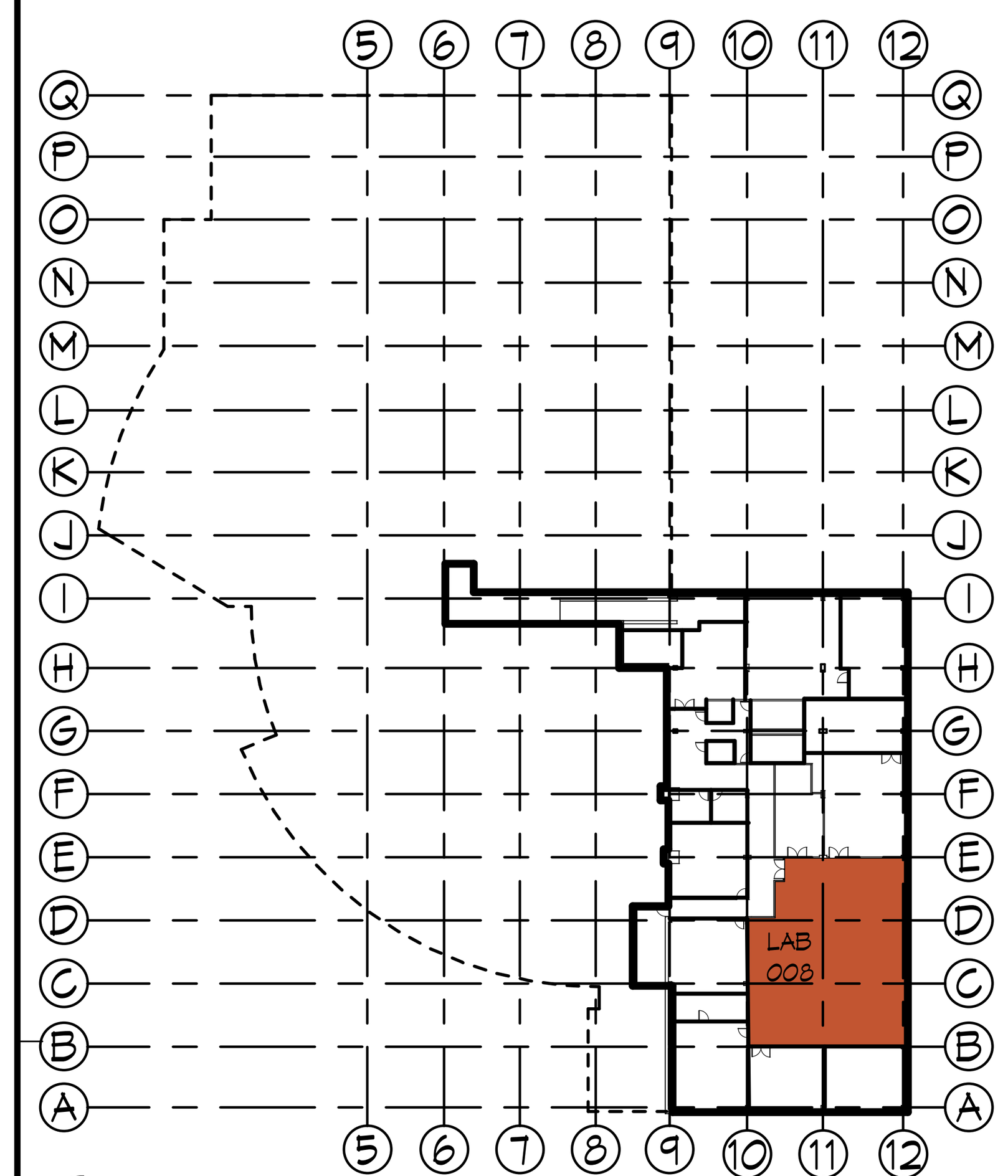
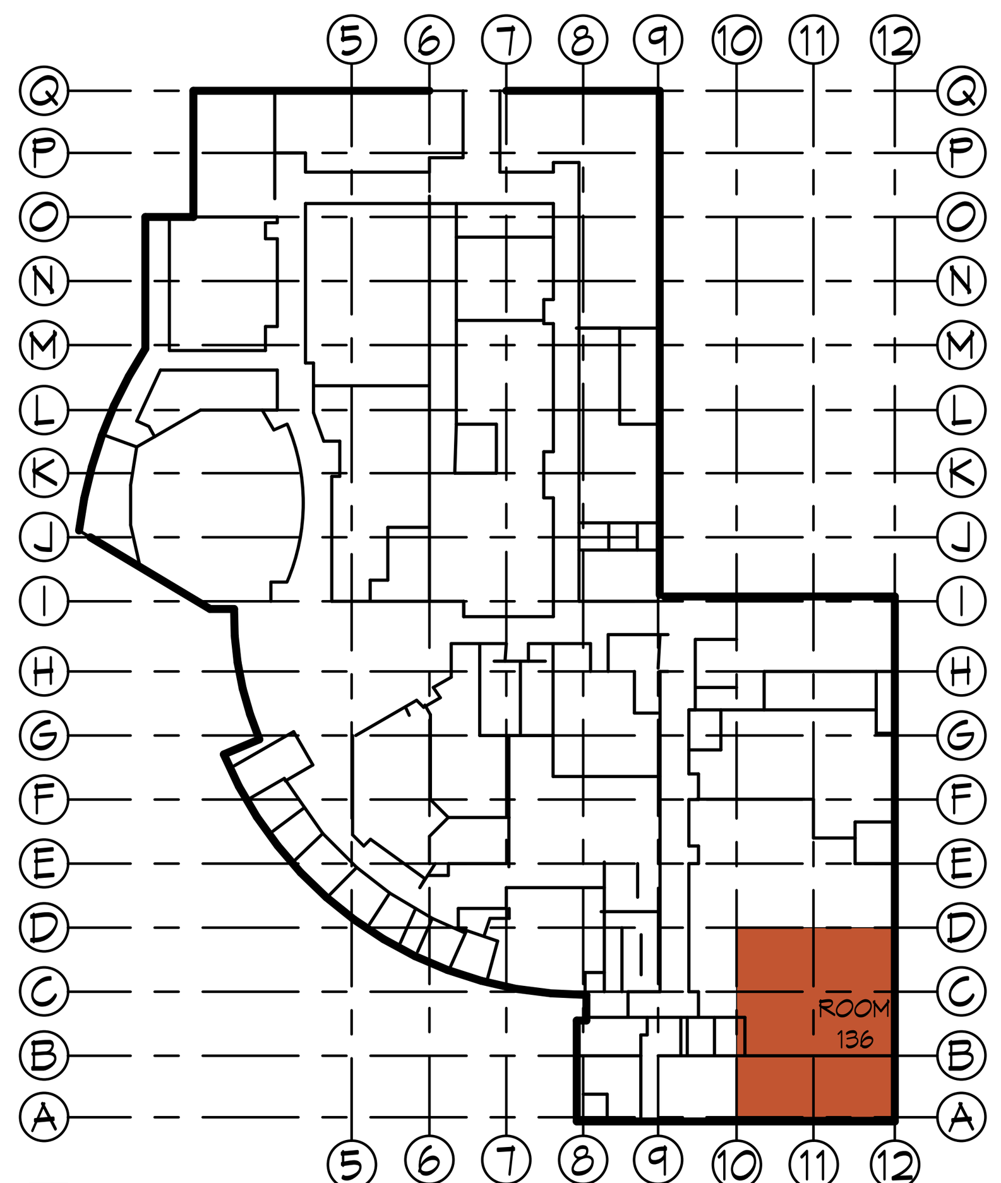


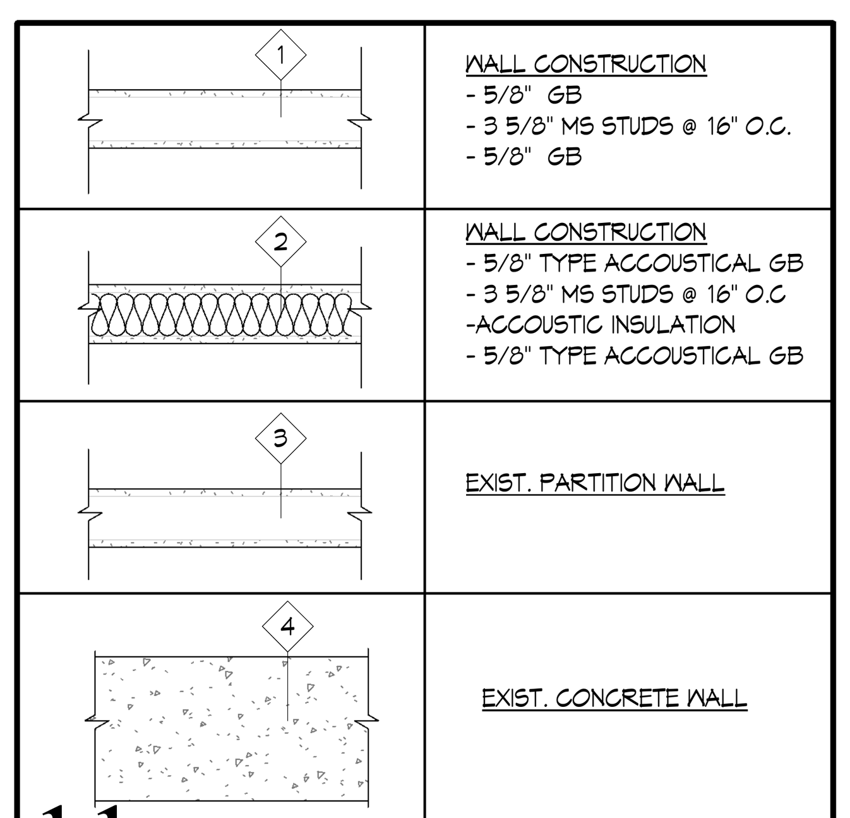
6 BASEMENT KEY PLAN

A2.B 1" = 60'-0"



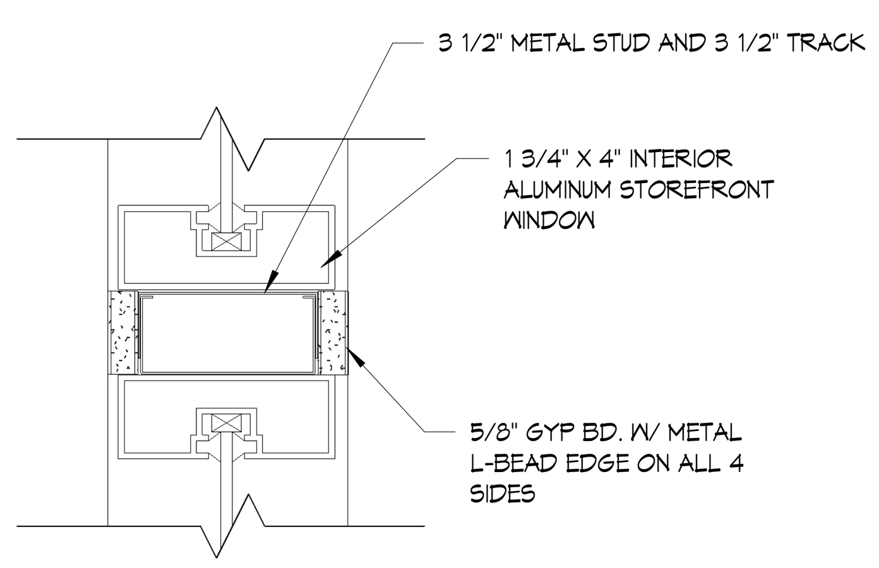
7 FIRST FLOOR KEY PLAN

A2.B 1" = 60'-0"



