

MATERIALS

	WOOD SHIM
	CONTINUOUS WOOD BLOCKING
	WOOD, FINISH OR TRIM
	PLYWOOD
	EXTERIOR SHEATHING
	HARDBOARD
	GYPSUM WALLBOARD
	BRICK VENEER
	CONCRETE, PRECAST
	CONCRETE, MASONRY
	CONCRETE, POURED
	POROUS
	RUBBER
	SAND
	STONE-SLAB
	EARTH
	FIREPROOFING
	INSULATION, MINERAL ROCK WOOL
	INSULATION, FIBERGLASS BATT
	INSULATION, EXPANDED POLYSTYRENE
	INSULATION, POLYISOCYANURATE
	STEEL
	ALUMINUM
	SHEET METAL
	HOLLOW METAL
	ALUMINUM
	METAL LATH AND PLASTER
	GLAZING
	CARPET

ABBREVIATIONS

&	AND
@	AT
ADJ	ADJACENT
AESS	ARCHITECTURAL EXPOSED STRUCTURAL STEEL
AFF	ABOVE FINISH FLOOR
ALUM	ALUMINUM
APPROX	APPROXIMATELY
ARCH	ARCHITECTURAL
BD	BOARD
BLDG	BUILDING
B.O.	BOTTOM OF
CL	CENTERLINE
CF/OI	CONTRACTOR FURNISHED / OWNER INSTALLED
CJ	CONTROL JOINT
CLG	CEILING
CLR	CLEAR
CG	CORNER GUARD
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONT	CONTINUOUS
COORD	COORDINATE
CUH	CABINET UNIT HEATER
DET	DETAIL
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIM	DIMENSION
DN	DOWN
DWG	DRAWING
EA	EACH
EL	ELEVATION
ELEC	ELECTRICAL
EJ	EXPANSION JOINT
ELEV	ELEVATOR
EQ	EQUAL
EQUIP	EQUIPMENT
EXIST	EXISTING
EXT	EXTERIOR
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF	FINISH FLOOR
FHC	FIRE HOSE CABINET
FIN	FINISH
FLR	FLOOR
F.O.	FACE OF
FT	FEET/FOOT
GA	GAUGE
GALV	GALVANIZED
GL	GLAZING
GYP	GYPSUM
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HR	HOUR
HT	HEIGHT
INCL	INCLUDED
INSUL	INSULATION
INT	INTERIOR
JT	JOINT
LAV	LAVATORY
MAX	MAXIMUM
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MTD	MOUNTED
MTL	METAL
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OC	ON CENTER
OD	OVERFLOW DRAIN
OF/CI	OWNER FURNISHED / CONTRACTOR INSTALLED
OF/OI	OWNER FURNISHED / OWNER INSTALLED
OH	OVERHEAD
OPP	OPPOSITE
PTD	PAINTED
R	RADIUS
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REINF	REINFORCING
REQD	REQUIRED
RM	ROOM
RO	ROUGH OPENING
SCHED	SCHEDULE
SF	SQUARE FOOT
SIM	SIMILAR
SPEC	SPECIFICATIONS
SQ	SQUARE
SS	STAINLESS STEEL
STL	STEEL
STRUCT	STRUCTURAL
T.O.	TOP OF
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UL	UNDERWRITERS LABORATORIES
VERT	VERTICAL
VIF	VERIFY IN FIELD
W/	WITH
W/O	WITHOUT
WD	WOOD

SYMBOLS

NORTH ARROW

GRAPHIC SCALE

DRAWING TITLE

EXTERIOR ELEVATION

SECTION REFERENCE

DETAIL REFERENCE

INTERIOR ELEVATION

GRID REFERENCE

LEVEL DATUM

ROOM TAG

PARTITION TAG

DOOR TAG

RELITE TAG

SEE DOOR AND RELITE TYPES AND DETAILS SHEET A8.03 DOOR SCHEDULES AND DATA IN SPECIFICATIONS DIV. 8

GLASS TYPE TAG

EQUIPMENT TAG

REVISION TAG

CASEWORK TAG

MATCH LINE

DIM PT.

SPOT ELEVATION REFERENCE

SLAB ELEVATION DIFFERENCE

DIMENSIONING STANDARDS

INTERIOR DIMENSIONS

- DO NOT SCALE DRAWINGS FOR DIMENSIONAL INFORMATION. ALL ELEMENTS ON THE DRAWINGS MAY NOT BE TO THE EXACT SCALE. ALL DIMENSIONS REQUIRED ARE SHOWN OR MAY BE DERIVED FROM THOSE SHOWN ON THE FLOOR PLANS, DETAIL PLANS, ELEVATIONS, SECTIONS, DETAILS, SCHEDULES AND SPECIFICATIONS.
- FOR ADDITIONAL DIMENSIONAL INFORMATION TO ARCHITECTURAL DOCUMENTS, SEE STRUCTURAL, MECHANICAL, ELECTRICAL AND PLUMBING DOCUMENTS.
- REFER TO SYMBOLS ON THIS SHEET FOR ILLUSTRATIONS USED TO INDICATE "FACE OF" OR "CENTERLINE" DIMENSIONS.
- EXCEPT WHERE SPECIFICALLY NOTED TO THE CONTRARY, ALL THE INTERIOR RELATED DIMENSIONS SHOWN ON THE ARCHITECTURAL DRAWINGS CONFORM TO THE FOLLOWING CONVENTIONS:
 - METAL STUD AND CMU PARTITIONS AT GRID LINES ARE LOCATED WITH THE CENTERLINE OF THE PARTITION ASSEMBLY AT THE GRID CENTERLINE, UNLESS NOTED OTHERWISE.
 - DIMENSIONS SHOWN AND/OR NOTED TO THE CENTERLINE ARE MEASURED TO THE CENTERLINE OF DOORS, WINDOWS, OR OTHER FEATURES INDICATED.
 - DIMENSIONS UTILIZING THE "FACE OF" SYMBOL ARE MEASURED TO THE FACE OF PARTITION ASSEMBLY AS DEFINED BY THE PARTITION SCHEDULE, EXCLUSIVE OF APPLIED FINISHES HAVING THICKNESS WHICH MAY BE ADDED TO SUCH WALLS, I.E. CERAMIC TILE, ETC. EXCEPT AS FOLLOWS:
 - UNLESS NOTED AS "CLEAR", DIMENSIONS ARE NOT MEASURED TO THE FACE OF APPLIED FINISHES.
 - SECOND PARTITION TAG TYPE "Z" OR DETAIL TAG IN PLANS, REPRESENTS AN ADDITIONAL FINISH APPLIED TO THE SCHEDULED PARTITION, AND IS THEREFORE NOT INCLUDED IN THE PLAN DIMENSION, TYP.
 - WHERE "CLEAR" DIMENSIONS ARE SPECIFICALLY NOTED, THE DIMENSION INDICATED IS THE MINIMUM DIMENSION MEASURED TO FINISH FACES AT THE MOST CONSTRICTED POINTS WHERE THE DIMENSION IS SHOWN.
- WHERE WALLS AND/OR PARTITIONS OF UNEQUAL THICKNESS ABUT, ALIGN EXPOSED FACES, UNO.

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A2.01	FLOOR PLAN, LEVEL 1 - OVERALL
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A2.02A	ENLARGED FLOOR PLAN, LEVEL 2 & TYPICAL PARTITION TYPES
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A9.02	REFLECTED CEILING PLAN, LEVEL 2 - OVERALL
A9.02A	ENLARGED DEMO & NEW REFLECTED CEILING PLAN, LEVEL 2
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SHEET INDEX, SYMBOLS AND ABBREVIATIONS

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G0.01

ALTERNATIVE:
REMOVE EXPLOSION PROOF ELEMENTS AND REPLACE WITH STANDARD FUME HOOD ELECTRICAL DEVICES AT ALL FUME HOODS IN ROOM 0090. SEE PHOTOS FOR MORE INFORMATION

KEYNOTES

1. REMOVE SNORKEL AND LIGHT FROM OHSC. CAP OPENINGS AT OHSC. CAP COLOR TO MATCH OHSC COLOR FINISH.
2. REMOVE FUME HOOD, CAP UTILITIES FEEDING FUME HOOD AS NEEDED. PATCH AND REPAIR FLOOR AND WALL FINISHES AS NECESSARY.

EXISTING FUME HOOD REFERENCE PHOTOS FROM RM 0090



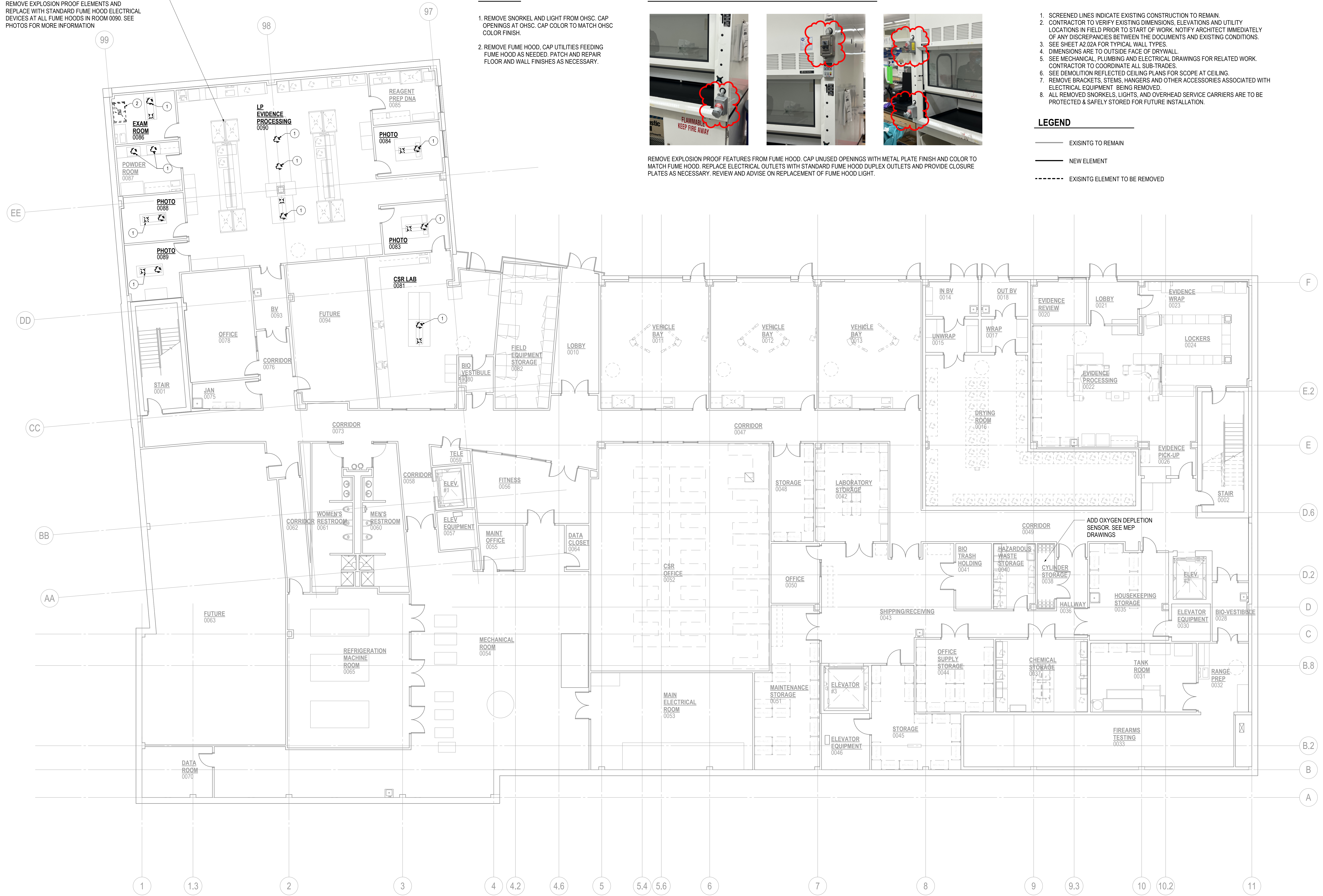
REMOVE EXPLOSION PROOF FEATURES FROM FUME HOOD. CAP UNUSED OPENINGS WITH METAL PLATE FINISH AND COLOR TO MATCH FUME HOOD. REPLACE ELECTRICAL OUTLETS WITH STANDARD FUME HOOD DUPLEX OUTLETS AND PROVIDE CLOSURE PLATES AS NECESSARY. REVIEW AND ADVISE ON REPLACEMENT OF FUME HOOD LIGHT.

GENERAL NOTES

1. SCREENED LINES INDICATE EXISTING CONSTRUCTION TO REMAIN.
2. CONTRACTOR TO VERIFY EXISTING DIMENSIONS, ELEVATIONS AND UTILITY LOCATIONS IN FIELD PRIOR TO START OF WORK. NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES BETWEEN THE DOCUMENTS AND EXISTING CONDITIONS.
3. SEE SHEET A2.02A FOR TYPICAL WALL TYPES.
4. DIMENSIONS ARE TO OUTSIDE FACE OF DRYWALL.
5. SEE MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR RELATED WORK. CONTRACTOR TO COORDINATE ALL SUB-TRADES.
6. SEE DEMOLITION REFLECTED CEILING PLANS FOR SCOPE AT CEILING.
7. REMOVE BRACKETS, STEMS, HANGERS AND OTHER ACCESSORIES ASSOCIATED WITH ELECTRICAL EQUIPMENT BEING REMOVED.
8. ALL REMOVED SNORKELS, LIGHTS, AND OVERHEAD SERVICE CARRIERS ARE TO BE PROTECTED & SAFELY STORED FOR FUTURE INSTALLATION.

LEGEND

- EXISTING TO REMAIN
- NEW ELEMENT
- - - - EXISTING ELEMENT TO BE REMOVED



1 FLOOR PLAN, BASEMENT -OVERALL
1/8" = 1'-0"

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FLOOR PLAN, BASEMENT -OVERALL

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GENERAL NOTES

1. SCREENED LINES INDICATE EXISTING CONSTRUCTION TO REMAIN.
2. CONTRACTOR TO VERIFY EXISTING DIMENSIONS, ELEVATIONS AND UTILITY LOCATIONS IN FIELD PRIOR TO START OF WORK. NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES BETWEEN THE DOCUMENTS AND EXISTING CONDITIONS.
3. SEE SHEET A2.02A FOR TYPICAL WALL TYPES.
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LEGEND

- EXISTING TO REMAIN
- NEW ELEMENT
- - - - EXISTING ELEMENT TO BE REMOVED

KEYNOTES

1. RELOCATED SNORKEL.



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Sheet Title
**FLOOR PLAN,
LEVEL 1 -
OVERALL**

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A2.01

1 FLOOR PLAN, LEVEL 1 - OVERALL
1/8" = 1'-0"

KEYNOTES

1. REMOVE SNORKEL AND LIGHT FROM OHSC. CAP OPENINGS AT OHSC. CAP COLOR TO MATCH OHSC COLOR FINISH.
2. REMOVE SNORKEL AND CAP OPENING. CAP COLOR TO MATCH OHSC COLOR.
3. REMOVE SNORKEL AND REPLACE ACT TILE WITH A NEW TILE TO MATCH EXISTING.
4. REMOVE OHSC AND SNORKEL, CAP UTILITIES. PATCH AND MATCH EXISTING ACT CEILING.
5. REMOVE OHSC, LIGHT AND SNORKEL, CAP UTILITIES. PATCH AND MATCH EXISTING CEILING.

GENERAL NOTES

1. SCREENED LINES INDICATE EXISTING CONSTRUCTION TO REMAIN.
2. CONTRACTOR TO VERIFY EXISTING DIMENSIONS, ELEVATIONS AND UTILITY LOCATIONS IN FIELD PRIOR TO START OF WORK. NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES BETWEEN THE DOCUMENTS AND EXISTING CONDITIONS.
3. SEE SHEET A2.02A FOR TYPICAL WALL TYPES.
4. DIMENSIONS ARE TO OUTSIDE FACE OF DRYWALL.
5. SEE MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR RELATED WORK. CONTRACTOR TO COORDINATE ALL SUB-TRADES.
6. SEE DEMOLITION REFLECTED CEILING PLANS FOR SCOPE AT CEILING.
7. REMOVE BRACKETS, STEMS, HANGERS AND OTHER ACCESSORIES ASSOCIATED WITH ELECTRICAL EQUIPMENT BEING REMOVED.
8. ALL REMOVED SNORKELS, LIGHTS, AND OVERHEAD SERVICE CARRIERS ARE TO BE PROTECTED & SAFELY STORED FOR FUTURE INSTALLATION.

LEGEND

- EXISTING TO REMAIN
- NEW ELEMENT
- - - - EXISTING ELEMENT TO BE REMOVED



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Sheet Title

FLOOR PLAN,
LEVEL 2 -
OVERALL

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A2.02

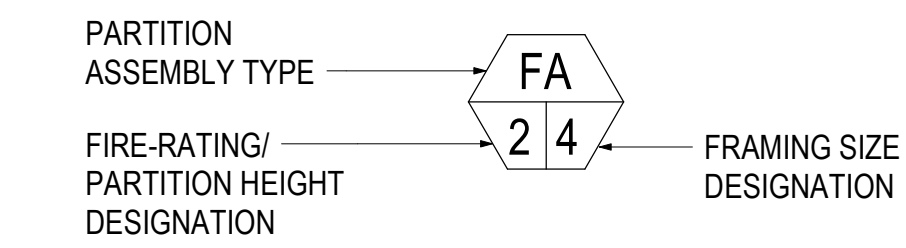
1 FLOOR PLAN, LEVEL 2 - OVERALL

1/8" = 1'-0"

GENERAL PARTITION NOTES

1. ALL PARTITIONS ARE NON LOAD BEARING UNLESS NOTED OTHERWISE. REFERENCE STRUCTURAL DRAWINGS FOR LOAD BEARING PARTITION ASSEMBLIES.
2. SEE FLOOR PLANS FOR LOCATIONS OF RATED PARTITIONS.
3. TYPICAL FRAMING TO BE 30 MIL METAL STUDS @ 16" O.C, ARCHITECT TO DETERMINE STUD SPACING, COULD BE 24" O.C.
4. PARTITIONS TO HAVE 5/8" GYPSUM BOARD ON BOTH SIDES UNLESS NOTED OTHERWISE.
5. UNLESS NOTED OTHERWISE, THE STUD SIZE SHALL BE 4", ARCHITECT TO DETERMINE STUD SIZE, COULD BE 3 5/8".
6. SEALANT
 - A. NON-RATED PARTITIONS AND NON-RATED SMOKE RESISTANT PARTITIONS SHALL USE ACOUSTICAL SEALANT.
 - B. PROVIDE FULL THICKNESS INSULATION INSIDE ALL ACOUSTICAL PARTITIONS; INCLUDING STUD BOX BEAMS, HEADERS AND BUILD UP JAMB STUDS.
7. INSULATION: HEAD CONDITIONS AT FLOOR/ROOF DECK
 - A. NON-RATED PARTITIONS REQUIRING SOUND ATTENUATION SHALL USE ACOUSTIC INSULATION.
 - B. PROVIDE FULL THICKNESS INSULATION INSIDE ALL ACOUSTICAL PARTITIONS; INCLUDING STUD BOX BEAMS, HEADERS AND BUILD UP JAMB STUDS.
8. PROVIDE ACOUSTIC SEAL AT PERIMETER AND PENETRATIONS OF SOUND RATED PARTITIONS AND OTHER CONSTRUCTION AS REQUIRED TO ACHIEVE STC INDICATED.
9. "B.O. STRUCTURE" INDICATED FOR EACH PARTITION IS DIAGRAMMATIC ONLY AND DOES NOT INDICATE EXACT CONSTRUCTION CONDITIONS OR GEOMETRY.
10. ALL DIMENSIONS ARE TO FACE OF PARTITION ASSEMBLY, U.N.O. REFER TO PARTITION TYPES FOR PARTITION WIDTH DIMENSIONS UNLESS INDICATED TO BE SHOWN ON PLAN.
11. WHERE INDICATED, "CLEAR" DIMENSIONS ARE TO FACE OF WALL FINISH.
12. STC RATINGS LISTED ASSUME FULL HEIGHT WALLS AND GYPSUM BOARD, STRUCTURE TO STRUCTURE.
13. SOUND ATTENUATION BLANKET TO BE 3 1/2" UNLESS OTHERWISE NOTED.
14. PROVIDE ACOUSTIC SEAL AT PERIMETER AND PENETRATIONS OF SOUND RATED PARTITIONS AND OTHER CONSTRUCTION AS REQUIRED TO ACHIEVE STC INDICATED.

PARTITION ASSEMBLY PLAN SYMBOL



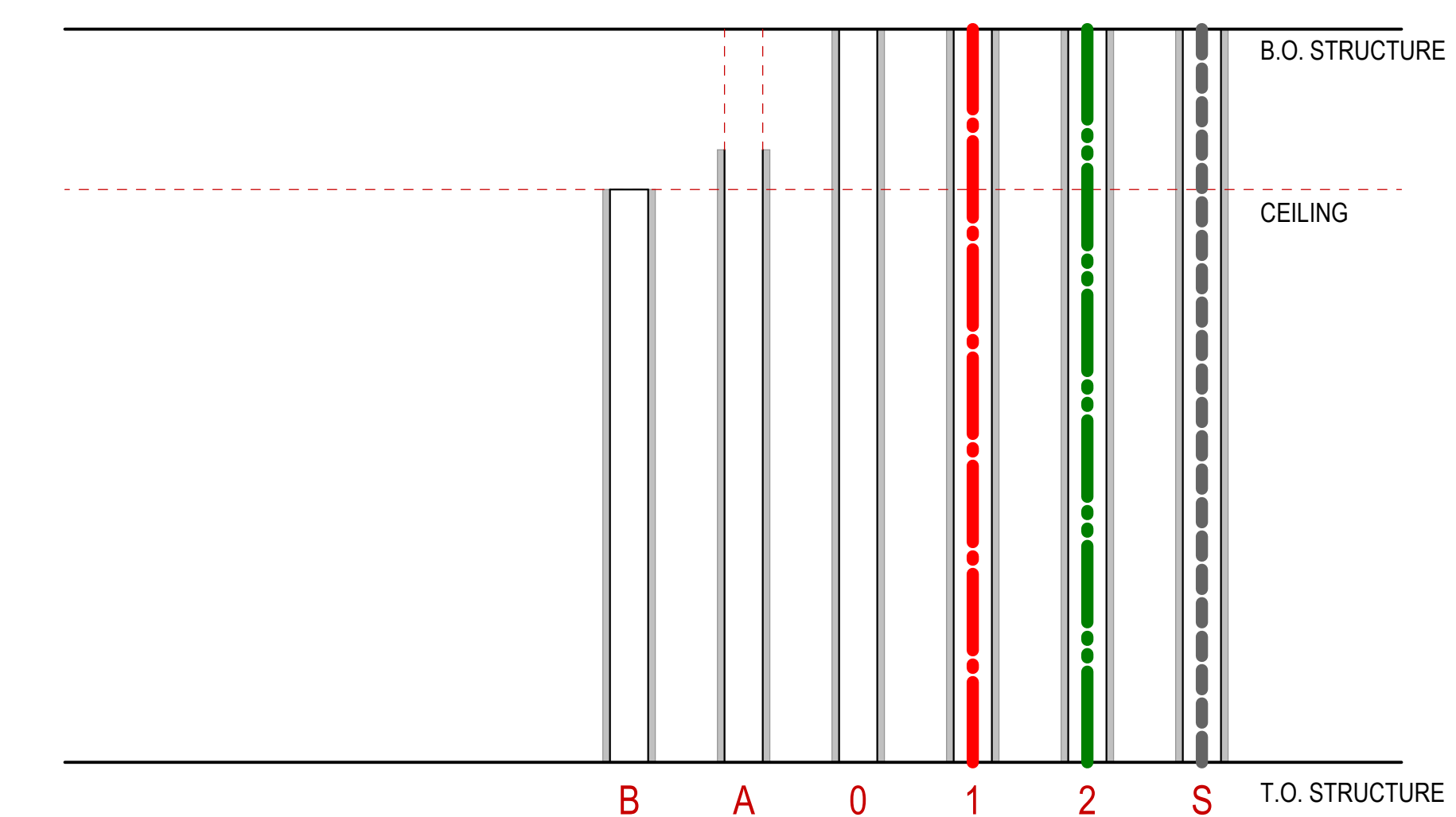
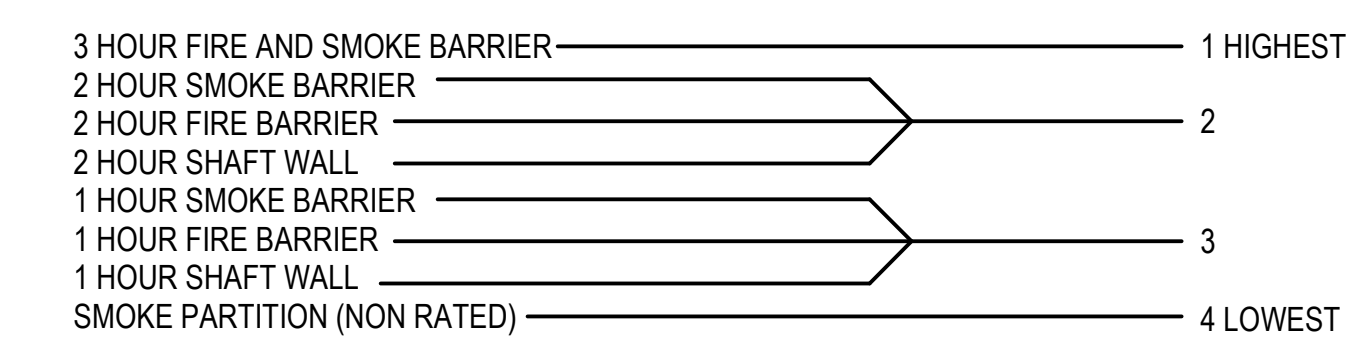
STUD AND CMU SIZE DESIGNATION

NUMERIC CHARACTER	STUD WIDTH	FURRING WIDTH	CMU WIDTH
0	7/8"	7/8"	
1	1 5/8"	1 1/2"	
2	2 1/2"		
3	3 5/8"		
4	4"		3 5/8"
6	6"		5 5/8"

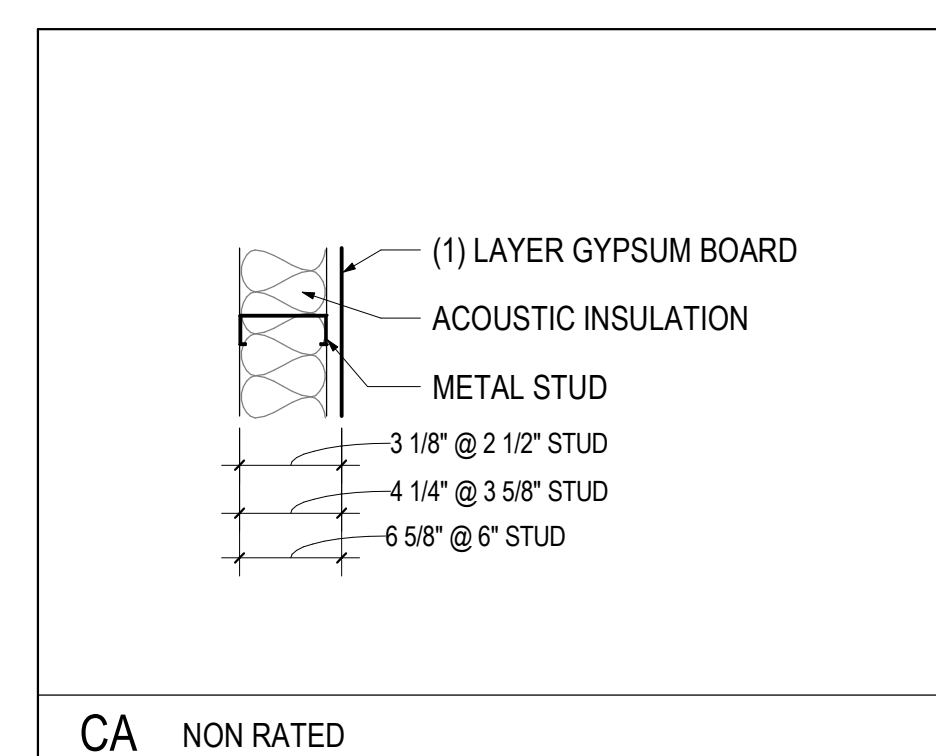
FIRE RATING/PARTITION HEIGHT DESIGNATION

- B = NON-RATED - TOP OF SLAB TO UNDERSIDE OF CEILING.
- A = NON-RATED - EXTEND FRAMING TO UNDERSIDE OF STRUCTURE ABOVE. EXTEND GYPSUM BOARD 6" ABOVE FINISH CEILING.
- 0 = NON-RATED TO UNDERSIDE OF STRUCTURE ABOVE
- 1 = (1) HOUR FIRE RESISTANT SMOKE BARRIER
- 2 = (2) HOUR FIRE RESISTANT SMOKE BARRIER
- S = SMOKE PARTITION

WALL PRIORITY LEGEND



PARTITION TYPES



GENERAL NOTES

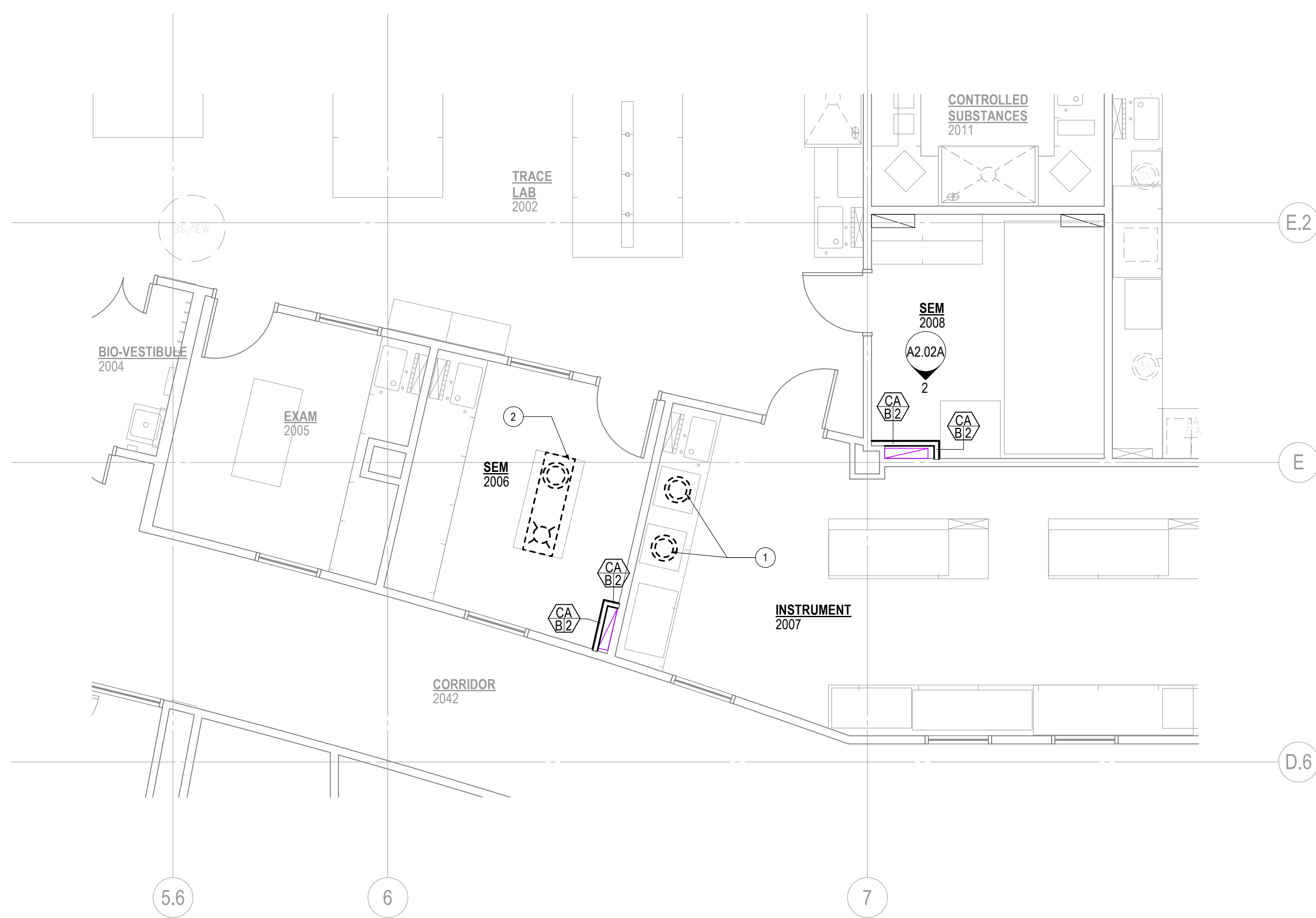
1. SCREENED LINES INDICATE EXISTING CONSTRUCTION TO REMAIN.
2. CONTRACTOR TO VERIFY EXISTING DIMENSIONS, ELEVATIONS AND UTILITY LOCATIONS IN FIELD PRIOR TO START OF WORK. NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES BETWEEN THE DOCUMENTS AND EXISTING CONDITIONS.
3. SEE SHEET A2.02A FOR TYPICAL WALL TYPES.
4. DIMENSIONS ARE TO OUTSIDE FACE OF DRYWALL.
5. SEE MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR RELATED WORK. CONTRACTOR TO COORDINATE ALL SUB-TRADES.
6. SEE DEMOLITION REFLECTED CEILING PLANS FOR SCOPE AT CEILING.
7. REMOVE BRACKETS, STEMS, HANGERS AND OTHER ACCESSORIES ASSOCIATED WITH ELECTRICAL EQUIPMENT BEING REMOVED.
8. ALL REMOVED SNORKELS, LIGHTS, AND OVERHEAD SERVICE CARRIERS ARE TO BE PROTECTED & SAFELY STORED FOR FUTURE INSTALLATION.

LEGEND

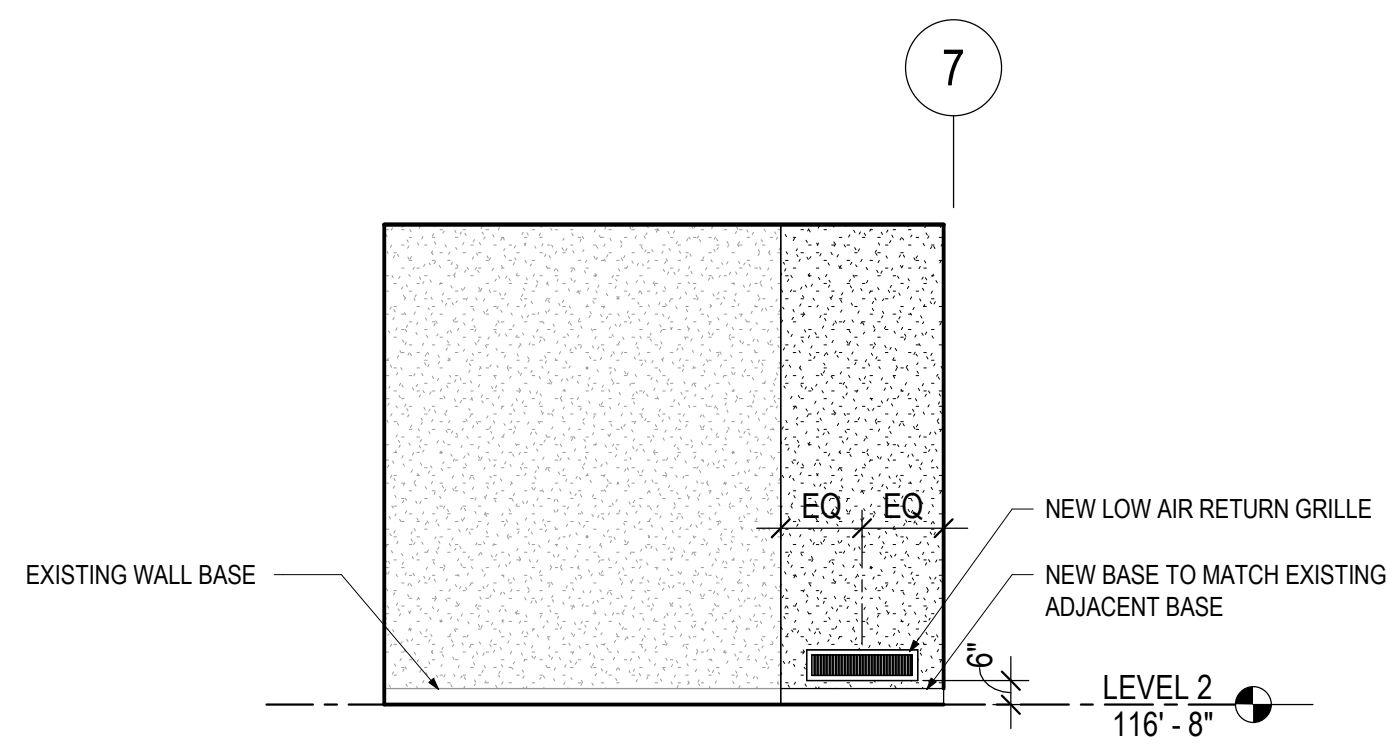
- EXISTING TO REMAIN
- NEW ELEMENT
- - - - EXISTING ELEMENT TO BE REMOVED

KEYNOTES

1. REMOVE SNORKEL. PATCH AND MATCH EXISTING CEILING.
2. REMOVE OHSC, LIGHT AND SNORKEL, CAP UTILITIES.



1 ENLARGED FLOOR PLAN, LEVEL 2
A2.02A 1/4" = 1'-0"



2 SEM 2006 - SOUTH
A2.02A 1/4" = 1'-0"

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ENLARGED FLOOR PLAN, LEVEL 2 & TYPICAL PARTITION TYPES

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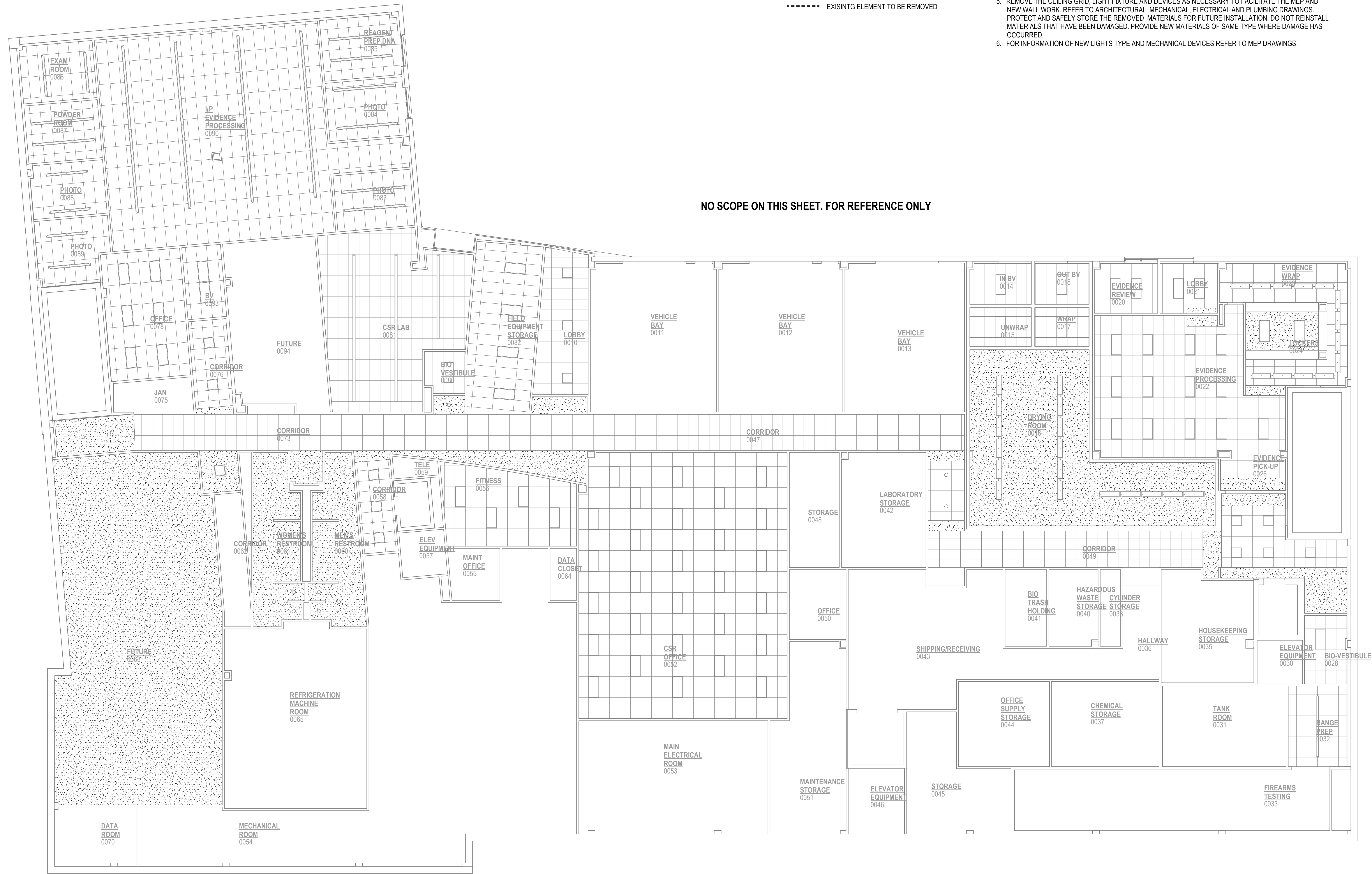
LEGEND

- EXISTING TO REMAIN
- NEW/RELOCATED ELEMENT
- - - - EXISTING ELEMENT TO BE REMOVED

CEILING DEMOLITION NOTES

1. ALL SCREENED LINES INDICATE EXISTING CONSTRUCTION TO REMAIN.
2. ALL EXISTING CEILING ITEMS SHOWN WITH DASHED LINES ARE TO BE REMOVED.
3. COORDINATE WITH DEMOLITION OF MEP TRADES. SEE MEP DEMO DRAWINGS FOR MORE INFORMATION.
4. REMOVE BRACKETS, STEMS, HANGERS AND OTHER ACCESSORIES ASSOCIATED WITH ELECTRICAL EQUIPMENT BEING REMOVED.
5. REMOVE THE CEILING GRID, LIGHT FIXTURE AND DEVICES AS NECESSARY TO FACILITATE THE MEP AND NEW WALL WORK. REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS. PROTECT AND SAFELY STORE THE REMOVED MATERIALS FOR FUTURE INSTALLATION. DO NOT REINSTALL MATERIALS THAT HAVE BEEN DAMAGED. PROVIDE NEW MATERIALS OF SAME TYPE WHERE DAMAGE HAS OCCURRED.
6. FOR INFORMATION OF NEW LIGHTS TYPE AND MECHANICAL DEVICES REFER TO MEP DRAWINGS.

