

# ALUMNI LEGACY LOUNGE

## STRAND UNION BUILDING

### MONTANA STATE UNIVERSITY

# BID DOCUMENTS

## MARCH 7, 2024

### PROJECT TEAM

**OWNER:**

MONTANA STATE UNIVERSITY  
CAMPUS PLANNING, DESIGN, & CONSTRUCTION

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BOZEMAN, MT 59771

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(sten@upshotarch.com)

### SHEET LIST

A0.00	COVER & GENERAL NOTES
A2.10	FLOOR PLANS
A3.10	REFLECTED CEILING PLANS
A8.10	INTERIOR ELEVATIONS

### LEGEND

	Wall Type (see wall type schedule)		Interior Elevation
	Door Type (see door schedule)		Elevation Mark
	Window Type (see window schedule)		Room Name / Number
	Building Section		Column Line
	Wall Section		Centerline
	Detail Number		Revision Tag
	Building Elevation		

### ABBREVIATIONS

<b>A</b> AB ANCHOR BOLT ACI AMERICAN CONCRETE INSTITUTE ACP ACOUSTIC CEILING PANEL AD AREA DRAIN ADDTL ADDITIONAL ADJ ADJUSTABLE AFF ABOVE FINISHED FLOOR AFG ABOVE FINAL GRADE AHU AIR HANDLING UNIT ALT ALTERNATE ALUM ALUMINUM ARCH ARCHITECT, ARCHITECTURAL ASPH ASPHALT ASSY ASSEMBLY ASTM AMERICAN SOCIETY OF TESTING & MATERIALS	<b>B</b> BD BOARD BG BELOW GRADE BLDG BUILDING BLKG BLOCKING BM BEAM B.O. BOTTOM OF BOT BOTTOM BRK BRICK BSMT BASEMENT BTWN BETWEEN	<b>C</b> CAB/S CABINET/S CT CERAMIC TILE CIP CAST-IN-PLACE CL CENTER LINE CJ CONTROL JOINT CLG CEILING CLR CLEAR CMU CONCRETE MASONRY UNIT C.O. CLEANOUT COL COLUMN COMM COMMUNICATIONS CONC CONCRETE CONFIG CONFIGURATION CONST CONSTRUCTION CONT CONTINUOUS CONTR CONTRACTOR COORD COORDINATE CORR CORRIDOR CPT CARPET CVG CLEAR VERTICAL GRAIN	<b>D</b> DBL DOUBLE DN DOWN DET DETAIL DF DRINKING FOUNTAIN DIA DIAMETER DIM DIMENSION DP DAMPPROOFING DR DOOR DS DOWNSPOUT DTL DETAIL DW DISHWASHER DWG DRAWING	<b>E</b> EA EACH EF EXHAUST FAN EIFS EXTERIOR INSULATION FINISH SYSTEM ELEC ELECTRICAL ELEV or EL ELEVATION ENCL ENCLOSURE EPS EXPANDED POLYSTYRENE INSUL BD EQ EQUAL EQUIP EQUIPMENT EXIST or (E) EXISTING EXT EXTERIOR	<b>F</b> FD FLOOR DRAIN FDN/FTDN FOUNDATION FE FIRE EXTINGUISHER FEC FIRE EXTINGUISHER CABINET FF FINISHED FLOOR FIN FINISHED FJP FINGER JOINTED PINE FLR or FLR FLOOR FLRG FLOORING F.O. FACE OF FOS FACE OF STUD FR FIRE RATED FRM FRAME/FRAMED FRMG FRAMING FRP FIBERGLASS REINFORCED PLASTIC FT FOOT/FEET FTG FOOTING FTN FOUNTAIN	<b>G</b> GA GAUGE GALV. GALVANIZED GFCI GROUND FAULT CIRCUIT INTERRUPTER GL GLUE LAMINATED GLB GLULAM BEAM GLZ GLASS/GLAZING GWB GYPSUM WALL BOARD GWB-P GYPSUM WALL BOARD PAINTED	<b>H</b> H HIGH HB HOSE BIB HC HANDICAPPED ACCESSIBLE HDWRE HARDWARE HDR HEADER HM HOLLOW METAL HORIZ HORIZONTAL HR HANDRAIL HS HOLLOW STEEL HT HEIGHT HVAC HEATING, VENTILATION, & AIR COND. HYY HEAVY HWH HOT WATER HEATER	<b>I</b> IGU INSULATED GLASS UNIT INCL INCLUDE, INCLUDING INDC INDICATE(D) INSUL INSULATION INT INTERIOR	<b>J</b> JC JANITOR CLOSET JST JOIST	<b>K</b> KP KEY PAD	<b>L</b> L LONGLENGTH LAV LAVATORY LOC LOCATIONS LT LIGHT	<b>M</b> MAS MASONRY MAX MAXIMUM MECH MECHANICAL MEZZ MEZZANINE MFR MANUFACTURER MH MANHOLE MIN MINIMUM MISC MISCELLANEOUS MLWK MILLWORK MNF MANUFACTURER NO NO MTD MOUNTED MTL METAL M.WAVE MICROWAVE	<b>N</b> (N) NEW NO or # NUMBER NIC NOT IN CONTRACT NTS NOT TO SCALE	<b>O</b> OC ON CENTER O.D. OUTER DIMENSION OH OVERHEAD OP OPERABLE OWSJ OPEN WEB STEEL JOIST	<b>P</b> PARTN PARTITION PC PRECAST PERF PERFORATED PERP PERPENDICULAR PL PLATE/PROPERTY LINE P-LAM PLASTIC LAMINATE PLYWD PLYWOOD PMR PER MNFR. RECOMMENDATION PTG/PTD PAINTING / PAINTED PNL PANEL PREFAB PREFABRICATED PREFIN PREFINISHED PT PRESSURE TREATED PVC POLYVINYL CHLORIDE PORC. TILE PORCELAIN TILE	<b>R</b> RA RETURN AIR RAD RADIUS RD ROOF DRAIN REF REFERENCE REFL REFLECTIVE REFR REFRIGERATOR REINF REINFORCING REQD REQUIRED REQMT REQUIREMENT RESIL RESILIENT RET RETAINING REV REVISION RFG ROOFING RI RIGID INSULATION RM ROOM RO ROUGH OPENING	<b>S</b> SAM SELF-ADHERING MEMBRANE SCHED SCHEDULE SCR SCREEN SECTION SECTION SQ SQUARE FOOT SF SQUARE FOOT SG SAFETY GLAZING SHLVS SHELVES SHT SHEET SHWR SHOWER SIM SIMILAR SJ SEISMIC JOINT SM SHEET METAL SMD SEE MECHANICAL DRAWINGS SPEC SPECIFICATION SQ SQUARE SS SOLID SURFACE SSD SEE STRUCTURAL DRAWINGS STL STEEL STD STANDARD STST STAINLESS STEEL STOR STORAGE STRS STAIRS STRUCT STRUCTURE/STRUCTURAL SURF SURFACE SUSP SUSPENDED, SUSPENSION SUBFLR SUBFLOOR SV SHEET VINYL	<b>T</b> T&G TONGUE & GROOVE TB TILE BASE TEL TELEPHONE TERR TERRAZZO TG TEMPERED GLASS THK THICK T.O. TOP OF TR TREAD TS TUBULAR STEEL TX TEXTURED TYP TYPICAL	<b>U</b> UNFIN UNFINISHED UNO UNLESS NOTED OTHERWISE UTIL UTILITY	<b>V</b> VB VAPOR BARRIER VCT VINYL COMPOSITE TILE VCB VINYL COVE BASE VERT VERTICAL VVERT VERTICAL VFY VERIFY VG VERTICAL GRAIN VIF VERIFY IN FIELD VR VAPOR RETARDER	<b>W</b> W WIDE WI WITH WB WOOD BASE WC WATER CLOSET WD WOOD WID WASHER / DRYER WIDW WINDOW WF WIDE FLANGE WP WATERPROOF, WATER PROOFING WRB WATER RESISTANT BARRIER WSP WET STANDPIPE WT WEIGHT WWF WELDED WIRE FABRIC	<b>Y</b> YD YARD
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### GENERAL NOTES

- General Conditions of the Contract (AIA Document A-201) apply to this project.
- All work shall comply with State and local Building Codes, fire department regulations, utility company standards, and the best trade practices.
- The General Contractor shall arrange all inspections and tests as specified or required by the building department and shall pay all costs and fees for same. The Contractor shall secure all building permits and upon completion of the project (prior to final payment) deliver to the Owner a Certificate of Occupancy or Use from the building department.
- All plumbing and electrical work shall be performed by State licensed contractors. Contractors shall submit all required permits, certificates, and sign-offs to Owner and Architect for their records.
- The General Contractor shall verify all dimensions, be familiar with the existing conditions, and bring any discrepancies to the attention of the Architect prior to submission of construction proposal and before beginning work. The Drawings reflect conditions reasonably inferred from the existing visible conditions but cannot be guaranteed by the Architect. Drawings may be scaled for estimating purposes and for general reference only. For all other dimensions or locations consult the Architect or refer to dimensions on Drawings. Verify all dimensions in the field.
- The General Contractor shall lay out all work and be responsible for all dimensions and conditions for trades such as electrical, plumbing, etc.
- The General Contractor shall provide and maintain access to the premises at all times.
- The Construction Manager shall make the premises secure from the elements and trespass on a daily basis.
- The General Contractor shall keep the construction site free and clear of all debris and keep out all unauthorized persons. Upon completion of Work, the entire construction area is to be thoroughly cleaned and prepared for occupancy by Owner. All materials and debris resulting from the Contractor's work shall be removed from the site and disposed of properly. Care shall be taken during construction that no debris or materials are deposited in any Right of Way area.
- The General Contractor shall be responsible for protecting all existing and new conditions and materials on the site. Any damage caused by or during the execution of the Work is the Contractor's responsibility and shall be repaired to the Owner's satisfaction at the Contractor's expense.
- No cutting or damage to building structural components will be allowed without written authorization from the Architect.
- All utilities shall be connected to provide gas, electric, and water to all equipment whether said equipment is in Contract or not. Equipment shall be guaranteed to function properly upon completion.
- Manufacturer's standard specifications and materials approved for project use are hereby made part of these Notes with same force and effect as if written out in full herein. All appliances, fixtures, equipment, hardware, etc. shall be installed in accordance with Manufacturer's specifications and procedures.
- Written words take precedence over drawn lines. Large-scale details and plans take precedence over smaller details and plans. Should a conflict arise between the Specifications and Drawings, the requirements deemed most stringent shall be used.
- Minor details not usually shown or specified but necessary for proper and acceptable construction, installation, or operation of any part of the Work as determined by the Architect shall be included in the Work as if it were specified or indicated on the Drawings.
- All architectural drawings and construction notes are complimentary. What is indicated and called for by one shall be binding as though called for by all.
- No deviation from the Drawings or Specifications or intent of same shall be made without the Architect's written authorization.
- All Work shall be guaranteed for one year after final approval. The General Contractor shall sign the written guarantee as provided by the Owner. The guarantee shall cover all general and subcontractor work. All defects discovered during this period shall be repaired to the Owner's satisfaction at the Contractor's expense.
- All dimensions are to face of stud or centerline of structure unless otherwise noted (UON).
- Door and window details are indicated on the Door and Window Schedules.
- Door and window dimensions are to centerlines of units UNO.

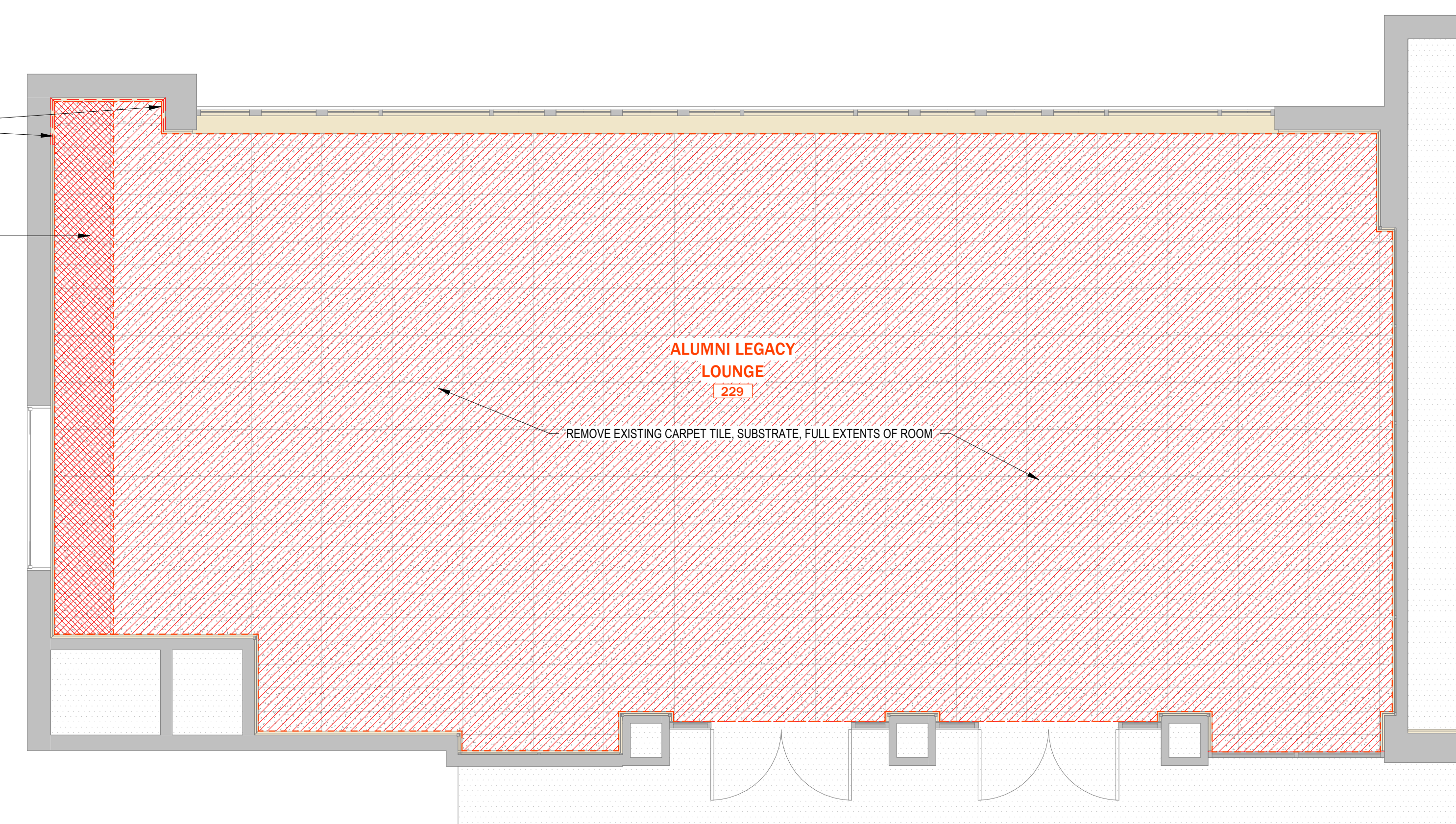


## DEMOLITION NOTES

1. COORDINATE W/ OWNER REGARDING DISPOSAL OF SALVAGE ITEMS
- 2.

REMOVE OAK TRIM TO EXTENTS OF NEW AV CABINET  
USE CARE TO PROVIDE CLEAN EDGES WHERE CUT PORTIONS WILL ABUT NEW CASEWORK

REMOVE EXISTING UPHOLSTERED BENCH & ASSOCIATED COMPONENTS



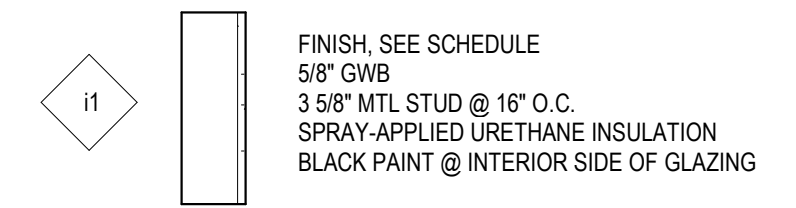
**1** ARCH. FLOOR PLAN - DEMOLITION  
SCALE: 1/4" = 1'-0"

## FLOOR PLAN NOTES

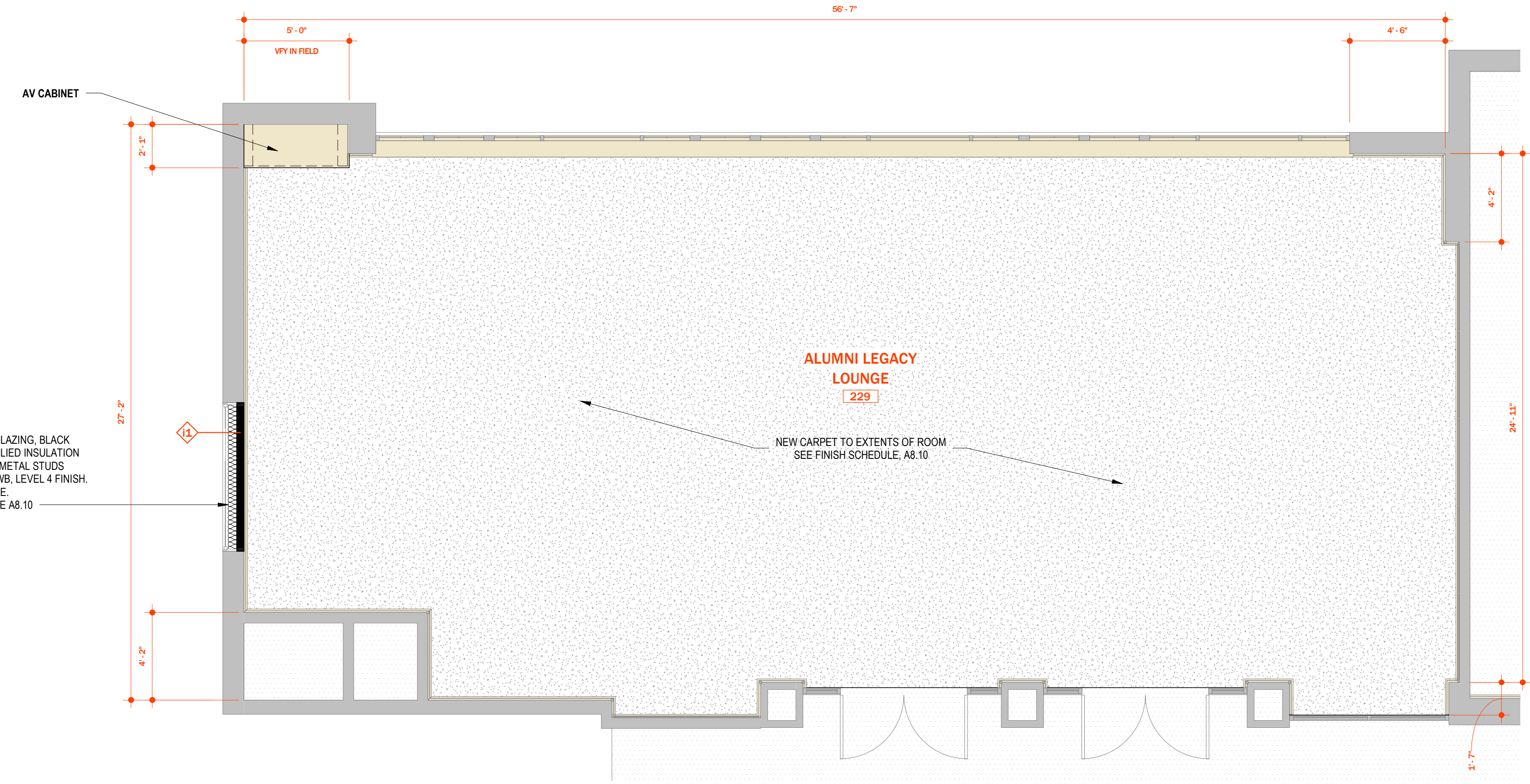
1. DIMENSIONS ARE TO FACE OF FINISH, UNLESS NOTED OTHERWISE.
- 2.

