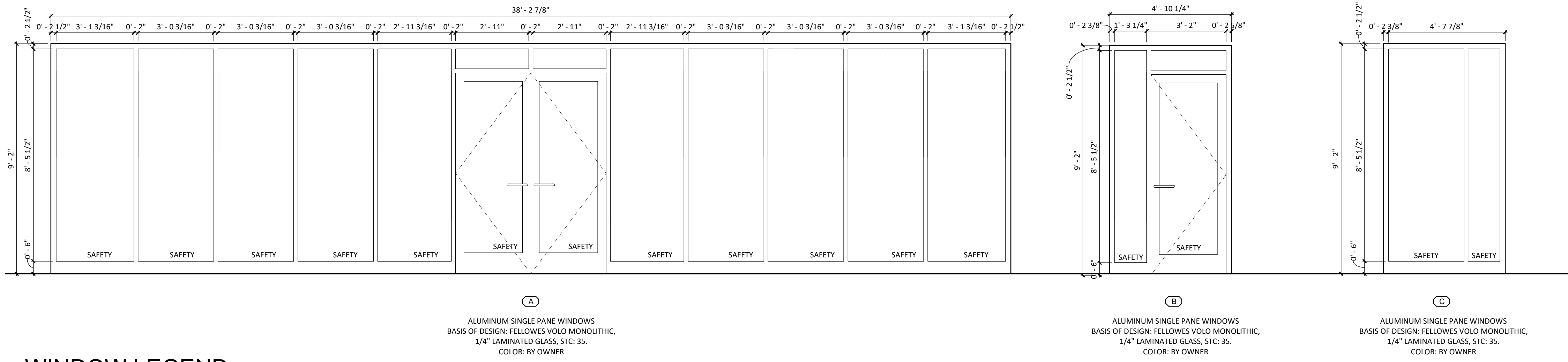
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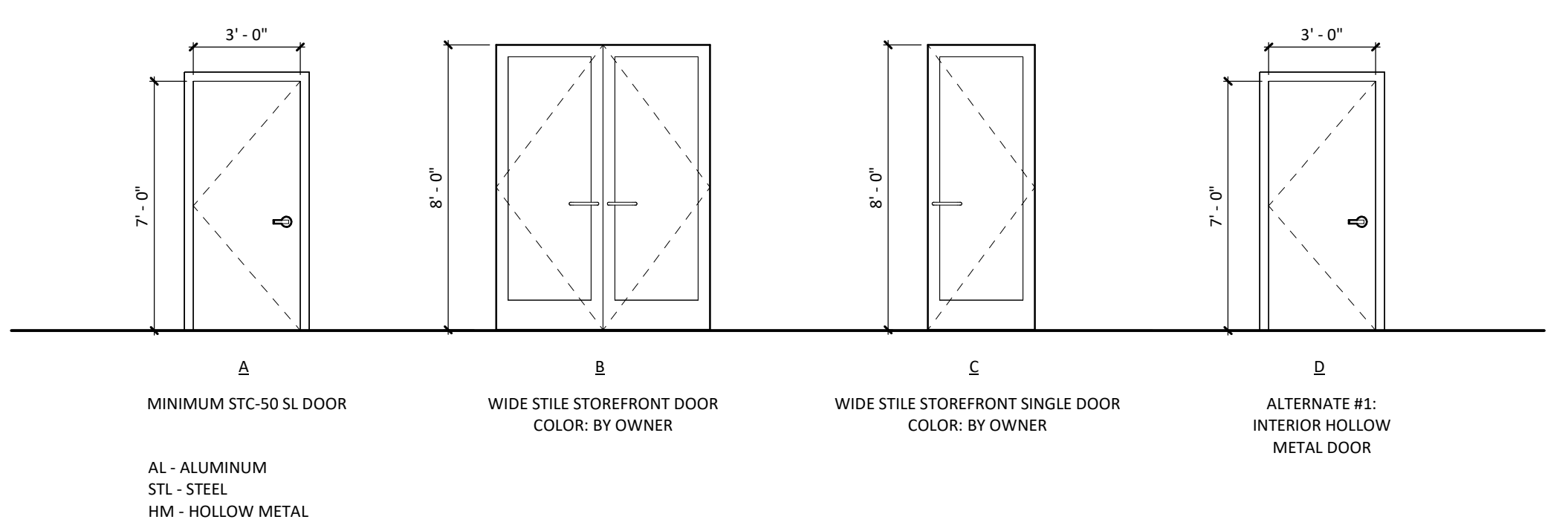
A-521



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 RAMP 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 BETWEEN 34"-38" 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.

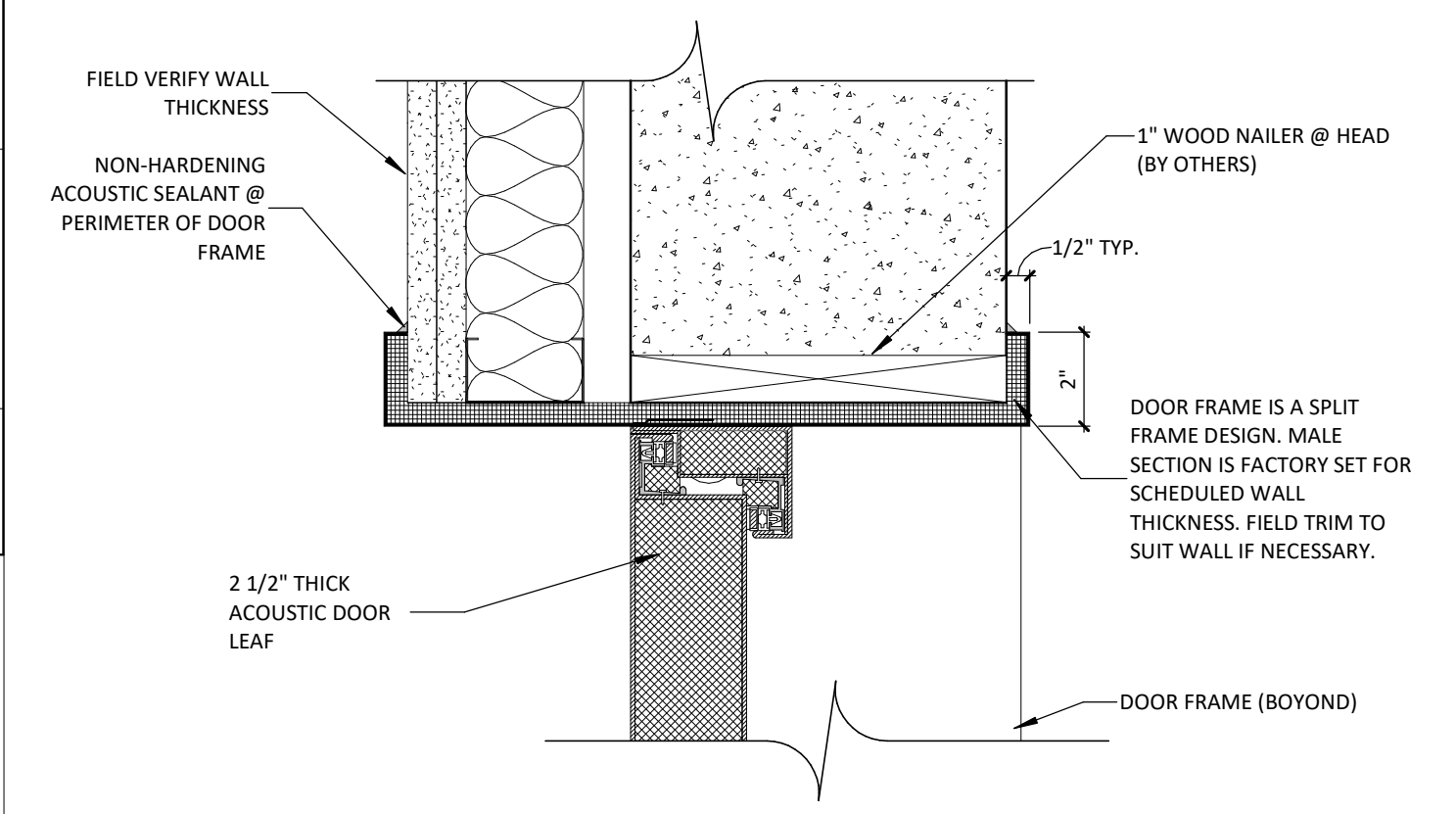
1 WINDOW LEGEND
1/4" = 1'-0"



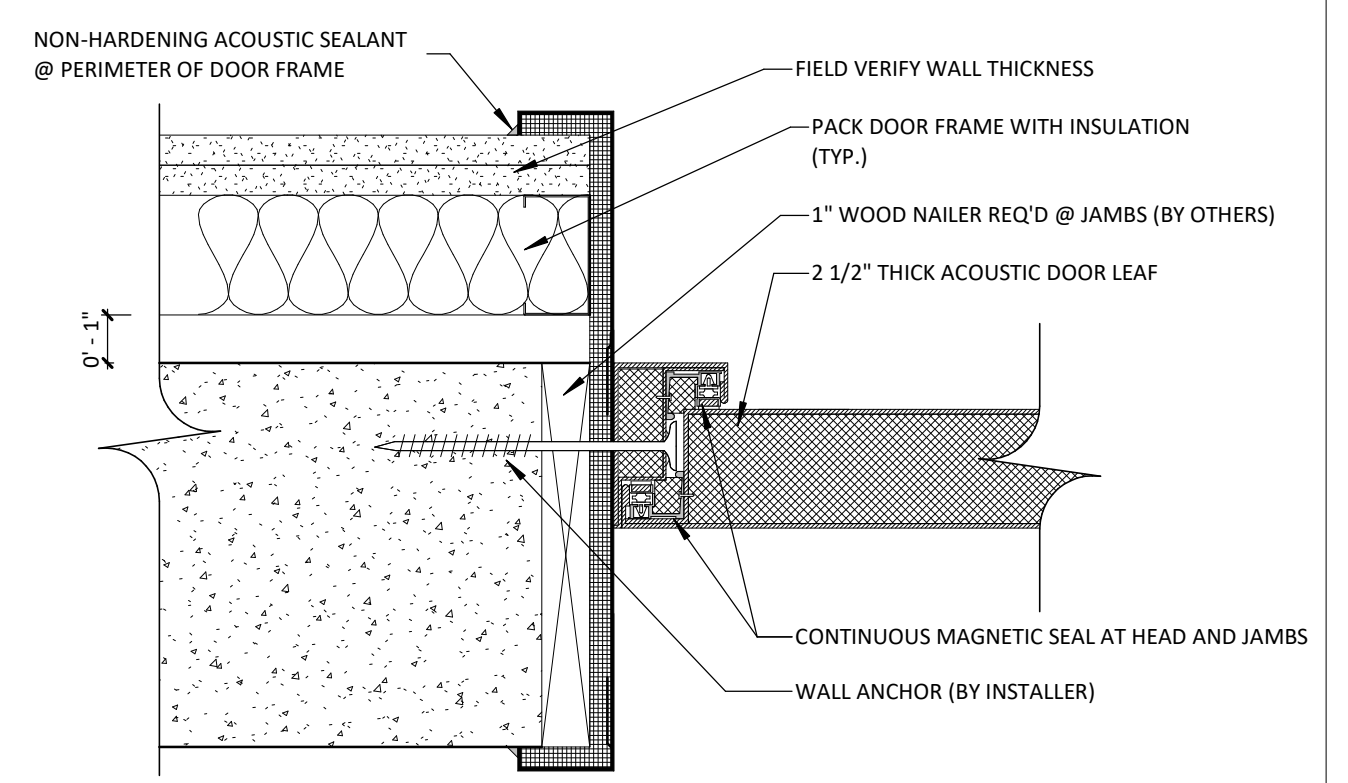
2 DOOR LEGEND
1/4" = 1'-0"

DOOR SCHEDULE										
DOOR NO.	FROM	TO	SIZE	ELEVATION TYPE	DOOR MAT.	FRAME MAT.	LITE	HARDWARE	DOOR STOP (W/WALL, F-FLOOR)	REMARKS
1	STUDY AREA/ TUTORING	INNOVATION 216 LEARNING STUDIO	Store Front Single Door	B	AL	AL	FULL	HDW-2 DOUBLE ENTRANCE	N/A	
2	INNOVATION 216 LEARNING STUDIO	STUDY AREA/ TUTORING	Store Front Single Door	C	AL	AL	FULL	HDW-1 SINGLE ENTRANCE	N/A	
3	MECHANICAL	INNOVATION 216 LEARNING STUDIO	3'-0" x 7'-0" x 1 3/4"	A	STL	AL	N/A	HDW-3 STORAGE	W	BASIS OF DESIGN: MINIMUM STC 50, DOOR ASSEMBLY FROM IAC COLOR: FIRST STAR, APPROVED ALTERNATIVE: NOISE BARRIERS.
4	INNOVATION 216 LEARNING STUDIO	STUDY AREA/ TUTORING	3'-0" x 7'-0" x 1 3/4"	D	HM	HM	N/A	HDW-1 SINGLE ENTRANCE	N/A	ALTERNATE #1, SEE A-113

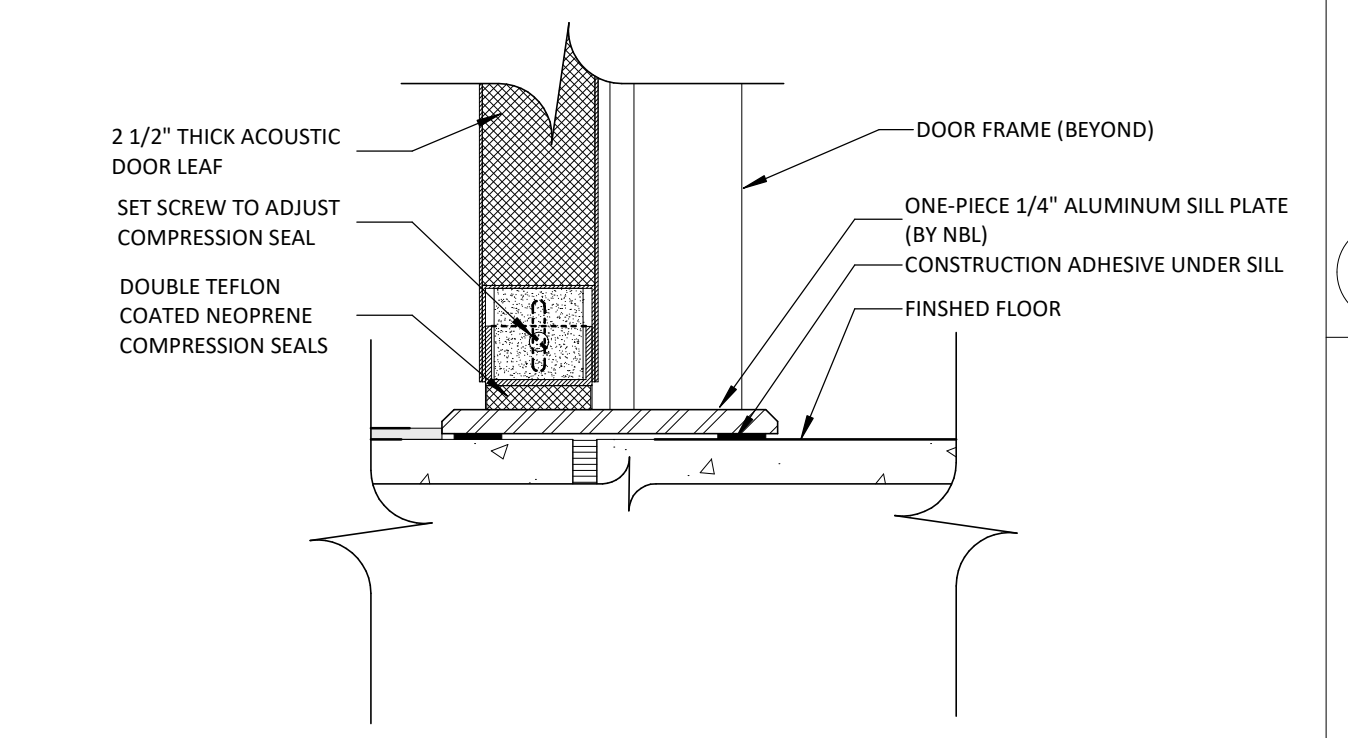
DOOR HARDWARE	
HDW	HARDWARE
HDW-1 SINGLE ENTRANCE	RIM EXIT DEVICE 1 CYLINDER LOCK 1 SET PIVOTS 1 CLOSER PULL HANDLE 1 THRESHOLD WEATHERSTRIPPING PILE WEATHERING
HDW-2 DOUBLE ENTRANCE	2 RIM EXIT DEVICES 1 CYLINDER LOCK 2 SETS PIVOTS 2 CLOSERS PULL HANDLES 1 THRESHOLD WEATHERSTRIPPING 2 PAIR WEATHERING 1 PAIR FLUSH BOLTS
HDW-3 STORAGE	1 1/2 PR BUTTS 1 LOCKSET ANSI F-82/ BHMA B 1 WALL STOP 1 SET SILENCERS



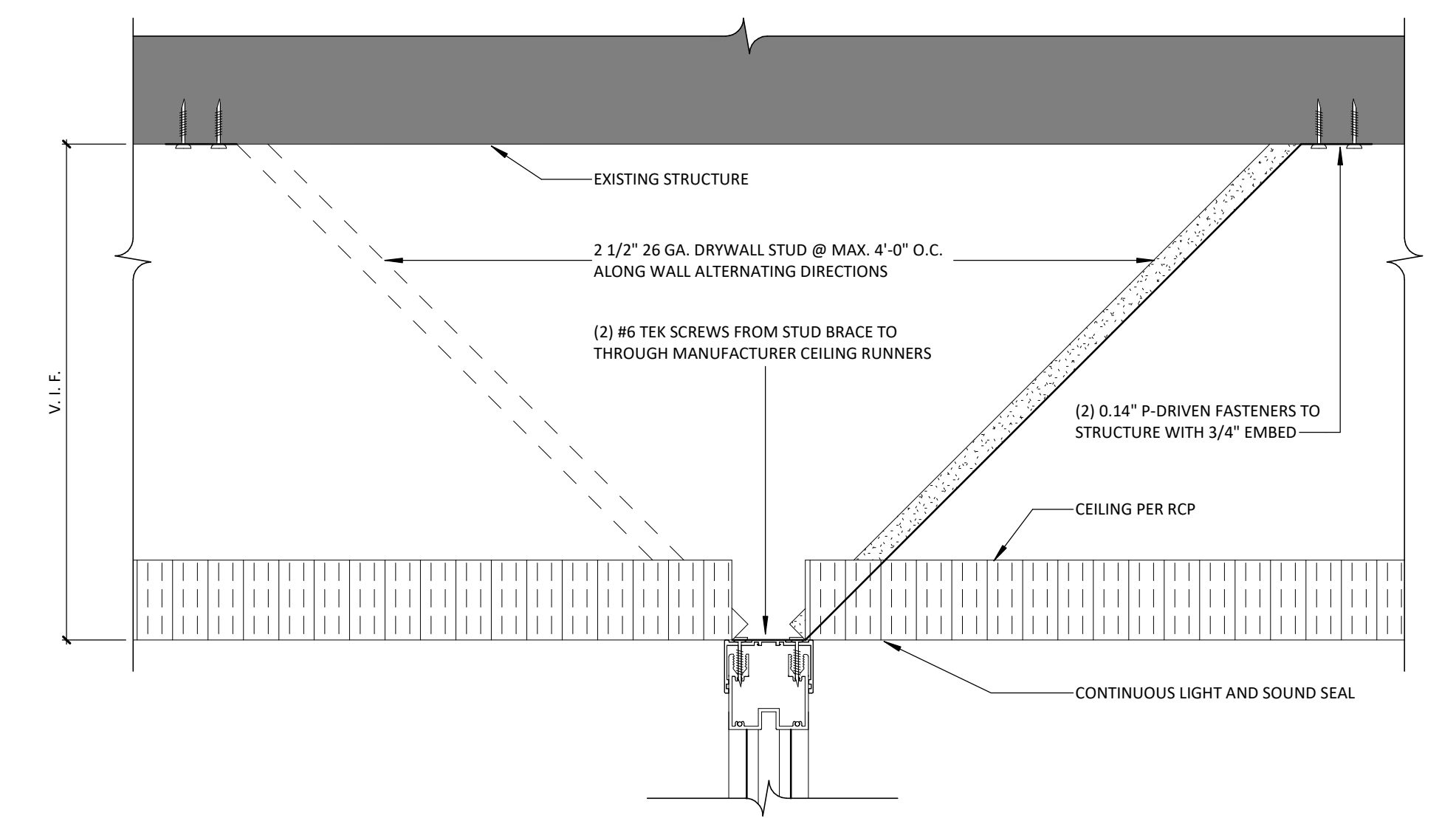
3 STC DOOR HEAD DETAIL
3" = 1'-0"



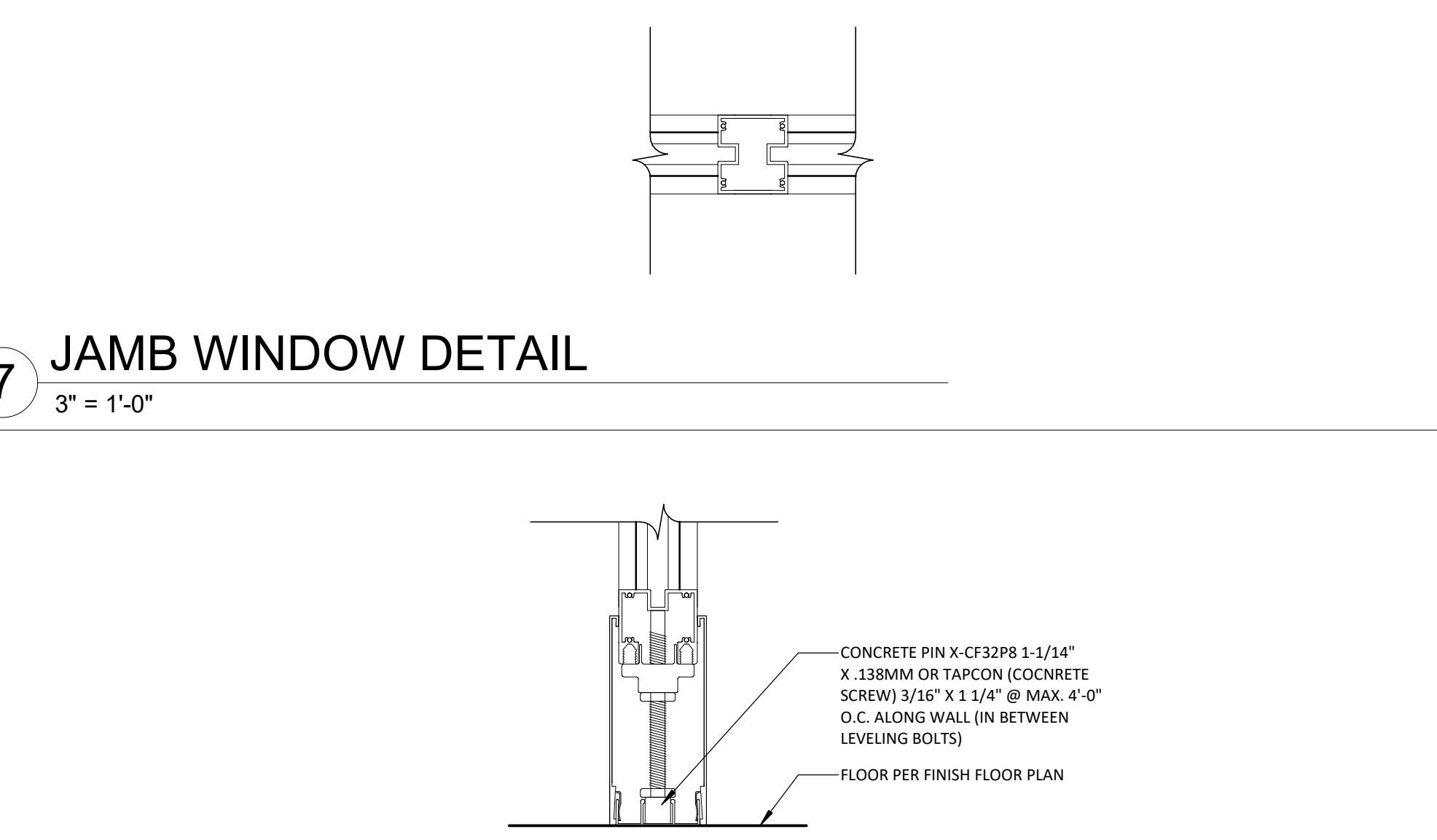
4 STC JAMB DOOR DETAIL
3" = 1'-0"



5 DOOR SILL DETAIL
3" = 1'-0"



6 WINDOW HEAD DETAIL
3" = 1'-0"



7 JAMB WINDOW DETAIL
3" = 1'-0"

8 WINDOW SILL DETAIL
3" = 1'-0"

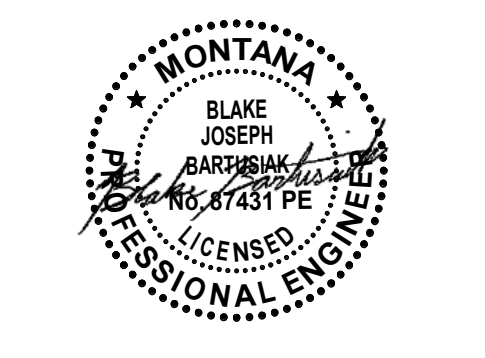
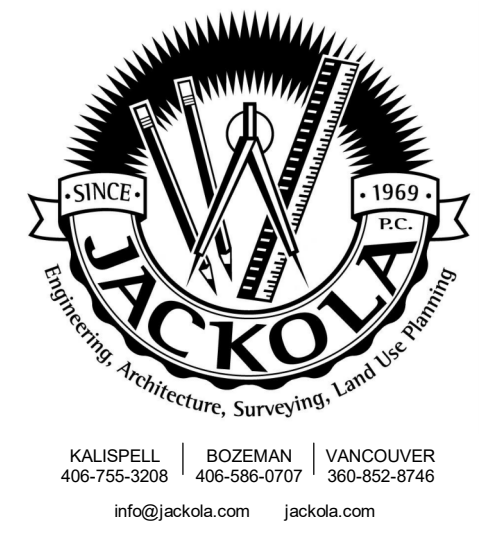
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WINDOW & DOOR SCHEDULES & DETAILS