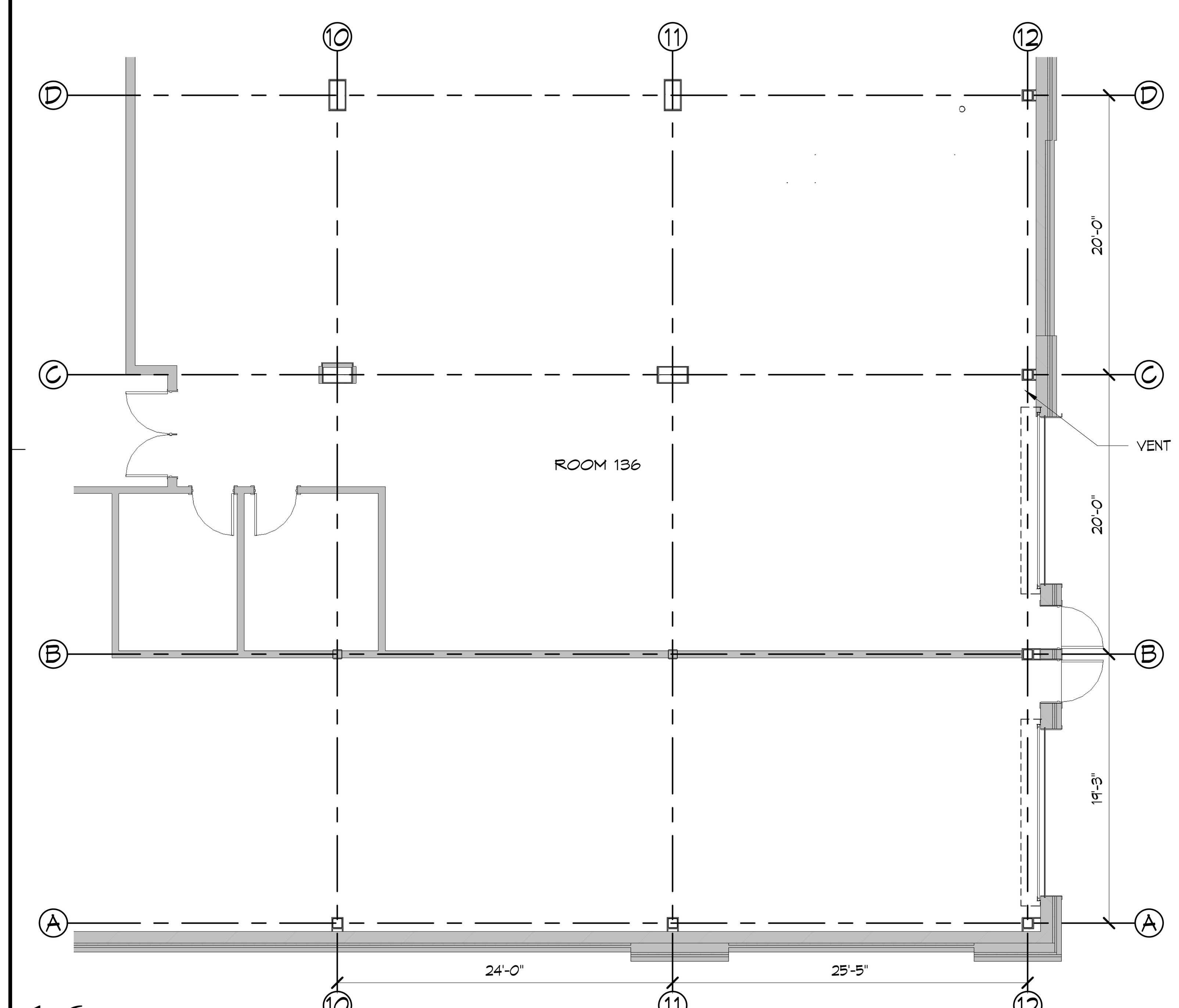
11 WALL TYPES

A2.B 3/4" = 1'-0"



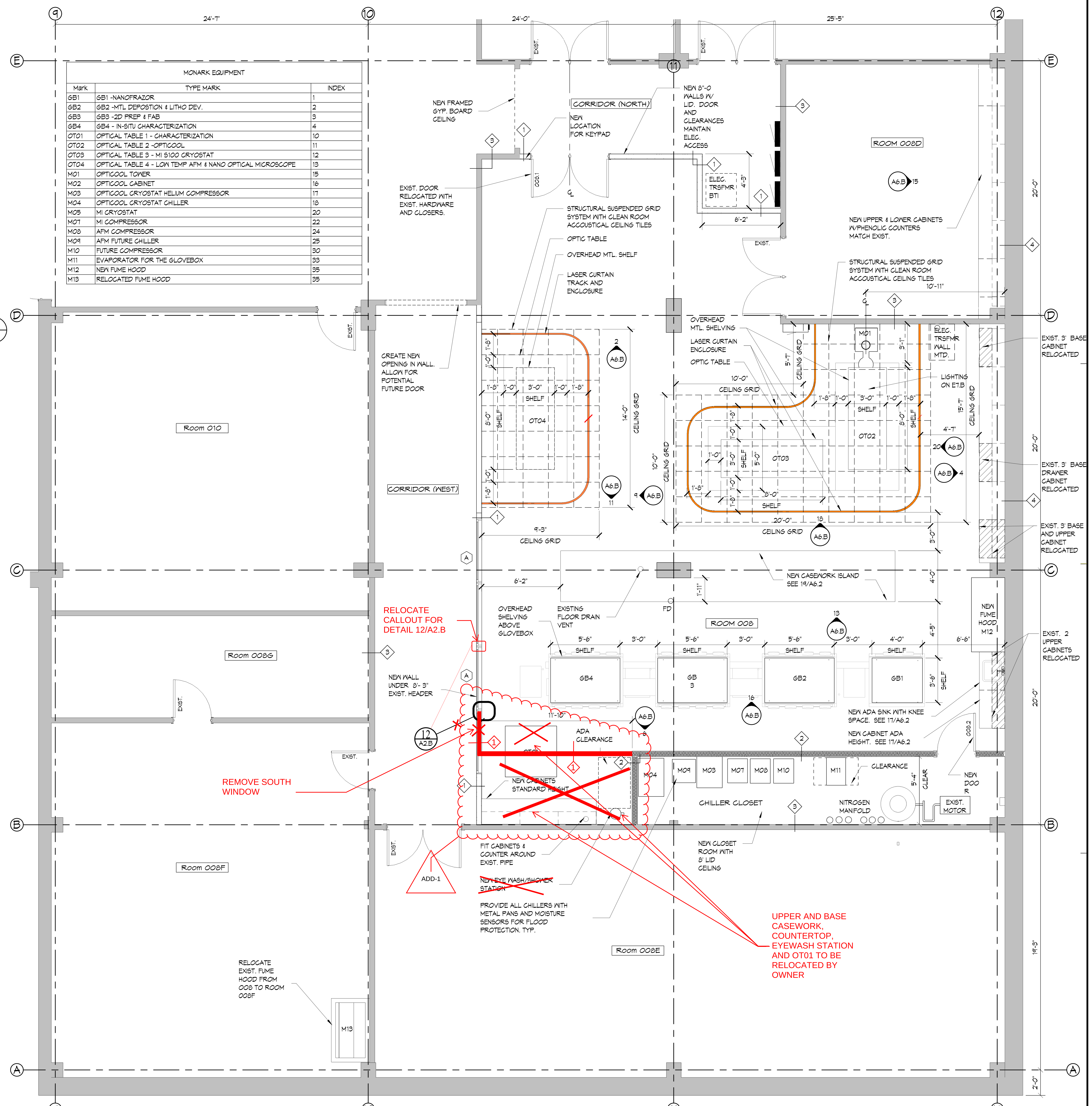
12 PLAN DETAIL @ WINDOW FRAMING

A2.B 3" = 1'-0"



16 FIRST FLOOR - VENT LOCATION PLAN

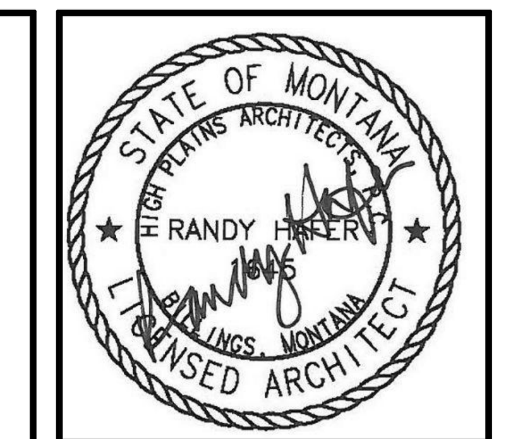
A2.B 1/8" = 1'-0"



MONARK EQUIPMENT		
Mark	TYPE MARK	INDEX
GB1	GB1 -NANOFRAZOR	1
GB2	GB2 -MTL DEPOSTION & LITHO DEV.	2
GB3	GB3 -2D PREP & FAB	3
GB4	GB4 - IN-SITU CHARACTERIZATION	4
OT01	OPTICAL TABLE 1 - CHARACTERIZATION	10
OT02	OPTICAL TABLE 2 -OPTICOOL	11
OT03	OPTICAL TABLE 3 - MI S100 CRYOSTAT	12
OT04	OPTICAL TABLE 4 - LOW TEMP AFM & NANO OPTICAL MICROSCOPE	13
M01	OPTICOOL TOWER	15
M02	OPTICOOL CABINET	16
M03	OPTICOOL CRYOSTAT HELIUM COMPRESSOR	17
M04	OPTICOOL CRYOSTAT CHILLER	18
M05	MI CRYOSTAT	20
M07	MI COMPRESSOR	22
M08	AFM COMPRESSOR	24
M09	AFM FUTURE CHILLER	25
M10	FUTURE COMPRESSOR	30
M11	EVAPORATOR FOR THE GLOVEBOX	33
M12	NEW FUME HOOD	35
M13	RELOCATED FUME HOOD	35

17 BASEMENT REMODEL PLAN - MonArk LAB FACILITY

A2.B 1/4" = 1'-0"



ROOM 008 BASEMENT REMODEL PLAN

BARNARD ROOM 8 QUANTUM FOUNDRY RENOVATION

100% CONSTRUCTION DOCUMENTS

HIGH PLAINS ARCHITECTS
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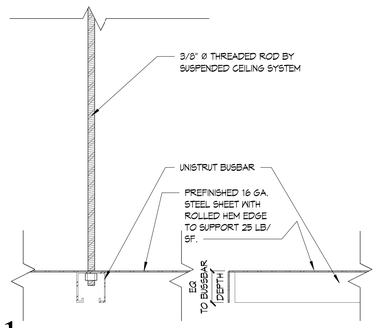
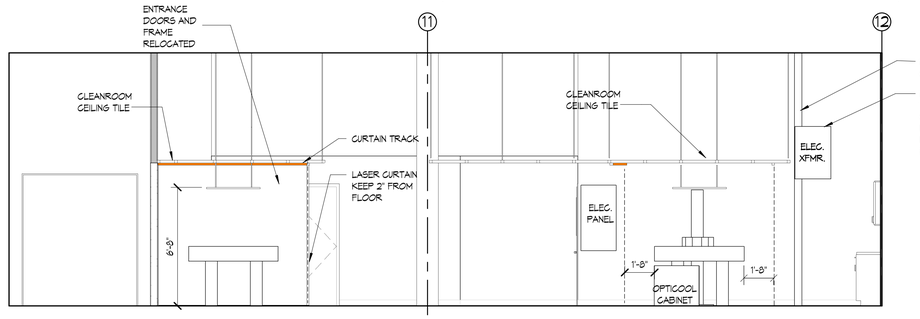
DRAWN BY: BK, JW
PROJECT#: 22210
DATE: 04/18/2024

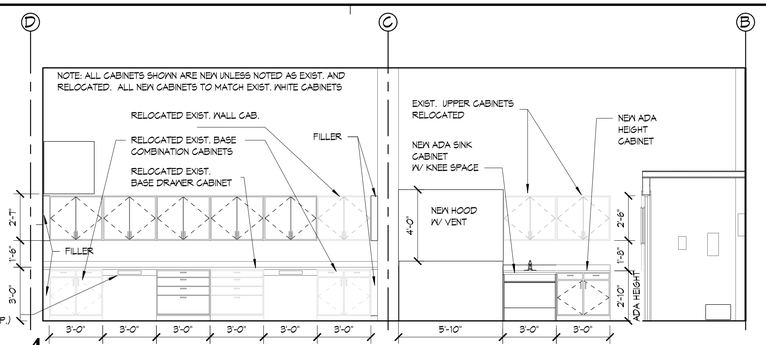
A2.B



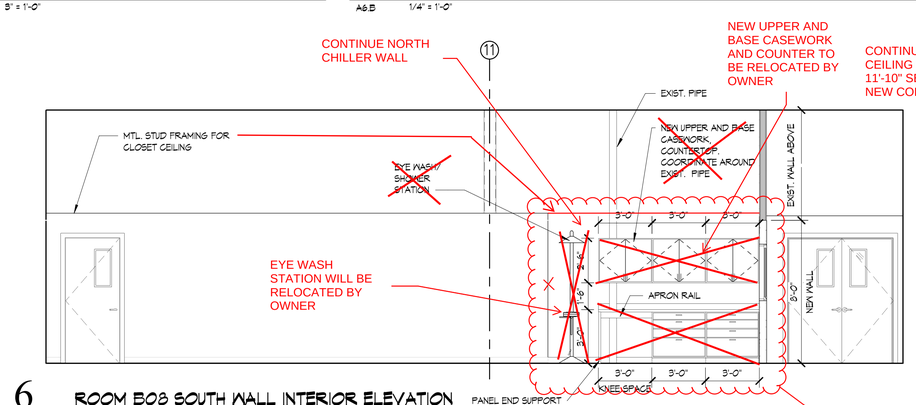
1 SHELF SUSPENSION DETAIL
A6.B 3" = 1'-0"