## TYPICAL WALL ASSEMBLIES

LISTED FROM INTERIOR TO EXTERIOR WHEN APPLICABLE



- COVER INTERIOR SIDE OF WINDOW:
- PAINT INTERIOR SIDE OF GLAZING, BLACK
  - FILL CAVITY W/ SPRAY-APPLIED INSULATION
  - PROVIDE INFILL FRAMING, METAL STUDS
  - PATCH OPENING W/ 5/8" GWB, LEVEL 4 FINISH. MATCH ADJACENT TEXTURE.
  - PT-1, SEE FINISH SCHEDULE A8.10



**2** ARCH. FLOOR PLAN - PROPOSED  
SCALE: 1/4" = 1'-0"

Checker

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FLOOR PLANS

**A2.10**

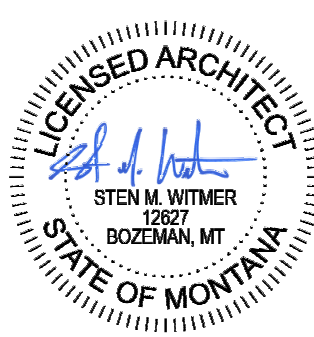
Date:  
03.07.2024



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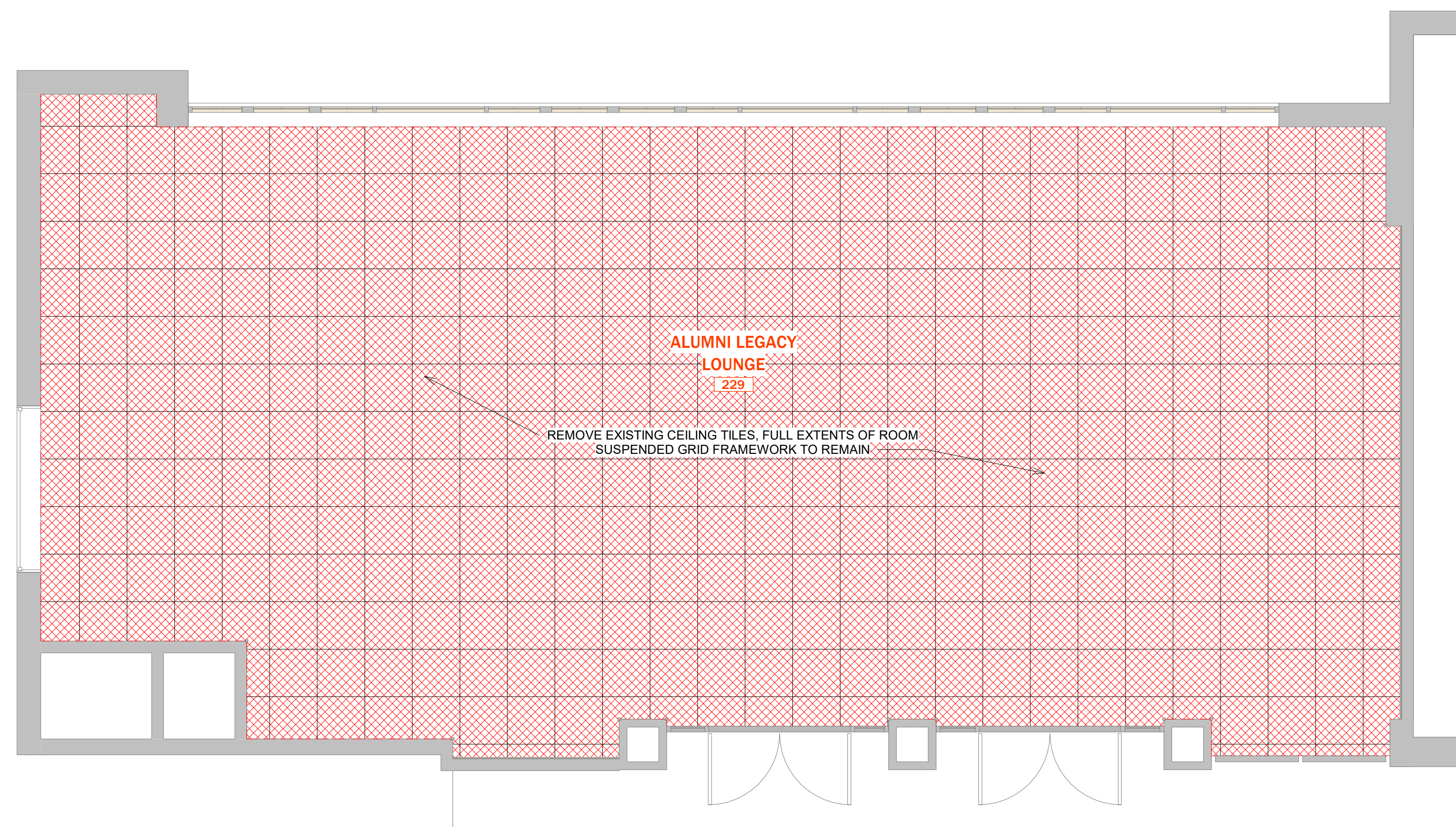
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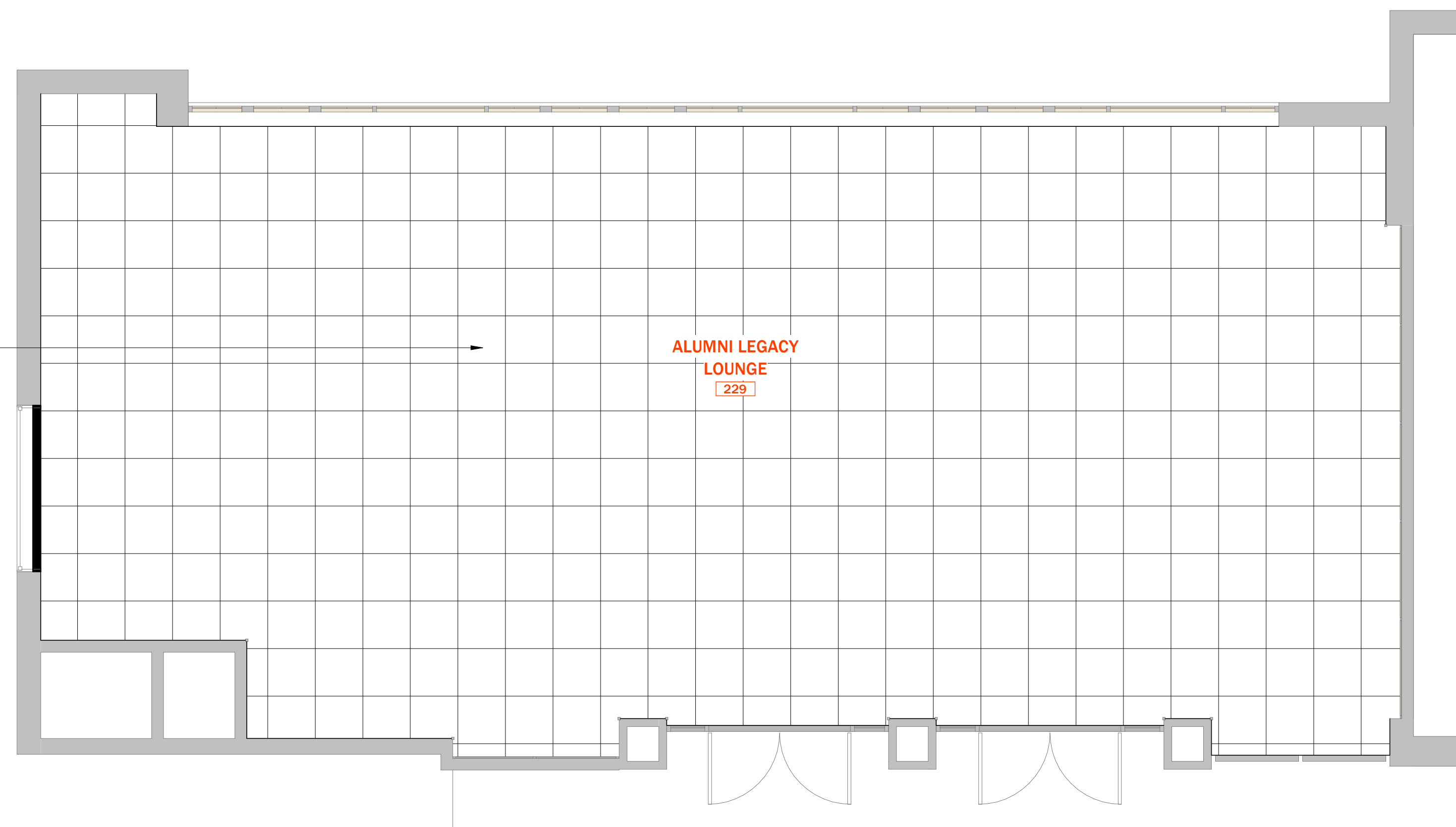
REFLECTED CEILING  
PLANS

**A3.10**

Date:  
03.07.2024



**1** **1** **ARCH. RCP - DEMOLITION**  
SCALE: 1/4" = 1'-0"

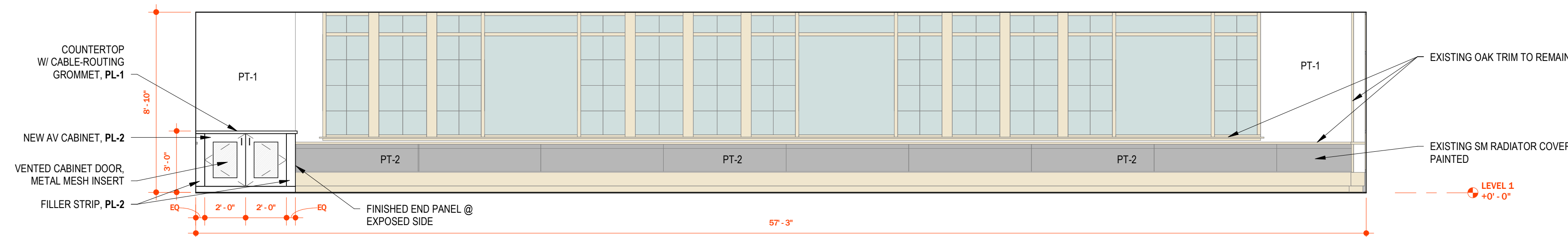


**1** **2** **ARCH. RCP - PROPOSED**  
SCALE: 1/4" = 1'-0"

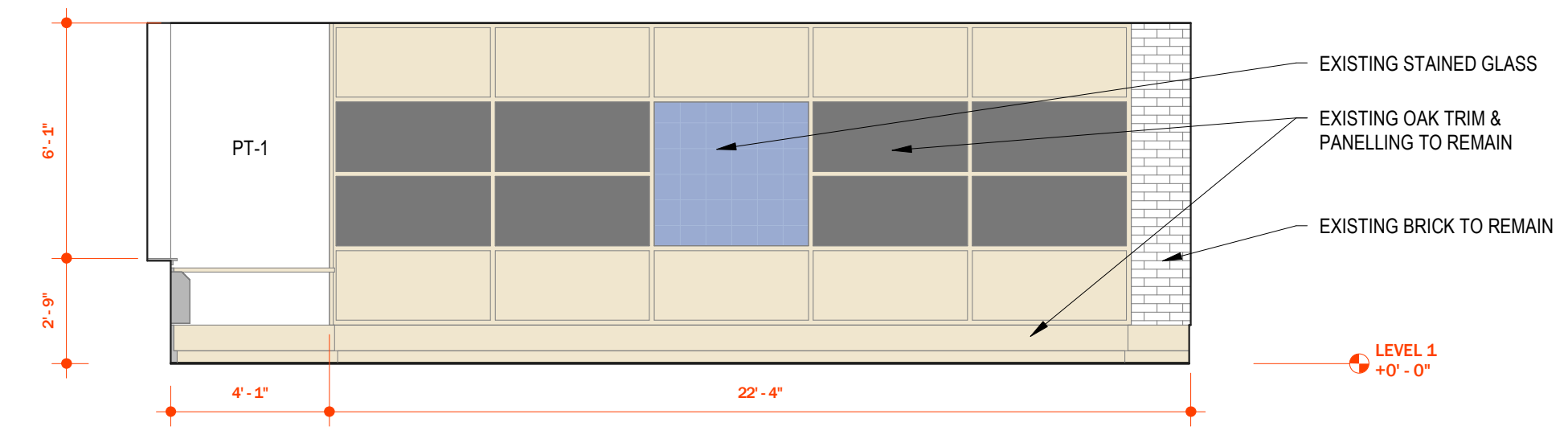
**REFLECTED CEILING PLAN NOTES**

1. COORDINATE W/ OTHER DISCIPLINES FOR LOCATIONS & LAYOUT
2. PAINT EXISTING CEILING GRID IN ENTIRETY. PT-3 (PURE WHITE), SEE FINISH SCHEDULE, SHEET A&10
3. ACT-1: ARMSTRONG CEILING SOLUTIONS. CANYON 15/16" SQUARE LAY-IN TILES. 24" X 24" X 5/8", WHITE.
4. FIELD-CUTTING OF TILES MAY BE REQUIRED, FOLLOW MANUFACTURER'S SPECIFICATIONS & RECOMMENDATIONS

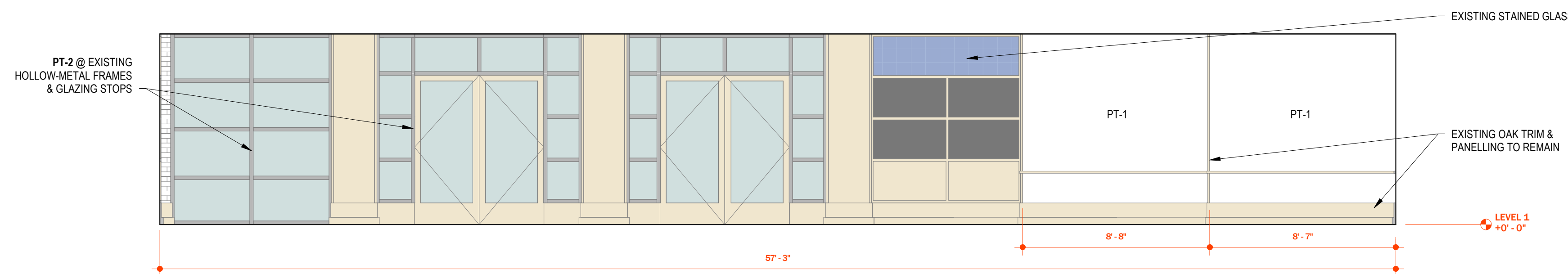
PAINT EXISTING CEILING GRID,  
PT-3, SEE FINISH SCHEDULE  
ADD NEW ACOUSTIC CEILING  
TILES, ACT-1.  
COORDINATE W/ LIGHTING,  
MECHANICAL, AV



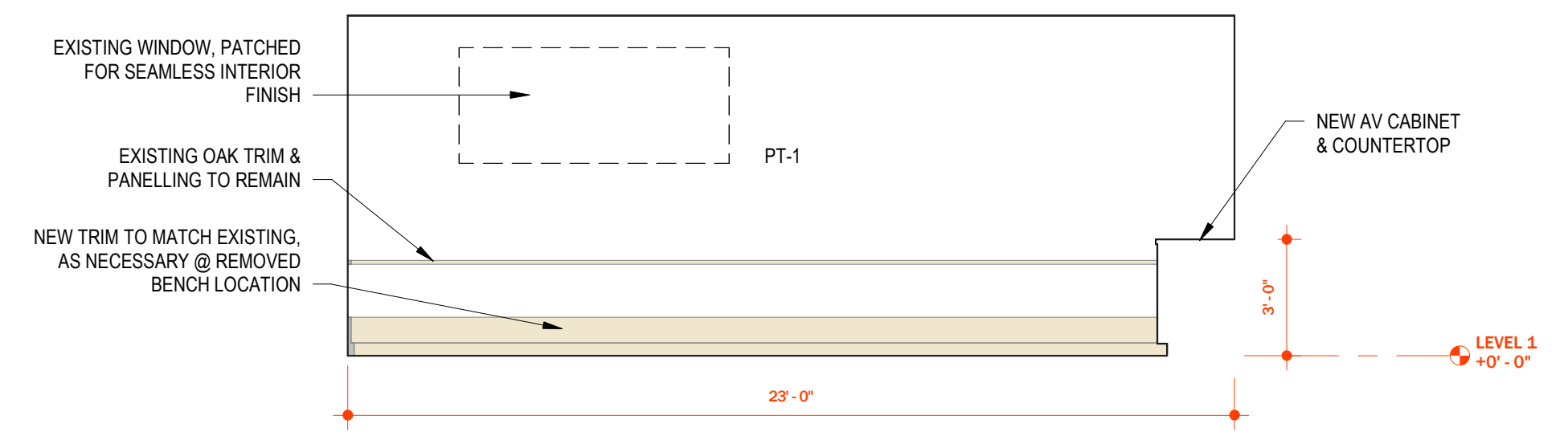
**2 INTERIOR ELEV. - NORTH**  
SCALE: 1/4" = 1'-0"



**1 INTERIOR ELEV. - EAST**  
SCALE: 1/4" = 1'-0"



**4 INTERIOR ELEV. - SOUTH**  
SCALE: 1/4" = 1'-0"



**3 INTERIOR ELEV. - WEST**  
SCALE: 1/4" = 1'-0"

**FINISH SCHEDULE**

Number	Name	Area	Floor Finish	Base Finish	Wall Finish				Ceiling Finish	Comments
					West	South	East	North		
229	ALUMNI LEGACY LOUNGE	1440 SF	CPT-1	EXISTING	PT-1	PT-1 / PT-2	PT-1	PT-1 / PT-2	SEE CLG NOTES	

**FINISH NOTES**

**FLOOR FINISHES**

CP-1: CARPET-1  
STYLE AND COLOR: SHAW CONTRACT, BELLCOURT BROADLOOM. COLOR: OOH LA LA 94335

- REMOVE EXISTING CARPET, BASE MATERIAL AND ADHESIVES COMPLETELY FROM JOB SITE. LEGALLY DISPOSE OF MATERIALS.
- PREP SUBFLOOR PER REQUIREMENTS OF FLOORING MANUFACTURER'S TO WARRANT FLOORING MATERIALS.
- INSTALL NEW FLOORING AFTER EXISTING CARPET REMOVAL. FLOOR PREP IS COMPLETE AND READY TO RECEIVE NEW FLOORING FINISHES.

**PAINT**

PT-1: PAINT-1 @ WALLS  
COLOR: BENJAMIN MOORE, SYMPHONY BLUE: 2060-10, EGGSHELL  
(1) COAT PRIMER, (2) COATS FINISH PAINT

PT-2: PAINT-2 @ HOLLOW-METAL FRAMES, RADIATOR COVER  
COLOR: SHERWIN WILLIAMS, ENDURING BRONZE: SW 7055, SATIN  
(1) COAT PRIMER, (2) COATS FINISH PAINT

PT-3: PAINT-3 @ EXISTING CEILING GRID  
COLOR: SHERWIN WILLIAMS, EXTRA WHITE: SW 7066, FLAT  
(1) COAT PRIMER, (2) COATS FINISH PAINT

**CASEWORK NOTES**

**CASEWORK FINISHES**

PL-1: PLASTIC LAMINATE COUNTERTOP  
WILSONART CARBON EV 4820, MATTE

PL-2: PLASTIC LAMINATE CASEWORK  
WILSONART MIDNIGHT D505, MATTE

**CABINETS**

- Finish - Exposed Exterior Surfaces: Decorative laminate.
- Finish - Exposed Interior Surfaces: Decorative laminate.
- Finish - Concealed Interior Surfaces: Melamine - High Pressure laminate of paper, with decorative finish, 0.020 inch thick. Color - Grey.
- Door and Drawer Front Edge Profiles: Square edge with inset band.
- Door and Drawer Front Retention Profiles: Fixed panel.
- Casework Construction Type: Type A - Frameless.
- Interface Style for Cabinet and Door: Style 1 - Overlay; AWI Type A Flush Overlay.
- Cabinet Design Series: As indicated on the Drawings.
- Adjustable Shelf Loading: 75 lbs / lf.
- Cabinet Style: Flush overlay.
- Cabinet Doors: Frame style, vented panel. Metal mesh infill, black.

**COUNTERTOPS**

- Countertops with high wear plastic laminate: Medium density fiberboard, conventionally fabricated, with self-edge banded exposed counter edge.
- T-Molding Edge Band: Heavy-duty PVC flat style bumper: 301-1 Series - Flat Style Bumper by ITW Plastiglide or approved equal. Color: Grey - To Match Laminate Color.
- Wilsonart High Wear Laminate, Type 107HW General Purpose, 0.048 inch sheet thickness, #60 Matte finish. See Schedule of Colors at end of this Section.

**ACCESSORIES**

Grommets: Standard 2 1/2" diameter plastic grommets for cut-outs, in grey color to match adjacent surface

**HARDWARE**

- Adjustable Cabinet Shelf Supports: Standard side-mounted system using recessed metal shelf standards or multiple holes for pin supports and coordinated self rests, satin chrome finish, for nominal 1 inch spacing adjustments.
- Drawer and Door Pulls: "U" shaped wire pull, steel with chrome finish, 4 inch centers. Projection: 1-7/8 inch minimum, comply with ADA guidelines.
- Catches: Magnetic.
- Hinges: European style concealed self-closing type, Blum 125 deg. or equal, steel w/ satin finish.