A-601



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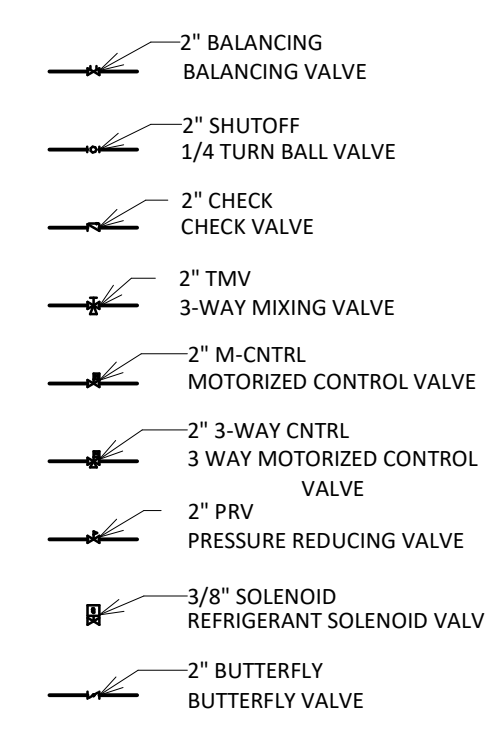
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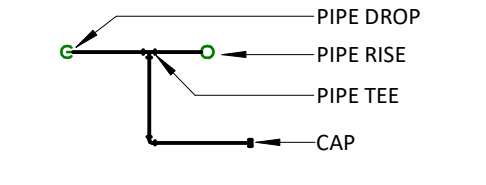
MECHANICAL TITLE SHEET

M-001

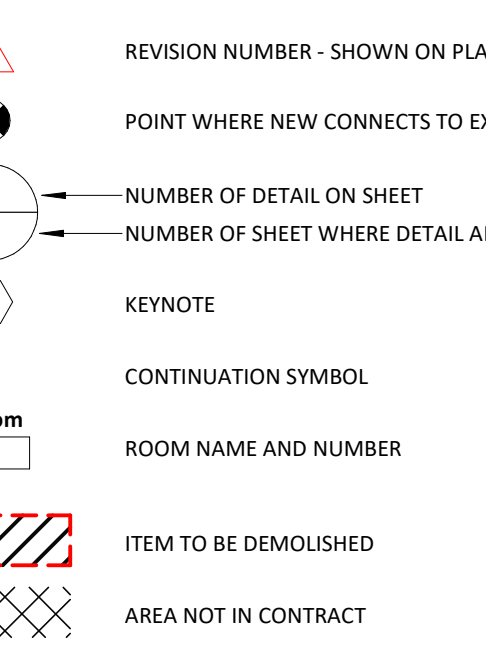
PIPE ACCESSORY TAGS



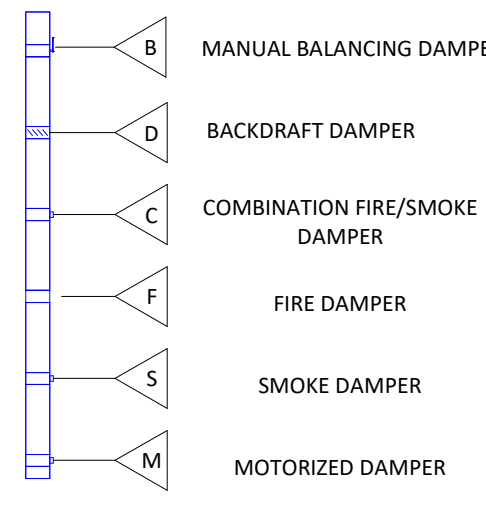
PIPE SYMBOLS



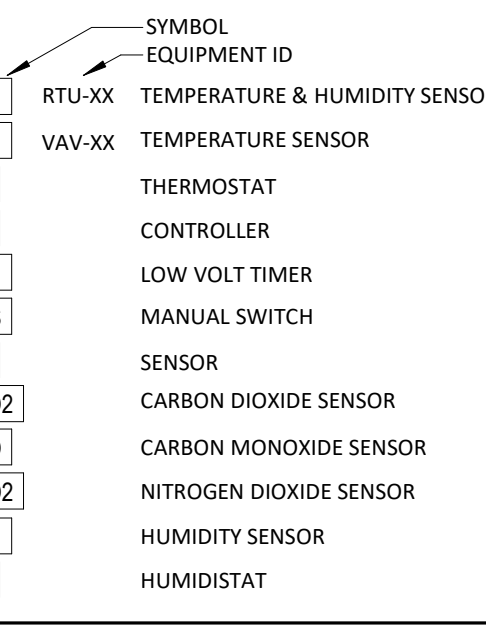
GENERAL DRAWING SYMBOLS



DAMPER TAGS



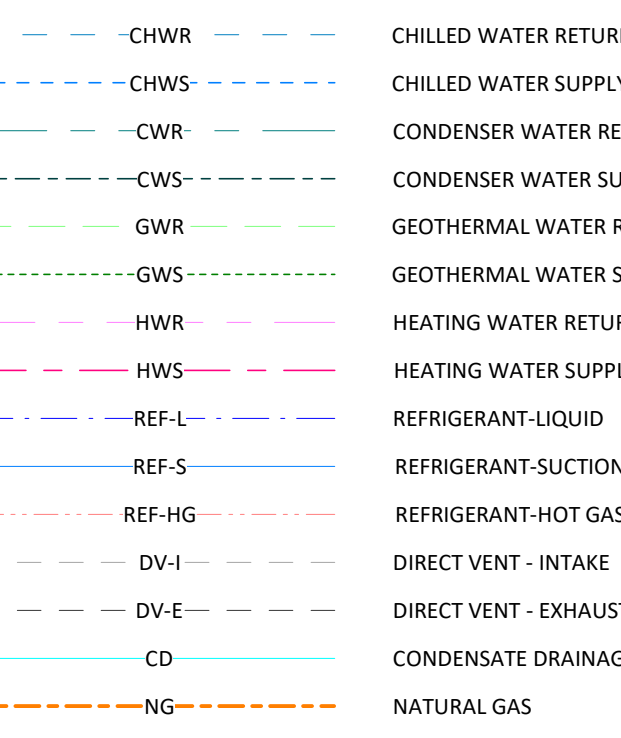
MECHANICAL CONTROL DEVICE TAGS



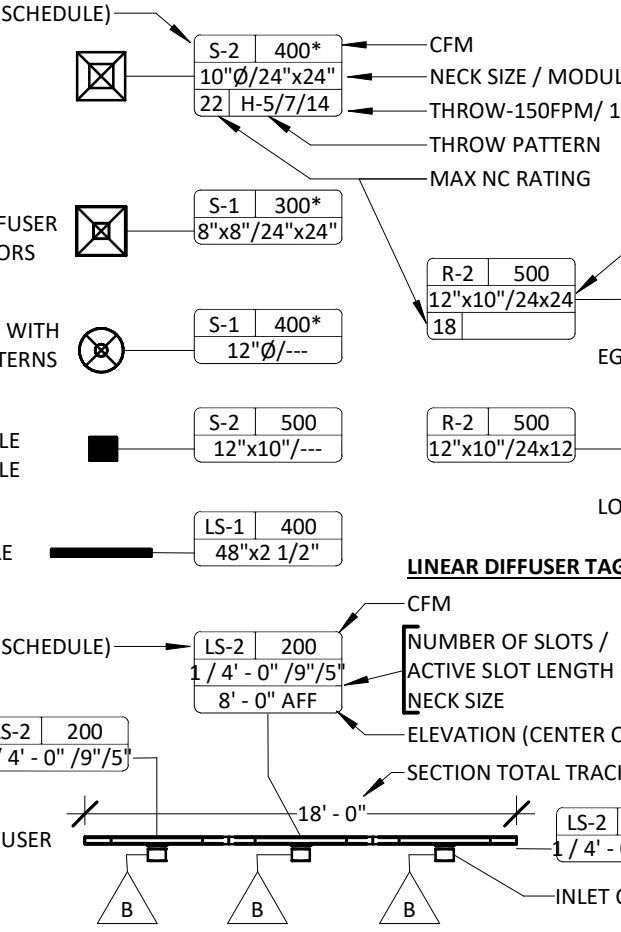
MECHANICAL SHEET INDEX

Table with 2 columns: Sheet Number and Description. Includes M-001 MECHANICAL TITLE SHEET, M-112 LEVEL 2 HVAC PLAN, M-135 ROOF HVAC PLAN, M-601 MECHANICAL SCHEDULES.

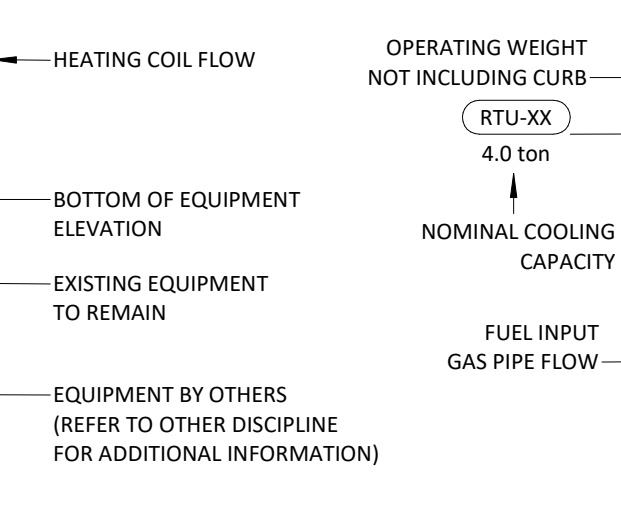
PLUMBING AND PIPING SYMBOLS



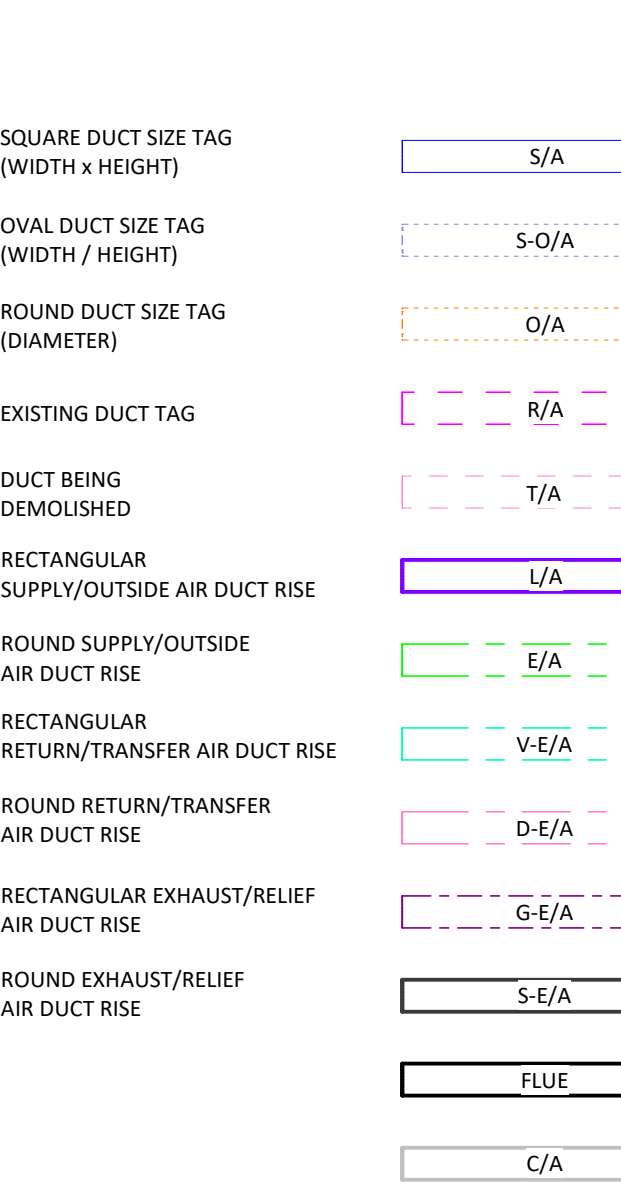
GRILLES, REGISTERS & DIFFUSERS TAG



MECHANICAL EQUIPMENT TAGS



HVAC SYMBOLS



CODE COMPLIANCE
BUILDING MECHANICAL SYSTEMS ARE DESIGNED IN ACCORDANCE WITH THE FOLLOWING CODES:
• 2021 INTERNATIONAL MECHANICAL CODE
• 2021 UNIFORM PLUMBING CODE
• 2021 IECC INTERNATIONAL ENERGY CONSERVATION CODE

HVAC DESIGN CRITERIA
BOZEMAN, MONTANA
ANNUAL DESIGN CONDITIONS: ASHRAE FUNDAMENTALS 2021
WEATHER STATION - BOZEMAN YELLOWSTONE, MT WMOH 726797
ELEVATION: 4427' LAT: 45.788N LONG: 111.161W
WINTER: -13.4 (99.6%)
SUMMER: 92.0 DRY BULB (0.4%)
61.2 WET BULB (0.4%)
INDOOR DESIGN CONDITIONS:
WINTER: 70 ± 2° F
SUMMER: 75 ± 2° F

EQUIPMENT ABBREVIATIONS

Table of equipment abbreviations including AC AIR CONDITIONING UNIT, AHU AIR HANDLING UNIT, AS AIR SEPARATOR, etc.

PIPING INSULATION SCHEDULE - INTERNATIONAL ENERGY CONSERVATION CODE

Table with columns: FLUID OPERATING TEMPERATURE RANGE AND USAGE [F], INSULATION CONDUCTIVITY, MEAN RATING TEMPERATURE [F], NOMINAL PIPE OR TUBE SIZE [INCHES].

DUCT INSULATION SCHEDULE

Table with columns: DUCT SYSTEM, OUTSIDE BUILDING ENVELOPE, EXPOSED TO ENVIRONMENT, OUTSIDE BUILDING ENVELOPE, WITHIN BUILDING, WITHIN THE BUILDING ENVELOPE.

REMARKS:
1. ALL DUCT DIMENSIONS INDICATE INSIDE FREE DIMENSIONS AND DO NOT INCLUDE INSULATION THICKNESS.
2. THE 6" OF EXHAUST DUCT NEAREST TO THE EXTERIOR TO BE INSULATED WITH MIN. R-6 INSULATION (1 1/2" THICKNESS, 0.24 K VALUE).

2021 INTERNATIONAL ENERGY CONSERVATION CODE NOTES

- 1. PROVIDE COMMISSIONING PLAN IN ACCORDANCE WITH INTERNATIONAL ENERGY CONSERVATION CODE SECTION C408.2.1.
2. PROVIDE COMMISSIONING COMPLIANCE REPORT IN ACCORDANCE WITH INTERNATIONAL ENERGY CONSERVATION CODE SECTION C407.3.1 & C407.3.2.
3. PROVIDE SYSTEMS TESTING AND BALANCING IN ACCORDANCE WITH INTERNATIONAL ENERGY CONSERVATION CODE SECTION C408.2.2.
4. PROVIDE TAB REPORT FOR ALL AIR MOVING EQUIPMENT TO ENGINEER OF RECORD. ALL ELBOWS INDICATED ON PLANS ARE UNDER NORMAL OPERATING CONDITIONS WITH ALL SYSTEMS RUNNING IN OCCUPIED MODE AT MINIMUM OUTSIDE AIR.
5. PROVIDE SUPPORTING DOCUMENTATION IN ACCORDANCE WITH INTERNATIONAL ENERGY CONSERVATION CODE CHAPTER 1 CHECKLIST, INCLUDING OPERATION AND MAINTENANCE MANUALS, HVAC CONTROL SYSTEM MAINTENANCE AND CALIBRATION INFORMATION, HVAC CONTROL SEQUENCE OF OPERATIONS, COMMISSIONING REPORT, AND RECORD DRAWINGS.
6. PROVIDE OWNER SYSTEMS OPERATION TRAINING IN ACCORDANCE WITH INTERNATIONAL ENERGY CONSERVATION CODE SECTION C103.6.
7. MOTORS SHALL COMPLY WITH SECTION C403.8 OF THE INTERNATIONAL ENERGY CONSERVATION CODE. FOR ADDITIONAL DETAILS, SEE EQUIPMENT SCHEDULES CONTAINED WITHIN THIS DRAWING SET.
8. SYSTEMS SHALL BE INSULATED AS PRESCRIBED IN SECTION C403.12. FOR ADDITIONAL DETAILS, SEE DUCTWORK AND PIPING SPECIFICATION MATRICES CONTAINED WITHIN THIS DRAWING SET.

M-102



* NOTE *
THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.

GENERAL MECHANICAL NOTES

- 1. INSTALLATION OF THE MECHANICAL SYSTEM SHALL BE BY A LICENSED CONTRACTOR PER THE STATE BUILDING, MECHANICAL ENERGY, FIRE, PLUMBING AND HEALTH CODES, AND REGULATIONS AS ADOPTED BY LOCAL JURISDICTIONS.
2. ALL EQUIPMENT SHALL BE THE CAPACITY AND TYPE AS SHOWN ON THE EQUIPMENT SCHEDULE AND SHALL BE THE LISTED MANUFACTURER AND MODEL NUMBER OR SHALL BE AN EQUAL APPROVED BY THE OWNER/ENGINEER.
3. CONTRACTOR IS TO BRING UP THE DISCREPANCIES AND ITEMS WHICH ARE NOT SPECIFICALLY CALLED FOR OR SHOWN BUT ARE REQUIRED FOR A COMPLETE MECHANICAL SYSTEM. ALL SUCH ITEMS REQUIRED FOR A COMPLETE SYSTEM READY FOR THE OWNER'S BENEFICIAL USE SHALL BE FURNISHED AND INSTALLED INCLUDING ALL SUCH DISCREPANCY ITEMS MENTIONED ABOVE, AT NO ADDITIONAL COST TO THE OWNER AND PER LOCAL CODES. MANUFACTURER'S RECOMMENDATIONS AND APPLICABLE STANDARDS WITH THE ARCHITECT/ENGINEER'S APPROVAL.
4. ALL EQUIPMENT SUPPLIED FOR THESE SPECIFICATIONS SHALL BE FREE FROM DEFECTS IN MATERIAL, WORKMANSHIP, AND TITLE, AND SHALL BE OF THE KIND AND QUALITY DESCRIBED HEREIN. IF IT APPEARS WITHIN ONE YEAR FROM DATE OF FINAL ACCEPTANCE THAT EQUIPMENT DOES NOT MEET THE WARRANTIES ABOVE, THE CONTRACTOR SHALL IMMEDIATELY CORRECT ANY DEFECT AND SHALL RESTORE THE SYSTEM TO THE ORIGINAL SATISFACTORY CONDITIONS AT HIS EXPENSE. THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF OTHER WARRANTIES, WHETHER WRITTEN, ORAL, IMPLIED, OR STATUTORY. NO WARRANTY OR MERCHANTABILITY OF FITNESS FOR PURPOSE SHALL APPLY (THE WARRANTY SHALL START FROM THE TIME OF ARCHITECT/ENGINEER'S FINAL ACCEPTANCE).
5. COORDINATE THE CONSTRUCTION SCHEDULE WITH THE GC AND ALL REQUIRED PERMITS AND CERTIFICATES REQUIRED BY THE AUTHORITIES HAVING JURISDICTION.
6. MECHANICAL CONTRACTOR SHALL PAY FOR AND OBTAIN ALL REQUIRED PERMITS AND CERTIFICATES REQUIRED BY THE AUTHORITIES HAVING JURISDICTION.
7. HVAC NOTES:
A. PROVIDE FLEXIBLE CONNECTION IN ALL DUCTS CONNECTING TO AIR MOVING EQUIPMENT AS CLOSE TO FAN AS POSSIBLE. FLEXIBLE CONNECTION SHALL CONSIST OF 6" OR MORE OF AIR TIGHT, FIRE PROOF FLEXIBLE NEOPRENE COATED WOVEN FIBROUS GLASS MATERIAL. VENT FABRICS, INC. OR APPROVED EQUAL.
B. ALL MAIN TRUNK AND BRANCH TAKEOFF DUCTWORK SHALL BE SHEET METAL. FLEXIBLE DUCT IS ALLOWED ON LAST 6" SERVING GRDS. FIBERGLASS DUCTWORK SHALL NOT BE USED.
C. ALL SUPPLY & RETURN FLEXIBLE DUCTS CONNECTING TO GRILLES, REGISTERS AND DIFFUSERS SHALL BE CONSTRUCTED OF DOUBLE LAMINATION OF POLYESTER ENCAPSULATED STEEL WIRE HELIX FOR INNER CORE HIGH DENSITY FIBERGLASS INSULATION AND GRAY POLYESTER FILM WITH SPIRAL REINFORCEMENTS, EQUAL TO ATCO-70 SERIES (MIN. POS. PRESS. = 6" W.C. NEG. PRESS. = 0.75" W.C. & R=5.79).
D. SEAL ALL DUCTWORK JOINTS PER SMACNA CLASS B FOR SYSTEMS UP TO 2 IN W.G. AND SEAL ALL JOINTS AND SEAMS PER SMACNA CLASS B FOR SYSTEMS GREATER THAN 2 IN W.G.
E. ALL EQUIPMENT, DUCTWORK AND PIPING SHALL BE STRUCTURALLY SUPPORTED AND SECURELY FASTENED TO BUILDING STRUCTURE IN AN ACCEPTABLE MANNER TO OWNER, ARCHITECT, ENGINEER AND LOCAL JURISDICTION AND SHALL BE SEISMICALLY BRACED PER THE SMACNA AND/OR REQUIRED BY LOCAL JURISDICTIONS.
F. DUCT HANGERS, SUPPORTS AND METHODS OF INSTALLATION SHALL CONFORM TO ASHRAE & SMACNA RECOMMENDATIONS.
H. DUCT SIZES SHOWN ON PLANS INDICATE INSIDE FREE AREA BY U.L.-181.
J. ALL SQUARE ELBOWS SHALL HAVE TURNING VANES.
K. DUCT INSULATION SHALL BE PROVIDED PER DUCT INSULATION SCHEDULE ON M0.00.
8. ALL FIRE RATED STRUCTURE SHALL BE FIRE DAMPERED AS REQUIRED BY THE JURISDICTION.
9. FLEXIBLE DUCTS SHALL HAVE MAXIMUM 6 FEET LENGTH UNLESS SHOWN OTHERWISE AND SHALL NOT PENETRATE THROUGH ANY FIRE RATED WALLS. DO NOT INSTALL FLEXIBLE DUCTS WITHIN 6 FEET OF HEATING ELEMENT.
10. HVAC SYSTEM SHALL BE STARTED UP AND FUNCTIONALLY TESTED BY MECHANICAL CONTRACTOR. MECHANICAL CONTRACTOR SHALL CONFIRM THAT ALL HVAC SYSTEMS ARE READY FOR TESTING, ADJUSTING, AND BALANCING. HVAC SYSTEMS SHALL BE TESTED, ADJUSTED, AND BALANCED (TAB) BY CONTRACTOR CERTIFIED BY THE AABC, NEBB, OR OTHER APPROVED AGENCY. REFRIGERATION PIPING SHALL BE TESTED UNDER PRESSURE AND PROVEN TO BE LEAK FREE. REFRIGERATION SYSTEM SHALL BE STARTED UP AND BROUGHT DOWN TO DESIGN TEMPERATURE.
11. MECHANICAL, HVAC, AND PLUMBING ELEMENTS SHALL AT NO TIME COME IN CONTACT WITH CEILING CONSTRUCTION EXCEPT AS NECESSARY PENETRATIONS MAY REQUIRE. ESCUTCHEONS SHALL BE USED ON ALL VISIBLE PENETRATIONS.
12. ACCESS SHALL BE PROVIDED BY GC AS REQUIRED FOR INSTALLATION AND MAINTENANCE OF MECHANICAL/ELECTRICAL, AND OTHER ELEMENTS WITHIN CEILING SPACE AND AS REQUIRED BY CODE. LOCATIONS FOR SPECIAL ACCESS DOORS, HATCHES, ETC. SHALL BE COORDINATED WITH OTHER TRADES.
13. INSPECTIONS, AS REQUIRED BY LOCAL AUTHORITIES, SHALL BE COORDINATED BY GC PRIOR TO CLOSING OF CEILING.
14. SHOP DRAWINGS FOR ALL RELATED TRADES (PLUMBING, HVAC) SHALL BE SUBMITTED FOR REVIEW/APPROVAL PRIOR TO MANUFACTURING AND INSTALLATION.
15. ALL HVAC ELEMENTS SHALL MATCH ADJACENT WALL OR CEILING FINISH COLOR, INSTALLED FLUSH AND TRUE AND CENTERED WITHIN THE CEILING GRID. LOCATIONS SHALL BE PER APPROVED MECHANICAL PLANS.
16. INSULATION OF COLD WATER LINES SHALL BE PROVIDED TO PREVENT CONDENSATION DAMAGE AND IN OBSERVANCE OF ENERGY CONSERVATION PRACTICES, HOT WATER HEATING LINES SHALL BE INSULATED - SEE SPECIFICATIONS.
17. CONTRACTOR SHALL LOCATE THERMOSTATS AND TEMPERATURE SENSORS IN ACCESSIBLE SPACES AT 4'-0" AND UNITS IN ALL OTHER SPACES AT 5'-0". UNITS AT 5' SHALL BE MOUNTED ALIGNED VERTICALLY WITH LIGHT SWITCHES WHERE APPLICABLE. LOCATIONS PER MECHANICAL PLAN AND TO BE COORDINATED BY GC WITH OTHER TRADES.
18. ALL BROCHURES, OPERATING MANUALS, CATALOGS, SHOP DRAWINGS, ETC. SHALL BE TURNED OVER TO THE OWNER AT JOB COMPLETION. ALL PRODUCT WARRANTY REGISTRATION CARDS, APPLICATIONS, AND CERTIFICATES SHALL BE COMPLETED AND TURNED OVER TO THE OWNER.
19. THIS CONTRACTOR SHALL BE REQUIRED TO REPLACE FILTERS ON HVAC EQUIPMENT AFTER ALL DUST PRODUCING CONSTRUCTION HAS BEEN COMPLETED AND PRIOR TO THE FINAL PUNCH.