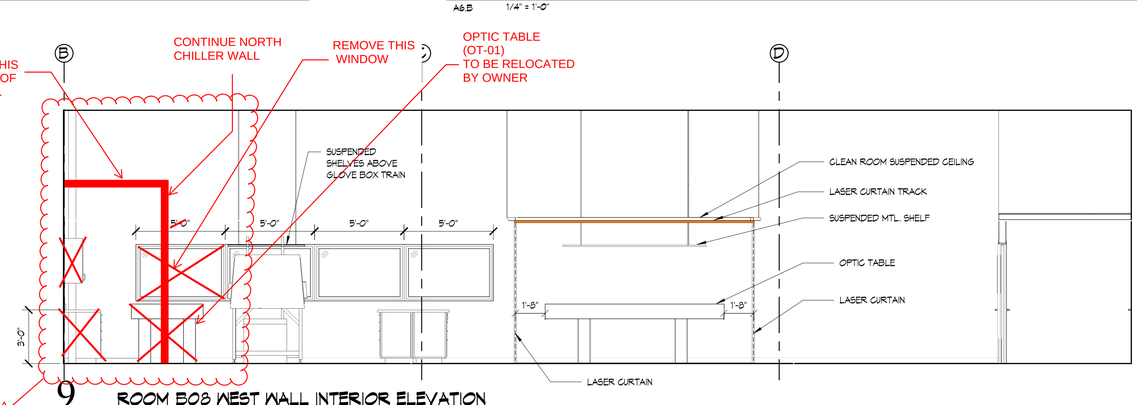
2 ROOM B08 NORTH INTERIOR ELEVATION
A6.B 1/4" = 1'-0"



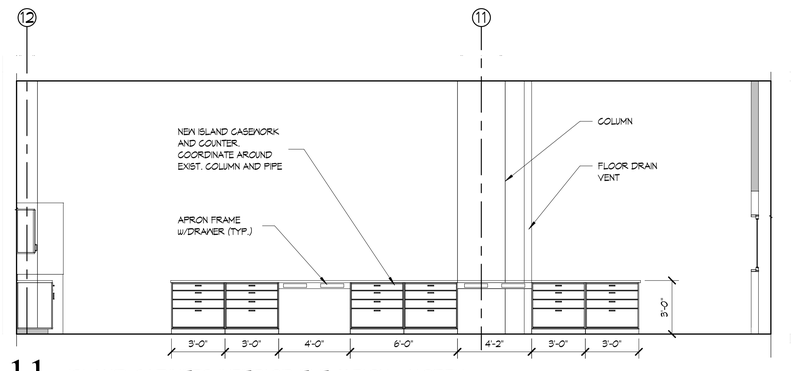
4 ROOM B08 EAST WALL INTERIOR ELEVATION
A6.B 1/4" = 1'-0"



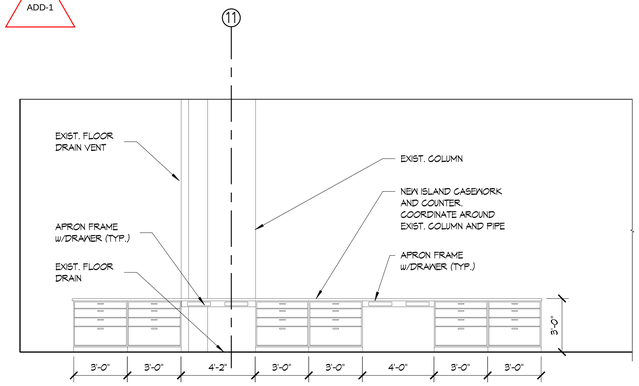
6 ROOM B08 SOUTH WALL INTERIOR ELEVATION
A6.B 1/4" = 1'-0"



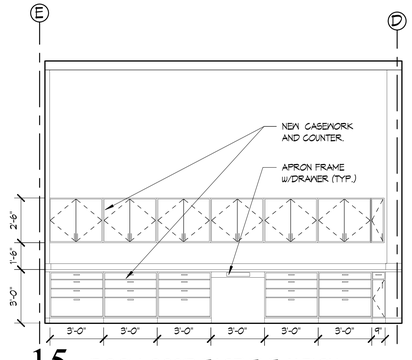
9 ROOM B08 WEST WALL INTERIOR ELEVATION
A6.B 1/4" = 1'-0"



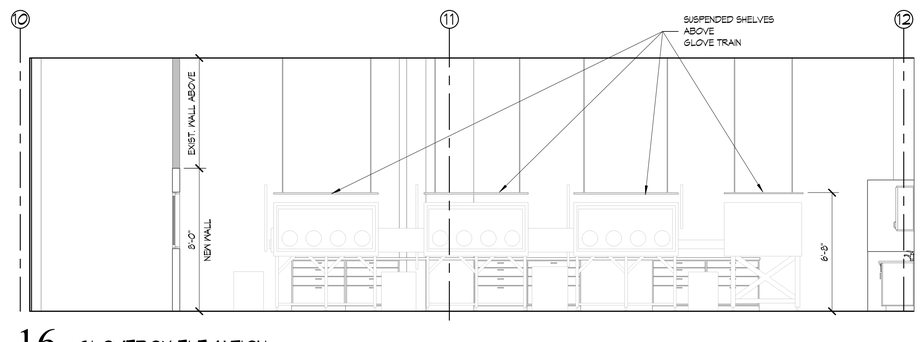
11 ISLAND CABINETS INTERIOR ELEVATION - NORTH
A6.B 1/4" = 1'-0"



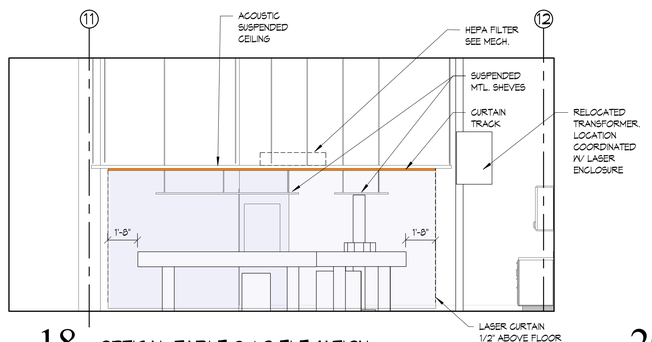
13 ISLAND CABINETS INTERIOR ELEVATION -SOUTH
A6.B 1/4" = 1'-0"



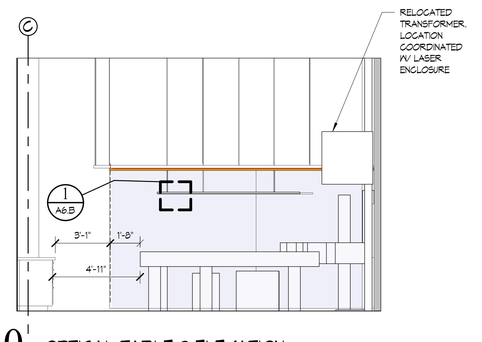
15 ROOM 008D EAST ELEVATION
A6.B 1/4" = 1'-0"



16 GLOVEBOX ELEVATION
A6.B 1/4" = 1'-0"



18 OPTICAL TABLE 2 & 3 ELEVATION
A6.B 1/4" = 1'-0"



20 OPTICAL TABLE 2 ELEVATION
A6.B 1/4" = 1'-0"

STATE OF MONTANA
HIGH PLAINS ARCHITECTS
RANDY J. PARENT
LICENSED ARCHITECT
BILLINGS, MONTANA

ROOM 008 BASEMENT INTERIOR ELEVATIONS
BARNARD ROOM & QUANTUM FOUNDRY RENOVATION
100% CONSTRUCTION DOCUMENTS

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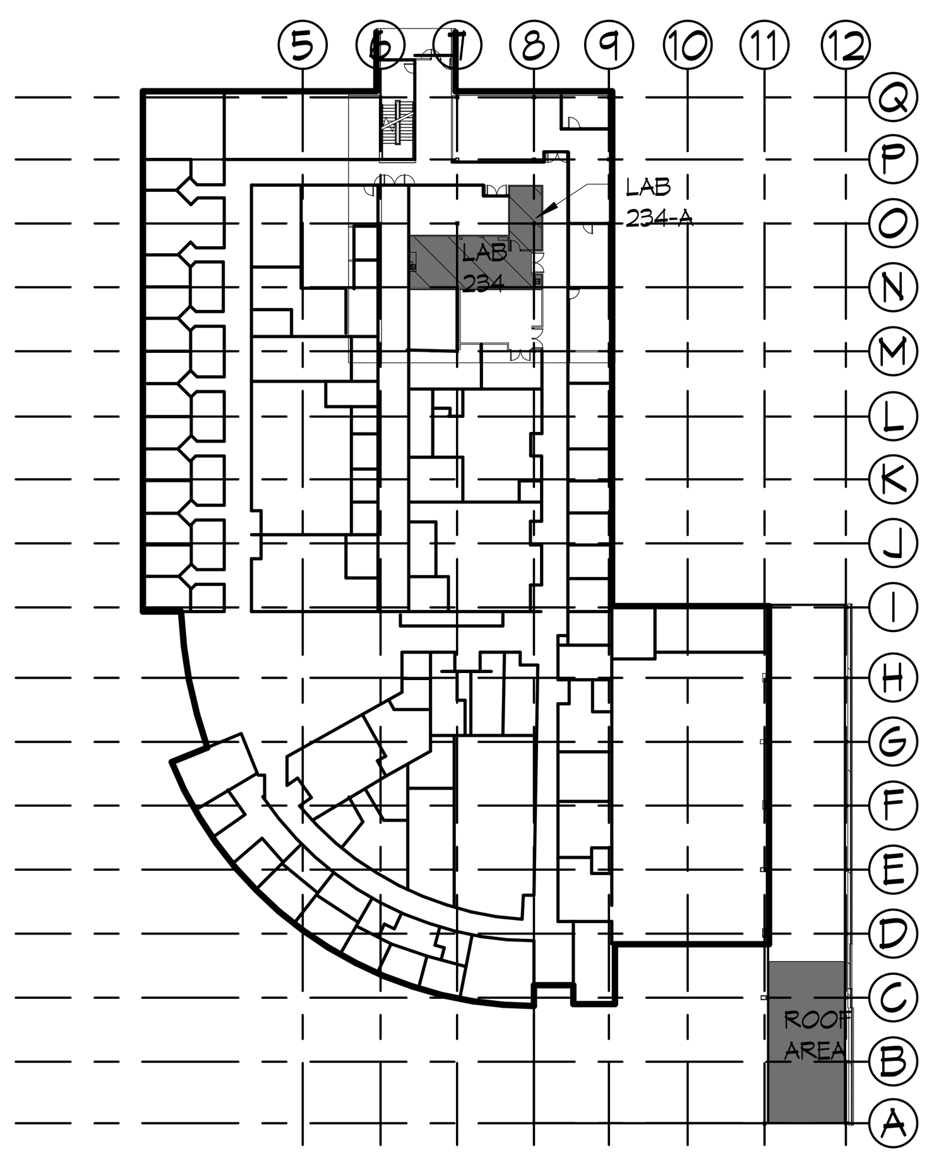
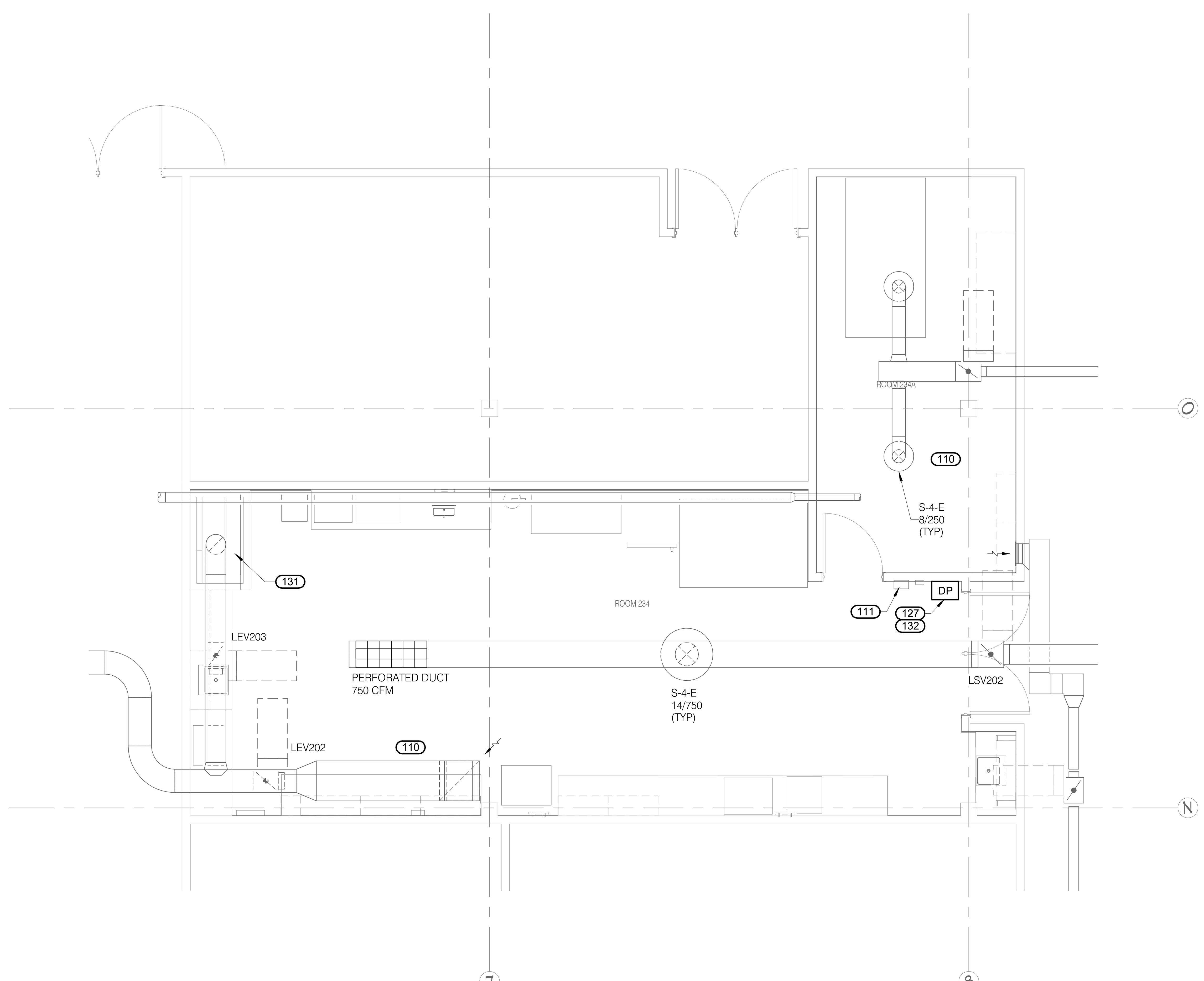
DRAWN BY: JW
PROJECT#: 22210
DATE: 04/16/2024