# ALUMNI LEGACY LOUNGE | MECHANICAL

Montana State University, Bozeman MT

# Bid Documents

Date Issued | 02.21.2024  
Project Engineers | Kyle Laughnan

REV

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## ALUMNI LEGACY LOUNGE STRAND UNION BUILDING RENOVATION

CAMPUS PLANNING,  
DESIGN & CONSTRUCTION  
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BOZEMAN, MONTANA  
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REVISIONS		
#	DATE	DESCRIPTION

### BLACKSHEEP ENGINEERING

Mechanical | Plumbing | Electrical | Lighting | Technology  
603 W. Hemblock St. | Bozeman, MT 59715  
blacksheepengineering | 406.728.8488

PPA#23-0720

A/E#001

Mechanical Index

# M0.00

Date:  
03.07.2024

Project 3D View

General Notes

- The symbols and abbreviations list on this sheet is a comprehensive standard guide intended for general use on all projects. Therefore, not all symbols and abbreviations contained in this list are necessarily used on this particular project and should be used for clarification only.
- Codes and standards listed in specifications and drawings are minimum standards. Where requirements on the drawings or specifications exceed the minimum code requirements, the drawings or specifications shall govern.
  - The power rating of motors and other mechanical equipment and the electrical characteristics of electrical systems serving them have been established as minimums which allow that equipment to function properly to produce the required capacities. Power ratings include reasonable safety factors to accommodate common differences between design parameters and field construction practices. Equipment with power ratings less than those indicated on the drawings shall not be permitted.
  - Reasonable efforts have been made to coordinate electrical requirements of mechanical equipment with the electrical systems serving that equipment. Differences among manufacturers of mechanical equipment make it impossible to produce a single electrical design which will satisfy the varying electrical requirements of those manufacturers. Consequently, the contractor shall coordinate the electrical requirements of the mechanical equipment furnished on this project and provide electrical systems required by that equipment. This coordination effort shall be completed prior to the installation of either the mechanical equipment or the electrical systems serving that equipment. Electrical system revisions required to coordinate with the mechanical equipment furnished shall be provided at no additional cost to the owner.
  - Drawings indicate general locations of fixtures, apparatus, equipment, piping, and ductwork. Changes on location shall be made to accommodate existing or new building conditions and coordination with other trades, including HVAC, plumbing, electrical, fire protection, structural, and architectural, shall be made without additional cost to the owner.
  - Provide access to equipment and portions of building systems requiring service.
  - Do not install ductwork, piping, or equipment in electrical rooms, elevator rooms, or elevator shafts, unless explicitly indicated on the drawings. Piping, ductwork, and equipment (switchgear, switchboards, panels, motor control centers, variable frequency drives, transformers, or starters) shall not be installed directly above or 42" in front of electrical equipment from the floor to the structure above.
  - Unless indicated otherwise, equipment and materials shall be new and of the customary standard and quality furnished by the designated manufacturer for that catalog number.
  - Air systems shall operate without aerodynamic noise generated from faulty installation of ductwork, diffusers, or any portion of the air distribution system.
  - Support piping independently of equipment. Hangar rods shall be suspended from the structure. Do not suspend from other piping, conduit, equipment, or ductwork.
  - All work referenced under division 23 shall be done by the mechanical contractor.
  - Unauthorized changes:** in the event the client, the client's contractor or subcontractors, or anyone for whom the client is legally liable makes or permits to be made any changes to any reports, plans, specifications or other documents prepared by blacksheep engineering without obtaining without obtaining blacksheep engineering's prior written consent, the client shall assume full responsibility for the results of such changes. Therefore, the client agrees to waive any claim against blacksheep engineering and to release blacksheep engineering from any liability arising directly or indirectly from such changes. In addition, the client agrees to identify, defend, and hold harmless blacksheep engineering from any damages, liabilities or costs, including reasonable attorneys' fees and costs of defense, arising from such changes.

Project Scope - Executive Summary

**Mechanical Design** - Review of existing in-room ducting, grilles, and radiator. General details provided for removal, cleaning, repair, and replacement.

Abbreviations

AF	ABOVE FINISHED FLOOR	LWT	LEAVING WATER TEMPERATURE
ACFM	ACTUAL CFM	LF	LINEAR FEET
AHU	AIR HANDLING UNIT	MAX	MAXIMUM
AMP	AMPERE (AMP, AMPS)	M.C.	MECHANICAL CONTRACTOR
APD	AIR PRESSURE DROP	MIN	MINIMUM
APPROX	APPROXIMATE	N/A	NOT APPLICABLE
BHP	BRAKE HORSEPOWER	NTS	NOT TO SCALE
BTU	BRITISH THERMAL UNIT	NO	NUMBER
MBH	BTU PER HOUR (THOUSAND)	OPD	OPPOSED BLADE DAMPER
CU FT	CUBIC FEET	OA	OUTSIDE AIR
CU IN	CUBIC INCH	%	PERCENT
CFM	CUBIC FEET PER MINUTE	PH	PHASE (ELECTRICAL)
SCFM	CFM, STANDARD CONDITIONS	LBS	POUNDS
DB	DECIBEL	PSI	POUNDS PER SQUARE INCH
DIA, Ø	DIAMETER	PSIA	PSI ABSOLUTE
DN	DOWN	PRD	PRESSURE DROP OR DIFFERENCE
ID	DIAMETER, INSIDE	PSIG	PSI GAUGE
OD	DIAMETER, OUTSIDE	RH	RELATIVE HUMIDITY
DBT	DRY BULB TEMPERATURE	RA	RETURN AIR
(E)	EXISTING	RPM	REVOLUTIONS PER MINUTE
EAT	ENTERING AIR TEMPERATURE	SH	SENSIBLE HEAT
E.C.	ELECTRICAL CONTRACTOR	SPEC	SPECIFICATION
EWT	ENTERING WATER TEMPERATURE	STD	STANDARD
F	FAHRENHEIT	SP	STATIC PRESSURE
FA	FROM ABOVE	SA	SUPPLY AIR
FB	FROM BELOW	TEMP	TEMPERATURE
FPM	FEET PER MINUTE	TD	TEMPERATURE DIFFERENCE
FT	FOOT OR FEET	T STAT	THERMOSTAT
HZ	FREQUENCY	TONS	TONS OF REFRIGERATION
GAL	GALLONS	T.C.	TEMPERATURE CONTROL
G.C.	GENERAL CONTRACTOR	VEL	VELOCITY
GPM	GALLONS PER MINUTE	V	VOLT
HD	HEAD	VOL	VOLUME
HP	HORSEPOWER	VFD	VARIABLE FREQUENCY DRIVE
KW	KILOWATT	WPD	WATER PRESSURE DROP
LAT	LEAVING AIR TEMPERATURE	W/	WITH

Phasing Legend

- New - Solid Black
- Demolish - Bold Dashed
- Existing to Remain (E) - Halftone

Sheet Index & Revision Summary

Sheet #	Sheet Name	Rev.	Description	Date
M0.00	Mechanical Index			
M1.00	Mechanical Plan			

Symbol Legend

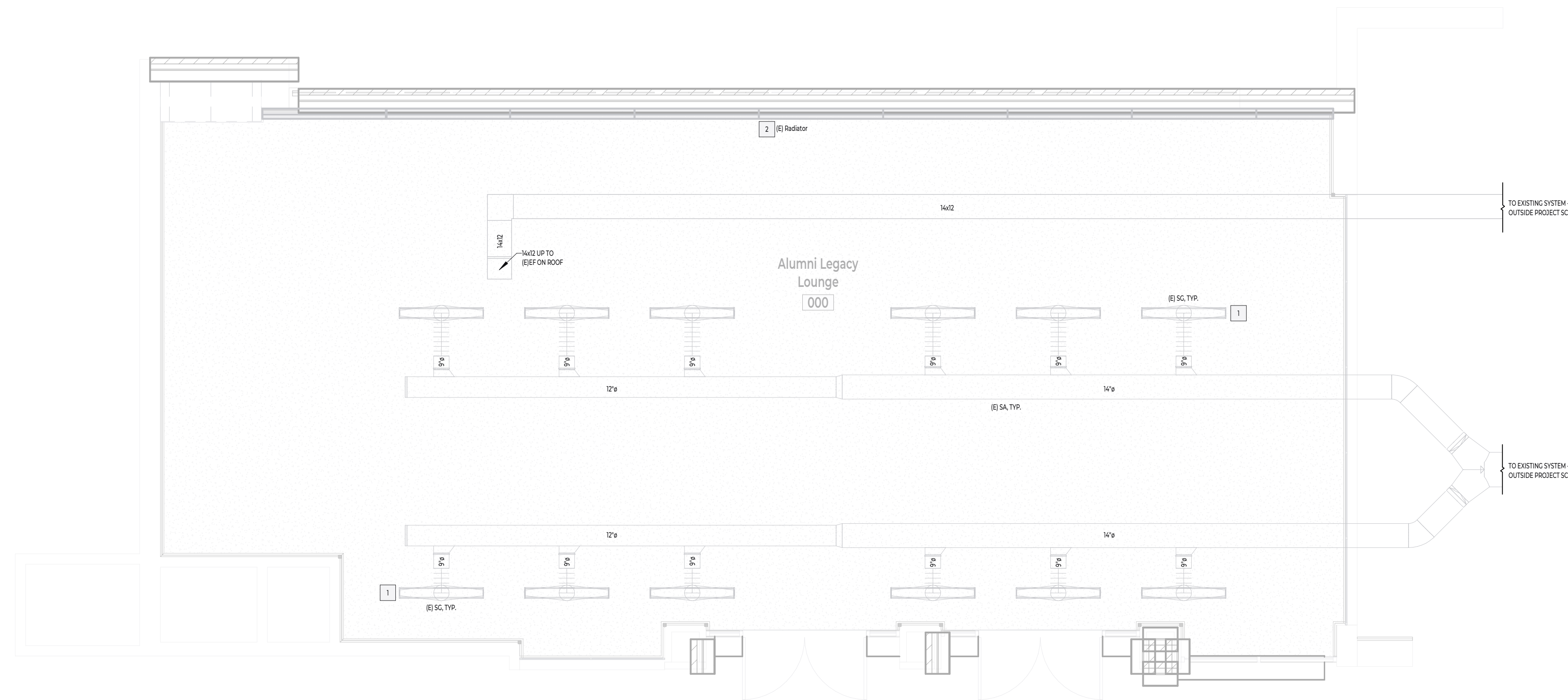
Symbols listed below are for reference and for the use in understanding the design intent. Not all symbols listed below are necessarily used elsewhere in the construction documents. Cabling information is reference only. All devices need to be assessed on an individual basis.

Mechanical		Plumbing	
	Source Water Supply		Domestic Cold Water
	ESource Water Return		Domestic Hot Water
	Hot Water Supply		Domestic Hot Water Recirculation
	Hot Water Return		Hot Water Supply
	Ball Valve		Hot Water Return
	Swing Check Valve		Source Water Supply
	Strainer		Waste
	Flex Connector		Grease Waste
	Hose End Drain Valve		Vent
	Safety Relief Valve		Propane
	Union		Rain Water Leader
	Tee Up		Overflow Leader
	Tee Down		Irrigation
	Elbow Up		Floor Clean Out
	Elbow Down		Wall Clean Out
	Pipe Size Change		Ball Valve
	Manual Flow Balancing Valve (Circuit Setter)		Backflow Preventor
	Pressure/Temp. Test Plug		Hose End Drain Valve
	Pressure Gauge w/ Snubber		Pressure Reducing VA
	Dial Thermometer		Temp. & Pressure Relief Valve
	Electric Thermostat		Dielectric Waterway
	In-Slab Sensor		Union
	Manual Balancing Damper		Dial Thermometer
	Flex Connector		Pressure Gauge
	Access Doors		Tee Up
	Turning Vave Ell		Tee Down
	45° Low-Loss Take-Off Fitting w/ Damper & Flex Duct		Elbow Up
	45° Low-Loss Take-Off Fitting w/ Damper & Rigid Round Duct		Elbow Down
	90° Tee Take-Off Fitting	<b>Mechanical Air Flow Legend</b>	
	Conical 90° Tee Take-Off Fitting		Supply Air
	45° Tee Take-Off Fitting		Return Air
	45-90° Tee Take-Off Fitting		Exhaust Air
	Diffuser, Register, or Grille (Throw Pattern Shown on Plans)		Outside Air
	SD-1 (PLAN CODE) 8XB (NECK SIZE) 200 (CFM)		

General Drawing Symbols

- Callout Veliv Tag
- Keynote Tag
- Elevation Tag
- Mechanical Equipment Tag w/ Circuit ID
- Section Head & Tail





**General Sheet Notes**

1. Do not run any ductwork or piping over electrical panels. From panel to structure above and from panel access space to 80" above floor.
2. Provide seismic bracing on all piping, ductwork, and equipment as required by 2021 IBC.
3. Building in general has limited space and is congested. Contractor shall coordinate location of piping, ductwork, and equipment w/ other trades prior to installation.
4. Route all ductwork tight to structure or ceiling unless otherwise noted.
5. Provide volume balance dampers at each branch duct unless noted to be at grille.

**Reference Keynotes**

1. Contractor to remove and clean existing supply grilles and duct plenums. Inspect existing flex duct and clean or replace. Include allowance for painting or replacing grille as directed by architect. Contractor to balance all grilles in room to approximate equivalent airflow. Typ.
2. Remove existing radiator cover and repair existing dents. Contractor to paint cover as recommended by the manufacturer, and coordinate the paint color with architectural. Reinstall the existing cover as directed by the manufacturer and replace any damaged mounting equipment as required. Approximate radiator dimensions (LxWxH) are as follows: 518"x2'4"x0'6".

1 SUB Alumni Legacy Lounge - Mechanical Plan  
M1.10 1/4" = 1'-0"



**ALUMNI LEGACY LOUNGE  
STRAND UNION BUILDING  
RENOVATION**

CAMPUS PLANNING,  
DESIGN & CONSTRUCTION  
MONTANA STATE UNIVERSITY  
BOZEMAN, MONTANA  
PHONE 406-994.5413 FAX 406-994.5665

**KL**

**REVISIONS**

#	DATE	DESCRIPTION

**BLACKSHEEP  
ENGINEERING**

Mechanical | Plumbing | Electrical | Lighting | Technology  
603 W. Hiemlock St. | Bozeman, MT 59715  
blacksheepengineering | 406.739.8488

PPA#23-0720

A/E#001

Mechanical Plan

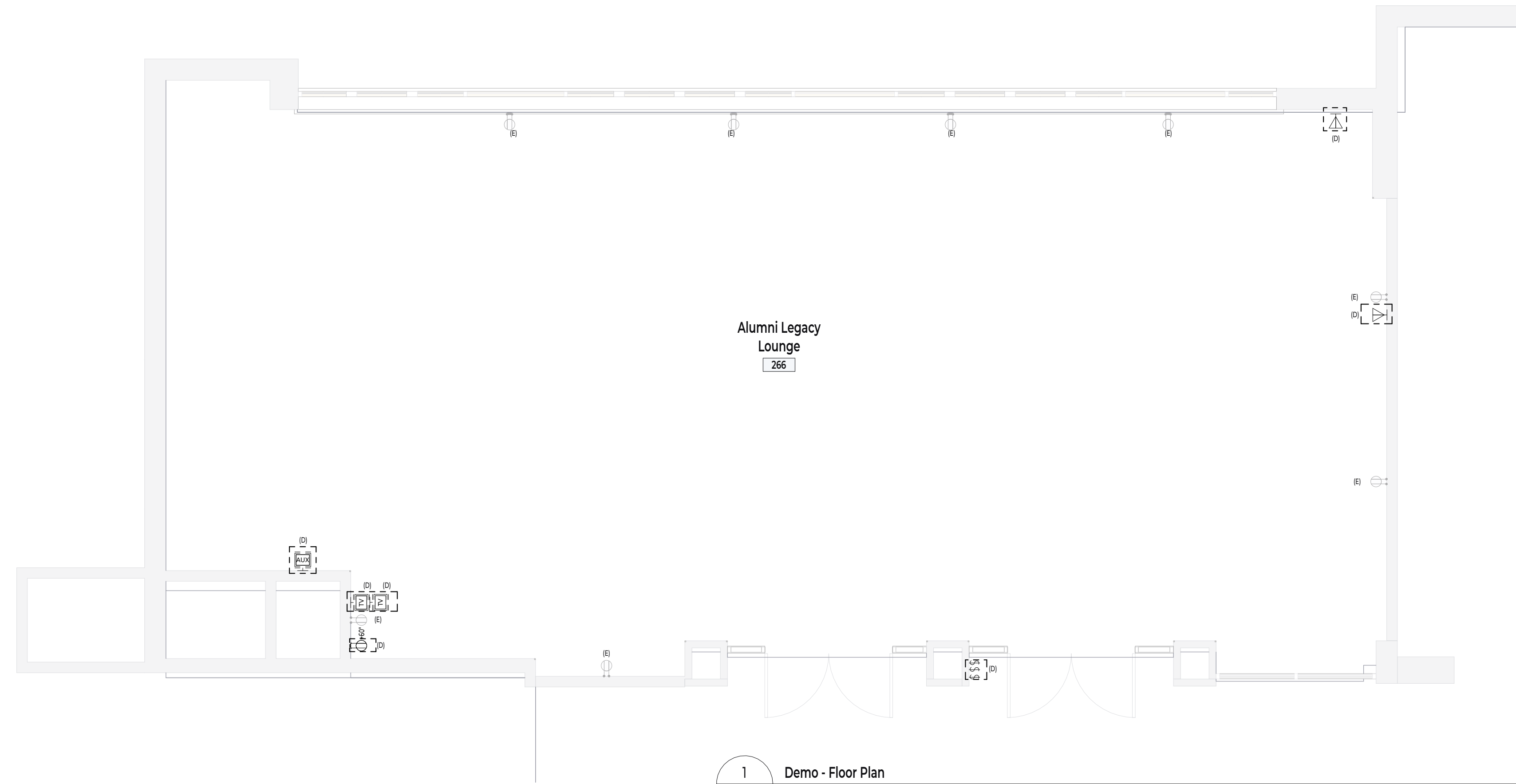
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Date:  
03.07.2024

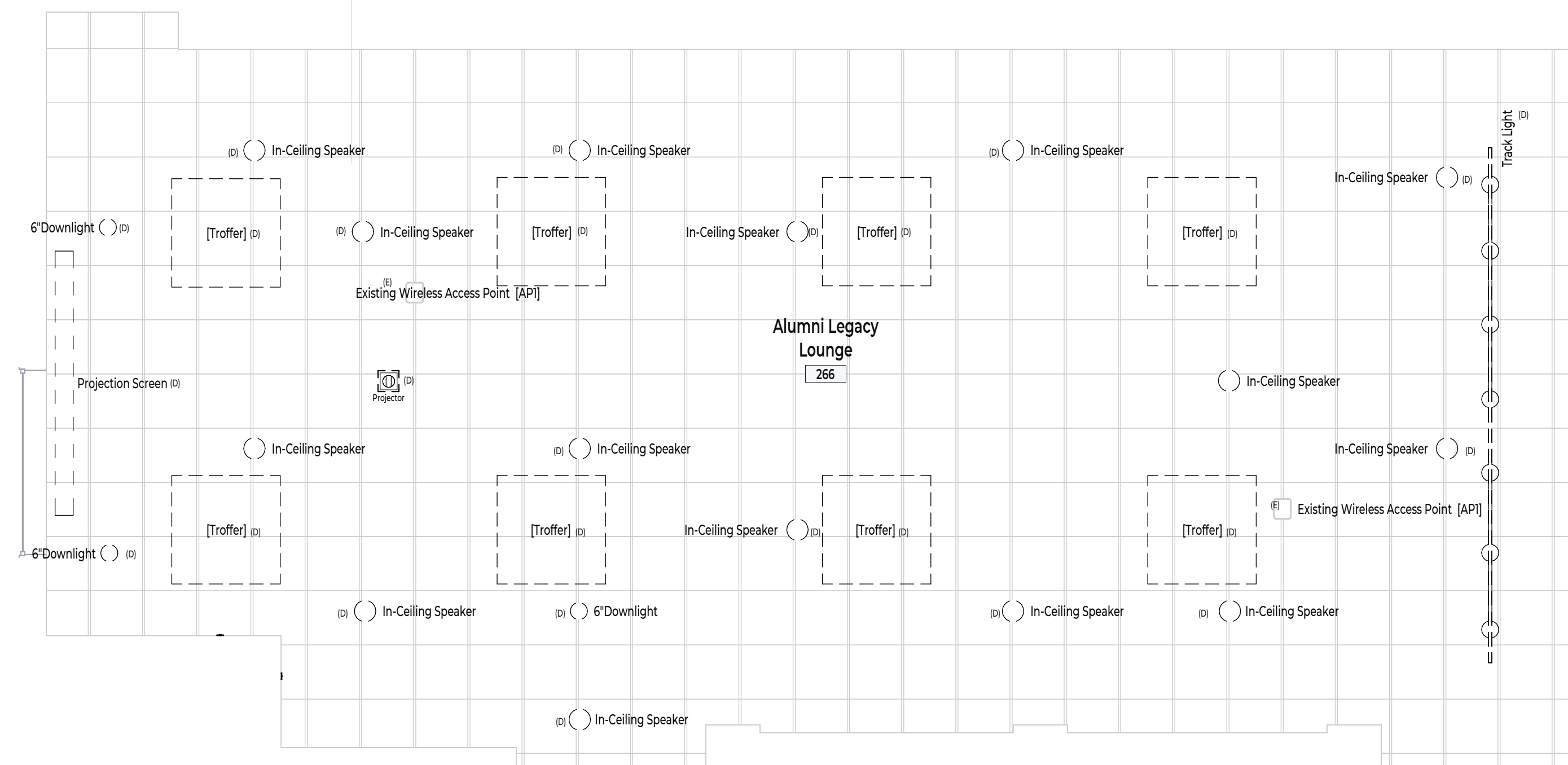








1 Demo - Floor Plan  
1/4" = 1'-0"



2 Demo - Reflected Ceiling Plan  
1/4" = 1'-0"

General Sheet Notes

1. Installation of all work shall be in accordance with all local codes and ordinances and the edition of the National Electric Code NFPA 70 (NEC) in effect.
2. The electrical plans are diagrammatic only. Coordinate the electrical equipment location and installation with equipment being served.
3. Exact location of mechanical and plumbing equipment that require electrical connections are shown on the mechanical and plumbing drawings. Coordinate with mechanical and plumbing contractors.
4. All conductors shall be copper, unless otherwise noted. Minimum size shall be #12 AWG. Aluminum conductors are permitted above 100A.
5. Refer to the mechanical equipment connection schedule for disconnect requirements.
6. All smoke detectors to be listed and installed in accordance with the latest edition of NFPA 72. Smoke detectors to be wired together and receive primary power from the buildings wiring.
7. Refer to the architectural drawings for exact mounting height of receptacles.
8. The lighting control plans are diagrammatic only. Coordinate equipment location and installation with manufacturer shop drawings.
9. Luminaire compatibility must be confirmed before connecting to lighting control equipment.