PROJECT GENERAL NOTES

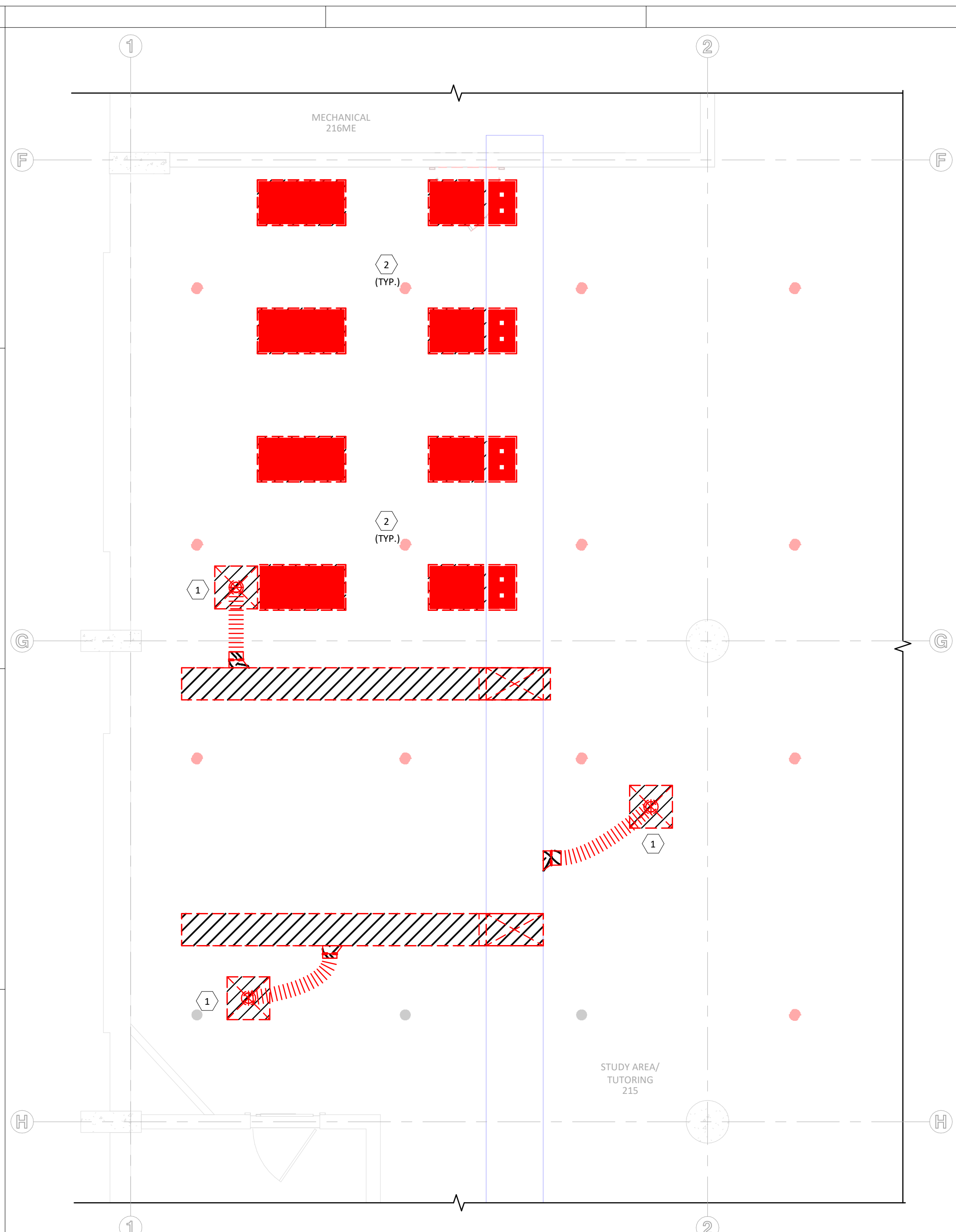
- REMOVE ALL UNUSED PIPING, DUCTWORK AND ACCESSORIES.
• THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING, PRIOR TO FINAL BID, ALL EXISTING CONDITIONS FOR PLUMBING AND MECHANICAL SYSTEMS WITHIN TENANT SPACE AND WITHIN CLOSE PROXIMITY OF TENANT SPACE.
• WHERE FLOOR DRAINS OCCUR WITHIN THE LIMITS OF CONSTRUCTION, PREVENT CONSTRUCTION DEBRIS FROM ENTERING DRAIN BODY BY SEALING DRAIN OPENING PRIOR TO START OF WORK. UNSAFE DRAINS AT COMPLETION OF CONSTRUCTION.
• COORDINATE INSTALLATION OF PIPING, DUCTWORK, CONDUIT, LIGHTS, CABLE TRAY, STRUCTURE, AND EQUIPMENT TO PREVENT CONFLICTS.
• THE CONTRACTOR SHALL BE FAMILIAR WITH ALL THE CONDITIONS BOTH EXISTING AND THOSE ILLUSTRATED BY THESE DOCUMENTS AS WELL AS THOSE WHICH CAN BE REASONABLY ANTICIPATED INCLUDING, BUT NOT LIMITED TO ARCHITECTURAL, ELECTRICAL, VENTILATION, PLUMBING, AND OTHER SYSTEMS INVOLVED ON THIS PROJECT.
• FINAL PRODUCT SHALL BE A COMPLETE AND FUNCTIONING SYSTEM, AND SHALL CONFORM TO ALL REQUIREMENTS OF APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING BUT NOT LIMITED TO THE INTERNATIONAL BUILDING CODE AND INTERNATIONAL MECHANICAL CODE.
• ALL ROOF MOUNTED EQUIPMENT SHALL BE A MINIMUM 10'-0" FROM EDGE OF ROOF.
• LOCATE DUCTWORK, PIPING AND MECHANICAL EQUIPMENT AWAY FROM THE SPACE ABOVE ELECTRICAL PANELS, TRANSFORMERS AND OTHER ELECTRICAL EQUIPMENT.
• FIRE SEAL AROUND DUCT AND PIPING PENETRATIONS OF FIRE RATED WALLS. REFER TO SPECIFICATION.
• PROVIDE SLEEVES AND/OR OPENINGS TO RUN PIPES AND DUCTS THROUGH FOUNDATIONS, FLOORS, WALLS, AND ROOF.
• ADJUST PIPING AND DUCTWORK SIZES TO PROPERLY CONNECT TO MECHANICAL EQUIPMENT.
• REFER TO PLUMBING SERIES DRAWINGS FOR GAS AND A.C. CONDENSATE DRAIN PIPING.
• PIPE SIZES SHOWN SHALL BE CONTINUED IN THE DIRECTION OF FLOW UNTIL ANOTHER SIZE IS SHOWN.
• FOR DETAILS, EQUIPMENT CONNECTIONS, AND PIPE SIZES NOT SHOWN ON THE SEGMENTS, REFER TO DETAILS, SCHEDULES, AND SPECIFICATIONS.
• INSTALL ALL EQUIPMENT IN ACCORDANCE WITH THE RESPECTIVE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS, AT A LEVEL OF QUALITY AND WORKMANSHIP CONSISTENT WITH THE SPECIFICATIONS.
• LOCATIONS OF PIPING, DUCTWORK AND EQUIPMENT AS INDICATED ON THE DRAWING, ARE APPROXIMATE AND SUBJECT TO MINOR ADJUSTMENTS IN THE FIELD. WORK SHALL BE COORDINATED WITH ALL OTHER TRADES TO AVOID INTERFERENCE IN THE FIELD.
• INSTALL EXPOSED PIPING AND DUCTWORK AS HIGH AS PRACTICAL IN ROOMS WITHOUT CEILINGS U.N.O.

HVAC GENERAL NOTES

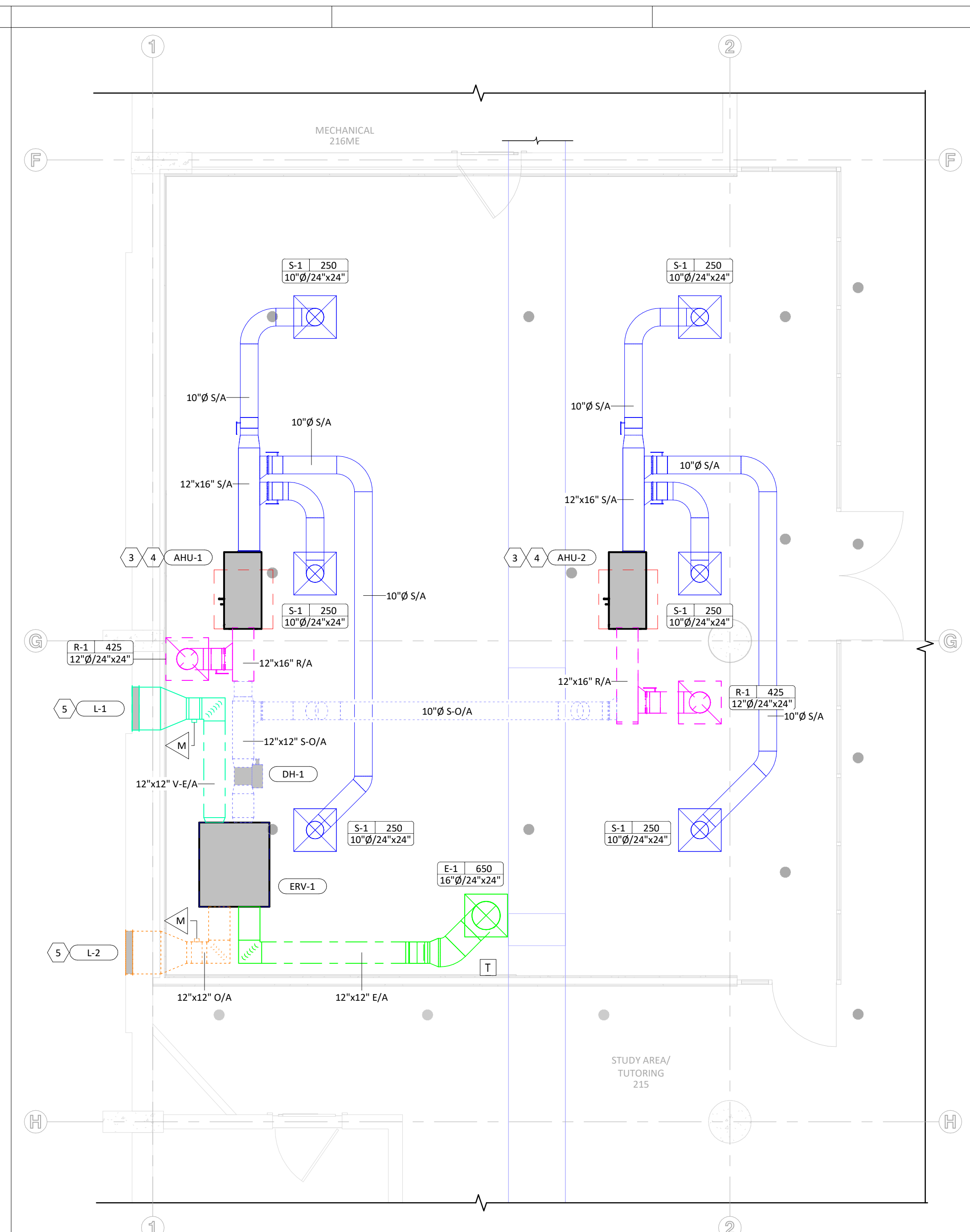
- CONTRACTOR SHALL LOCATE THERMOSTATS AND TEMPERATURE SENSORS AT 4'-0" AFF, A MAXIMUM OF 8" FROM LIGHT SWITCH.
• PROVIDE A 4" HOUSEKEEPING PAD FOR EACH PIECE OF MECHANICAL EQUIPMENT. COORDINATE SIZES WITH MECHANICAL EQUIPMENT SELECTED.
• ALL SUPPLY, RETURN, AND EXHAUST DUCTWORK SHALL BE RATED FOR PRESSURE CLASS OF 2" W.G. UNLESS NOTED OTHERWISE.
• THIS CONTRACTOR SHALL BE REQUIRED TO REPLACE FILTERS ON HVAC EQUIPMENT AFTER ALL DUST PRODUCING CONSTRUCTION HAS BEEN COMPLETED AND PRIOR TO THE FINAL PUNCH.

ABBREVIATIONS

Table of abbreviations including Ø ROUND, ABV ABOVE, AC AIR CONDITIONING, AD AREA DRAIN, ADD ADDENDUM, AFF ABOVE FINISHED FLOOR, AFUE ANNUAL FUEL UTILIZATION EFFICIENCY, ALT ALTERNATE, AP ACCESS PANEL, ARCH ARCHITECT/ARCHITECTURAL, BFF BELOW FINISHED FLOOR, BELOW BELOW, BTU BRITISH THERMAL UNITS, BTUH BRITISH THERMAL UNITS PER HOUR, CAP CAPACITY, CB CATCH BASIN, CFM CUBIC FEET PER MINUTE, CLG CEILING, CO CLEAN OUT, CW COLD WATER, D DEGREE, DB DRY BULB, DIA DIAMETER, DN DOWN, DW DISTILLED WATER, EA EACH, EAT ENTERING AIR TEMPERATURE, ELEC ELECTRICAL, EQUIP EQUIPMENT, EWC ELECTRIC WATER COOLER, EWT ENTERING WATER TEMPERATURE, E/A EXHAUST AIR, EXIST EXISTING, F DEGREES FAHRENHEIT, FCO FLOOR CLEAN OUT, FD FLOOR DRAIN, FD FLOOR DAMPER, FDV FIRE DEPARTMENT VALVE, FL FLOOR, FO FUEL OIL, FOV FUEL OIL VENT, FOR FUEL OIL RETURN, FOS FUEL OIL SUPPLY, FPM FEET PER MINUTE, FS FLOOR SINK, FT FOOT/FEET, FTR FIN TUBE RADIATION, GAL GALLON, GC GENERAL CONTRACTOR, GPM GALLONS PER MINUTE, GREASE GREASE WASTE, HB HOSE BIB, HP HORSE POWER, HTG HEATING, HTR HEATER, HW HOT WATER, HYD HYDRANT, ID INDIRECT, IN INCH, INV INVERT, LB POUND, LB/HR POUNDS PER HOUR, LAT LEAVING AIR TEMPERATURE, LP LOW PRESSURE, LPG LIQUEFIED PETROLEUM GAS, LVR LEAVING WATER TEMPERATURE, MIXED MIXED AIR, MAX MAXIMUM, MBH ONE THOUSAND BTU PER HOUR, MCF ONE THOUSAND CUBIC FEET, MD MOTORIZED DAMPER, MCH MECHANICAL, MFR MANUFACTURER, MIN MINIMUM, MISC MISCELLANEOUS, MTR MOTOR, M/U/A MAKE-UP AIR, NC NOISE CRITERIA, NC NORMALLY CLOSED, NIC NOT IN CONTRACT, NO NUMBER, NO NORMALLY OPEN, NTS NOT TO SCALE, O OXYGEN, O/A OUTSIDE AIR, ORD OVERFLOW ROOF DRAIN, PD PRESSURE DROP, PVI POST INDICATOR VALVE, PLGB PLUMBING, PRESS PRESSURE, PRV PRESSURE REDUCING VALVE, PSI POUNDS PER SQUARE INCH, PSIG POUNDS PER SQUARE INCH GAUGE, PWR POWER, R DUCT RISER, R/A RETURN AIR, RCP RADIANT CEILING PANEL, RD ROOF DRAIN, REC RECESSED, RED REDUCER, RH RELATIVE HUMIDITY, RL/A RELIEF AIR, RM ROOM, RPM REVOLUTIONS PER MINUTE, RW RAIN WATER, SF SQUARE FOOT, S/A SUPPLY AIR, SAN SANITARY, SF SQUARE FOOT, SMO SMOKE DAMPER, SM SURFACE MOUNT, SP STANDPIPE, SP STATIC PRESSURE, STM STEAM, T THERMOSTAT, TD TEMPERATURE DROP, TDR TRENCH DRAIN, TEMP TEMPERATURE, TYP TYPICAL, UG UNDERGROUND, VAC VACUUM, V VENT, VAV VARIABLE AIR VOLUME, VENT VENTILATION, VTR VENT THROUGH ROOF, W WASTE, WB WET BULB, WCO WALL CLEAN OUT, WH WALL HYDRANT



1 LEVEL 2 HVAC DEMOLITION PLAN
 1/4" = 1'-0"
 0 4' 8' 16'



2 LEVEL 2 HVAC PLAN
 1/4" = 1'-0"
 0 4' 8' 16'

- GENERAL NOTES - HVAC**
- ALL DUCT FITTINGS TO BE LOW STATIC, HIGH EFFICIENCY FITTINGS. ELBOWS TO BE MINIMUM 1.5D WITH MATCHING THROAT OR MITERED WITH TURNING VANES PER DETAIL 4/M-601. ROUND DUCT MAY BE REDUCED TO 1.0D IF REQUIRED BY SPACE CONSTRAINTS.
 - ALL DUCTWORK SHALL BE PROVIDED WITH INTERNAL LINER FOR SOUND ATTENUATION. DUCT SIZES ON DRAWINGS SHOW INTERNAL FREE AREA.
- KEYNOTES**
- 1 DEMOLISH EXISTING DIFFUSER AND ASSOCIATED BRANCH DUCT BACK TO MAIN. CAP AND SEAL AIR TIGHT.
 - 2 RELOCATE EXISTING RETURN GRILLES TO NEW LOCATION OUTSIDE OF NEW CLASSROOM TO MAINTAIN APPROPRIATE RETURN AIR PATH.
 - 3 ROUTE REFRIGERANT LINES FROM AIR HANDLER INTO THE MECHANICAL ROOM AND UP TO HEAT PUMP ON THE ROOF.
 - 4 ROUTE CONDENSATE LINES INTO MECHANICAL ROOM AND PROVIDE HUB DRAIN ON EXISTING CONDENSATE STACK FROM AIR HANDLER UNITS.
 - 5 REFER TO DETAIL 2/M-601 FOR FRESH AIR / EXHAUST LOUVER DETAIL.



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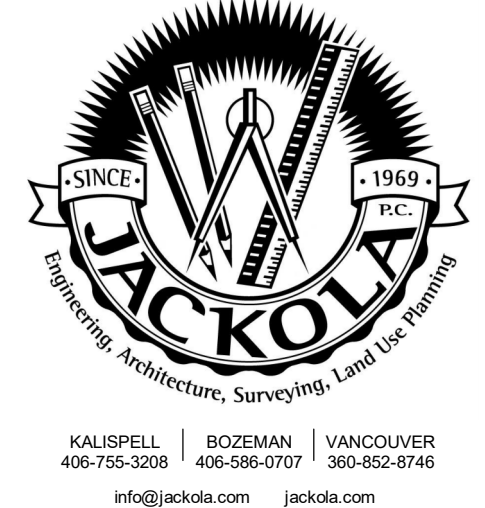
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**LEVEL 2 HVAC
 PLAN**

M-112

KEYNOTES
 1 REFER TO 1/M-601 FOR HEAT PUMP STAND DETAIL.
 2 REFER TO 3/M-601 FOR REFRIGERANT LINE PENETRATION DETAIL THROUGH THE ROOF.



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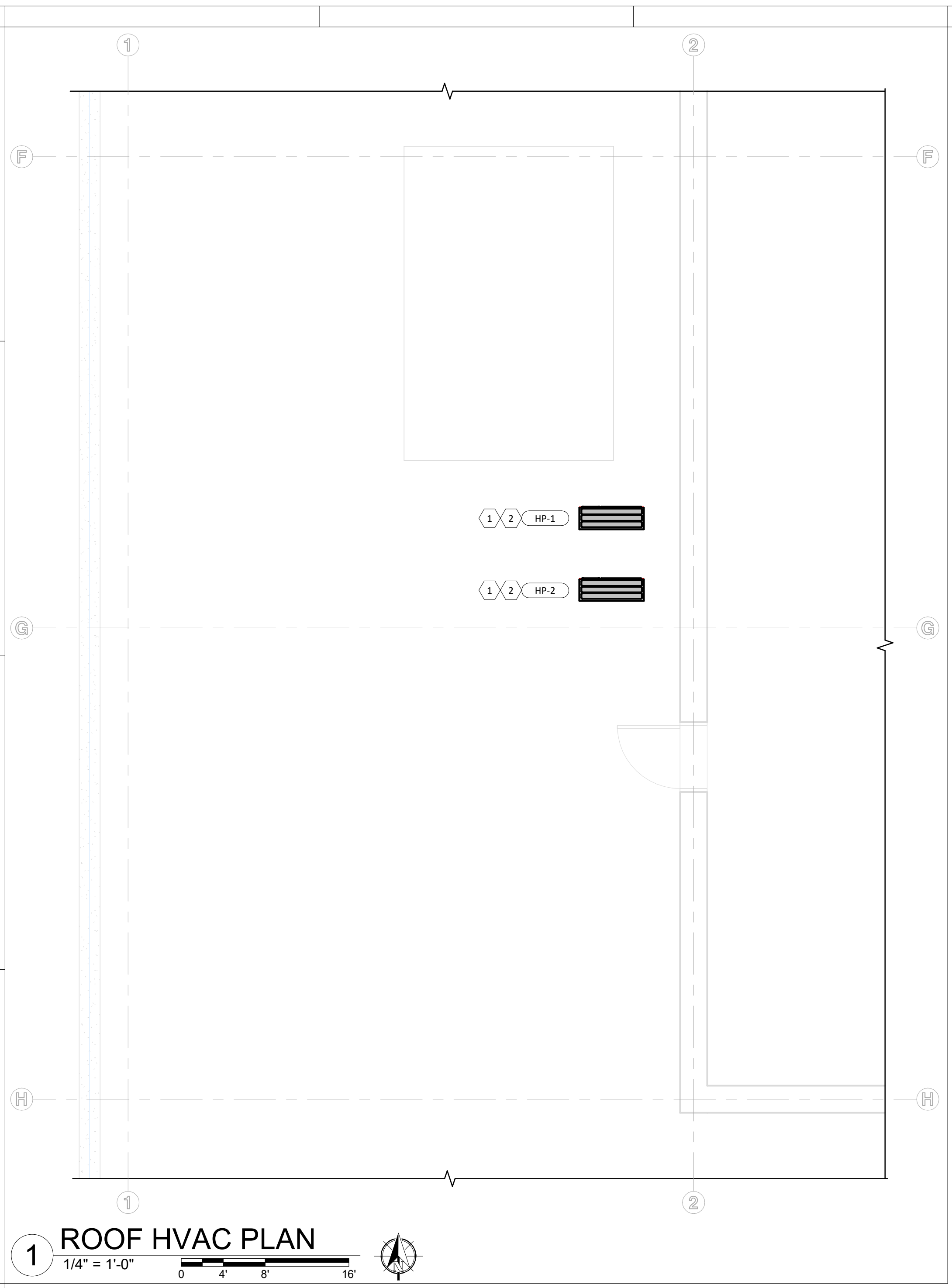
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DATE: 10/21/2025

REVISIONS:

ROOF HVAC PLAN

M-135



1 ROOF HVAC PLAN
 1/4" = 1'-0"
 0 4 8 16'

PROJECT #/Project Number

MINI-SPLIT AIR HANDLER UNIT SCHEDULE																														
TAG	DESCRIPTION	BASIS OF DESIGN		SYSTEM INTERLOCK	ARRANGEMENT	SUPPLY AIRFLOW	OUTSIDE AIRFLOW	FAN				EVAPORATOR COOLING COIL			CONDENSER HEATING COIL		HEATING ELEMENT		ACCESSORIES			FILTER	ELECTRICAL DATA							
		MANUFACTURER	MODEL NO.					HEAT PUMP	ESP	QTY	POWER	ECM	NOMINAL CAP	CAP @ DESIGN CONDITIONS		NOMINAL CAP	CAP @ DESIGN CONDITIONS	DESCRIPTION	POWER	CONDENSATE			AHU POWERED BY ODU	TYPE	UNIT WEIGHT	FLA	VOLT	PH	REMARKS	
														TOTAL	SENSIBLE					AUXILIARY DRAIN PAN	OVERFLOW SWITCH									PUMP
AHU-1	MULTI-POSITION AIR HANDLER UNIT	SAMSUNG	AC024BNZDCH/AA	HP-1	HORIZONTAL	750 CFM	325 CFM	0.58 in-wg	1	290.00 W	Yes	2 ton	22300 Btu/h	15800 Btu/h	27000 Btu/h	16200 Btu/h	ELECTRIC HEAT KIT	3 kW	Yes	Yes	Yes	MERV 8	110 lb	2.1 A	208 V	1	1			
AHU-2	MULTI-POSITION AIR HANDLER UNIT	SAMSUNG	AC024BNZDCH/AA	HP-2	HORIZONTAL	750 CFM	325 CFM	0.58 in-wg	1	290.00 W	Yes	2 ton	22300 Btu/h	15800 Btu/h	27000 Btu/h	16200 Btu/h	ELECTRIC HEAT KIT	3 kW	Yes	Yes	Yes	MERV 8	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	INDOOR UNIT	TYPE	COOLING				HEATING		COMPRESSOR		RATED OPERATING RANGE			ACCESSORIES			ELECTRICAL DATA								
		MANUFACTURER	MODEL NO.				NOMINAL CAP	CAP @ DESIGN CONDITIONS		NOMINAL CAP	CAP @ XX'F	TYPE	CHARGE	LOW AMBIENT KIT	HEATING	MIN	MAX	BASEPAN HEATER	HEAT PUMP STAND	SEER2	EER2	HSPF2	UNIT WEIGHT	FLA	MCA	MOCAP	VOLT	PH	REMARKS
								TOTAL	SENSIBLE																				
HP-1	HEAT PUMP	SAMSUNG	AC024BKADCH/AA	AHU-1	HEAT PUMP	2 ton	22300 Btu/h	15800 Btu/h	27000 Btu/h	16200 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	
HP-2	HEAT PUMP	SAMSUNG	AC024BKADCH/AA	AHU-2	HEAT PUMP	2 ton	22300 Btu/h	15800 Btu/h	27000 Btu/h	16200 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.