A6.B

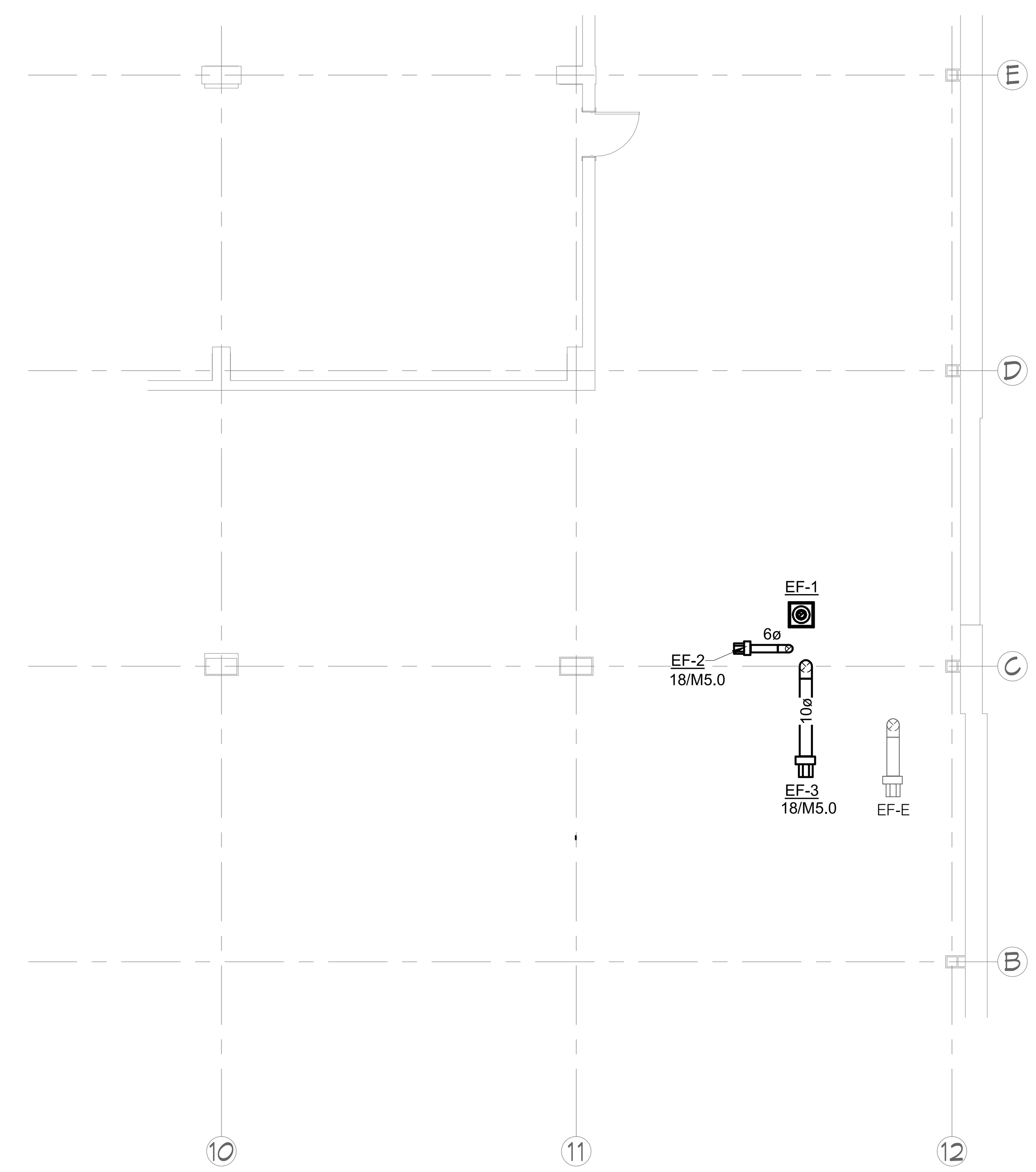
PLOT STAMP: 4/16/2024 12:50:40 PM



6 SECOND FLOOR KEY PLAN
M2.2 1" = 60'-0"



16 SECOND FLOOR ROOM 234 MECHANICAL PLAN
M2.2 1/4" = 1'-0"



19 ROOF MECHANICAL PLAN
M2.2 1/8" = 1'-0"

ADD-1

KEYNOTES

110 EXISTING HVAC TO REMAIN AND BE REUSED.
~~111 RELOCATE EXISTING TC PANEL TO THIS LOCATION.~~
~~127 PROVIDE WALL MOUNTED DIFFERENTIAL PRESSURE SENSOR.~~
~~131 PROVIDE NEW CONTROLLER FOR FUME HOOD EXHAUST AIR VALVE. SEE FUME HOOD EXHAUST AIR SEQUENCE OF OPERATION.~~
~~132 SEE AIR VALVE CONTROL W/HOT WATER REHEAT AND ROOM PRESURE CONTROL SEQUENCE OF OPERATION.~~

NOTE: EXISTING CONTROLS SERVING THE SPACE WILL REMAIN AND BE REUSED.

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REF. SCALE IN INCHES 0 1 2 3
PROJECT #22006970.00

SECOND FLOOR ROOM 234 MECHANICAL PLAN
BARNARD ROOM & QUANTUM FOUNDRY RENOVATION
100% CONSTRUCTION DOCUMENTS

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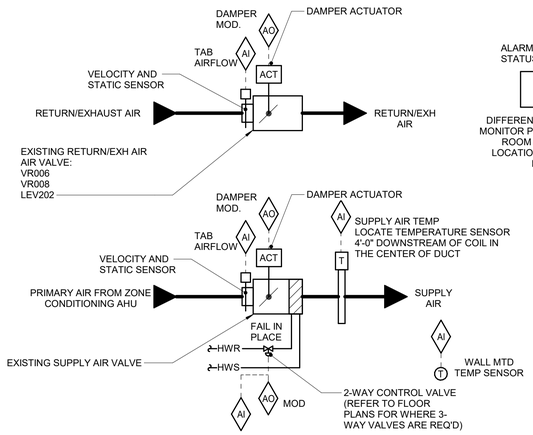
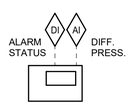
DRAWN BY: KAH
PROJECT#: 22210
DATE: 04/18/2024

M2.2

PLOT STAMP: 4/18/2024 9:40:01 AM





SEQUENCE OF OPERATION:

- FMCS AIR VALVE CONTROLLER SHALL MODULATE THE TAB DAMPER AND TAB HW REHEAT COIL CONTROL VALVE TO MAINTAIN SPACE TEMPERATURE OF 72°F (ADJ.) WITH 5°F (ADJ.) DEAD BAND BASED ON A SIGNAL FROM A WALL MOUNTED TEMPERATURE SENSOR. SEE DRAWINGS FOR TEMPERATURE SENSOR REQUIREMENTS. SPACES WITH ADJUSTABLE THERMOSTATS WILL ALLOW A +/- 3°F (ADJ.) OFFSET FROM THE DDC SETPOINT.
- AT FULL COOLING, THE TAB SHALL BE OPEN TO MAXIMUM CFM POSITION. THE REHEAT COIL CONTROL VALVE SHALL BE CLOSED.
- UPON A FALL IN SPACE TEMPERATURE, THE TAB SHALL MODULATE CLOSED UNTIL SPACE SETPOINT IS MAINTAINED, OR UNTIL IT REACHES ITS MINIMUM CFM POSITION.
- UPON A FURTHER FALL IN SPACE TEMPERATURE, THE REHEAT COIL CONTROL VALVE SHALL MODULATE OPEN TO MAINTAIN SPACE SETPOINT UNTIL THE SUPPLY AIR TEMPERATURE IS 20°F ABOVE ROOM TEMPERATURE SETPOINT.
- UPON A FURTHER FALL IN SPACE TEMPERATURE, TAB SHALL OPEN TO MAINTAIN SETPOINT UNTIL TAB AIRFLOW REACHES ITS MAXIMUM HEATING SETTING. THE REHEAT CONTROL VALVE SHALL CONTINUE TO MODULATE OPEN TO MAINTAIN MAXIMUM DELTA T LISTED ABOVE.

RETURN/EXHAUST TAB SEQUENCE OF OPERATION:

- FMCS SHALL MODULATE RETURN/EXHAUST TAB DAMPER TO ACHIEVE THE ROOM AT MINIMUM -0.010 OR +0.010.
- FMCS SHALL MONITOR EACH ROOM DIFFERENTIAL PRESSURE (DP) AND SHALL DISPLAY THE VALUE ON THE TAB GRAPHICAL SCREEN AT THE OPERATOR WORKSTATION.

ALARMS, INTERLOCKS & SAFETIES:

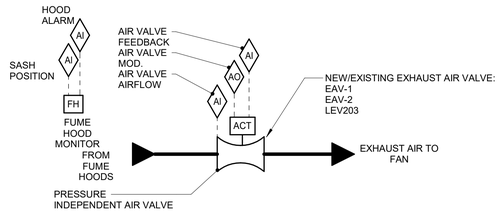
- SEND AN ALARM TO THE FMCS OPERATOR INTERFACE IF THE SPACE TEMPERATURE IS MORE THAN 10°F (ADJ.) ABOVE OR BELOW SETPOINT.
- DIFFERENTIAL PRESSURE MONITOR SHALL INDICATE A LOCAL ALARM IN THE EVENT THE ROOM PRESSURE IS GREATER THAN -0.010 OR +0.010.

11 AIR VALVE CONTROL W/ HOT WATER REHEAT AND ROOM PRESSURE AIR VALVE CONTROL

M9.0 NO SCALE

ADD-1

1. Delete: reference to air valve control for all air valves serving Room 234. The existing air valves and pressure controls serving room 234 will remain and be reused.
2. Add: Start/Stop and Status points for EF-3. Fan start/stop signal shall be from the hood.
3. Add: Status point for EF-1. Fan will run continuously.



SEQUENCE OF OPERATION:

THE FMCS SHALL MODULATE THE EXHAUST AIR VALVE TO MAINTAIN THE MINIMUM FACE VELOCITY ACROSS THE FUME HOOD OPENING FACE VELOCITIES SHALL BE PER THE MANUFACTURERS IOM REQUIREMENTS.

ALARMS, INTERLOCKS AND SAFETIES:

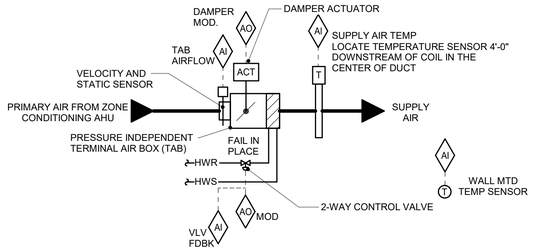
- THE FUME HOOD MONITOR SHALL BE CAPABLE OF COMMUNICATING THE FOLLOWING AUDIO (ALL AUDIO ALARMS SHALL BE CAPABLE OF BEING SILENCED) AND VISUAL

ALARMS:

- LOW AIR FLOW
- LOW DIFFERENTIAL STATIC PRESSURE
- SASH OPENING ABOVE 18"
- SEND AN ALARM TO THE FMCS OPERATOR INTERFACE IF THE DIFFERENTIAL PRESSURE ACROSS THE AIR VALVE DROPS BELOW 0.4" W.C. (ADJ.)