Reference Keynotes



**ALUMNI LEGACY LOUNGE  
STRAND UNION BUILDING  
RENOVATION**

CAMPUS PLANNING,  
DESIGN & CONSTRUCTION  
MONTANA STATE UNIVERSITY  
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**BLACK SHEEP**

Mechanical/Plumbing/Electrical/Lighting/Technology  
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BLACKSHEEPengineering | 406.293.8489

PPA#23-0720

A/E#001

Electrical Demolition  
Plan

**E1.10**

Date:  
03.07.2024

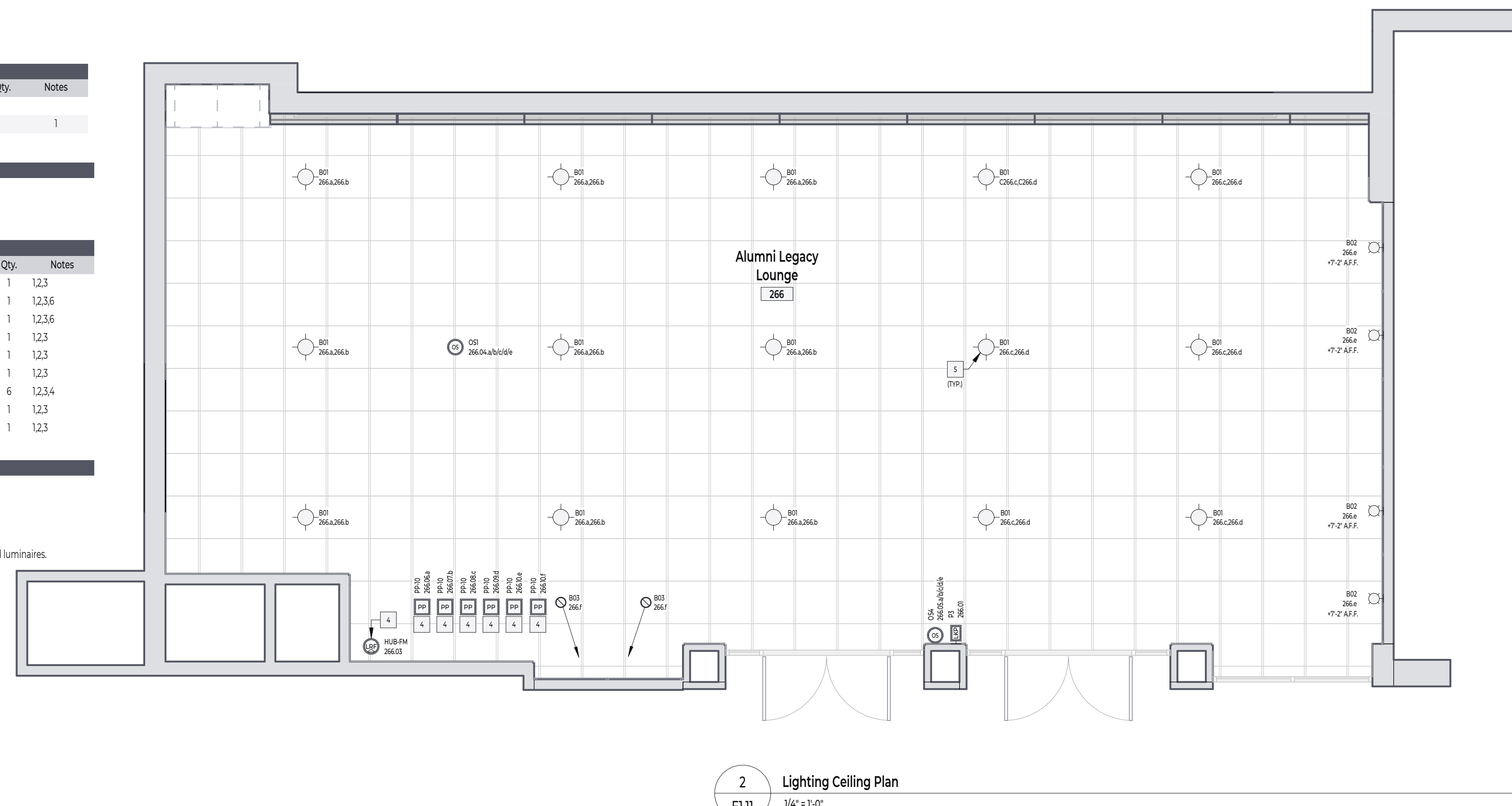
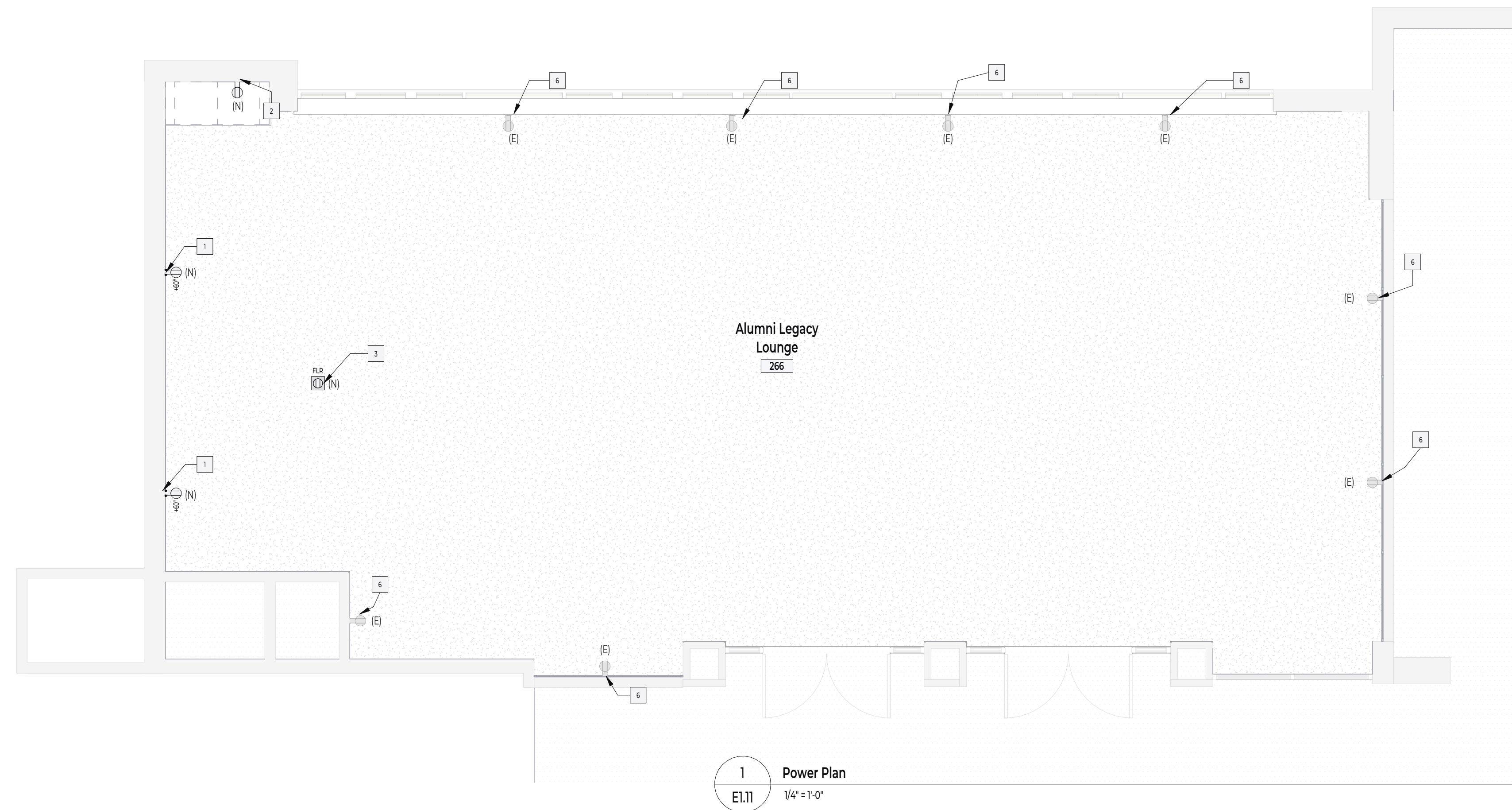


General Sheet Notes

- Installation of all work shall be in accordance with all local codes and ordinances and the edition of the National Electric Code NFPA 70 (NEC) in effect.
- The electrical plans are diagrammatic only. Coordinate the electrical equipment location and installation with equipment being served.
- Exact location of mechanical and plumbing equipment that require electrical connections are shown on the mechanical and plumbing drawings. Coordinate with mechanical and plumbing contractors.
- All conductors shall be copper, unless otherwise noted. Minimum size shall be #12 AWG. Aluminum conductors are permitted above 100A.
- Refer to the mechanical equipment connection schedule for disconnect requirements.
- All smoke detectors to be listed and installed in accordance with the latest edition of NFPA 72. Smoke detectors to be wired together and receive primary power from the buildings wiring.
- Refer to the architectural drawings for exact mounting height of receptacles.
- The lighting control plans are diagrammatic only. Coordinate equipment location and installation with manufacturer shop drawings.
- Luminaire compatibility must be confirmed before connecting to lighting control equipment.

Reference Keynotes

- Connect all new receptacles on the same circuit to the nearest power panel.
- AV rack shall have a dedicated 20A circuit connected to the nearest power panel.
- Conference table and podium yet to be finalized as of 01.16.2024. E.C. to determine necessary power requirements and provide power accordingly.
- Connect new vibe hub and power packs to existing unswitched lighting circuit(s) serving this area. Extend wiring from power pack to all luminaires in zone as required.
- Luminaire has two control circuits. Connect to associated power packs as shown. Typical of all luminaires of this type.
- Replace with new device to match new style.





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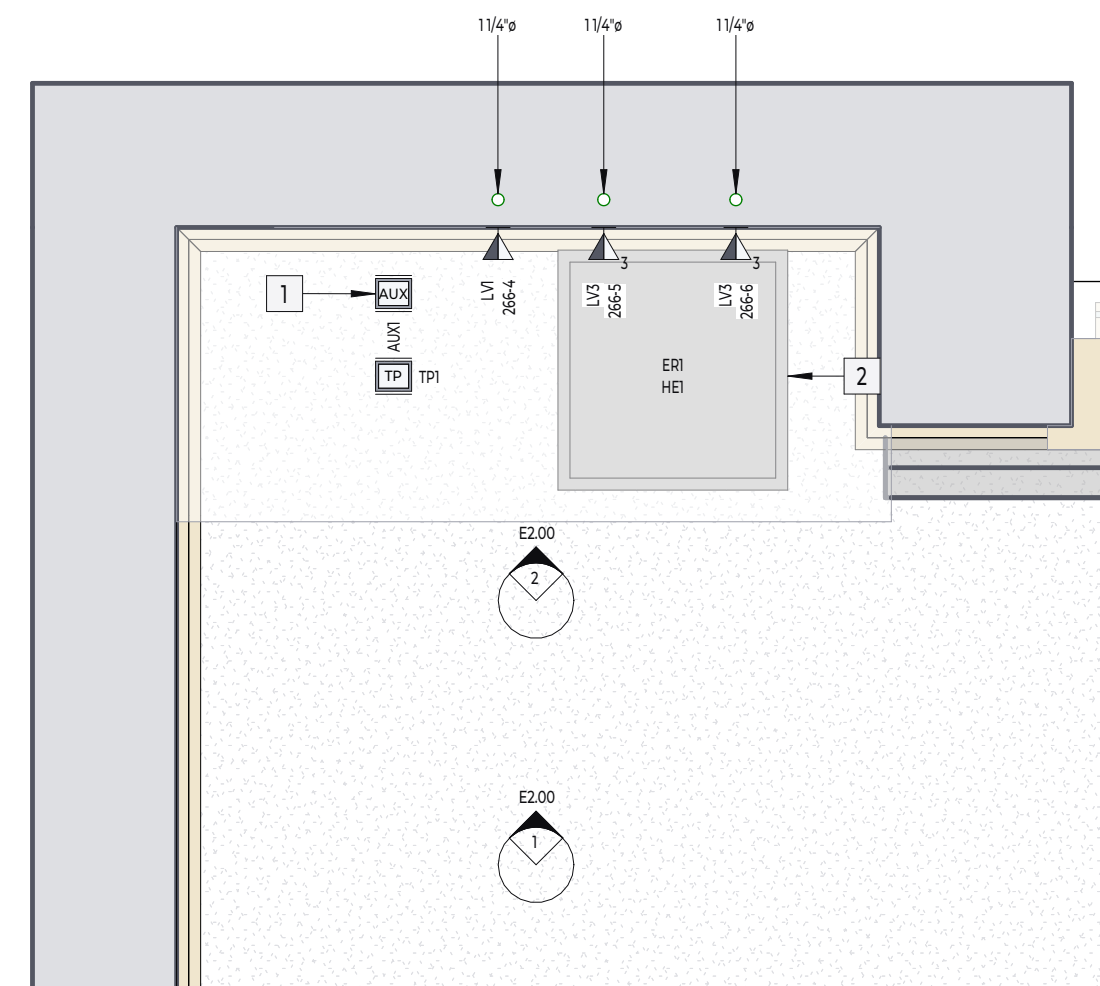
REVISIONS	
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**General Sheet Notes**

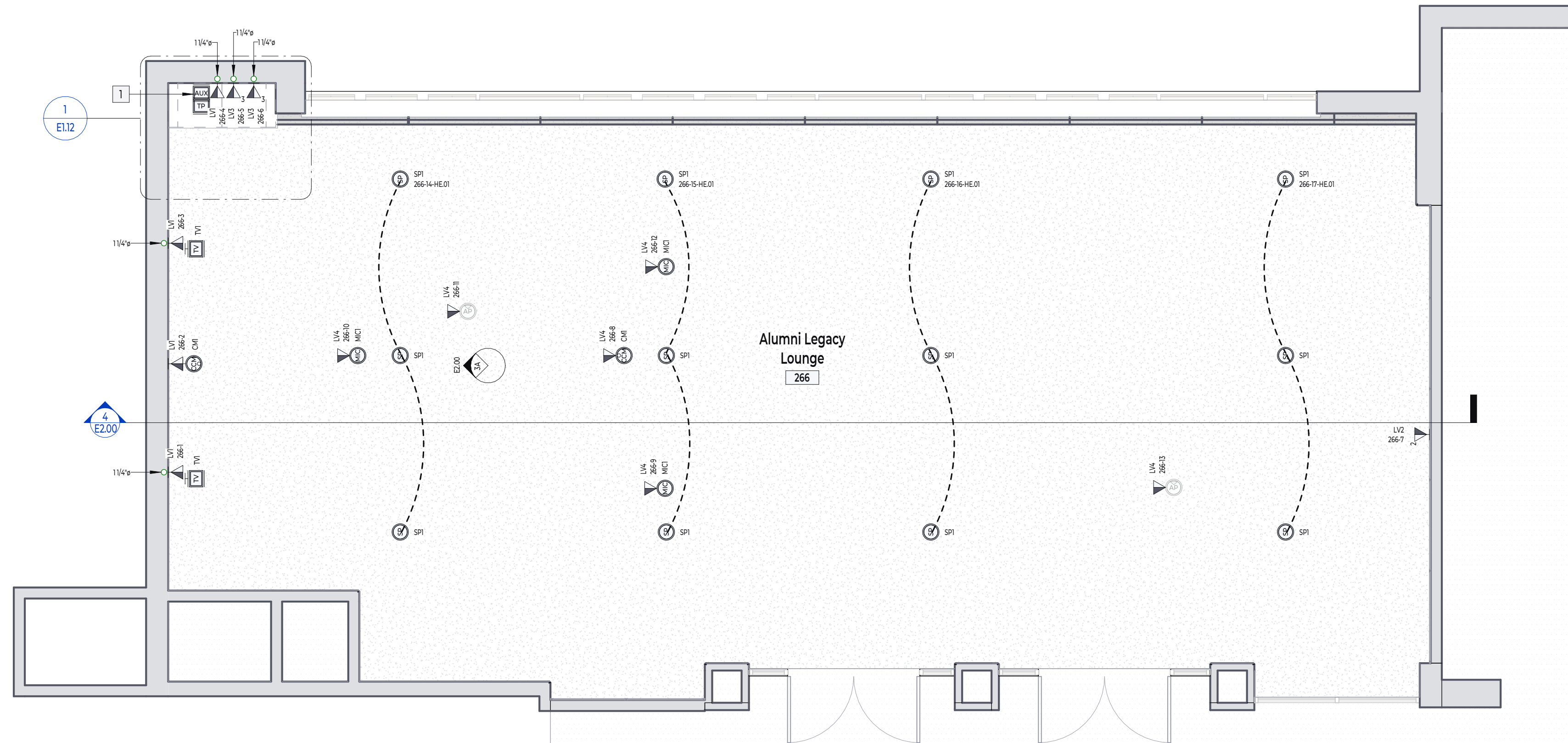
1. Installation of all work shall be in accordance with all local codes and ordinances and the edition of the National Electric Code NFPA 70 (NEC) in effect.
2. The low voltage plans are diagrammatic only. Coordinate low voltage equipment location and installation with equipment being served.
3. All cabling above drop ceiling shall require 3-Hooks, maximum of 4' between each 3-Hook. Pathways shown on ceiling plans are diagrammatic only.
4. All TV display locations shall have an electrical receptacle installed in the back box or have a clock outlet near the center of the TV if no back box is present.
5. All data locations should have a power outlet within three feet.
6. Refer to architectural drawings for exact mounting height of receptacles.
7. All device location wiring (excluding the touch panel patch cabling) shall home run and terminate in the Attic TR.

**Reference Keynotes**

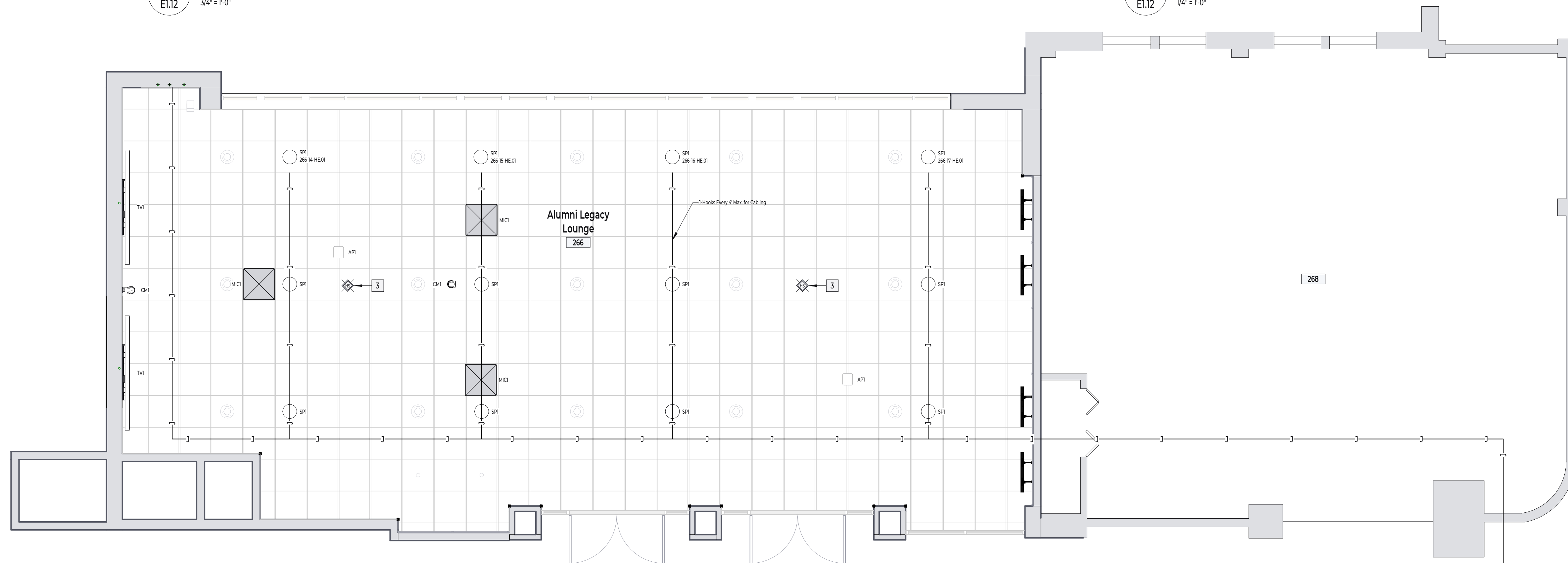
1. Extron Cable Cubby mounted in counter top. Wiring to include (I) HDMI, (I) USB-C & (I) CAT6A.
2. HE.01 to be installed in lower cabinet. Final specifications to be determined. Contractor to provide adequate cooling in final cabinet and must include locking doors.
3. Add white ceiling mounted horn strobes and connect to existing building fire alarm system.