NO SCOPE ON THIS SHEET. FOR REFERENCE ONLY



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REFLECTED
 CEILING PLAN,
 BASEMENT -
 OVERALL

Sheet Number

A9.00

1 REFLECTED CEILING PLAN, BASEMENT
 A9.00 1/8" = 1'-0"

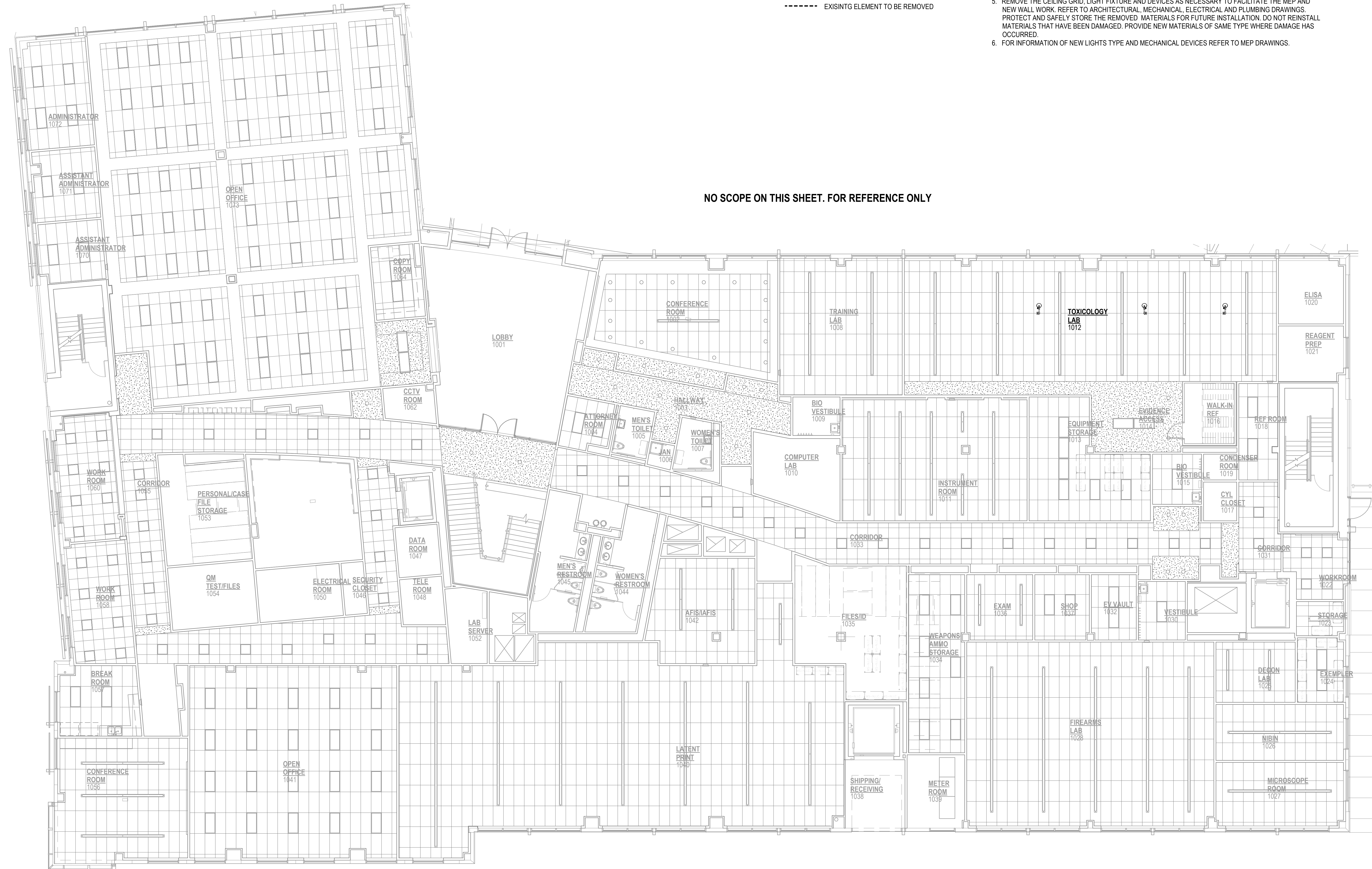
LEGEND

- EXISINTG TO REMAIN
- NEW/RELOCATED ELEMENT
- EXISINTG ELEMENT TO BE REMOVED

CEILING DEMOLITION NOTES

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3. COORDINATE WITH DEMOLITION OF MEP TRADES. SEE MEP DEMO DRAWINGS FOR MORE INFORMATION.
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**REFLECTED
CEILING PLAN,
LEVEL 1 -
OVERALL**

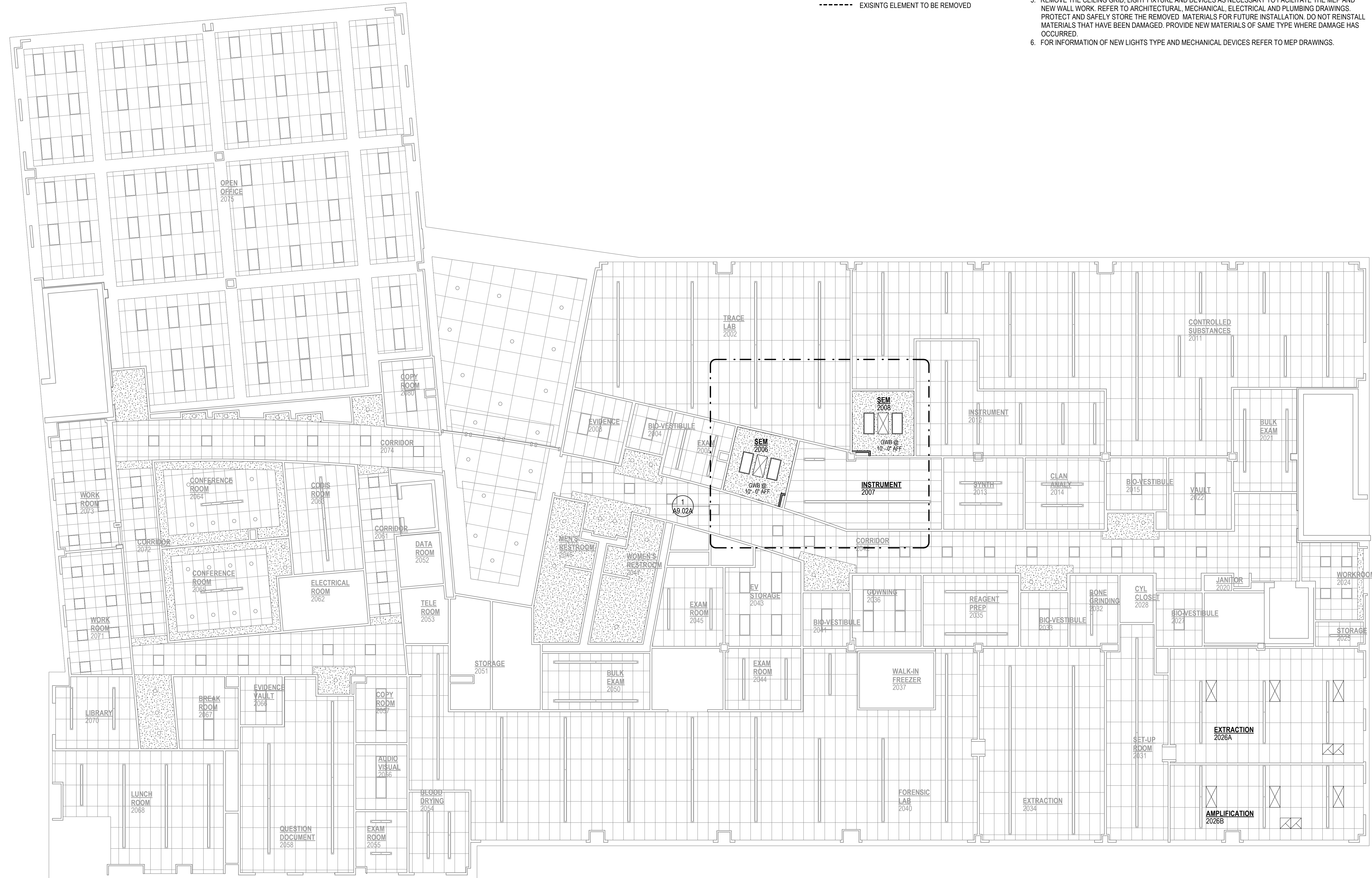
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A9.01

LEGEND

- EXISTING TO REMAIN
- NEW/RELOCATED ELEMENT
- EXISTING ELEMENT TO BE REMOVED

CEILING DEMOLITION NOTES

1. ALL SCREENED LINES INDICATE EXISTING CONSTRUCTION TO REMAIN.
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Sheet Title

REFLECTED
CEILING PLAN,
LEVEL 2 -
OVERALL

Sheet Number

A9.02

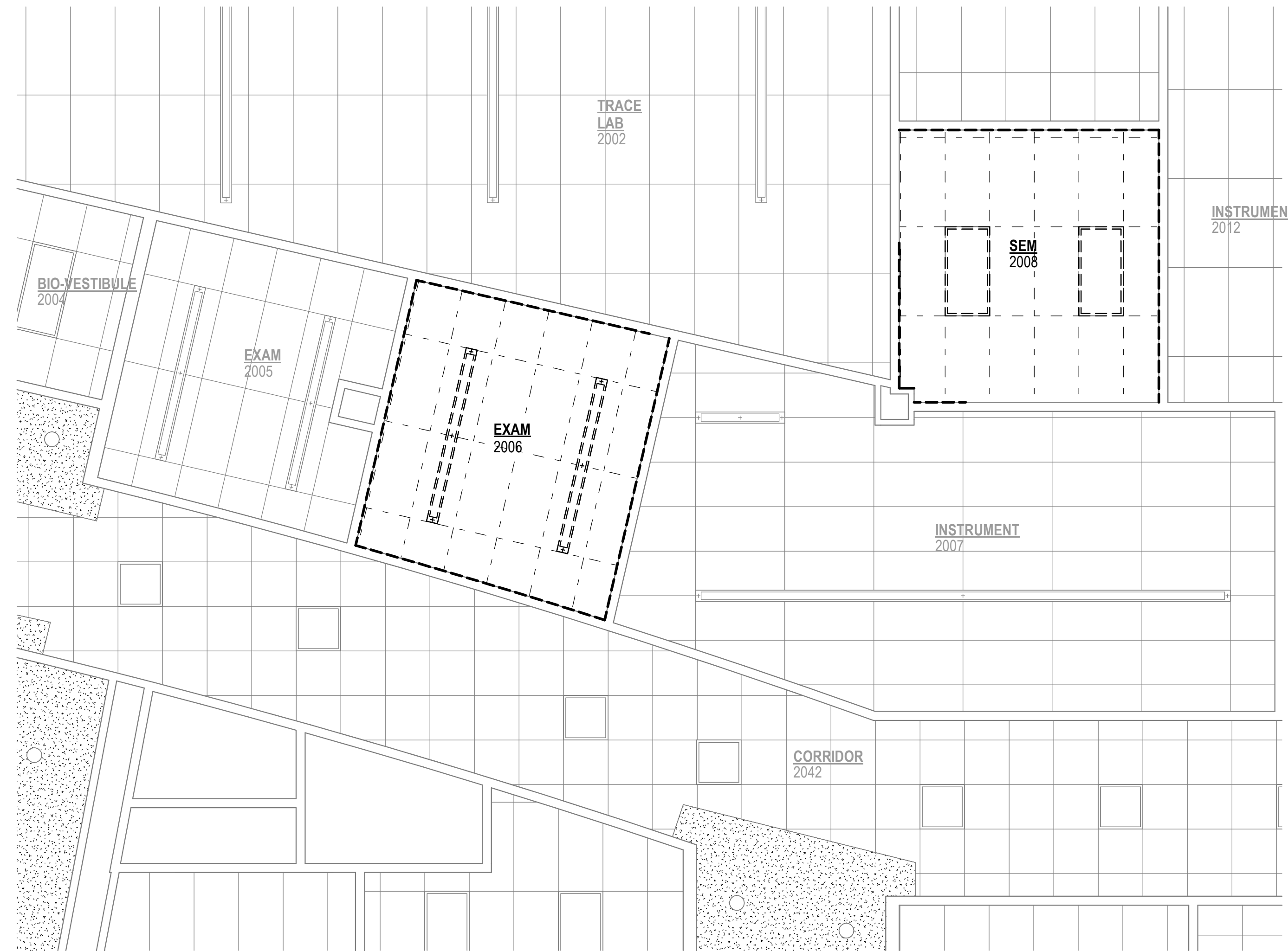
1 REFLECTED CEILING PLAN, LEVEL 2
A9.02 1/8" = 1'-0"

LEGEND

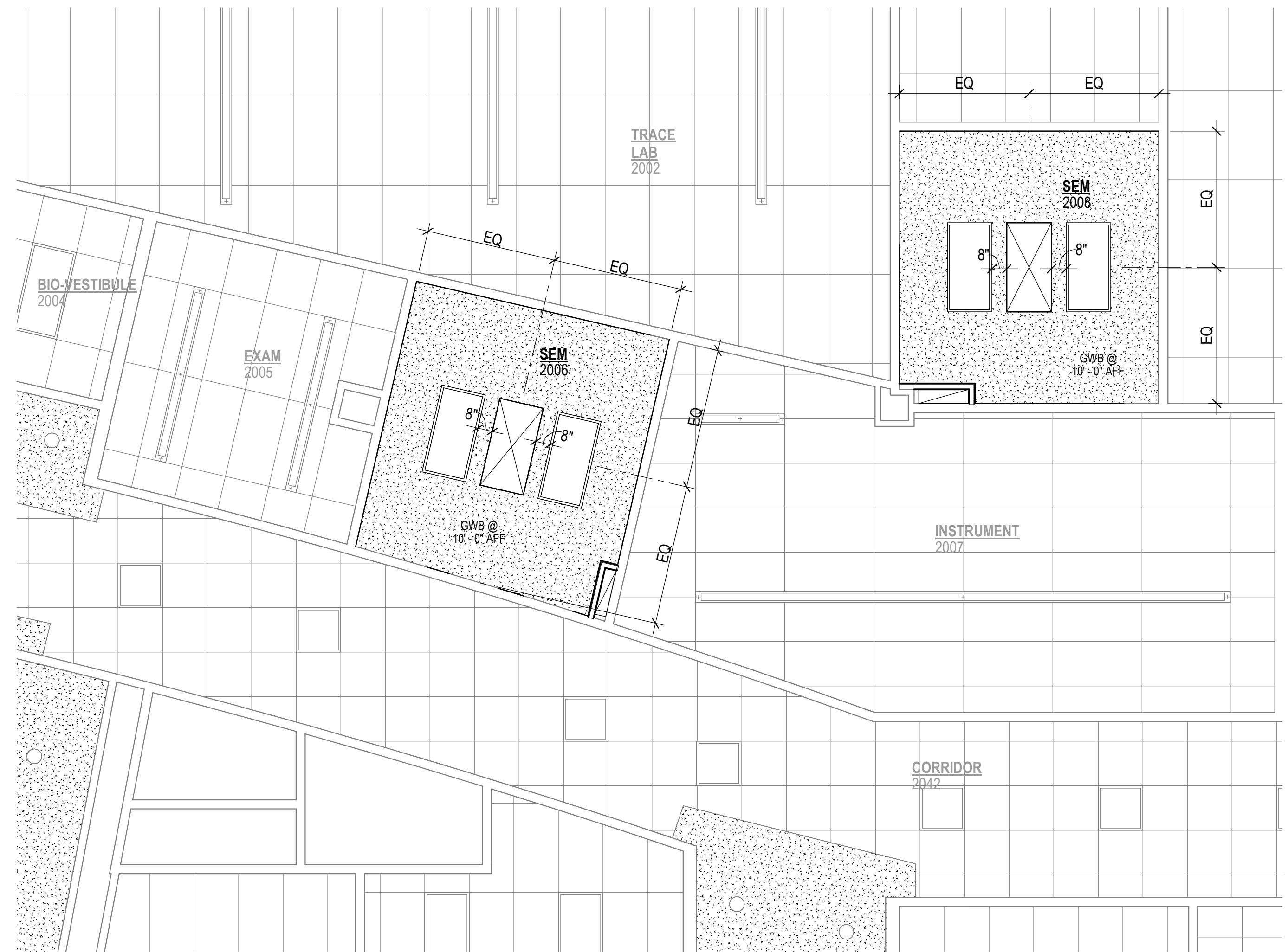
- EXISINTG TO REMAIN
- NEW/RELOCATED ELEMENT
- - - - EXISINTG ELEMENT TO BE DEMOLISH

CEILING DEMOLITION NOTES

1. ALL SCREENED LINES INDICATE EXISTING CONSTRUCTION TO REMAIN.
2. ALL EXISTING CEILING ITEMS SHOWN WITH DASHED LINES ARE TO BE REMOVED.
3. COORDINATE WITH DEMOLITION OF MEP TRADES. SEE MEP DEMO DRAWINGS FOR MORE INFORMATION.
4. REMOVE BRACKETS, STEMS, HANGERS AND OTHER ACCESSORIES ASSOCIATED WITH ELECTRICAL EQUIPMENT BEING REMOVED.
5. REMOVE THE CEILING GRID, LIGHT FIXTURE AND DEVICES AS NECESSARY TO FACILITATE THE MEP AND NEW WALL WORK. REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS. PROTECT AND SAFELY STORE THE REMOVED MATERIALS FOR FUTURE INSTALLATION. DO NOT REINSTALL MATERIALS THAT HAVE BEEN DAMAGED. PROVIDE NEW MATERIALS OF SAME TYPE WHERE DAMAGE HAS OCCURRED.
6. FOR INFORMATION OF NEW LIGHTS TYPE AND MECHANICAL DEVICES REFER TO MEP DRAWINGS.



2 ENLARGED DEMO REFLECTED CEILING PLAN, LEVEL 2
A9.02A 1/4" = 1'-0"



1 ENLARGED REFLECTED CEILING PLAN, LEVEL 2
A9.02A 1/4" = 1'-0"

NOT FOR CONSTRUCTION

Issuance and Revisions

Rev	Date	Description

Keyplan

Project Title
City of Phoenix Crime Lab

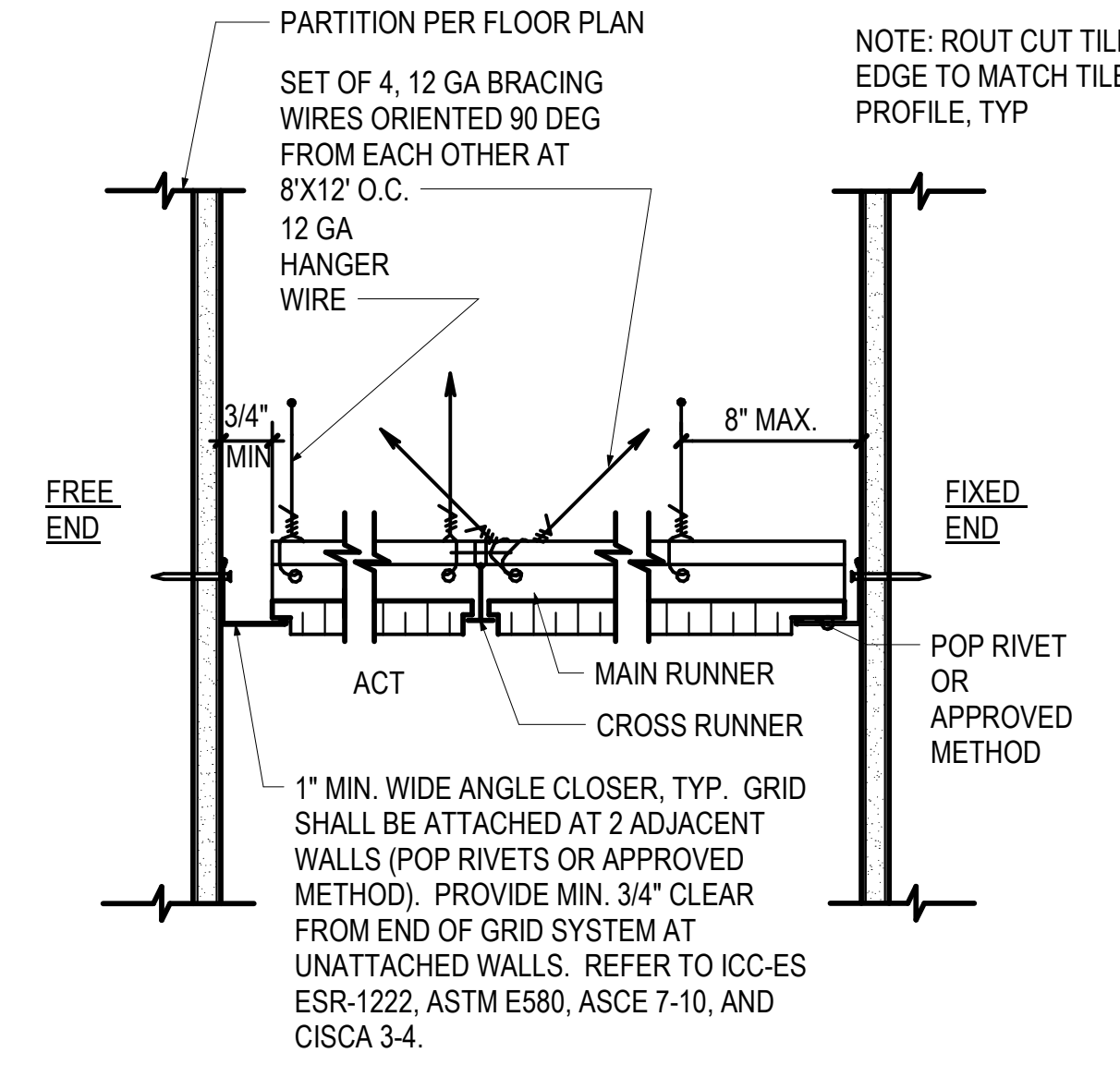
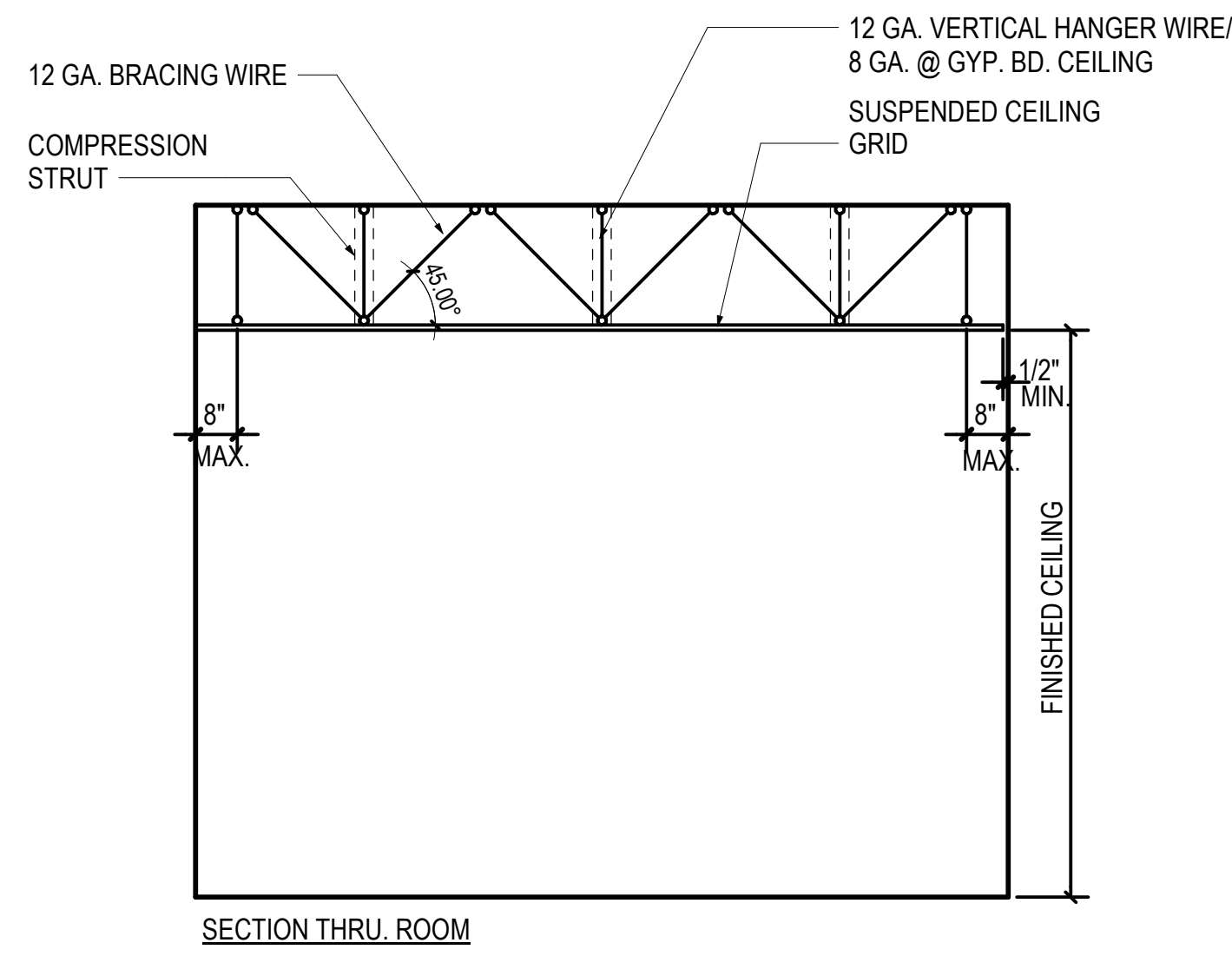
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Sheet Title
ENLARGED DEMO & NEW REFLECTED CEILING PLAN, LEVEL 2

Sheet Number
A9.02A



NOTE: ROUT CUT TILE EDGE TO MATCH TILE PROFILE, TYP

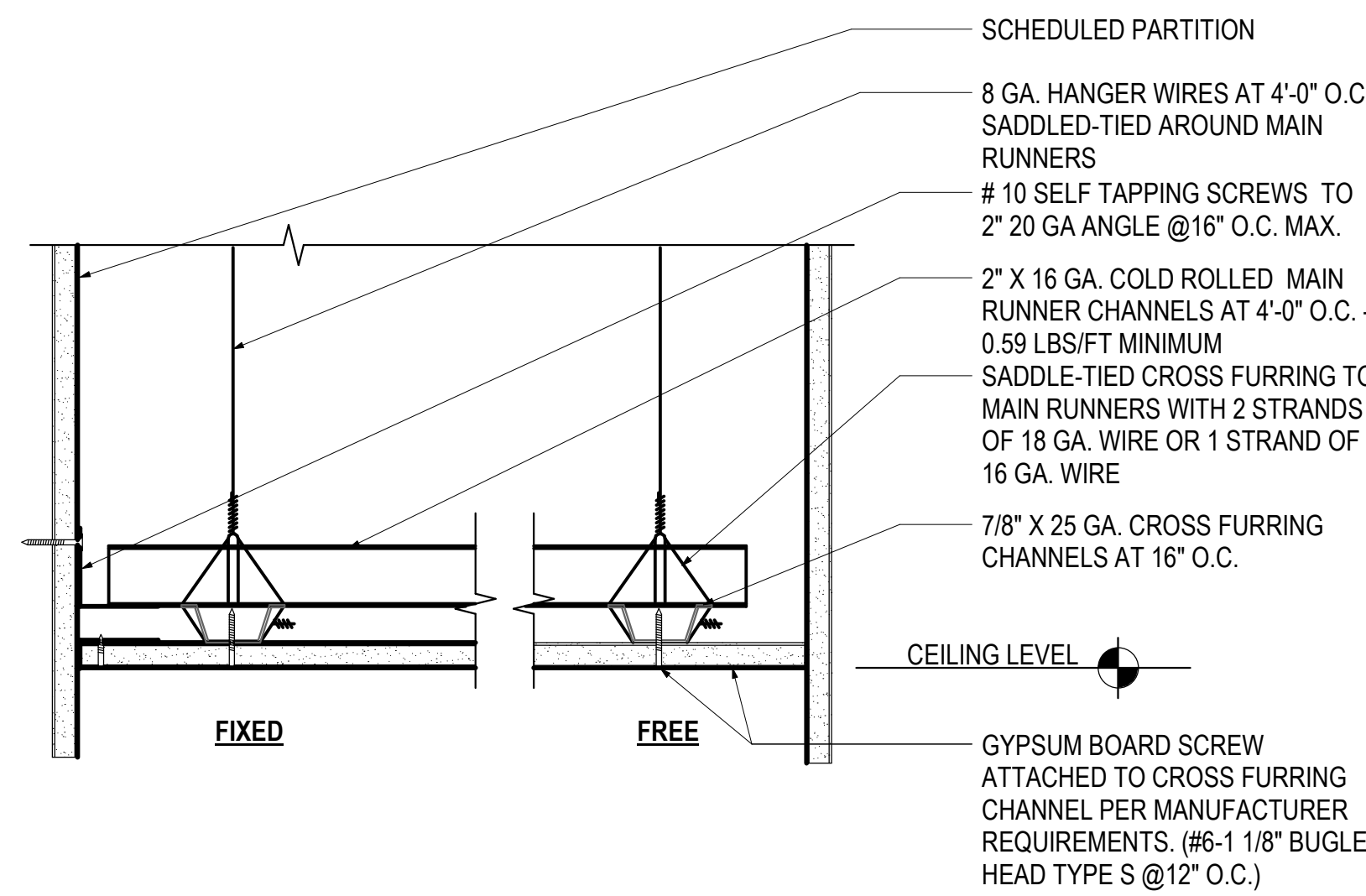
GENERAL CEILING NOTES:

- 12 GA. (MIN.) HANGER WIRES MAY BE USED FOR UP TO AND INCLUDING 4'-0" X 4'-0" GRID SPACING AND SHALL BE ATTACHED TO MAIN RUNNERS.
- PROVIDE 12 GA. HANGER WIRES AT THE ENDS OF ALL MAIN AND CROSS RUNNERS WITHIN EIGHT INCHES OF THE SUPPORT AND WITHIN 1/4 OF THE LENGTH OF THE END TEE, WHICHEVER IS LEAST, FOR THE PERIMETER OF THE CEILING AREA.
- PROVIDE TRAPEZE OR OTHER SUPPLEMENTARY SUPPORT MEMBERS AT OBSTRUCTIONS TO TYPICAL WIRE HANGER SPACING. PROVIDE ADDL HANGERS, STRUTS OR BRACES AS REQUIRED AT ALL CEILING BREAKS, SOFFITS OF DISCONTINUOUS AREAS. HANGER WIRES THAT ARE MORE THAN 1 IN 6 OUT OF PLUMB ARE TO HAVE COUNTER SLOPING WIRES.
- CEILING GRID MEMBERS MAY BE ATTACHED TO NOT MORE THAN TWO ADJACENT WALLS. CEILING GRID MEMBERS SHALL BE AT LEAST 1/2" FREE OF OTHER WALLS. IF WALLS RUN DIAGONALLY TO CEILING GRID SYSTEM RUNNERS, ONE END OF MAIN AND CROSS RUNNERS SHOULD BE FREE, AND A MIN. OF 1/2" CLEAR OF WALL.
- AT THE PERIMETER OF THE CEILING AREA WHERE MAIN OR CROSS RUNNERS ARE NOT CONNECTED TO THE ADJACENT WALL, PROVIDE INTERCONNECTION BETWEEN THE RUNNERS AT THE FREE END TO PREVENT LATERAL SPREADING. A METAL STRUT OR A 16 GA WIRE FOR A POSITIVE MECHANICAL CONNECTION TO THE RUNNER MAY BE USED. WHERE THE PERPENDICULAR DISTANCE FROM THE WALL TO THE FIRST PARALLEL RUNNER IS 12" OR LESS, THIS INTERLOCK IS NOT REQUIRED.
- PROVIDE BRACING ASSEMBLIES CONSISTING OF A COMPRESSION STRUT AND FOUR 12 GA. SPLAYED BRACING WIRES ORIENTED 90 DEGREE FROM EACH OTHER.
- FASTEN HANGER WIRES WITH NOT LESS THAN 3 TIGHT TURNS. FASTEN BRACING WIRES WITH 4 TIGHT TURNS. MAKE ALL TIGHT TURNS WITHIN A DISTANCE OF 1 1/2". HANGER OR BRACING WIRE ANCHORS TO THE STRUCTURE SHOULD BE INSTALLED IN SUCH A MANNER THAT THE DIRECTION OF THE WIRE ALIGNS AS CLOSELY AS POSSIBLE WITH THE DIRECTION OF THE FORCES ACTING ON THE WIRE.
- SEPARATE ALL CEILING HANGING AND BRACING WIRES FROM ALL UNBRACED DUCTS, PIPES, CONDUIT, ETC.
- WHEN DRILLED-IN CONCRETE ANCHORS OR SHOT IN ANCHORS ARE USED IN REINFORCED CONCRETE FOR HANGER WIRES, 1 OUT OF 10 MUST BE FIELD TESTED FOR 200 LBS IN TENSION. WHEN DRILLED IN CONCRETE ANCHORS ARE USED FOR BRACING WIRES, 1 OUT OF 2 MUST BE FIELD TESTED FOR 440 LBS. IN TENSION. SHOT IN ANCHORS IN CONCRETE ARE NOT PERMITTED FOR BRACING WIRES, IF ANY SHOT-IN OR DRILLED-IN ANCHOR FAILS. SEE CBC, SECTION 1923A.3.5
- A) FLUSH OR RECESSED LIGHT FIXTURES AND AIR TERMINALS OR SERVICES, WEIGHING LESS THAN 56 LBS., MAY BE SUPPORTED DIRECTLY ON THE RUNNERS OF A HEAVY DUTY GRID SYSTEM BUT, IN ADDITION, THEY MUST HAVE A MINIMUM OF TWO 12 GA. SLACK SAFETY WIRES ATTACHED TO THE FIXTURE AT DIAGONAL CORNERS AND ANCHORED TO THE STRUCTURE ABOVE. ALL 4" X 4" LIGHT FIXTURES MUST HAVE SLACK SAFETY WIRES AT EACH CORNER.
- B) ALL FLUSH OR RECESSED LIGHT FIXTURES AND AIR TERMINALS OR SERVICES WEIGHING 56 LBS. OR MORE MUST BE INDEPENDENTLY SUPPORTED BY NOT LESS THAN 4 TAUT 12 GA. WIRE EACH ATTACHED TO THE FIXTURE AND TO THE STRUCTURE ABOVE REGARDLESS OF THE TYPE OF CEILING GRID SYSTEM USED.
- C) THE 4 TAUT 12 GA. WIRES INCLUDING THEIR ATTACHMENT TO THE STRUCTURE ABOVE MUST BE CAPABLE OF SUPPORTING 4 TIMES THE WEIGHT OF THE UNIT.
- ALL FIXTURES AND AIR TERMINALS OR SERVICES SUPPORTED ON HEAVY DUTY GRID SYSTEMS MUST BE INDEPENDENTLY SUPPORTED BY NOT LESS THAN 4 TAUT 12 GA. WIRES EACH ATTACHED TO THE FIXTURE OR TERMINAL, AND TO THE STRUCTURE ABOVE.
- SUPPORT SURFACE MOUNTED LIGHT FIXTURES BY AT LEAST TWO POSITIVE DEVICES WHICH SURROUND THE CEILING RUNNER AND WHICH ARE EACH SUPPORTED FROM THE STRUCTURE ABOVE BY A 12 GA. WIRE. SPRING CLIPS OR CLAMPS THAT CONNECT ONLY TO THE RUNNER ARE NOT ACCEPTABLE.
- SUPPORT PENDANT MOUNTED LIGHT FIXTURES DIRECTLY FROM THE STRUCTURE ABOVE WITH HANGER WIRES OR CABLES PASSING THROUGH EACH PENDANT HANGER AND CAPABLE OF SUPPORTING 4 TIMES THE WEIGHT OF THE FIXTURE.
- TAPE AND MUD ALL RIGID CONNECTION JOINTS.
- FORM AND FRAME ALL OPENINGS FOR RECESSED LIGHT FIXTURES AND DIFFUSERS.
- COMPRESSION STRUT SIZE TABLE:

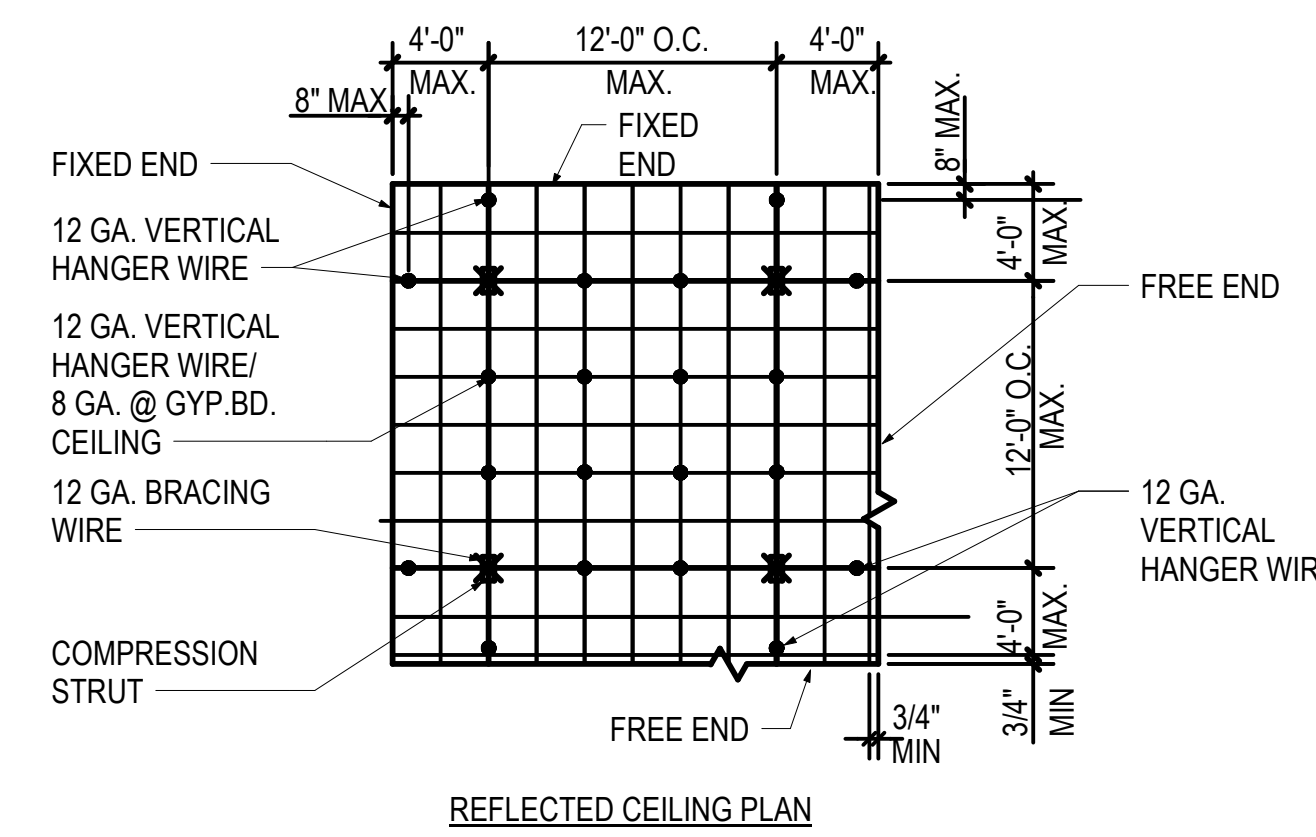
COMP. STRUT	MAX. LENGTH
L 1 1/2" X 1 1/2" X 1/8"	4' - 10"
L 2" X 2" X 1/8"	6' - 6"
L 2 1/2" X 2 1/2" X 3/16"	8' - 0"

17. ALL VERTICAL FURRING MEMBERS ARE 4" STUDS U.O.N.

5 SEISMIC BRACING
 A9.10 3/4" = 1'-0"

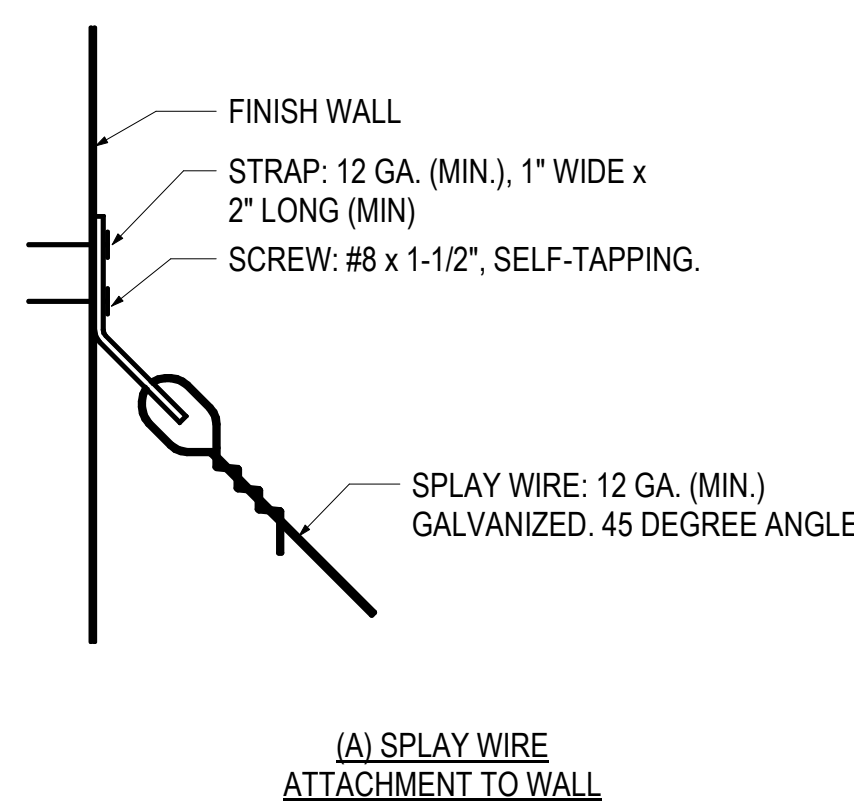


4 SUSPENDED ACT - EDGE CONDITION TYP
 A9.10 3" = 1'-0"



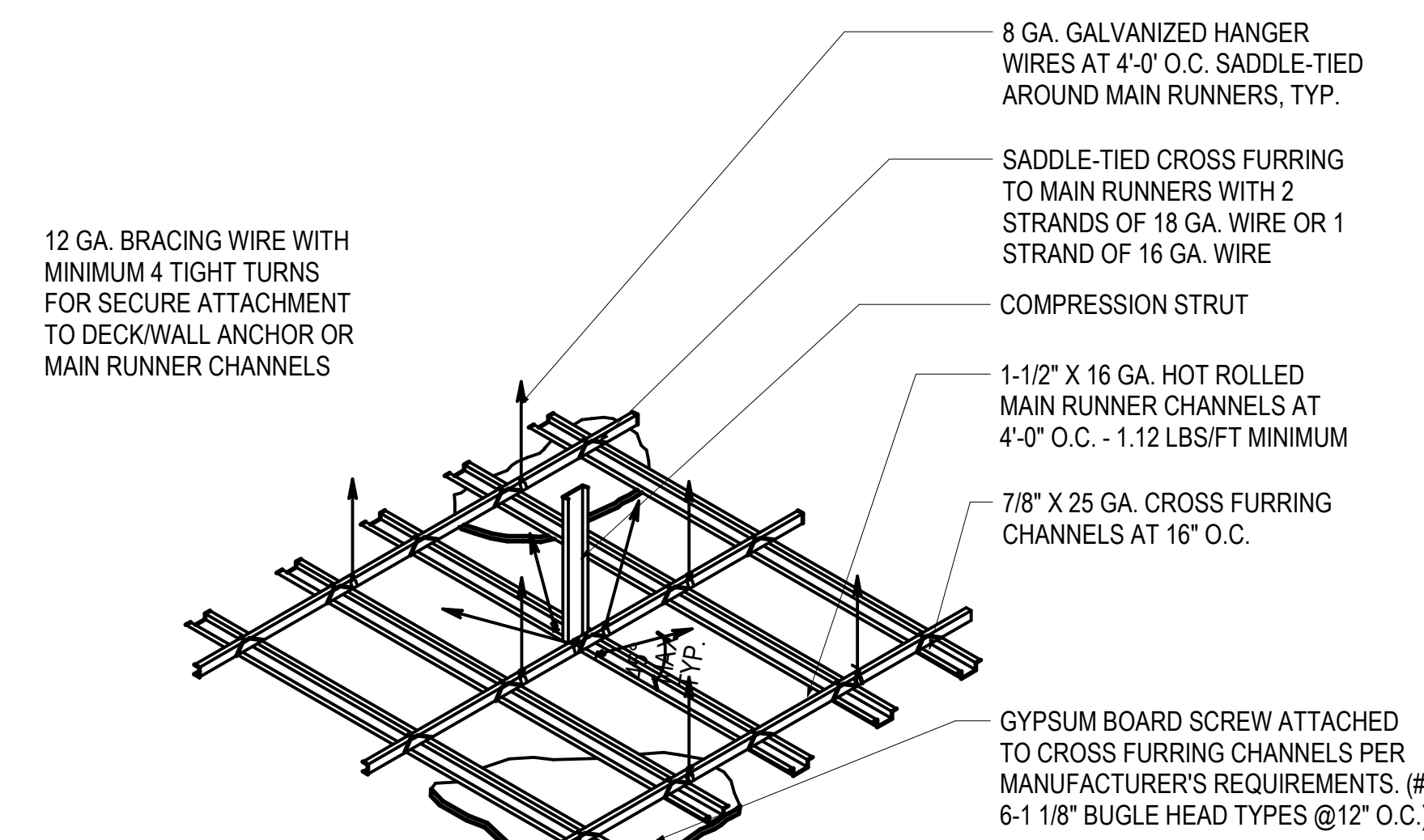
NOTES:
 1. TIE TWO ADJACENT WALLS TO CEILING MAIN AND CROSS RUNNERS.
 2. INSTALL CLG. GRID USING NO. 12 GA. SPLAY WIRE HANGERS AT 45°, 90° TO EA. OTHER (4 WIRES) BEGINNING 4'-0" FROM STARTING POINT OF GRID. PLACE SETS OF BRACING WIRES NOT MORE THAN 8 FEET BY 12 FEET ON CENTER.

6 SUSPENDED GYP. BD CEILING
 A9.10 3" = 1'-0"



7 SPLAY WIRE ATTACHMENT TO WALL
 A9.10 1 1/2" = 1'-0"

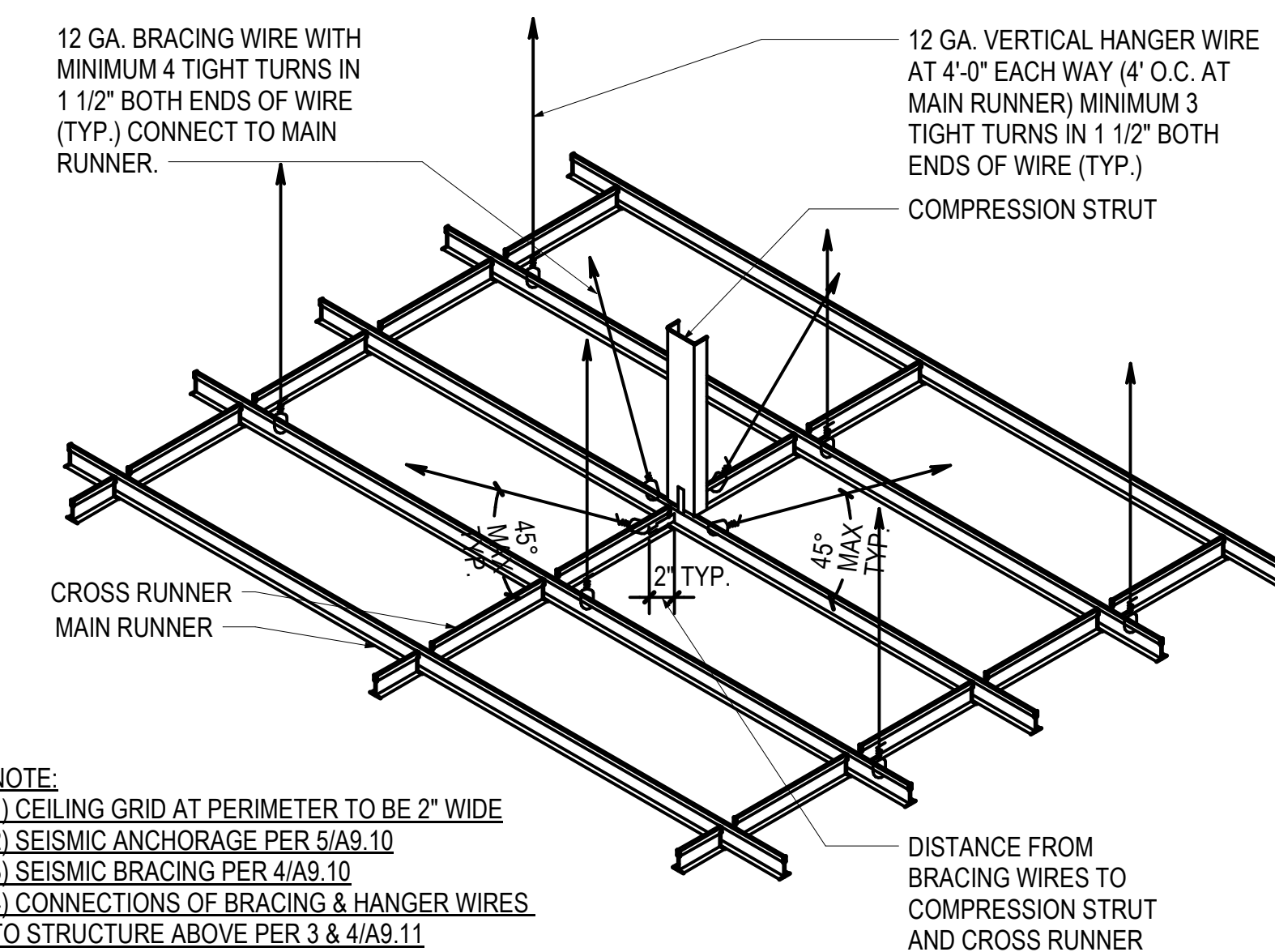
3 SEISMIC ANCHORAGE
 A9.10 3/4" = 1'-0"



NOTE:
 1) CONNECTIONS OF BRACING & HANGER WIRES TO STRUCTURE ABOVE PER 3 & 4/A9.11
 2) EDGE CONDITION VARIES

2 SUSPENDED GYP. BD CEILING SYSTEM
 A9.10 3/4" = 1'-0"

1 SUSPENDED ACOUSTICAL PANEL CEILING SYSTEM
 A9.10 3/4" = 1'-0"



NOTE:
 1) CEILING GRID AT PERIMETER TO BE 2" WIDE
 2) SEISMIC ANCHORAGE PER 3/A9.10
 3) SEISMIC BRACING PER 4/A9.10
 4) CONNECTIONS OF BRACING & HANGER WIRES TO STRUCTURE ABOVE PER 3 & 4/A9.11
 5) EDGE CONDITION VARIES

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Issuance and Revisions

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Keyplan

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City of Phoenix Crime Lab

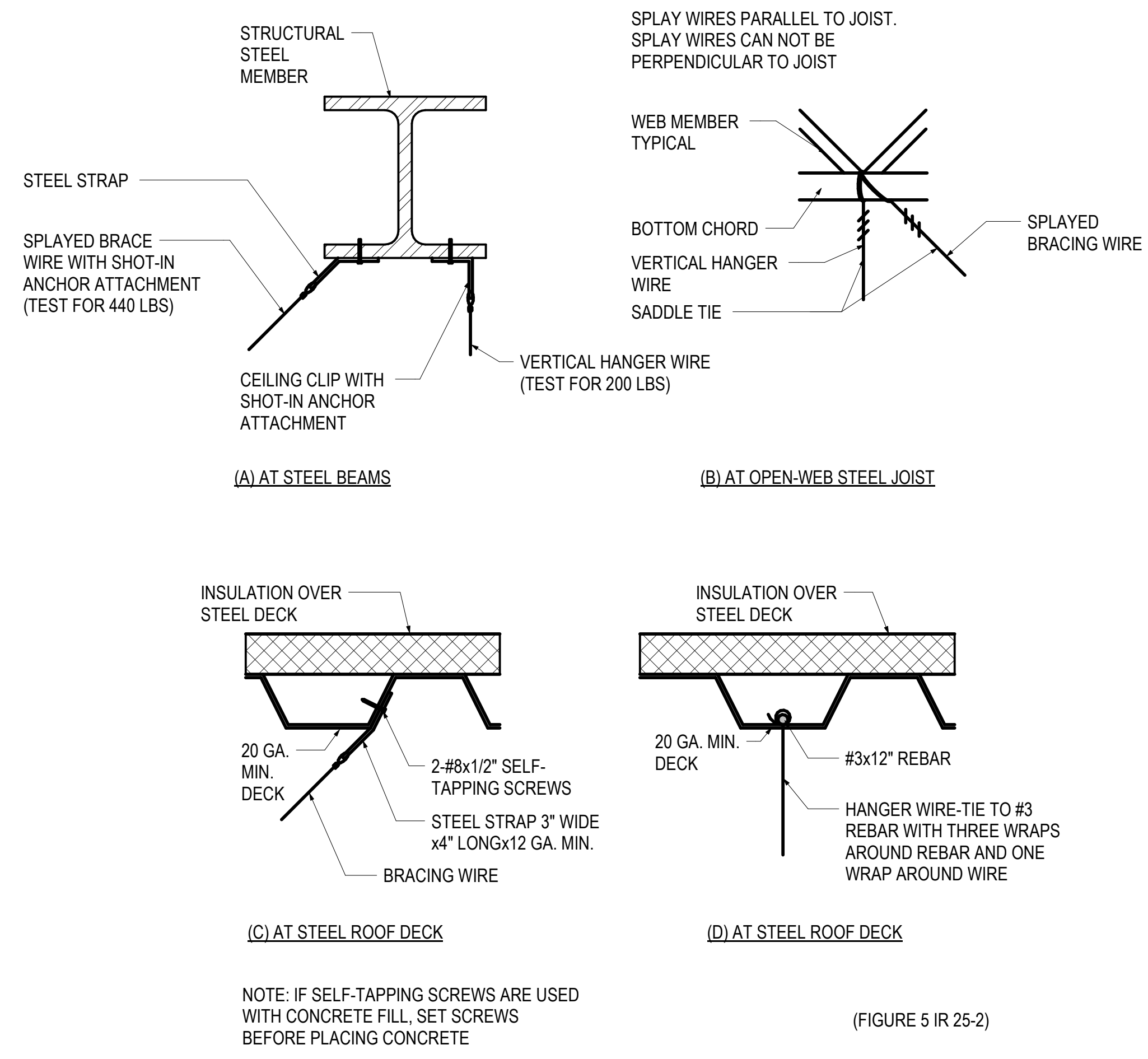
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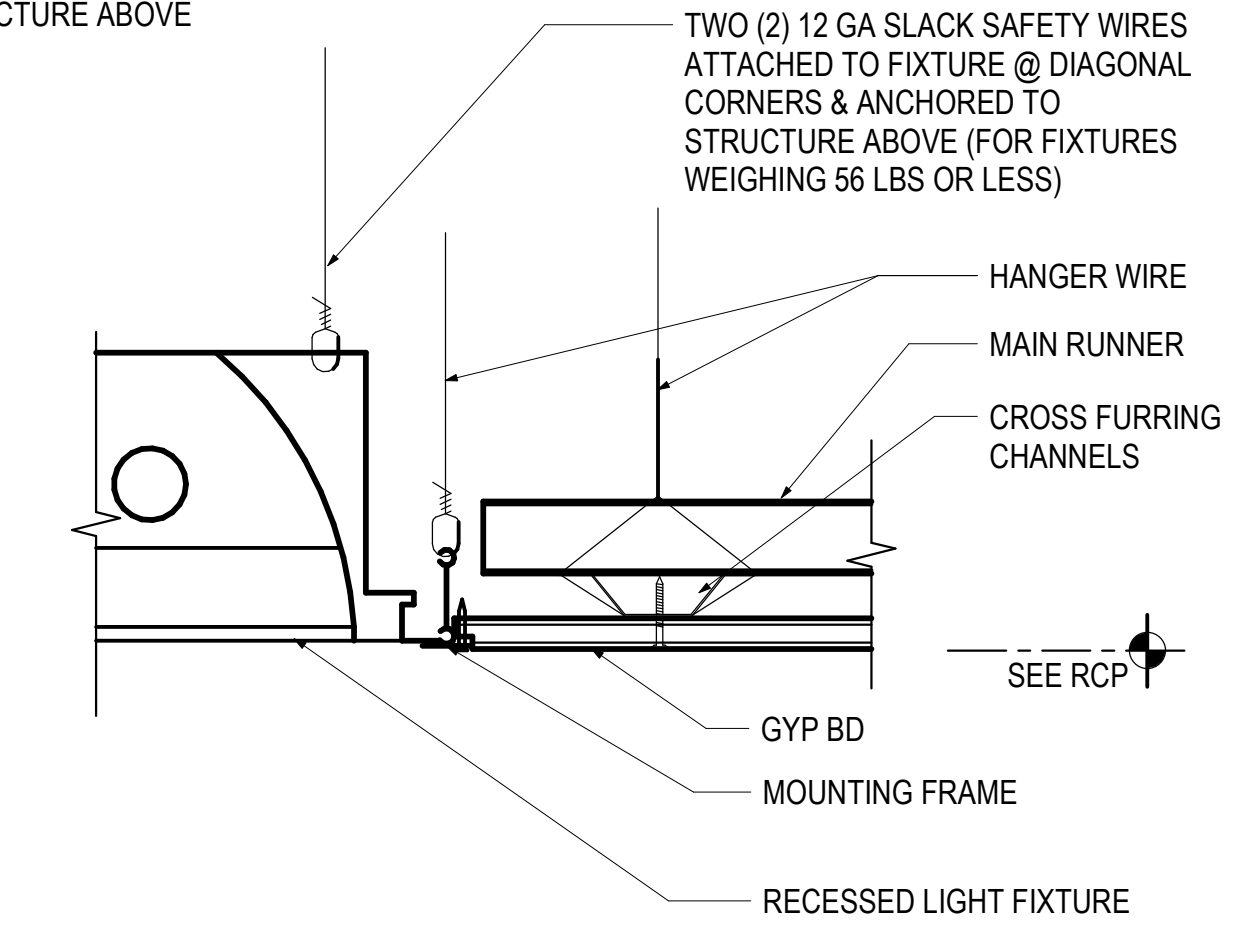
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Sheet Title
TYPICAL CEILING DETAILS