8 FUME HOOD EXHAUST AIR VALVE

M9.0 NO SCALE



SEQUENCE OF OPERATION:

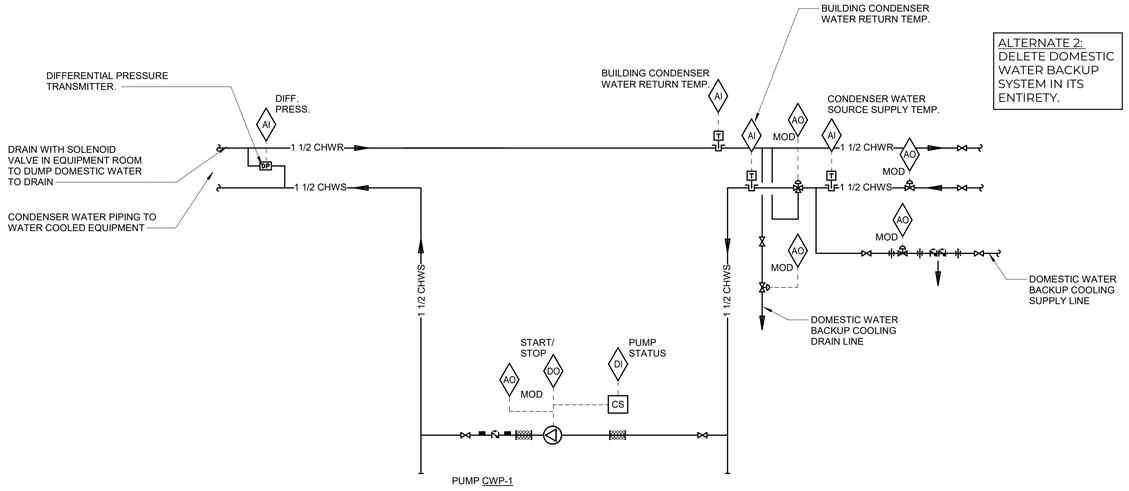
- FMCS TAB CONTROLLER SHALL MODULATE THE TAB DAMPER AND TAB HW REHEAT COIL CONTROL VALVE TO MAINTAIN SPACE TEMPERATURE OF 72°F (ADJ.) WITH 5°F (ADJ.) DEAD BAND BASED ON A SIGNAL FROM A WALL MOUNTED TEMPERATURE SENSOR. SEE DRAWINGS FOR TEMPERATURE SENSOR REQUIREMENTS. SPACES WITH ADJUSTABLE THERMOSTATS WILL ALLOW A +/- 3° F (ADJ.) OFFSET FROM THE DDC SETPOINT.
- AT FULL COOLING, THE TAB SHALL BE OPEN TO MAXIMUM CFM POSITION. THE REHEAT COIL CONTROL VALVE SHALL BE CLOSED.
- UPON A FALL IN SPACE TEMPERATURE, THE TAB SHALL MODULATE CLOSED UNTIL SPACE SETPOINT IS MAINTAINED, OR UNTIL IT REACHES ITS MINIMUM SCHEDULED CFM POSITION PER THE TAB SCHEDULE. THE REHEAT COIL CONTROL VALVE SHALL BE CLOSED.
- UPON A FURTHER FALL IN SPACE TEMPERATURE, THE REHEAT COIL CONTROL VALVE SHALL MODULATE OPEN TO MAINTAIN SPACE SETPOINT UNTIL THE SUPPLY AIR TEMPERATURE IS 20°F ABOVE ROOM TEMPERATURE SETPOINT.
- UPON A FURTHER FALL IN SPACE TEMPERATURE, TAB SHALL OPEN TO MAINTAIN SETPOINT UNTIL TAB AIRFLOW REACHES ITS MAXIMUM HEATING SETTING. THE REHEAT CONTROL VALVE SHALL CONTINUE TO MODULATE OPEN TO MAINTAIN MAXIMUM DELTA T LISTED ABOVE.
- WHEN FLOATING CV'S ARE USED, FMCS SHALL PERFORM AN AUTO-ZERO FUNCTION EVERY NIGHT DURING UNOCCUPIED TIMES. THE FMCS SHALL STAGGER AUTO-ZERO SEQUENCES SO THAT ALL VALVES DO NOT SIMULTANEOUSLY CLOSE.

ALARMS, INTERLOCKS & SAFETIES:

SEND AN ALARM TO THE FMCS OPERATOR INTERFACE IF THE SPACE TEMPERATURE IS MORE THAN 10°F (ADJ.) ABOVE OR BELOW SETPOINT.

9 CONTROL W/ HOT WATER REHEAT - TAB-1

M9.0 NO SCALE



ALTERNATE 2:
DELETE DOMESTIC WATER BACKUP SYSTEM IN ITS ENTIRETY.

SEQUENCE OF OPERATION

ON A CALL FOR COOLING FROM THE HEAT PUMP OR THE LAB PROCESS EQUIPMENT, THE CONDENSER WATER SUPPLY VALVE SHALL OPEN AND THE CONDENSER WATER PUMP CWP-1 SHALL BE ENABLED. THE 3-WAY VALVE SHALL MODULATE TO MAINTAIN 70 F (ADJ) CONDENSER WATER SUPPLY TEMPERATURE. WHEN THE CALL FOR COOLING IS SATISFIED, THE CONDENSER WATER SUPPLY VALVE SHALL CLOSE AND THE PUMP SHALL BE DISABLED AFTER A 2 MINUTE DELAY. IF THE CONDENSER WATER SUPPLY TEMPERATURE RISES ABOVE 75 F FOR MORE THAN 10 MINUTES, THE FMCS SHALL GENERATE AN ALARM, CLOSE THE CONDENSER WATER SUPPLY VALVE, AND MODULATE THE DOMESTIC WATER BACKUP COOLING SUPPLY AND DRAIN VALVES TO MAINTAIN THE CONDENSER WATER SUPPLY TEMPERATURE AT 70 F.

THE FMCS SHALL MODULATE THE PUMPS SPEED TO MAINTAIN THE DIFFERENTIAL PRESSURE SET POINT. THE DIFFERENTIAL PRESSURE SET POINT SHALL BE DETERMINED BY THE TAB CONTRACTOR DURING SYSTEM BALANCING.

ALARMS

- GENERATE AN ALARM THROUGH THE FMCS IF THE PUMP IS ENABLED AND THE PUMP STATUS INDICATES THE PUMP IS NOT RUNNING.
- GENERATE AN ALARM THROUGH THE FMCS IF THE CONDENSER WATER TEMPERATURE IS ABOVE 75 F FOR MORE THAN 10 MINUTES.
- GENERATE AN ALARM THROUGH THE FMCS IF THE DOMESTIC WATER BACK UP VALVE IS OPEN FOR MORE THAN 3 HOURS.

18 CONDENSER WATER LOOP CONTROL

M9.0 NO SCALE

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REF. SCALE IN INCHES 0 1 2 3

HVAC DIAGRAMS
BARNARD ROOM 8 QUANTUM FOUNDRY RENOVATION
100% CONSTRUCTION DOCUMENTS

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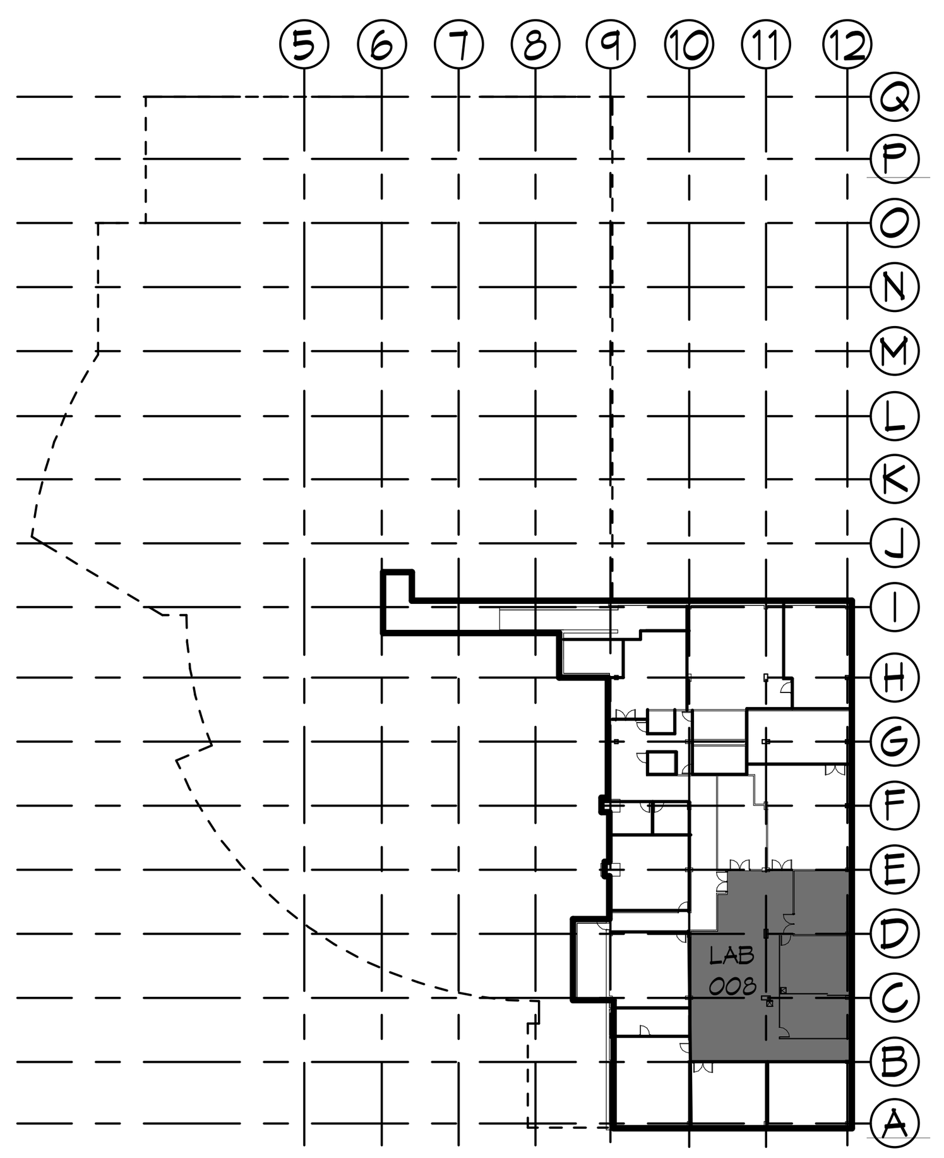
DRAWN BY: KAH
PROJECT#: 22210
DATE: 04/18/2024