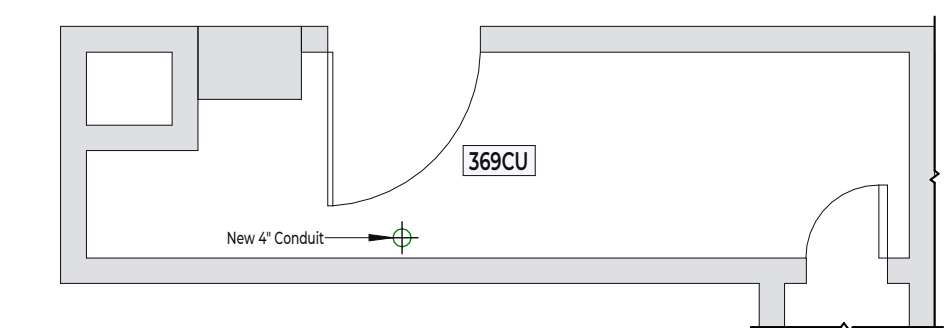
1 Headend Location Enlarged  
E1.12 3/4" = 1'-0"



2 Technology Plan  
E1.12 1/4" = 1'-0"

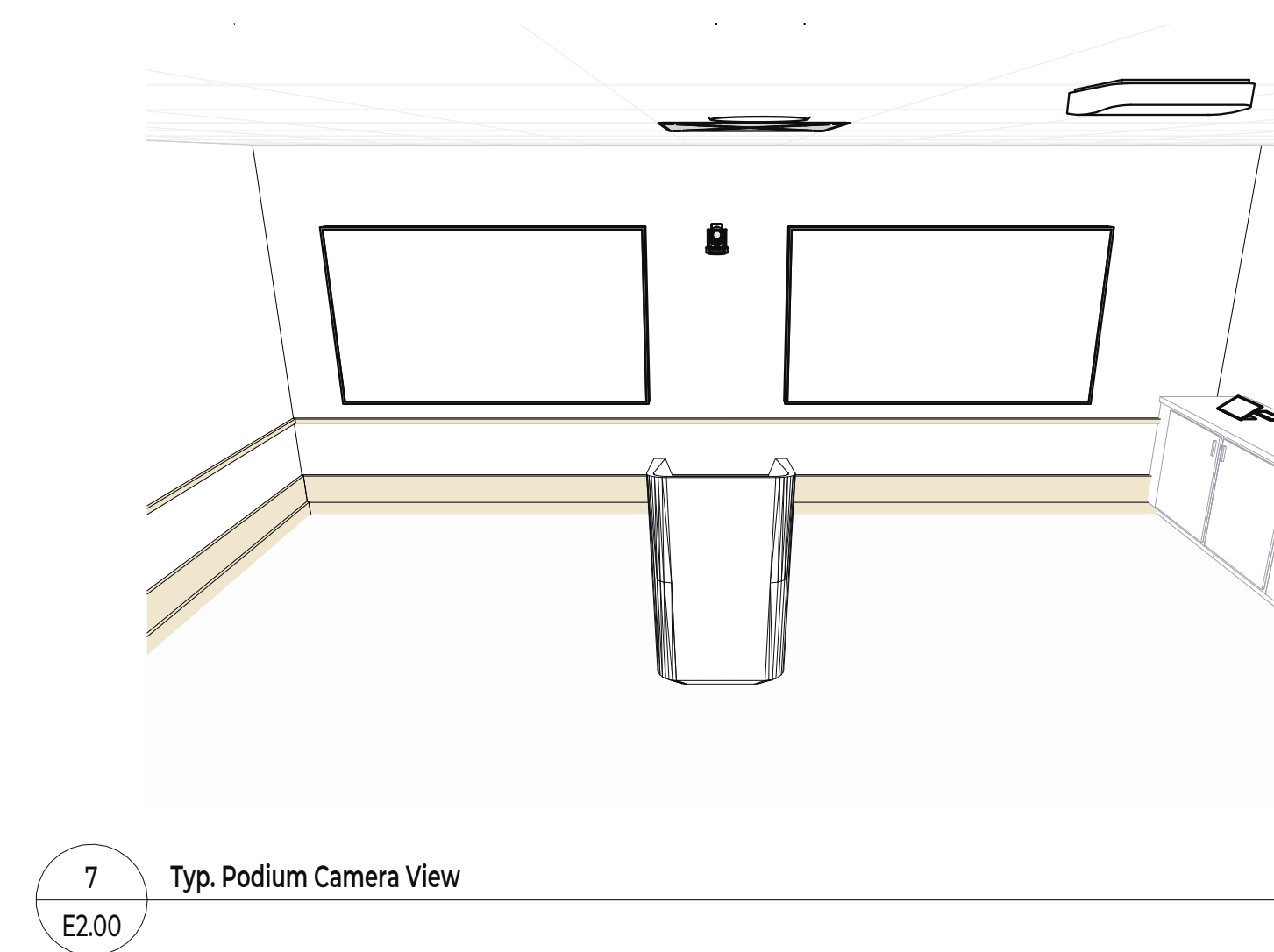
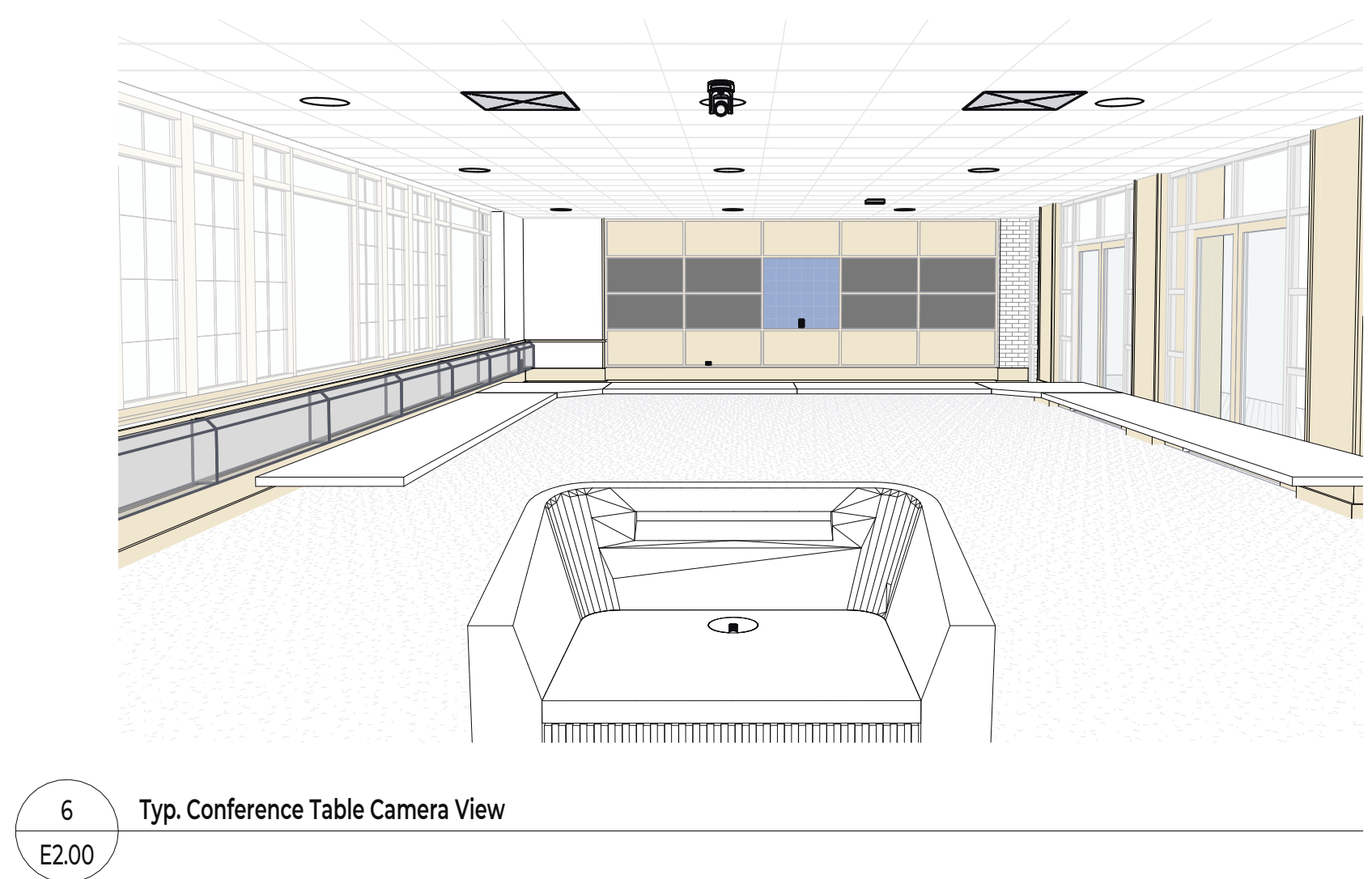
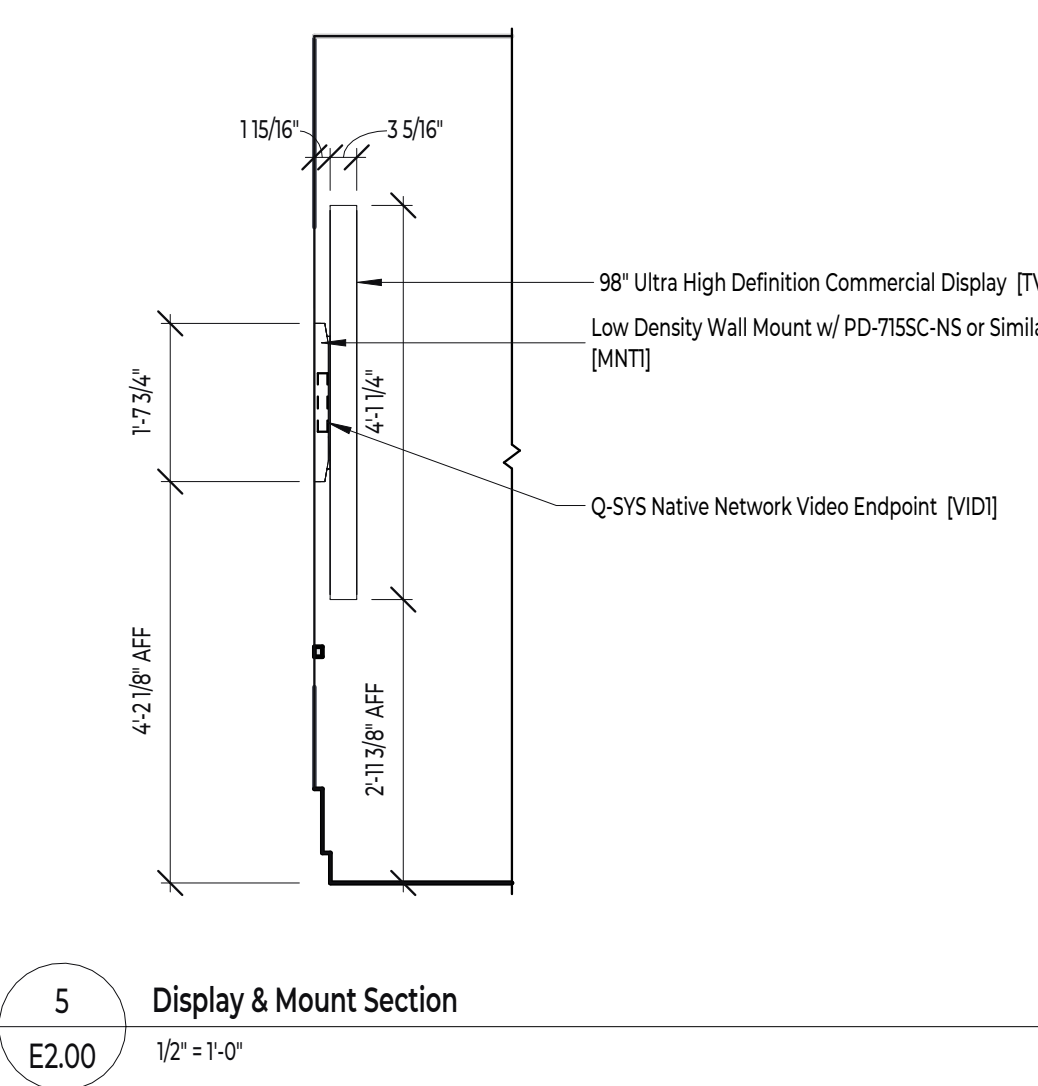
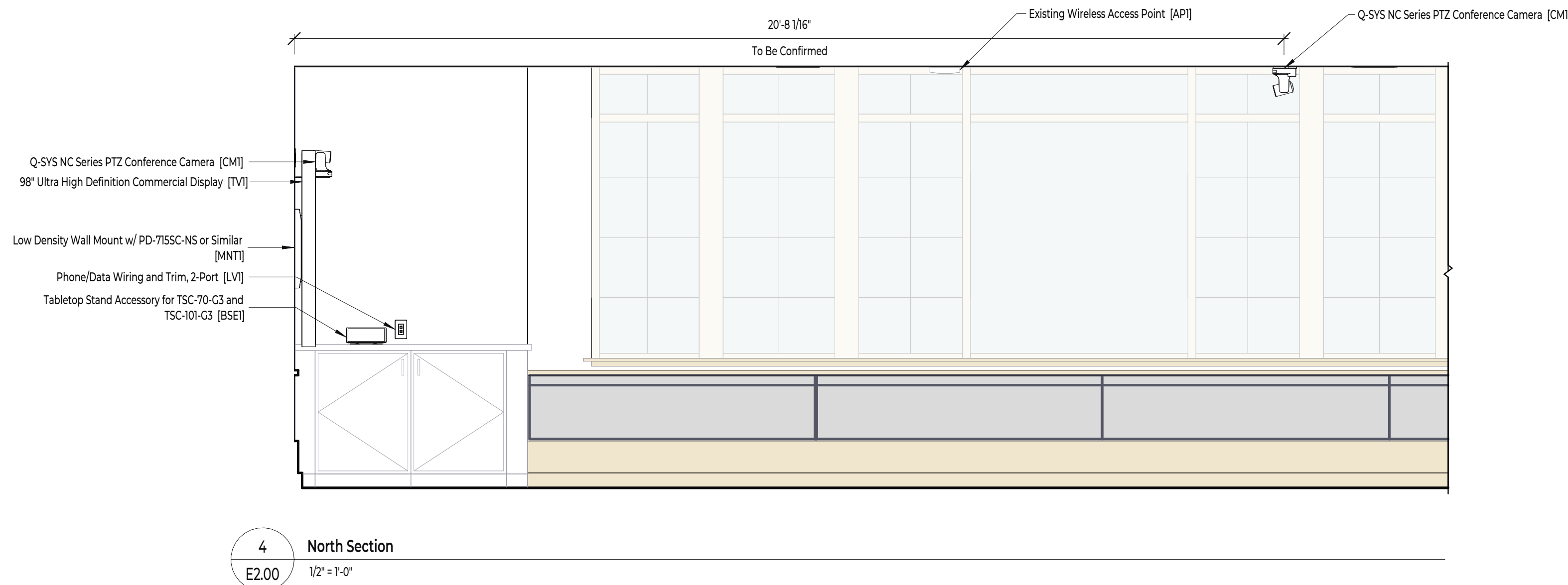
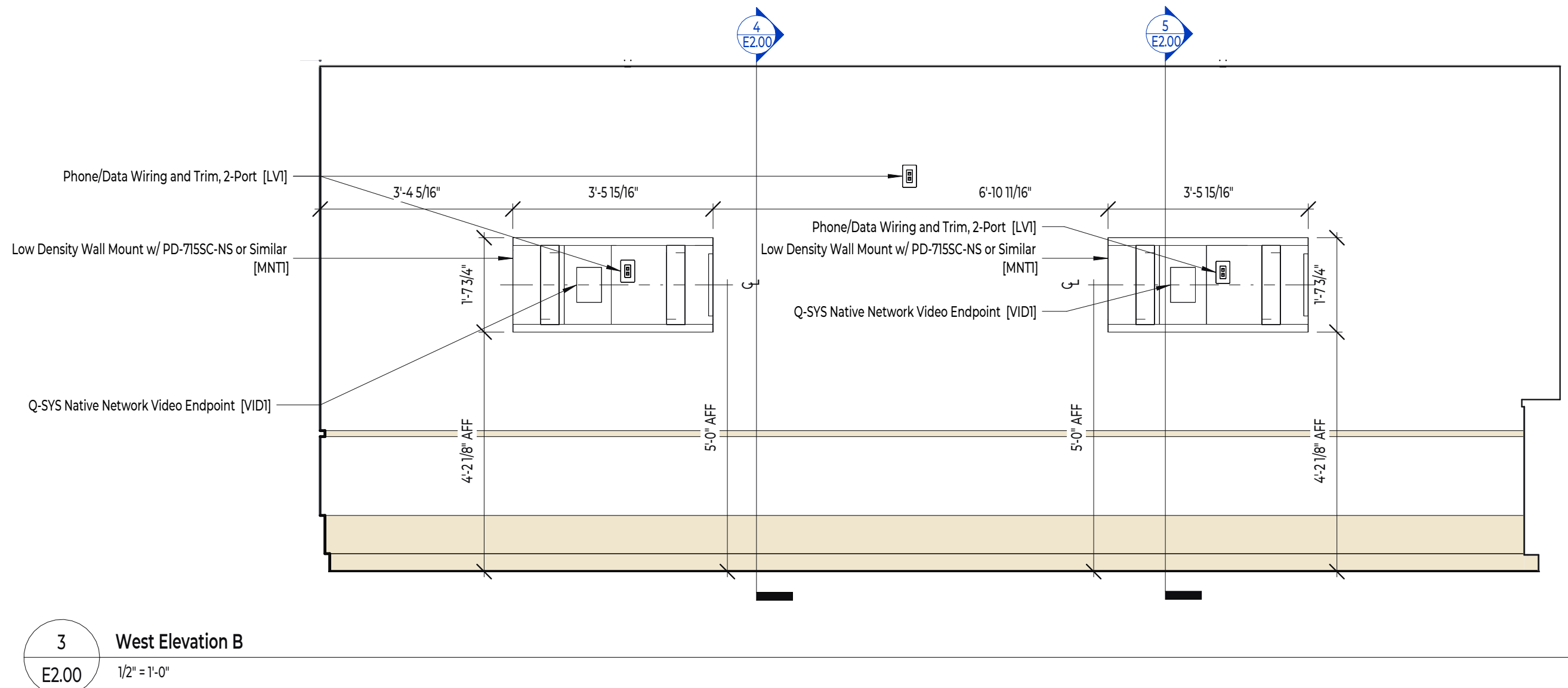
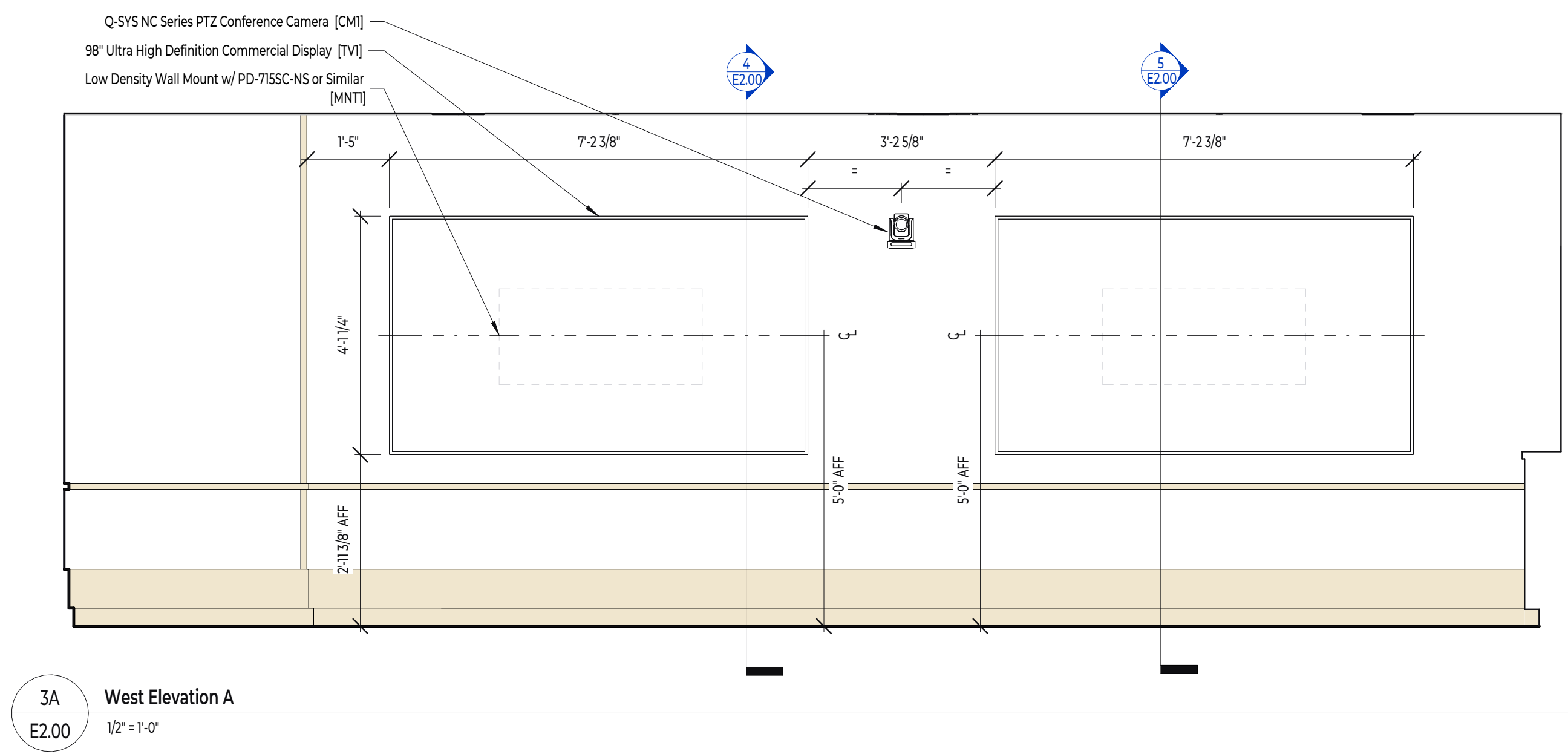
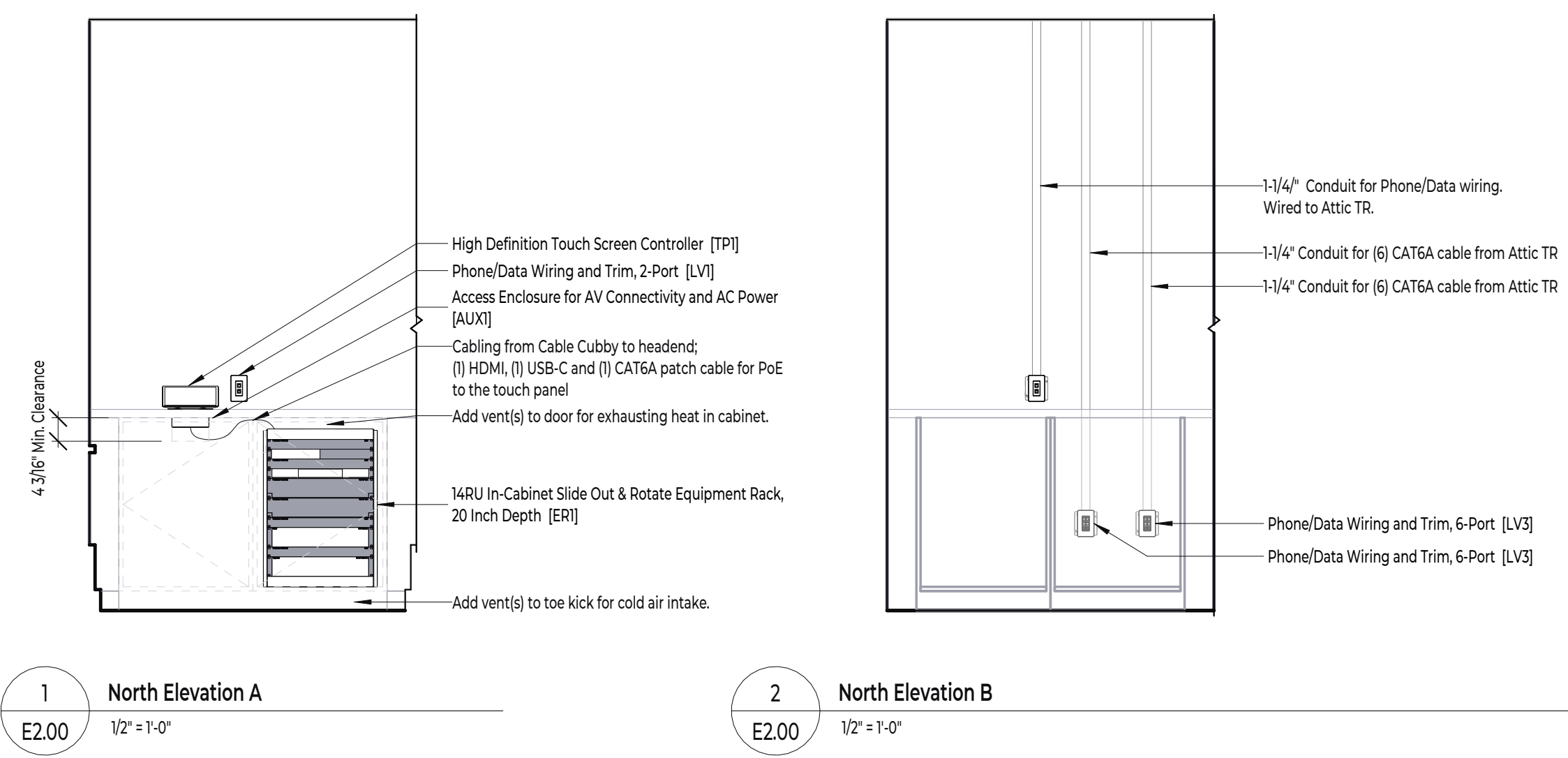