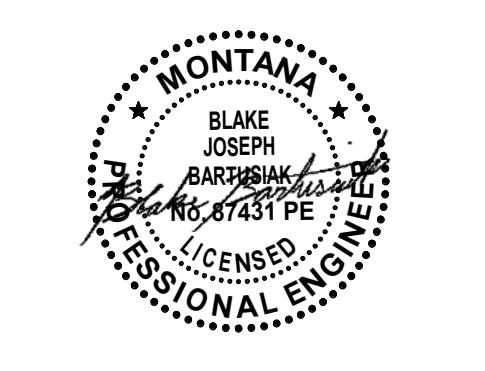
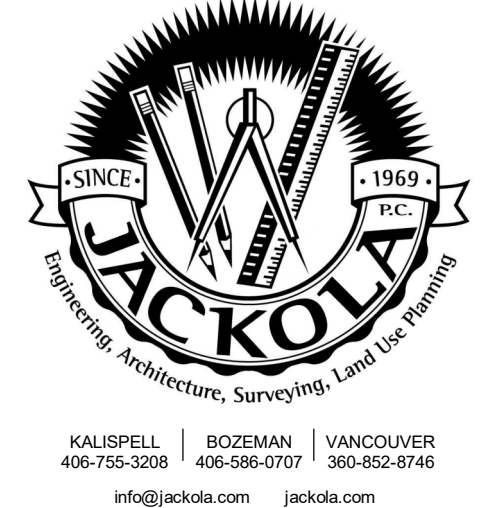
ENERGY RECOVERY UNIT SUMMARY SCHEDULE																												
TAG	DESCRIPTION	BASIS OF DESIGN		TYPE	SUPPLY FAN				EXHAUST FAN				SUMMER DESIGN ENERGY RECOVERY				WINTER DESIGN ENERGY RECOVERY				EFFICIENCIES	FILTER	ELECTRICAL DATA					
		MANUFACTURER	MODEL NO.		AIRFLOW DESIGN	PRESS ESP	AIRFLOW DESIGN	PRESS ESP	COOLING CAP	OUTSIDE AIR EAT(dB)	LAT(dB)	EXHAUST AIR EAT(dB)	CAP	EAT(dB)	OUTSIDE AIR LAT(dB)	FROST CONTROL	EXHAUST AIR EAT(dB)	EFFECTIVENESS TOTAL	TYPE	UNIT WEIGHT			FLA	MCA	MOCAP	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	1	1		

ELECTRIC DUCT COIL SCHEDULE																							
TAG	DESCRIPTION	BASIS OF DESIGN		HEATING COIL				HEATING ELEMENT				DUCT SIZE			ELECTRICAL DATA								
		MANUFACTURER	MODEL NO.	DESIGN FLOW	EAT(dB)	LAT(dB)	QTY	POWER	SCR	WIDTH	HEIGHT	DIA.	UNIT WEIGHT	FLA	MOCAP	VOLT	PH	REMARKS					
																			EM-WC1025H <th>650 CFM <th>37.4 F <th>77.8 F <th>1 <th>9.6 kW <th>Yes <th>14" <th>115 lb <th>40.0 A <th>50 A <th>240 V <th>1 <th>1 </th></th></th></th></th></th></th></th></th></th></th></th></th>	650 CFM <th>37.4 F <th>77.8 F <th>1 <th>9.6 kW <th>Yes <th>14" <th>115 lb <th>40.0 A <th>50 A <th>240 V <th>1 <th>1 </th></th></th></th></th></th></th></th></th></th></th></th>	37.4 F <th>77.8 F <th>1 <th>9.6 kW <th>Yes <th>14" <th>115 lb <th>40.0 A <th>50 A <th>240 V <th>1 <th>1 </th></th></th></th></th></th></th></th></th></th></th>	77.8 F <th>1 <th>9.6 kW <th>Yes <th>14" <th>115 lb <th>40.0 A <th>50 A <th>240 V <th>1 <th>1 </th></th></th></th></th></th></th></th></th></th>	1 <th>9.6 kW <th>Yes <th>14" <th>115 lb <th>40.0 A <th>50 A <th>240 V <th>1 <th>1 </th></th></th></th></th></th></th></th></th>
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	1							

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

INTERIOR AIR INLETS & OUTLETS SCHEDULE																							
TAG	DESCRIPTION	BASIS OF DESIGN		FINISH	FACE SIZE	NECK SIZE	INSTALLATION			REMARKS													
		MANUFACTURER	MODEL NO.				BORDER TYPE	DAMPER															
									TITUS		PAR	WHITE ENAMEL	24"x24"	16"Ø	TYPE 3 (LAY-IN)	---							
E-1L	PERFORATED DIFFUSER STEEL	TITUS	PAR	WHITE ENAMEL	24"x24"	16"Ø	TYPE 3 (LAY-IN)	---															
R-1L	PERFORATED DIFFUSER STEEL	TITUS	PAR	WHITE ENAMEL	24"x24"	12"Ø	TYPE 3 (LAY-IN)	---															
S-1L	PLAQUE FACE DIFFUSER	TITUS	OMNI	WHITE ENAMEL	24"x24"	6"Ø	TYPE 3 (LAY-IN)	---															
S-1L	PLAQUE FACE DIFFUSER	TITUS	OMNI	WHITE ENAMEL	24"x24"	10"Ø	TYPE 3 (LAY-IN)	---															

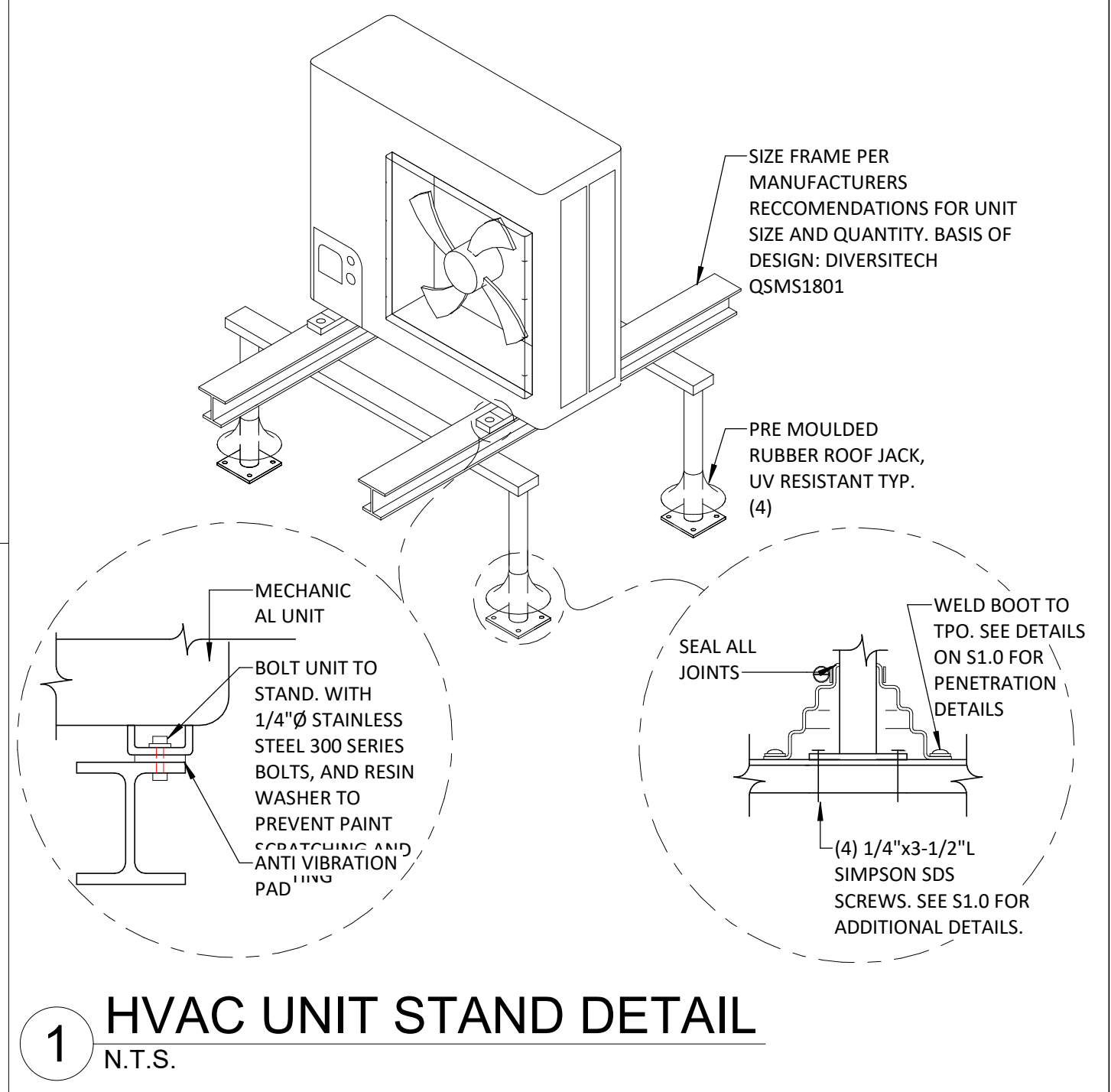
CONTROLS SEQUENCE:
SPLIT SYSTEM FURNACES (AHU-1/HP-1, AHU-2/HP-2)
 A. AIR HANDLING UNIT TO BE CONTROLLED BY RESPECTIVE THERMOSTATS AND OCCUPANCY SCHEDULE.
 B. SYSTEM CAN BE TURNED ONE BASED ON OVERRIDE COMMAND FROM RESPECTIVE THERMOSTAT.
 C. DURING OCCUPIED OPERATION THE SPACE TEMPERATURE SETPOINT IN HEATING SHALL BE 70 F AND 75 F IN COOLING.
 D. DURING UNOCCUPIED OPERATION THE SPACE TEMPERATURE SETPOINT IN HEATING SHALL BE 60 F AND 80 F SETPOINT IN COOLING.
 E. SETPOINTS SHALL BE ADJUSTABLE.
TEMPERATURE CONTROL:
 A. THE SPACE TEMPERATURE SENSOR SIGNALS HEATING/COOLING DEMAND.
 B. COOLING MODE:
 a. COOLING IS ENABLED WHEN THE SPACE TEMPERATURE RISES ABOVE THE COOLING SETPOINT. COOLING IS DISABLED WHEN THE MODE ENABLE TEMPERATURE RISES BELOW THE COOLING SETPOINT. THE SETPOINT IS ADJUSTABLE.
 b. ONCE IN THE COOLING MODE THE UNIT WILL STAGE COOLING TO MAINTAIN THE SPACE TEMPERATURE.
 C. HEATING MODE:
 a. HEATING IS ENABLED WHEN THE SPACE TEMPERATURE FALLS BELOW THE HEATING SETPOINT. HEATING IS DISABLED WHEN THE MODE ENABLE TEMPERATURE RISES ABOVE HEATING SETPOINT. THE SETPOINT IS ADJUSTABLE.
 b. ONCE IN THE HEATING MODE THE UNIT WILL STAGE HEAT TO MAINTAIN THE SPACE TEMPERATURE.
 c. ELECTRIC HEAT KIT TO MODULATE ELECTRIC HEAT TO MAINTAIN THE SPACE TEMPERATURE WHEN THE OUTSIDE AIR TEMPERATURE IS BELOW 40 DEGREES.
OPTIMAL START:
 A. THE OCCUPANCY SCHEDULE SHALL BE SET TO MEETING SPACE SETPOINT BY THE ACTUAL OCCUPIED TIME.
VENTILATION MODE:
 A. WHEN SPACE TEMPERATURE SETPOINT IS SATISFIED, AND IN OCCUPIED MODE, THE FAN SHALL OPERATE AT DESIGN SPEED TO PROVIDE TEMPERED/UNTEMPERED VENTILATION AIR TO THE SPACE.
ENERGY RECOVERY VENTILATOR (ERV-1)
 A. ERV SHALL BE CONTROLLED BY OCCUPANCY SCHEDULE.
 B. ERV SHALL RUN CONTINUOUSLY DURING OCCUPIES HOURS TO PROVIDE VENTILATION AIR TO SPACE.
TEMPERATURE CONTROL:
 A. ERV UNIT SHALL HAVE DISCHARGE AIR TEMPERATURE CONTROL BY MEANS OF ELECTRIC DUCT HEATER DH-1 TO MAINTAIN 60 DEGREE DISCHARGE AIR TEMPERATURE WHEN THE INCOMING OUTSIDE AIR TEMPERATURE IS BELOW 60 DEGREES.
 B. 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.



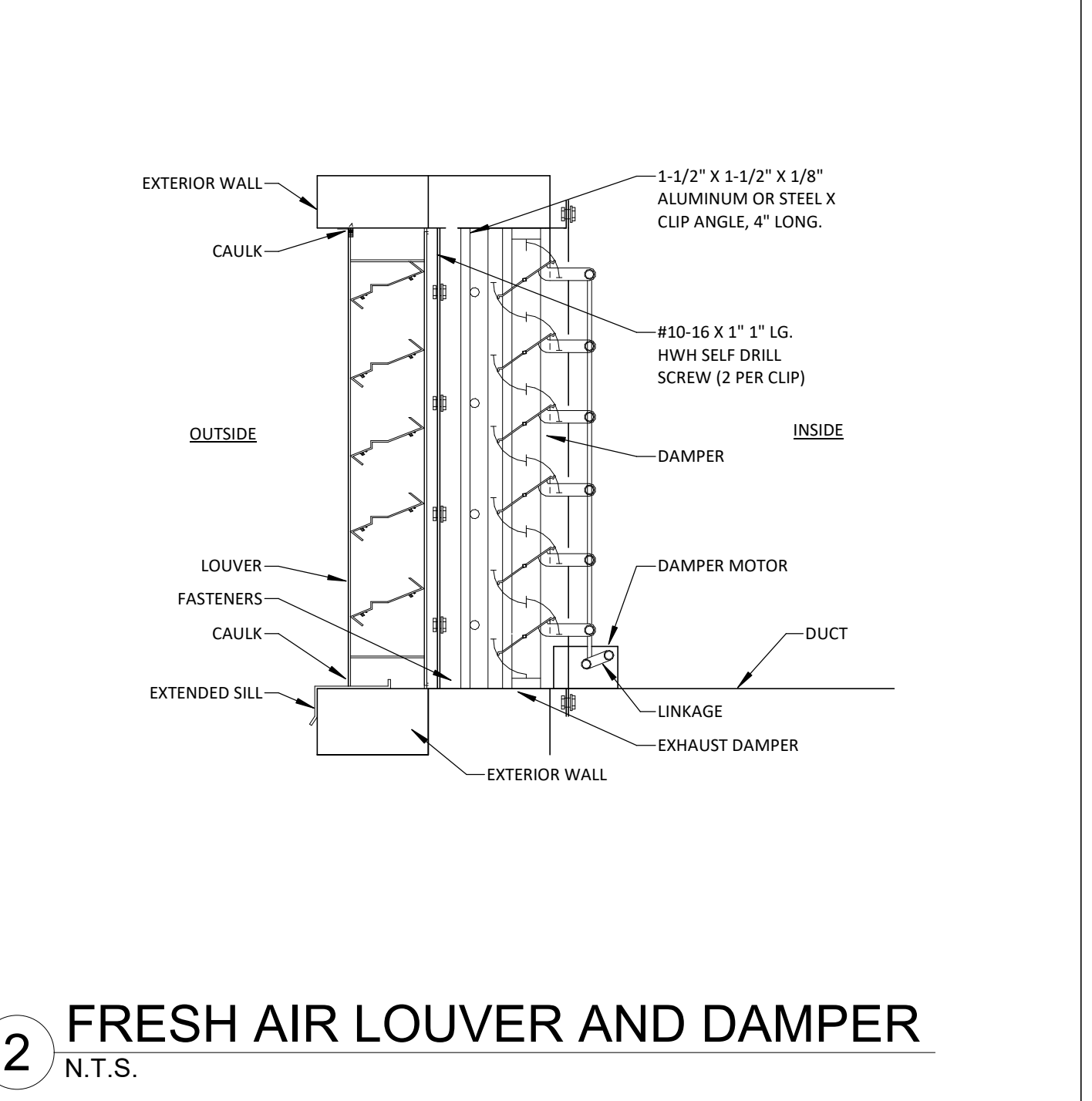
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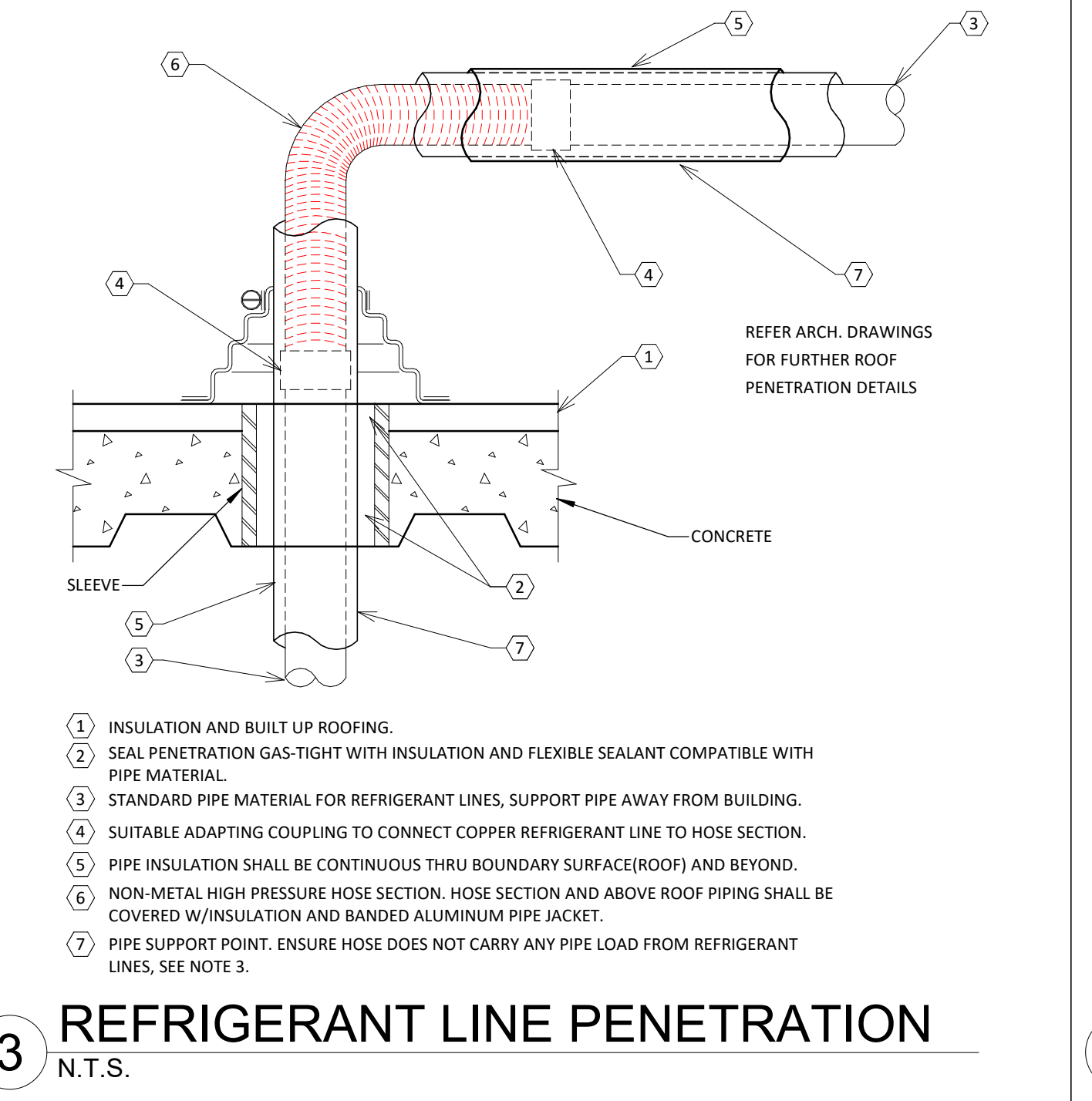
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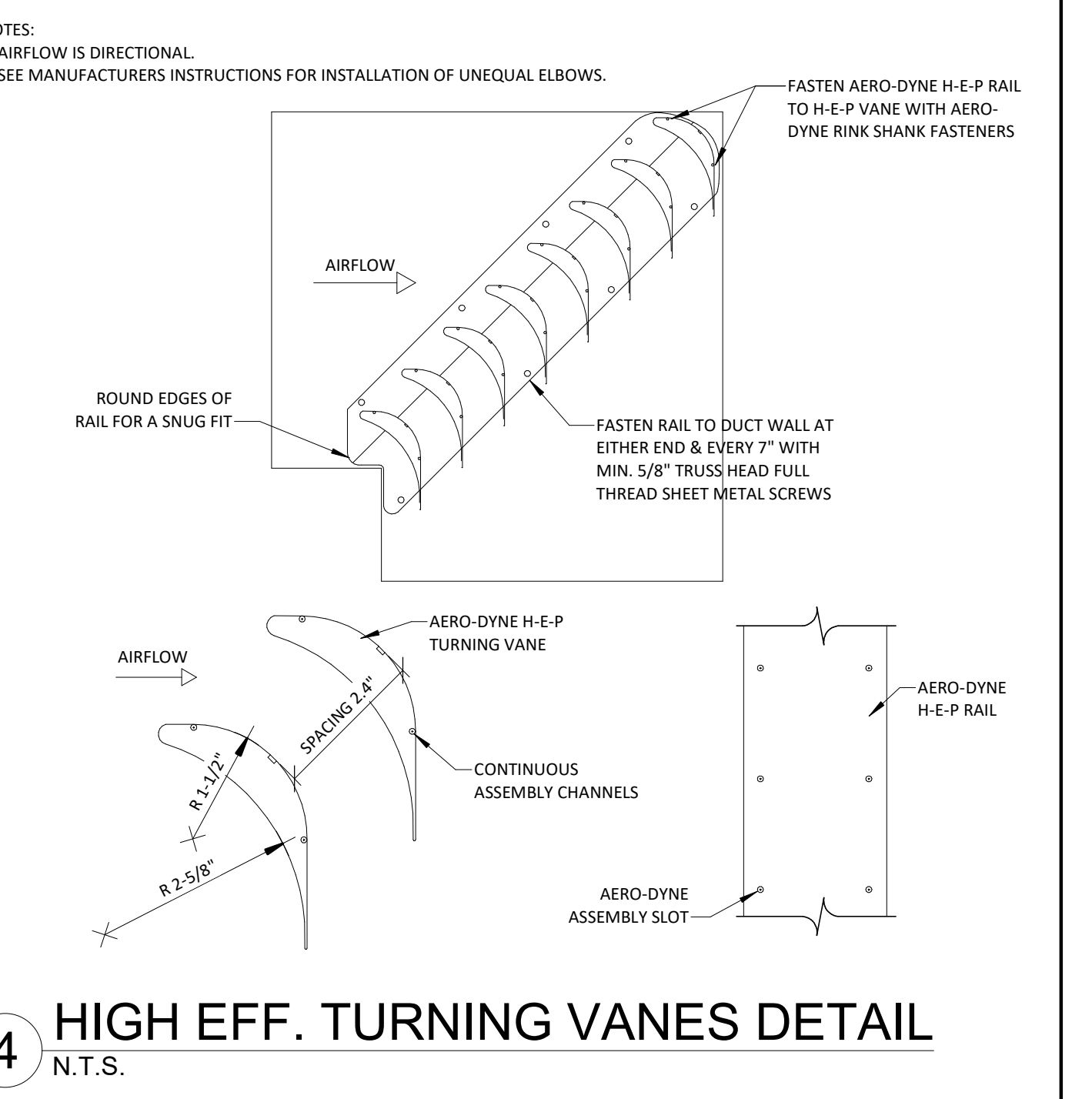
1 HVAC UNIT STAND DETAIL
N.T.S.