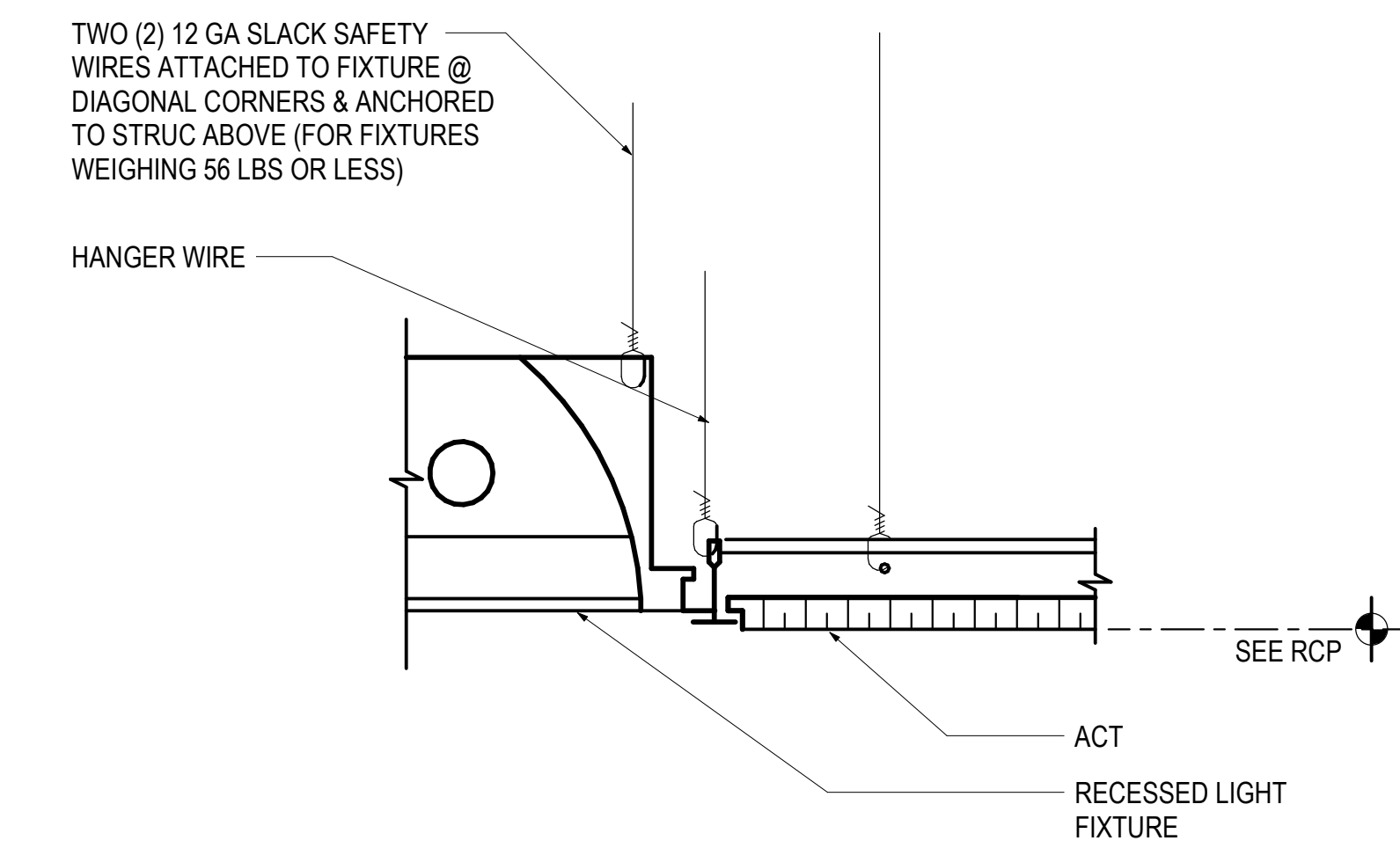
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NOTE:
(W/ HEAVY DUTY GRID SYSTEM ONLY)
FIXTURES WEIGHING 56 LBS OR MORE MUST
HAVE 4 TAUT 12 GA WIRES ATTACHED TO
FIXTURE & TO STRUCTURE ABOVE

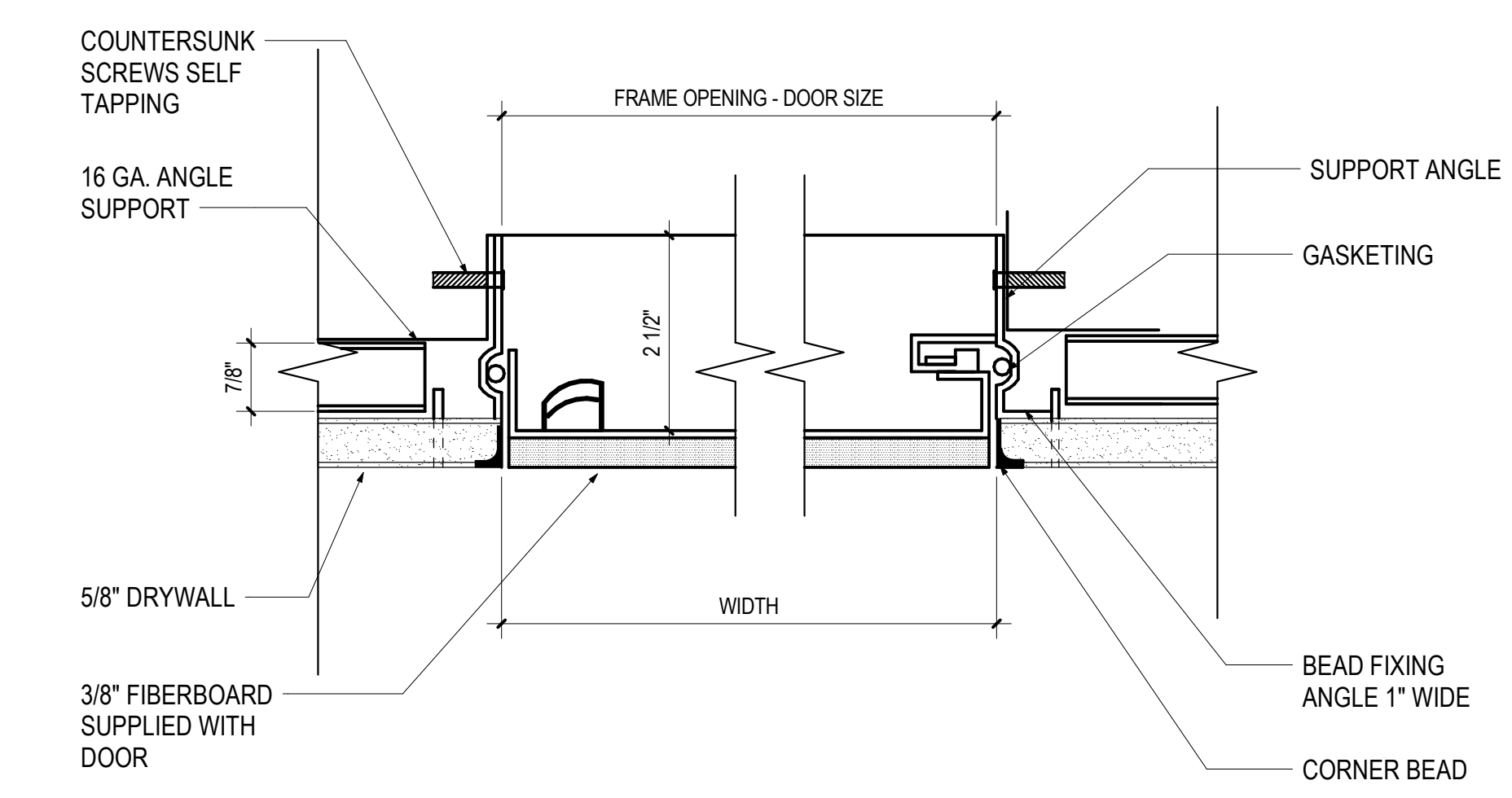


1
A9.11
RECESSED LED LIGHT FIXTURE @ GYP. BD. CEILING
3" = 1'-0"

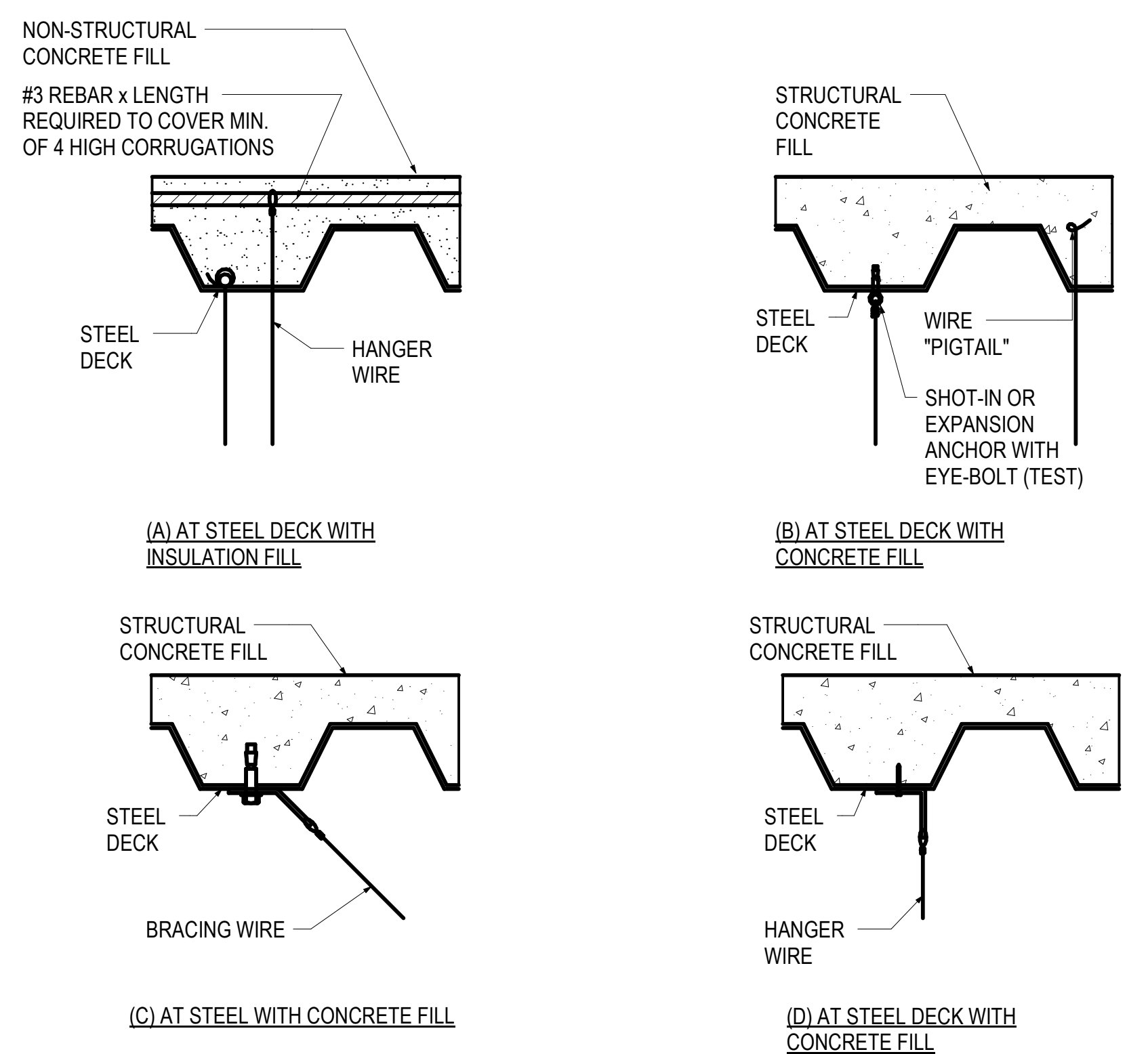


2
A9.11
RECESSED LED LIGHT FIXTURE @ ACT
3" = 1'-0"

4
A9.11
WIRE CONNECTIONS TO STEEL FRAMING
3" = 1'-0"



5
A9.11
ACCESS PANEL
6" = 1'-0"



NOTE: IF SELF-TAPPING SCREWS ARE USED WITH CONCRETE FILL, SET SCREWS BEFORE PLACING CONCRETE

(FIGURE 6 IR 25-2)

3
A9.11
WIRE CONNECTIONS TO CONCRETE FILLED METAL DECK
3" = 1'-0"

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TYPICAL CEILING DETAILS

Sheet Number
A9.11

MECHANICAL SYMBOLS AND ABBREVIATIONS

SYMBOLS INDICATED HERE AND NOT USED IN THE CONTRACT DOCUMENTS DO NOT APPLY TO THIS PROJECT. ADDITIONAL SYMBOLS MAY BE INDICATED IN THE CONTRACT DOCUMENTS.

FIELD MOUNTED CONTROLS

⊕	THERMOSTAT OR TEMPERATURE SENSOR	⊕ _{SD}	DUCT SMOKE DETECTOR
⊕ _H	HUMIDISTAT OR HUMIDITY SENSOR	⊕	PRESSURE SENSOR
⊕ _N	NIGHT CYCLE CONTROL THERMOSTAT	⊕ _{CO}	CARBON MONOXIDE SENSOR
⊕ _A	ASPIRATING THERMOSTAT	⊕ _{CO2}	CARBON DIOXIDE SENSOR
⊕ _B	THERMOSTAT WITH INSULATING BASE	⊕ _{O2}	OXYGEN SENSOR
⊕ _P	PRESSURE TRANSMITTER	⊕ _{VOC}	VOC SENSOR
⊕ _{PT}	PRESSURE DIFFERENTIAL TRANSMITTER	⊕ _R	REFRIGERANT SENSOR

COMMON INSTRUMENTATION DEVICES

TI	TEMPERATURE INDICATOR (THERMOMETER) WITH THERMOWELL	PI	PRESSURE INDICATOR (PRESSURE GAUGE) WITH GAUGE VALVE
TI	TEMPERATURE INDICATOR (THERMOMETER) WITHOUT WELL (DIRECT INSERTION)	PDT	PRESSURE DIFFERENTIAL TRANSMITTER
TW	THERMOWELL		
TE	TEMPERATURE ELEMENT (DIRECT INSERTION)	FE	FLOW ELEMENT (FLOW SENSOR)
TS	STRAP ON PIPE TEMPERATURE INSTRUMENT (AQUASTAT)	FT	FLOW ELEMENT WITH TRANSMITTER (FLOW METER)
TT	TEMPERATURE INDICATOR WITH TRANSMITTER AND THERMOWELL	FI	FLOW INDICATOR/FLOW METER
TE	TEMPERATURE ELEMENT WITH TRANSMITTER AND THERMOWELL	FS	FLOW SWITCH

GENERAL

ADJ - ADJUSTABLE	LAT - LEAVING AIR TEMPERATURE
AFF - ABOVE FINISHED FLOOR	LWT - LEAVING WATER TEMPERATURE
AL - ALUMINUM	MBH - THOUSANDS OF BTU PER HOUR
ALT - ALTERNATE	MC - MECHANICAL CONTRACTOR
AP - ACCESS PANEL	MEP - MECHANICAL ELECTRICAL AND PIPING
BOD - BOTTOM OF DUCT	MER - MECHANICAL EQUIPMENT ROOM
BOP - BOTTOM OF PIPE	NA - NOT APPLICABLE
BTU - BRITISH THERMAL UNIT	NC - NORMALLY CLOSED
BTUH - BRITISH THERMAL UNITS PER HOUR	NC - NOT IN CONTRACT
CA - COMBUSTION AIR	NO - NORMALLY OPEN
CAV - CONSTANT AIR VOLUME	NPT - NATIONAL PIPE THREAD
CFCI - CONTRACTOR FURNISHED, CONTRACTOR INSTALLED	NTS - NOT TO SCALE
CFM - CUBIC FEET PER MINUTE	OA - OUTSIDE AIR
CL - CENTERLINE	OC - ON CENTER
CLG - CEILING	OED - OPEN END DUCT
COND - CONDENSATE/CONDENSER	OF - OWNER FURNISHED
COF - CENTER OF PIPE	OFI - OWNER INSTALLED
CS - CARBON STEEL	OV - OUTLET VELOCITY
CU - COPPER	PA - PLANT AIR
DB - DRY BULB	PC - PLUMBING CONTRACTOR
DDC - DIRECT DIGITAL CONTROL	PCF - POUNDS PER SQUARE FOOT
DX - DIRECT EXPANSION	PD - PRESSURE DROP
EA - EXHAUST AIR	PH - PHASE
EAT - ENTERING AIR TEMPERATURE	PP - POLYPROPYLENE
EC - ELECTRICAL CONTRACTOR	PPS - POUNDS PER SQUARE FOOT
EDR - EQUIVALENT DIRECT RADIATION	PSI - POUNDS PER SQUARE INCH
EL - ELEVATION	PSIA - POUNDS PER SQUARE INCH ABSOLUTE
ESP - EXTERNAL STATIC PRESSURE	PSIG - POUNDS PER SQUARE INCH GAUGE
ETR - EXISTING TO REMAIN	RA - RETURN AIR
EW - ENTERING WATER TEMPERATURE	RPM - REVOLUTIONS PER MINUTE
EXH - EXHAUST	SA - SCHEDULE
FA - FRESH AIR INTAKE/ FIELD ADJUSTABLE	SOG - SLAB ON GRADE
FAT - FINAL AIR TEMPERATURE	SP - STATIC PRESSURE
FC - FAIL CLOSED	SS - STAINLESS STEEL
FE - FLAME HOLD EXHAUST	TBR - TO BE REMOVED
FLA - FULL LOAD AMPS	TR - TOP OF BEAM
FLR - FLOOR	TOJ - TOP OF JOIST
FO - FAIL OPEN	TOP - TOP OF DUCT/TOP OF DECK
FPI - FINS PER INCH	TOJ - TOP OF JOIST
FPM - FEET PER MINUTE	TOP - TOP OF PIPE
FPS - FEET PER SECOND	TOS - TOP OF SLAB
GA - GAUGE	TSP - TOTAL STATIC PRESSURE
GC - GENERAL CONTRACTOR	V - VOLTS
GE - GENERAL EXHAUST	VAV - VARIABLE AIR VOLUME
GPM - GALLONS PER MINUTE	VP - VELOCITY PRESSURE
GS - GALVANIZED STEEL	VTR - VENT THRU ROOF
HP - HORSE POWER/HIGH POINT	WB - WET BULB
IA - INSTRUMENT AIR	WC - WATER COLUMN
IE - INVERT ELEVATION	WG - WATER GAUGE
KO - KNOCK-OUT	X - EXISTING

EQUIPMENT

AC - AIR CONDITIONING UNIT/ AIR COMPRESSOR	H - HUMIDIFIER
ACC - AIR COOLED CONDENSER	HC - HEATING COIL
ACCU - AIR COOLED CONDENSING UNIT	HP - HEAT PUMP
ACU - AIR CONDITIONING UNIT	HRC - HEAT RECOVERY COIL
AHU - AIR HANDLING UNIT	HR - HOSE REEL
AMD - AIR MIXING DEVICE	HRD - HEAT RECLAIM DEVICE
AS - AIR SEPARATOR	HT - HEAT TRACE
AT - AIR TERMINAL DEVICE	HX - HEAT EXCHANGER
B - BOILER	IH - INTAKE HOOD
BBS - BOILER BLOWDOWN SEPARATOR	MCC - MOTOR CONTROL CENTER
BFS - BOILER FEEDWATER SYSTEM	P - PUMP
BH - BOOSTER HUMIDIFIER	RAH - ROOFTOP AIR HANDLING UNIT
C - CONVECTOR	RC - REHEAT COIL
CC - COOLING COIL	RCP - RADIANT CEILING PANEL
CH - CHILLER	REF - ROOF EXHAUST FAN
CP - CONDENSATE PUMP/ CONTROL PANEL	RF - RETURN FAN
CT - COOLING TOWER	RH - RELIEF HOOD
CUH - CABINET UNIT HEATER	SAD - SOUND ATTENUATING DEVICE
CV - CONVERTOR	SD - SUCTION DIFFUSER
D - DAMPER	SF - SUPPLY FAN
DC - DUST COLLECTOR	ST - STORAGE TANK/STEAM TRAP
DH - DEHUMIDIFIER	T - TANK
EH - EXHAUST FAN	TXV - THERMAL EXPANSION VALVE
EH - EXHAUST HOOD/ ELECTRIC HEATER	UH - UNIT HEATER
EJ - EXPANSION JOINT	UST - UNDERGROUND STORAGE TANK
ET - EXPANSION TANK	UV - UNIT VENTILATOR
EV - EXHAUST VALVE	V - VALVE
F - FILTER	VFD - VARIABLE FREQUENCY DRIVE
FCU - FAN COIL UNIT	WCC - WATER COOLED CONDENSER
FD - FLOOR DRAIN	WF - WATER FILTER
FOR - FUEL OIL PUMP	
FOT - FUEL OIL TANK	
FR - FIN TUBE RADIATION	
FT - FLASH TANK	
FU - FURNACE	

DUCTWORK SPECIALTIES

	DUCT REHEAT COIL		FLEXIBLE DUCT
	ACCESS DOOR		DUCT FLEXIBLE CONNECTION
	BUTTERFLY TYPE VALVE WITH CONTROLLER LOCATED ON SIDE OF VALVE		POINT OF CHANGE IN DUCT CONSTRUCTION BY PRESSURE CLASS
	BUTTERFLY TYPE VALVE WITH CONTROLLER ANGLED DOWN SEE DETAIL		VAV SUPPLY AIR VALVE
	VENTURI VALVE WITH CONTROLLER LOCATED ON SIDE OF VALVE		AIR FLOW MEASURING STATION
	VENTURI VALVE WITH CONTROLLER ANGLED DOWN SEE DETAIL		
	POINT OF NEW CONNECTION TO EXISTING		MISCELLANEOUS
			VIBRATION ISOLATOR

SPECIAL DESIGNATION

	EQUIPMENT (PUMP INDICATED)		DETAIL REFERENCE (TOP=DETAIL NO., BOTTOM=DRAWING NO. SHOWN ON)
	SPECIALTY ITEMS (I.E. GAUGE FILTER, ETC.)		DETAIL REFERENCE (TOP=DETAIL NO., BOTTOM=SHEET NO. IN DETAIL MANUAL)
	PLAN CONTINUATION REFERENCE		REVISION REFERENCE
	SECTION DESIGNATION (TOP DESIGNATES SECTION NUMBER, BOTTOM DESIGNATES ON WHICH SHEET SECTION APPEARS)		GENERAL OR SPECIAL NOTES REFERENCE
	MATCHLINE DESIGNATION		ROOM NUMBER DESIGNATION
			CONSTRUCTION BULLETIN REVISION NUMBER

VALVES

	BUTTERFLY VALVE		DRAIN VALVE
	GATE VALVE		DRAIN VALVE WITH CAP
	GLOBE VALVE		LOCKSHIELD VALVE
	BALL VALVE		PRESSURE REDUCING VALVE-PRV (DOWNSTREAM SETPOINT)
	SHUTOFF VALVE (BUTTERFLY VALVE FOR 2 1/2" AND LARGER BALL VALVE FOR 2" AND SMALLER)		AIR-LOADED PRESSURE REDUCING VALVE-PRV (DOWNSTREAM SETPOINT)
	GAUGE VALVE		PRESSURE REDUCING VALVE-PRV (UPSTREAM SETPOINT)
	PLUG VALVE		GAS REGULATOR
	BALANCING VALVE		PRESSURE RELIEF VALVE (RV) OR SAFETY VALVE (SV)
	THERMAL EXPANSION VALVE		VACUUM RELIEF/VACUUM BREAKER
	SPRING CHECK VALVE		RUPTURE DISK VACUUM RELIEF
	SWING CHECK VALVE		RUPTURE DISK VACUUM RELIEF
	DIAPHRAGM VALVE		FLOAT OPERATED VALVE
	2-WAY SOLENOID CONTROL VALVE (VALVE BODY AS SPECIFIED)		QUICK OPENING VALVE
	2-WAY MOTOR CONTROL VALVE (VALVE BODY AS SPECIFIED)		
	2-WAY CONTROL VALVE (VALVE BODY AS SPECIFIED)		
	3-WAY MIXING VALVE WITH ARROW INDICATING FAIL POSITION		
	3-WAY DIVERTING VALVE WITH ARROW INDICATING FAIL POSITION		
	TRIPLE DUTY VALVE		
	GAS SHUTOFF VALVE		
	ANGLE VALVE		

(XX) = DEFINES FAIL POSITION OR NORMAL POSITION
(FC) = FAIL CLOSED (CONTROL VALVE OR DAMPER)
(FO) = FAIL OPEN (CONTROL VALVE OR DAMPER)
(NC) = NORMALLY CLOSED (CONTROL VALVE OR DAMPER)
(NO) = NORMALLY OPEN (CONTROL VALVE OR DAMPER)

DAMPERS

	MANUAL BALANCING DAMPER		SMOKE DAMPER
	CONTROL DAMPER		COMBINATION FIRE/SMOKE DAMPER
	BACKDRAFT DAMPER		OPPOSED BLADE DAMPER
	3 HOUR RATED FIRE DAMPER		PARALLEL BLADE DAMPER
	1 1/2 HOUR RATED FIRE DAMPER		GENERAL
	BUBBLE TIGHT DAMPER		

(XX) = DEFINES FAIL POSITION OR NORMAL POSITION
(FC) = FAIL CLOSED (CONTROL VALVE OR DAMPER)
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(NC) = NORMALLY CLOSED (CONTROL VALVE OR DAMPER)
(NO) = NORMALLY OPEN (CONTROL VALVE OR DAMPER)

ACTUATORS

	MANUAL		ELECTRIC MOTOR DRIVEN
	GENERAL		TWO POSITION SPRING RETURN
	MODULATING		DOUBLE ACTING TWO POSITION
	MODULATING WITH PILOT POSITIONER		FUSIBLE LINK
	SOLENOID		

DUCTWORK AT DIFFUSERS AND GRILLES

	SINGLE LINE-HARD OR FLEXIBLE CONNECTION		DOUBLE LINE-HARD OR FLEXIBLE CONNECTION
	SUPPLY DIFFUSER OR GRILLE (HORIZONTAL MOUNT)		ROUND DIFFUSER
	RETURN REGISTER OR GRILLE (HORIZONTAL MOUNT)		EXHAUST REGISTER OR GRILLE (HORIZONTAL MOUNT)
	EXHAUST REGISTER OR GRILLE (VERTICAL MOUNT)		REGISTER REGISTER OR GRILLE (VERTICAL MOUNT)

DIFFUSER NOTATION

	DUCT SIZE IN INCHES (NET INSIDE DIMENSIONS) (ROUND SHOWN)		NECK SIZE IN INCHES
	Ø INDICATES ROUND, # INDICATES OVAL, FIRST FIGURE: SIDE SHOWN, SECOND FIGURE: SIDE NOT SHOWN		CEILING DIFFUSER (CD) IDENTIFICATION
	SUPPLY AIR DUCT DIFFUSER AIR PATTERN		AIR QUANTITY (CFM)
	1 ARROW: 1 WAY, 2 ARROWS: 2 WAY, 3 ARROWS: 3 WAY, 4 ARROWS: 4 WAY, NO ARROWS: 4 WAY		
	EXHAUST AIR DUCT RETURN AIR DUCT (RA)		GRILLE REGISTER NOTATION
	DUCT SIZE IN INCHES (NET INSIDE DIMENSIONS) FIRST FIGURE: SIDE SHOWN, SECOND FIGURE: SIDE NOT SHOWN		NECK SIZE IN INCHES
			RETURN OR EXHAUST GRILLE (G) SUPPLY GRILLE (SG)
			LINEAR DIFFUSER (LD)
			LINEAR RET/EXH GRILLE (LG) TRANSFER GRILLE (TG)
			AIR QUANTITY (CFM)

DUCTWORK

	SINGLE		DOUBLE
	RECTANGULAR/ROUND BRANCH TAKE-OFF OR ROUND/ROUND BRANCH TAKE-OFF		RADIUS ELBOW
	45° LATERAL BRANCH		RADIUS TEE
	SQUARE TEE (FOR LOW PRESSURE SA DIVERGING ONLY)		BULLHEAD TEE (FOR LOW PRESSURE SA DUCTWORK ONLY)
	15° MAX. FOR DIVERGING, 25° MAX FOR CONVERGING TRANSITION - ECCENTRIC		15° MAX. FOR DIVERGING, 25° MAX FOR CONVERGING TRANSITION - CONCENTRIC
	EXISTING DUCT TO REMAIN		EXISTING DUCT TO BE REMOVED
	LINE CONTINUATION BREAK (RECTANGULAR, ROUND)		SUPPLY AIR (SA) OR OUTDOOR AIR (OA) DUCT (SOLID LINES TYPICAL FOR RETURN, RELIEF, OR TRANSFER AIR UP, HIDDEN LINE DOWN)
	RETURN AIR (RA), RELIEF AIR, OR TRANSFER AIR (TA) DUCT (SOLID LINES TYPICAL FOR RETURN, RELIEF, OR TRANSFER AIR UP, HIDDEN LINE DOWN)		DUCT RISE/DROP W/90° ELBOWS (SUPPLY RECTANGULAR DUCT SHOWN)
	DUCT RISE (R)/DROPP(D) W/45° ELBOWS (RECTANGULAR DUCTS)		DUCT RISE/DROP W/90° ELBOWS (ROUND DUCTS)
	DUCT RISE/DROP W/90° ELBOWS (OVAL DUCTS)		DUCT RISE(R)/DROPP(D) W/45° ELBOWS (ROUND OR OVAL DUCTS)

PIPING SYSTEM LABELS

—BF—	BOILER FEED	—IA(XX)—	INSTRUMENT AIR
—BBD—	BOILER BLOW DOWN	—JWR—	JACKET WATER RETURN
—CA(XX)—	COMPRESSED AIR	—JWS—	JACKET WATER SUPPLY
—CC—	CONDENSATE COOLING COIL	—LP—	LIQUIFIED PETROLEUM GAS
—CHS—	CHILLED WATER SUPPLY	—LOR—	LUBRICATION OIL RETURN
—CHR—	CHILLED WATER RETURN	—LOS—	LUBRICATION OIL SUPPLY
—CPD—	CONDENSATE PUMP DISCHARGE	—LPS—	LOW PRESSURE STEAM
—D—	DRAIN	—LPC—	LOW PRESSURE CONDENSATE
—DCW—	DOMESTIC COLD WATER	—NG—	NATURAL GAS
—FS—	FUEL SUPPLY	—NPCW—	NON-POTABLE COLD WATER
—FR—	FUEL RETURN	—PCWR—	PROCESS COOLING WATER RETURN
—FOF—	FUEL OIL FILL	—PCWS—	PROCESS COOLING WATER SUPPLY
—FOG—	FUEL OIL GAUGE	—PHWR—	PREHEAT WATER RETURN
—FOR—	FUEL OIL RETURN	—PHWS—	PREHEAT WATER SUPPLY
—FOS—	FUEL OIL SUPPLY	—RL—	REFRIGERANT LIQUID
—FOV—	FUEL OIL VENT	—RS—	REFRIGERANT SUCTION
—G—	LOW PRESSURE GAS	—RHG—	REFRIGERANT HOT GAS
—GWR—	GLYCOL WATER RETURN	—RWR—	RECLAIM WATER RETURN
—GWS—	GLYCOL WATER SUPPLY	—RWS—	RECLAIM WATER SUPPLY
—HPC—	HIGH PRESSURE CONDENSATE	—TRW—	TOWER WATER RETURN
—HPG(XX)—	HIGH PRESSURE GAS	—TWS—	TOWER WATER SUPPLY
—HPS(XX)—	HIGH PRESSURE STEAM	—V—	VENT
—HWR—	HEATING HOT WATER RETURN		
—HWS—	HEATING HOT WATER SUPPLY		

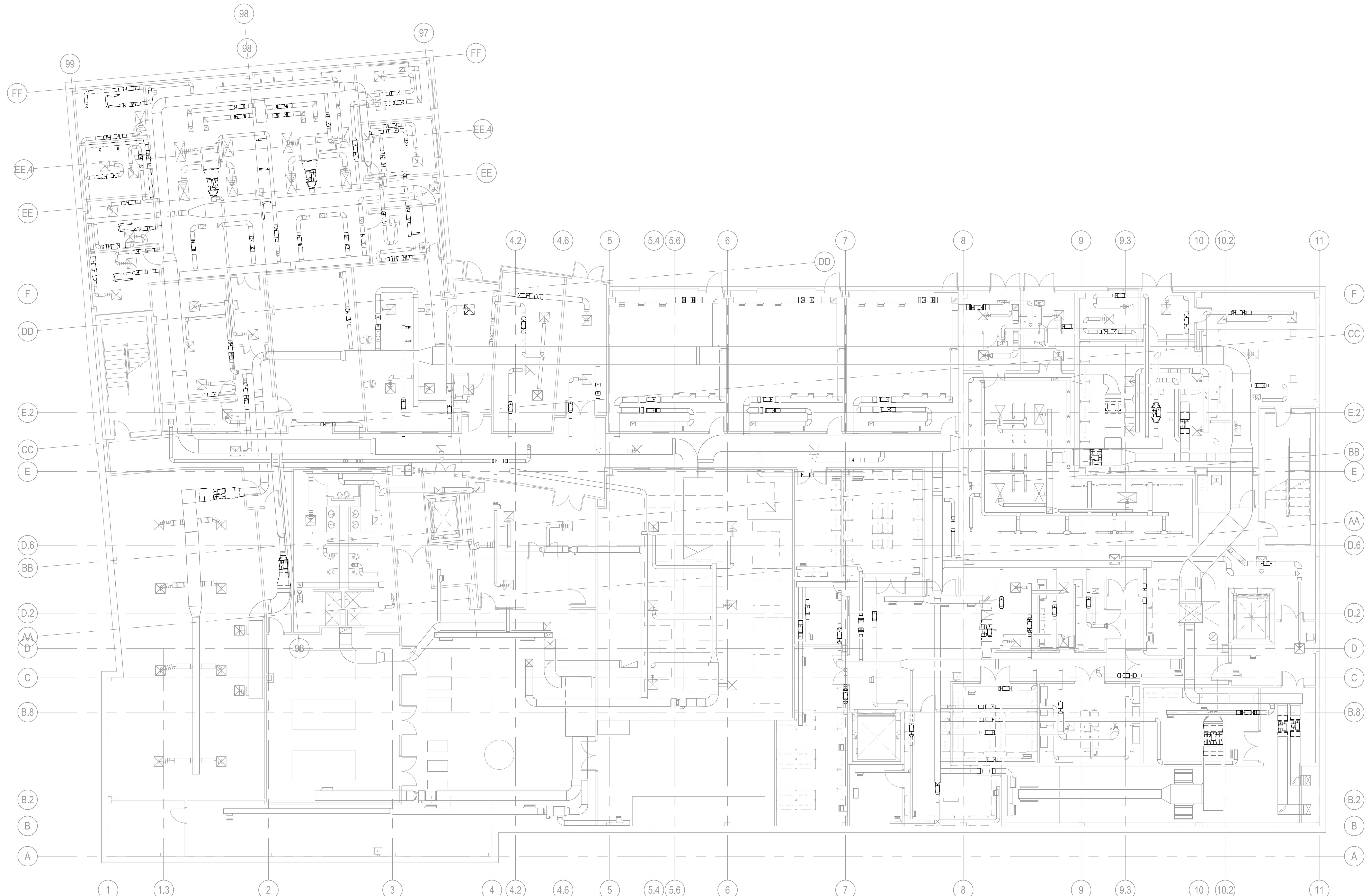
(XX) = SYSTEM PRESSURE IN PSIG

PIPING SPECIALTIES

	GENERAL PIPELINE STRAINER WITHOUT DRAIN		FILTER/REGULATOR
	GENERAL PIPELINE STRAINER WITH DRAIN		THERMOMETER (WITH GAUGE VALVE)
	STEAM & CONDENSATE PIPELINE STRAINER		FLOW SENSOR
	PIPELINE STRAINER		FLOW SWITCH
	SUCTION DIFFUSER		AUTOMATIC AIR VENT
	DUPLIX STRAINER BASKET STRAINER		MANUAL AIR VENT
	FLANGE		THERMOSTATIC AIR VENT
	UNION		TEST PLUG (PRESSURE/TEMP.)
	2" AND SMALLER, CAP OR PLUG 2-1/2" AND LARGER, BLIND FLANGE		ECCENTRIC REDUCER
	INVERTED BUCKET TRAP		DIRECTION OF PITCH (DOWN)
	FLOAT AND THERMOSTATIC TRAP		DIRECTION OF FLOW
	THERMOSTATIC TRAP		PIPE GUIDE
	EXPANSION JOINT		PIPE SLEEVE
	PIPE FLEXIBLE CONNECTION		ANCHOR
	BALL JOINT		

PIPING

||
||
||



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Issuance and Revisions

Rev	Date	Description

Keyplan

Project Title
**POLICE CRIME LAB
AUTOMATION SYSTEM
REPLACEMENT**

621 W WASHINGTON ST.
PHOENIX, AZ 85007

City of Phoenix Project Number:
PW26480024-1



Project Number
23457-00

Date Issued
04/25/23

Scale
1/8" = 1'-0"

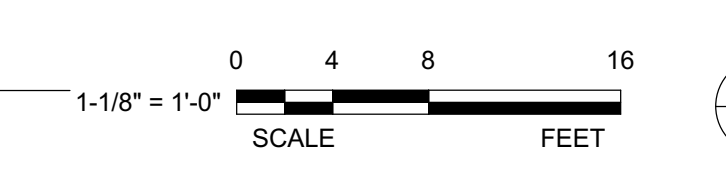
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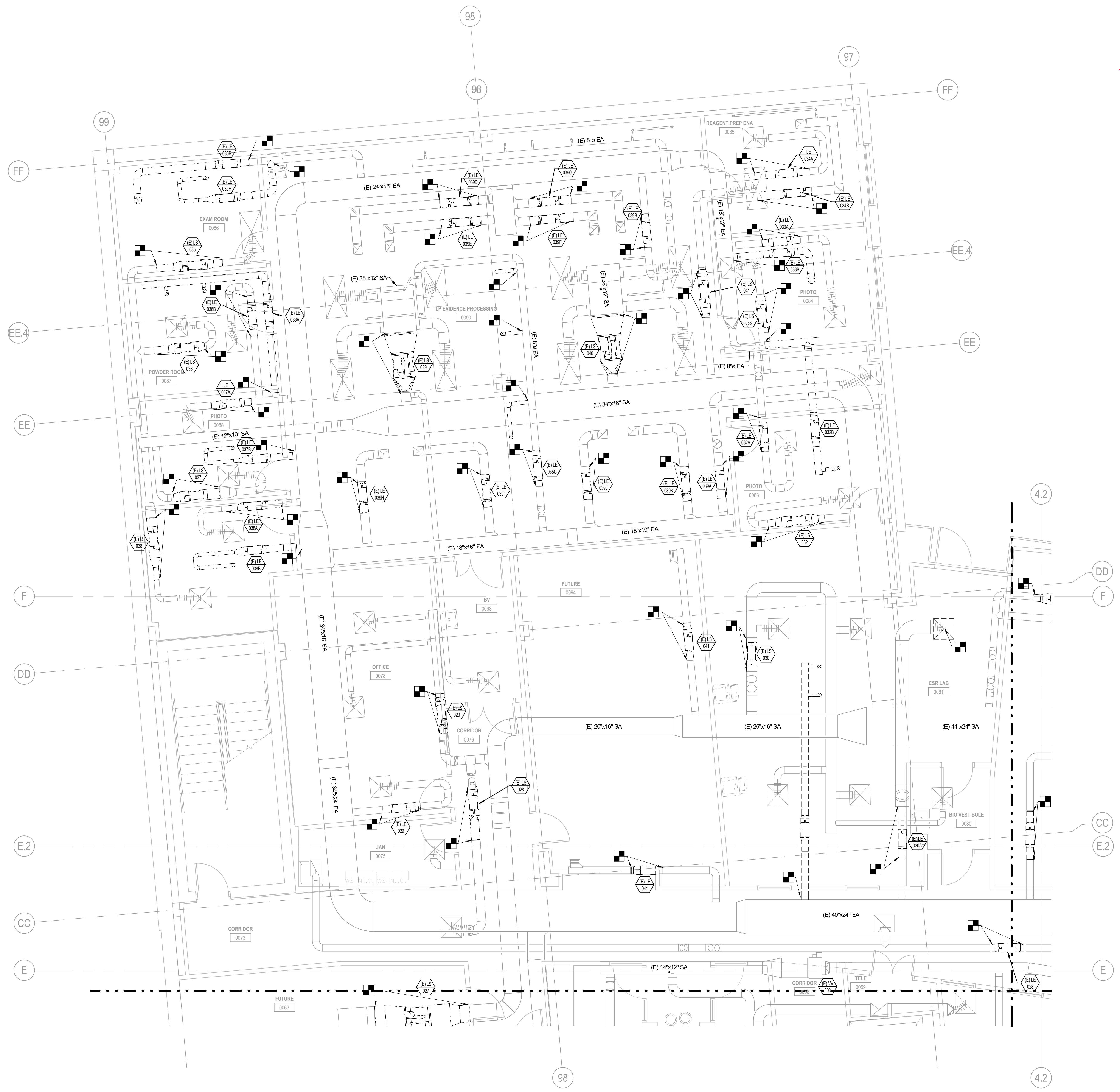
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Sheet Title
**HVAC
DEMOLITION
PLAN - BASEMENT
- OVERALL**

Sheet Number
MD2.00

1 BASEMENT - HVAC DEMOLITION PLAN - OVERALL
SCALE: 1/8" = 1'-0"





GENERAL NOTES

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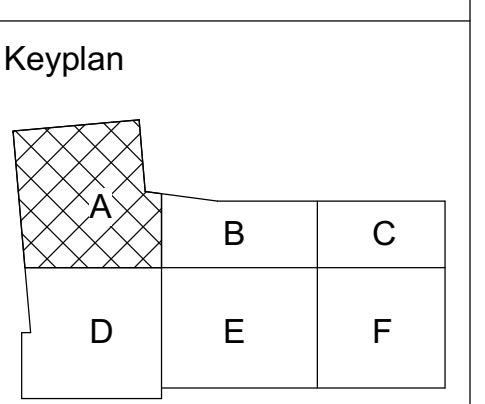
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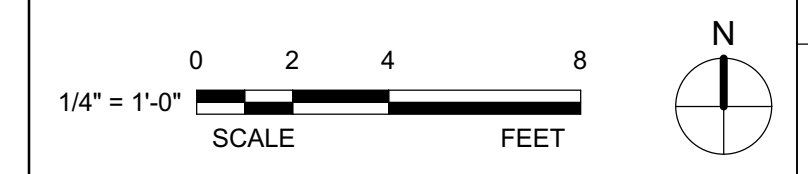


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Sheet Title
**HVAC
 DEMOLITION
 PLAN - BASEMENT
 - AREA A**

Sheet Number
MD2.00A

1 BASEMENT - HVAC DEMOLITION PLAN - AREA A
 SCALE: 1/4" = 1'-0"



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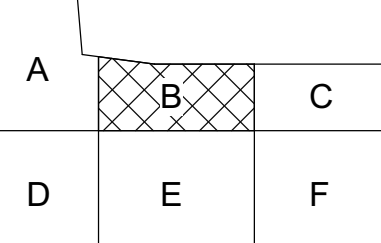
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KEYNOTES

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City of Phoenix

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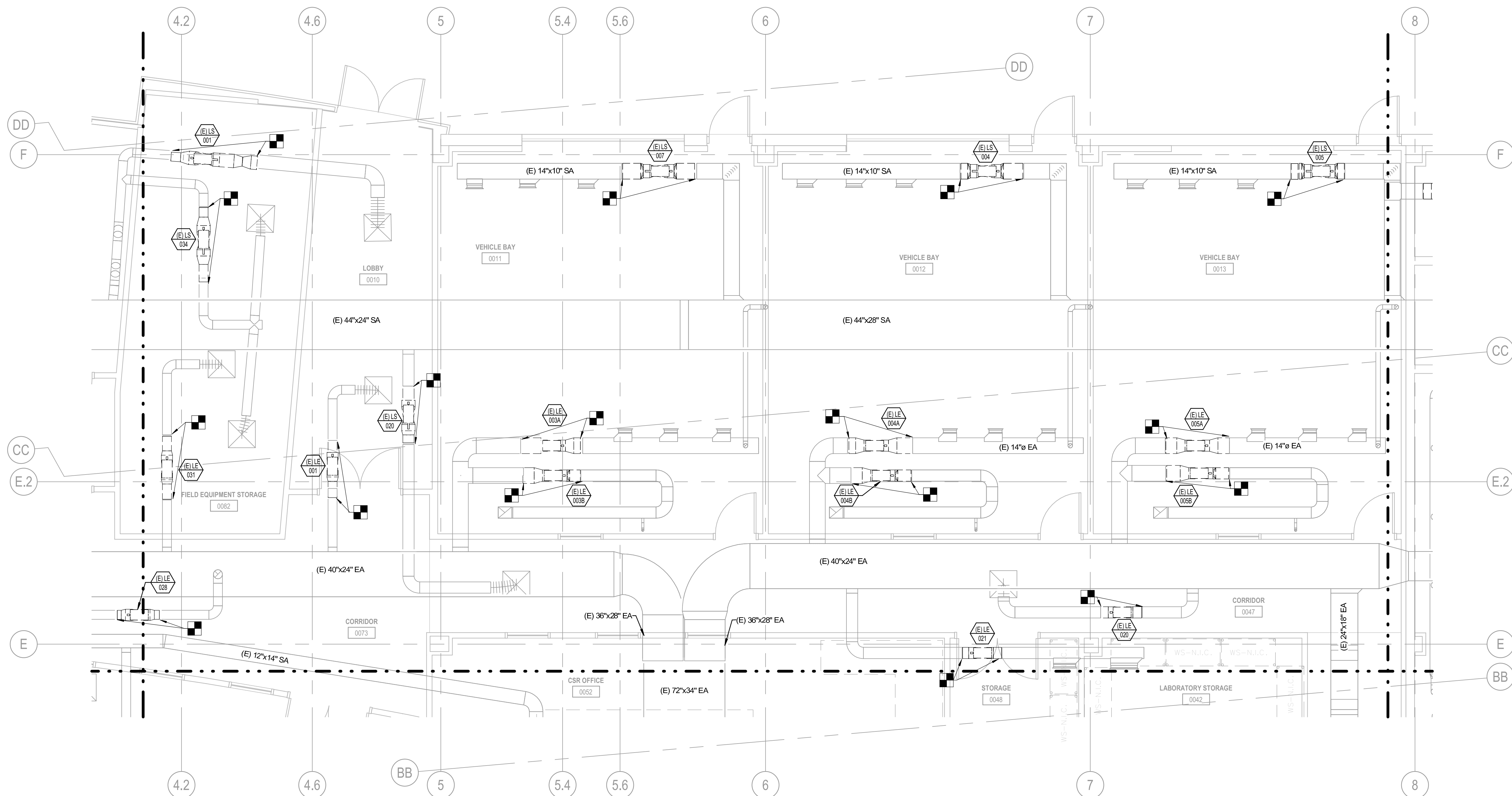
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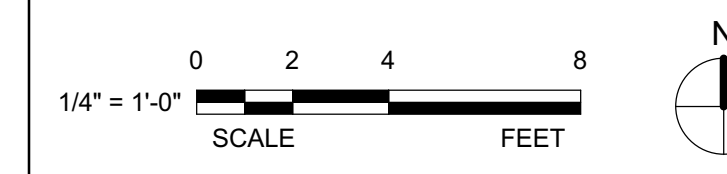
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Sheet Title
**HVAC
DEMOLITION
PLAN - BASEMENT
- AREA B**