3 Technology Ceiling Plan  
E1.12 1/4" = 1'-0"



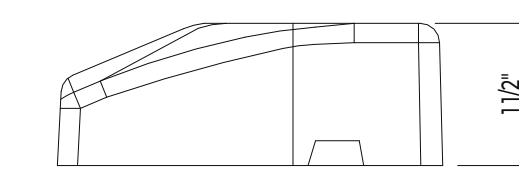
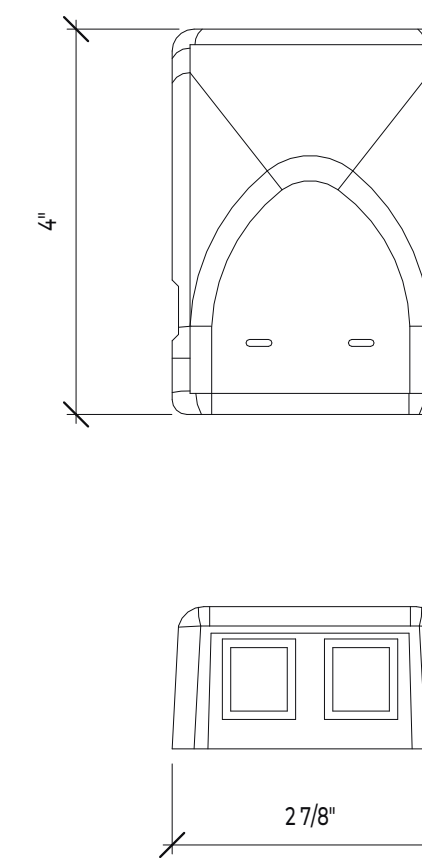
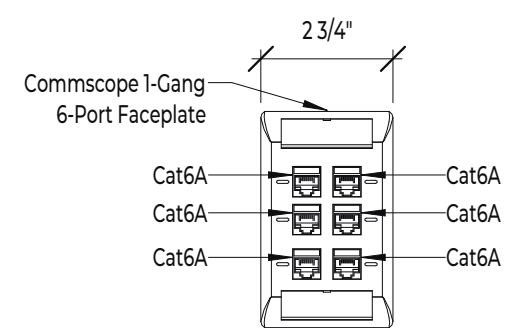
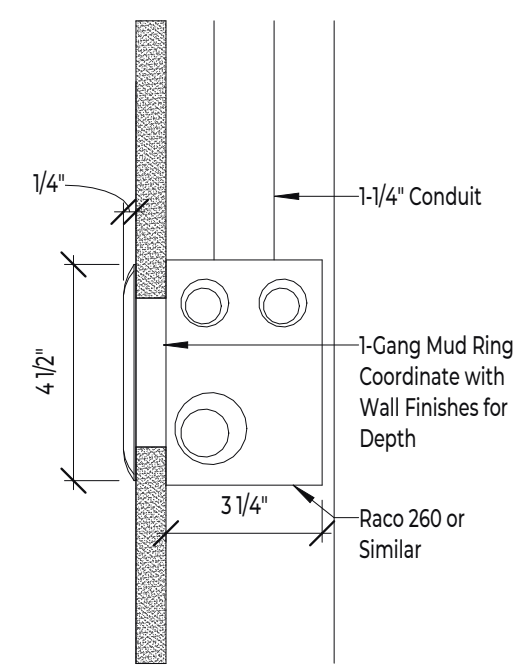
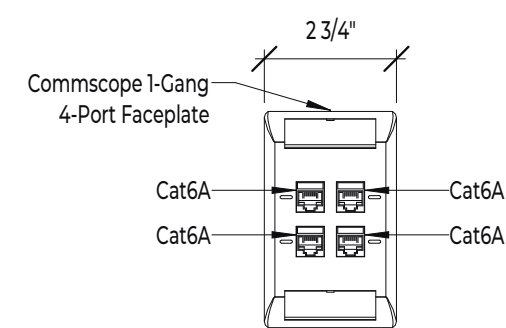
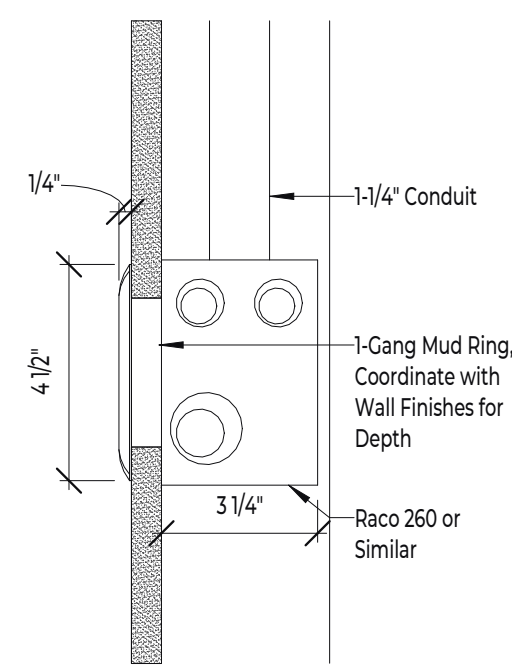
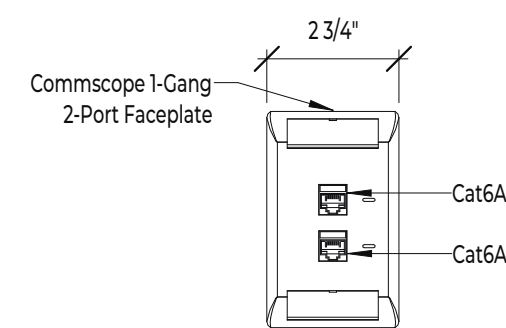
4 Third Level Technology Ceiling Plan  
E1.12 1/4" = 1'-0"





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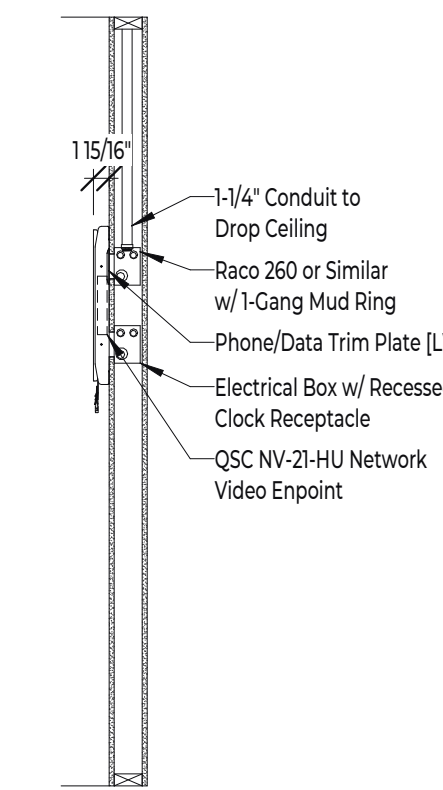
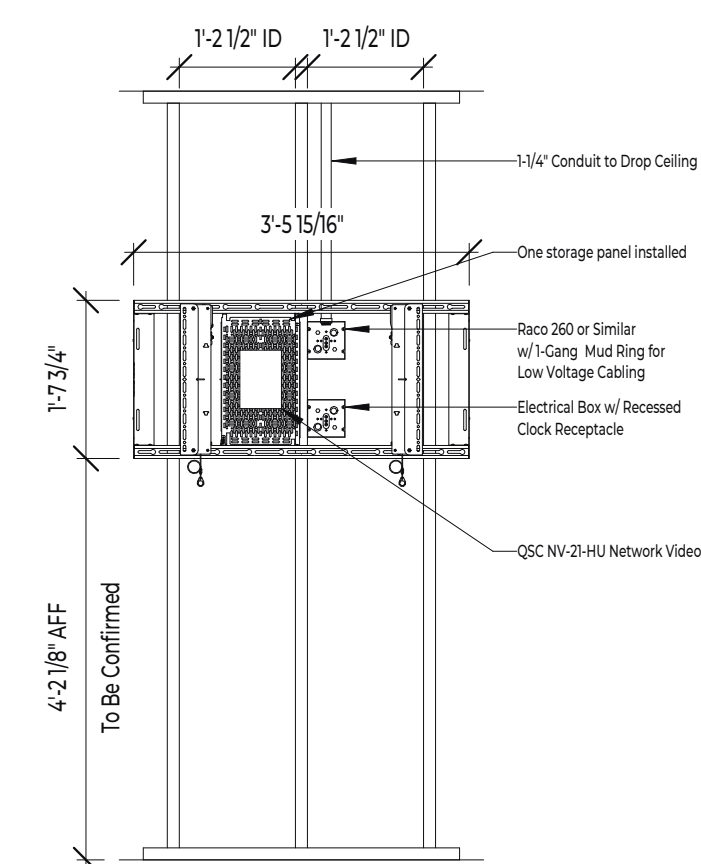
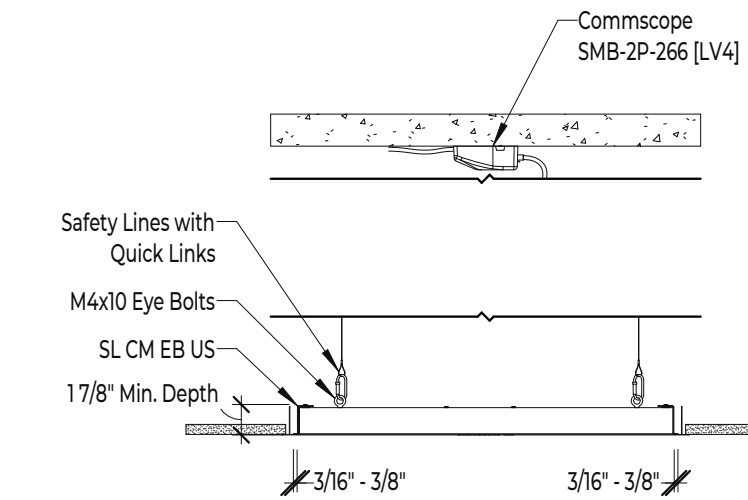
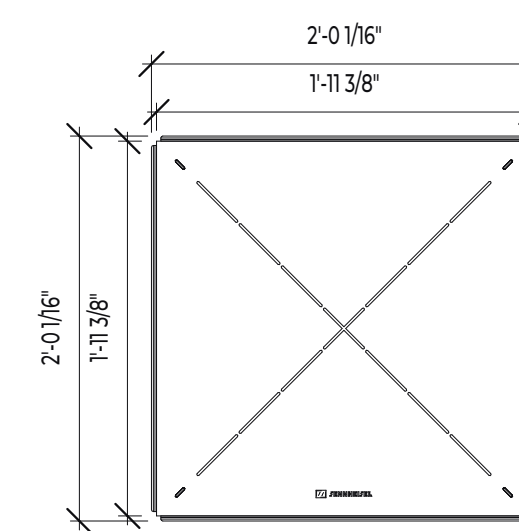
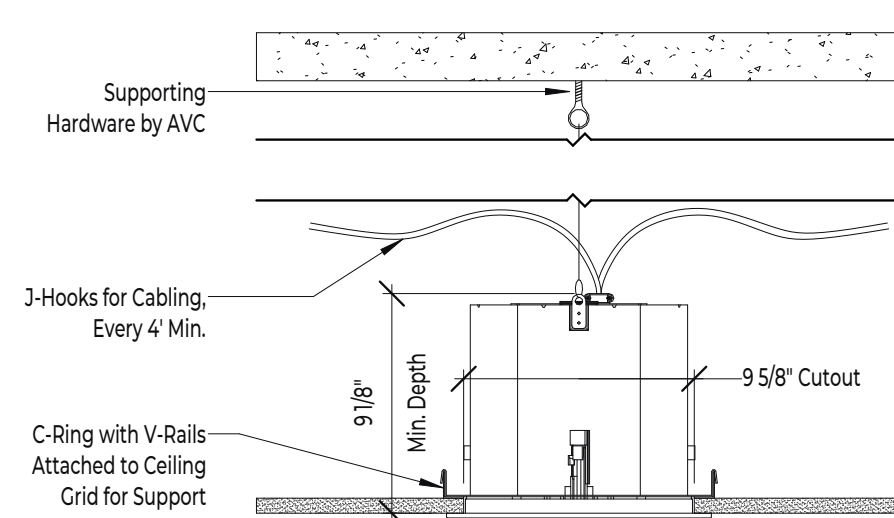
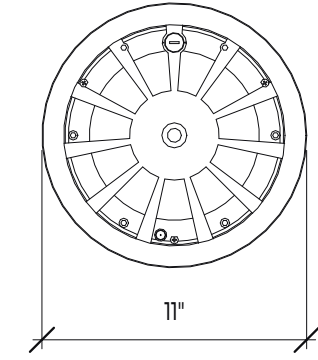
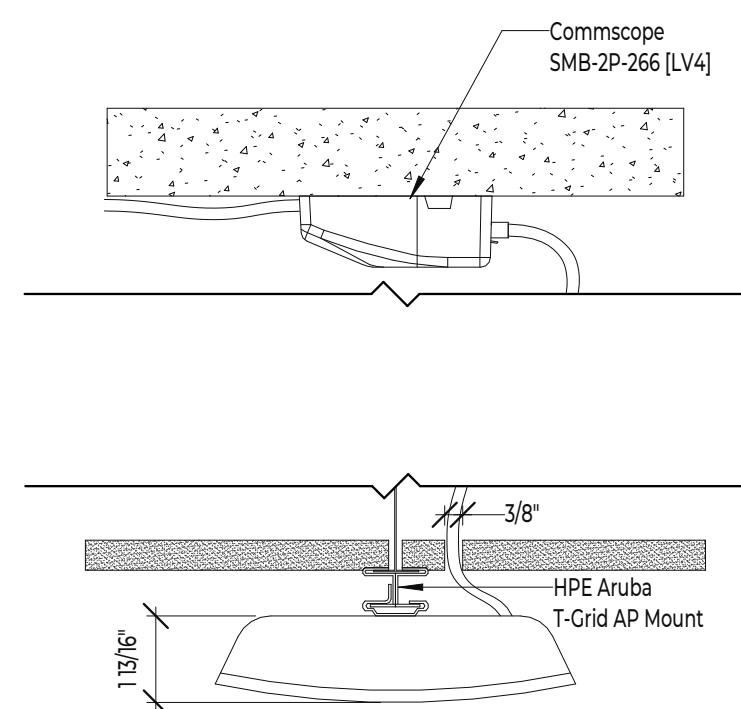
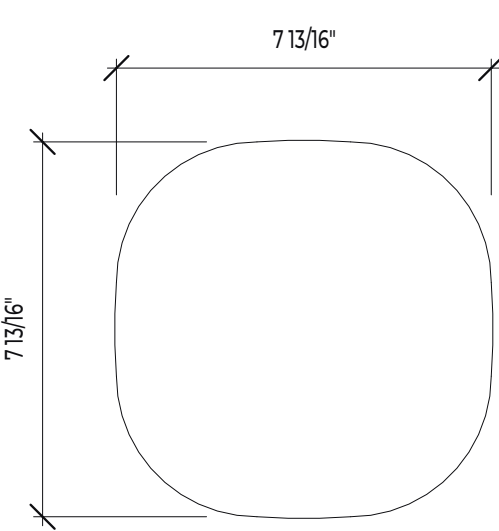