2 FRESH AIR LOUVER AND DAMPER
N.T.S.



3 REFRIGERANT LINE PENETRATION
N.T.S.



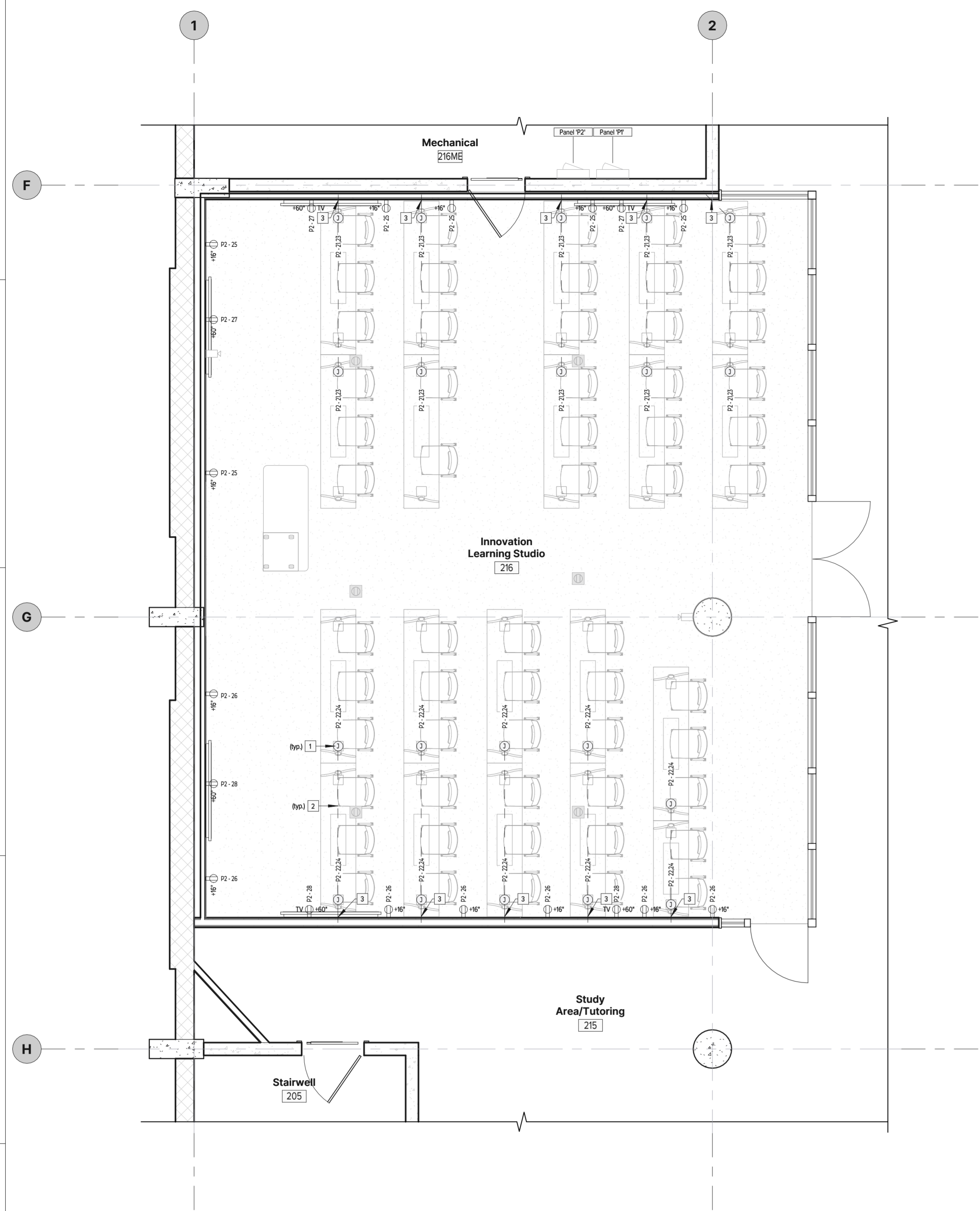
4 HIGH EFF. TURNING VANES DETAIL
N.T.S.

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REVISIONS:

MECHANICAL SCHEDULES

M-601



1 Second Floor Electrical Plan
1/4" = 1'-0"

- Reference Keynotes
1. PVC stub into stationary table leg. Reference furniture drawings for exact dimensions.
 2. 3/4" PVC conduit in trench. Cutting and backfill by others.
 3. Route conduit to recessed junction box in wall at 1'-6" AFF.



CONSTRUCTION DOCUMENTS

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ELECTRICAL PLANS

E101

- Reference Keynotes
1. Connect to existing 120V, 20A, unswitched normal power lighting circuit serving this area.

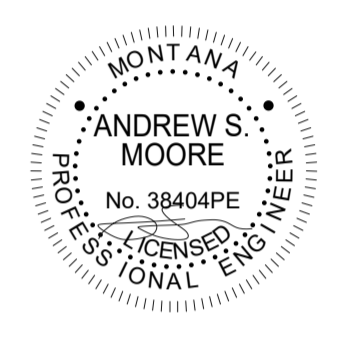


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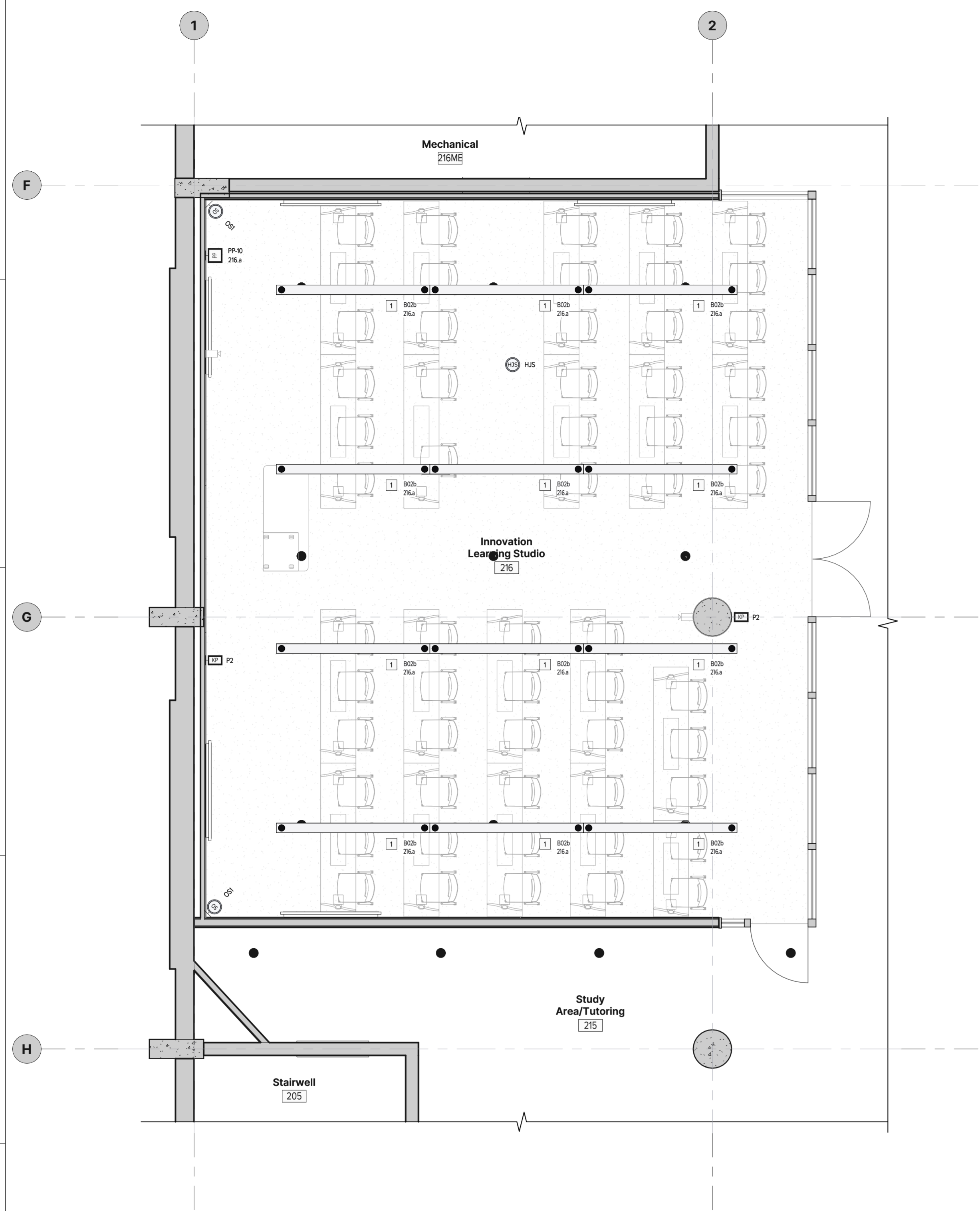
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REVISIONS:

LIGHTING PLANS

EL101



1 Second Floor Lighting Plan
 1/4" = 1'-0"

PROJECT #/Project Number

Luminaires									
Type	Description	Manufacturer	Model	CCT	CRI	Dimming	Load	Lumens	Note
B02b	Suspended Linear 8'	JESCO	LINSL-DI-96-80W-DSWI-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-QCR2B-P		1, 2, 3, 4, 5
PP-10	Vive PowPak 0-10V Dimming Module	Lutron	RMJS-8TN-DV-B		1, 2, 3, 4

- Notes:**
- EC to install a complete working system.
 - EC to provide startup, commissioning, and training services for lighting control system.
 - Refer to specifications for additional control system requirements.
 - EC to install Vive lighting control equipment according to plans to ensure the best connectivity to wireless control devices.
 - 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.

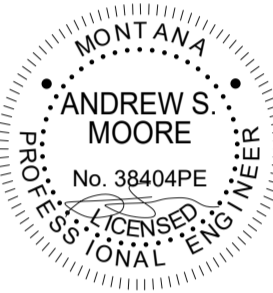


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#	REVISIONS:

LUMINAIRES & LIGHTING EQUIPMENT SCHEDULES

EL602

PROJECT #/Project Number

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

J-Hook Sizing		
B-Line Series J-Hooks	Maximum Number of Cables	
Part Number	Size	Commscope Cable UN884019304/10 (.285" Diam.)
BCH21	1-5/16"	(12) Cat6A
BCH32	2"	(20) Cat6A
BCH64	4"	(92) Cat6A

Cabletray Sizing		
Flextray Series	Maximum Number of Cables	
Part Number	Size	Commscope Cable UN884019304/10 (.285" Diam.)
FT4X4	4" x 4"	(100) Cat6A
FT4X8	4" x 8"	(200) Cat6A
FT4X12	4" x 12"	(300) Cat6A
FT4X18	4" x 18"	(451) Cat6A
FT4X24	4" x 24"	(601) Cat6A

Cabletray Load Capacity		Support Span / Load Capacity (Lbs/Ft Max.)			
Flextray Series	Size	5'-0"	6'-0"	7'-0"	8'-0"
FT4X4	4" x 4"	58	49	42	36
FT4X8	4" x 8"	94	78	61	47
FT4X12	4" x 12"	119	83	61	47
FT4X18	4" x 18"	119	83	61	47
FT4X24	4" x 24"	128	89	65	50

Technology Responsibility Matrix				
Equipment	Description	Qty.	Furnished By	Installed By
AV = University Audio/Video Department UIT = University IT Department GC = General Contractor or Subcontractor				
Audio/Visual and Control Equipment, Mounts and Accessories				
Blamp Parle TCM-X - White	AVB Low-Profile Ceiling Microphone, White	2	AV	AV
Blamp Parle TCM-XEX - White	AVB Low-Profile Ceiling Extension Microphone, White	2	AV	AV
Blamp TB-1	Parle Ceiling Microphone Tile Bridge	4	AV	AV
Blamp TesiraCONNECT TC-5	5-Port Expansion Device	1	AV	AV
Blamp 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 60-1662-13	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 EPR8A50600-000	Newline Wall Mount	4	AV	GC
Newline TT-75240P	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

AV Equipment Rack, Accessories and Intereconnect Cabling				
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 Cabling	AV System Cabling from Device to Device	1	AV	AV

Cabling - IT; Wiring to Telecommunications Rooms				
UIT Cabling	University IT Category Cabling to TR	1	UIT	UIT

Cabling - IT; Wiring within Telecommunication Rooms, Category Cabling, Patch Cables, Power Cables, Etc.				
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" Dpth w/ 12 Knockouts	5	GC	GC
Raco 843	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" Sleeve	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 1-1933674-3	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

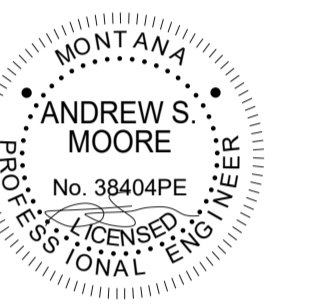


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602 W. Henlock | Bozeman, MT 59715
blacksheepengineering | 406.312.5714

CONSTRUCTION DOCUMENTS

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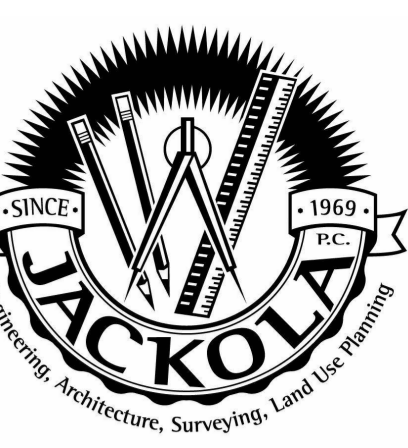
DRAWN: Author CHECKED: Checker

DATE: 10/20/2025

REVISIONS:

TECHNOLOGY INFORMATION

T001



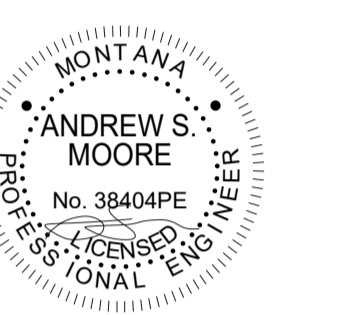
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TECHNOLOGY PLANS

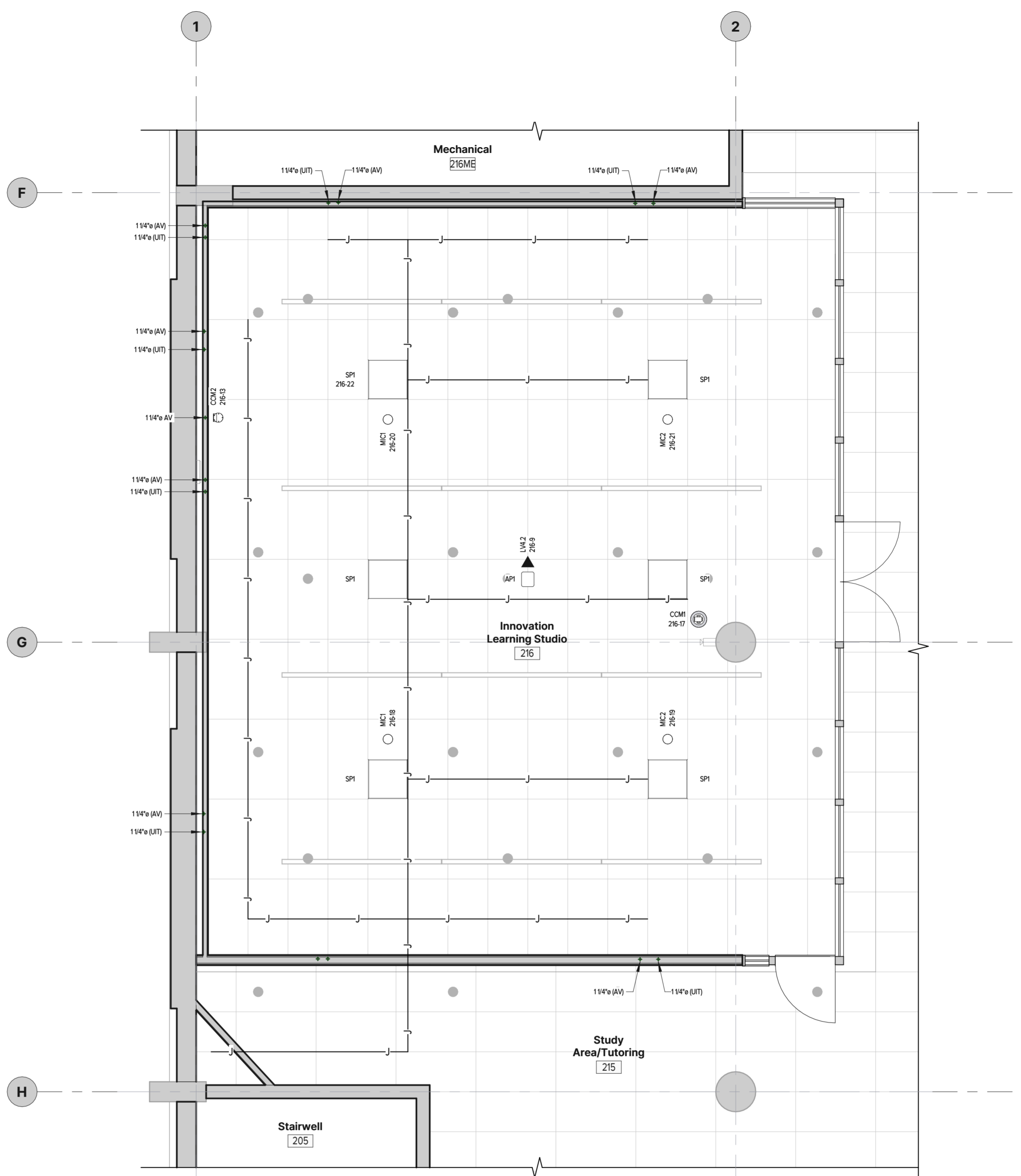
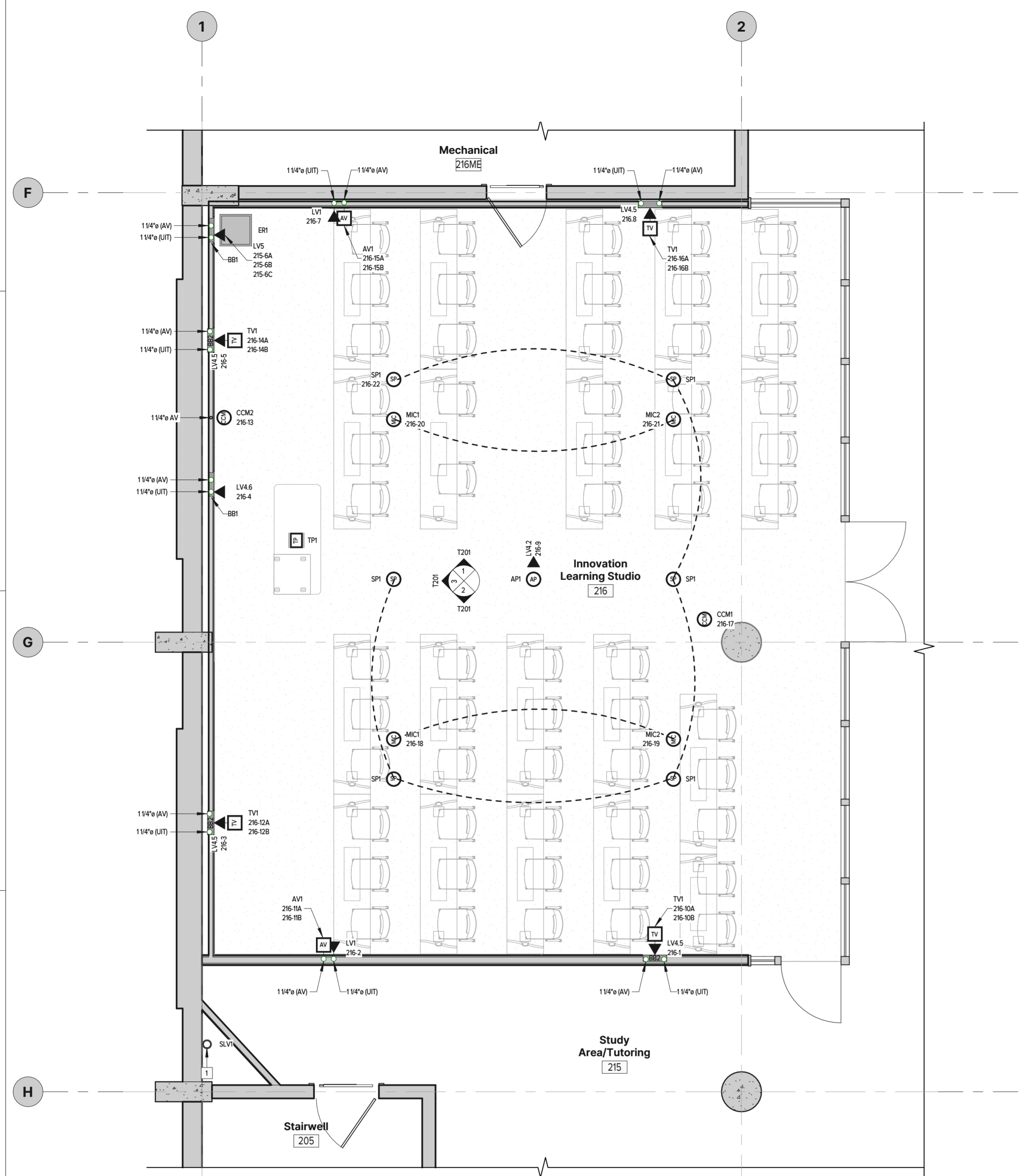
T101

Sheet Notes

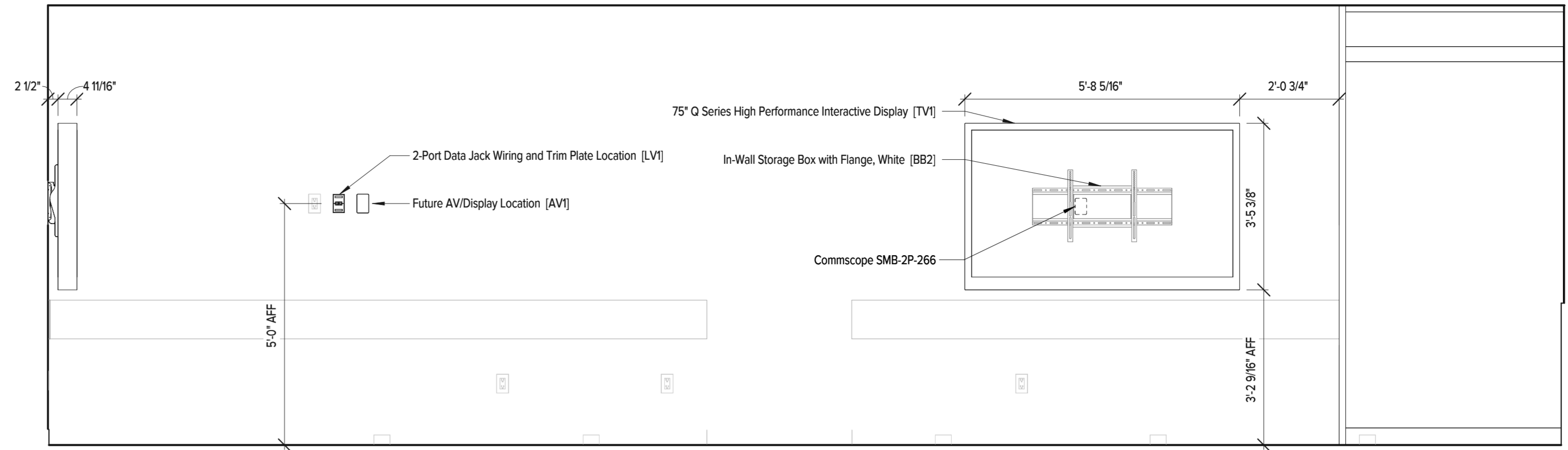
- All AV equipment locations to be finalized with MSU AV before installation.

Reference Keynotes

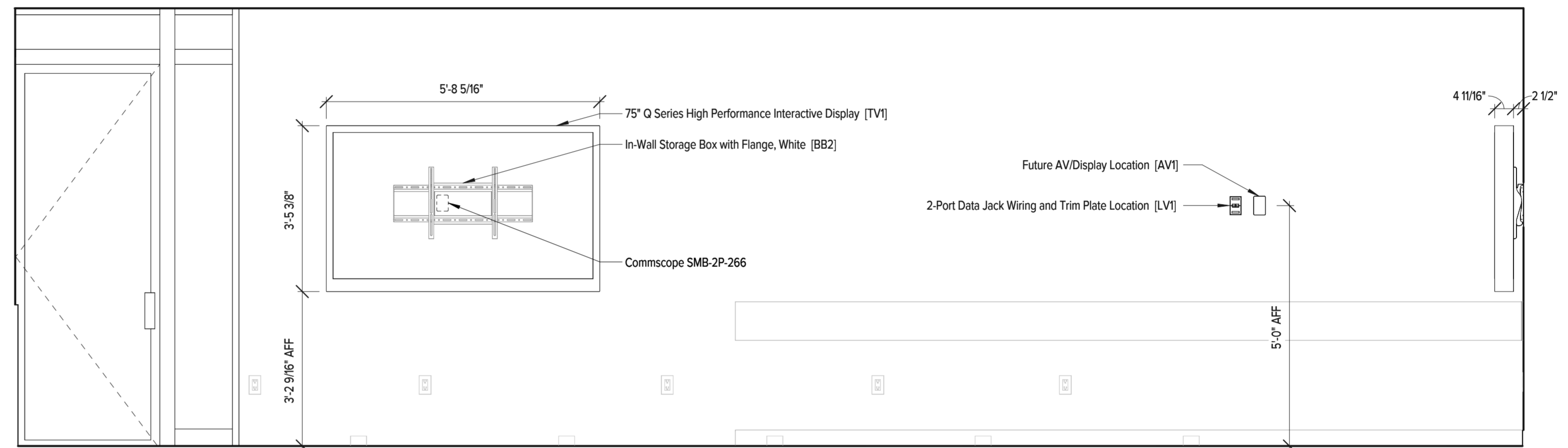
- Final 4" Sleeve and penetration location to be determined on site.