Sheet Number
MD2.00B



1 BASEMENT - HVAC DEMOLITION PLAN - AREA B
SCALE: 1/4" = 1'-0"



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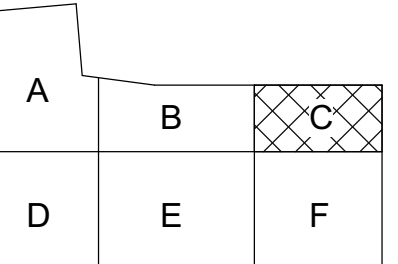
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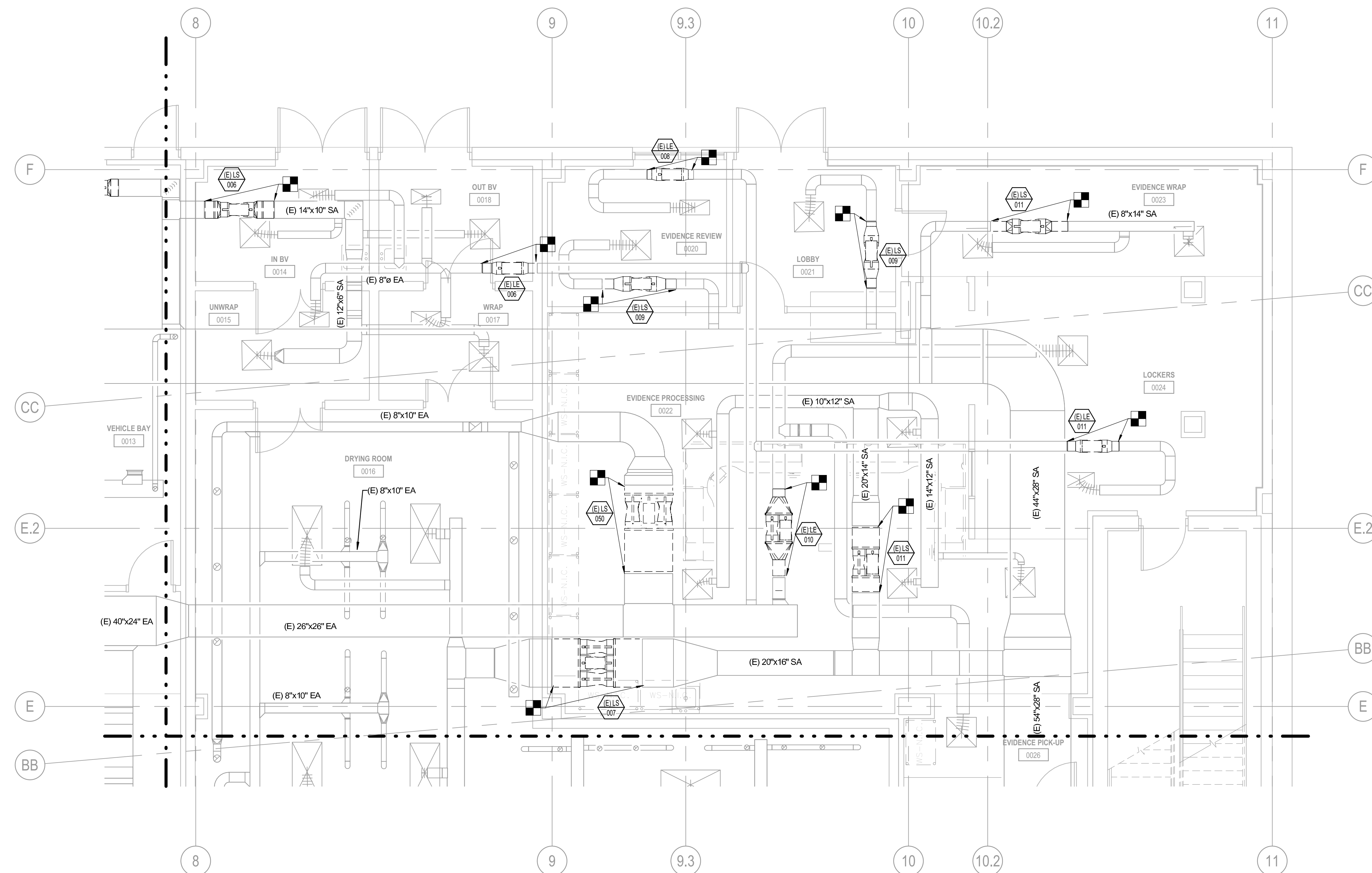
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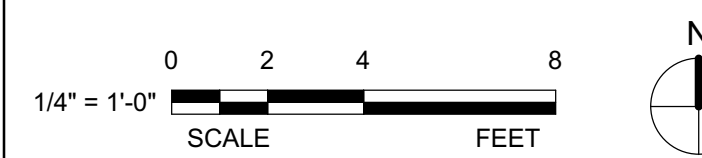
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DEMOLITION
PLAN - BASEMENT
- AREA C**

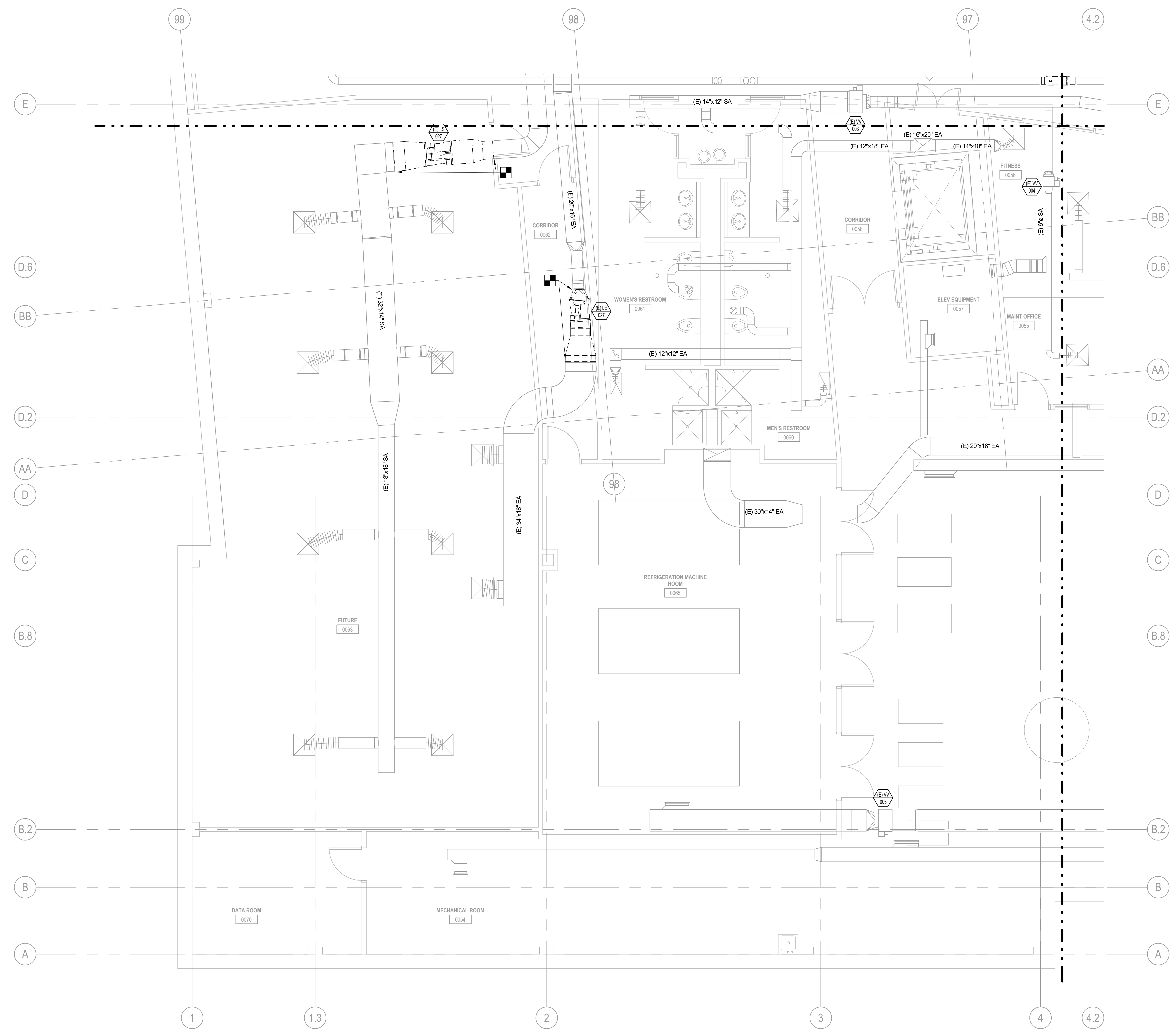
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1 BASEMENT - HVAC DEMOLITION PLAN - AREA C
SCALE: 1/4" = 1'-0"





1 BASEMENT - HVAC DEMOLITION PLAN - AREA D
SCALE: 1/4" = 1'-0"

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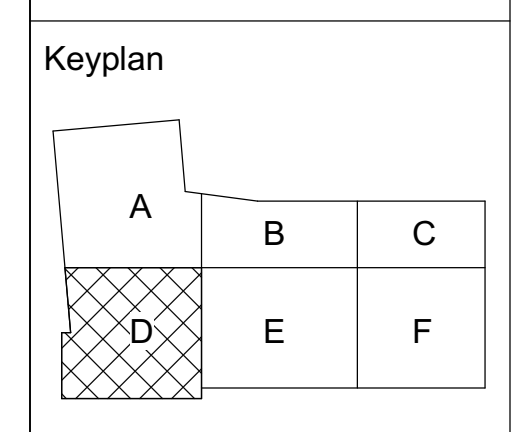
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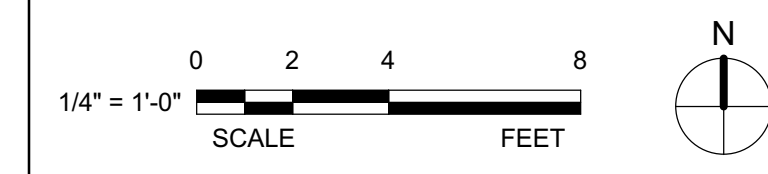
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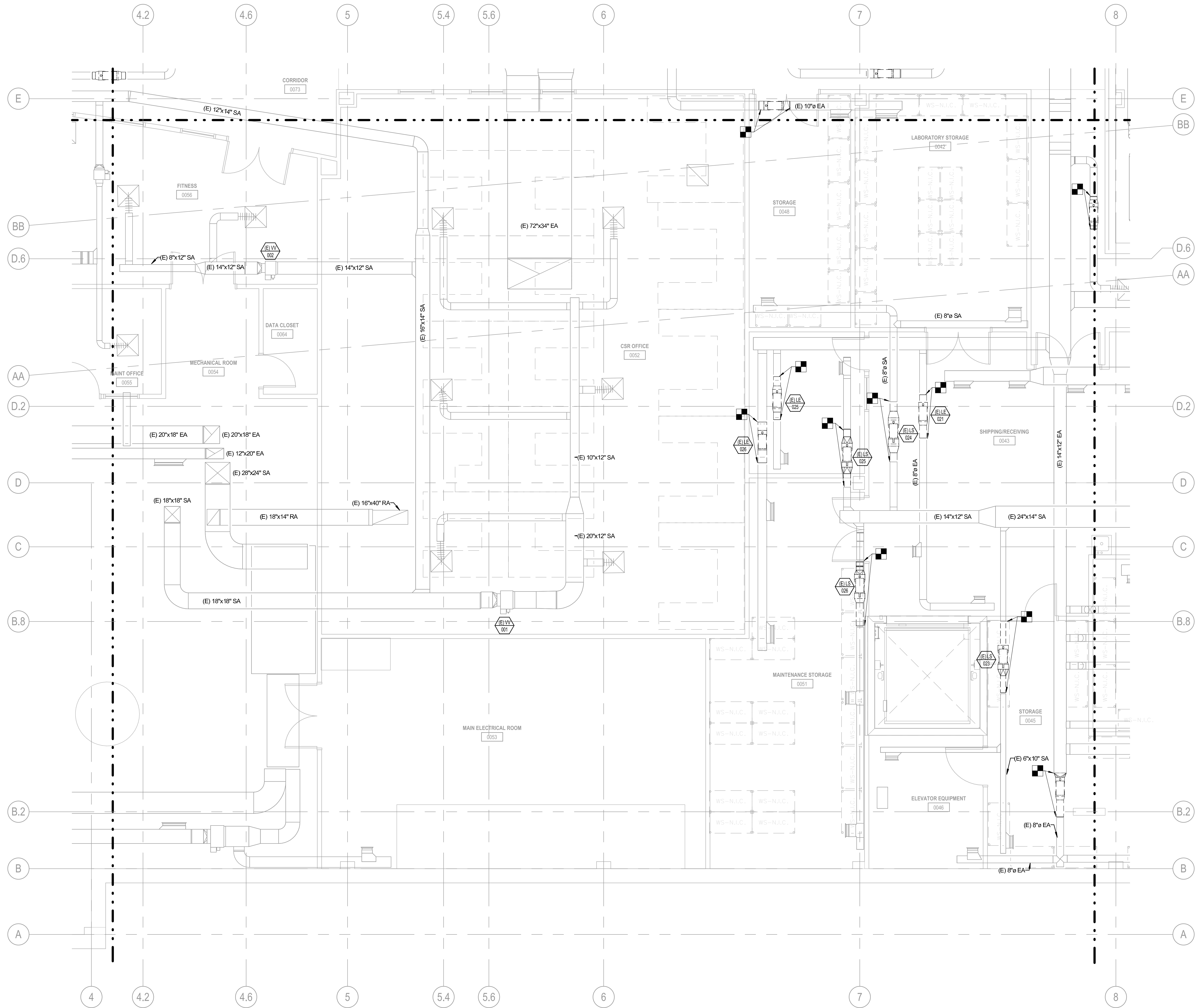


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DEMOLITION
PLAN - BASEMENT
- AREA D**

Sheet Number
MD2.00D





1 BASEMENT - HVAC DEMOLITION PLAN - AREA E
SCALE: 1/4" = 1'-0"

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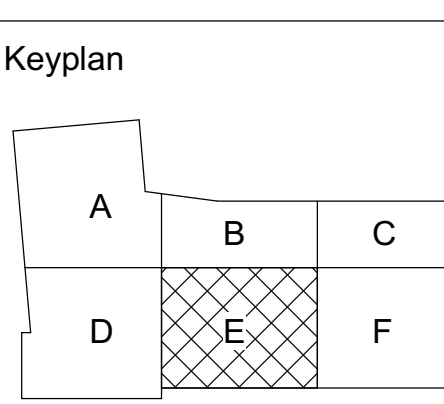
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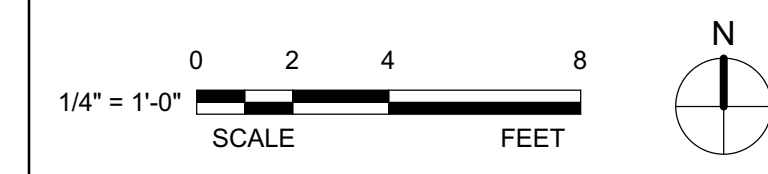
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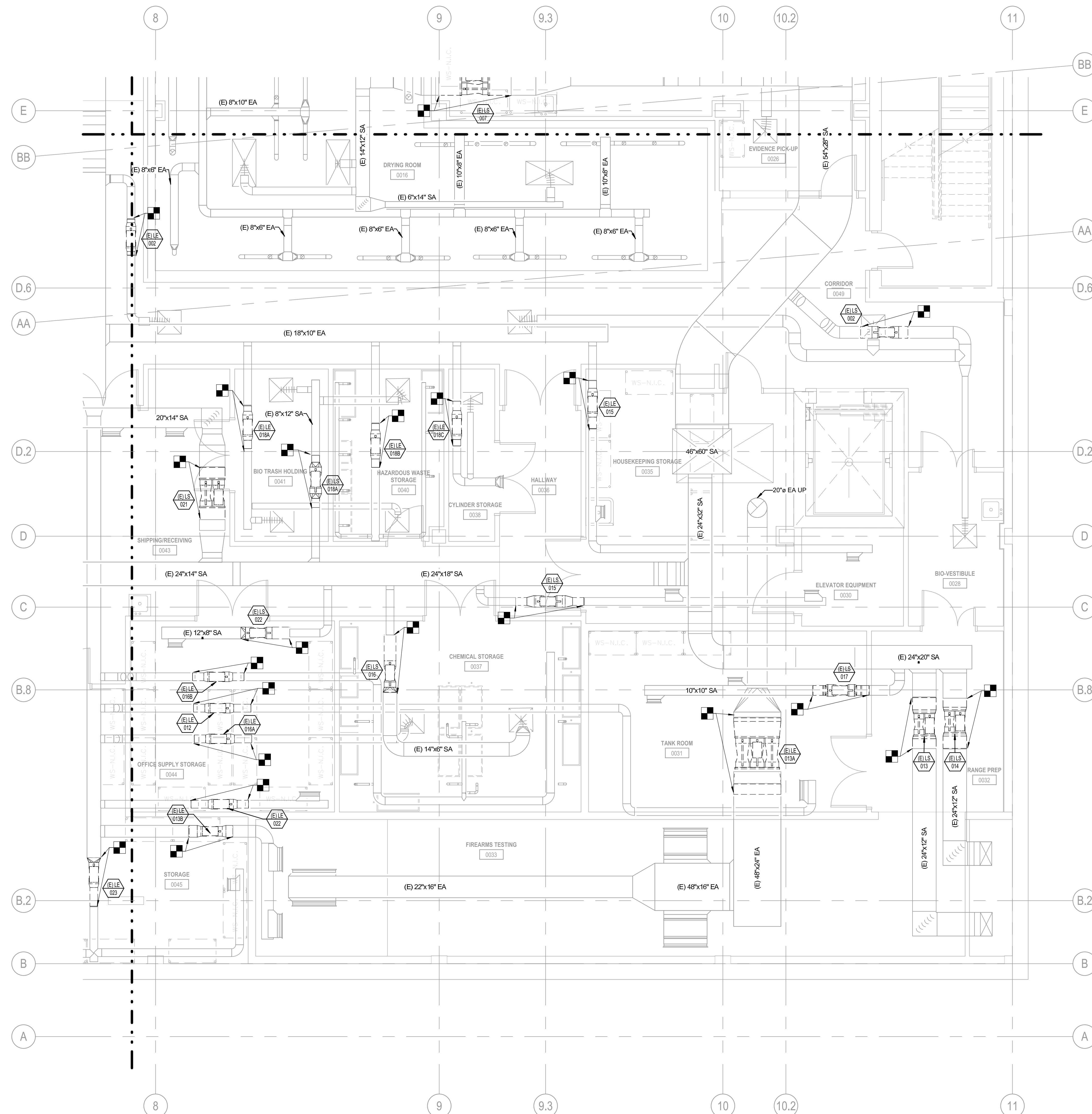
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MD2.00E



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1 BASEMENT - HVAC DEMOLITION PLAN - AREA F
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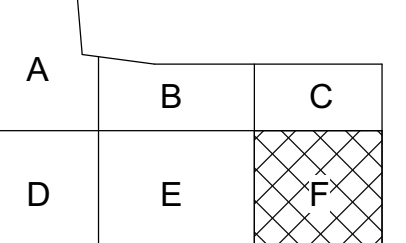
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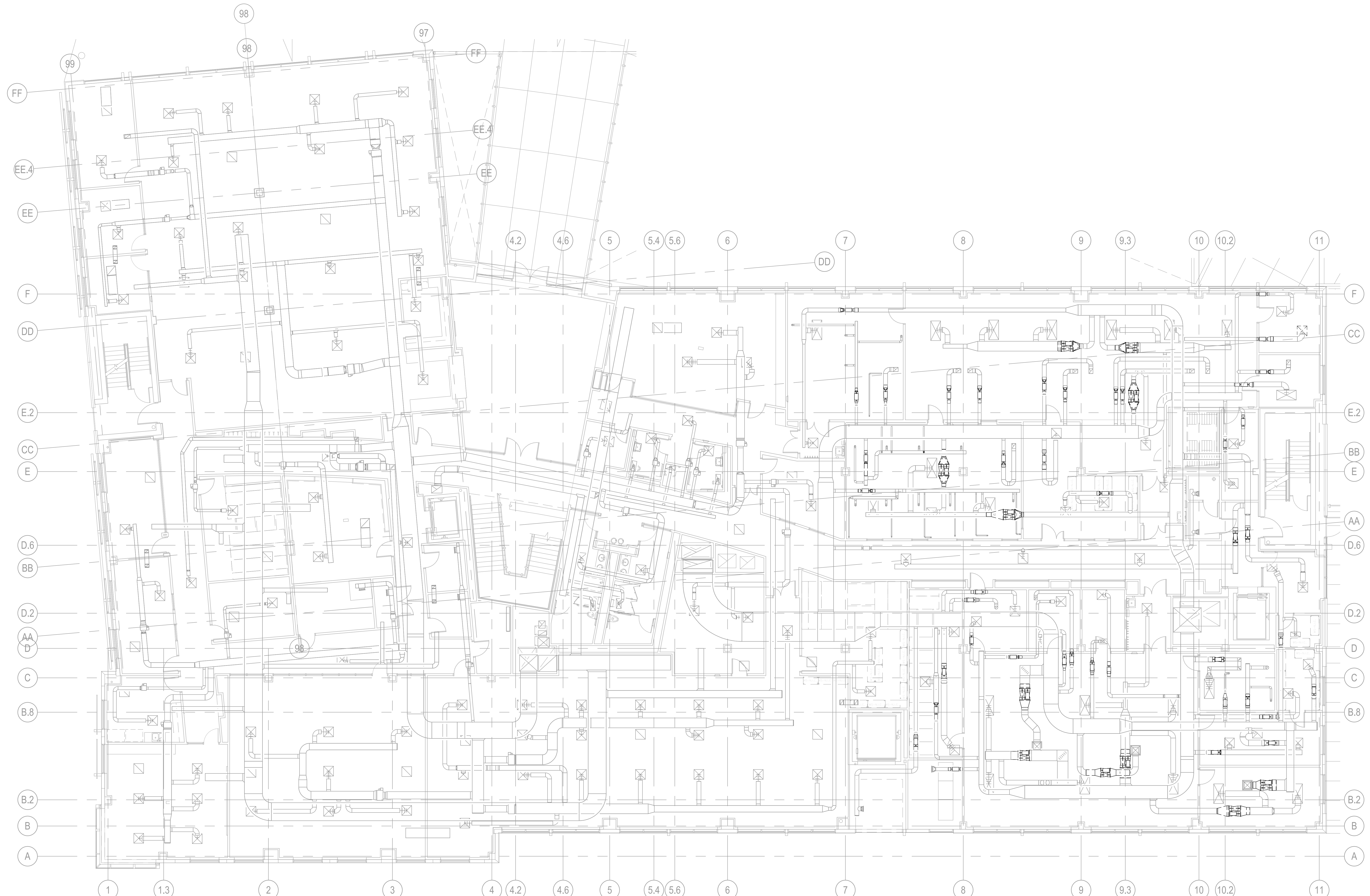
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1. OVERALL PLANS SHOWN FOR REFERENCE. REFER TO ENLARGED AREA PLANS FOR MORE INFORMATION.



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Sheet Title
**HVAC
DEMOLITION
PLAN - LEVEL 1 -
OVERALL**

Sheet Number
MD2.01

1 LEVEL 1 - HVAC DEMOLITION PLAN - OVERALL
SCALE: 1/8" = 1'-0"



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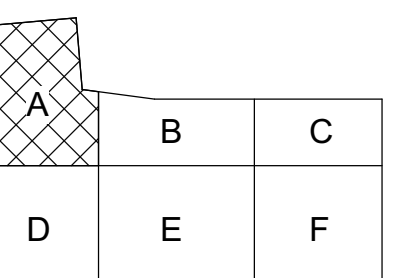
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KEYNOTES

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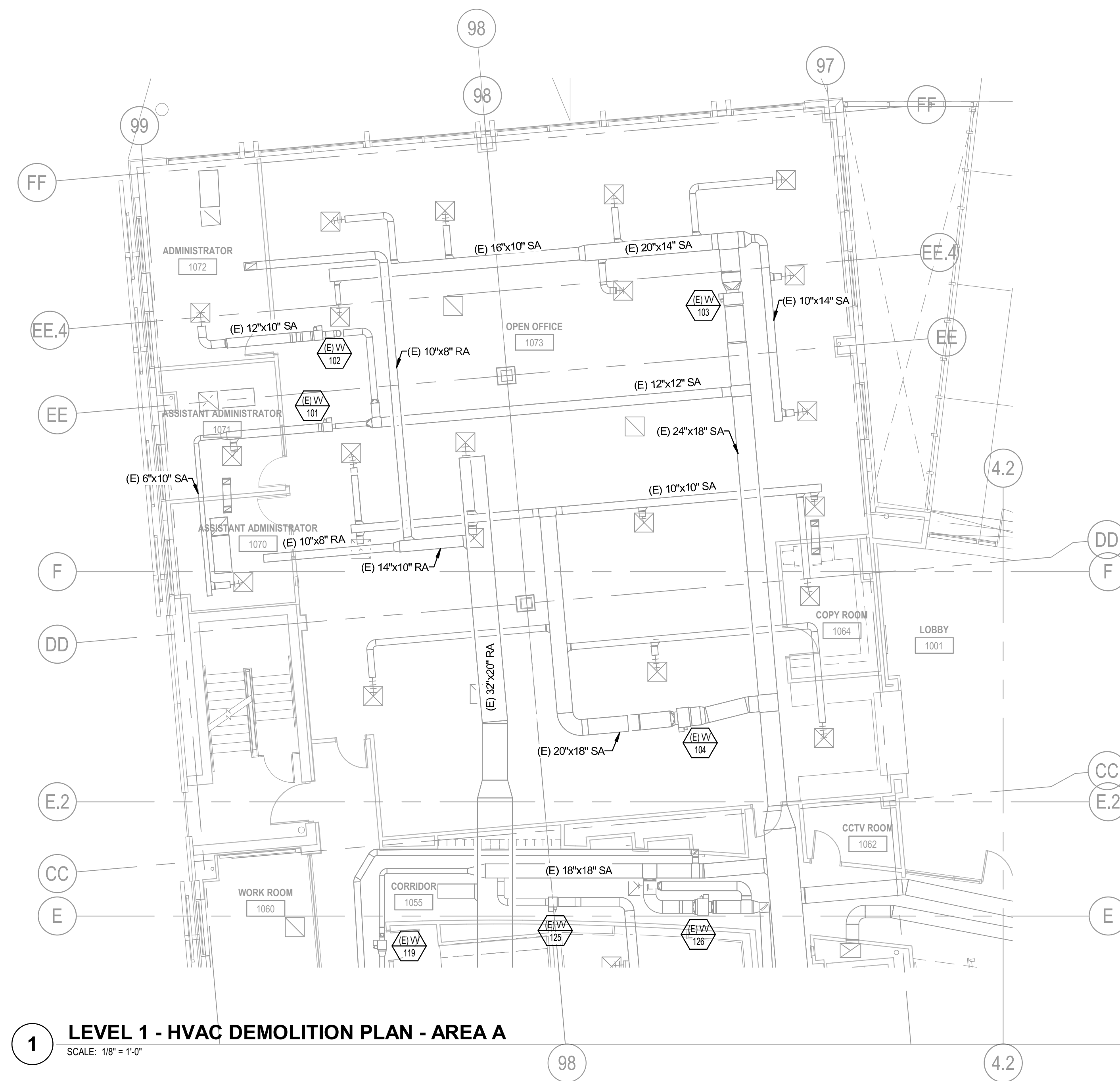
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PLAN - LEVEL 1 -
AREA A**

Sheet Number
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1 LEVEL 1 - HVAC DEMOLITION PLAN - AREA A
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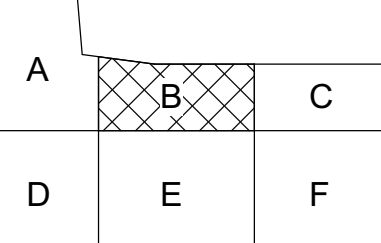
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- Exhaust connection to snorkel being removed

Keyplan



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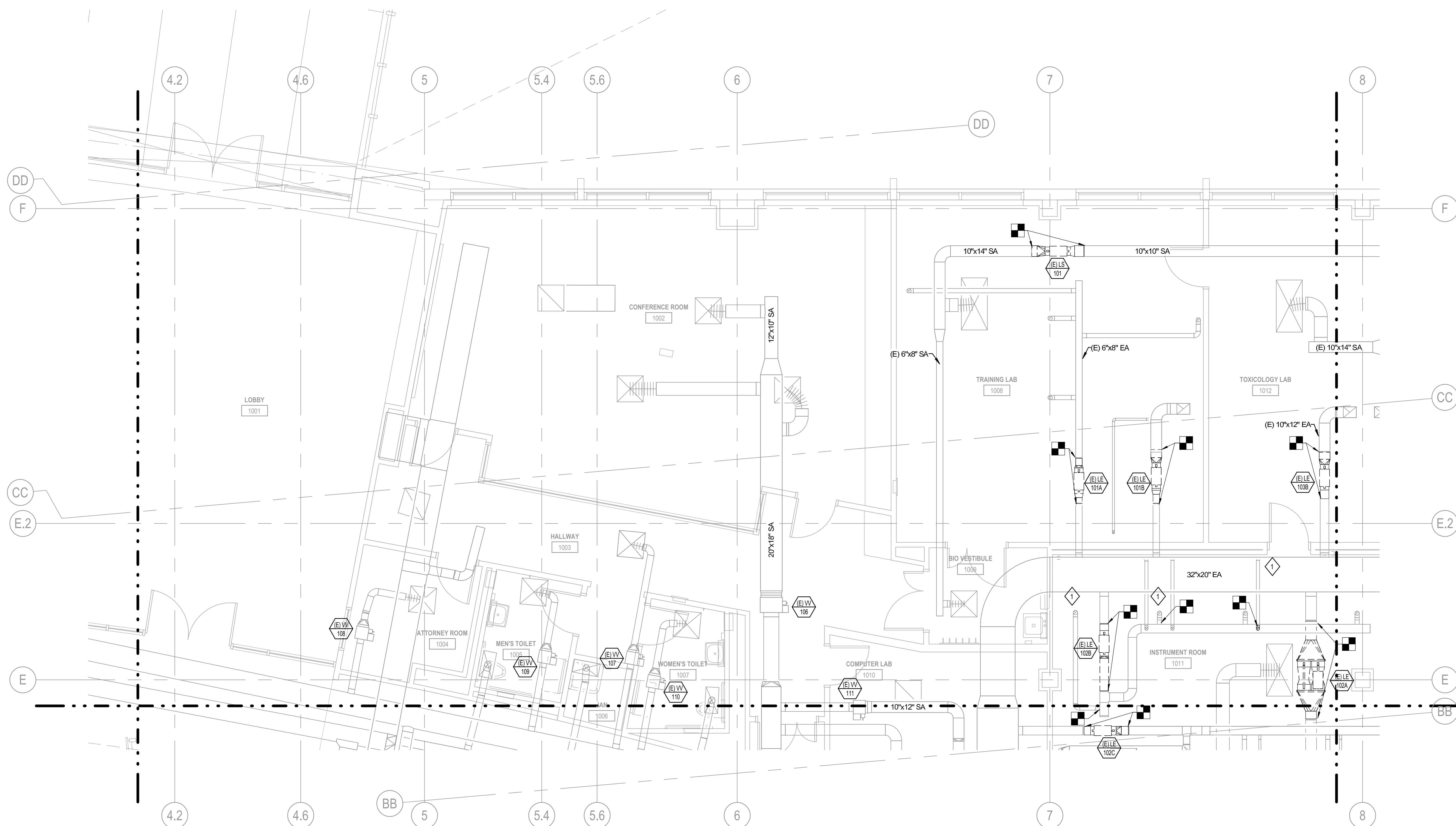
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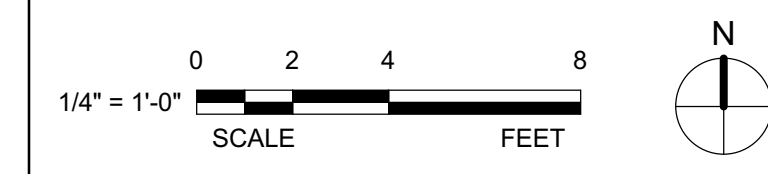
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Sheet Title
**HVAC
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PLAN - LEVEL 1 -
AREA B**

Sheet Number
MD2.01B



1 LEVEL 1 - HVAC DEMOLITION PLAN - AREA B
SCALE: 1/4" = 1'-0"





1 LEVEL 1 - HVAC DEMOLITION PLAN - AREA D
SCALE: 1/4" = 1'-0"

GENERAL NOTES

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AEI Project No.: 23457-00

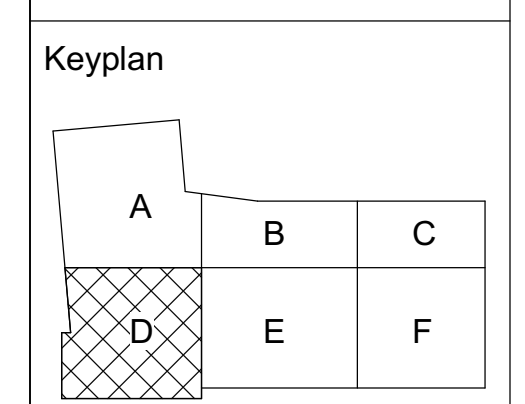
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Rev	Date	Description

KEYNOTES



Project Title
**POLICE CRIME LAB
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REPLACEMENT**

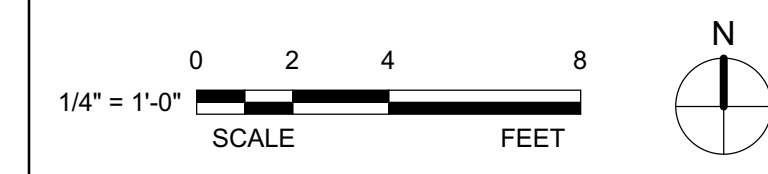
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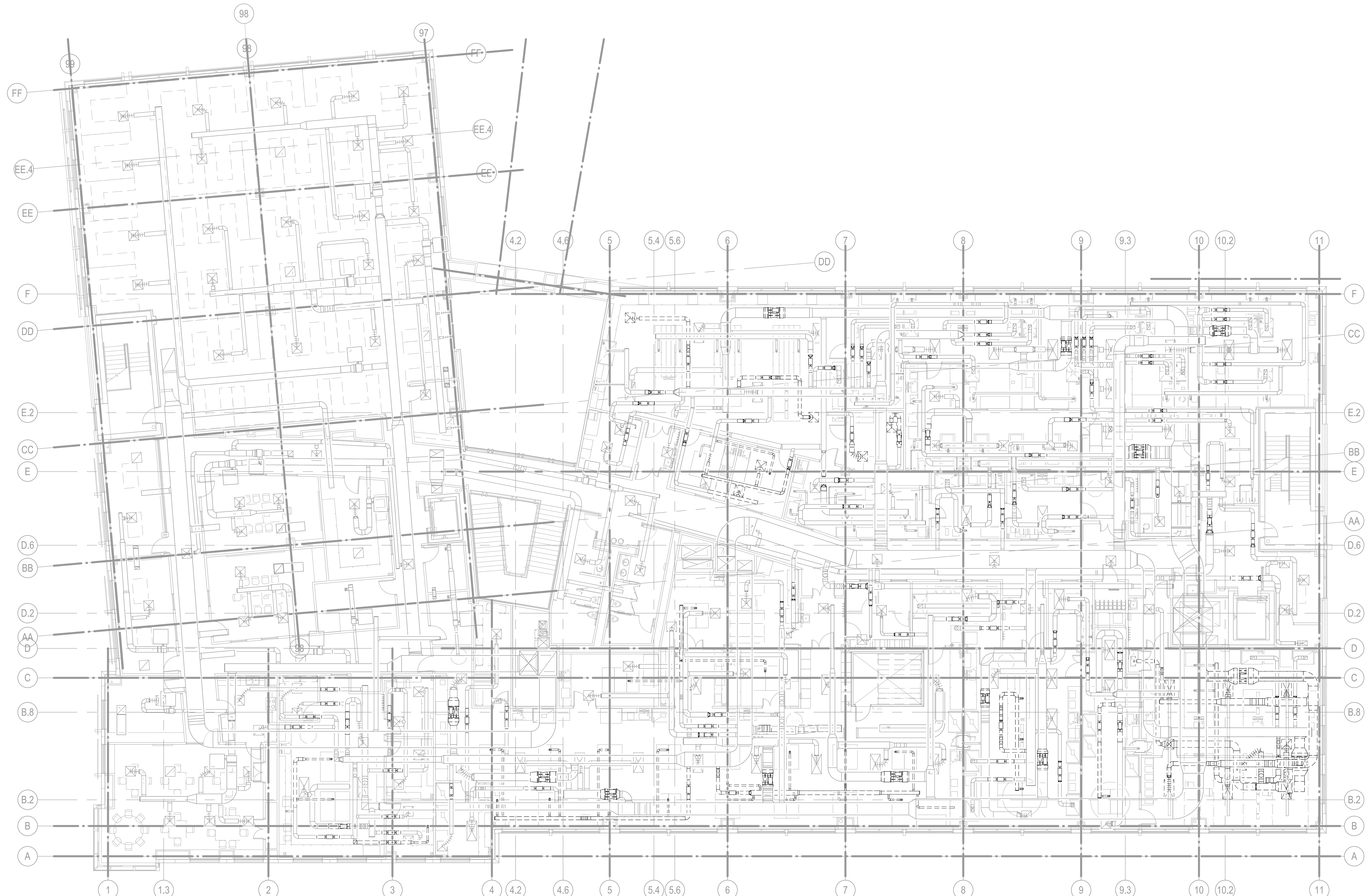


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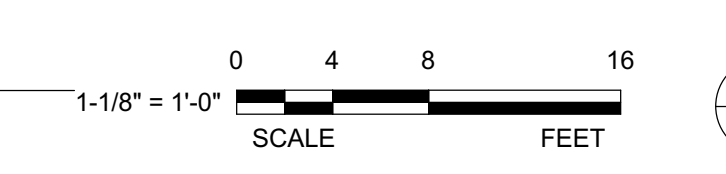
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**HVAC
DEMOLITION
PLAN - LEVEL 1 -
AREA D**

Sheet Number
MD2.01D





1 LEVEL 2 - HVAC DEMOLITION PLAN - OVERALL
SCALE: 1/8" = 1'-0"



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Sheet Title
**HVAC
DEMOLITION
PLAN - LEVEL 2 -
OVERALL**

Sheet Number
MD2.02

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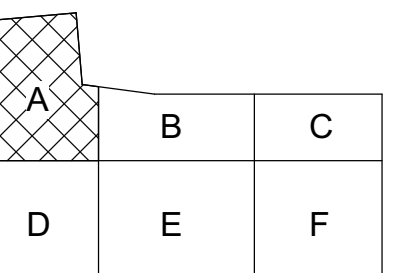
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KEYNOTES

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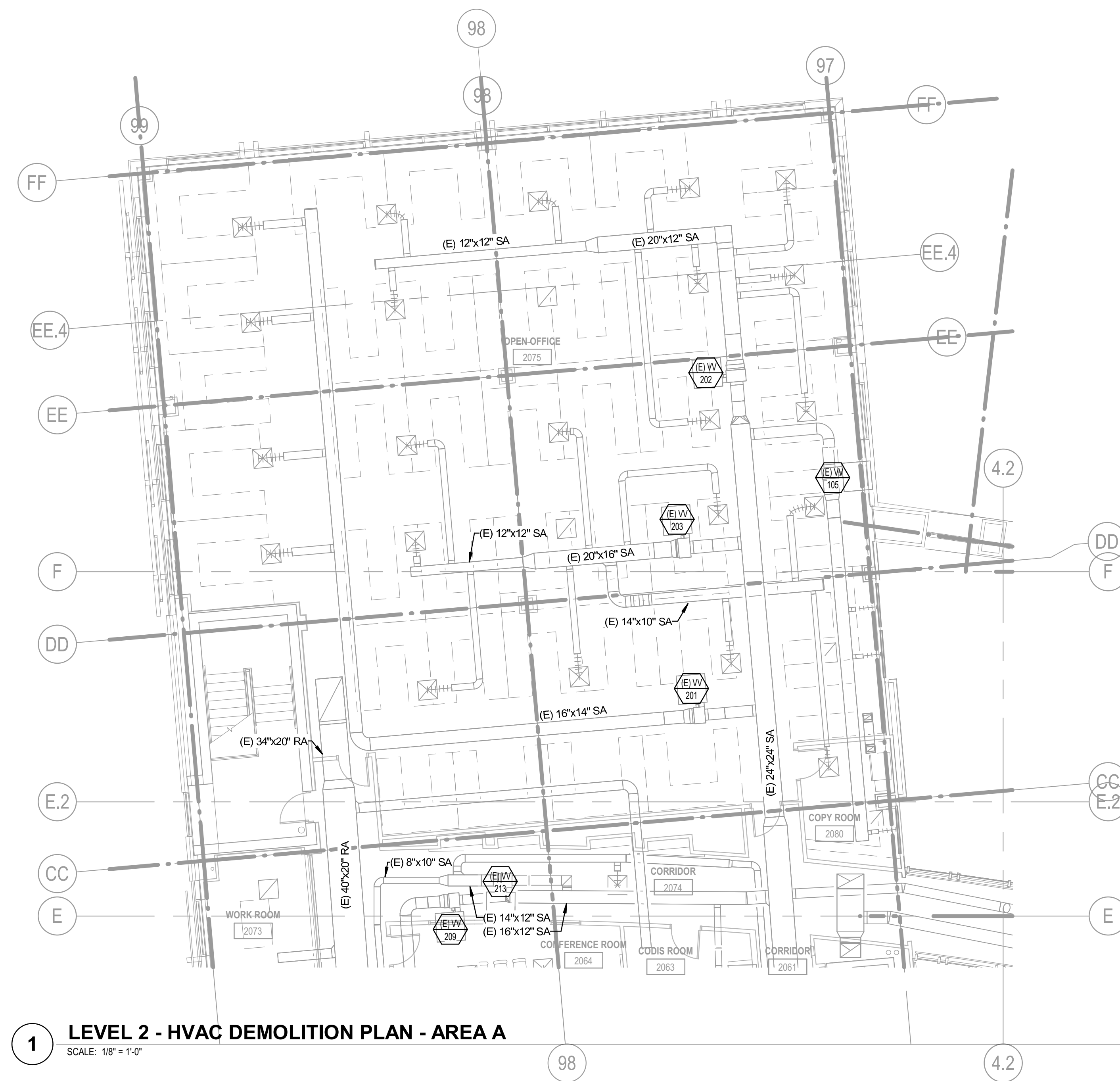
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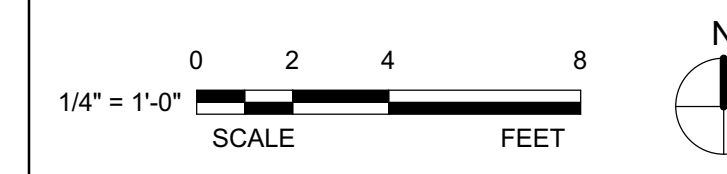
**HVAC
DEMOLITION
PLAN - LEVEL 2 -
AREA A**

Sheet Number

MD2.02A



1 LEVEL 2 - HVAC DEMOLITION PLAN - AREA A
SCALE: 1/8" = 1'-0"



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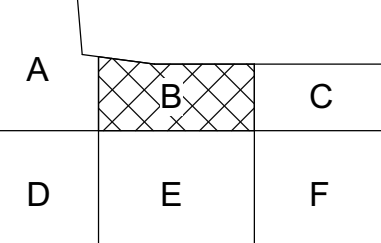
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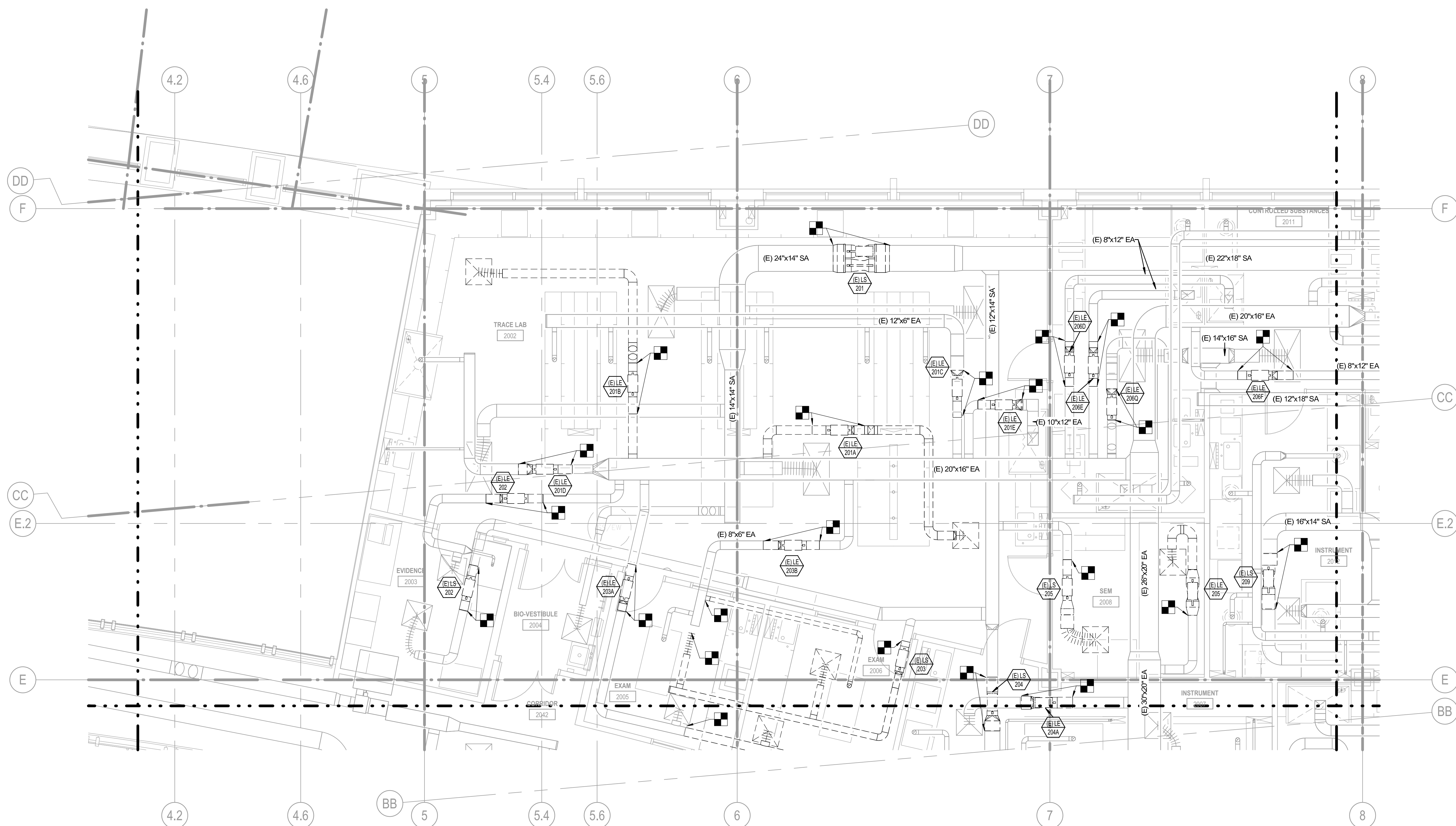
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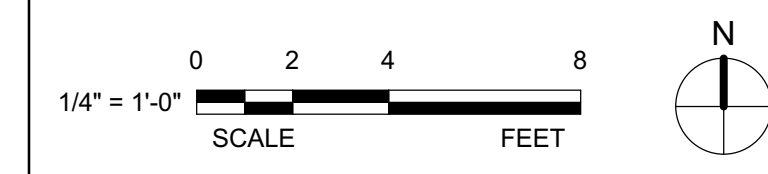
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Sheet Title
HVAC
DEMOLITION
PLAN - LEVEL 2 -
AREA B