1 Typ. 2-Port Data Trim Plate [LV1]  
ES.01 3" = 1'-0"

2 Typ. 4-Port Data Trim Plate [LV2]  
ES.01 3" = 1'-0"

3 Typ. 6-Port Data Trim Plate [LV3]  
ES.01 3" = 1'-0"

4 Typ. Commscope SMB-2P-266 [LV4]  
ES.01 6" = 1'-0"

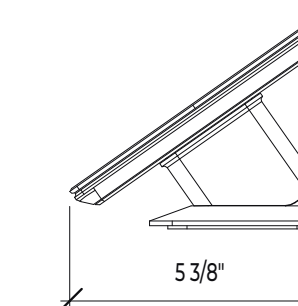
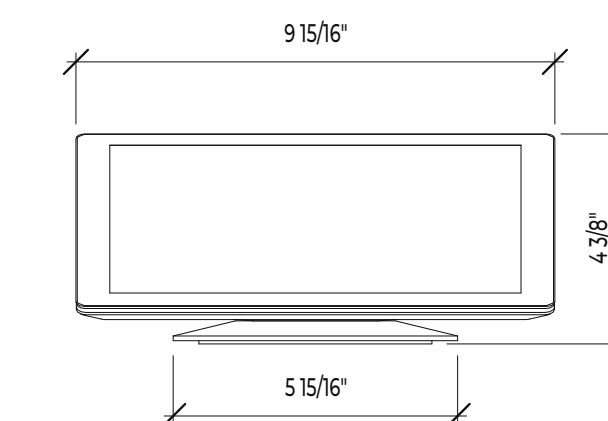
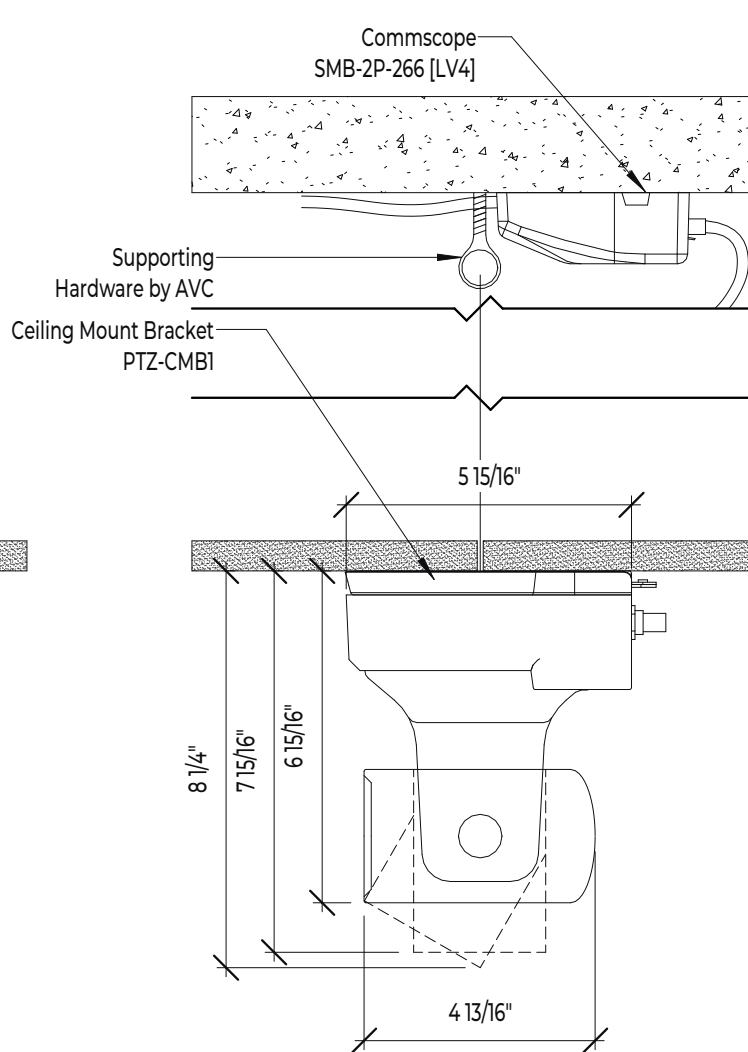
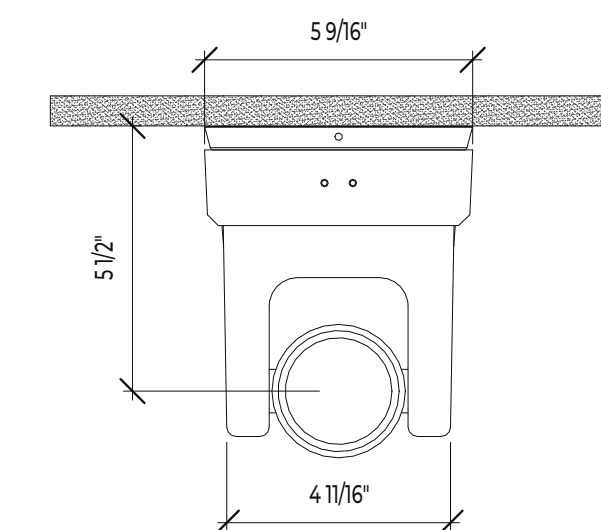
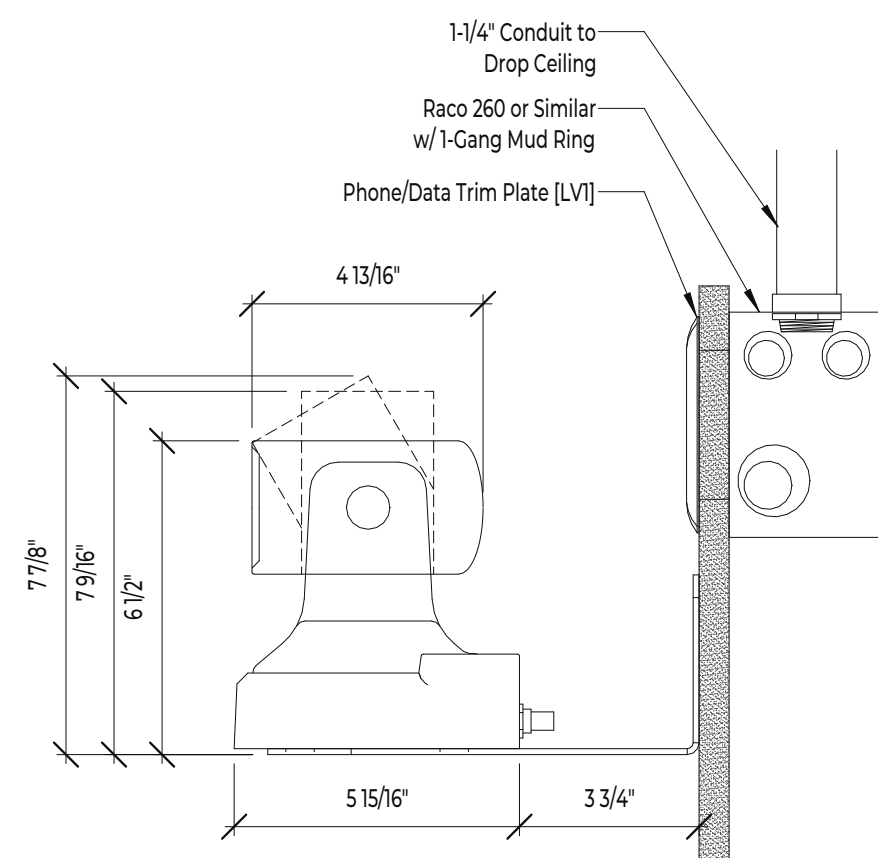
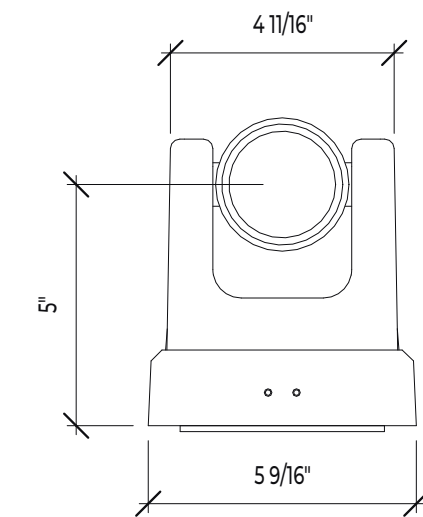
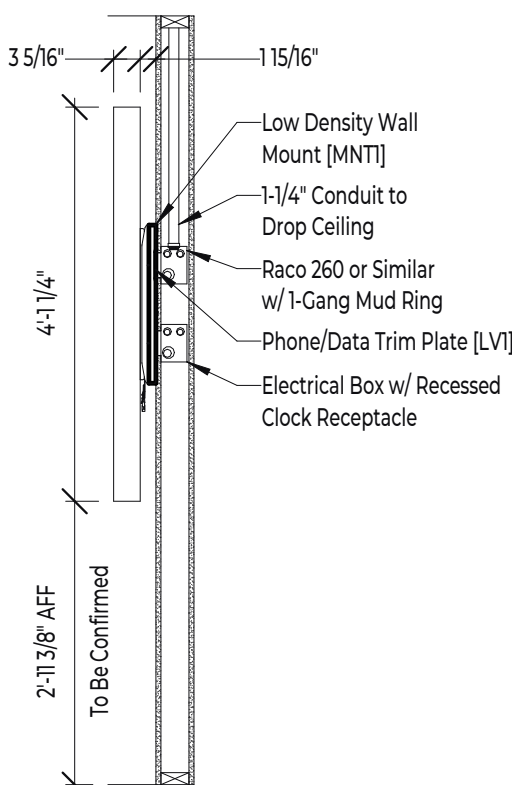
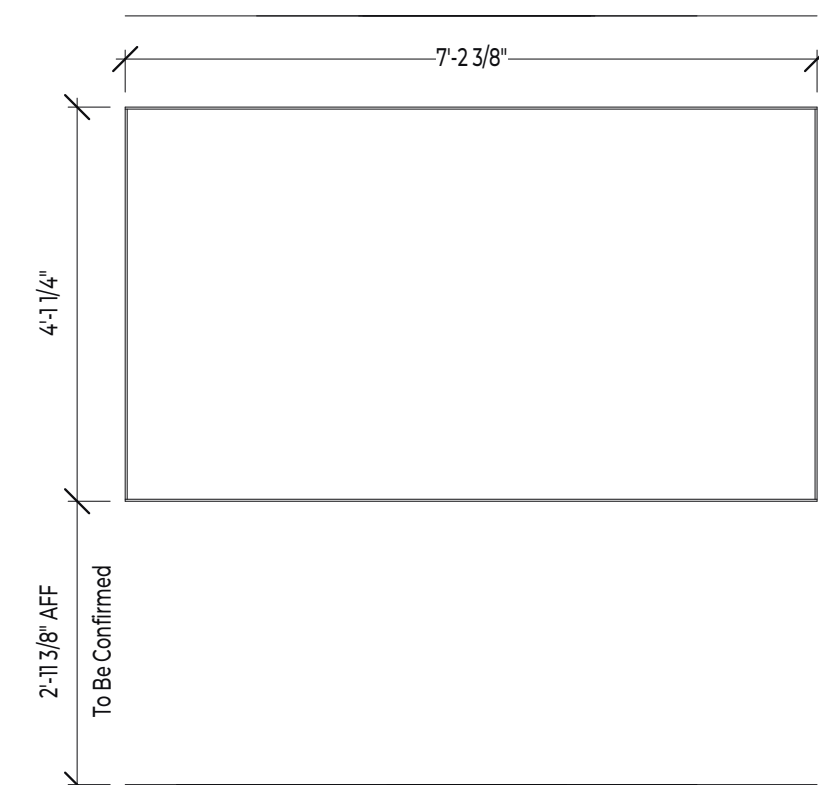


5 Typ. Existing Ceiling Grid Mounted Interior Access Point [API]  
ES.01 3" = 1'-0"

6 Typ. QSC AD-C6T-ZB 6.5" In-Ceiling Speaker [SPI]  
ES.01 1 1/2" = 1'-0"

7 Typ. Ceiling Grid Mounted Sennheiser TeamConnect 2 Microphone Array [MIC]  
ES.01 1" = 1'-0"

8 Typ. Chief AS3LD Display Mount [MNT]  
ES.01 1/2" = 1'-0"



9 Typ. NEC E988 Commercial Display [TV]  
ES.01 1/2" = 1'-0"

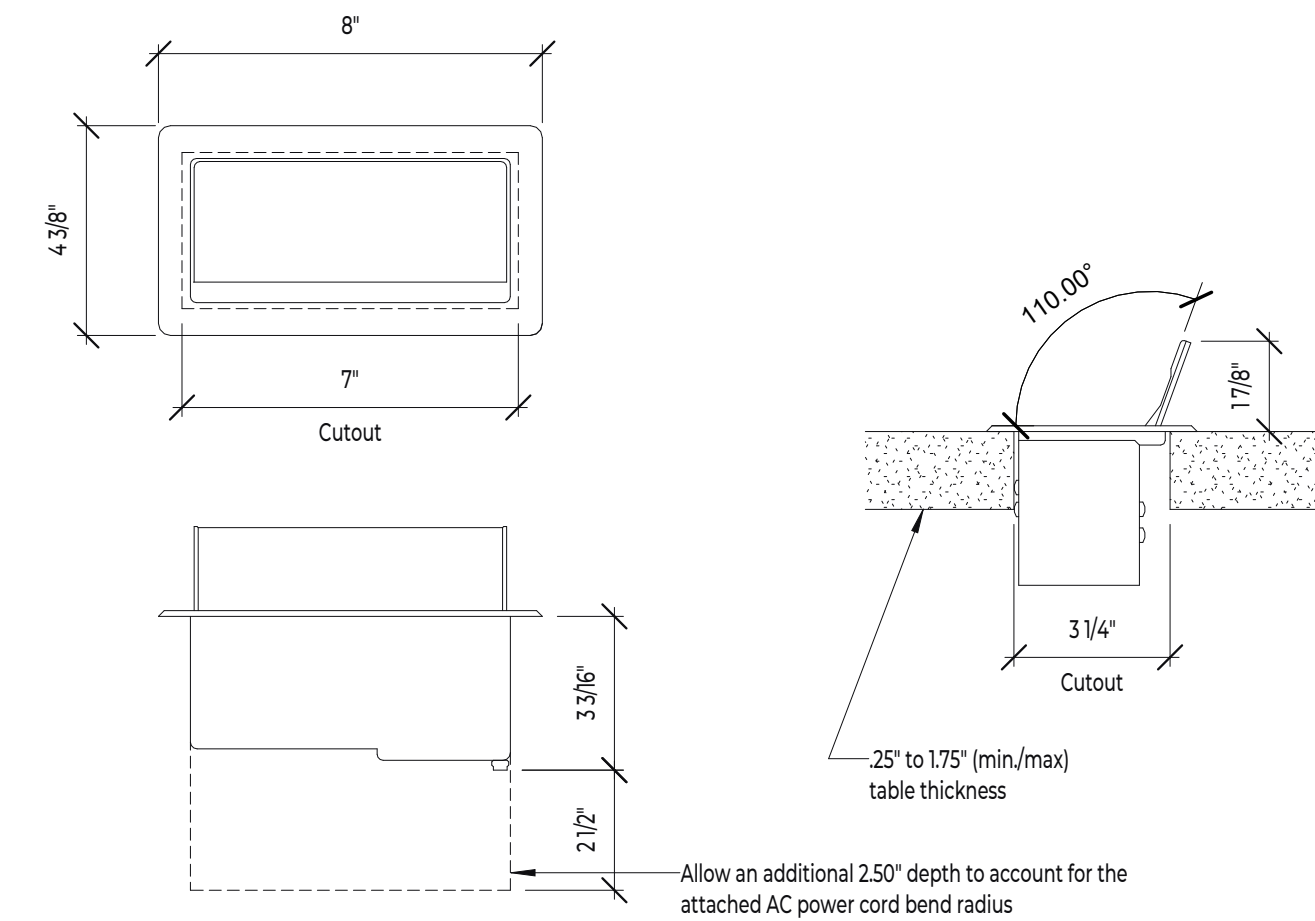
10 Typ. Wall Mounted QSC Q-SYS NC-12x80 Conferencing Camera [CM1]  
ES.01 3" = 1'-0"

11 Typ. Ceiling Mounted QSC Q-SYS NC-12x80 Conferencing Camera [CM2]  
ES.01 3" = 1'-0"

12 Typ. QSC Q-SYS TSC-100-G3 Tabletop Touch Panel [TPI]  
ES.01 3" = 1'-0"

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1 Typ. Extron Cable Cubby [AUX1]  
 E5.02 3' = 1'-0"

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**Responsibilities**

**Contractor:**  
Provide and install all Audio & Video equipment including any software licenses, all audio & video cabling and terminations and all cabling support relate to the AV systems. Contractor to provide and install all conduits, fittings and boxes. Contractor to configure and set up all Audio & Video and supporting equipment.

**The University IT:**  
Supply and support all connections to the campus enterprise network. University IT to provide and install all Cat6A cabling, supports and trim for the data cabling running to the Student Union Building Telecommunications Room only. This includes all data jacks shown on plan. University IT to uninstall and reinstall Aruba access points and cabling. University IT to remove existing data locations.

**Headend**

All termination hardware, patch panels, connecting cable, wire management hardware, cable trays, equipment racks and any other hardware necessary for system implementation should be detailed in the bid package.

The current proposed headend location is within the northeast cabinet. Further coordination with the architect will be required to finalize the headend location as well as internal cabinet space requirements.

- Termination**
  - At the headend, all cables shall be terminated (if home run) on Category 6A compliant patch panel(s).
- Power Management**
  - Project shall include cloud-based IP power management and surge protection for all equipment. Uninterruptible power supplies (UPS) shall be used to support critical equipment in a loss power event.
- Equipment Rack**
  - A structured equipment rack that can be pulled out of the cabinet for service. Includes adequate wiring management, power distribution, cooling and ventilation shall be used.

**Network & Wi-Fi System**

University IT to provide active data ports for all data locations and all equipment in the local headend from the campus enterprise network located in the Attic TR.

University IT to provide all necessary licenses for the Dante and Q-SYS components.

All network AV devices shall have static IP addresses provided by the university. Contractor to provide the university with all device login credentials and configuration files upon completion.

The following table identifies the intended network system device locations shown on plan.

Network Devices	Qty.
Phone/Data Wiring and Trim, 2-Port	4
Phone/Data Wiring and Trim, 2-Port Biscuit	6
Phone/Data Wiring and Trim, 4-Port	1
Phone/Data Wiring and Trim, 6-Port	2

**Audio/Video System Scope**

This scope is to provide guidance to the contractor and should not be considered all inclusive of the university's needs. The contractor should implement best practices for configuration of the devices and software for conferencing and presentation needs. Contractor to consult with the university team prior to programming and configuration and confirm all system operational needs.

QSC Q-SYS system to be set up and fully configured and programming by the contractor. The contractor will provide the university all programming and configuration files for all devices. Upon completion of the project the contractor is to train one university staff member on QSC Q-SYS software and explain the final configuration files so that continued maintenance of the system can be completed by the university.

University staff to test and sign off on all user interfaces and control functions prior to completion of the project. Contractor to provide minimum 2 training sessions for the university staff in system use.

Q-SYS user interfaces are to be as simple as possible on primary screens and require minimal button presses to initiate room "scenes." Additional advanced user screens can be made available to end users as needed to accomplish the university's needs. The following scenes are assumed however, final needs and naming are to be determined by the university.

**"Presentation"**  
Microphone array to be focused to the front of the room and podium.  
Audio voice lift and timing to be configured appropriately increasing in volume to the back of the room.

University staff to determine the default input source/s.

**"Meeting"**  
Microphone array to be focused to the front of the room and podium.  
Audio voice lift and timing to be configured appropriately increasing in volume to the back of the room. Default active camera to be the one facing the podium in a preset position.

University staff to determine the default input source/s.

Microphone input and presentation input audio to mix to the conferencing USB and Clickshare outputs for remote conferencing attendees to hear the full in-room presentation.  
Microphone input and presentation input audio to mix to then in-ceiling speakers.  
The user interface should have independent volume control and muting for in-room microphones/voice lift and connected sources.

The users should be able to select from any of the AV input sources USB, HDMI, Clickshare(x2) to display on either of the screens or mirror a single input.  
Users should be able to connect a local computer as a Bring Your Own Device (BYOD) and bridge to all in-room audio, microphone and video equipment via USB/HDMI and Clickshare to use in conferencing or presentation scenarios.

The user should be able to select the active camera and control the pan tilt and zoom if needed with advanced user interface screens. Cameras should default to a "home" position when the system is turned off. Cameras use voice tracking from the microphones if determined reliable.  
Audio Echo Cancellation (AEC) to be implemented on all microphone channels.  
Contractor to consult with the university and implement a SIP softphone option into the conferencing system if desired. The university would provide the SIP server and SIP line/s.

**Audio System**

The audio system shall allow independent control of power, volume and source selection for up to 4 zones through the intuitive control interface. The following sources shall be provided:

- Audio from Q-SYS video endpoints.
- (3) ceiling grid mounted microphone array panels.
- Amplifiers with built-in DSP.
- Zero Bezel in-ceiling speakers.