M9.0

PLOT STAMP: 4/18/2024 9:40:05 AM



6 BASEMENT KEY PLAN
P2B 1" = 60'-0"

16 BASEMENT ROOM 008 PLUMBING PLAN
P2B 1/4" = 1'-0"

KEYNOTES

100	PROVIDE HIGH PRESSURE FLEXIBLE STAINLESS STEEL HELIUM LINES.
118	ROUTE 1/2" N OVERHEAD TO EACH OPTICAL TABLE AND PROVIDE QUICK DISCONNECT. ROUTE 1/2" N TO EACH GLOVE BOX AND PROVIDE CONNECT TO LAB EQUIPMENT PER MANUFACTURES INSTALLATION INSTRUCTIONS.
119	ROUTE 1-1/2" VAC OVERHEAD TO EACH OPTICAL TABLE AND PROVIDE QUICK DISCONNECT.
123	PROVIDE NITROGEN GAS MANIFOLD, SEE DETAILS FOR MORE INFORMATION.
130	ROUTE BACK TO EXISTING NITROGEN MAIN.
300	ROUTE SANITARY PIPING FROM FLOOR SINK (FS-1) AND CONNECT INTO EXISTING SANITARY PIPING. SAWCUT AND PATCH CONCRETE AS NEEDED FOR CONNECTION. ROUTE VENT PIPING FROM FLOOR SINK INTO EXISTING VENT PIPING SYSTEM.
301	PROVIDE DRAIN PUMP IN CABINET SPACE NEXT TO SINK AND ROUTE PUMPED SANITARY TO EXISTING SANITARY DRAIN.
302	PROVIDE MOISTURE DETECTION DEVICE WITH ALARM.
303	REROUTE EXISTING CONDENSATE PIPE THAT DRAINED TO EXISTING FLOOR DRAIN, TO NEW FLOOR SINK.
304	PROVIDE FLOOR DRAIN FOR EMERGENCY SHOWER. SAWCUT AND PATCH FLOOR AS NEEDED TO CONNECT NEW SANITARY PIPING FROM THE EMERGENCY SHOWER AND FLOOR DRAIN TO EXISTING SANITARY SYSTEM. ROUTE VENT FROM FLOOR DRAIN AND EMERGENCY SHOWER TO EXISTING VENT SYSTEM. ROUTE 3/4" COLD AND HOT WATER FROM MAINS TO EMERGENCY SHOWER MIXING VALVE. ISOLATION VALVES SHALL BE LOCKED OPEN. CONNECT RECIRCULATION PIPE INTO BUILDING RECIRCULATION SYSTEM. PROVIDE BALLANCING VALVE WITH CHECK VALVE AND SET RECIRCULATION FLOW TO 0.5 GPM
305	ROUTE CONDENSATE FROM HEAT PUMP (WCU-1) TO NEW FLOOR SINK AT A MINIMUM SLOPE OF 1/8 INCH PER FOOT.
306	ROUTE DOMESTIC COLD, HOT AND HOT RECIRC TO NEAREST MAINS AND TAP MAINS WITH ISOLATION VALVES. COLD WATER TO BE ROUTED TO 1-1/2" OR LARGER COLD WATER MAIN.
307	SEE CONDENSER WATER LOOP (DOMESTIC) DETAIL FOR COLD WATER SUPPLY AND DRAIN INFORMATION FOR CONDENSER WATER LOOP.
400	ADJUST SPRINKLER HEADS AND PIPING FOR NEW CEILING AND WALLS. COORDINATE LAYOUT WITH EXISTING AND NEW MECHANICAL AND LIGHTING EQUIPMENT.
401	NEW FIRE PROTECTION WORK AND MATERIALS ARE TO MATCH THE EXISTING SYSTEM, UNLESS OTHERS BE REQUIRED BY THE AHJ. THIS SHALL INCLUDE BUT IS NOT LIMITED TO PIPING, FITTINGS, SPRINKLERS AND PIPE IDENTIFICATION. ALL MATERIALS SHALL BE UL LISTED AND INSTALLED PER NFPA.
402	PROVIDE SPRINKLER COVERAGE ABOVE AND BELOW CLOUD CEILINGS, IN ACCORDANCE WITH NFPA 13. PROTECTION ABOVE CLOUD CEILINGS TO BE PROVIDED FROM EXISTING SYSTEM/SPRINKLERS. EXISTING SPRINKLERS TO BE RELOCATED ONLY AS REQUIRED BY NFPA 13. FOR SPRINKLER PROTECTION BELOW THE CLOUD CEILING, ROUTE HARD LINES FROM EXISTING BRANCH LINES TO THE CLOUD CEILINGS AND INSTALL QUICK RESPONSE PENDANT SPRINKLERS.

AD-1

PLUMBING GENERAL NOTES:

A. SEE ARCHITECTURAL PLANS FOR LOCATION OF LAB EQUIPMENT.
B. CONTRACTOR TO COORDINATE WITH LAB EQUIPMENT FOR EXACT LOCATION OF CONNECTIONS TO EQUIPMENT. EQUIPMENT WILL INCLUDE THE FOLLOWING
   - GLOVEBOX TRAIN
   - OPTICOOL CRYOSTAT AND OPTICAL TABLE
   - CHARACTERIZATION BOX AND OPTICAL TABLE
   - MONTANA INSTERMENTS S100 CRYOSTAT AND OPTICAL TABLE
   - LOW-TEMPERATURE AFM, NANO-OPTICAL MICROSCOPE AND OPTICAL TABLE

MONTANA
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BASEMENT ROOM 008 PLUMBING PLAN
BARNARD ROOM & QUANTUM FOUNDRY RENOVATION
100% CONSTRUCTION DOCUMENTS

HIGH PLAINS
ARCHITECTS

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PROJECT#: 22210
DATE: 04/18/2024

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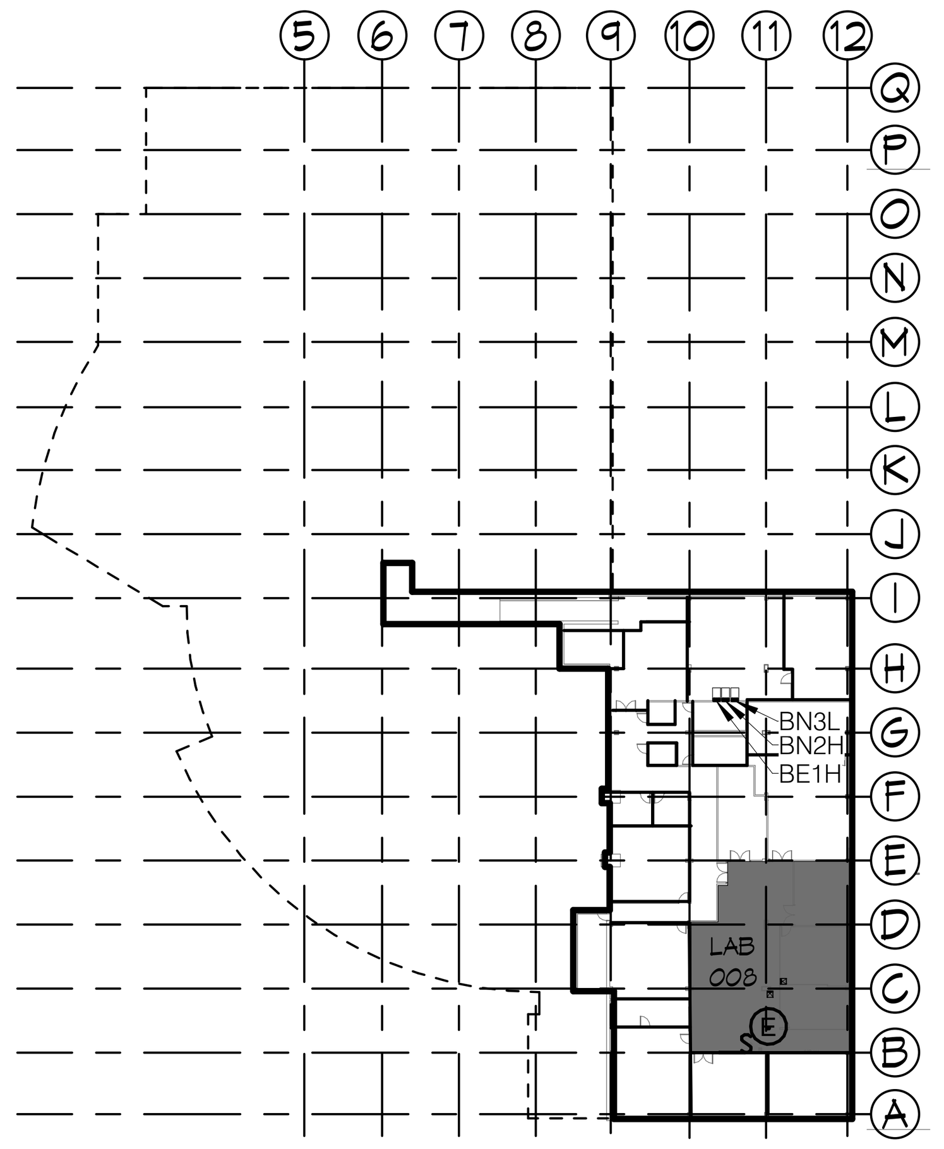
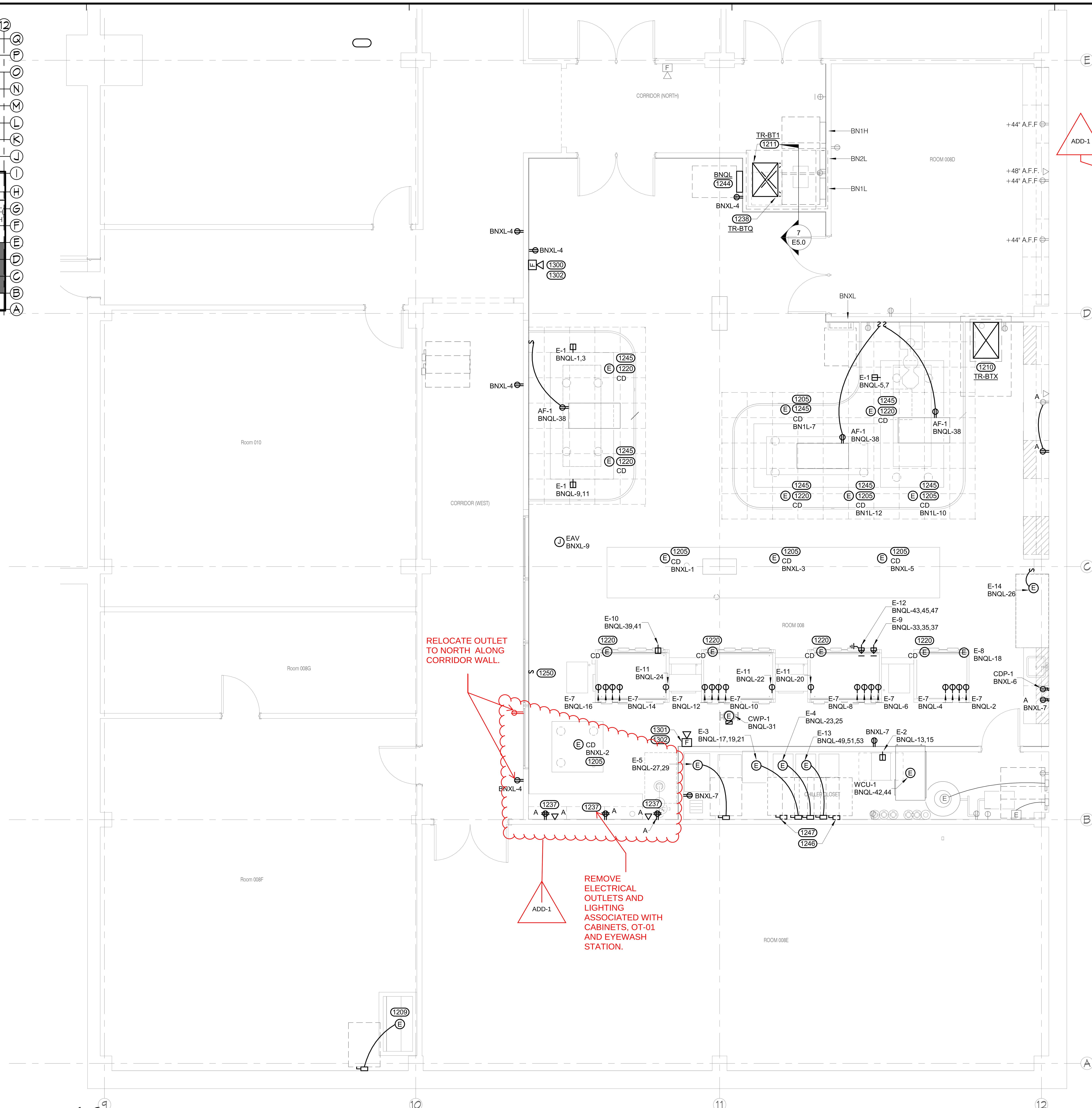


6 BASEMENT KEY PLAN
E2.B 1" = 60'-0"



16 BASEMENT ROOM 008 POWER & SYSTEMS PLAN
E2.B 1/4" = 1'-0"

ELECTRICAL GENERAL NOTES:

1. NEW DEVICES SHOWN SHALL BE SURFACE MOUNTED AND FED WITH SURFACE MOUNTED CONDUIT.
2. EC SHALL VERIFY ALL CONNECTION TYPES WITH LAB EQUIPMENT AND PROVIDE MOCK UP OF LAB EQUIPMENT FOR APPROVAL BY MSU PRIOR TO FINAL INSTALLATION.
3. ALL NEW WORK SHALL MATCH EXISTING SEISMIC BRACING AND CODE REQUIREMENTS USED FOR PREVIOUS WORK FOR THIS BUILDING.
4. DEVICES MOUNTED TO TABLES OR SUPPORTING STRUCTURES SHALL HAVE LOCATIONS AND CONDUIT ROUTING COORDINATED WITH MSU.
5. REINSTALL EXISTING WIRELESS ACCESS POINTS SAVED DURING DEMOLITION.
6. ALL EXISTING TECHNOLOGY CABLING WITHIN THE REMODEL AREA SHALL BE INVESTIGATED BY UNIVERSITY I.T. AND UPGRADED AS NECESSARY. COORDINATE ACCESS AND PHASING WITH UNIVERSITY I.T.
7. ALL DATA CONDUIT SHALL BE ROUTED TO ACCESSIBLE CORRIDOR CEILING.