Sheet Number
MD2.02B



1 LEVEL 2 - HVAC DEMOLITION PLAN - AREA B
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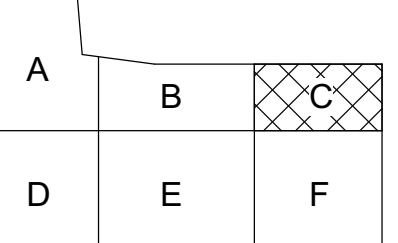
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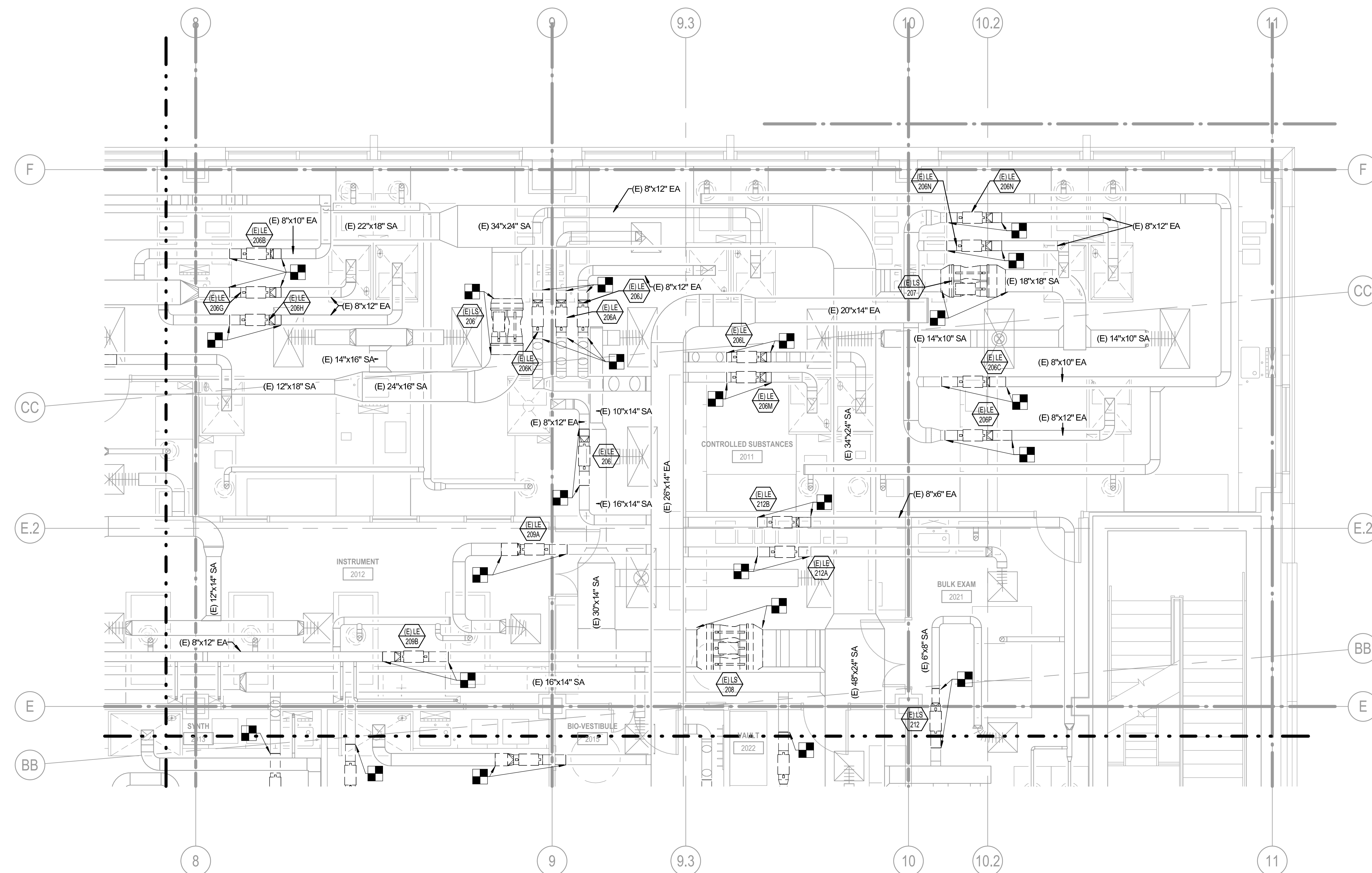
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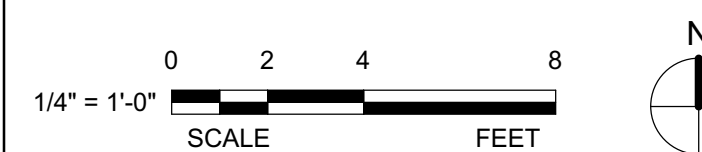
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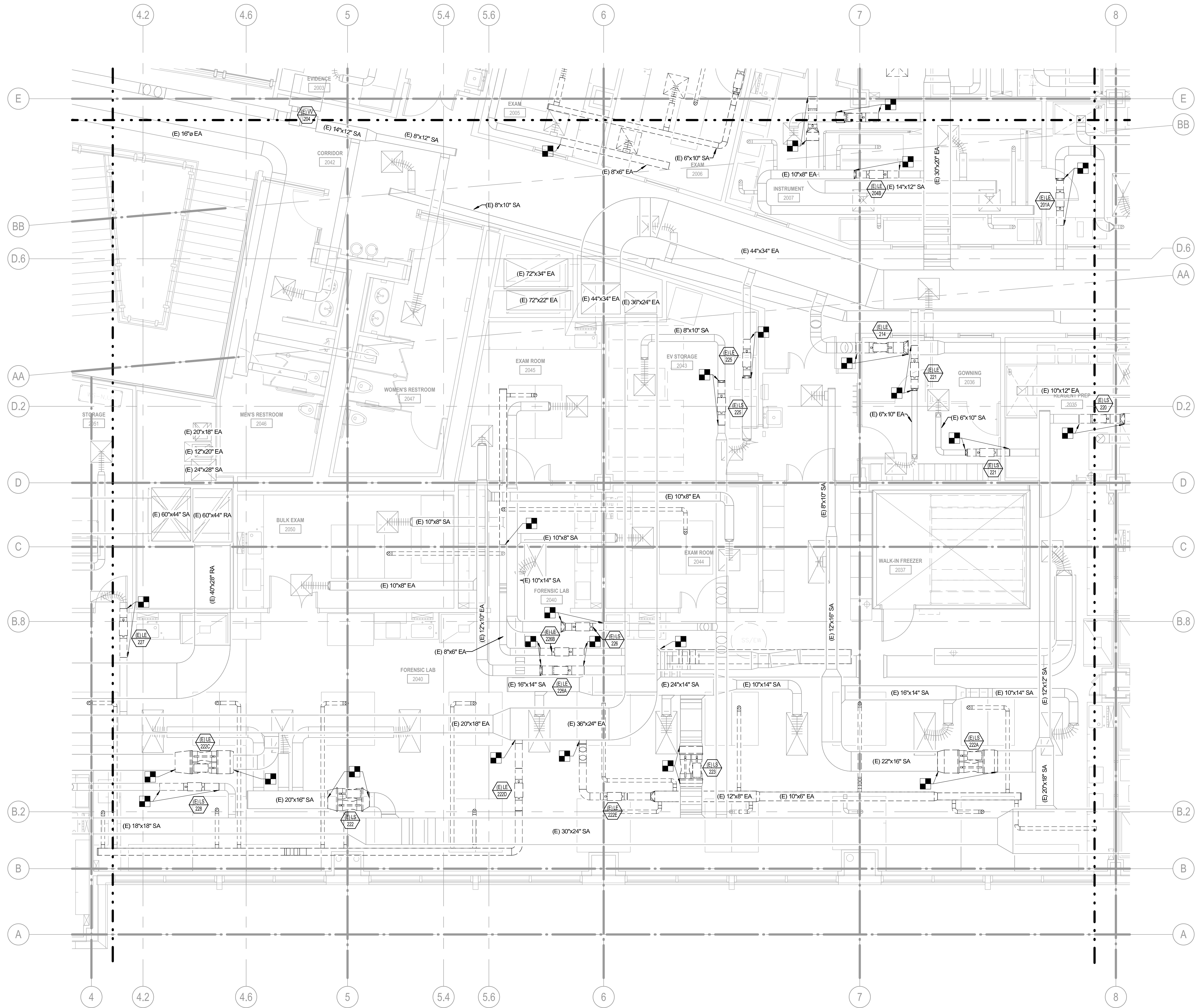
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DEMOLITION
PLAN - LEVEL 2 -
AREA C**

Sheet Number
MD2.02C



1 LEVEL 2 - HVAC DEMOLITION PLAN - AREA C
SCALE: 1/4" = 1'-0"





1 LEVEL 2 - HVAC DEMOLITION PLAN - AREA E
SCALE: 1/4" = 1'-0"

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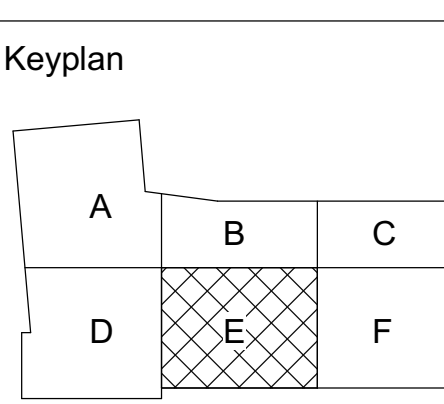
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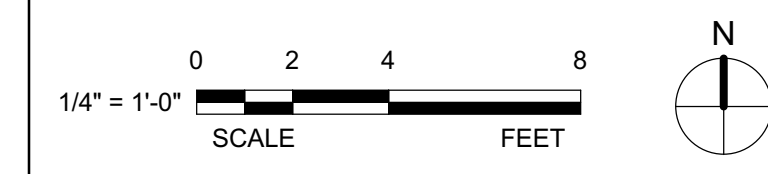
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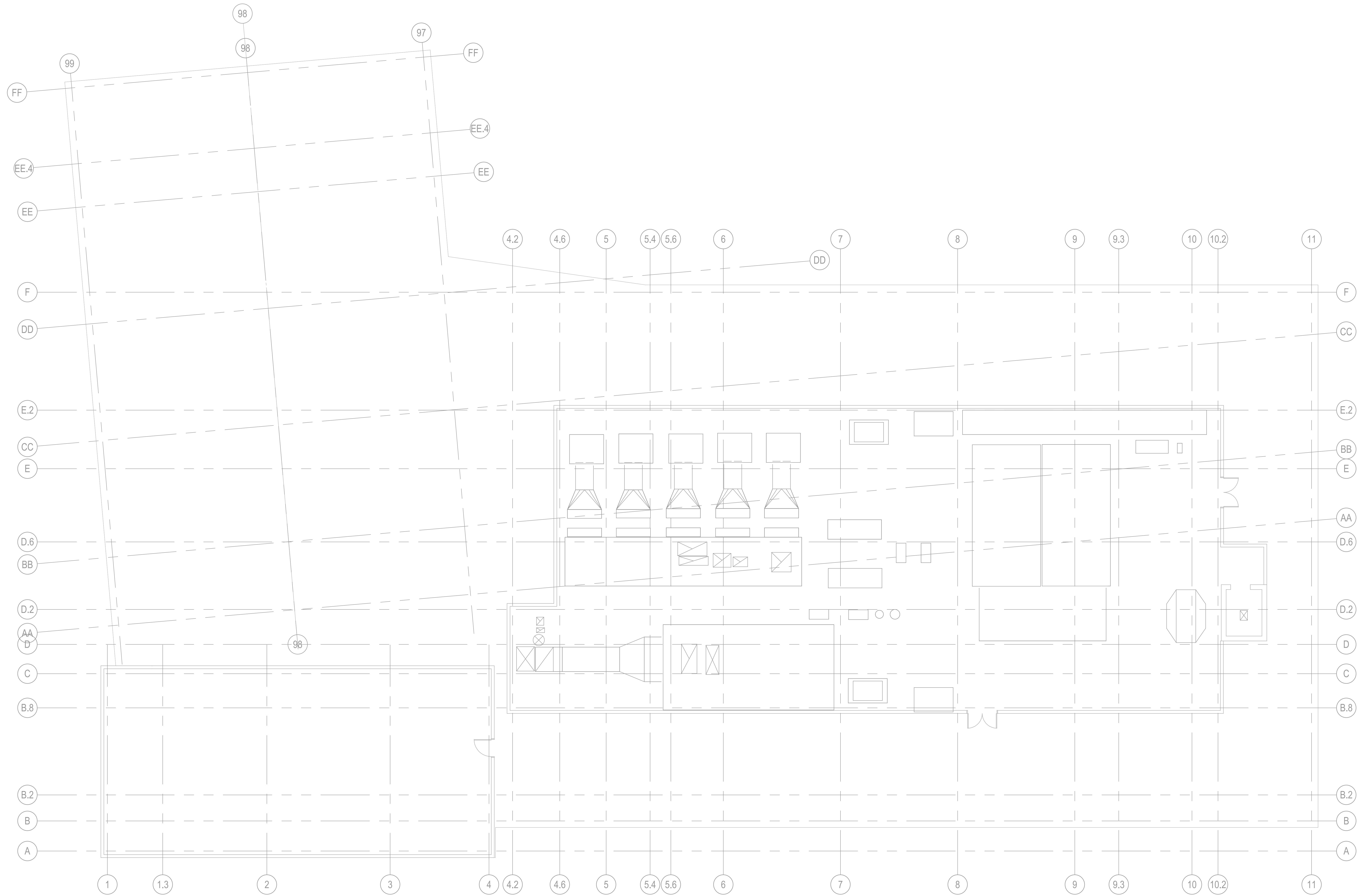
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Sheet Title
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PLAN - LEVEL 2 -
AREA E**



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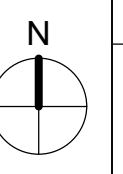


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Sheet Title
**HVAC
DEMOLITION
PLAN - ROOF -
OVERALL**

Sheet Number
MD2.03

1 ROOF - HVAC DEMOLITION PLAN - OVERALL
SCALE: 1/8" = 1'-0"



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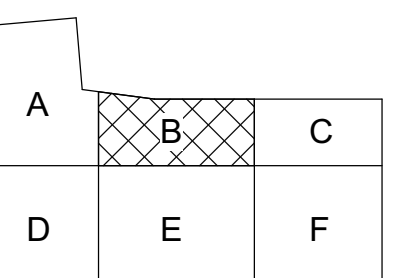
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Project Title

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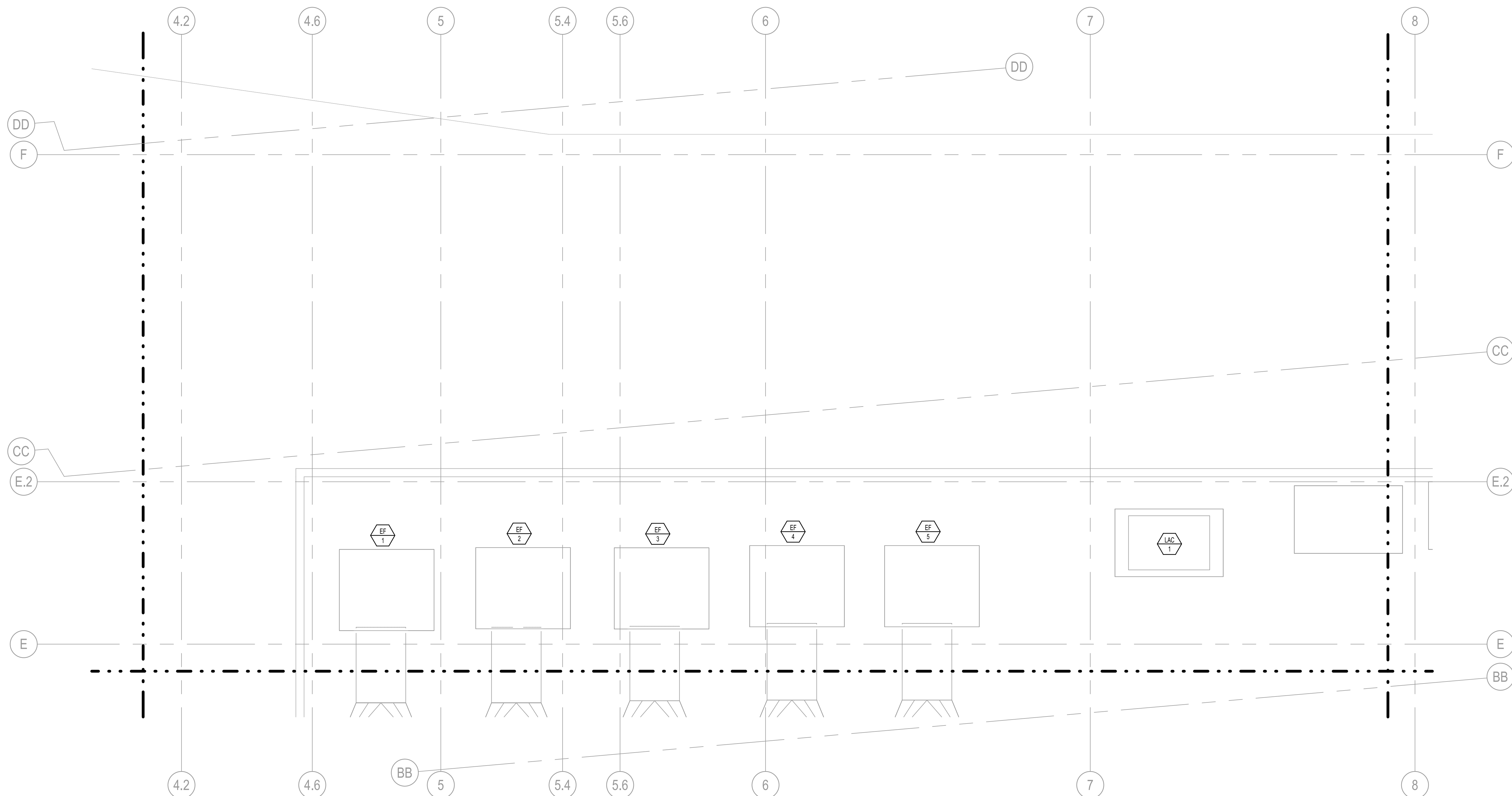
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Sheet Title

**HVAC
 DEMOLITION
 PLAN - ROOF -
 AREA B**

Sheet Number

MD2.03B



1 ROOF - HVAC DEMOLITION PLAN - AREA B
 SCALE: 1/4" = 1'-0"



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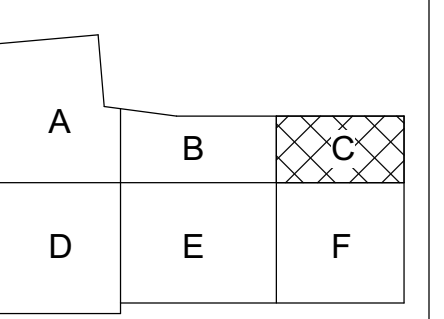
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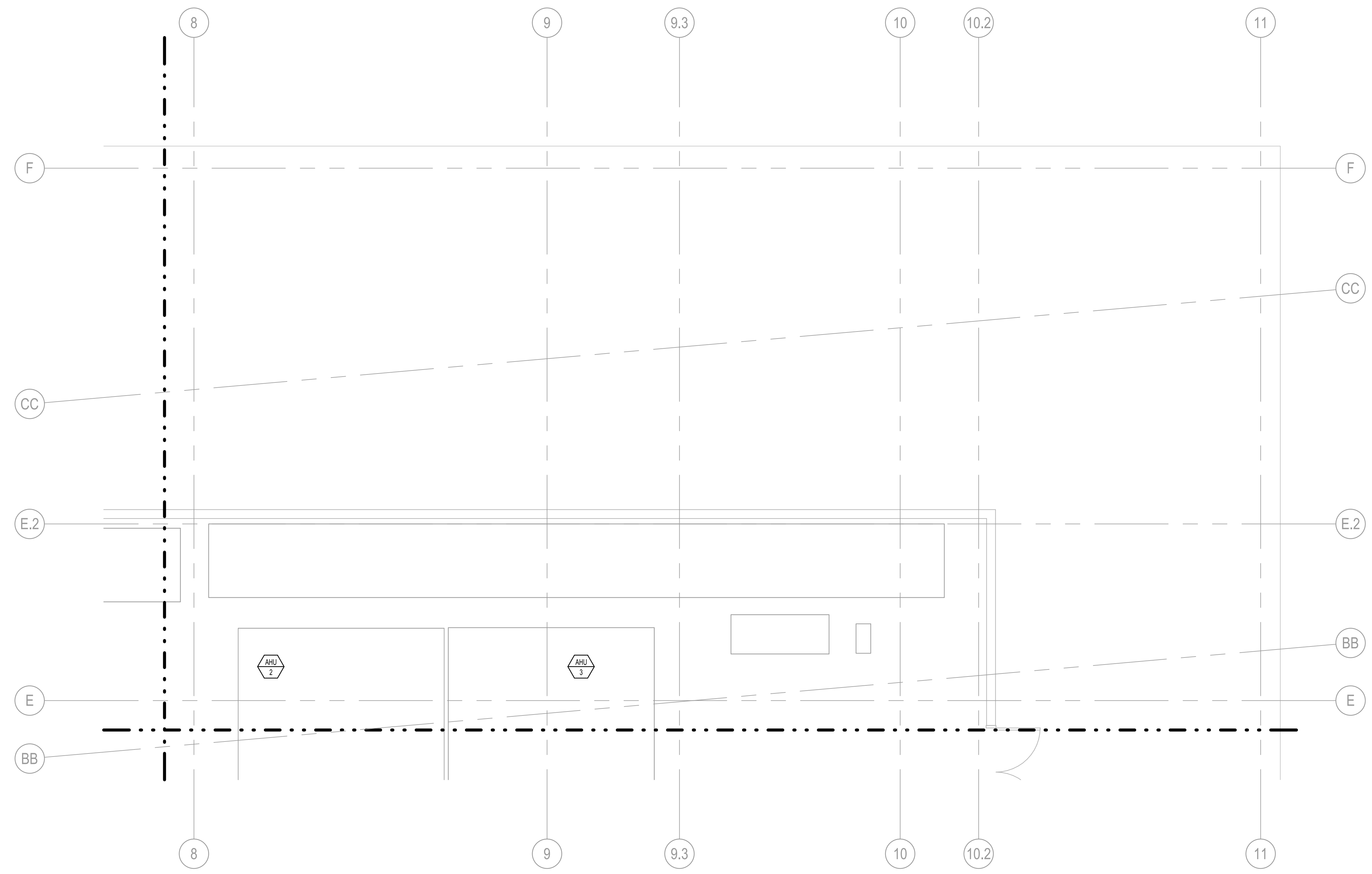
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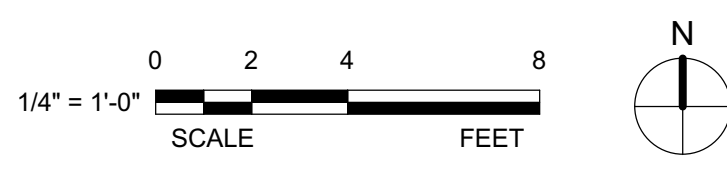
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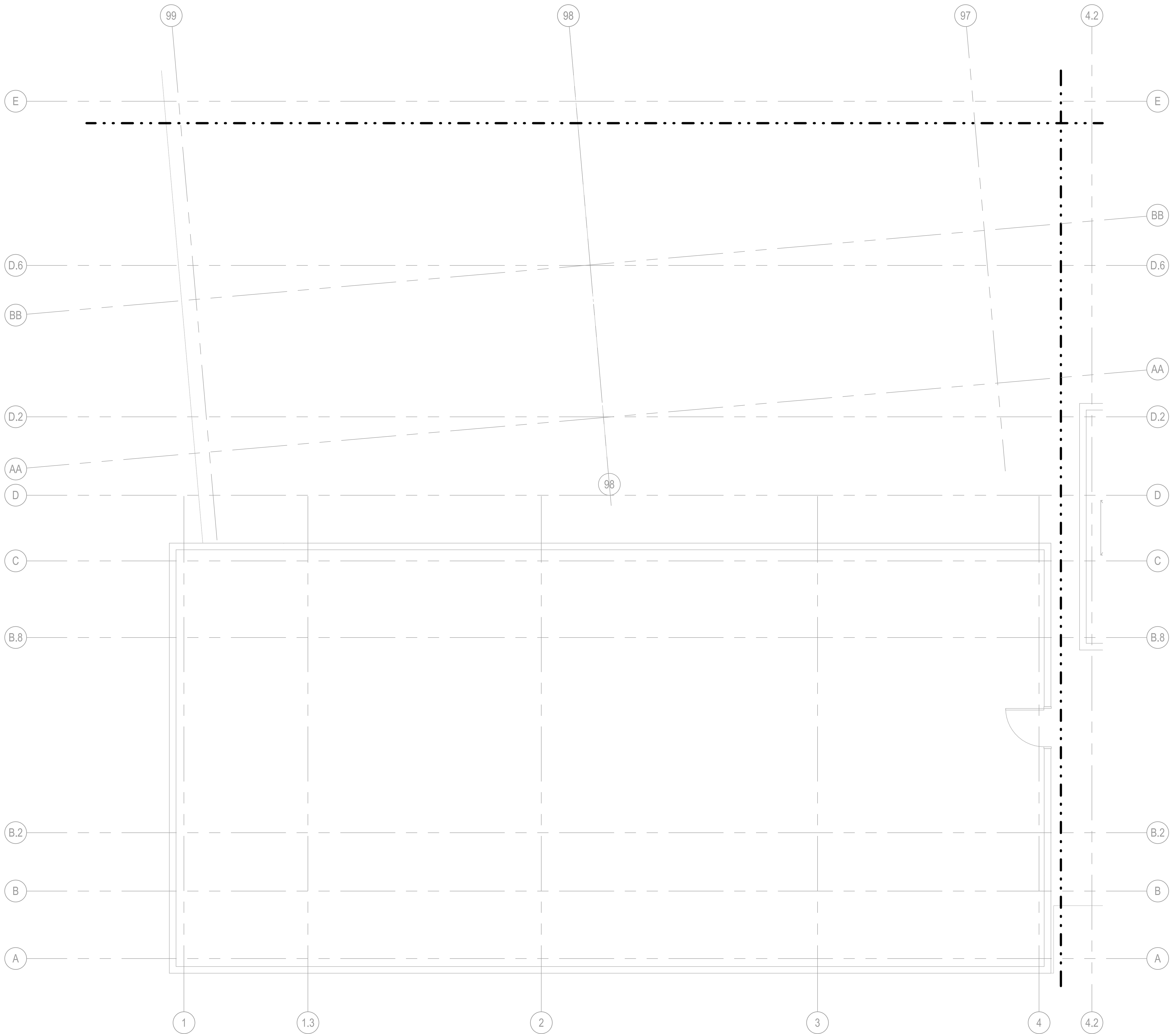
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DEMOLITION
PLAN - ROOF -
AREA C**

Sheet Number
MD2.03C



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SCALE: 1/4" = 1'-0"





1 ROOF - HVAC DEMOLITION PLAN - AREA D
SCALE: 1/4" = 1'-0"

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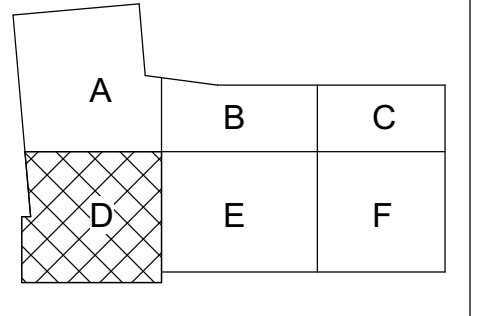
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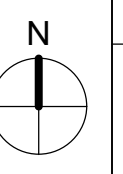
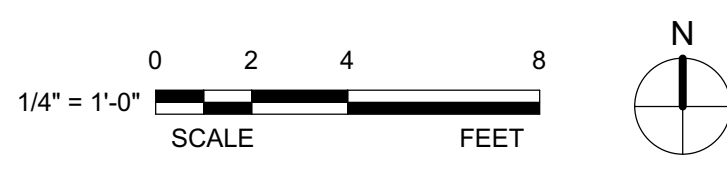
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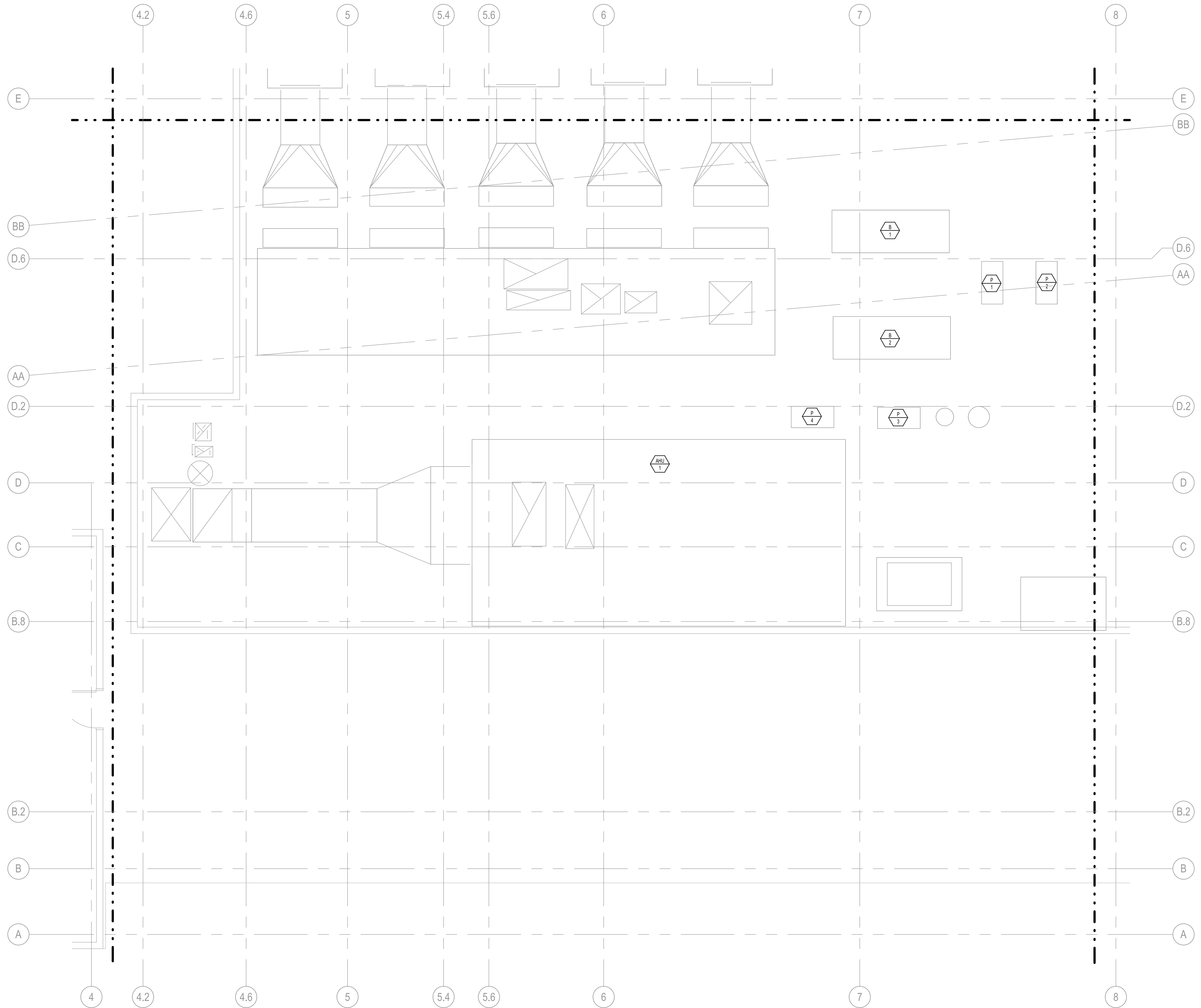
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Sheet Title
**HVAC
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 PLAN - ROOF -
 AREA D**

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MD2.03D





1 ROOF - HVAC DEMOLITION PLAN - AREA E
SCALE: 1/4" = 1'-0"

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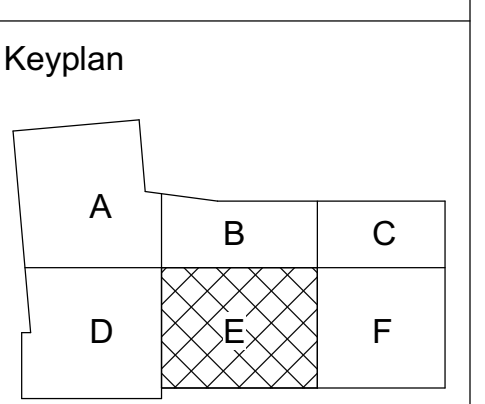
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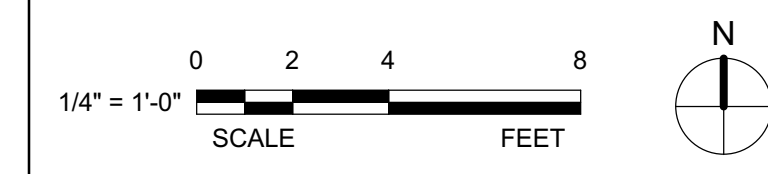
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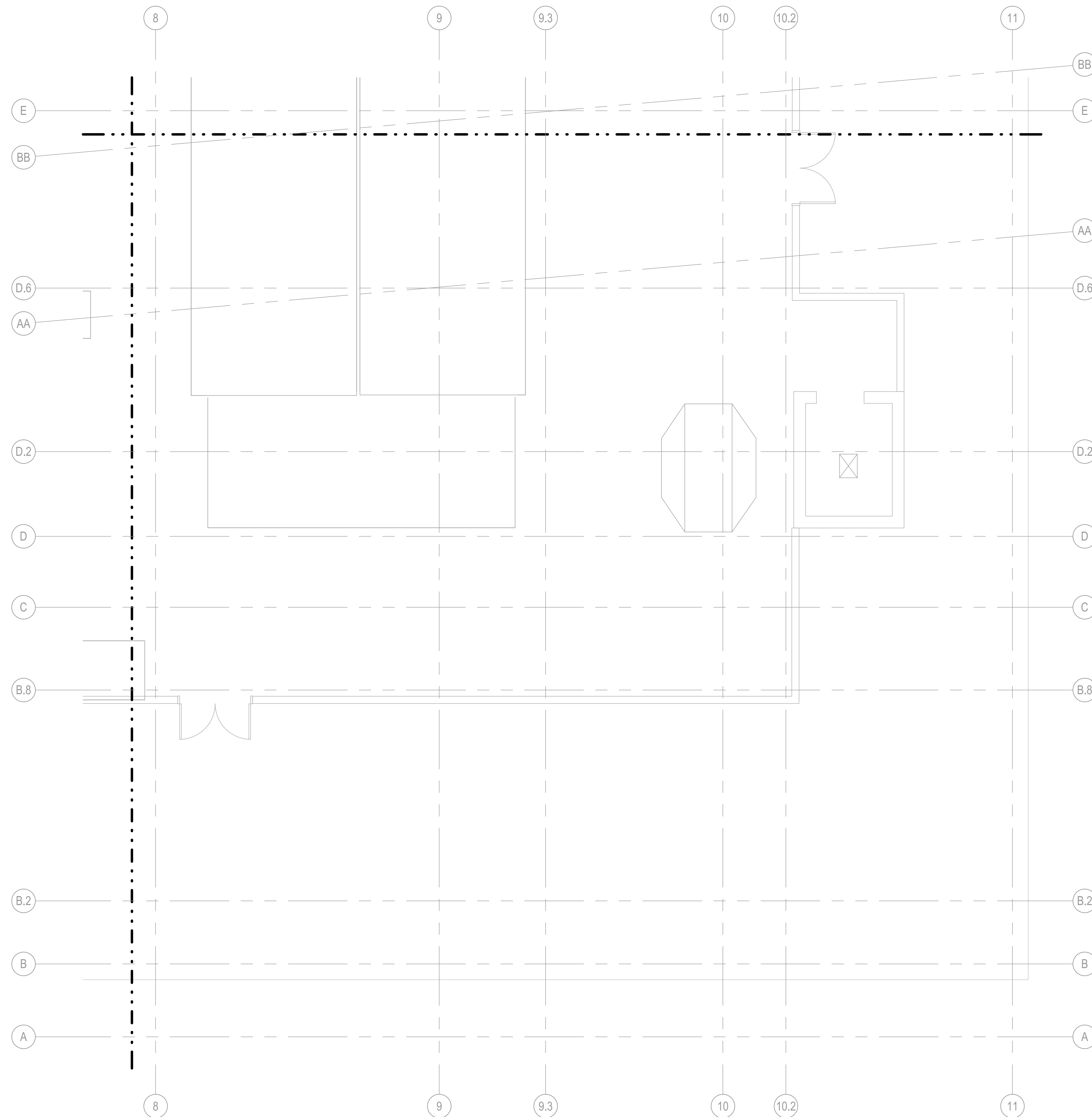
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1 ROOF - HVAC DEMOLITION PLAN - AREA F
SCALE: 1/4" = 1'-0"

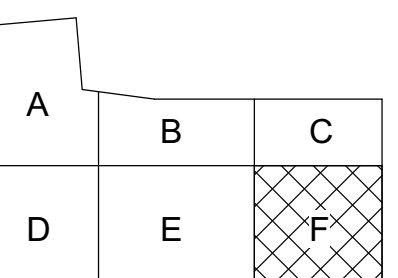
KEYNOTES

PROGRESS SET
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Issuance and Revisions

Rev	Date	Description

Keyplan



Project Title

**POLICE CRIME LAB
AUTOMATION SYSTEM
REPLACEMENT**

621 W WASHINGTON ST.
PHOENIX, AZ 85007

City of Phoenix Project Number:
PW26480024-1



City of Phoenix

Project Number
23457-00

Date Issued 04/25/23 Scale 1/4" = 1'-0"

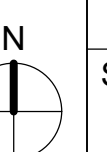
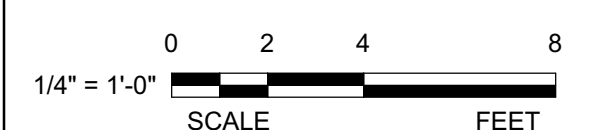
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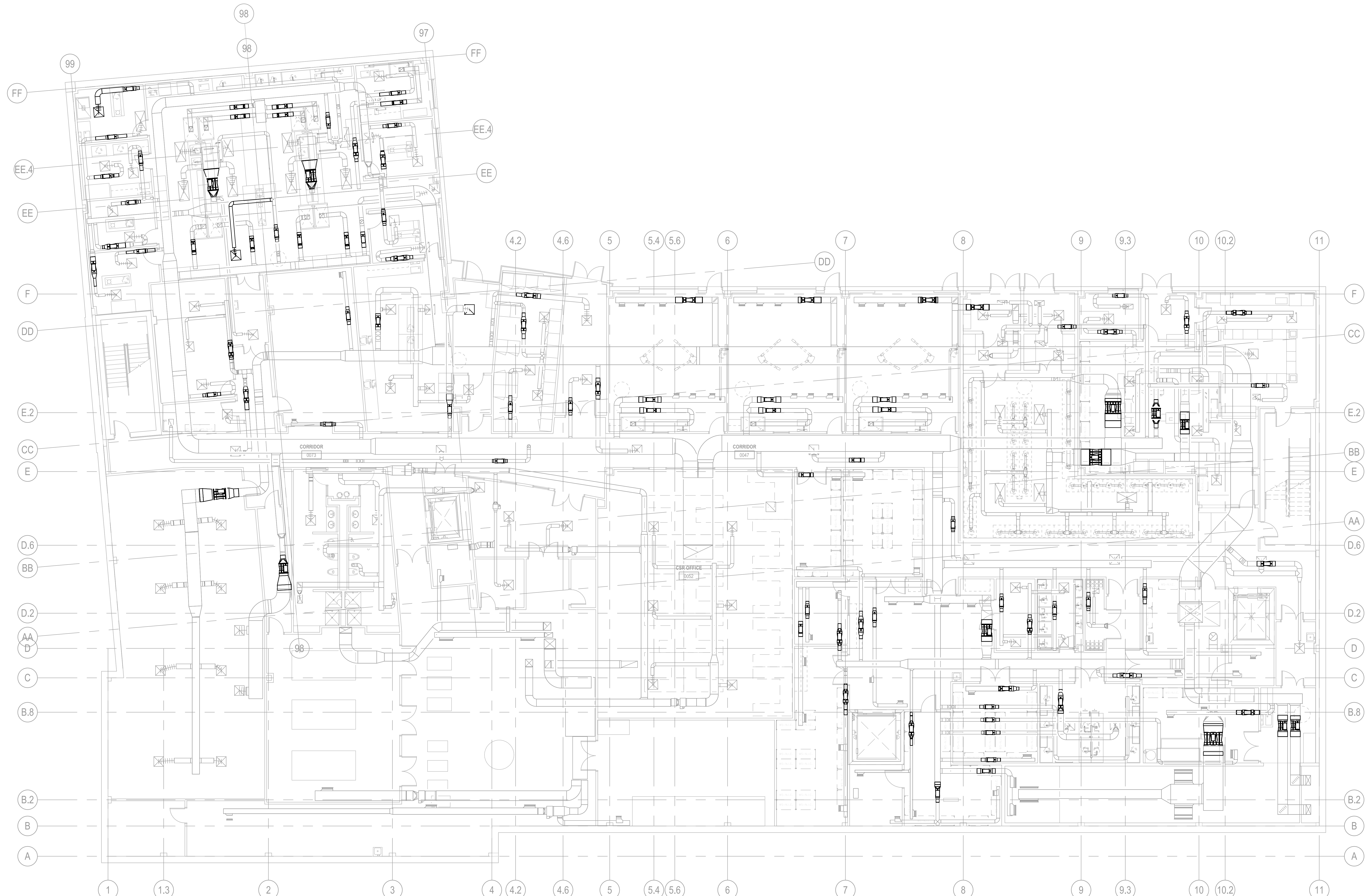
**HVAC
DEMOLITION
PLAN - ROOF -
AREA F**

Sheet Number

MD2.03F



1. OVERALL PLANS SHOWN FOR REFERENCE. REFER TO ENLARGED AREA PLANS FOR MORE INFORMATION.



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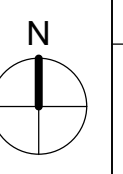


Project Number
23457-00
Date Issued
04/25/23
Scale
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Author
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Checker

Sheet Title
**HVAC PLAN -
BASEMENT -
OVERALL**

Sheet Number
M2.00

1 BASEMENT - HVAC PLAN - OVERALL
SCALE: 1/8" = 1'-0"



GENERAL NOTES

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- DIFFUSERS/GRILLES WITHIN GYPSUM CEILINGS SHALL BE ALIGNED WITH OTHER CEILING MOUNTED DEVICES. COORDINATE FINAL LOCATION PER ARCHITECTURAL DRAWINGS.
- PROVIDE BALANCING DAMPERS FOR ALL INLETS/OUTLETS. DIFFUSERS IN GYPSUM OR OTHER INACCESSIBLE CEILING TYPES SHALL HAVE REMOTE TYPE BALANCING DAMPERS ACCESSIBLE VIA FACE OF DIFFUSER.

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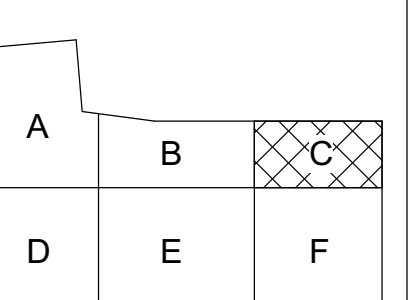
Issuance and Revisions

Rev	Date	Description
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KEYNOTES

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- EXISTING FUME HOOD EXHAUST.
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- EXISTING 2" EXHAUST TO VENTED CABINET (20CFM).
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- EXISTING 6" EXHAUST TO DRYING CABINET (100CFM).
- ONCE AIR VALVES HAVE BEEN INSTALLED, REBALANCE ALL ASSOCIATED EXISTING DIFFUSERS TO NEW VALVES AS INDICATED.
- VERIFY (5) EXISTING SUPPLY DIFFUSERS. VERIFY NECK SIZE CAN REACH 610 CFM EACH AND REBALANCE.

Keyplan



Project Title

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AUTOMATION SYSTEM
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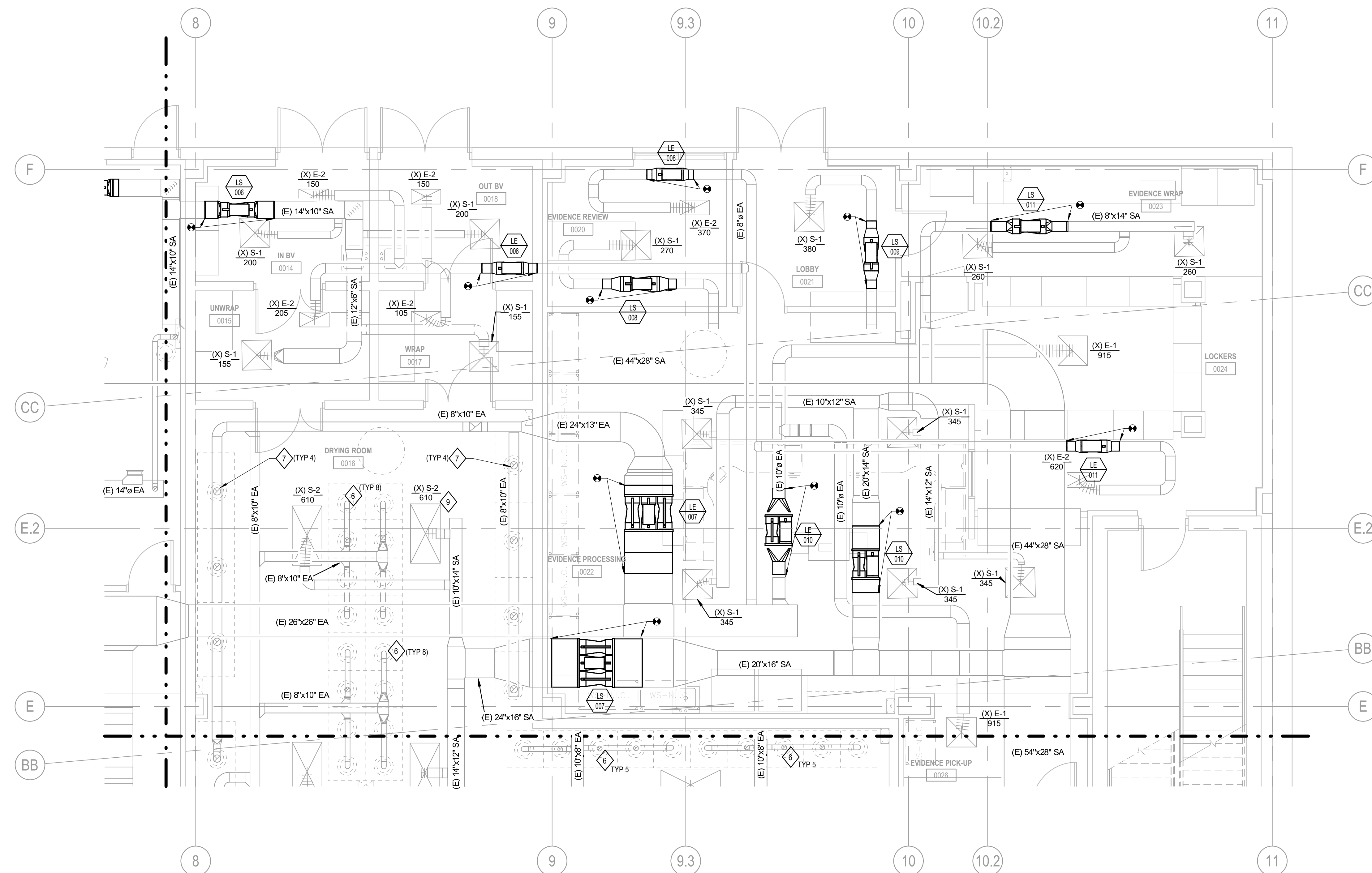
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Drawn By
Author

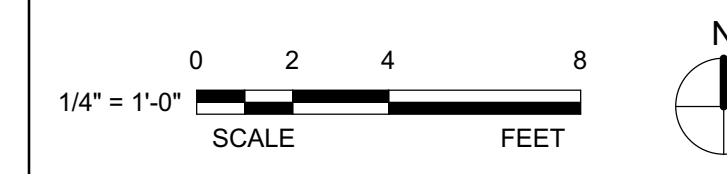
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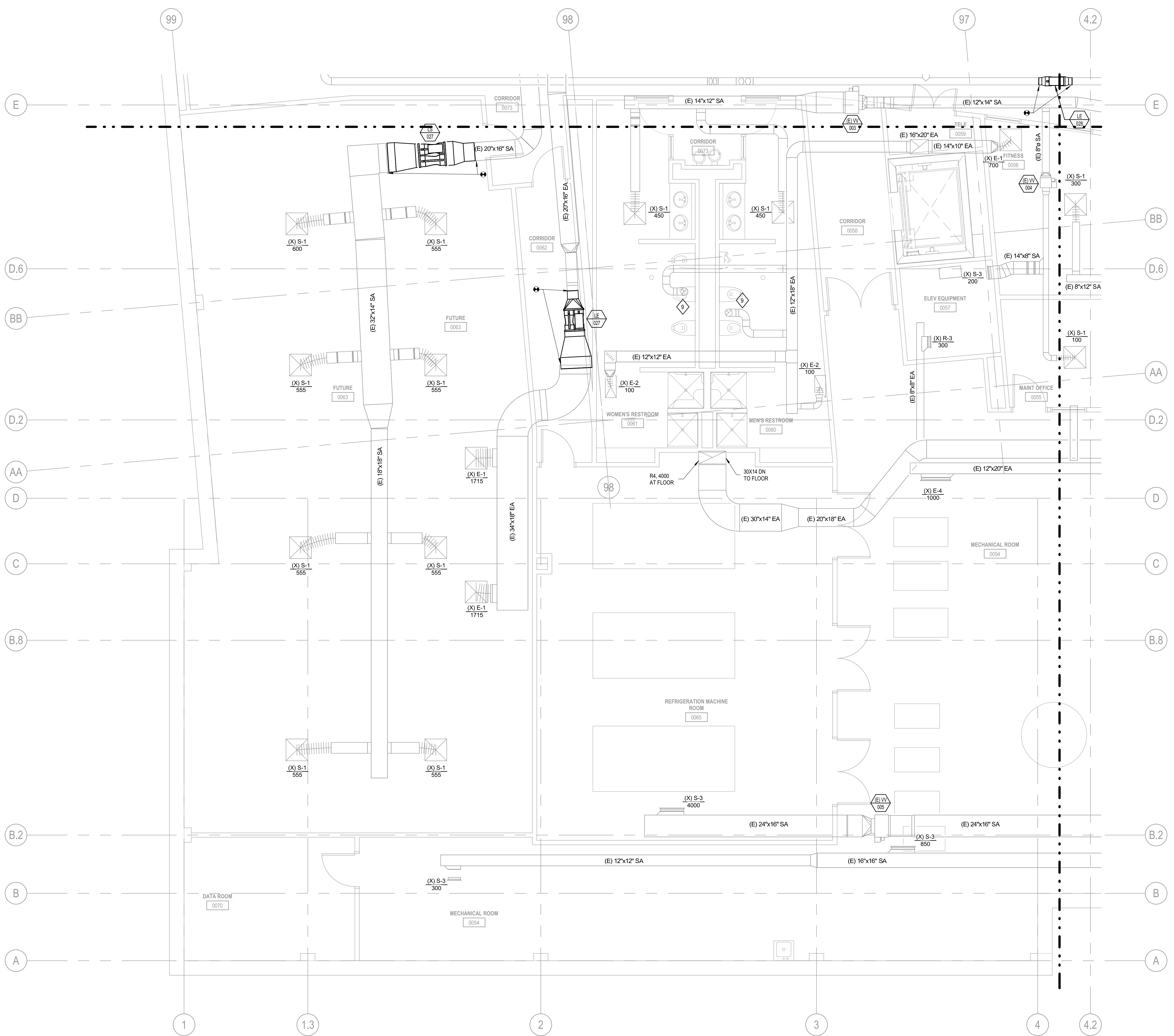
Sheet Title
**HVAC PLAN -
BASEMENT -
AREA C**

Sheet Number
M2.00C



1 BASEMENT - HVAC PLAN - AREA C
SCALE: 1/4" = 1'-0"





1 BASEMENT - HVAC PLAN - AREA D
SCALE: 1/4" = 1'-0"

GENERAL NOTES

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KEYNOTES

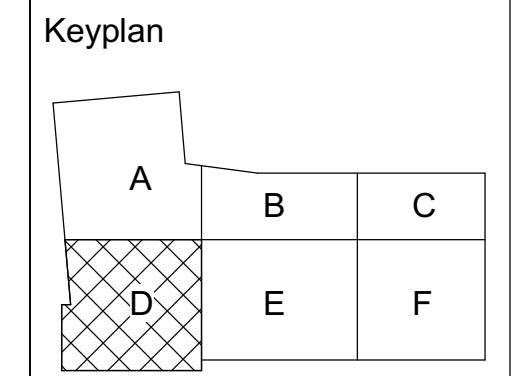
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- ONCE AIR VALVES HAVE BEEN INSTALLED, REBALANCE ALL ASSOCIATED EXISTING DIFFUSERS TO NEW VALVES AS INDICATED.
- EXISTING 550 CFM LIGHT COVE EXHAUST OPENING