The preceding table identifies the video components proposed for the space.

Audio Devices	Qty.
6.5" 2-Way In-Ceiling Speaker with Zero Bezel	12
4-Channel Network Amplifier, 700W per Channel	1
TeamConnect 2 Microphone Array, Ceiling Grid Mounted	3

**Video System**

The video system shall allow independent control of power, volume and source selection for the space through the intuitive control interface. The following sources shall be provided:

- (4) Q-SYS Video of IP endpoints.
- (2) Pan, Tilt & Zoom conference cameras.
- Wireless conferencing system with dual display outputs.
- (1) Local connection at the counter with (1) HDMI and (1) USB-C connection.

The preceding table identifies the video components proposed for the space.

Video Devices	Qty.
Access Enclosure for AV Connectivity and AC Power	1
Hi-End Wireless Conferencing for Large Meeting Spaces	1
98" Ultra High Definition Commercial Display	2
Q-SYS NC Series PTZ Conference Camera	2
Q-SYS Native Network Video Endpoint	6

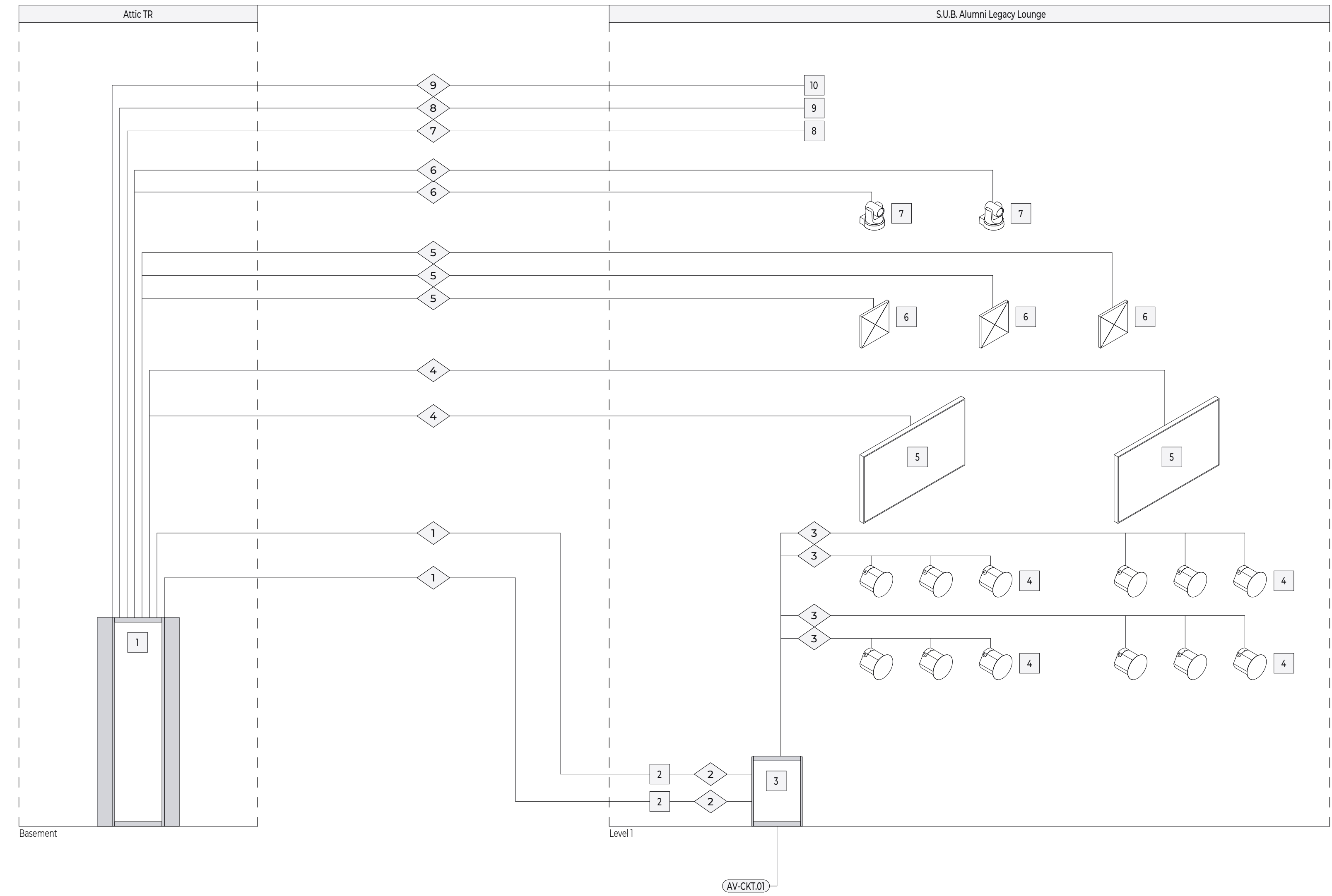
**Sheet Notes || One-Line Diagram**

- Existing UIT equipment rack.
- 6-Port phone/data jack.
- In-cabinet 14 space equipment rack.
- In-Ceiling Speakers.
- 98" Display
- Ceiling mounted microphone array.
- Conference camera.
- Existing wireless access points.
- 2-Port phone/data jack.
- 4-Port phone/data jack.

Notes:  
- Bonding to ground to be provided to all equipment racks, cabling ladder racks, and panels.

**Sheet Notes || One-Line Diagram**

- (6) CAT6A cables from existing Attic TR equipment for local equipment network connections.
- CAT6A patch cables for local equipment network connections.
- (1) 16/4 speaker cable for in-ceiling speakers, wired in parallel.
- (1) CAT6A cable for display Lan and (1) CAT6A cable for QSC VoIP endpoint Lan/PoE.
- (1) CAT6A cable for Lan/PoE and (1) CAT6A cable for Dante.
- (1) CAT6A cable for Lan/PoE and (1) CAT6A cable for spare.
- (2) CAT6A cables for existing wireless access points.
- (2) CAT6A cables for 2-port data jack.
- (4) CAT6A cables for 4-Port data jack.



**ALUMNI LEGACY LOUNGE  
STRAND UNION BUILDING  
RENOVATION**

**CAMPUS PLANNING,  
DESIGN & CONSTRUCTION**  
MONTANA STATE UNIVERSITY  
BOZEMAN, MONTANA  
PHONE: 406-994-5413 FAX: 406-994-5665

REVISIONS	
#	DESCRIPTION



Mechanical/Plumbing/Electrical/Lighting/Technology  
602 W. Hoback St. | Bozeman, MT 59715  
BLACKSHEEP engineering | 406.293.8489

PPA#23-0720  
A/E#001  
Technology Scope & One-Line Diagram

**E6.00**  
Date:  
03.07.2024



Technology Devices				
Manufacturer	Model	Description	Qty.	Type
Audio				
QSC	CX-Q 2K4	4-Channel Network Amplifier, 700W per Channel	1	AMP1
Sennheiser	SL CM EB US	TeamConnect 2 Microphone Array, Ceiling Grid Mounted	3	MIC1
QSC	AD-C6T-ZB	6.5" 2-Way In-Ceiling Speaker with Zero Bezel	12	SPI
Control				
QSC	TSC-7101-G3	Tabletop Stand Accessory for TSC-70-G3 and TSC-101-G3	1	BSE1
QSC	Core 8 Flex	Q-SYS Audio, Video & Control Processor	1	PROCI
QSC	TSC-101-G3	High Definition Touch Screen Controller	1	TPI
Data				
Typical	PD-2	Phone/Data Wiring and Trim, 2-Port	4	LV1
Typical	PD-4	Phone/Data Wiring and Trim, 4-Port	1	LV2
Typical	PD-6	Phone/Data Wiring and Trim, 6-Port	2	LV3
Typical	PD-2B	Phone/Data Wiring and Trim, 2-Port Biscuit	6	LV4
Headend				
Middle Atlantic	BL1	1RU Space Blank Panel, Anodized Aluminum & Flanged	4	BL1
Typical	14RU	14RU In-Cabinet Slide Out & Rotate Equipment Rack, 20 Inch Depth	1	ERI
Middle Atlantic	UFAF-2A	2RU Anodized UFA Faceplate	2	FPI
Middle Atlantic	UV	1RU Vented Rackshelf, 14.75" Depth	1	SHLF1
Middle Atlantic	UFA-14.5	1RU UFA Rackshelf, 14.5" Depth	2	SHLF2
Typical	UPS-1100VA	UPS Battery Pack, 1100VA	1	UPS1
Video				
Extron	60-1399-02	Access Enclosure for AV Connectivity and AC Power	1	AUX1
QSC	PTZ-CMB1	Camera Ceiling Mount Bracket Set	1	BRKT1
QSC	PTZ-WMB1	Camera Wall Mount Bracket Set	1	BRKT2
QSC	NC-12x80	Q-SYS NC Series PTZ Conference Camera	2	CM1
Barco	ClickShare CX-50	Hi-End Wireless Conferencing for Large Meeting Spaces	1	CSI
Chief	AS3LDP7	Low Density Wall Mount w/ PD-7155C-NS or Similar	2	MNT1
NEC	E988	98" Ultra High Definition Commercial Display	2	TV1
QSC	NV-21-HU	Q-SYS Native Network Video Endpoint	6	VID1

Technology Headend Devices				
Manufacturer	Model	Description	Qty.	Type
HE.01				
Middle Atlantic	BL1	1RU Space Blank Panel, Anodized Aluminum & Flanged	4	BL1
Barco	ClickShare CX-50	Hi-End Wireless Conferencing for Large Meeting Spaces	1	CSI
QSC	Core 8 Flex	Q-SYS Audio, Video & Control Processor	1	PROCI
QSC	CX-Q 2K4	4-Channel Network Amplifier, 700W per Channel	1	AMP1
QSC	NV-21-HU	Q-SYS Native Network Video Endpoint	4	VID1
Middle Atlantic	UV	1RU Vented Rackshelf, 14.75" Depth	1	SHLF1
Middle Atlantic	UFA-14.5	1RU UFA Rackshelf, 14.5" Depth	2	SHLF2
Middle Atlantic	UFAF-2A	2RU Anodized UFA Faceplate	2	FPI
Typical	UPS-1100VA	UPS Battery Pack, 1100VA	1	UPS1

Technology Devices Cabling Information					
Manufacturer	Model	Description	Cable Types	Cabling Headend	Type
Audio					
QSC	AD-C6T-ZB	6.5" 2-Way In-Ceiling Speaker with Zero Bezel	(1) 16/4	HE.01	SPI
Data					
Typical	PD-2	Phone/Data Wiring and Trim, 2-Port	(2) CAT6A Gray	Attic TR	LV1
Typical	PD-2B	Phone/Data Wiring and Trim, 2-Port Biscuit	(2) CAT6A Gray	Attic TR	LV4
Typical	PD-4	Phone/Data Wiring and Trim, 4-Port	(2) CAT6A Gray	Attic TR	LV2
Typical	PD-6	Phone/Data Wiring and Trim, 6-Port	(2) CAT6A Gray	Attic TR	LV3

Technology Device Cabling Numbers						
Room #	Room Name	Manufacturer	Model	Description	Type	Wire Label
Level1						
C204	Alumni Legacy Lounge	Typical	PD-2	Phone/Data Wiring and Trim, 2-Port	LV1	266-1
C204	Alumni Legacy Lounge	Typical	PD-2	Phone/Data Wiring and Trim, 2-Port	LV1	266-2
C204	Alumni Legacy Lounge	Typical	PD-2	Phone/Data Wiring and Trim, 2-Port	LV1	266-3
C204	Alumni Legacy Lounge	Typical	PD-2	Phone/Data Wiring and Trim, 2-Port	LV1	266-4
C204	Alumni Legacy Lounge	Typical	PD-6	Phone/Data Wiring and Trim, 6-Port	LV3	266-5
C204	Alumni Legacy Lounge	Typical	PD-6	Phone/Data Wiring and Trim, 6-Port	LV3	266-6
C204	Alumni Legacy Lounge	Typical	PD-4	Phone/Data Wiring and Trim, 4-Port	LV2	266-7
C204	Alumni Legacy Lounge	Typical	PD-2B	Phone/Data Wiring and Trim, 2-Port Biscuit	LV4	266-8
C204	Alumni Legacy Lounge	Typical	PD-2B	Phone/Data Wiring and Trim, 2-Port Biscuit	LV4	266-9
C204	Alumni Legacy Lounge	Typical	PD-2B	Phone/Data Wiring and Trim, 2-Port Biscuit	LV4	266-10
C204	Alumni Legacy Lounge	Typical	PD-2B	Phone/Data Wiring and Trim, 2-Port Biscuit	LV4	266-11
C204	Alumni Legacy Lounge	Typical	PD-2B	Phone/Data Wiring and Trim, 2-Port Biscuit	LV4	266-12
C204	Alumni Legacy Lounge	Typical	PD-2B	Phone/Data Wiring and Trim, 2-Port Biscuit	LV4	266-13
C204	Alumni Legacy Lounge	QSC	AD-C6T-ZB	6.5" 2-Way In-Ceiling Speaker with Zero Bezel	SPI	266-14
C204	Alumni Legacy Lounge	QSC	AD-C6T-ZB	6.5" 2-Way In-Ceiling Speaker with Zero Bezel	SPI	266-15
C204	Alumni Legacy Lounge	QSC	AD-C6T-ZB	6.5" 2-Way In-Ceiling Speaker with Zero Bezel	SPI	266-16
C204	Alumni Legacy Lounge	QSC	AD-C6T-ZB	6.5" 2-Way In-Ceiling Speaker with Zero Bezel	SPI	266-17

Estimated Headend Power Consumption & Thermal Load						
Manufacturer	Model	Description	Qty.	Wattage	BTU/h	Type
AV-CKT.01						
Barco	ClickShare CX-50	Hi-End Wireless Conferencing for Large Meeting Spaces	1	50.00 W	170.6 Btu/h	CSI
QSC	Core 8 Flex	Q-SYS Audio, Video & Control Processor	1	40.00 W	110.0 Btu/h	PROCI
QSC	CX-Q 2K4	4-Channel Network Amplifier, 700W per Channel	1	492.00 W	340.0 Btu/h	AMP1
QSC	NV-21-HU	Q-SYS Native Network Video Endpoint	4	180.00 W	612.0 Btu/h	VID1
Typical	UPS-1100VA	UPS Battery Pack, 1100VA	1	5.00 W	17.0 Btu/h	UPS1
				767.00 W	1249.6 Btu/h	

Termination Schedule    C204-5			
Manufacturer	Typical	Model	Location
	Typical	PD-6	Alumni Legacy Lounge C204
Headend		HE.01	

Quickport	Connected Wiring	Cable Type	Cable ID	Quickport	Connected Device	Cable Type	Cable ID
1	Attic TR / Network Feed	CAT6A Gray	C204-5-1	1	Touch Panel Lan/PoE	CAT6A	TP
2	Attic TR / Network Feed	CAT6A Gray	C204-5-2	2	Core 8 Flex Lan A	CAT6A	CORE-LB
3	Attic TR / Network Feed	CAT6A Gray	C204-5-3	3	Core 8 Flex Lan B	CAT6A Patch	CORE-LA
4	Attic TR / Network Feed	CAT6A Gray	C204-5-4	4	ClickShare Lan	CAT6A	CLK SHR
5	Attic TR / Network Feed	CAT6A Gray	C204-5-5	5	NV-21 (1) Lan/PoE	CAT6A	NV21-1
6	Attic TR / Network Feed	CAT6A Gray	C204-5-6	6	NV-21 (2) Lan/PoE	CAT6A	NV21-2

Termination Schedule    C204-6			
Manufacturer	Typical	Model	Location
	Typical	PD-6	Alumni Legacy Lounge C204
Headend		HE.01	

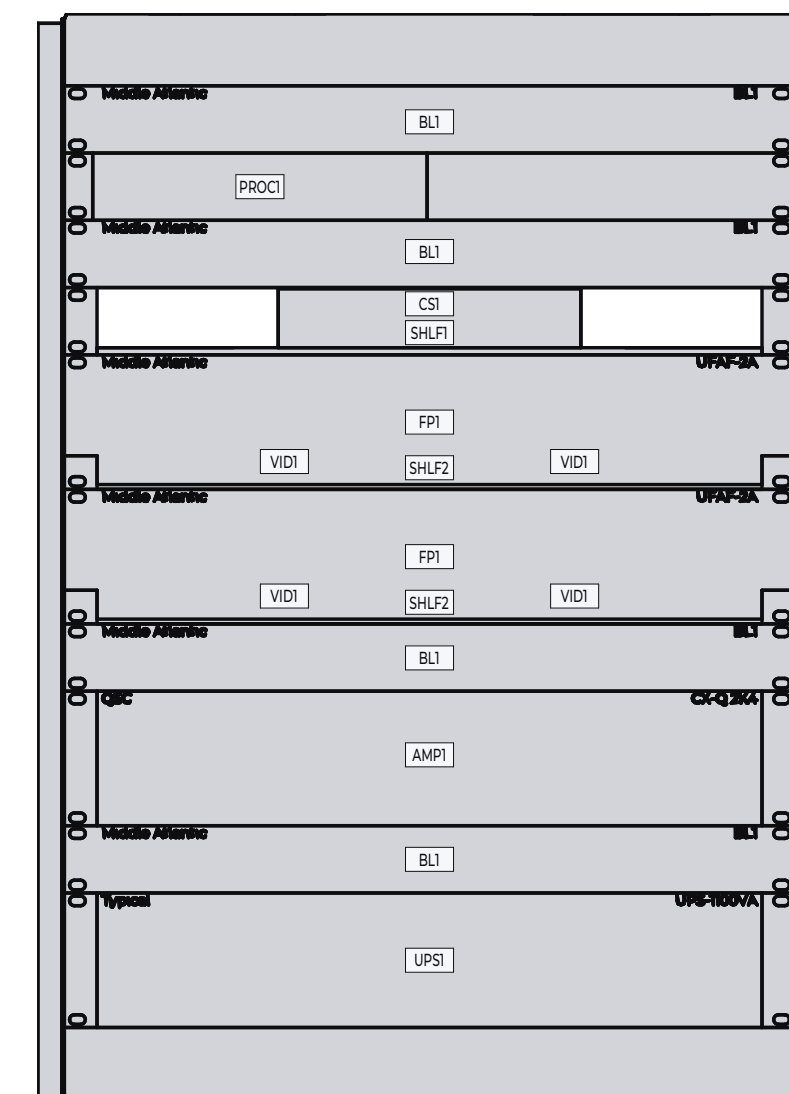
Quickport	Connected Wiring	Cable Type	Cable ID	Quickport	Connected Device	Cable Type	Cable ID
1	Attic TR / Network Feed	CAT6A Gray	C204-6-1	1	NV-21 (3) Lan/PoE	CAT6A	NV21-3
2	Attic TR / Network Feed	CAT6A Gray	C204-6-2	2	NV-21 (4) Lan/PoE	CAT6A	NV21-4
3	Attic TR / Network Feed	CAT6A Gray	C204-6-3	3	Amp Lan A	CAT6A	AMP-LA
4	Attic TR / Network Feed	CAT6A Gray	C204-6-4	4	Amp Lan B	CAT6A	AMP-LB
5	Attic TR / Network Feed	CAT6A Gray	C204-6-5	5	UPS Lan	CAT6A	UPS
6	Attic TR / Network Feed	CAT6A Gray	C204-6-6	6			

Amplifier Termination Schedule    AMP1.01			
Manufacturer	Typical	Model	Location
	QSC	CX-Q 2K4	Alumni Legacy Lounge C204
Headend		HE.01	

Channel	Connected Wiring	Cable Type	Cable ID
CH A	Alumni Legacy Lounge C204 / In-Ceiling Speakers (Zone 1)	16/4	C204.10
CH B	Alumni Legacy Lounge C204 / In-Ceiling Speakers (Zone 2)	16/4	C204.11
CH C	Alumni Legacy Lounge C204 / In-Ceiling Speakers (Zone 3)	16/4	C204.12
CH D	Alumni Legacy Lounge C204 / In-Ceiling Speakers (Zone 4)	16/4	C204.13

- General Sheet Notes**
- Installation of all work shall be in accordance with all local codes and ordinances and the edition of the National Electric Code NFPA 70 (NEC) in effect.
  - The schedules on this sheet may not include all necessary items and/or licenses needed for a fully functional system. Integrator shall be responsible for including all necessary items.
  - Installing contractor to provide adequate cooling system (not shown in schedules) for cooling cabinet and equipment rack. Coordinate final selection of equipment with build team.

Reference Keynotes



1  
E6.10 Technology Equipment Rack Plan  
1:5



**ALUMNI LEGACY LOUNGE  
STRAND UNION BUILDING  
RENOVATION**

CAMPUS PLANNING,  
DESIGN & CONSTRUCTION  
MONTANA STATE UNIVERSITY  
BOZEMAN, MONTANA  
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REVISIONS	
#	DESCRIPTION

**BLACK SHEEP**  
Mechanical/Plumbing/Electrical/Lighting/Technology  
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PPA#23-0720  
A/E#001  
Technology  
Equipment Schedules

**E6.10**  
Date:  
03.07.2024