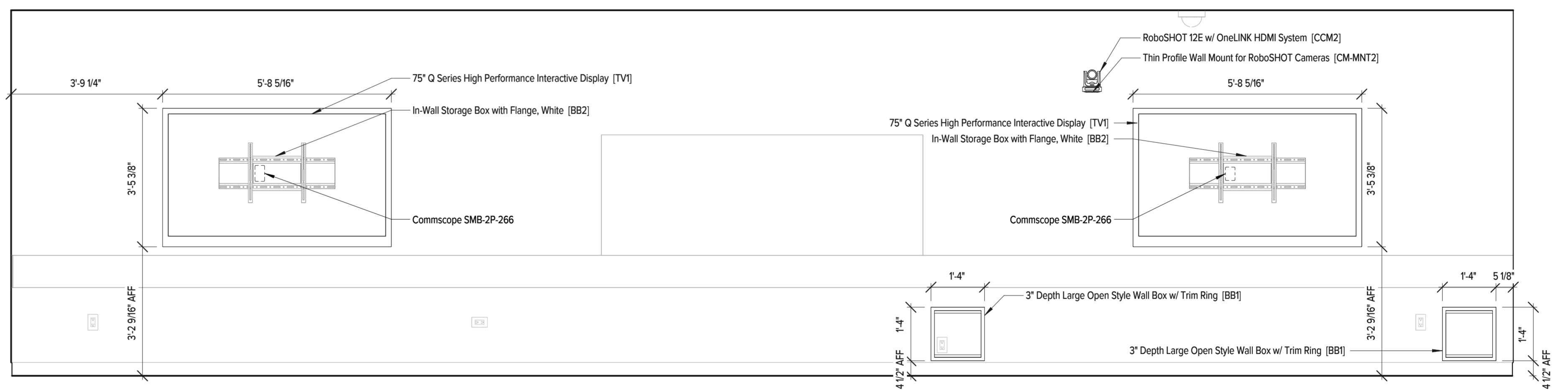
PROJECT #/Project Number



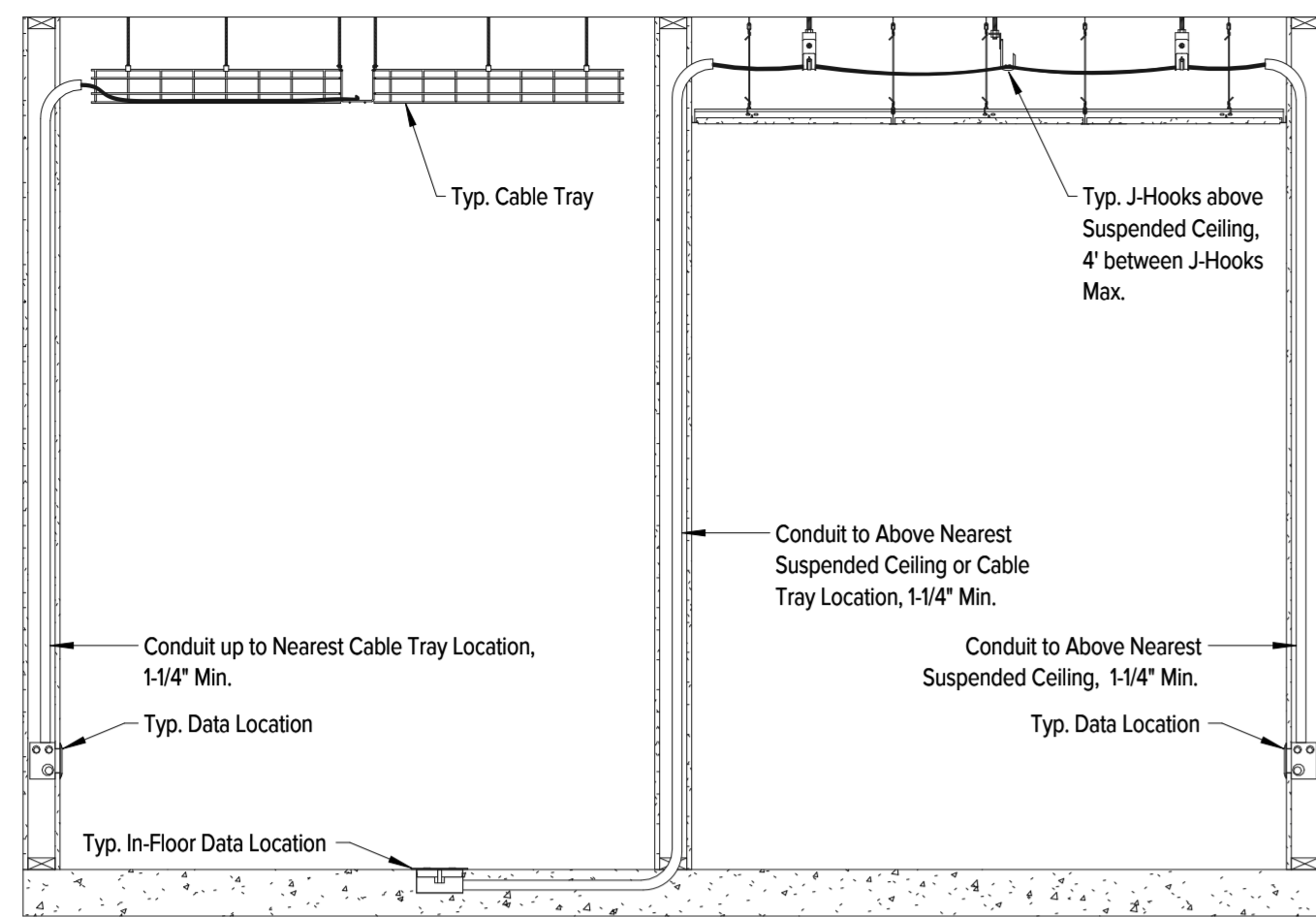
1 Innovation Learning Studio 216 North Elevation
1/2" = 1'-0"



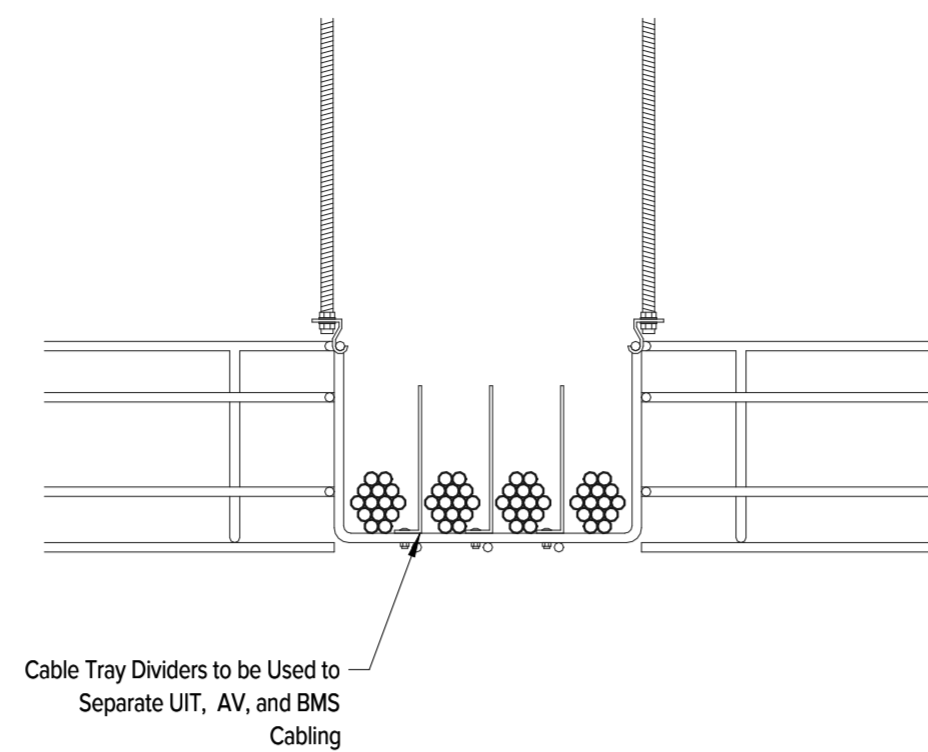
2 Innovation Learning Studio 216 South Elevation
1/2" = 1'-0"



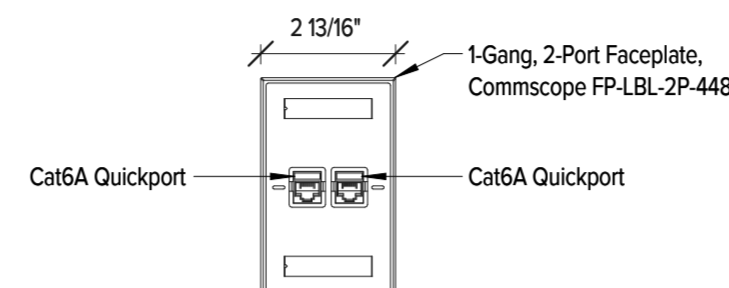
3 Innovation Learning Studio 216 West Elevation
1/2" = 1'-0"



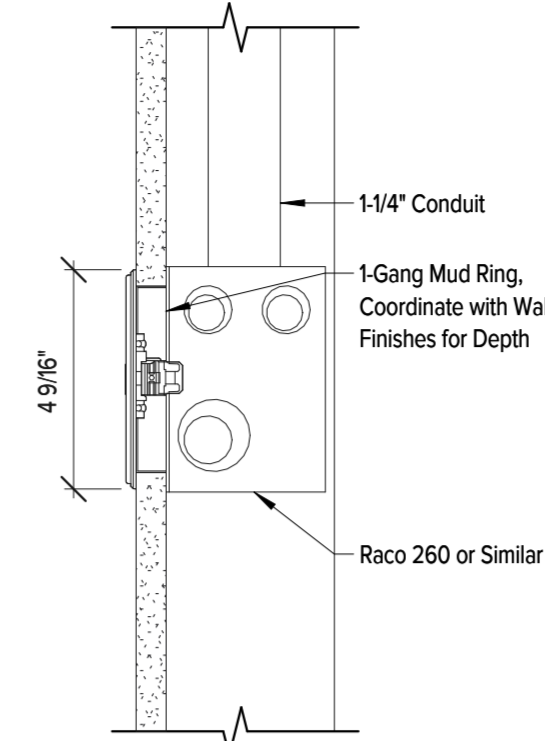
1 **Typ. Infrastructure Cabling Support Hardware**
1/2" = 1'-0"



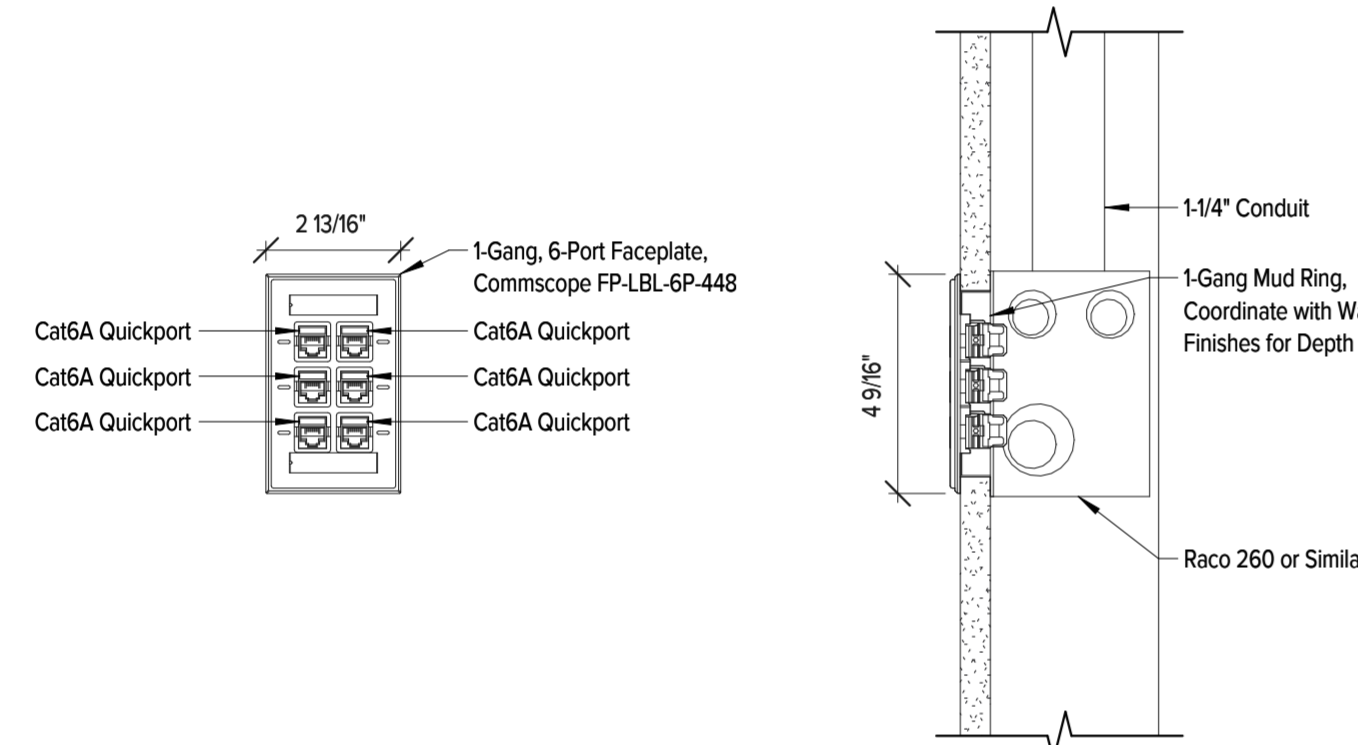
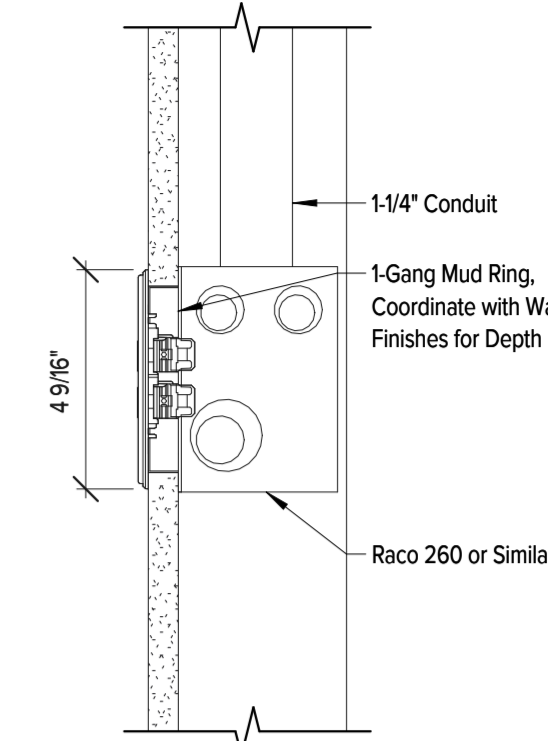
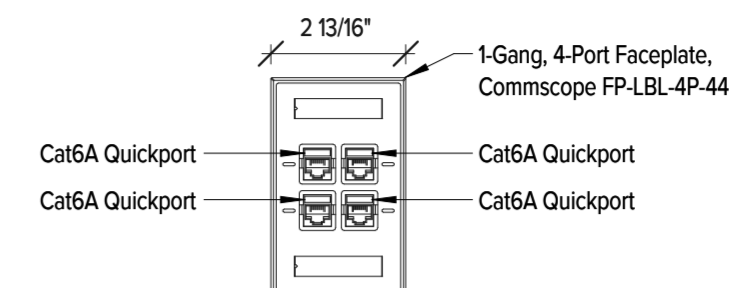
2 **Typ. Cable Tray Section**
3" = 1'-0"



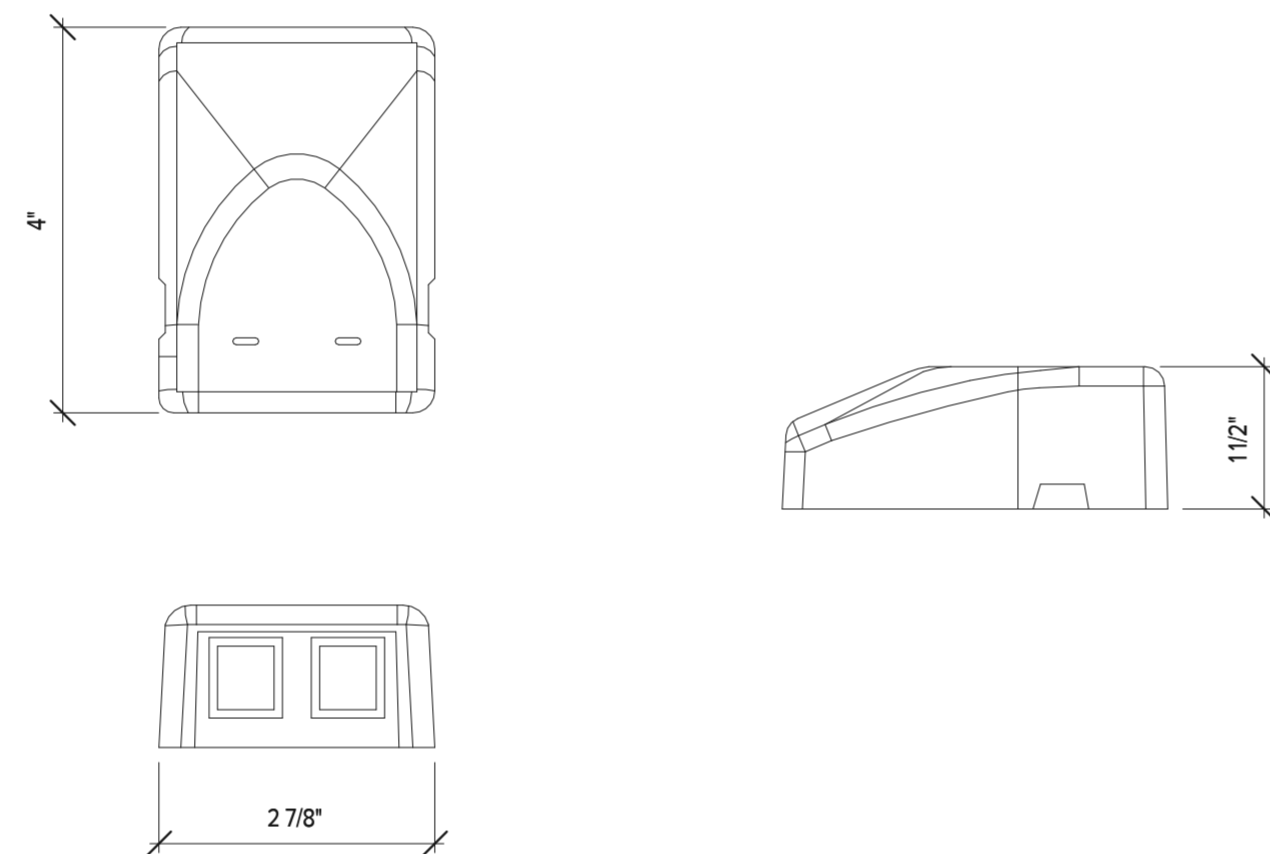
3 **Typ. 2-Port Data Trim Plate [LV1]**
3" = 1'-0"



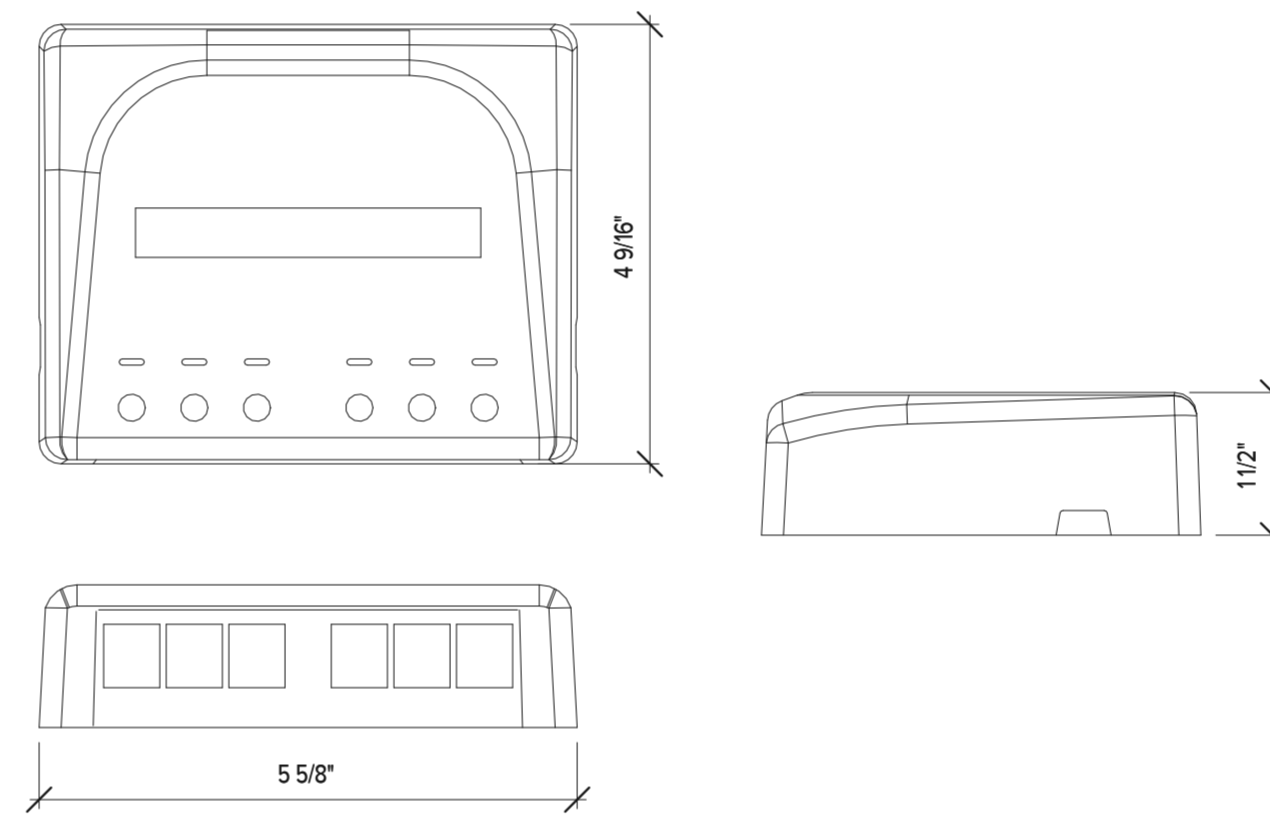
4 **Typ. 4-Port Data Trim Plate [LV2]**
3" = 1'-0"



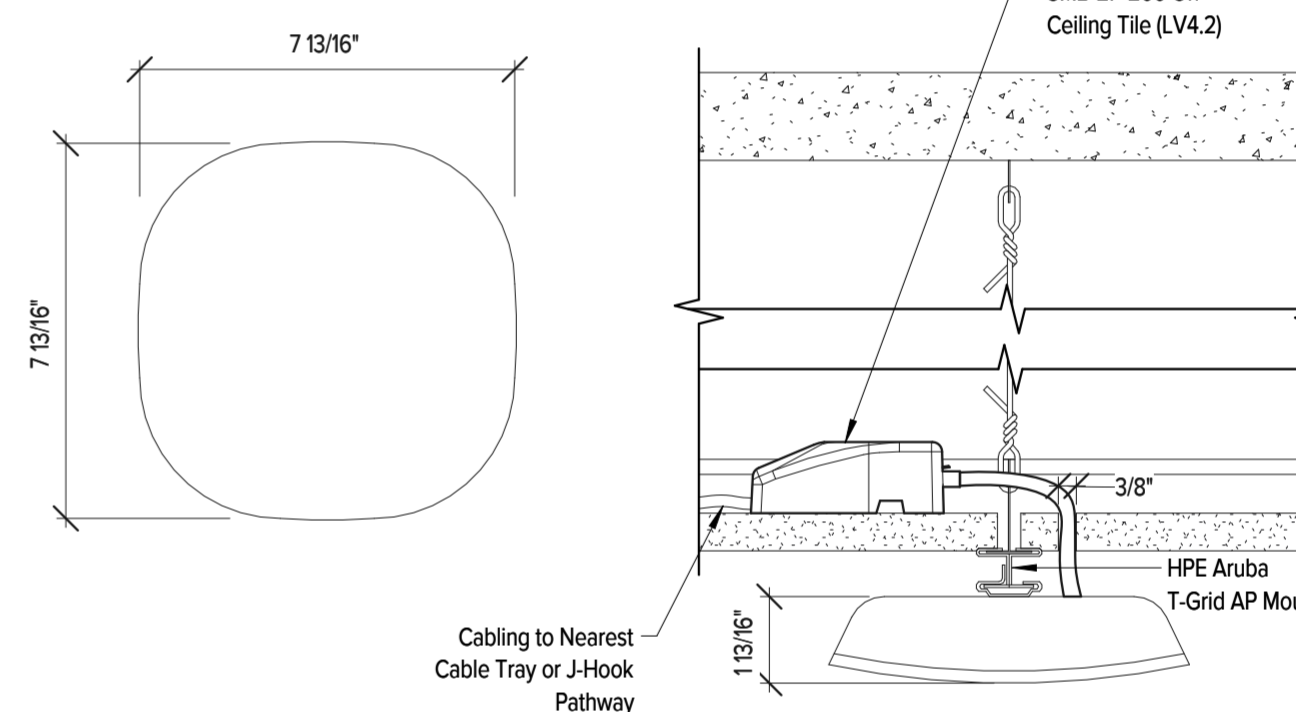
5 **Typ. 6-Port Data Trim Plate [LV3.1]**
3" = 1'-0"