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Issuance and Revisions

Rev	Date	Description



Project Title
**POLICE CRIME LAB
AUTOMATION SYSTEM
REPLACEMENT**

621 W WASHINGTON ST.
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City of Phoenix Project Number:
PW26480024-1



Project Number
23457-00

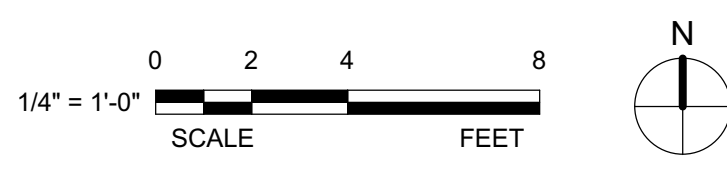
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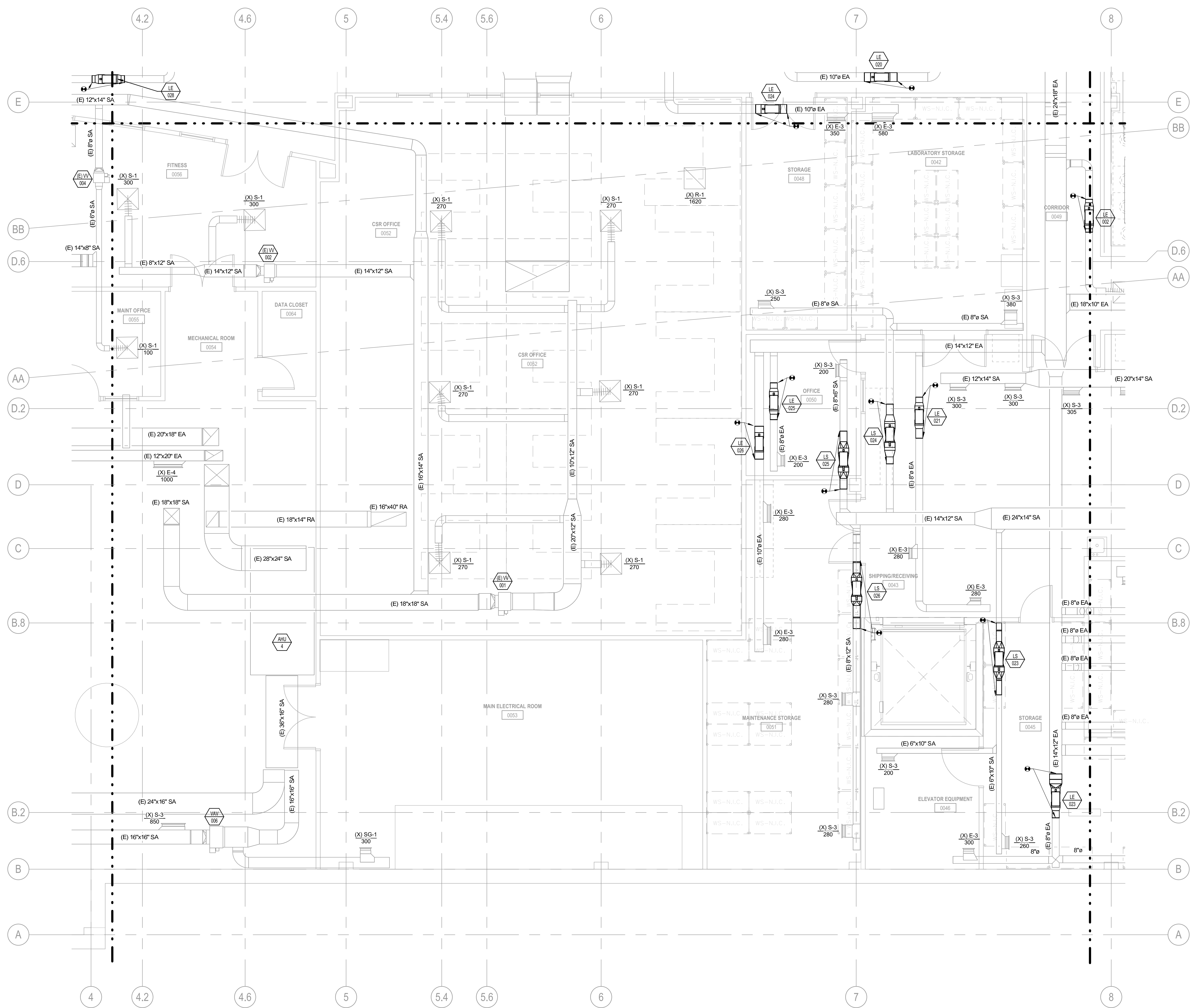
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Author

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Sheet Title
**HVAC PLAN -
BASEMENT -
AREA D**



Sheet Number
M2.00D



1 BASEMENT - HVAC PLAN - AREA E
SCALE: 1/4" = 1'-0"

GENERAL NOTES

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KEYNOTES

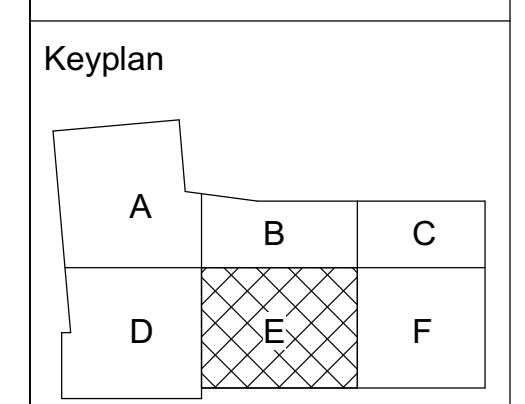
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Rev	Date	Description



Project Title
**POLICE CRIME LAB
AUTOMATION SYSTEM
REPLACEMENT**

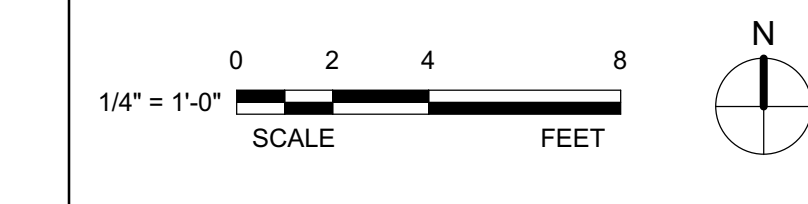
621 W WASHINGTON ST.
PHOENIX, AZ 85007
City of Phoenix Project Number:
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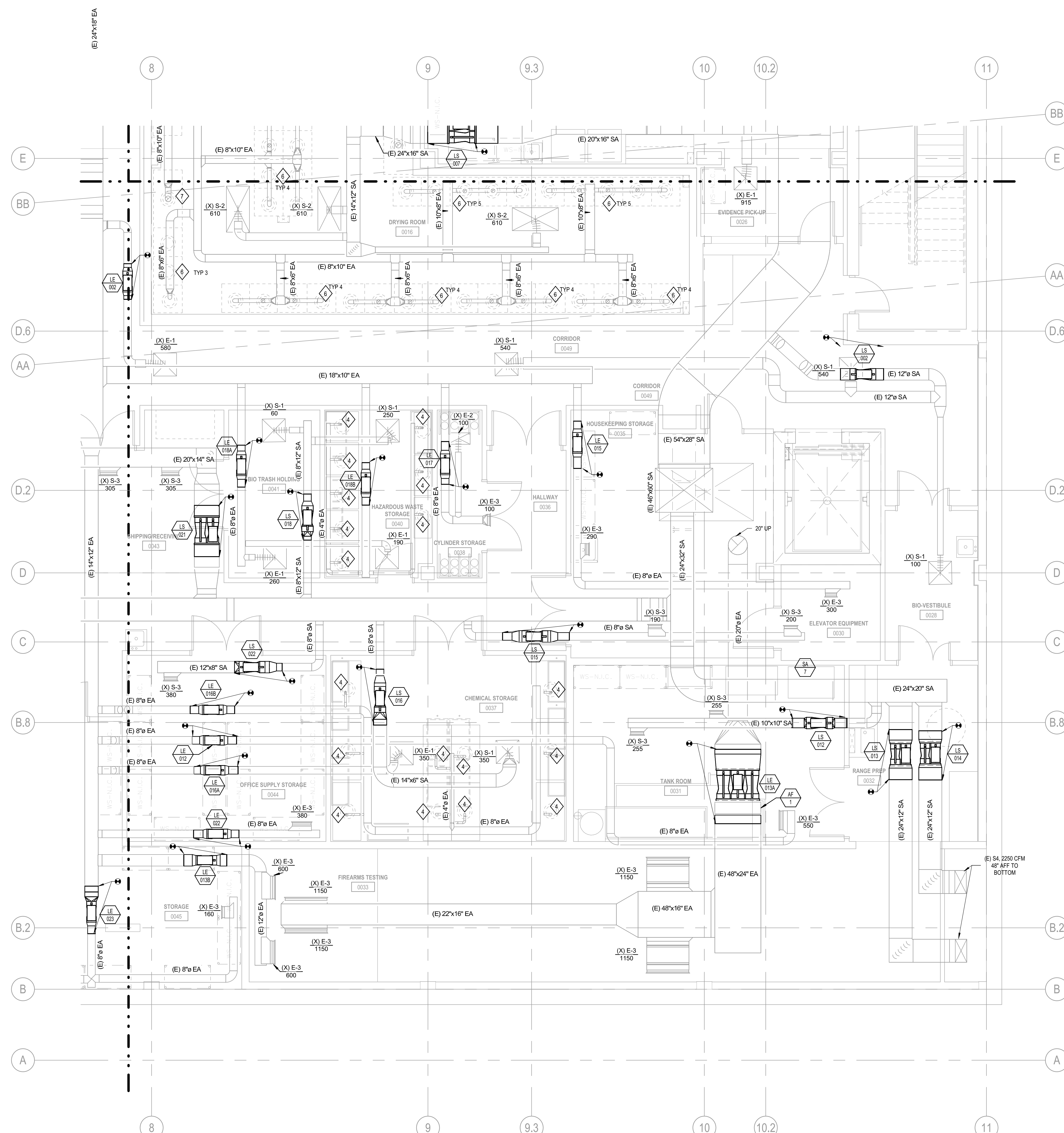


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Sheet Title
**HVAC PLAN -
BASEMENT -
AREA E**

Sheet Number
M2.00E





1 BASEMENT - HVAC PLAN - AREA F
SCALE: 1/4" = 1'-0"

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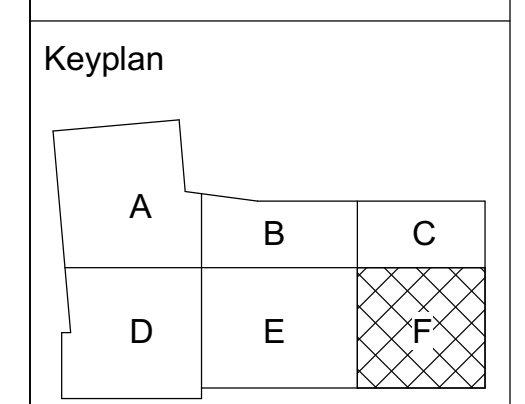
AEI Affiliated Engineers
Affiliated Engineers Inc.
4742 N. 24th Street, Suite 100
Phoenix, Arizona 85016
Tel 602-429-5800 Fax 602-783-5424
AEI Project No.: 23457-00

ZGF
ZGF ARCHITECTS LLP

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Project Title
**POLICE CRIME LAB
AUTOMATION SYSTEM
REPLACEMENT**

621 W WASHINGTON ST.
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City of Phoenix Project Number:
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Project Number
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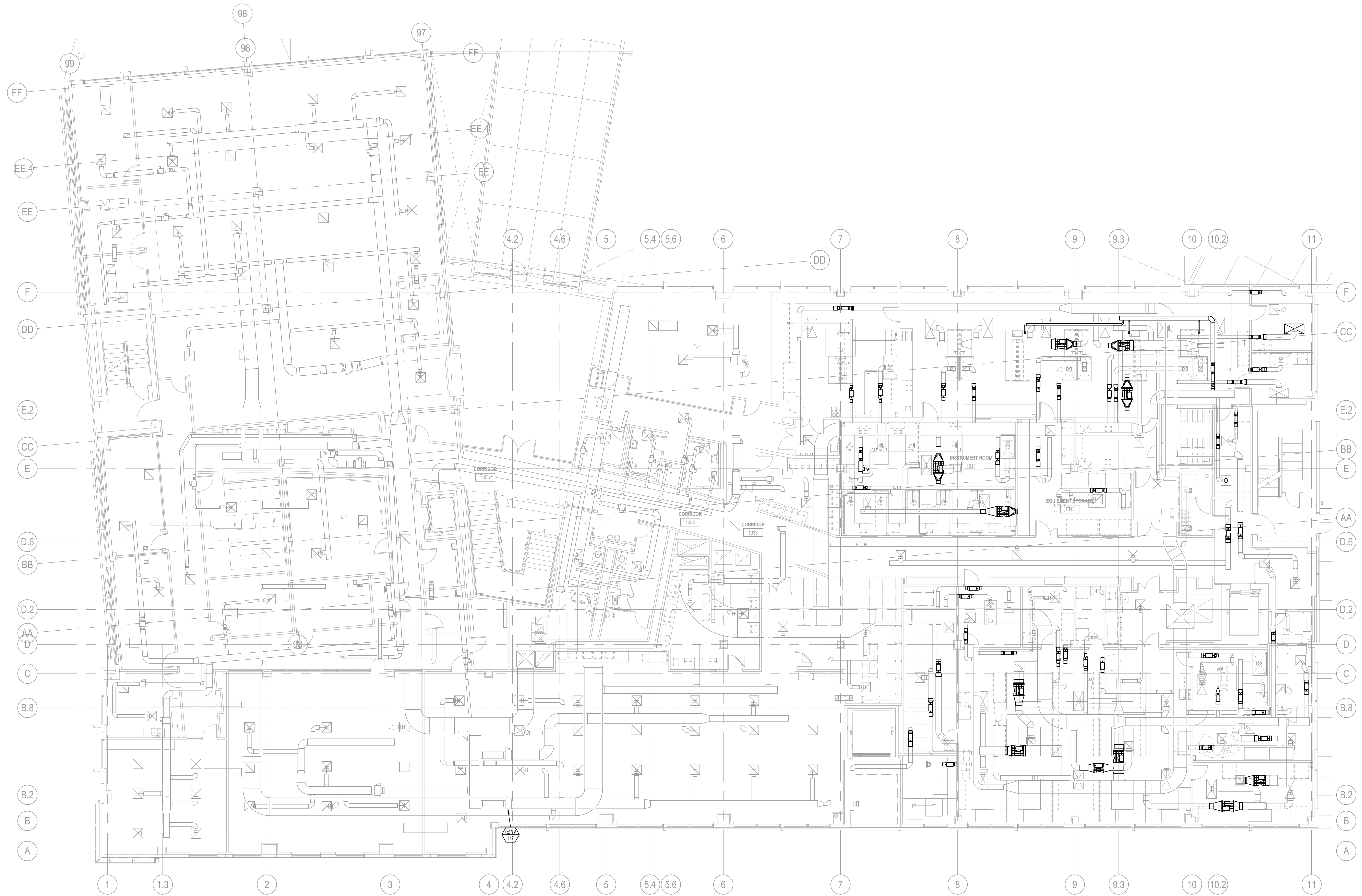
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Sheet Title
**HVAC PLAN -
BASEMENT -
AREA F**

Sheet Number
M2.00F



1. OVERALL PLANS SHOWN FOR REFERENCE. REFER TO ENLARGED AREA PLANS FOR MORE INFORMATION.



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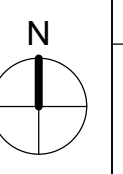


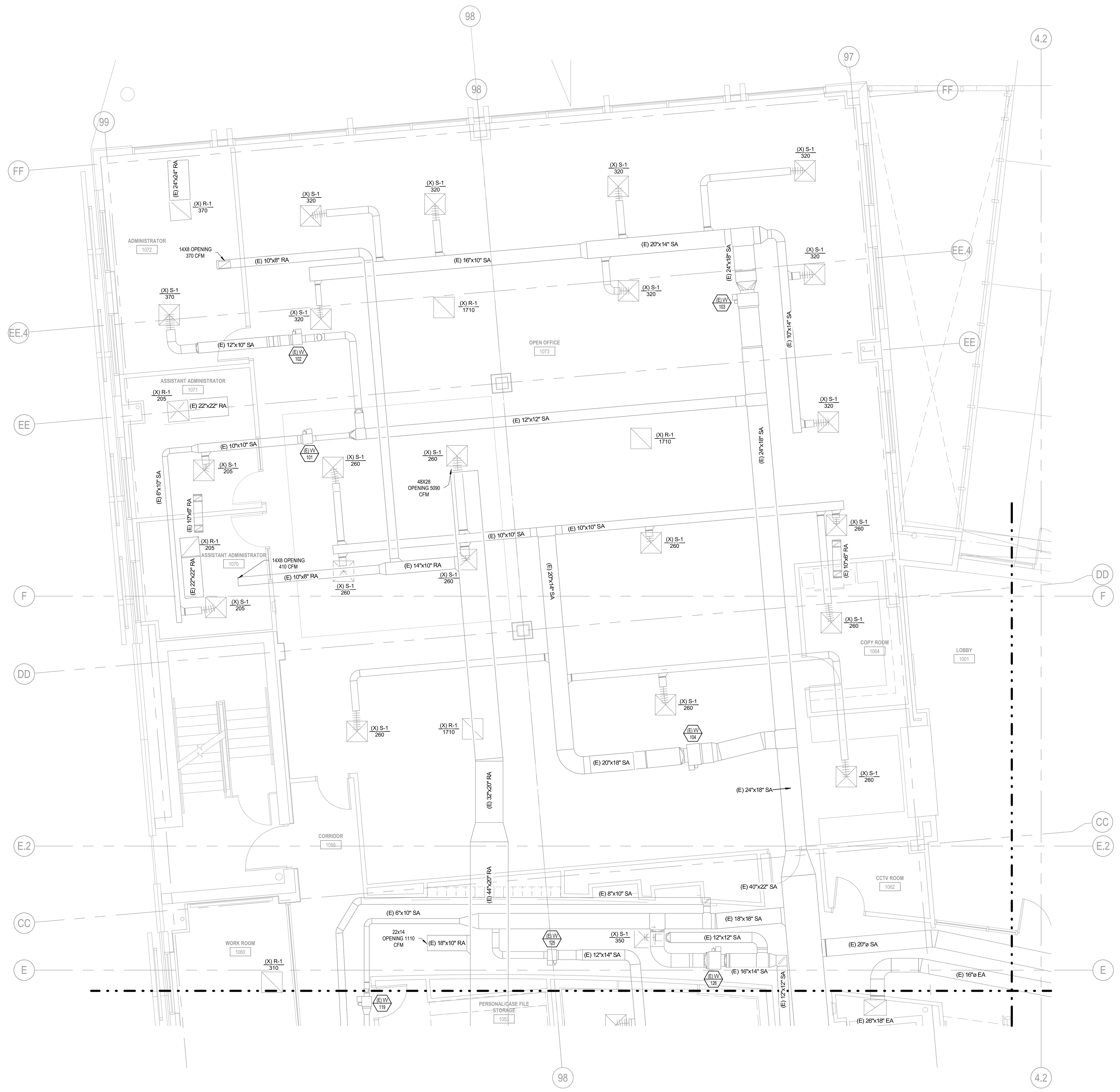
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Author
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Sheet Title
**HVAC PLAN -
LEVEL 1 -
OVERALL**

Sheet Number
M2.01

1 LEVEL 1 - HVAC PLAN - OVERALL
SCALE: 1/8" = 1'-0"





1 LEVEL 1 - HVAC PLAN - AREA A
SCALE: 1/4" = 1'-0"

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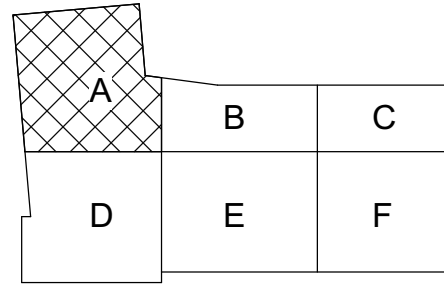
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Project Title

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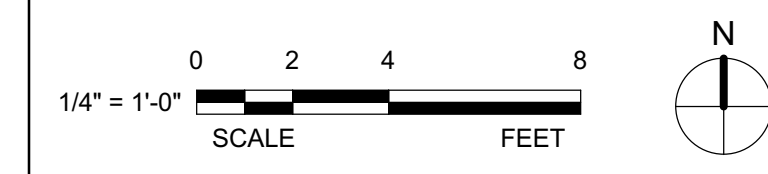
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Author

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Sheet Title
**HVAC PLAN -
LEVEL 1 - AREA A**

Sheet Number
M2.01A



GENERAL NOTES

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- DUCT SIZE TO DIFFUSERS, REGISTERS AND GRILLES SHALL BE SAME AS NECK SIZE UNLESS OTHERWISE NOTED.
- DIFFUSERS/GRILLES WITHIN GYPSUM CEILINGS SHALL BE ALIGNED WITH OTHER CEILING MOUNTED DEVICES. COORDINATE FINAL LOCATION PER ARCHITECTURAL DRAWINGS.
- PROVIDE BALANCING DAMPERS FOR ALL INLETS/OUTLETS. DIFFUSERS IN GYPSUM OR OTHER INACCESSIBLE CEILING TYPES SHALL HAVE REMOTE TYPE BALANCING DAMPERS ACCESSIBLE VIA FACE OF DIFFUSER.



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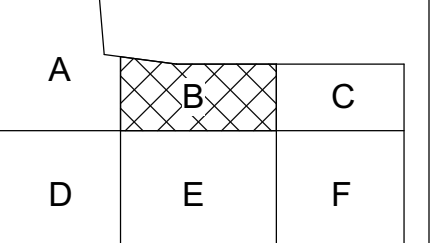
Issuance and Revisions

Rev	Date	Description
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KEYNOTES

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Keyplan



Project Title
**POLICE CRIME LAB
AUTOMATION SYSTEM
REPLACEMENT**

621 W WASHINGTON ST.
PHOENIX, AZ 85007

City of Phoenix Project Number:
PW26480024-1



City of Phoenix

Project Number
23457-00

Date Issued
04/25/23

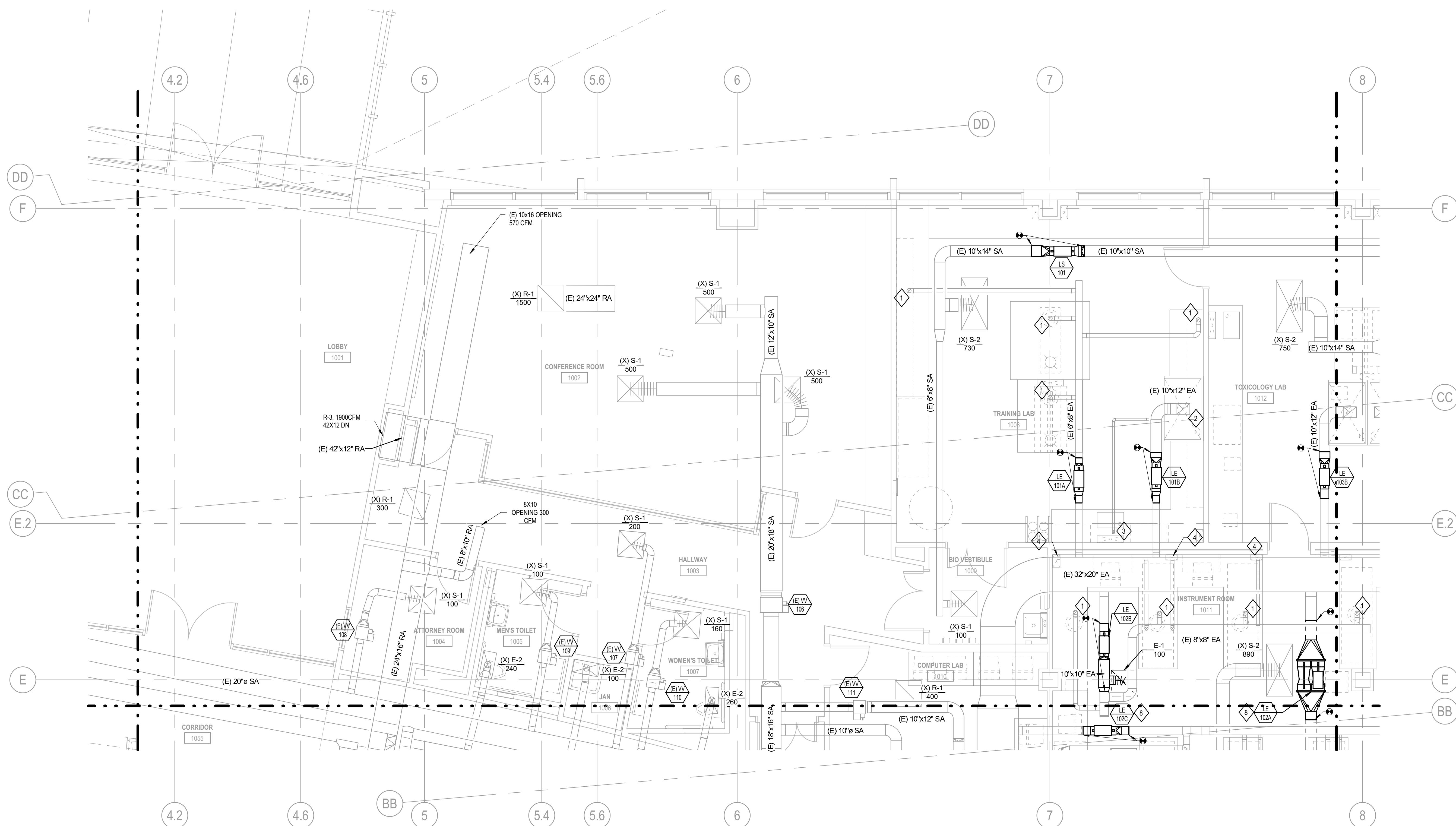
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Drawn By
Author

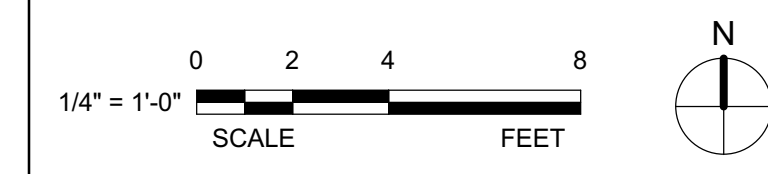
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Sheet Title
**HVAC PLAN -
LEVEL 1 - AREA B**

Sheet Number
M2.01B



1 LEVEL 1 - HVAC PLAN - AREA B
SCALE: 1/4" = 1'-0"



GENERAL NOTES

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PROGRESS SET
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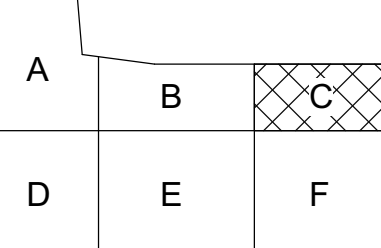
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Rev	Date	Description

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- EXISTING 6" EXHAUST TO DRYING CABINET (100CFM).
- ONCE AIR VALVES HAVE BEEN INSTALLED, REBALANCE ALL ASSOCIATED EXISTING DIFFUSERS TO NEW VALVES AS INDICATED.
- CONNECTION TO NEW 3" SNORKEL EXHAUST, 50 CFM. PROVIDE VOLUME DAMPER AND TRANSITION FROM 4" EA DUCT TO 3" SNORKEL CONNECTION ABOVE CEILING.

Keyplan



Project Title

**POLICE CRIME LAB
AUTOMATION SYSTEM
REPLACEMENT**

621 W WASHINGTON ST.
PHOENIX, AZ 85007

City of Phoenix Project Number:
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City of Phoenix

Project Number
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Scale
1/4" = 1'-0"

Drawn By
Author

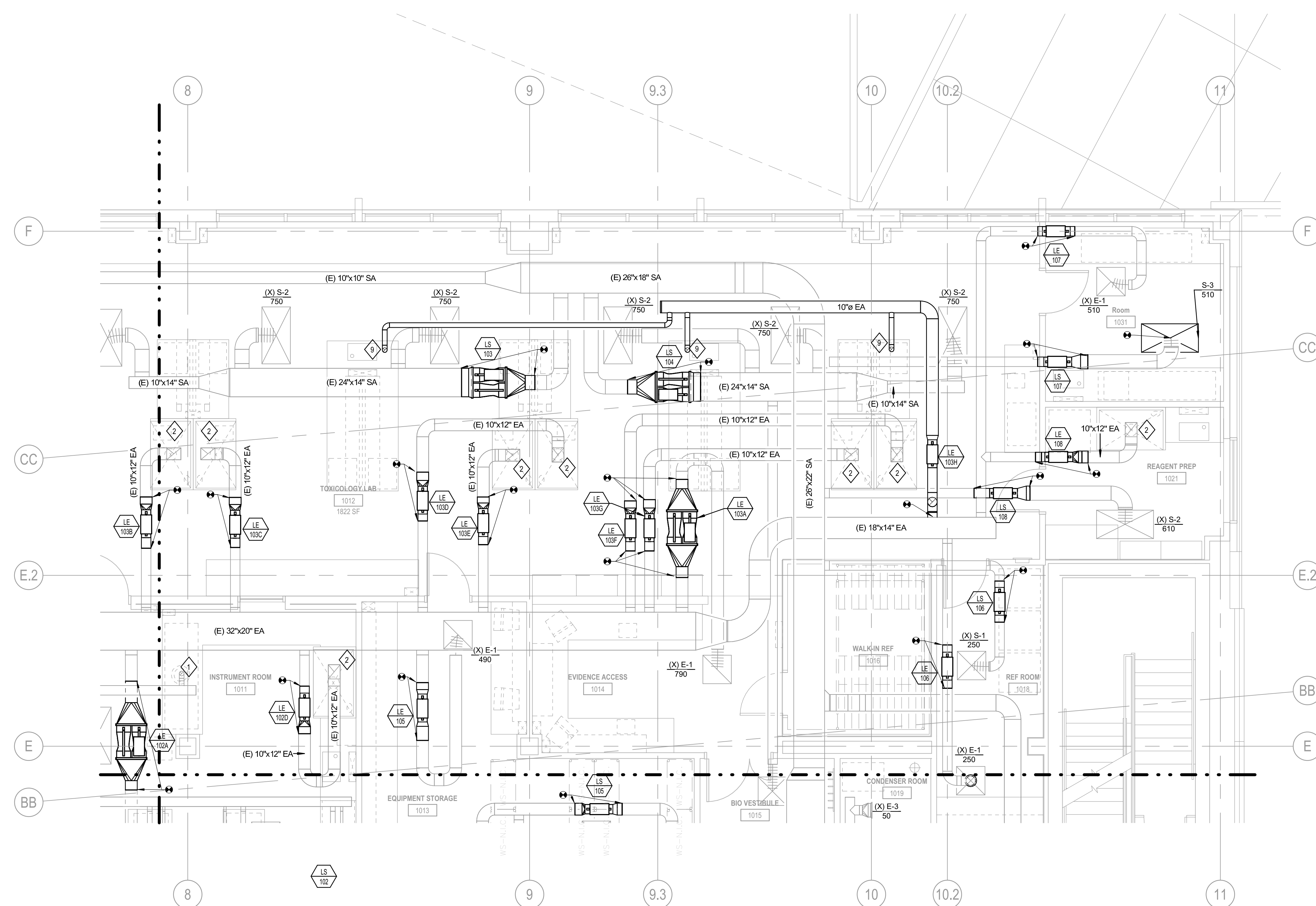
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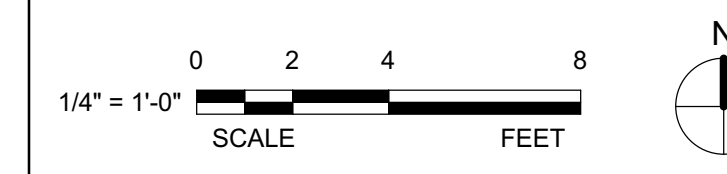
**HVAC PLAN -
LEVEL 1 - AREA C**

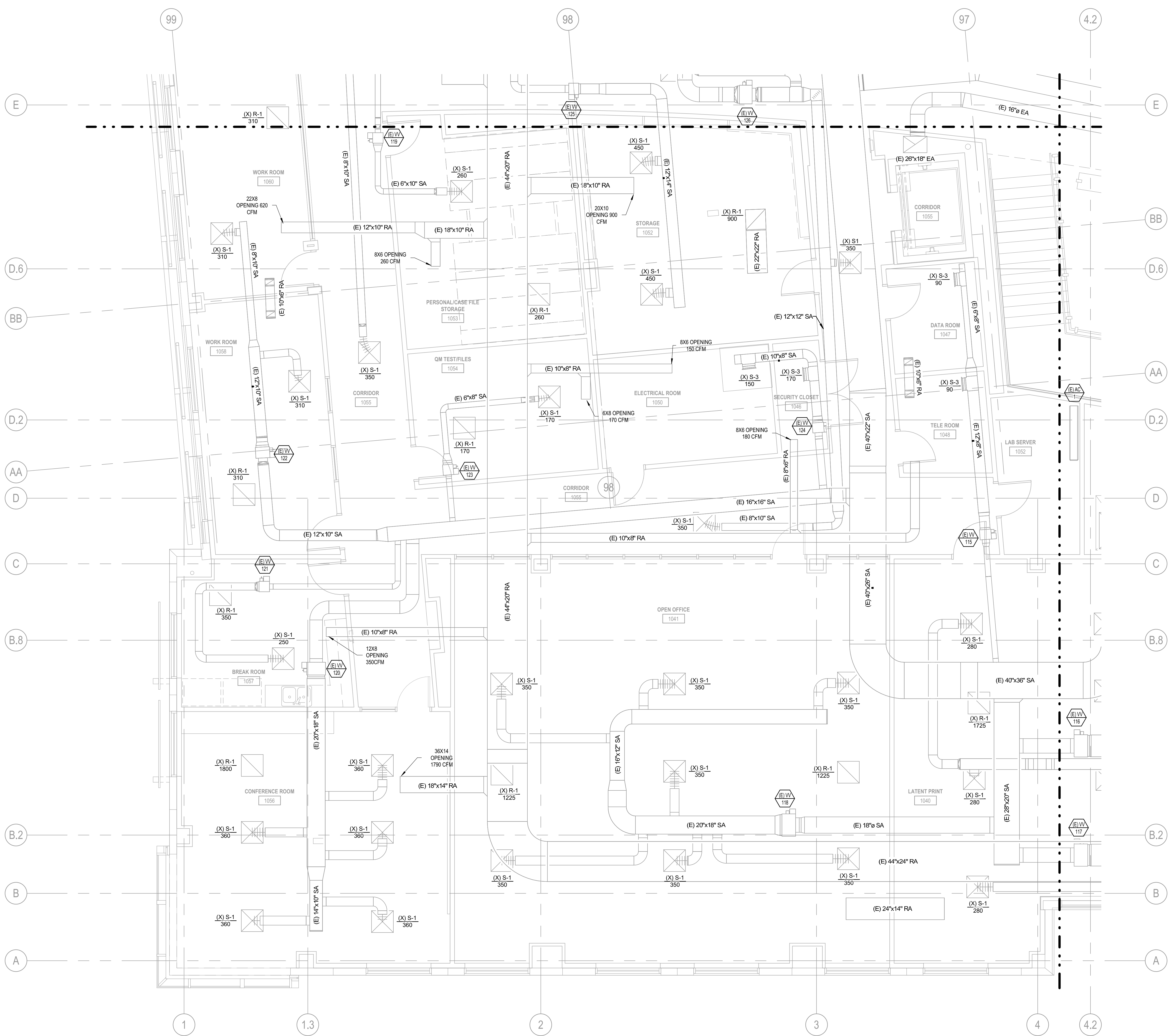
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1 LEVEL 1 - HVAC PLAN - AREA C
SCALE: 1/4" = 1'-0"





1 LEVEL 1 - HVAC PLAN - AREA D
SCALE: 1/4" = 1'-0"

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KEYNOTES

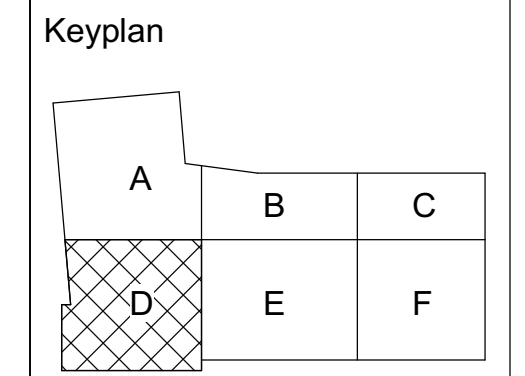
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Issuance and Revisions

Rev	Date	Description



Project Title
**POLICE CRIME LAB
AUTOMATION SYSTEM
REPLACEMENT**

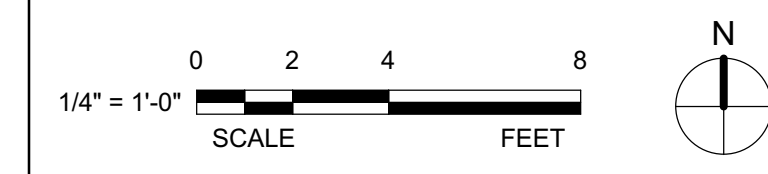
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PHOENIX, AZ 85007
City of Phoenix Project Number:
PW26480024-1

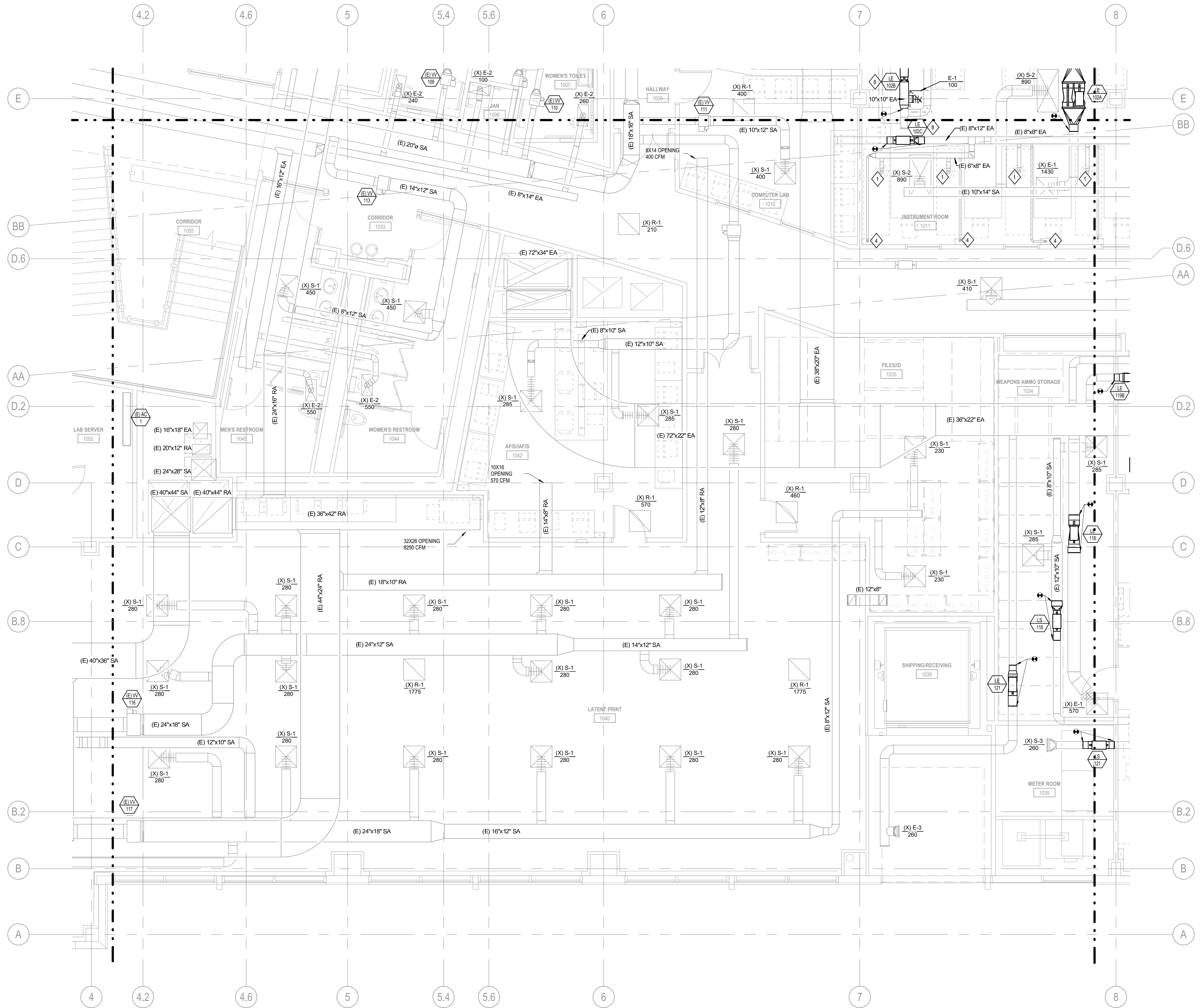


Project Number
23457-00
Date Issued
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Drawn By
Author
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Sheet Title
**HVAC PLAN -
LEVEL 1 - AREA D**

Sheet Number
M2.01D





1 LEVEL 1 - HVAC PLAN - AREA E
SCALE: 1/4" = 1'-0"

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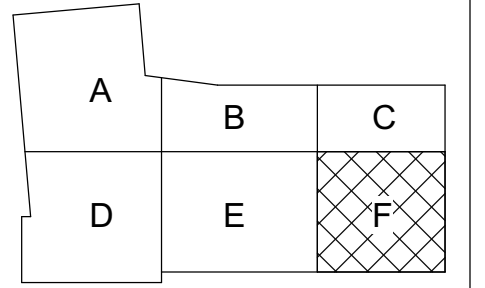


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Issuance and Revisions

Rev	Date	Description

Keyplan



Project Title

**POLICE CRIME LAB
AUTOMATION SYSTEM
REPLACEMENT**

621 W WASHINGTON ST.
PHOENIX, AZ 85007

City of Phoenix Project Number:
PW26480024-1



Project Number
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Date Issued
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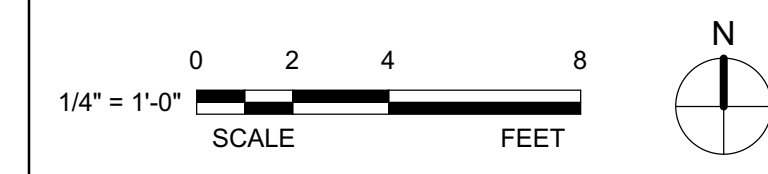
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Drawn By
Author

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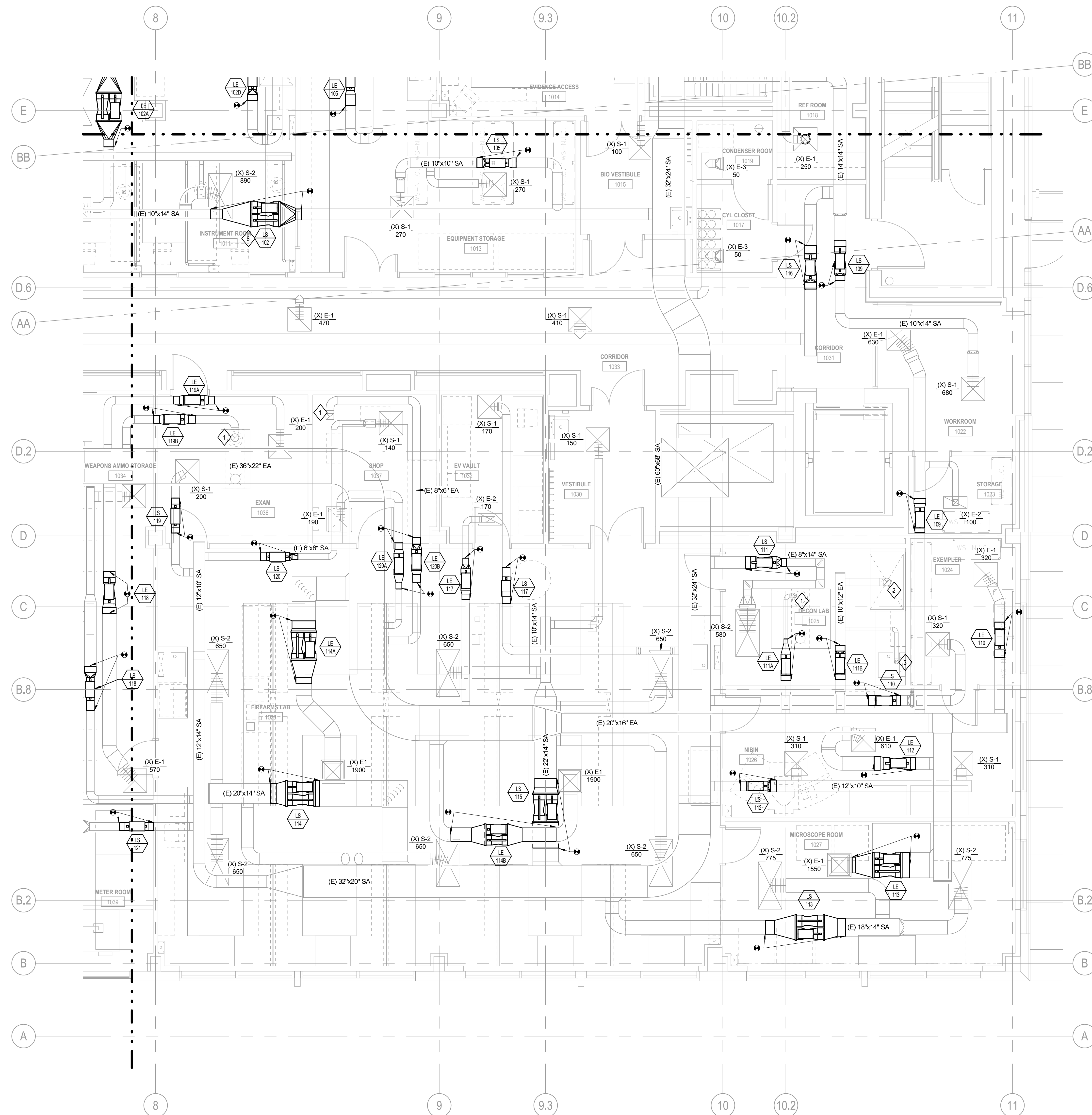
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**HVAC PLAN -
LEVEL 1 - AREA E**

Sheet Number
M2.01E



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1 LEVEL 1 - HVAC PLAN - AREA F
 SCALE: 1/4" = 1'-0"

KEYNOTES

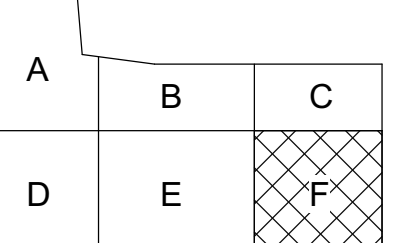
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Keyplan



Project Title

**POLICE CRIME LAB
 AUTOMATION SYSTEM
 REPLACEMENT**

621 W WASHINGTON ST.
 PHOENIX, AZ 85007

City of Phoenix Project Number:
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City of Phoenix

Project Number
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Date Issued
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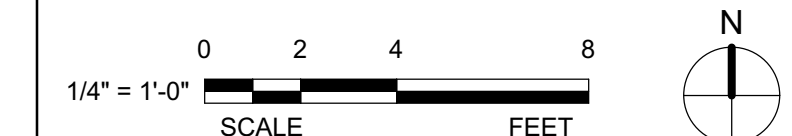
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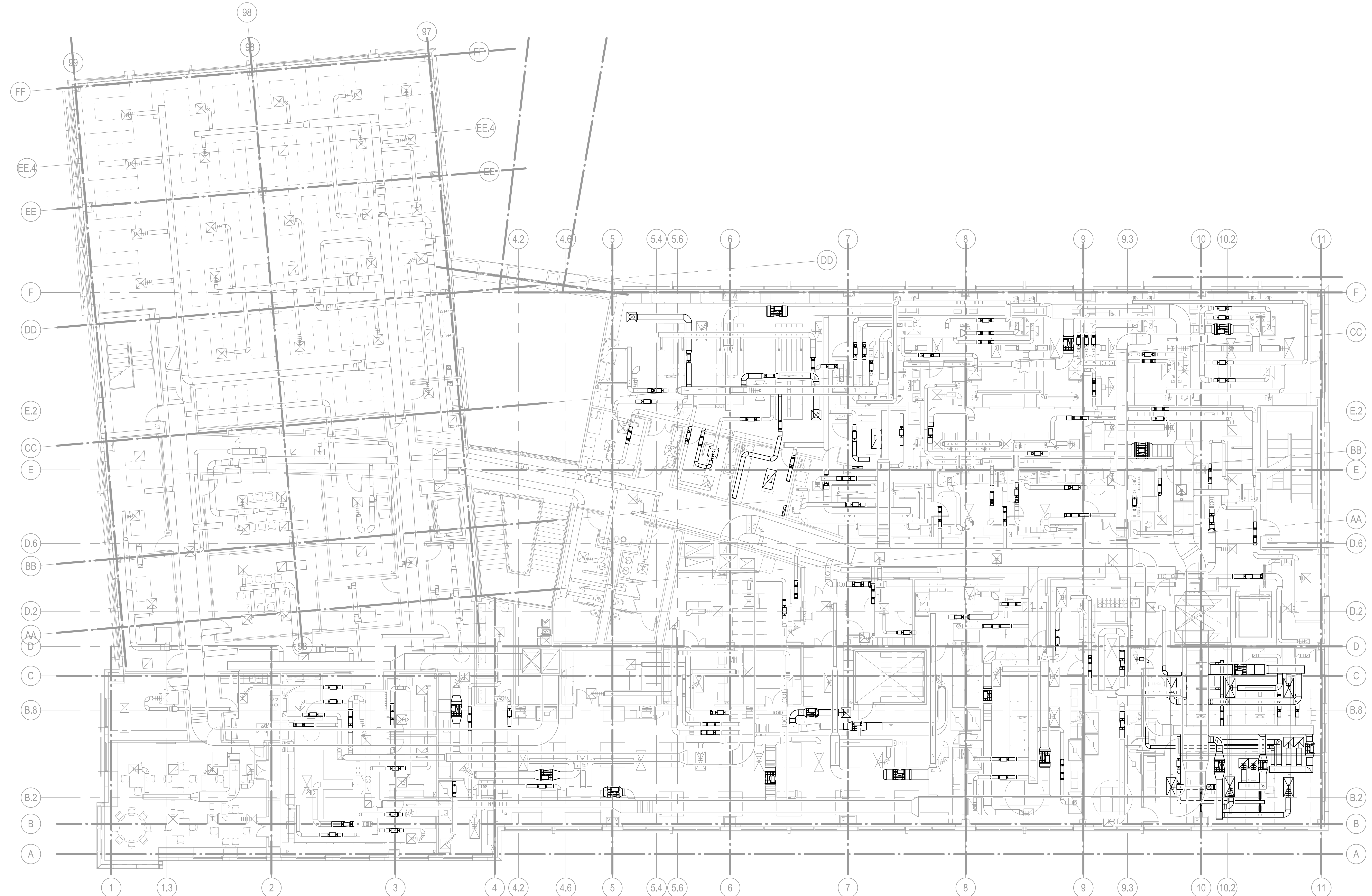
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 LEVEL 1 - AREA F**

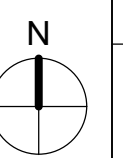
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1. OVERALL PLANS SHOWN FOR REFERENCE. REFER TO ENLARGED AREA PLANS FOR MORE INFORMATION.