ADD-1

KEYNOTES

1205	PROVIDE CORD DROP WITH DOUBLE DUPLEX RECEPTACLE, SEE DROP CORD DETAIL ON E5.0. COORDINATE EXACT LOCATION WITH ARCHITECT AND OWNER PRIOR TO ROUGH IN.
1209	INSTALL EXISTING DISCONNECT FOR RELOCATED FUME HOOD SAVED DURING DEMOLITION. EXTEND EXISTING CIRCUIT SAVED DURING DEMOLITION AND RECONNECT FUME HOOD. COORDINATE EXACT LOCATION WITH ARCHITECT.
1210	EXISTING TRANSFORMER SHALL BE MOUNTED AGAINST PARTIAL WALL WITH TRAPEZE MOUNTING SUPPORTS. ELEVATION AND CLEARANCES SHALL BE COORDINATED WITH ARCHITECT PRIOR TO THE START OF WORK. PROVIDE NEW SECONDARY WIRING TO BNXL. REFER TO TRANSFORMER MOUNTING DETAIL ON SHEET E5.0 AND ONE-LINE DIAGRAM FOR ADDITIONAL ELECTRICAL REQUIREMENTS AND INFORMATION.
1211	EXISTING 45KVA TRANSFORMER SAVED DURING DEMOLITION SHALL BE REFED FROM NEW 70A3P BREAKER IN EXISTING PANEL BN2H LOCATED IN ROOM 001. TRANSFORMER SHALL BE TRAPEZE MOUNTED ABOVE THE NEW 112.5KVA TRANSFORMER. ELEVATION AND CLEARANCES SHALL BE COORDINATED WITH ARCHITECT PRIOR TO THE START OF WORK. PROVIDE NEW SECONDARY WIRING TO PANELS BN1L AND BN2L. REFER TO TRANSFORMER ELEVATION DETAIL, TRANSFORMER MOUNTING TRAPEZE DETAIL ON E5.0 AND ONE-LINE DIAGRAM FOR ADDITIONAL ELECTRICAL REQUIREMENTS AND INFORMATION.
1220	REINSTALL EXISTING DROP CORD SAVED DURING DEMOLITION AND EXTEND EXISTING CIRCUIT SAVED DURING DEMOLITION AND RECONNECT. COORDINATE EXACT LOCATIONS WITH ARCHITECT AND OWNER PRIOR TO ROUGH IN.
1237	RELOCATE EXISTING POWER OUTLET(S) TO ABOVE COUNTER. EXTEND WIRE AND CONDUIT AS NECESSARY FOR RELOCATION. FOR TELECOM OUTLET, PROVIDE 4”X4” BACKBOX WITH SINGLE GANG MUDRING AND 1-1/4” C WITH PULL STRING TO CEILING SPACE FOR FUTURE MSU I.T. CABLING. COORDINATE EXACT REQUIREMENTS WITH MSU I.T. PRIOR TO START OF WORK.
1238	PROVIDE NEW TRANSFORMER MOUNTED SECURELY TO THE FLOOR, UNDER TRAPEZE MOUNTED 45KVA TRANSFORMER. REFER TO TRANSFORMER ELEVATION DETAIL, ON E5.0 AND ONE-LINE DIAGRAM FOR ADDITIONAL ELECTRICAL REQUIREMENTS AND INFORMATION.
1244	PROVIDE NEW PANEL BNQL. REFER TO ONE-LINE DIAGRAM FOR ADDITIONAL ELECTRICAL REQUIREMENTS AND INFORMATION.
1245	DROP CORD TO BYPASS OVERHEAD SHELVING. COORDINATE RECEPTACLE HEIGHT WITH OWNER PRIOR TO INSTALLATION.
1246	SPACE FOR FUTURE DISCONNECT FOR FUTURE AFM COMPRESSOR.
1247	SPACE FOR FUTURE DISCONNECT FOR FUTURE AFM CHILLER.
1250	PROVIDE ON/OFF WALL SWITCH TO CONTROL GLOVE TRAIN EXHAUST FAN. PROVIDE NON FADING LABEL ON SWITH "GLOVE TRAIN EXHAUST". COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR AND OWNER.
1300	MATCH EXISTING DEVICE MANUFACTURER AND TIE INTO EXISTING BUILDING FIRE ALARM SYSTEM.
1301	RELOCATE EXISTING FIRE ALARM HORN STROBE SAVED DURING DEMOLITION. EXTEND EXISTING CONDUITS AND WIRES AS NECESSARY TO MAKE SYSTEM FULLY OPERATIONAL.
1302	VERIFY THAT THE EXISTING FIRE ALARM SYSTEM IS OPERATING PROPERLY AND DOCUMENT ALL DEFICIENCIES PRIOR TO CONSTRUCTION. CONFIRM THAT THERE IS ADEQUATE CAPACITY ON EXISTING CIRCUITS FOR THIS WORK AND UPGRADE THE PANEL AS NECESSARY. PROVIDE BATTERY AND CIRCUIT LOAD CALCULATIONS AS REQUIRED. COMPLETE THE FIRE ALARM PROGRAMMING, UPDATE RELATED GRAPHIC DISPLAYS, AND THEN TEST THE NEW CIRCUITS AT THE END OF THE PROJECT.

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100% CONSTRUCTION DOCUMENTS

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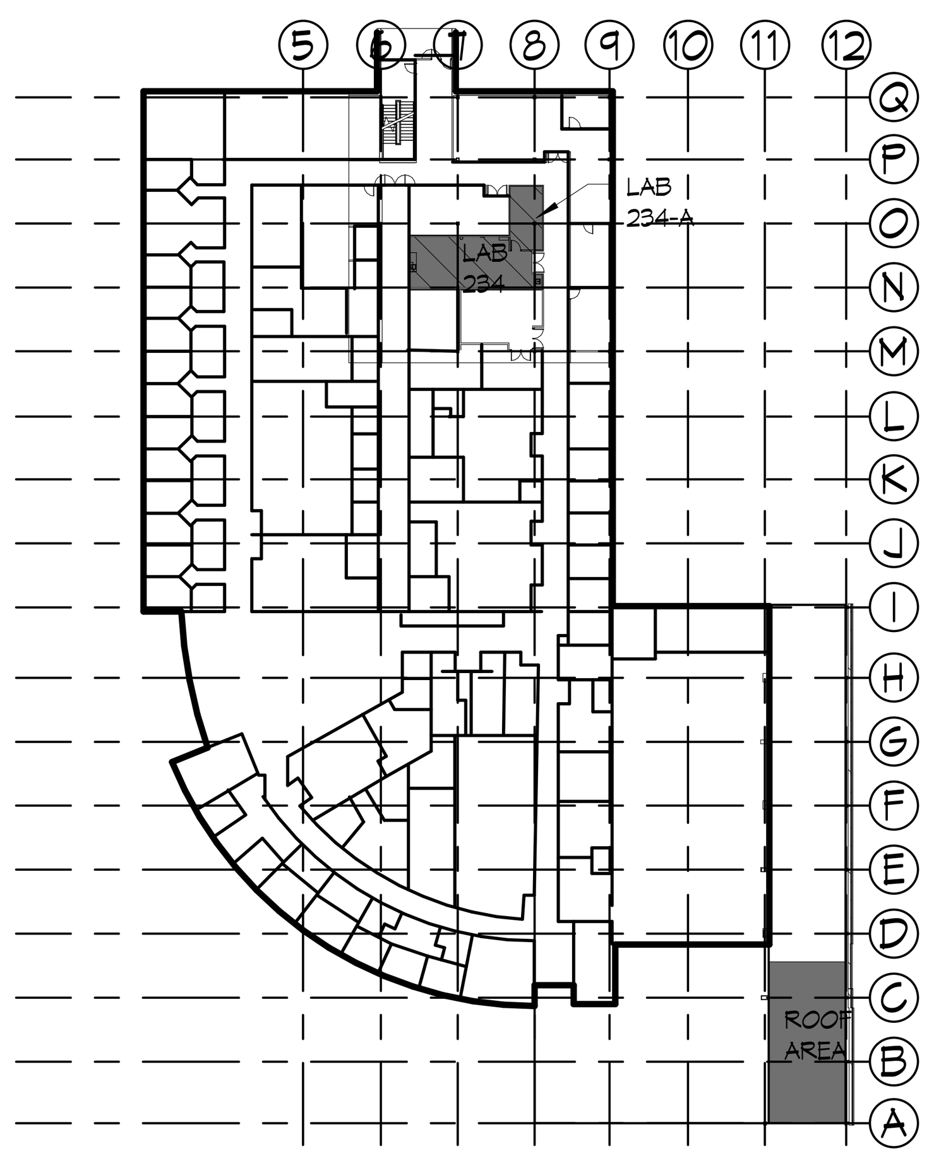


6 SECOND FLOOR KEY PLAN
E2.2 1" = 60'-0"

ELECTRICAL GENERAL NOTES:

1. NEW DEVICES SHOWN SHALL BE SURFACE MOUNTED AND FED WITH SURFACE MOUNTED CONDUIT.
2. EC SHALL VERIFY ALL CONNECTION TYPES WITH LAB EQUIPMENT AND PROVIDE MOCK UP OF LAB EQUIPMENT FOR APPROVAL BY MSU PRIOR TO FINAL INSTALLATION.
3. EXISTING DEVICES TO REMAIN ARE CURRENTLY CIRCUITED TO PANEL 2N11L.
4. ALL NEW WORK SHALL MATCH EXISTING SEISMIC BRACING AND CODE REQUIREMENTS USED FOR PREVIOUS WORK FOR THIS BUILDING.
5. ALL DATA CONDUIT SHALL BE ROUTED TO ACCESSIBLE CORRIDOR CEILING.

ADD-1

KEYNOTES

1205 PROVIDE CORD DROP WITH DOUBLE DUPLEX RECEPTACLE, SEE DROP CORD DETAIL ON E5.0. COORDINATE EXACT LOCATION WITH ARCHITECT AND OWNER PRIOR TO ROUGH IN.

1222 PROVIDE LEGRAND 2000 SERIES PLUGMOLD OR APPROVED EQUAL WITH SIMPLEX RECEPTACLES SPACED AT 2' O.C. WITH ALTERNATING CIRCUITS. MOUNT ABOVE COUNTER.

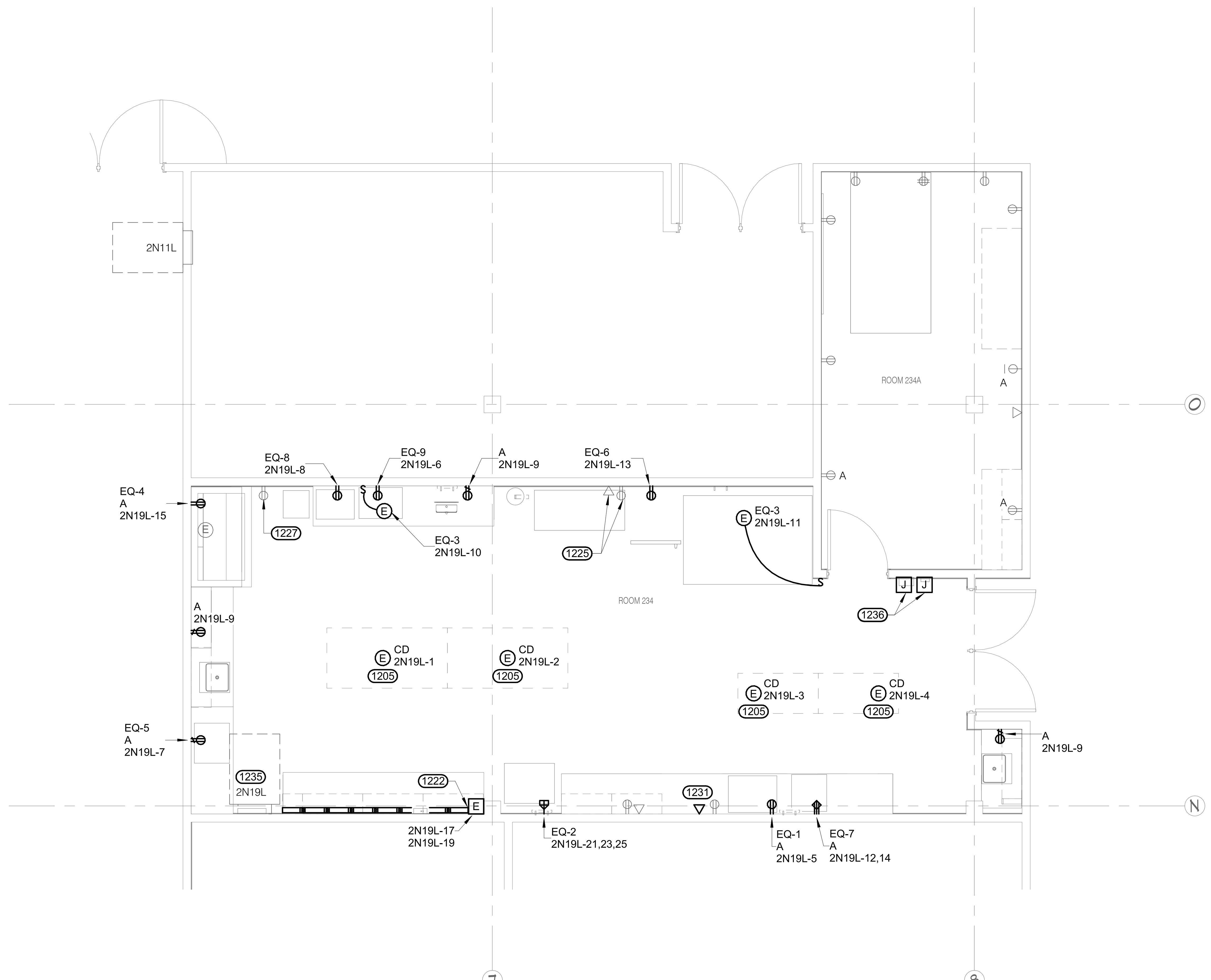
1225 EXISTING RECEPTACLE AND DATA JACK TO REMAIN FOR USE WITH NEW WEATHER-O-METER.