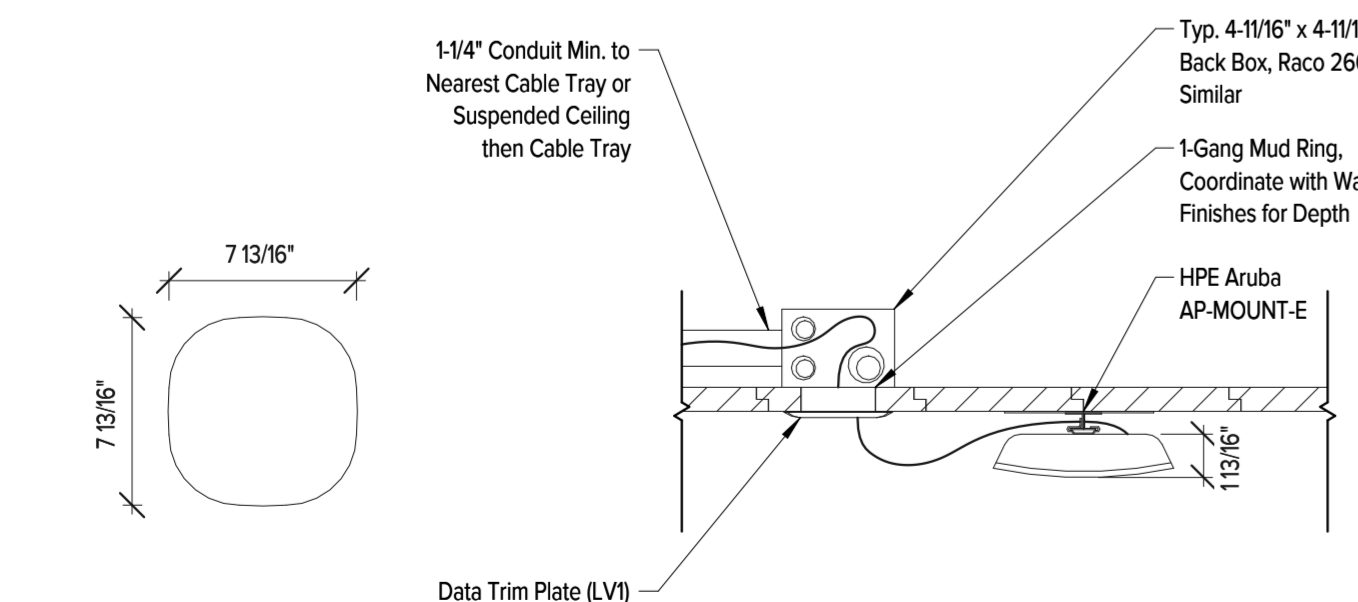
7 **Typ. Commscope SMB-2P-266 [LV4.1]**
6" = 1'-0"



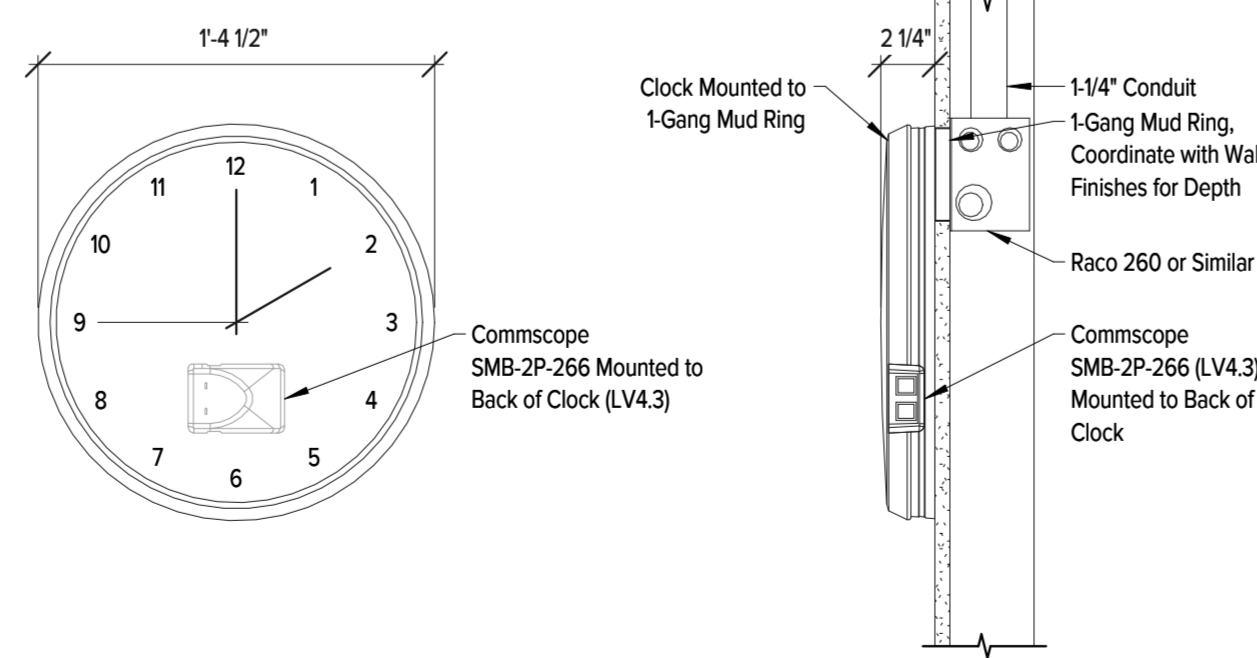
6 **Typ. Commscope 1-1933674-3 [LV5]**
6" = 1'-0"



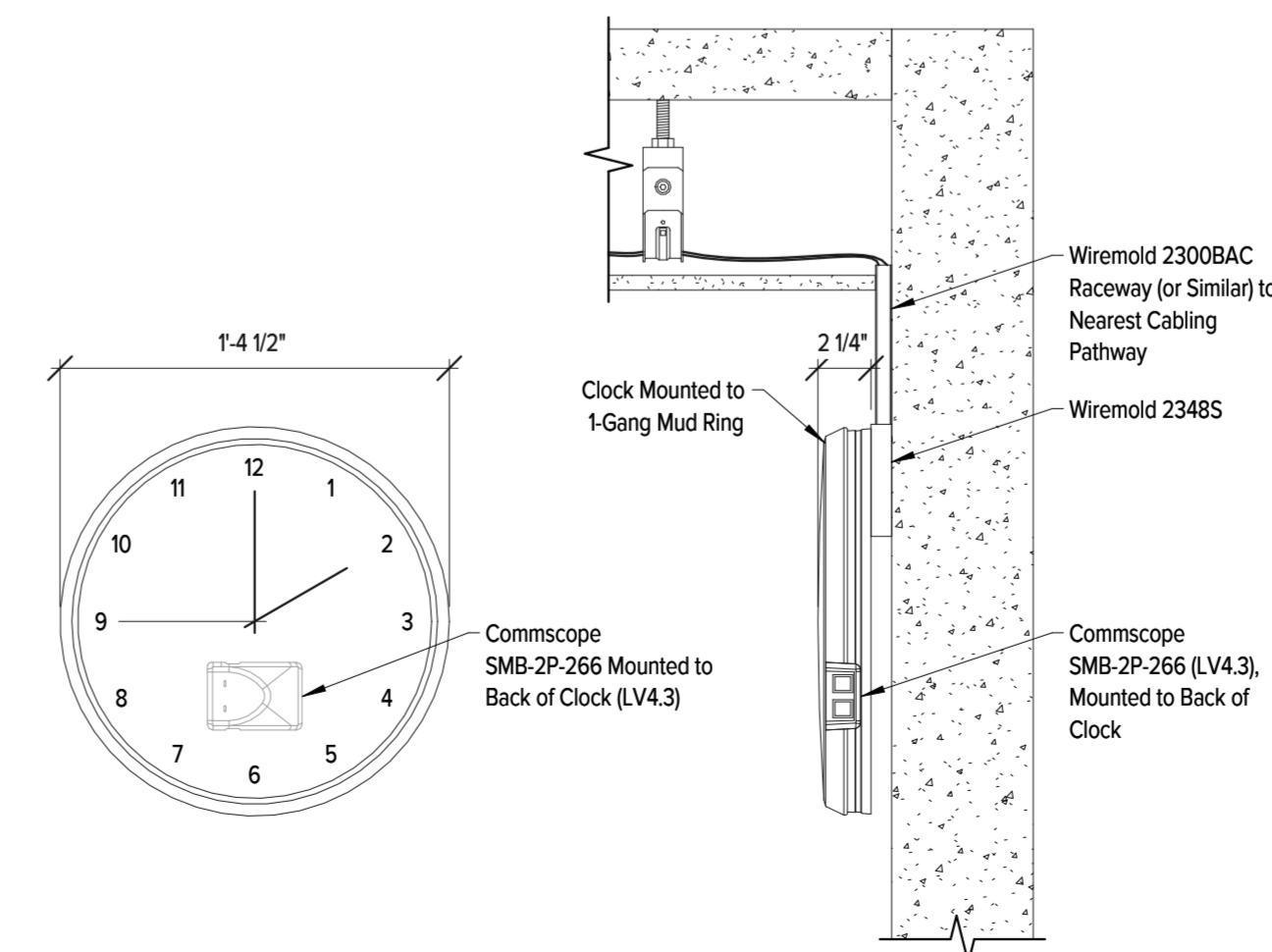
8 **Typ. Ceiling Mounted Interior Access Point [AP1 & LV4.2]**
3" = 1'-0"



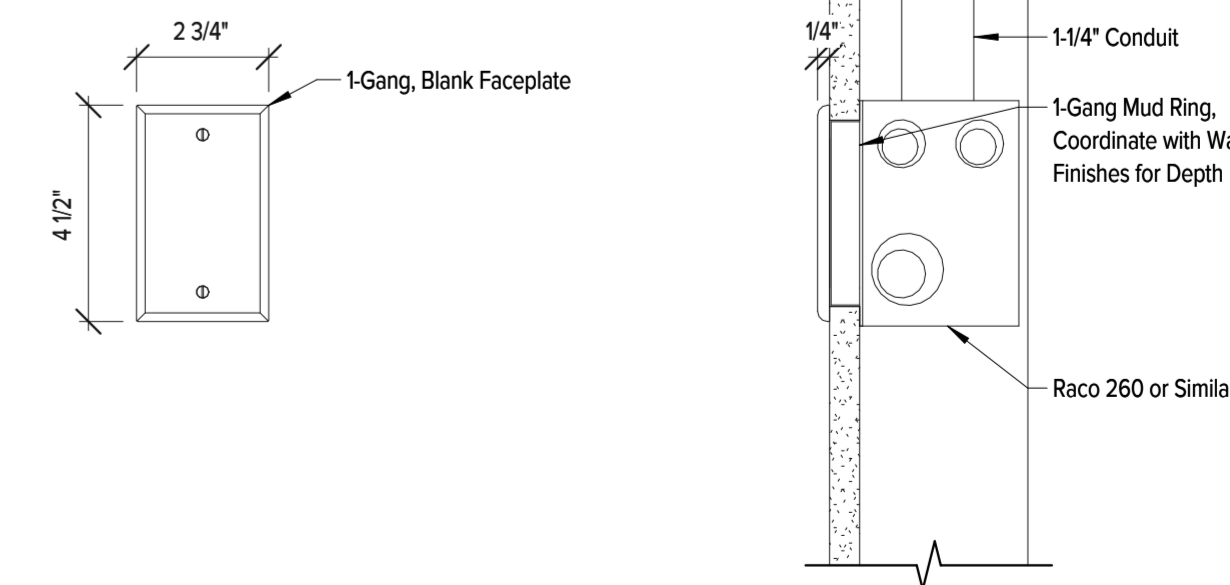
9 **Typ. Ceiling Mounted Interior Access Point [AP2]**
1 1/2" = 1'-0"



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"

Technology Devices				
Manufacturer	Model	Description	Qty.	Type
Audio				
Extron	60-1449-01	Mono 70/100V Amplifier, 60W	1	AMP1
Blamp	TesiraFORTE AVB VT4	Digital Audio Server	1	AVB1
Blamp	TesiraCONNECT TC-S	5-Port Expansion Device	1	EXP1
Blamp	Parle TCM-X - White	AVB Low-Profile Ceiling Microphone, White	2	MIC1
Blamp	Parle TCM-XEX - White	AVB Low-Profile Ceiling Extension Microphone, White	2	MIC2
Blamp	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	Existing Wireless 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	QP1
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 Location	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 HDM System	1	CCM1
Vaddio	999-99600-100W	RoboSHOT 12E w/ OneLINK HDMI System	1	CCM2
Vaddio	999-2225-150	In-Ceiling Half 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	EPR8A50600-000	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

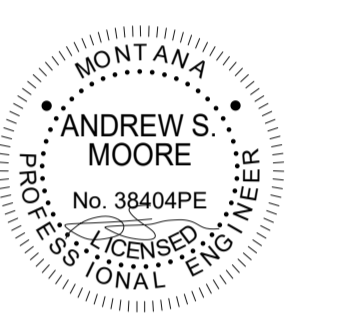


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TECHNOLOGY EQUIPMENT SCHEDULES

T611

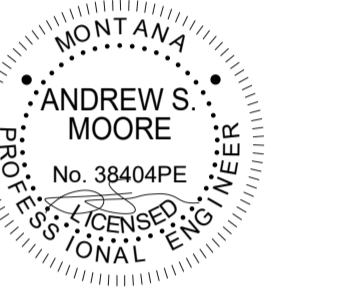


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Typical Technology Device Cabling Types						
Manufacturer	Model	Description	Type	Cabling Types	Cabling Headend	
Audio						
Blamp	Parle TCM-X - White	AVB Low-Profile Ceiling Microphone, White	MIC1	(1) UN884019314 Cable	Classroom AV Equipment Location	
Blamp	Parle TCM-XEX - White	AVB Low-Profile Ceiling Extension Microphone, White	MIC2	(1) UN884019314 Cable	TCM-X Box	
Extron	42-141-03	Full-Range Flat Field Speaker w/ Low Profile Enclosure & 70/100V Transformer	SP1	(1) 16/4 Speaker Cable	Classroom AV Equipment Location	
Data						
Typical	Existing Access Point	Existing Wireless Access Point	AP1	(1) Commscope UCIAAA2-0CF00X (Length TBD)	Telecommunications Room (TR#)	
Typical	2-Port Data Jack	2-Port Data Jack Wiring and Trim Plate Location	LV1	(2) Commscope UN884019314 Cables	Telecommunications Room (TR#)	
Commscope	SMB-2P-266	2-Port Universal Surface Mount Jack for Wireless Access Points	LV4.2	(2) Commscope UN884019314 Cables	Telecommunications Room (TR#)	
Commscope	SMB-2P-266	2-Port Universal Surface Mount Jack for Display Locations	LV4.5	(2) Commscope UN884019314 Cables	<varies>	
Commscope	SMB-2P-266	2-Port Universal Surface Mount Jack for Back Box Locations	LV4.6	(2) Commscope UN884019314 Cables	Telecommunications Room (TR#)	
Commscope	1-1933674-3	6-Port Surface Mount Module for Back Box Locations	LV5	(6) Commscope UN884019314 Cables	Telecommunications Room (TR#)	
Video						
Vaddio	999-99630-100W	RoboSHOT 30E HDBT w/ OneLINK HDM System	CCM1	(1) Commscope UN884019314	Classroom AV Equipment Location	
Vaddio	999-99600-100W	RoboSHOT 12E w/ OneLINK HDM System	CCM2	(1) Commscope UN884019314	Classroom AV Equipment Location	
Newline	TT-7524QP	75" Q Series High Performance Interactive Display	TV1	(4) Shielded CAT6 Cables	Classroom AV Equipment Location	

Technology Devices Wiring						
Room #	Room Name	Manufacturer	Model	Description	Type	Wire Label
216	Innovation Learning Studio	Commscope	1-1933674-3	6-Port Surface Mount Module for Back Box Locations	LV5	216-6A
216	Innovation Learning Studio	Commscope	SMB-2P-266	2-Port Universal Surface Mount Jack for Display Locations	LV4.5	216-1
216	Innovation Learning Studio	Typical	2-Port Data Jack	2-Port Data Jack Wiring and Trim Plate Location	LV1	216-2
216	Innovation Learning Studio	Commscope	SMB-2P-266	2-Port Universal Surface Mount Jack for Display Locations	LV4.5	216-3
216	Innovation Learning Studio	Commscope	SMB-2P-266	2-Port Universal Surface Mount Jack for Back Box Locations	LV4.6	216-4
216	Innovation Learning Studio	Commscope	SMB-2P-266	2-Port Universal Surface Mount Jack for Display Locations	LV4.5	216-5
216	Innovation Learning Studio	Typical	2-Port Data Jack	2-Port Data Jack Wiring and Trim Plate Location	LV1	216-7
216	Innovation Learning Studio	Commscope	SMB-2P-266	2-Port Universal Surface Mount Jack for Wireless Access Points	LV4.2	216-9
216	Innovation Learning Studio	Newline	TT-7524QP	75" Q Series High Performance Interactive Display	TV1	216-10A
216	Innovation Learning Studio	Typical	Future AV Location	Future AV/Display Location	AV1	216-11A
216	Innovation Learning Studio	Newline	TT-7524QP	75" Q Series High Performance Interactive Display	TV1	216-12A
216	Innovation Learning Studio	Vaddio	999-99600-100W	RoboSHOT 12E w/ OneLINK HDM System	CCM2	216-13
216	Innovation Learning Studio	Newline	TT-7524QP	75" Q Series High Performance Interactive Display	TV1	216-14A
216	Innovation Learning Studio	Typical	Future AV Location	Future AV/Display Location	AV1	216-15A
216	Innovation Learning Studio	Newline	TT-7524QP	75" Q Series High Performance Interactive Display	TV1	216-16A
216	Innovation Learning Studio	Vaddio	999-99630-100W	RoboSHOT 30E HDBT w/ OneLINK HDM System	CCM1	216-17
216	Innovation Learning Studio	Blamp	Parle TCM-X - White	AVB Low-Profile Ceiling Microphone, White	MIC1	216-18
216	Innovation Learning Studio	Blamp	Parle TCM-XEX - White	AVB Low-Profile Ceiling Extension Microphone, White	MIC2	216-19
216	Innovation Learning Studio	Blamp	Parle TCM-X - White	AVB Low-Profile Ceiling Microphone, White	MIC1	216-20
216	Innovation Learning Studio	Blamp	Parle TCM-XEX - White	AVB Low-Profile Ceiling Extension Microphone, White	MIC2	216-21
216	Innovation Learning Studio	Extron	42-141-03	Full-Range Flat Field Speaker w/ Low Profile Enclosure & 70/100V Transformer	SP1	216-22
216	Innovation Learning Studio	Commscope	SMB-2P-266	2-Port Universal Surface Mount Jack for Display Locations	LV4.5	216.8

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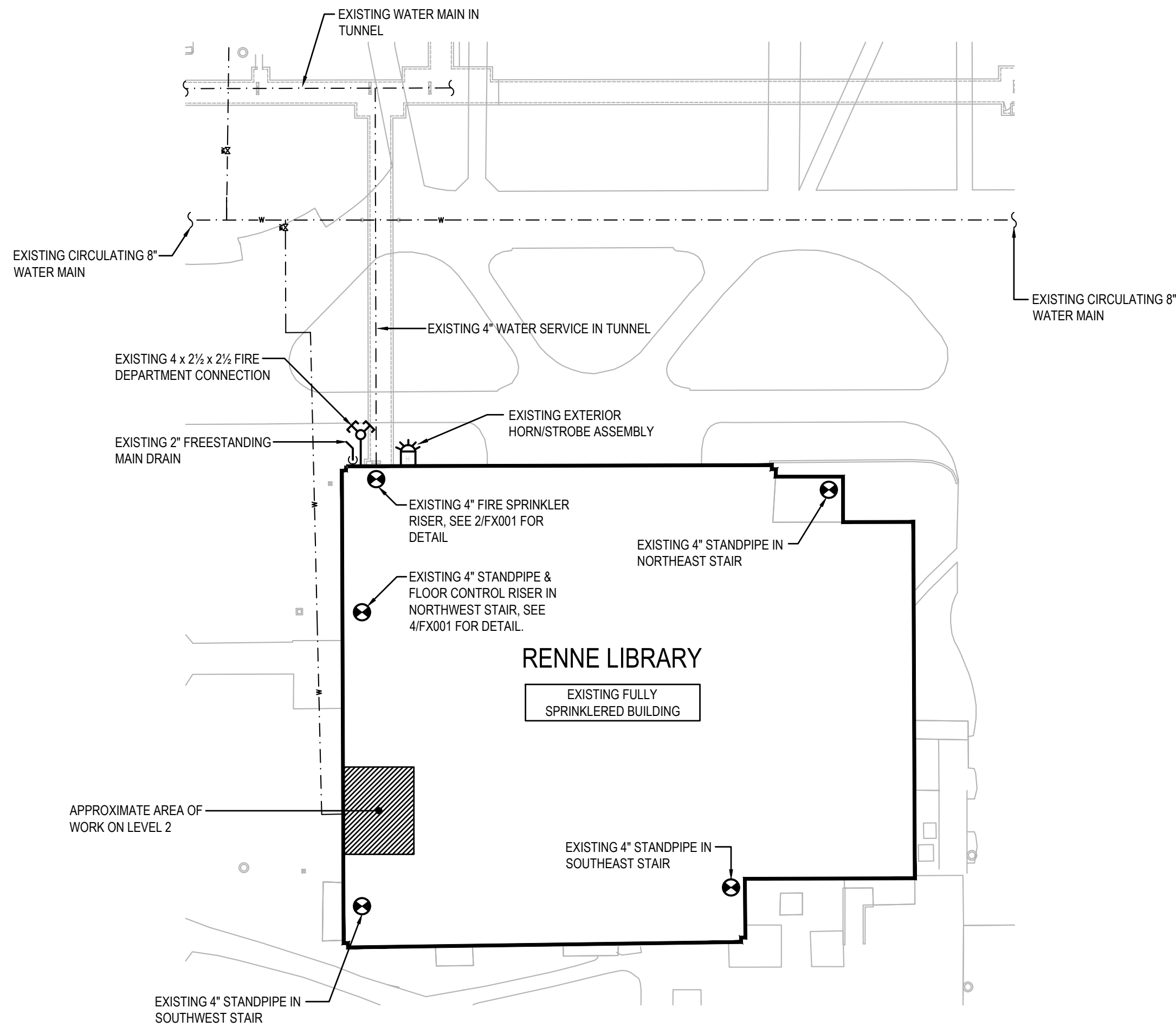
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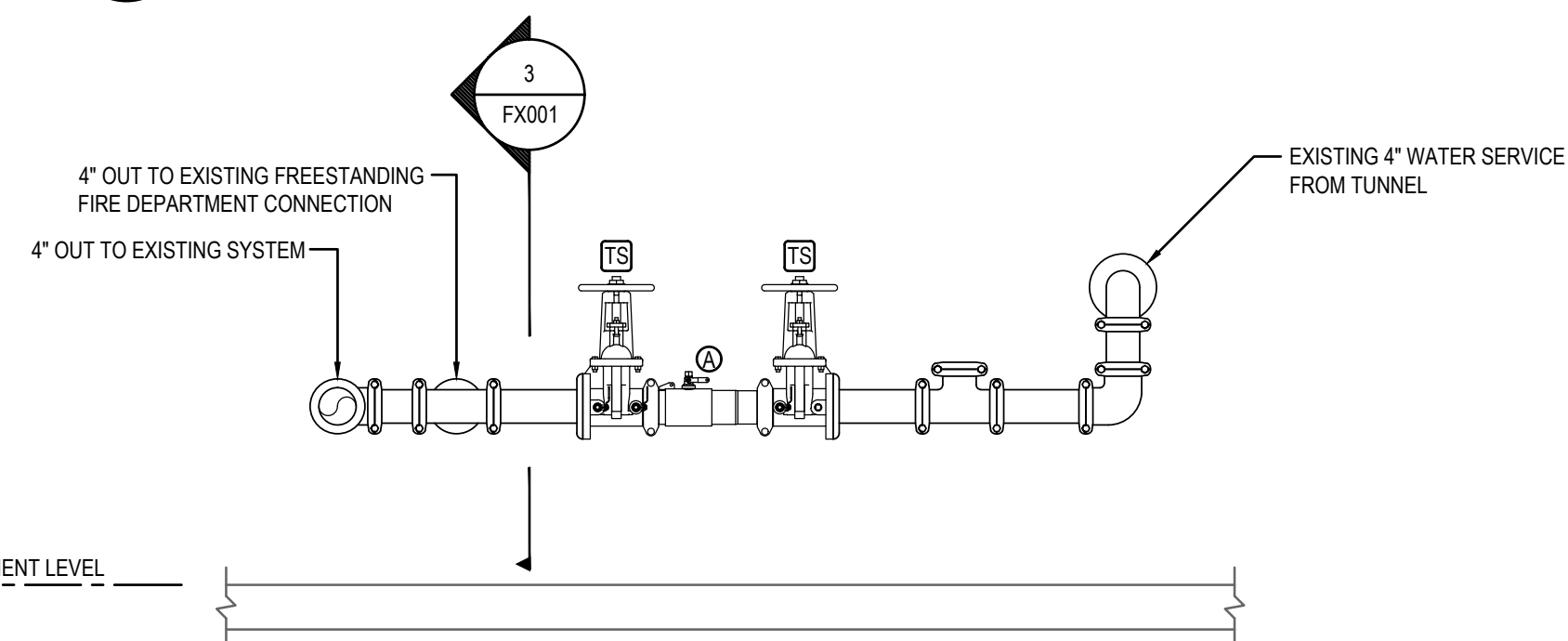
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TECHNOLOGY CABLING SCHEDULES