1 LEVEL 2 - HVAC PLAN - OVERALL
SCALE: 1/8" = 1'-0"



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Project Title
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AUTOMATION SYSTEM
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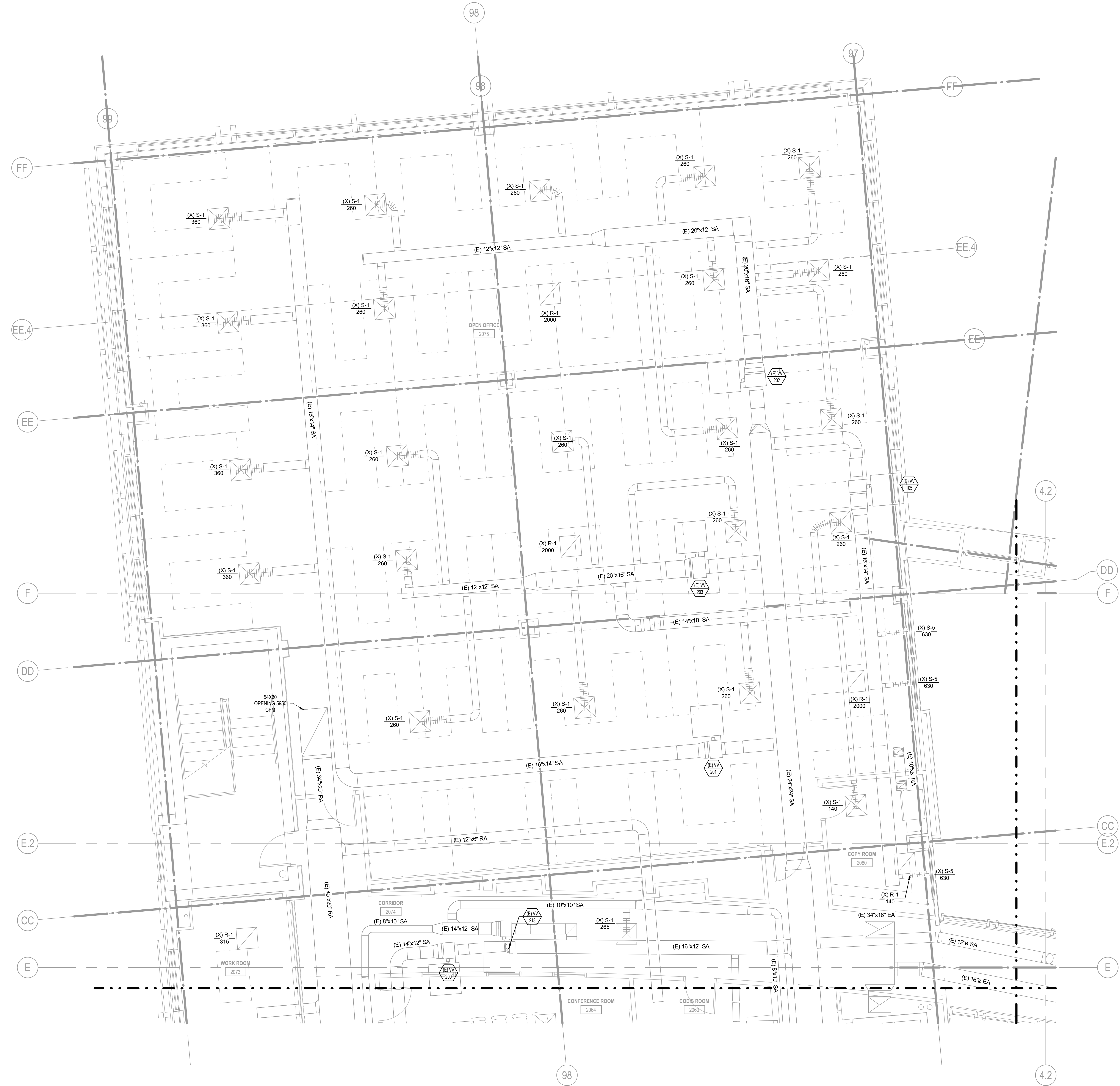


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Sheet Title
**HVAC PLAN -
LEVEL 2 -
OVERALL**

Sheet Number
M2.02



1 LEVEL 2 - HVAC PLAN - AREA A
SCALE: 1/4" = 1'-0"

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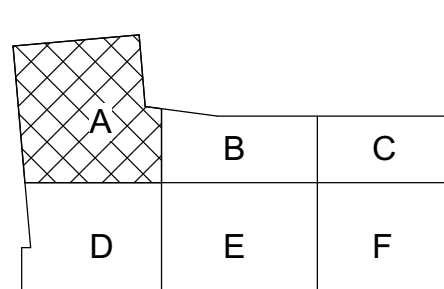
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Project Title
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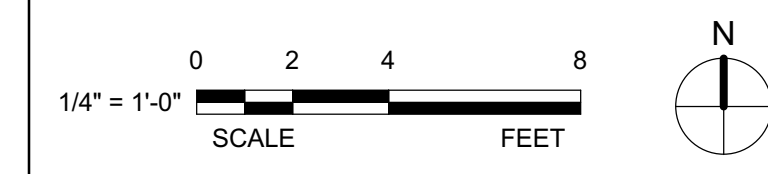
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 HVAC PLAN -
 LEVEL 2 - AREA A

Sheet Number
M2.02A



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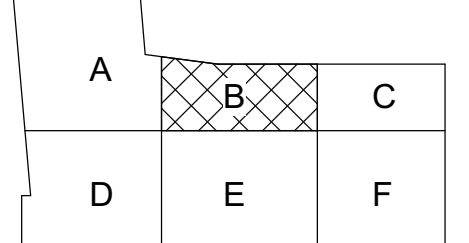
Issuance and Revisions

Rev	Date	Description
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KEYNOTES

- EXISTING 3" SNORKEL EXHAUST (60CFM).
- EXISTING FUME HOOD EXHAUST.
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Keyplan



Project Title

**POLICE CRIME LAB
AUTOMATION SYSTEM
REPLACEMENT**

621 W WASHINGTON ST.
PHOENIX, AZ 85007

City of Phoenix Project Number:
PW26480024-1



City of Phoenix

Project Number
23457-00

Date Issued
04/25/23

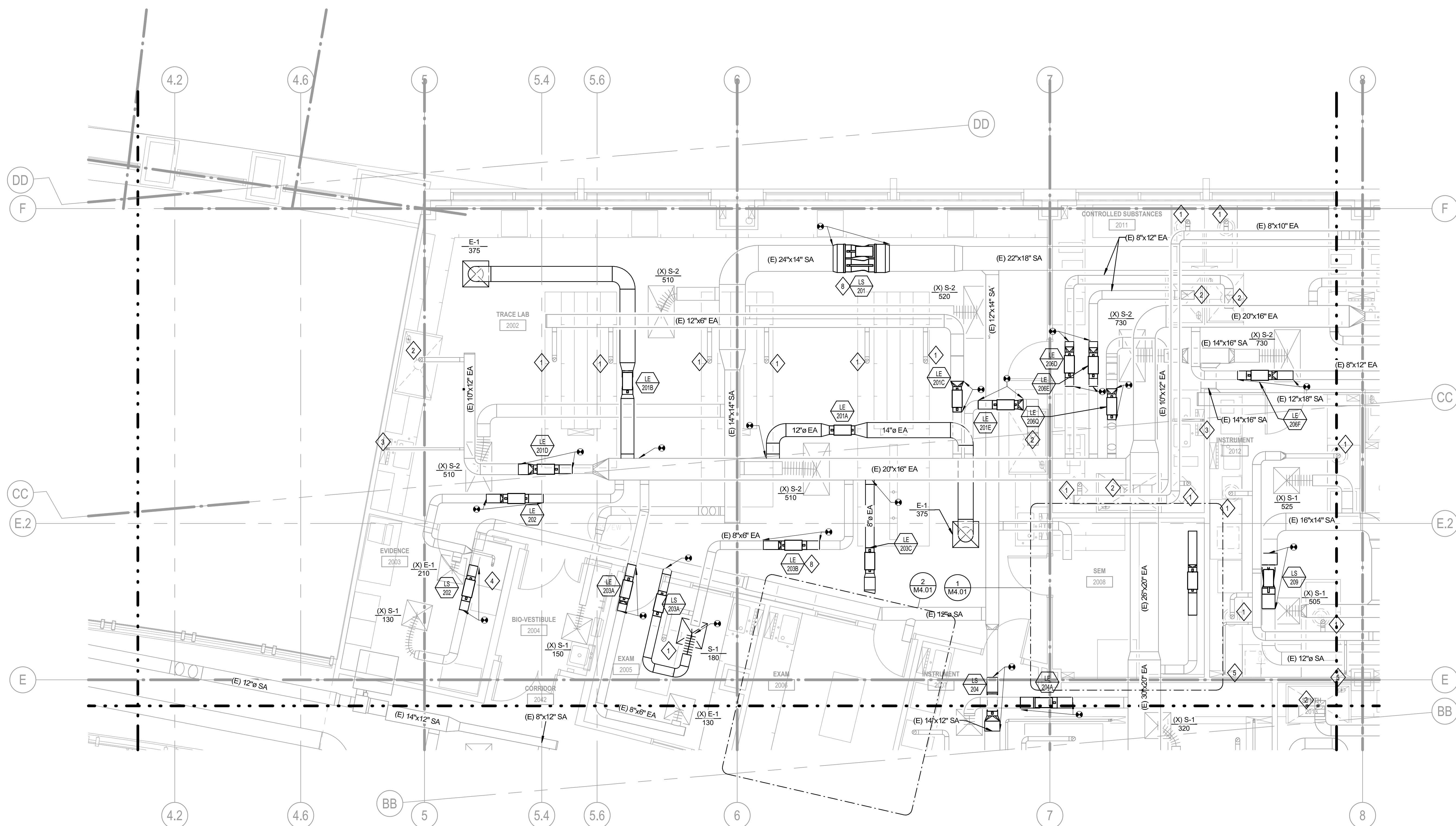
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Author

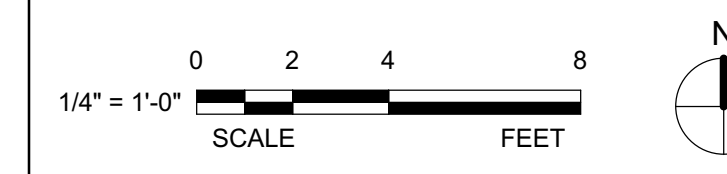
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Sheet Title
**HVAC PLAN -
LEVEL 2 - AREA B**

Sheet Number
M2.02B



1 LEVEL 2 - HVAC PLAN - AREA B
SCALE: 1/4" = 1'-0"



GENERAL NOTES

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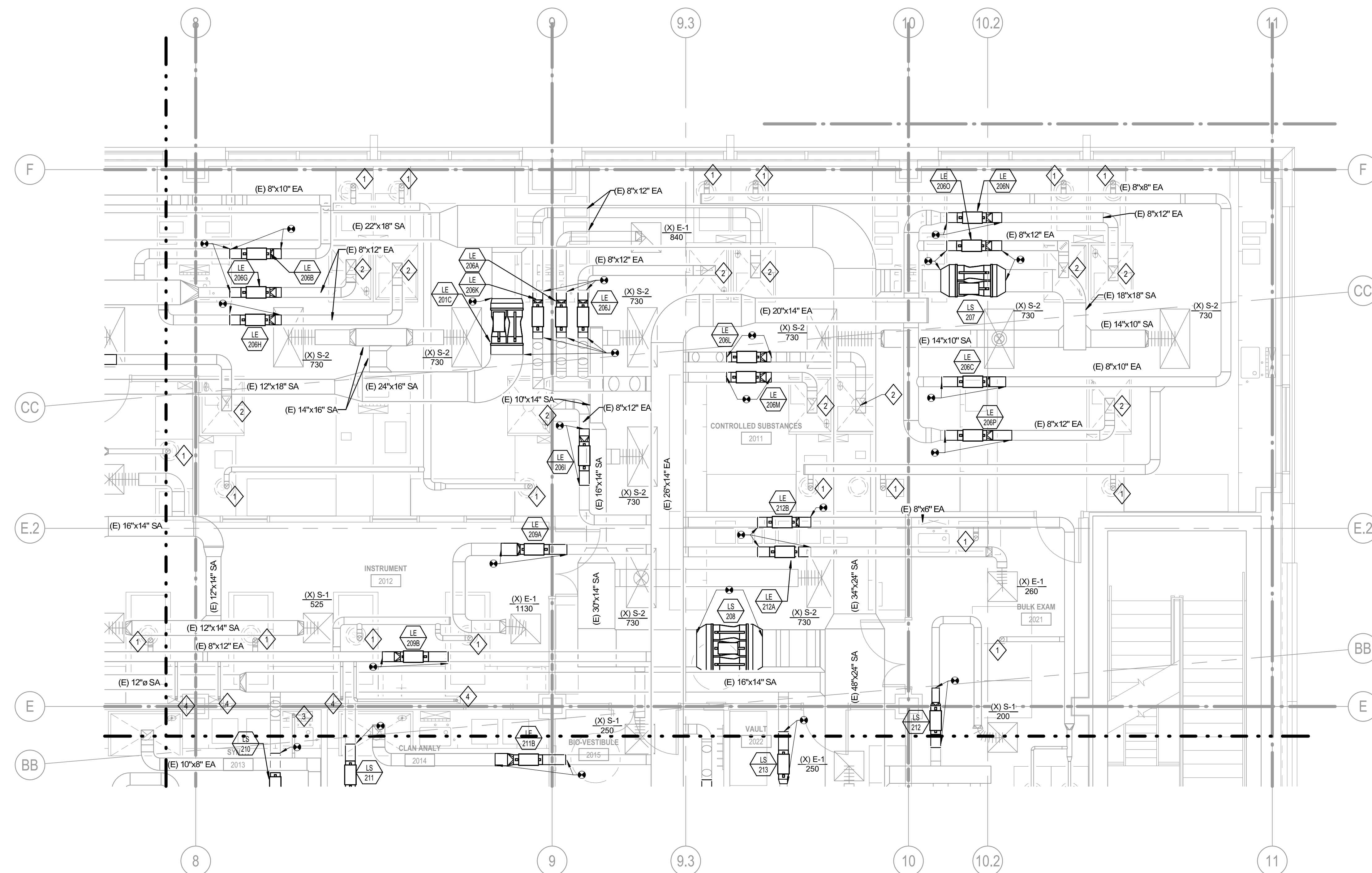
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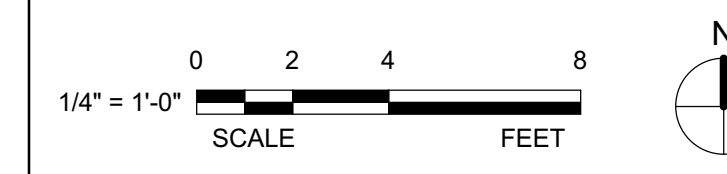
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KEYNOTES

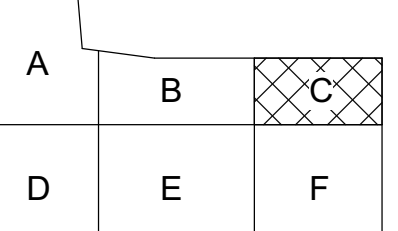
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1 LEVEL 2 - HVAC PLAN - AREA C
 SCALE: 1/4" = 1'-0"



Keyplan



Project Title

**POLICE CRIME LAB
 AUTOMATION SYSTEM
 REPLACEMENT**

621 W WASHINGTON ST.
 PHOENIX, AZ 85007

City of Phoenix Project Number:
 PW26480024-1



City of Phoenix

Project Number
 23457-00

Date Issued
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Scale
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Sheet Title
**HVAC PLAN -
 LEVEL 2 - AREA C**

Sheet Number
M2.02C



1 LEVEL 2 - HVAC PLAN - AREA D
SCALE: 1/4" = 1'-0"

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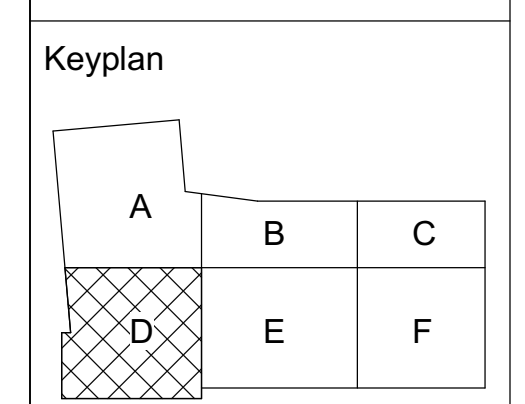
AEI Affiliated Engineers
Affiliated Engineers Inc.
4742 N. 24th Street, Suite 100
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Tel 602-429-5800 Fax 602-783-5424
AEI Project No.: 23457-00

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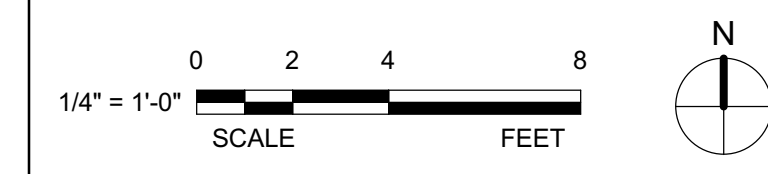
Project Title
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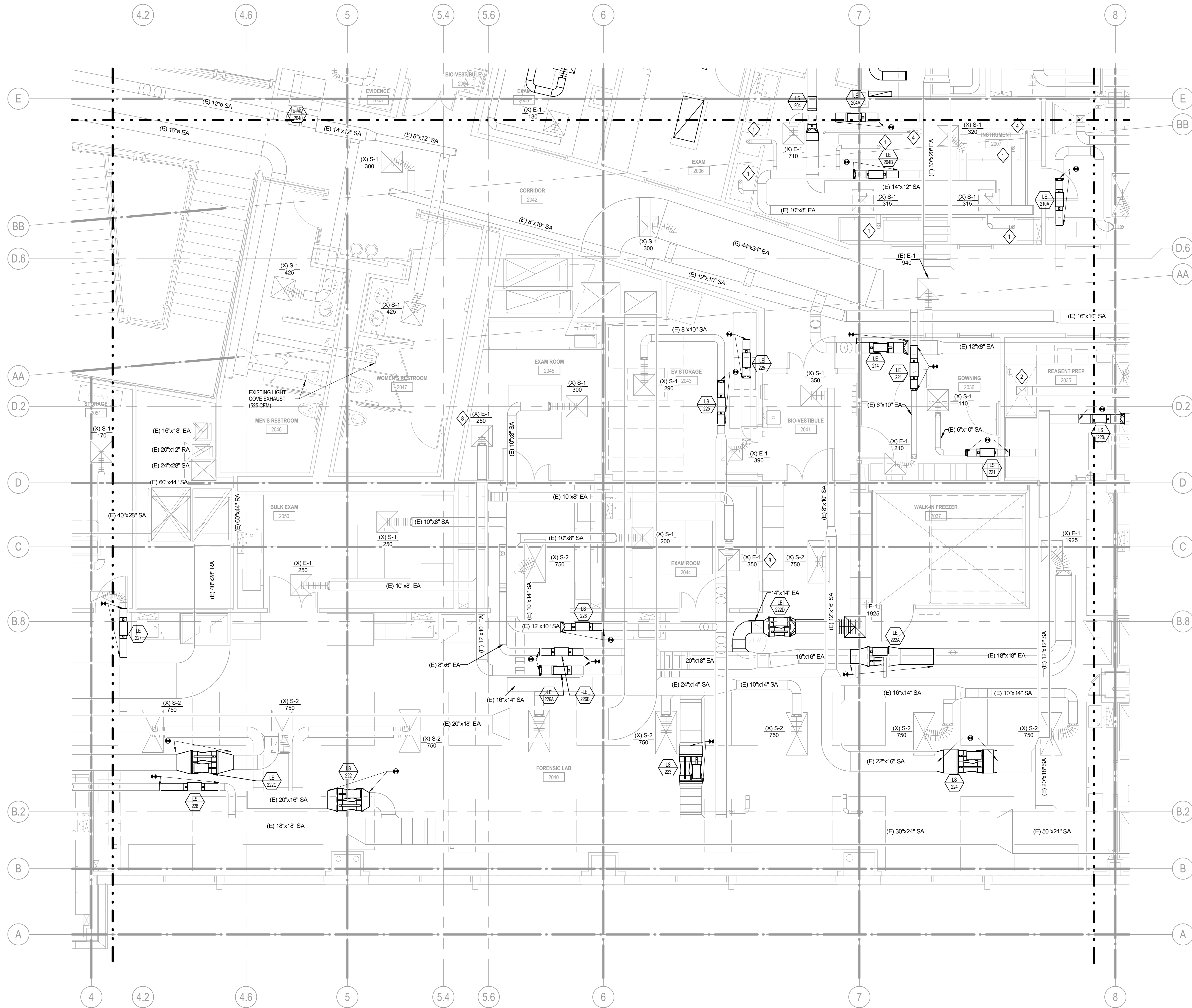


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Sheet Title
**HVAC PLAN -
LEVEL 2 - AREA D**



Sheet Number
M2.02D



1 LEVEL 2 - HVAC PLAN - AREA E
SCALE: 1/4" = 1'-0"

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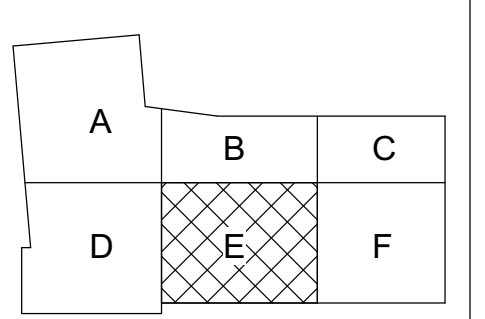
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Keyplan



Project Title
**POLICE CRIME LAB
AUTOMATION SYSTEM
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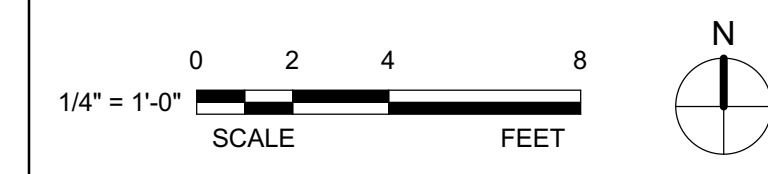
621 W WASHINGTON ST.
PHOENIX, AZ 85007
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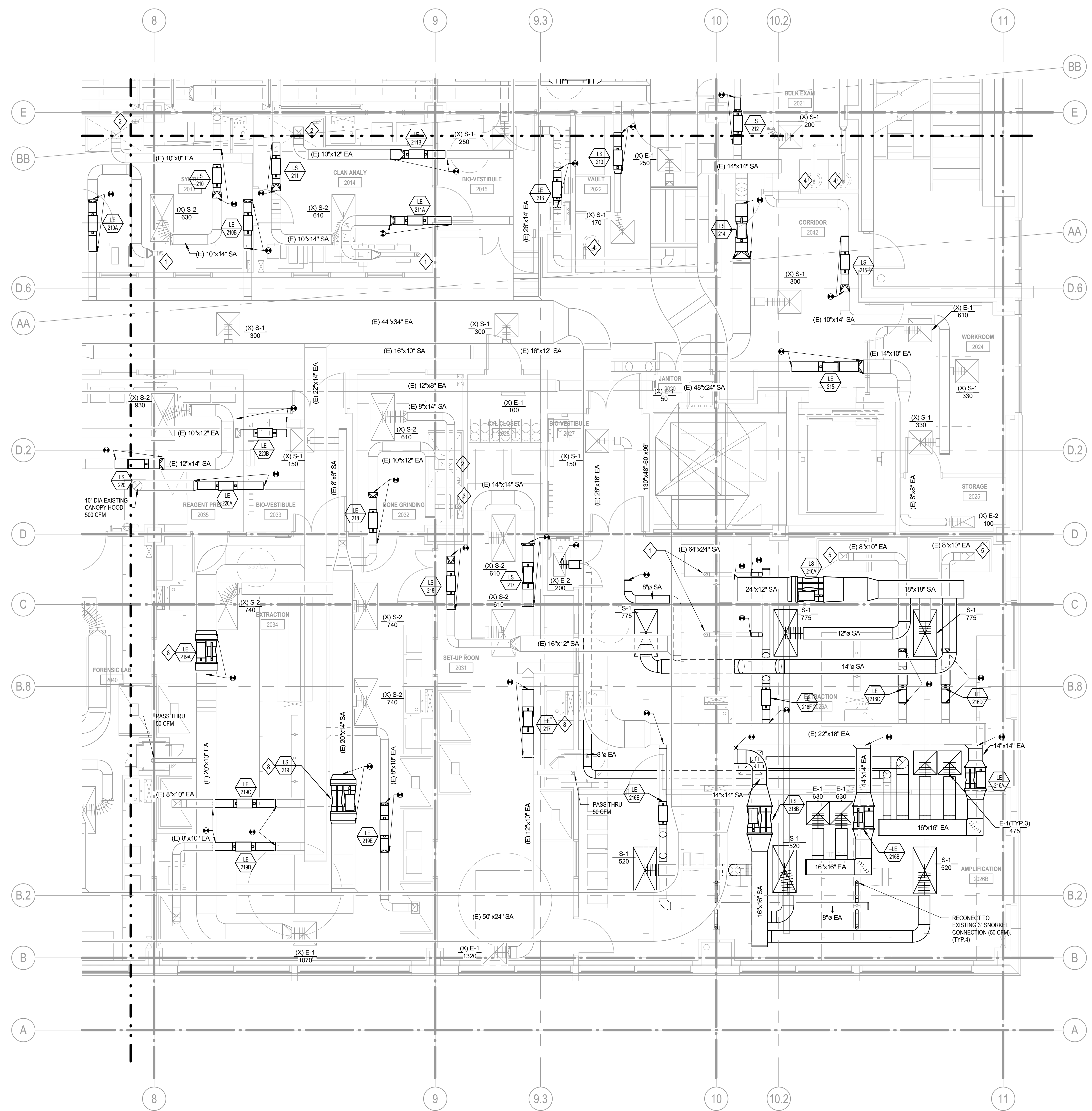


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**HVAC PLAN -
LEVEL 2 - AREA E**

Sheet Number
M2.02E





1 LEVEL 2 - HVAC PLAN - AREA F
 SCALE: 1/4" = 1'-0"

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AEI Affiliated Engineers
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Keyplan

A	B	C
D	E	F

Project Title

**POLICE CRIME LAB
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 REPLACEMENT**

621 W WASHINGTON ST.
 PHOENIX, AZ 85007

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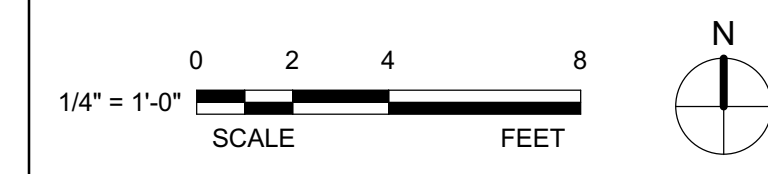
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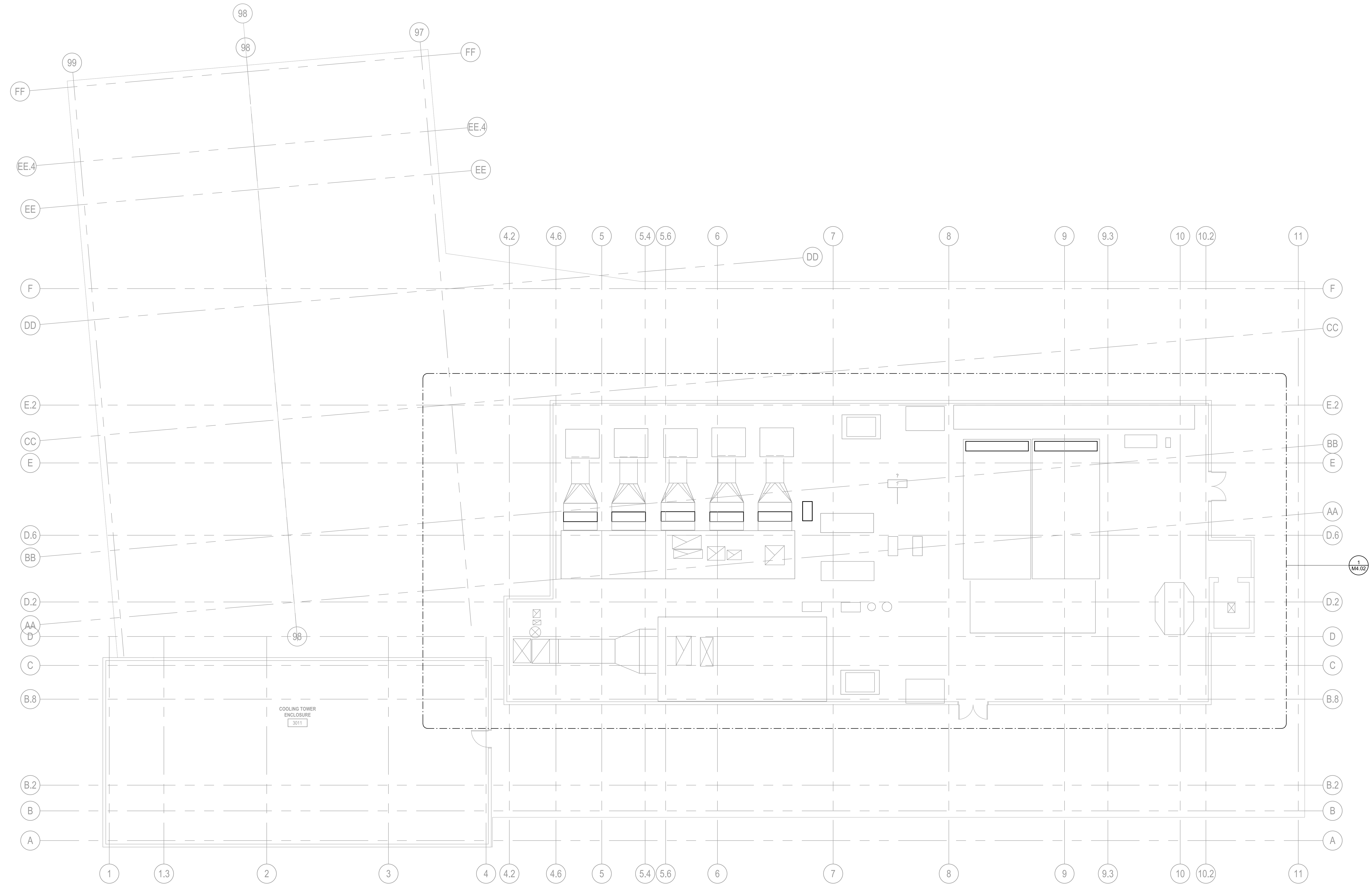
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Sheet Title
**HVAC PLAN -
 LEVEL 2 - AREA F**



Sheet Number
M2.02F

1. OVERALL PLANS SHOWN FOR REFERENCE. REFER TO ENLARGED AREA PLANS FOR MORE INFORMATION.



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Keyplan

Project Title
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621 W WASHINGTON ST.
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Project Number
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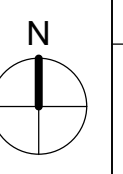
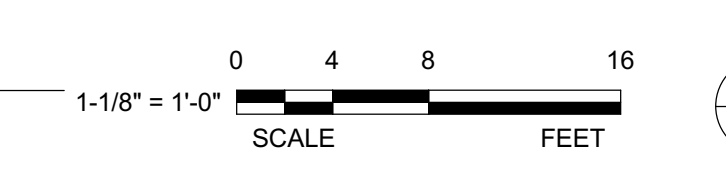
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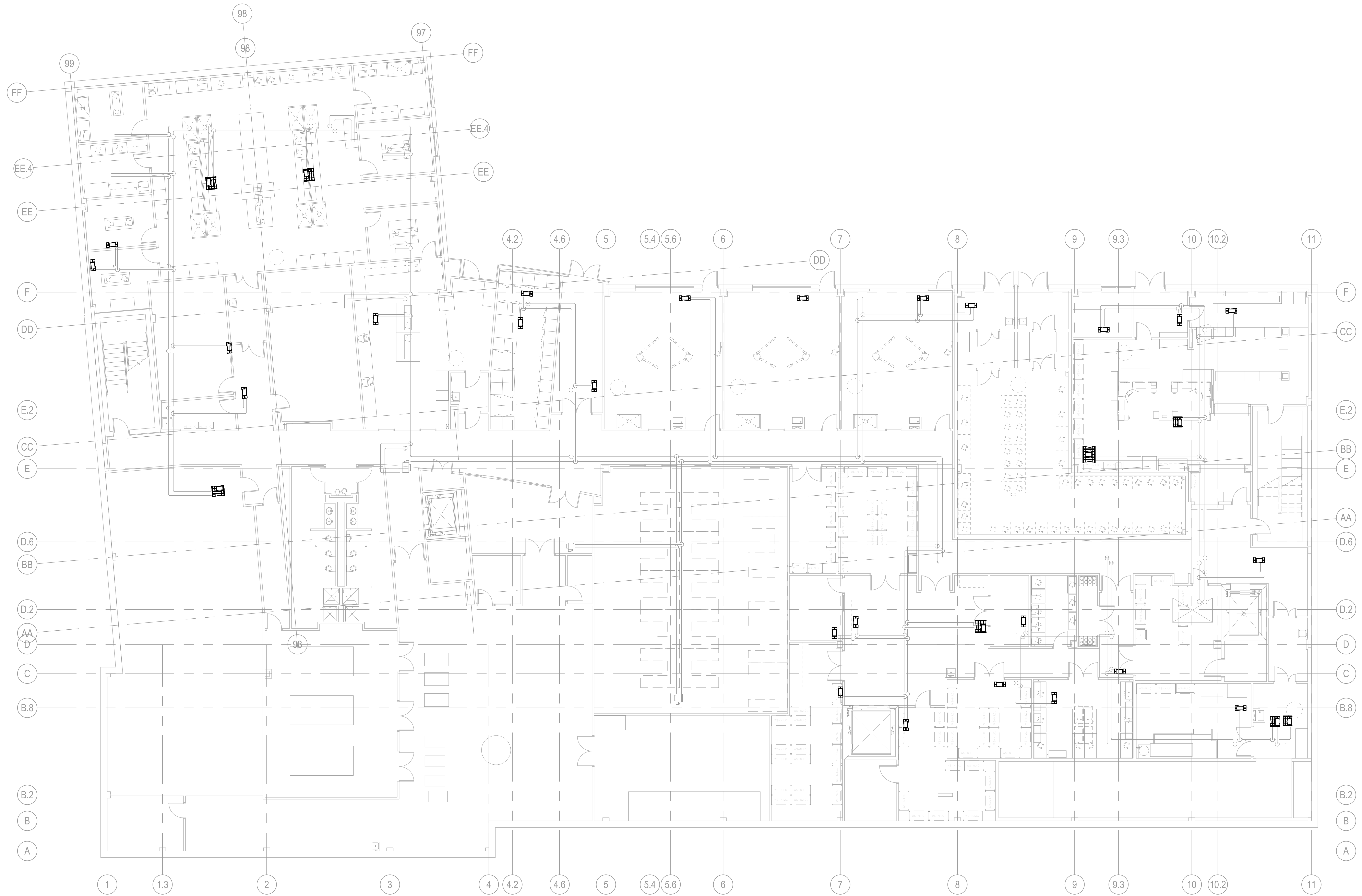
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Sheet Title
**HVAC PLAN -
ROOF - OVERALL**

Sheet Number
M2.03

1 **ROOF - HVAC PLAN - OVERALL**
SCALE: 1/8" = 1'-0"





1 BASEMENT - PIPING PLAN - OVERALL
 SCALE: 1/8" = 1'-0"



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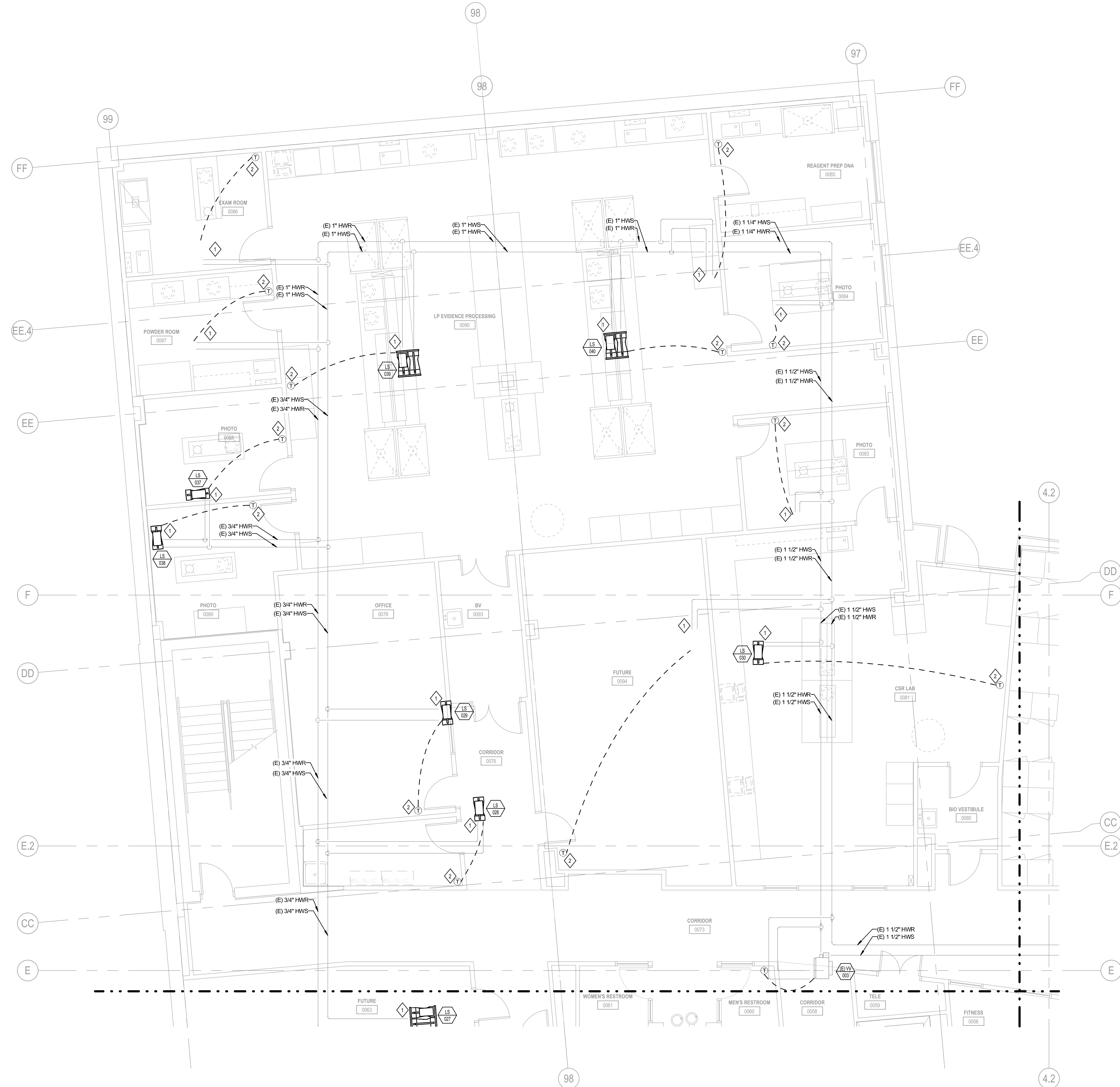
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Sheet Title
**PIPING PLAN -
 BASEMENT -
 OVERALL**

Sheet Number
M3.00



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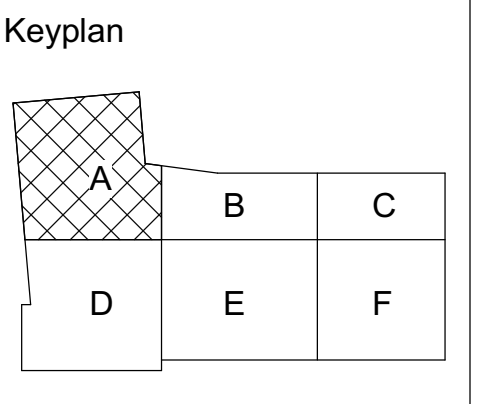
KEYNOTES

- INSTALL VALVE ASSEMBLY AS SHOWN IN DIAGRAM 4/M8.01. REFER TO AIR VALVE SCHEDULES FOR MORE INFORMATION FOR CONTROL VALVE SIZING. VALVES SHALL BE PRESSURE INDEPENDENT TYPE CONTROL VALVES. RECONNECT NEW VALVE ASSEMBLY TO TO EXISTING REHEAT COIL.
- NEW THERMOSTAT TO BE LOCATED IN SAME LOCATION AS REMOVED EXISTING THERMOSTAT AS SHOWN.

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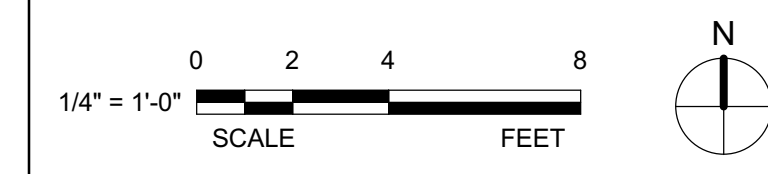


Project Number
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Date Issued
04/25/23
Scale
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Author
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Sheet Title
**PIPING PLAN -
BASEMENT -
AREA A**

Sheet Number
M3.00A

1 BASEMENT - PIPING PLAN - AREA A
SCALE: 1/4" = 1'-0"



GENERAL NOTES

- EXISTING CONDITIONS ARE BASED ON EXISTING PLANS AND FIELD VERIFICATION WHERE POSSIBLE. ACTUAL CONDITIONS MAY DIFFER FROM THOSE INDICATED. FIELD VERIFY IN ADVANCE THE LOCATION AND CONDITION OF THOSE EXISTING SYSTEMS SHOWN TO BE MODIFIED OR REMOVED. NOTIFY ENGINEER SHOULD CONDITIONS BE FOUND TO DIFFER SIGNIFICANTLY FROM CONSTRUCTION DOCUMENTS.
- DESIGN INTENT IS TO REMOVE ALL EXISTING SUPPLY AND EXHAUST AIR VALVES AND REPLACE WITH NEW. REMOVE DUCTWORK AND PIPING AS REQUIRED TO INSTALL NEW VALVES. REHEAT COILS ARE TO REMAIN. TRANSITION AS REQUIRED FOR NEW CONNECTION TO EXISTING HEAT COILS DOWNSTREAM OF NEW SUPPLY VALVES.
- INTENT IS TO PROVIDE ALL NEW CONTROL SYSTEMS WITH AIR-VALVES. ALL THERMOSTATS AND REHEAT CONTROL VALVES WILL BE REPLACED WITH NEW.
- AIR VALVE UNIT CONTROLLERS SHALL BE MOUNTED ON THE SAME SIDE AS HEATING COIL PIPING. COIL PIPING TO RUN ABOVE CONTROLLERS TO ALLOW ACCESS.
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- DUCTWORK AND PIPING SHALL BE INSTALLED AS CLOSE TO STRUCTURE AS POSSIBLE.
- ALL EQUIPMENT, DAMPERS, AND VALVES SHALL BE ACCESSIBLE AND LOCATED WITHIN 2' OF THE FINISHED CEILING ELEVATION.
- DUCT SIZE TO DIFFUSERS, REGISTERS AND GRILLES SHALL BE SAME AS NECK SIZE UNLESS OTHERWISE NOTED.
- DIFFUSERS/GRILLES WITHIN GYPSUM CEILINGS SHALL BE ALIGNED WITH OTHER CEILING MOUNTED DEVICES. COORDINATE FINAL LOCATION PER ARCHITECTURAL DRAWINGS.
- PROVIDE BALANCING DAMPERS FOR ALL INLETS/OUTLETS, DIFFUSERS IN GYPSUM OR OTHER INACCESSIBLE CEILING TYPES SHALL HAVE REMOTE TYPE BALANCING DAMPERS ACCESSIBLE VIA FACE OF DIFFUSER.

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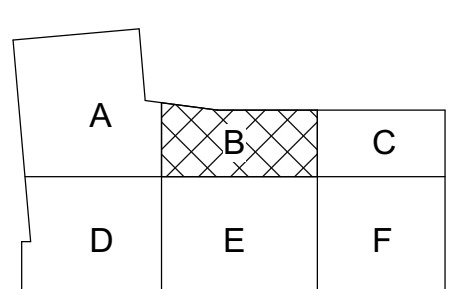
Issuance and Revisions

Rev	Date	Description
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KEYNOTES

- INSTALL VALVE ASSEMBLY AS SHOWN IN DIAGRAM 418B.01. REFER TO AIR VALVE SCHEDULES FOR MORE INFORMATION FOR CONTROL VALVE SIZING. VALVES SHALL BE PRESSURE INDEPENDENT TYPE CONTROL VALVES. RECONNECT NEW VALVE ASSEMBLY TO TO EXISTING REHEAT COIL.
- NEW THERMOSTAT TO BE LOCATED IN SAME LOCATION AS REMOVED EXISTING THERMOSTAT AS SHOWN.
- EXISTING THERMOSTAT LOCATION FOR LS-001, LS-002, AND LS-020. DEMO EXISTING THERMOSTAT AND COORDINATE NEW THERMOSTAT IN NEW LOCATION.
- NEW THERMOSTAT LOCATION.