1227 EXISTING RECEPTACLE TO REMAIN FOR USE WITH ULTRASONIC EQUIPMENT.

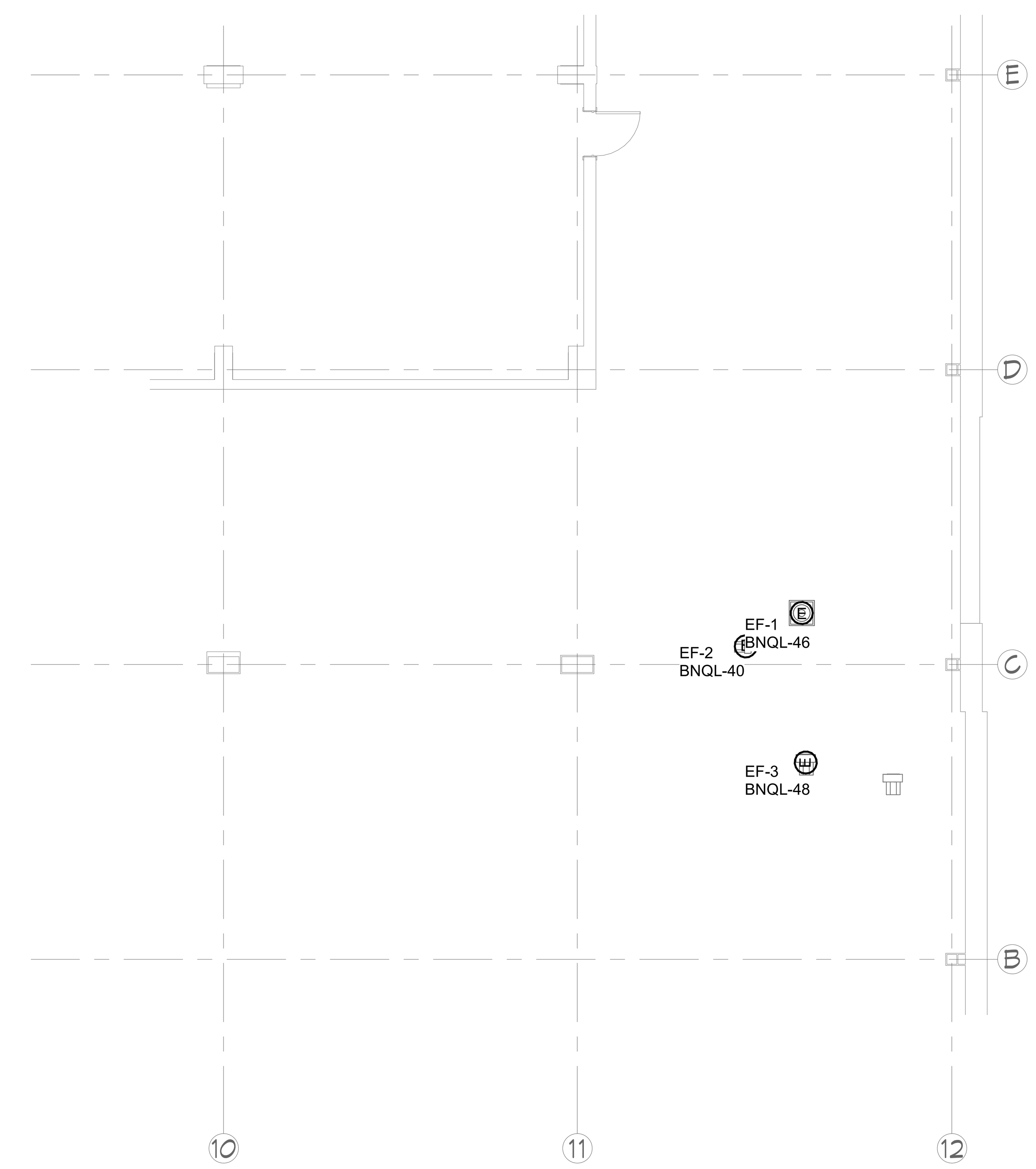
1231 PROVIDE 4"X4" BACKBOX WITH SINGLE GANG MUDRING AND 1-1/4" C WITH PULL STRING TO CEILING SPACE FOR FUTURE MSU I.T. CABLING. COORDINATE EXACT REQUIREMENTS WITH MSU I.T. PRIOR TO START OF WORK.

1235 PROVIDE NEW CIRCUIT BREAKERS WITHIN PANEL TO SUPPORT RENOVATION. PROVIDE FILLER PLATES WHERE NECESSARY FOR UNUSED SPACES WHERE PREVIOUS CIRCUIT BREAKERS HAVE BEEN REMOVED. SEE PANEL SCHEDULE FOR ADDITIONAL INFORMATION.

1236 EXISTING TC CONTROL PANEL AND THERMOSTAT RELOCATED BY MC. EC TO RECONNECT AND EXTEND EXISTING BRANCH CIRCUIT TO POWER AS NEEDED TO MAKE SYSTEMS OPERATIONAL.



16 SECOND FLOOR ROOM 234 POWER & SYSTEMS PLAN
E2.2 1/4" = 1'-0"



19 ROOF ELECTRICAL PLAN
E2.2 1/8" = 1'-0"

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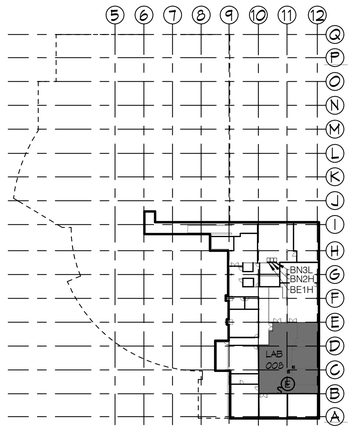
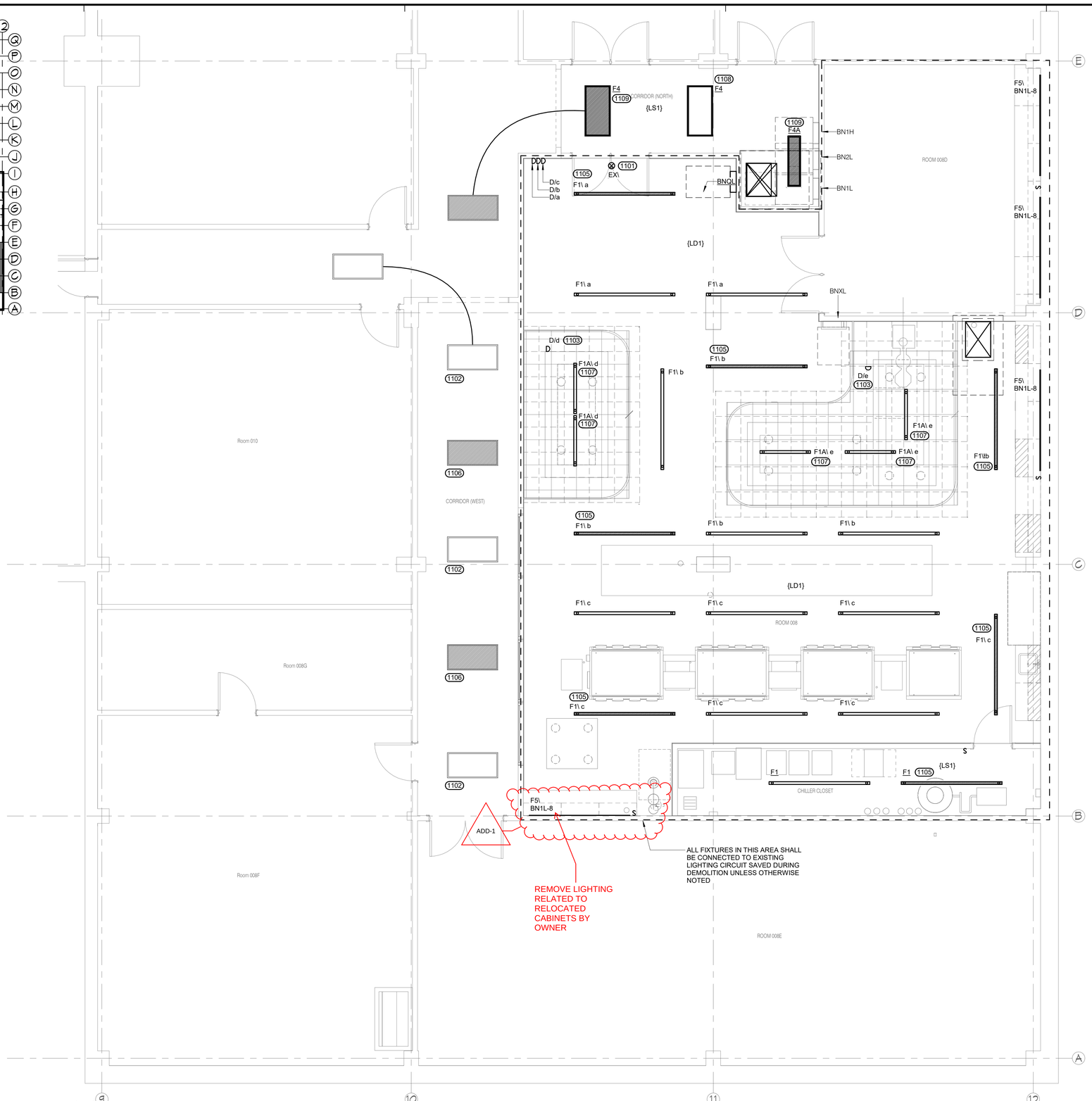
E2.2



6 BASEMENT KEY PLAN
E1.B 1" = 60'-0"



16 BASEMENT ROOM 008 LIGHTING PLAN
E1.B 1/4" = 1'-0"

GENERAL NOTES:

1. A UL924 DEVICE SHALL BE PROVIDED AT ALL EMERGENCY EGRESS FIXTURES AND SHALL BE SWITCHED WITH LOCAL ROOM NORMAL POWER LIGHTS UNLESS OTHERWISE NOTED.
2. CIRCUIT ALL EXIT SIGNS AND UL924 DEVICE SENSING LEADS AHEAD OF ANY LOCAL SWITCHING.
3. ALL NEW WORK SHALL MATCH EXISTING SEISMIC BRACING AND CODE REQUIREMENTS USED FOR PREVIOUS WORK FOR THIS BUILDING.

KEYNOTES

1101 REINSTALL EXISTING EXIT SIGN SAVED DURING DEMOLITION.

1102 CONNECT EXISTING LUMINAIRE TO EXISTING CORRIDOR LIGHTING CIRCUIT AND CONTROL.

1103 PROVIDE SENSOR SWITCH SPODMRA JOT WIRELESS DIMMER OR APPROVED EQUIVALENT FOR F1A FIXTURES. LOCATE ON UNDERSIDE ON TABLE.

1105 CONNECT NEW LUMINAIRE AS NOTED TO EXISTING EMERGENCY LIGHTING CIRCUIT SAVED DURING DEMOLITION.

1106 RECONNECT EXISTING LUMINAIRE TO EXISTING EMERGENCY LIGHTING CIRCUIT SERVING CORRIDOR. FIXTURE SHALL BE CONTROLLED WITH EXISTING CORRIDOR LIGHTING.

1107 FIXTURE F1A TO BE MOUNTED TO THE UNDERSIDE OF OVERHEAD SHELVING. LUMINAIRE TO BE SUSPENDED AT 7'6" A.F.F. COORDINATE ROUTING FOR POWER TO LUMINAIRE WITH OWNER AND MILLWORK CONTRACTOR.

1108 CONNECT NEW LUMINAIRE TO EXISTING CORRIDOR LIGHTING CIRCUIT AND CONTROL.

1109 CONNECT NEW LUMINAIRE TO EMERGENCY LIGHTING CIRCUIT AND CONTROL SERVING CORRIDOR.

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