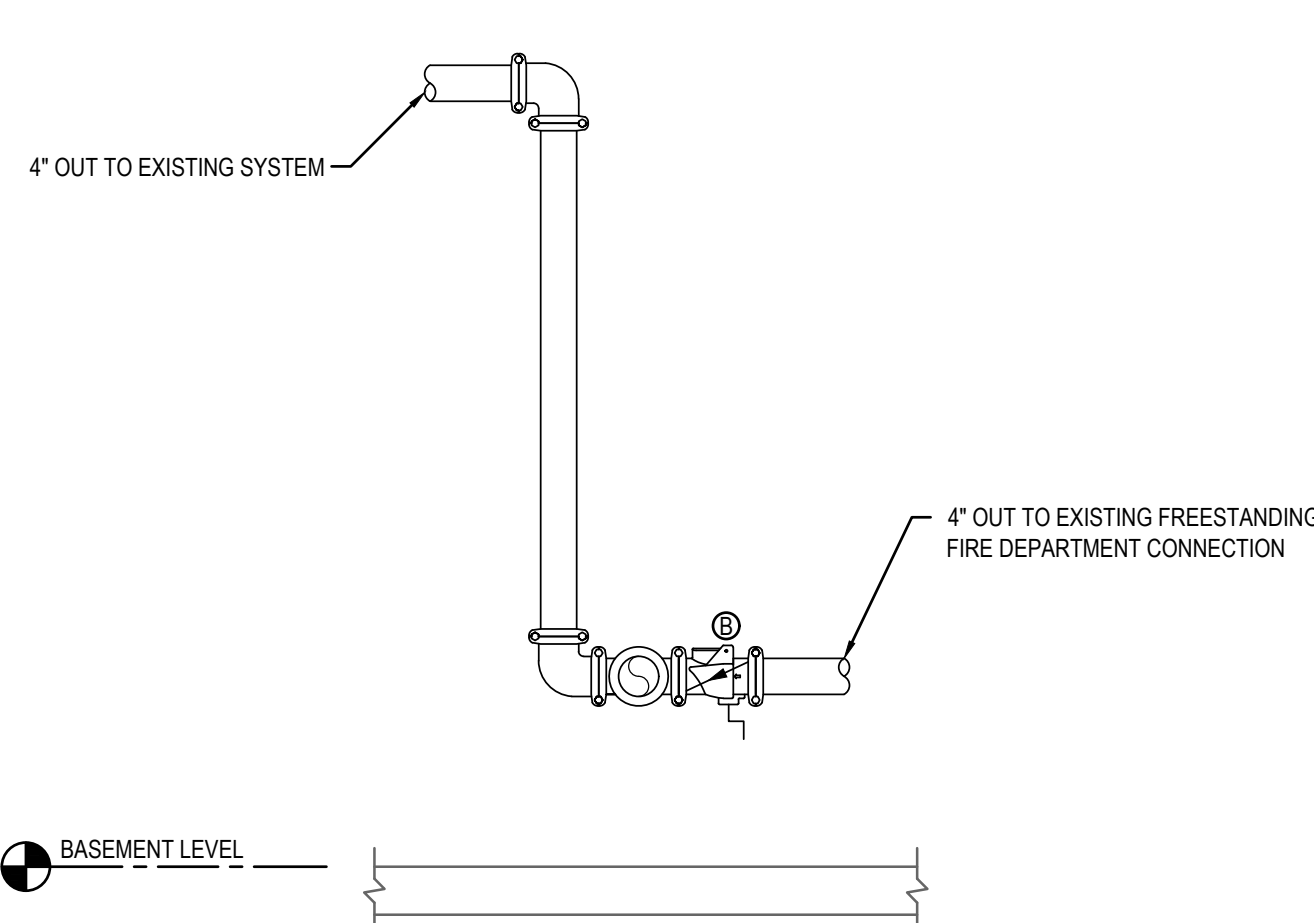
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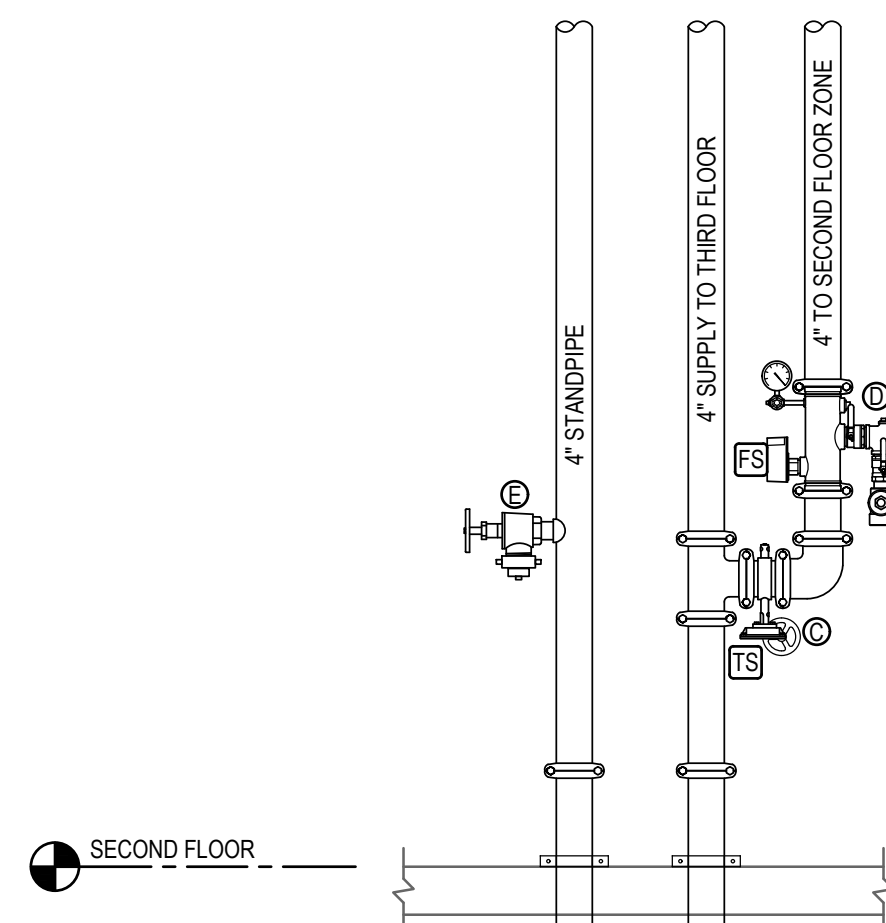
1 EXISTING FIRE SPRINKLER REFERENCE SITE PLAN
SCALE: 1" = 40'



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 2'x2' SUSPENDED CEILING TILES. SPRINKLERS SHALL BE INSTALLED IN QUARTER POINTS OR IN THE CENTER OF CEILING TILE IN AREAS WITH 2'x4' 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 UL LISTED 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 BENEATH 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.

EXISTING RISER LEGEND

- EXISTING 4" DOUBLE CHECK BACKFLOW PREVENTER WITH FLANGED OS&Y CONTROL VALVES AND TAMPER SWITCHES
- EXISTING 4" GROOVED CHECK VALVE
- EXISTING 4" GROOVED BUTTERFLY VALVE
- EXISTING 4" RISER MANIFOLD WITH TEST AND DRAIN VALVE, WATER FLOW SWITCH, AND PRESSURE GAUGE
- EXISTING 2 1/2" ANGLE HOSE VALVE

SEISMIC BRACING REQUIREMENTS

DESCRIPTION OF SITE CONDITIONS	
MAPPED SPECTRAL ACCELERATION FOR SHORT PERIODS	$S_s = 0.680$
MAPPED SPECTRAL ACCELERATION FOR A 1-SECOND PERIOD	$S_1 = 0.214$
SITE CLASS	D
SEISMIC OCCUPANCY CATEGORY OF BUILDING	II
MAXIMUM SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS	$S_{DS} = 0.569$
MAXIMUM SPECTRAL RESPONSE ACCELERATION AT 1-SECOND PERIODS	$S_{D1} = 0.569$
SEISMIC DESIGN CATEGORY BASED ON S_{DS}	D
SEISMIC DESIGN CATEGORY BASED ON S_{D1}	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	$H = 50'$
$F_p = 0.4 \cdot A_p \cdot S_{DS} \cdot W_p \cdot (1+2Z/H)$	$F_p = 1.15$ TIMES WEIGHT OF WATER FILLED PIPE
$R_p = C_p \cdot W_p$	$F_p = 0.569 \cdot W_p$
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			
	1"	1 1/2"	2"	2 1/2"
MAXIMUM SPACING OF BRANCH LINE RESTRAINTS	43"	48"	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.

FOR 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'-0" OR LONGER SHALL BE REINSTALLED 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 LIR 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 SURGE CLIP.

SEISMIC CLEARANCE REQUIREMENTS

NOMINAL PIPE SIZE	CORE DRILL HOLE OR PIPE SLEEVE SIZE	AT CONTRACTOR'S 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.
1	3	80
1 1/2	4	100
2	4	100
2 1/2	6	150
3	6	150
4	8	200
6	10	250

FIRE CAULK HOLE AND PROVIDE SPLIT CHROME WALL PLATES AT ALL EXPOSED WALL LOCATIONS.
(NOTE THAT AT NON-RATED FRANGIBLE GYPSUM BOARD WALLS NO CLEARANCE IS REQUIRED)

HANGER SPACING REQUIREMENTS

NOMINAL PIPE SIZE	1"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"
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)

FIRE SPRINKLER LEGEND

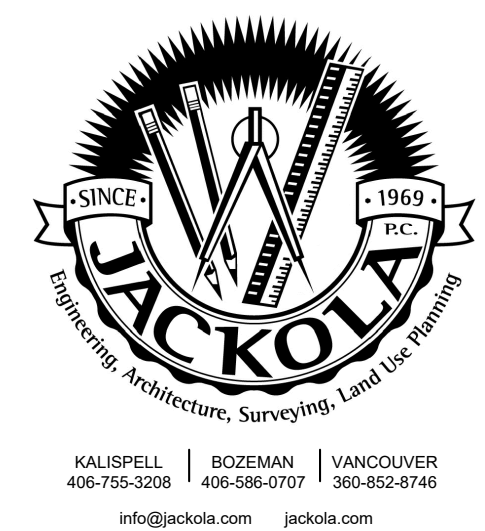
NOTE: ALTERNATE SPRINKLER TEMPERATURES MAY BE NOTED NEXT TO SPRINKLER SYMBOLS (I.E. INT = INTERMEDIATE TEMPERATURE; HIGH = HIGH TEMPERATURE)

SYMBOL	DESCRIPTION
○	STANDARD SPRAY PENDENT SPRINKLER ON - DROP
○	STANDARD SPRAY UPRIGHT SPRINKLER ON - LINE
◐	STANDARD SPRAY UPRIGHT SPRINKLER ON - SPRIG
◑	STANDARD SPRAY SIDEWALL SPRINKLER
○	EXISTING PENDENT SPRINKLER
○	EXISTING UPRIGHT SPRINKLER
—	LATERAL OR LONGITUDINAL SWAY BRACE
—	COMBINATION LATERAL AND LONGITUDINAL SWAY BRACE
—	FLOW SWITCH
—	TAMPER SWITCH
—	CHECK VALVE (GROOVED OR THREADED)
—	BUTTERFLY VALVE (GROOVED OR THREADED)
—	GLOBE VALVE
—	HOSE VALVE
—	ANGLE HOSE VALVE
—	HORN/STROBE ASSEMBLY
—	FREE STANDING FIRE DEPARTMENT CONNECTION
—	PIPE CENTERLINE FROM FINISHED FLOOR
—	HYDRAULIC NODE POINT
—	CEILING HEIGHT
—	RISER
—	CENTERLINE DISTANCE OF PIPE FROM DECK
—	FLANGE
—	GROOVED ELBOW UP
—	GROOVED ELBOW DOWN
—	GROOVED COUPLING
—	SCREWED ELBOW UP
—	SCREWED ELBOW DOWN
—	HANGER SYMBOL - SEE DETAIL FOR TYPE
—	HANGER SYMBOL - SEE DETAIL FOR TYPE
—	HANGER SYMBOL - SEE DETAIL FOR TYPE
—	HANGER SYMBOL - SEE DETAIL FOR TYPE
—	SEISMIC RESTRAINT #1
—	SEISMIC RESTRAINT #2
—	NEW WET SPRINKLER PIPE
—	EXISTING SPRINKLER PIPE
—	DEMO SPRINKLER PIPE
—	EXISTING UNDERGROUND WATER MAIN/FIRE MAIN
—	1-HOUR FIRE BARRIER (SEE ARCHITECTURAL FOR DETAILS)
—	2-HOUR FIRE BARRIER (SEE ARCHITECTURAL FOR DETAILS)
—	ABOVE FINISHED FLOOR
—	ALL THREAD ROD
—	A.S. AUTOMATIC SPRINKLER
—	CIF CUT IN FIELD
—	DN DOWN
—	FG FINISHED GRADE
—	GALV GALVANIZED
—	GBE GROOVE BOTH ENDS
—	GOE GROOVE ONE END
—	GMI GALVANIZED MALLEABLE IRON
—	NTS NOT TO SCALE
—	OS&Y OUTSIDE STEM & YOKE
—	RN RISER NIPPLE
—	TBE THREAD BOTH ENDS
—	TOE THREAD ONE END
—	T&G THREAD AND GROOVE
—	UNON UNLESS OTHERWISE NOTED
—	W/ WITH

SPRINKLER PIPE AND FITTINGS TABLE

MATERIAL NOTES
1. MATERIALS MAY BE OF DOMESTIC OR IMPORT ORIGIN

PIPE SIZE	PIPE	FITTINGS AND OUTLETS
1" TO 2"	SCHEDULE 40	BLACK CLASS-125 CAST IRON THREADED FITTINGS (175 PSI RATED)
2 1/2" TO 4"	SCHEDULE 10	WELDED OUTLETS WITH ROLL GROOVED ENDS AND PAINTED DUCTILE IRON GROOVED FITTINGS (300 PSI RATED)



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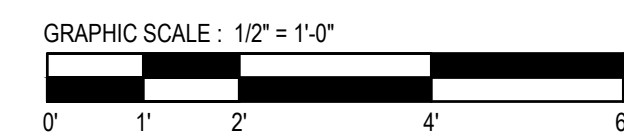
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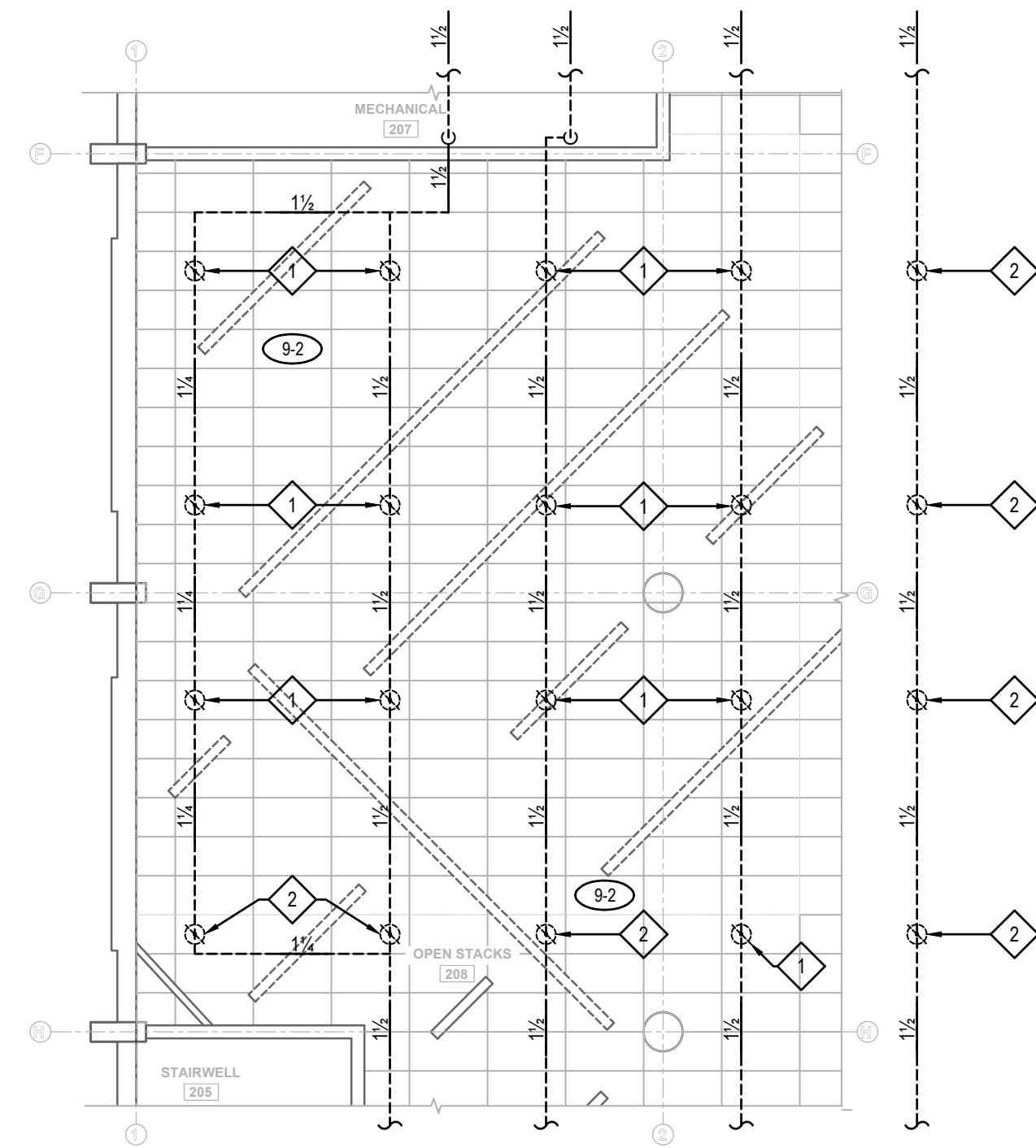
GENERAL NOTES,
DETAILS, AND
LEGEND

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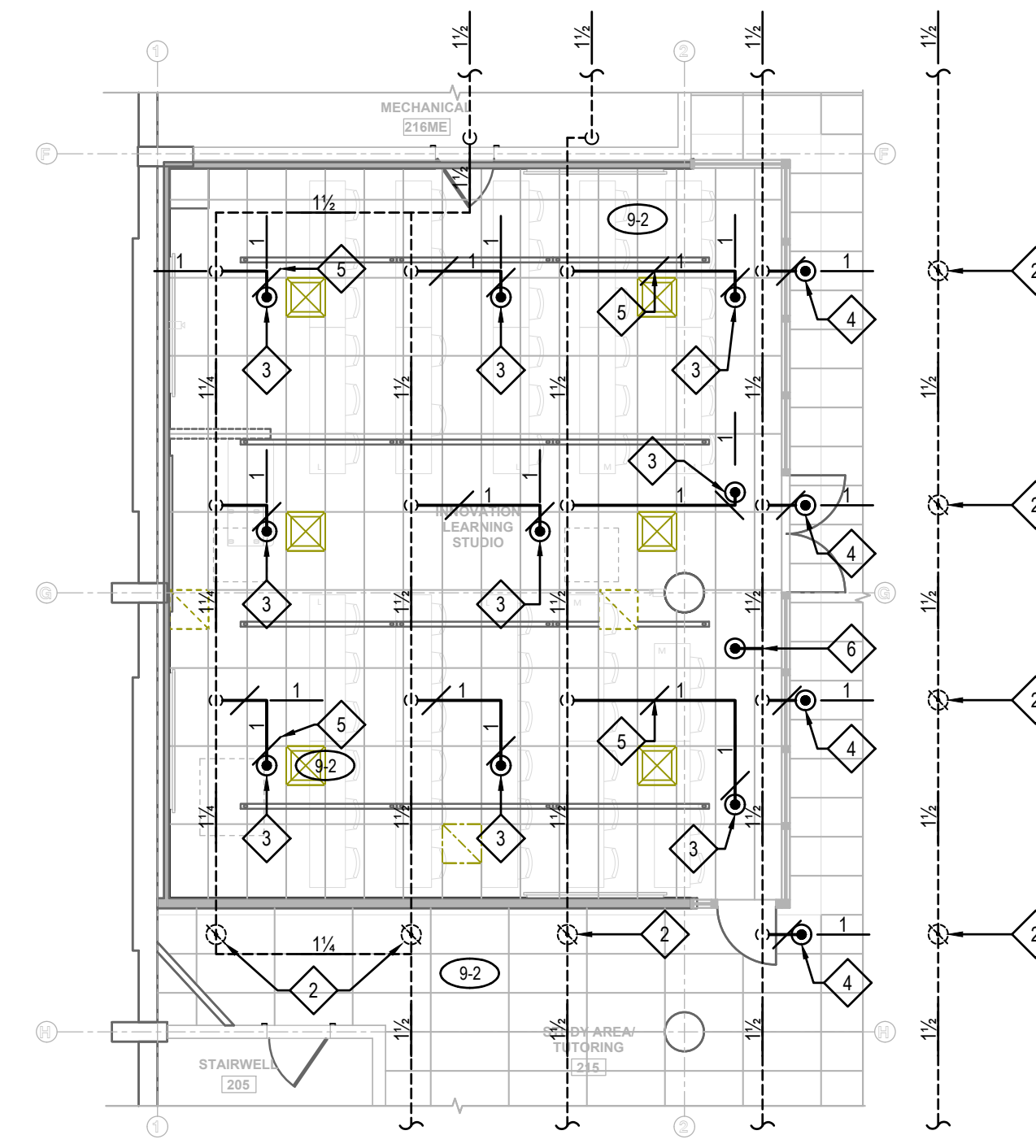


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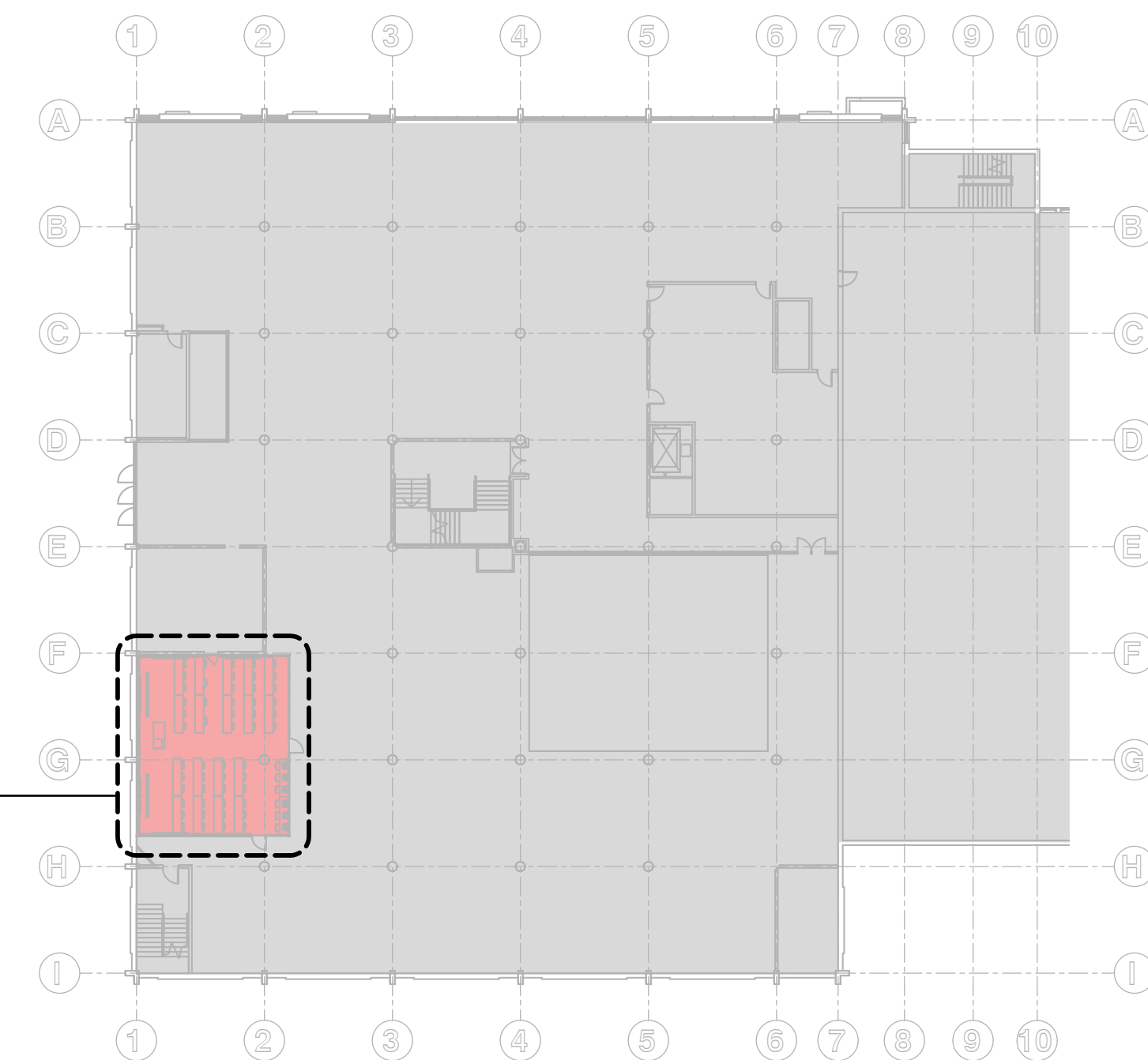
PROJECT #25048



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



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



FX101

KEY PLAN
NOT TO SCALE

GENERAL DEMOLITION NOTES

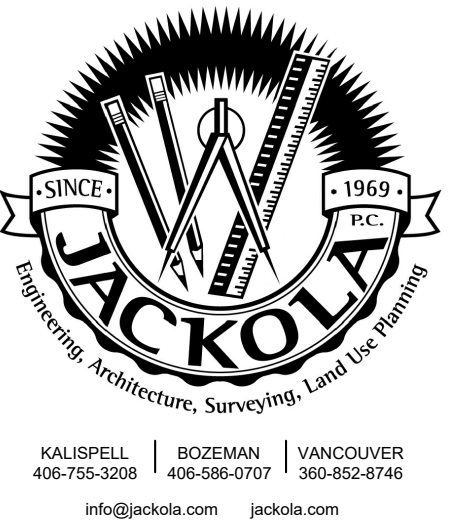
1. THE EXISTING FIRE SPRINKLER SYSTEM SHOWN IS BASED ON AS-BUILT DOCUMENTATION AND A NON-DESTRUCTIVE WALK THROUGH OF THE BUILDING. ALL COMPONENTS OF THE EXISTING FIRE SPRINKLER SYSTEM ARE NOT SHOWN ON THE PLANS. THE EXISTING COMPONENTS SHOWN ON THE PLANS MAY NOT BE SHOWN IN THE EXACT LOCATION OR CORRECT 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 2x2' SUSPENDED CEILING TILES. SPRINKLERS SHALL BE INSTALLED IN QUARTER POINTS OR IN THE CENTER OF TILE IN AREAS WITH 2x4' 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 1 1/2"x1 MECHANICAL TEE AND PIPE AS SHOWN.



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LEVEL 2 FIRE
SPRINKLER PLAN

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