Keyplan



Project Title

**POLICE CRIME LAB
AUTOMATION SYSTEM
REPLACEMENT**

621 W WASHINGTON ST.
PHOENIX, AZ 85007

City of Phoenix Project Number:
PW26480024-1



City of Phoenix

Project Number
23457-00

Date Issued
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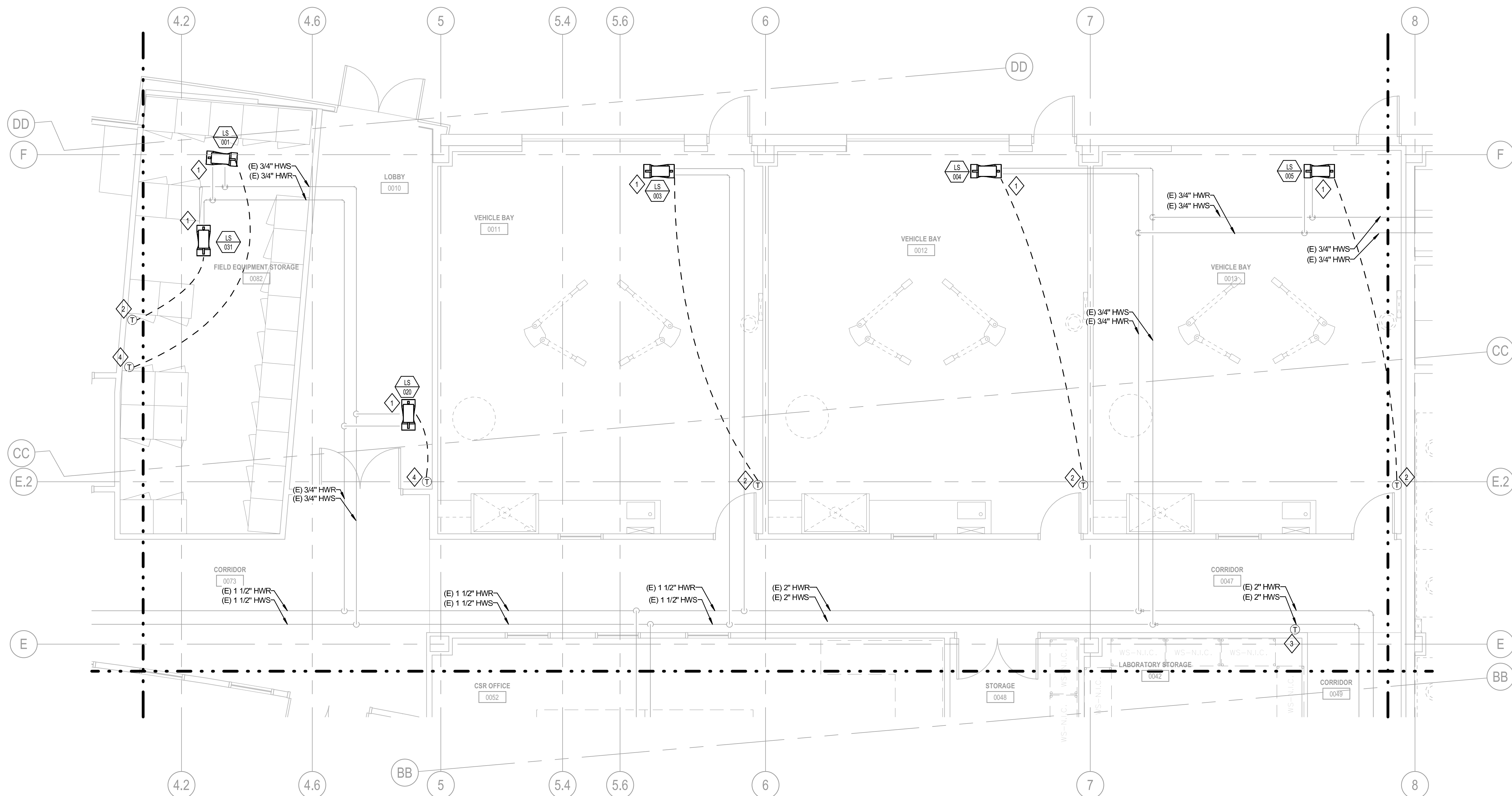
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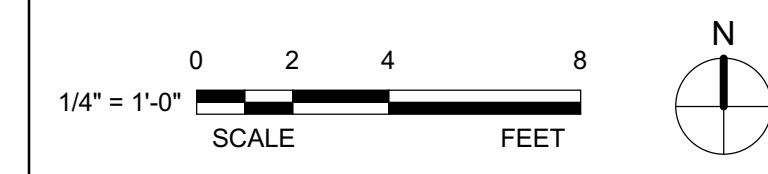
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Sheet Title
**PIPING PLAN -
BASEMENT -
AREA B**

Sheet Number
M3.00B



1 BASEMENT - PIPING PLAN - AREA B
SCALE: 1/4" = 1'-0"



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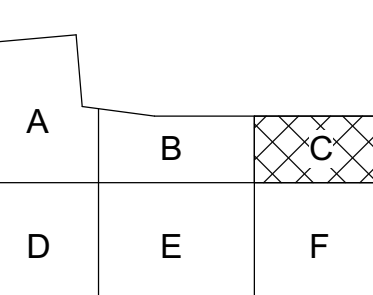
Issuance and Revisions

Rev	Date	Description
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KEYNOTES

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Keyplan



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REPLACEMENT**

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PHOENIX, AZ 85007

City of Phoenix Project Number:
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City of Phoenix

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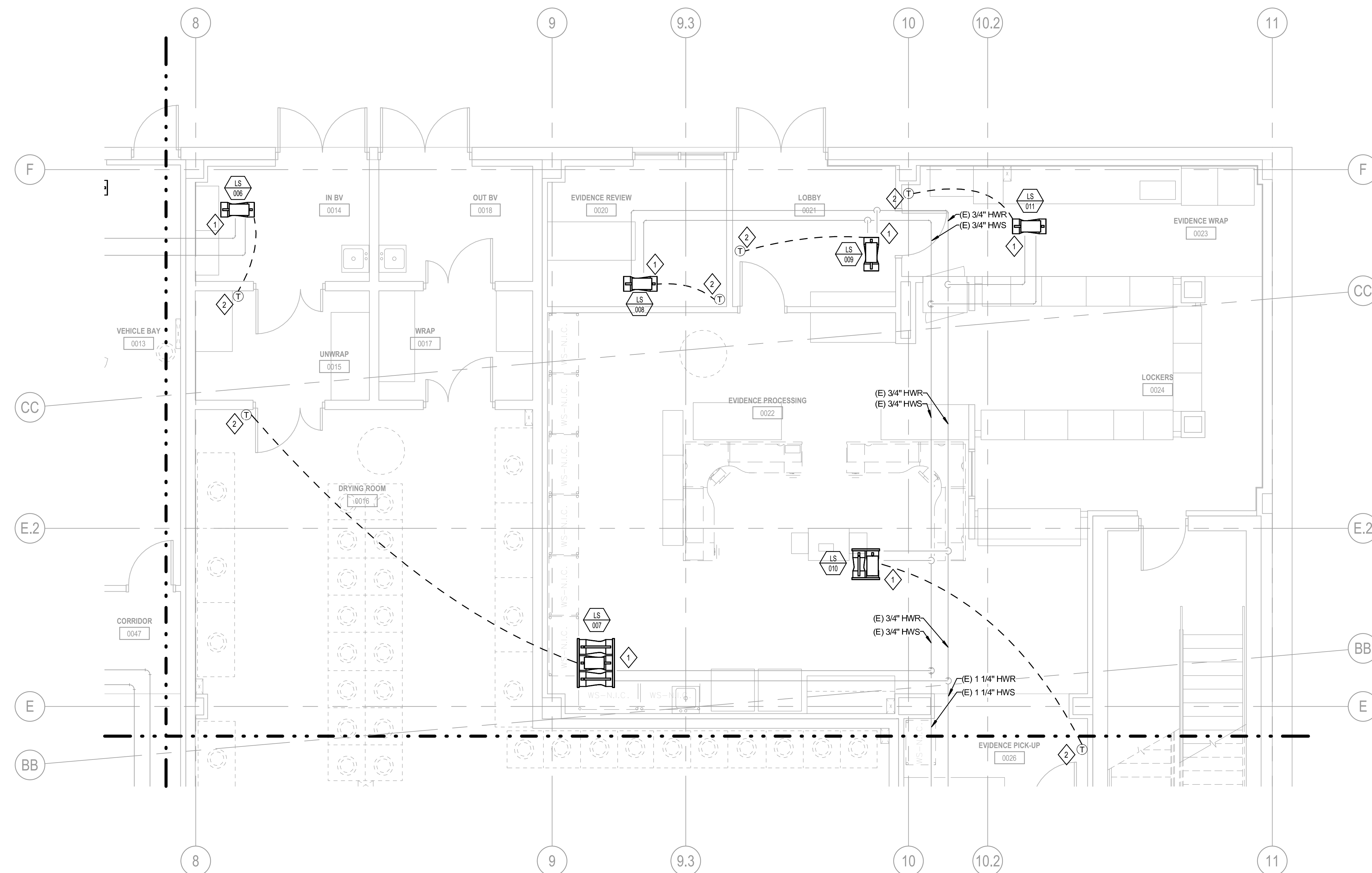
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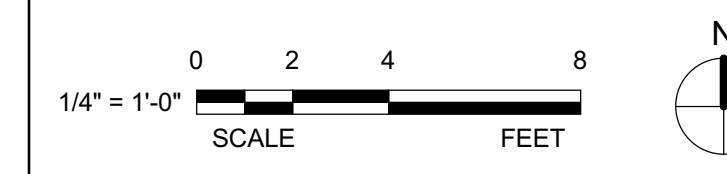
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Sheet Title
**PIPING PLAN -
BASEMENT -
AREA C**

Sheet Number
M3.00C



1 BASEMENT - PIPING PLAN - AREA C
SCALE: 1/4" = 1'-0"





1 BASEMENT - PIPING PLAN - AREA D
SCALE: 1/4" = 1'-0"

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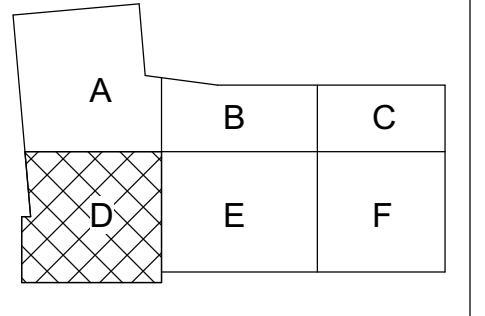


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Issuance and Revisions

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Keyplan



Project Title

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AUTOMATION SYSTEM
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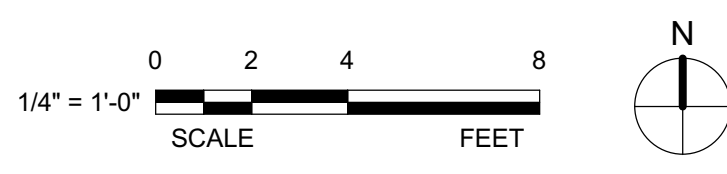
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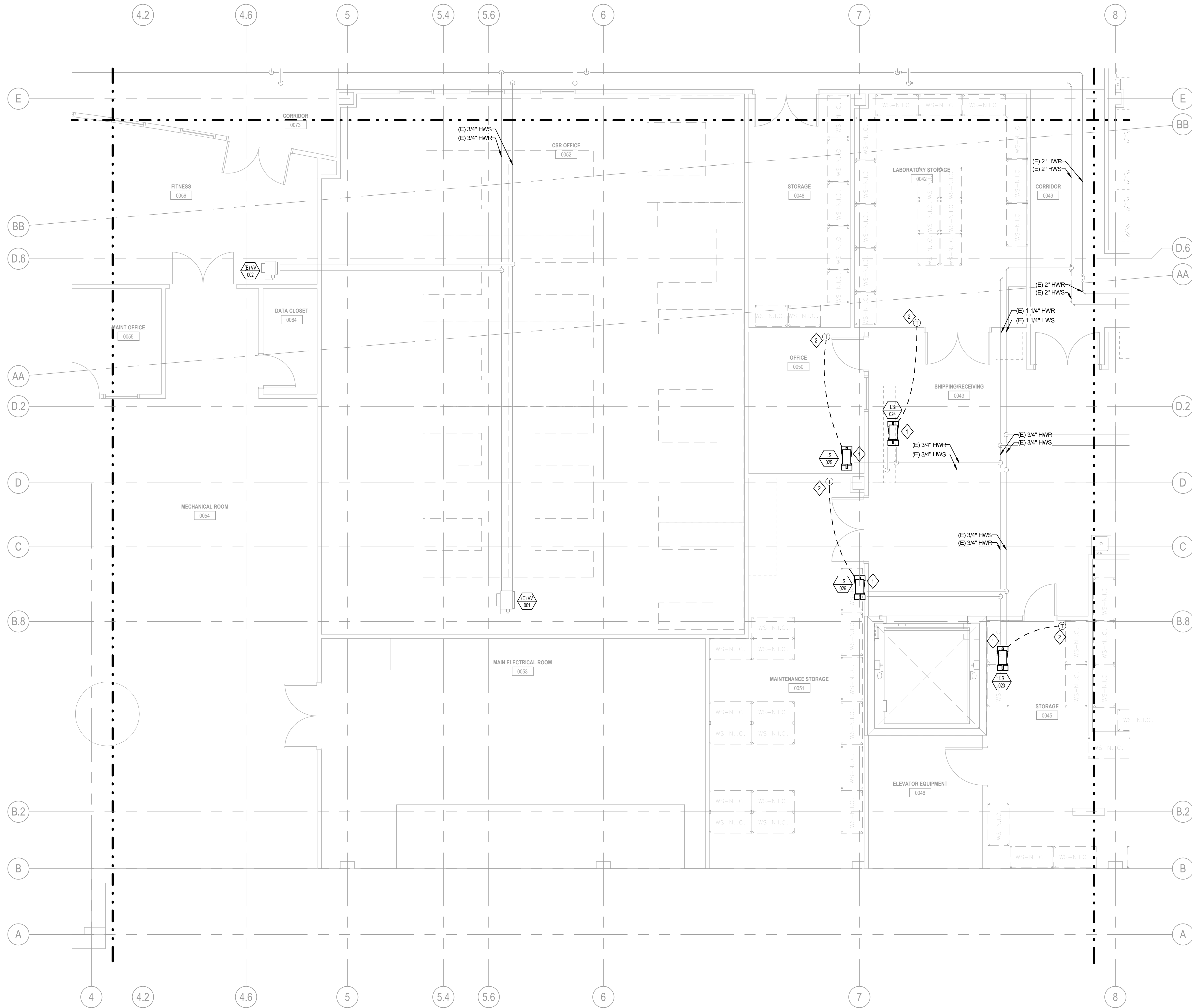
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**PIPING PLAN -
BASEMENT -
AREA D**

Sheet Number
M3.00D



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KEYNOTES

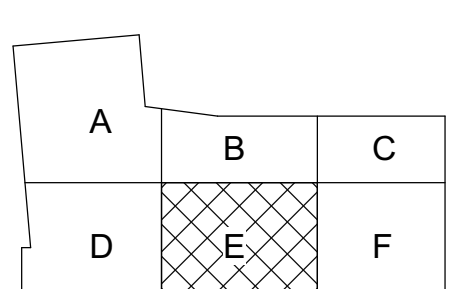
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Keyplan



Project Title

**POLICE CRIME LAB
 AUTOMATION SYSTEM
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621 W WASHINGTON ST.
 PHOENIX, AZ 85007

City of Phoenix Project Number:
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City of Phoenix

Project Number
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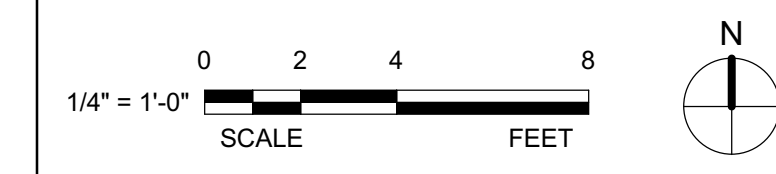
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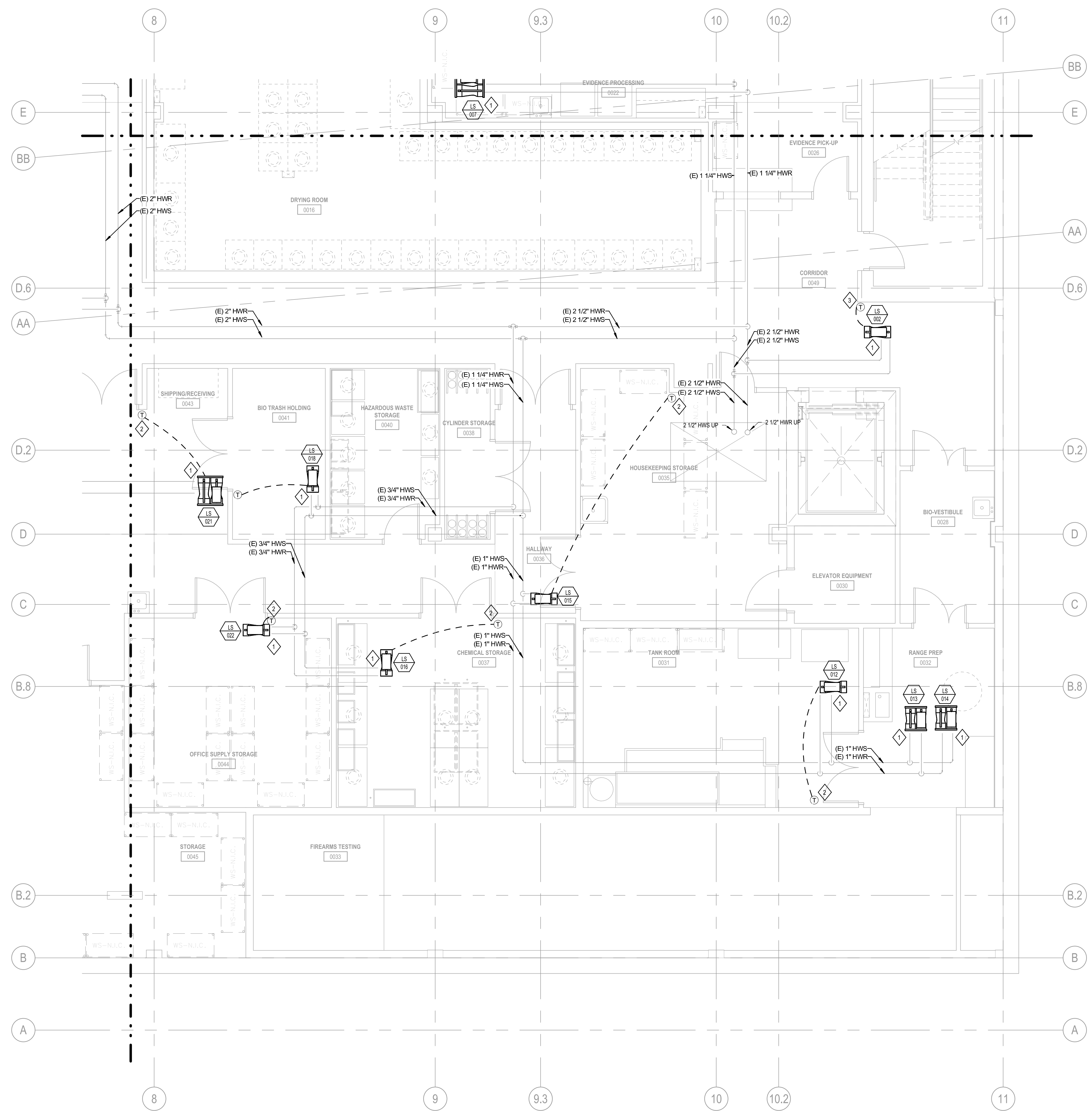
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Sheet Title
**PIPING PLAN -
 BASEMENT -
 AREA E**

Sheet Number
M3.00E

1 BASEMENT - PIPING PLAN - AREA E
 SCALE: 1/4" = 1'-0"





1 BASEMENT - PIPING PLAN - AREA F
 SCALE: 1/4" = 1'-0"

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KEYNOTES

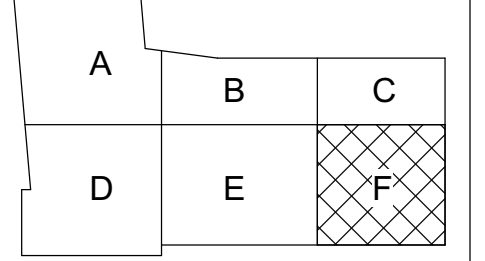
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- NEW THERMOSTAT LOCATION.

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Issuance and Revisions

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Keyplan



Project Title
**POLICE CRIME LAB
 AUTOMATION SYSTEM
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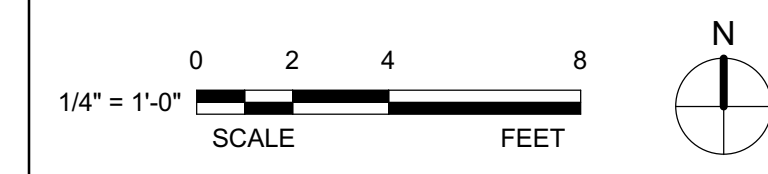
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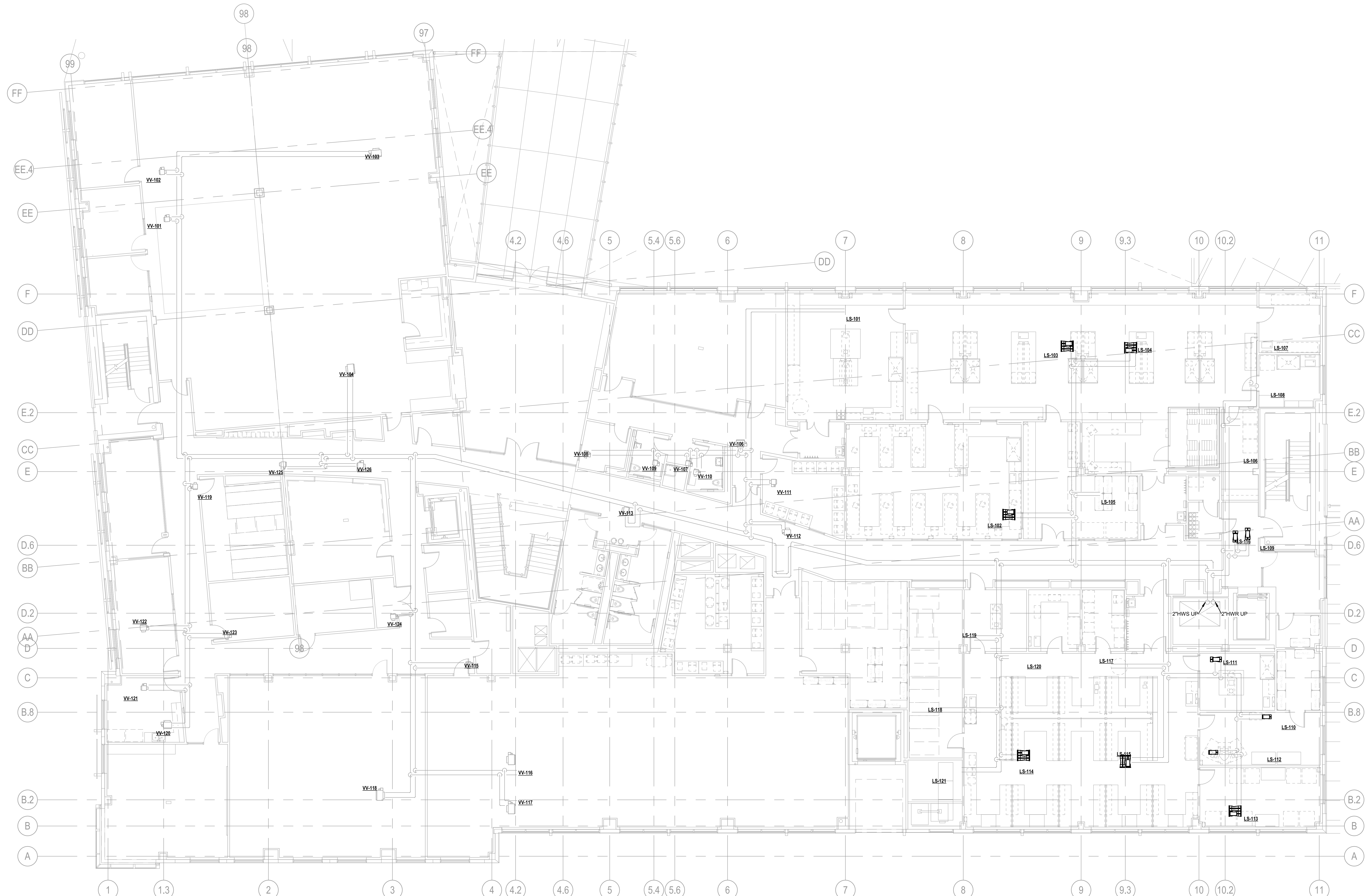
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**PIPING PLAN -
 BASEMENT -
 AREA F**

Sheet Number
M3.00F



1. OVERALL PLANS SHOWN FOR REFERENCE. REFER TO ENLARGED AREA PLANS FOR MORE INFORMATION.



1 LEVEL 1 - PIPING PLAN - OVERALL
 SCALE: 1/8" = 1'-0"



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Project Title
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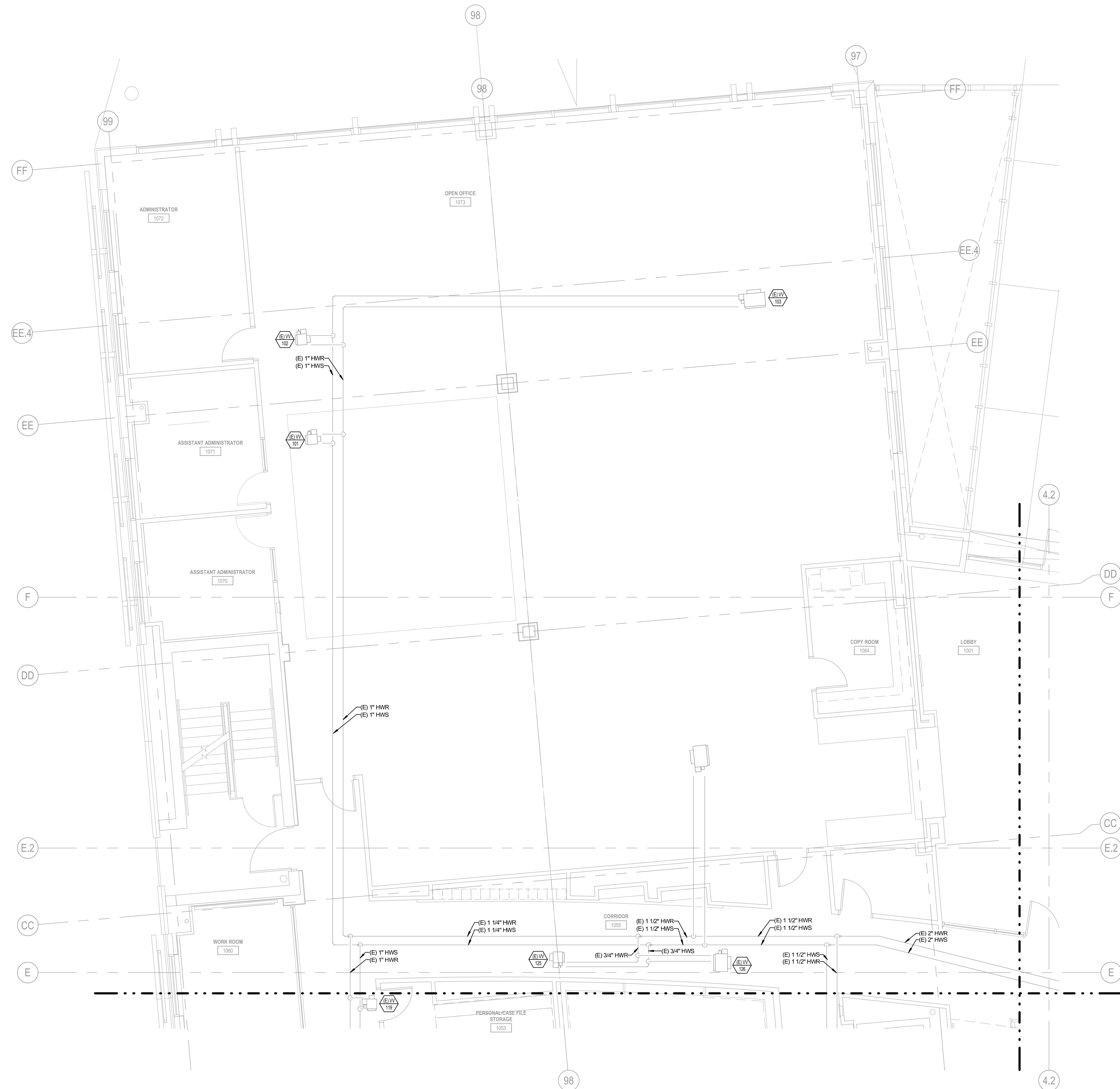


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Sheet Title
**PIPING PLAN -
 LEVEL 1 -
 OVERALL**

Sheet Number
M3.01



1 LEVEL 1 - PIPING PLAN - AREA A
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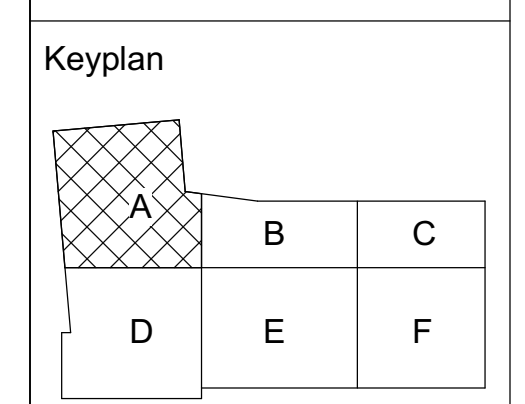
AEI Affiliated Engineers
Affiliated Engineers Inc.
4742 N. 24th Street, Suite 100
Phoenix, Arizona 85016
Tel 602-429-5800 Fax 602-783-5424
AEI Project No.: 23457-00

ZGF
ZGF ARCHITECTS LLP

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AUTOMATION SYSTEM
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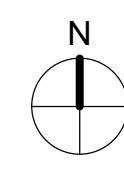
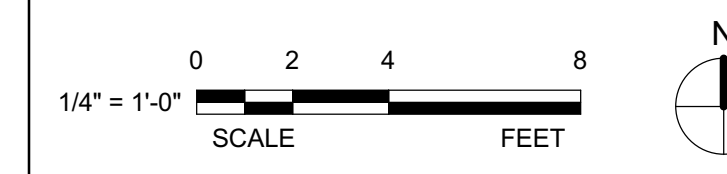
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Sheet Title
PIPING PLAN -
LEVEL 1 - AREA A

Sheet Number
M3.01A



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- DUCT SIZE TO DIFFUSERS, REGISTERS AND GRILLES SHALL BE SAME AS NECK SIZE UNLESS OTHERWISE NOTED.
- DIFFUSERS/GRILLES WITHIN GYPSUM CEILINGS SHALL BE ALIGNED WITH OTHER CEILING MOUNTED DEVICES. COORDINATE FINAL LOCATION PER ARCHITECTURAL DRAWINGS.
- PROVIDE BALANCING DAMPERS FOR ALL INLETS/OUTLETS. DIFFUSERS IN GYPSUM OR OTHER INACCESSIBLE CEILING TYPES SHALL HAVE REMOTE TYPE BALANCING DAMPERS ACCESSIBLE VIA FACE OF DIFFUSER.

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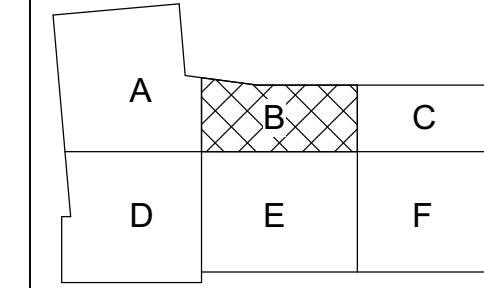
Issuance and Revisions

Rev	Date	Description
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KEYNOTES

- INSTALL VALVE ASSEMBLY AS SHOWN IN DIAGRAM 4/M/01. REFER TO AIR VALVE SCHEDULES FOR MORE INFORMATION FOR CONTROL VALVE SIZING. VALVES SHALL BE PRESSURE INDEPENDENT TYPE CONTROL VALVES. RECONNECT NEW VALVE ASSEMBLY TO TO EXISTING REHEAT COIL.
- NEW THERMOSTAT TO BE LOCATED IN SAME LOCATION AS REMOVED EXISTING THERMOSTAT AS SHOWN.

Keyplan



Project Title

**POLICE CRIME LAB
AUTOMATION SYSTEM
REPLACEMENT**

621 W WASHINGTON ST.
PHOENIX, AZ 85007

City of Phoenix Project Number:
PW26480024-1



Project Number
23457-00

Date Issued
04/25/23

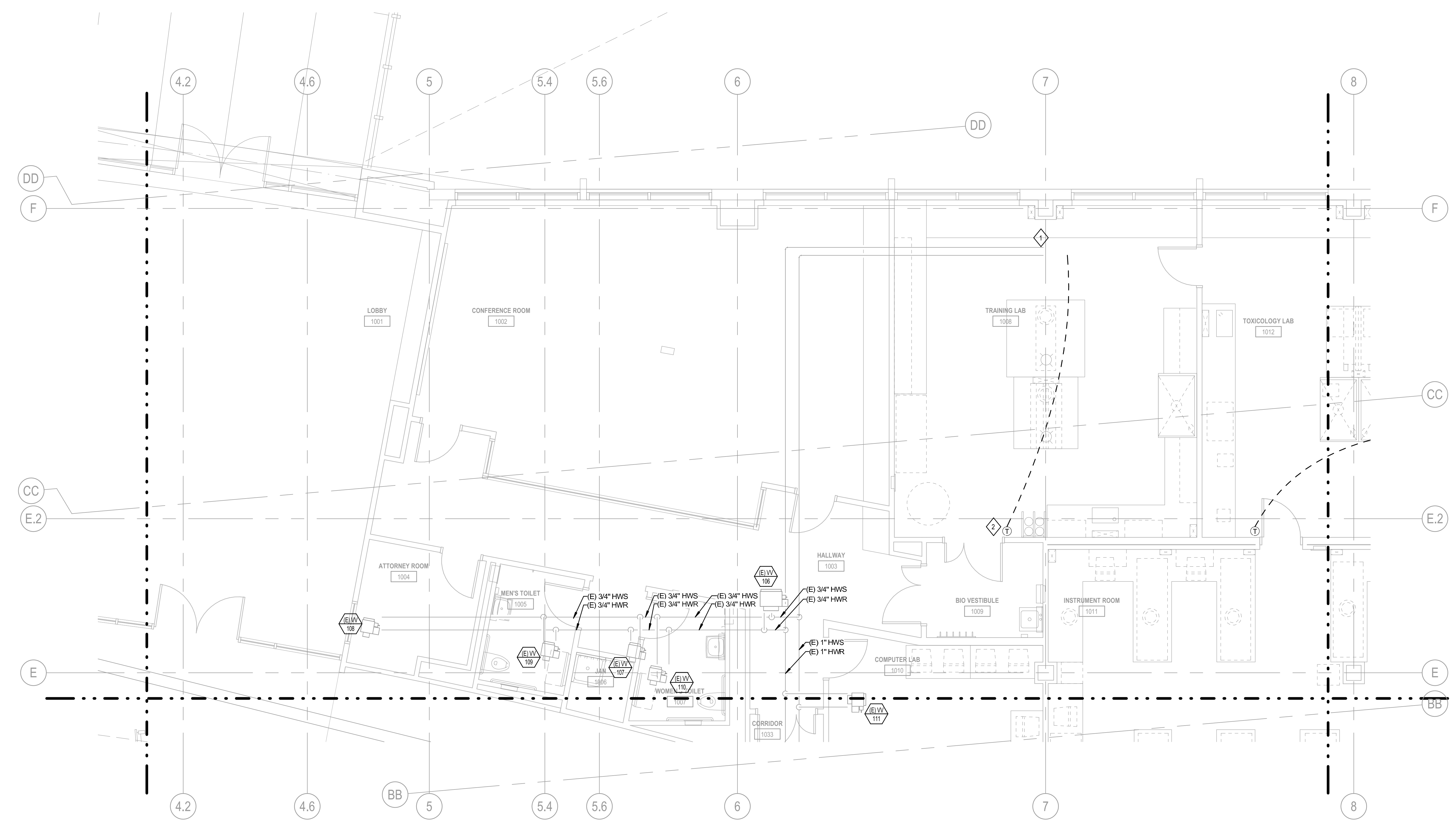
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Author

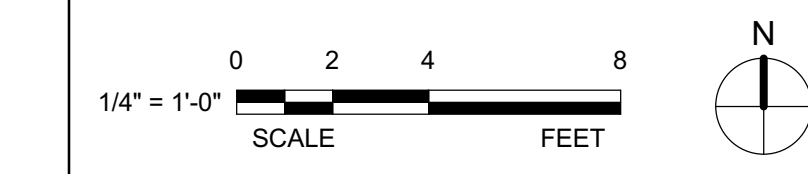
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Sheet Title
**PIPING PLAN -
LEVEL 1 - AREA B**

Sheet Number
M3.01B



1 LEVEL 1 - PIPING PLAN - AREA B
SCALE: 1/4" = 1'-0"



GENERAL NOTES

1. EXISTING CONDITIONS ARE BASED ON EXISTING PLANS AND FIELD VERIFICATION WHERE POSSIBLE. ACTUAL CONDITIONS MAY DIFFER FROM THOSE INDICATED. FIELD VERIFY IN ADVANCE THE LOCATION AND CONDITION OF THOSE EXISTING SYSTEMS SHOWN TO BE MODIFIED OR REMOVED. NOTIFY ENGINEER SHOULD CONDITIONS BE FOUND TO DIFFER SIGNIFICANTLY FROM CONSTRUCTION DOCUMENTS.
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4. AIR VALVE UNIT CONTROLLERS SHALL BE MOUNTED ON THE SAME SIDE AS HEATING COIL PIPING. COIL PIPING TO RUN ABOVE CONTROLLERS TO ALLOW ACCESS.
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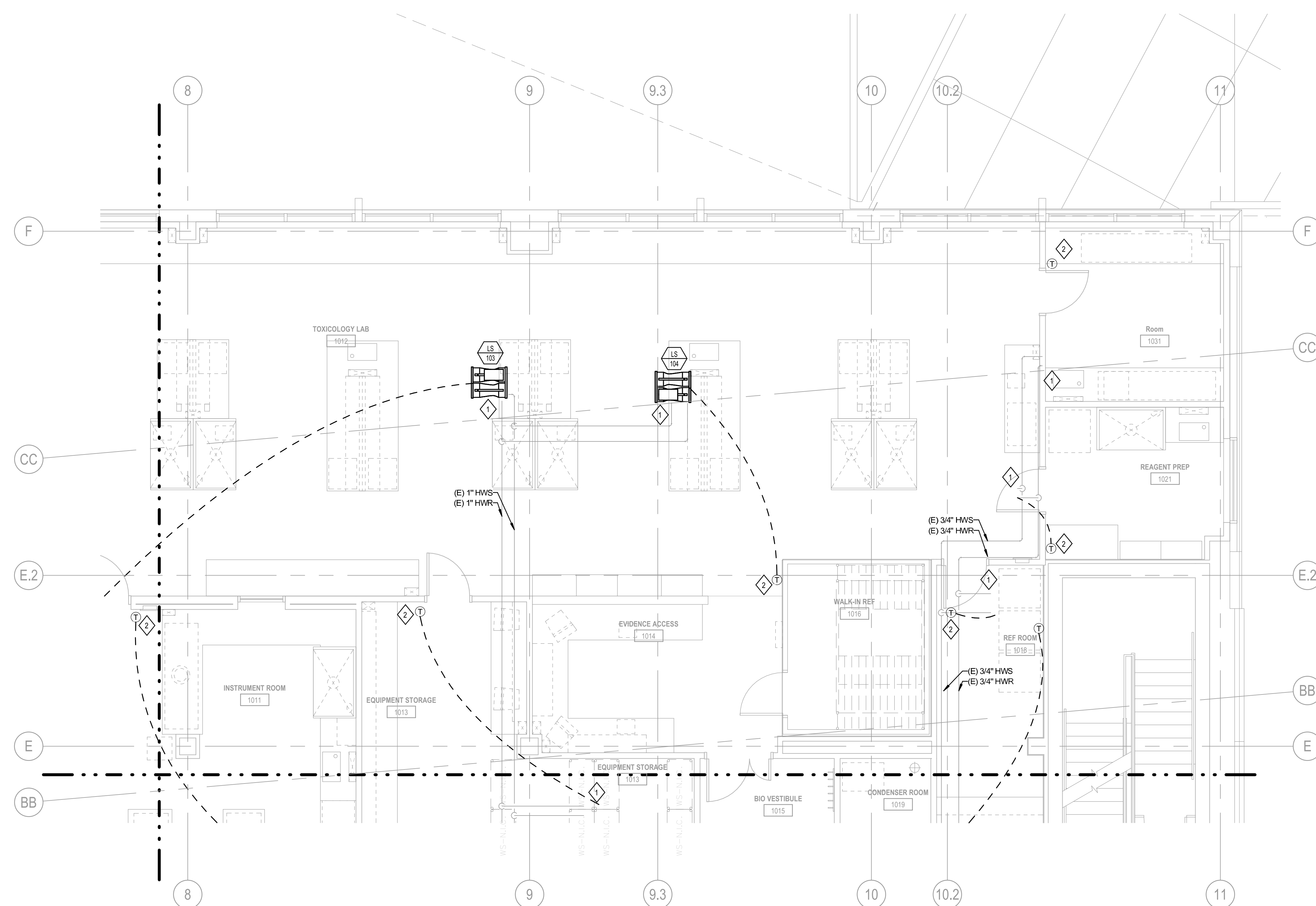
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Issuance and Revisions

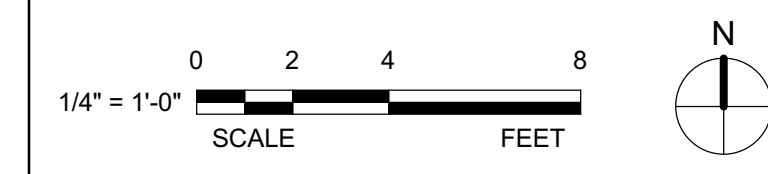
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KEYNOTES

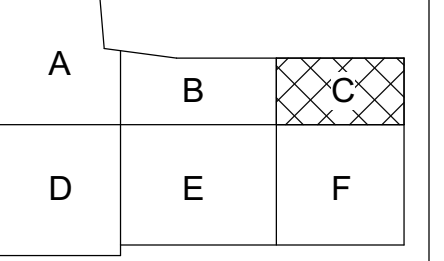
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1 LEVEL 1 - PIPING PLAN - AREA C
 SCALE: 1/4" = 1'-0"



Keyplan



Project Title

**POLICE CRIME LAB
 AUTOMATION SYSTEM
 REPLACEMENT**

621 W WASHINGTON ST.
 PHOENIX, AZ 85007

City of Phoenix Project Number:
 PW26480024-1



City of Phoenix

Project Number
 23457-00

Date Issued
 04/25/23

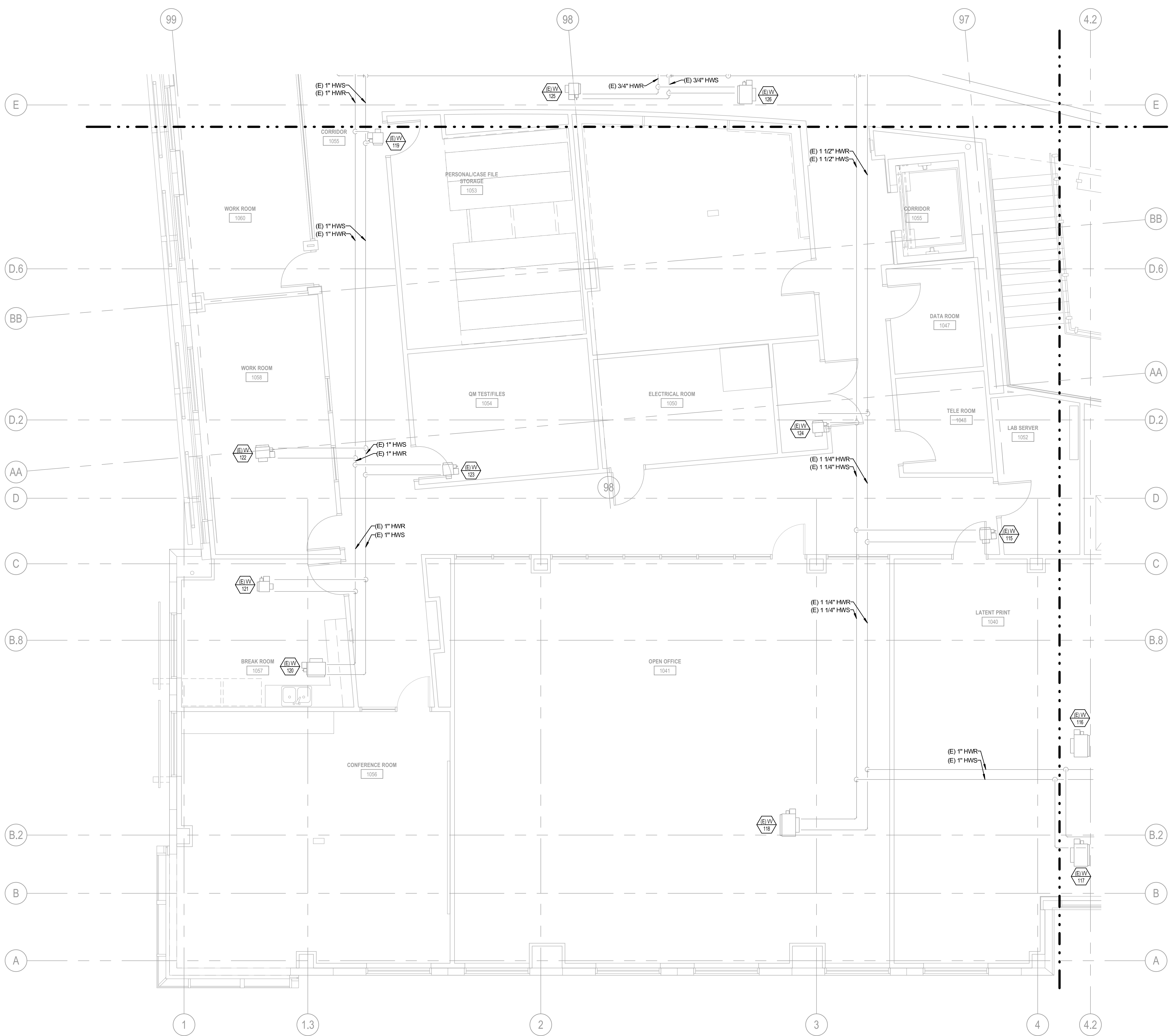
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 Author

Checked By
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Sheet Title
**PIPING PLAN -
 LEVEL 1 - AREA C**

Sheet Number
M3.01C



1 LEVEL 1 - PIPING PLAN - AREA D
SCALE: 1/4" = 1'-0"

GENERAL NOTES

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KEYNOTES

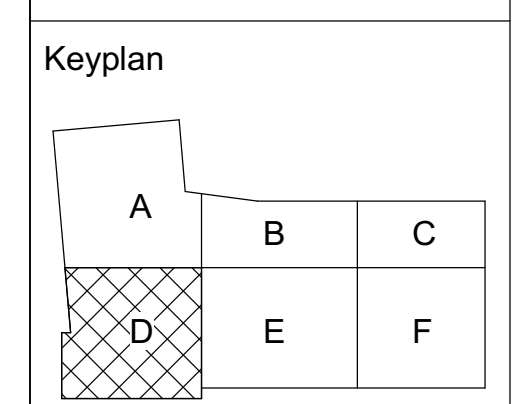
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AEI Project No.: 23457-00

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Rev	Date	Description



Project Title
POLICE CRIME LAB
AUTOMATION SYSTEM
REPLACEMENT

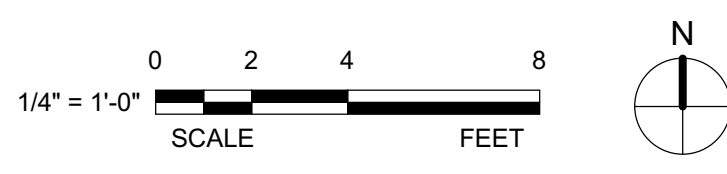
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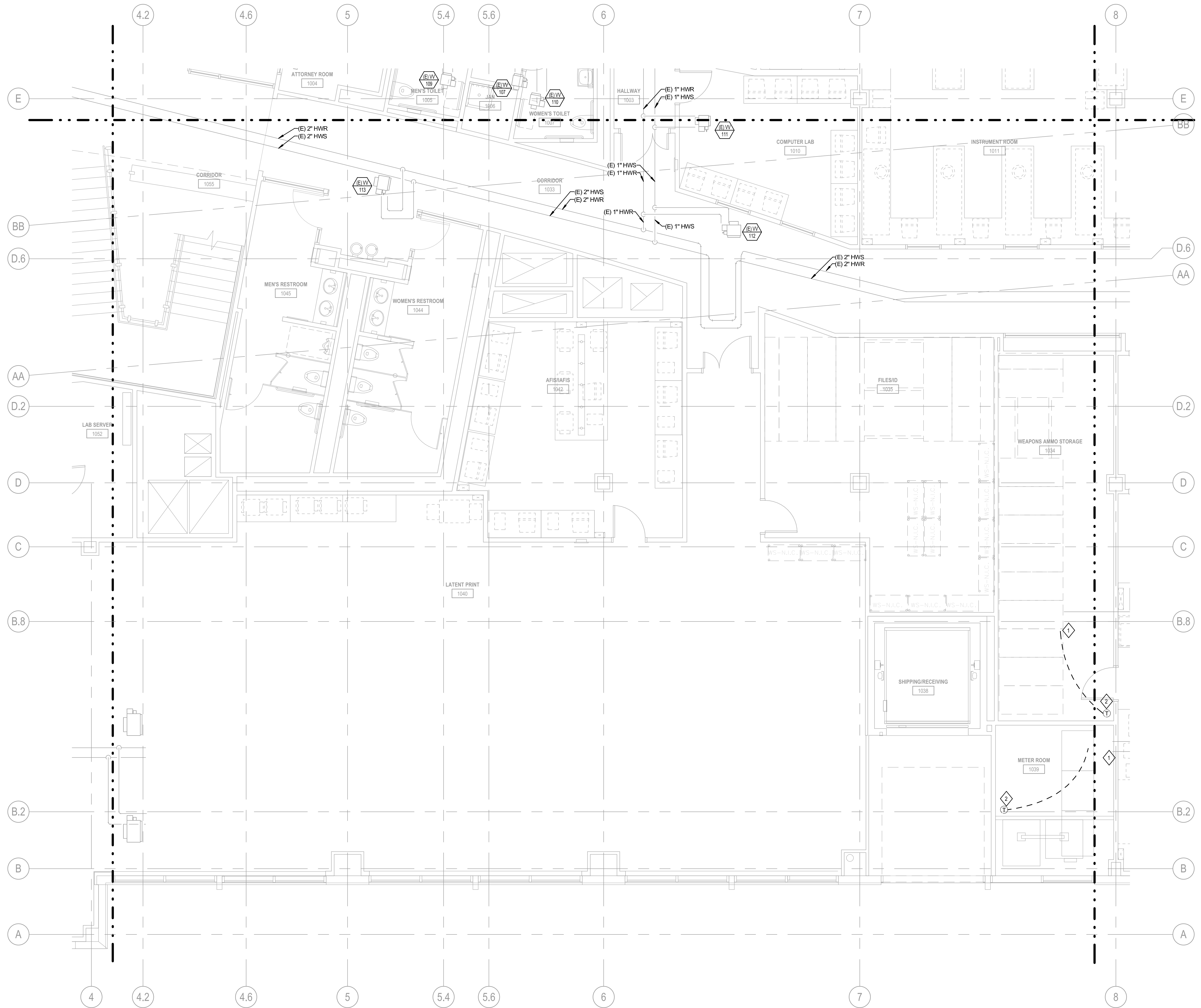


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23457-00
Date Issued
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Scale
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Sheet Title
PIPING PLAN -
LEVEL 1 - AREA D

Sheet Number
M3.01D





1 LEVEL 1 - PIPING PLAN - AREA E
SCALE: 1/4" = 1'-0"

GENERAL NOTES

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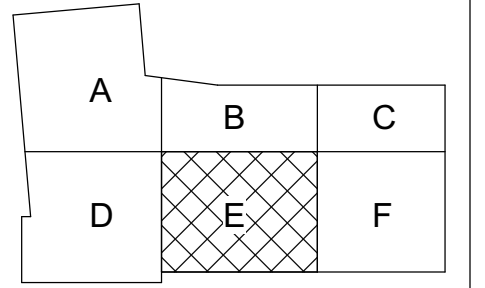


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Issuance and Revisions

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Keyplan



Project Title

**POLICE CRIME LAB
AUTOMATION SYSTEM
REPLACEMENT**

621 W WASHINGTON ST.
PHOENIX, AZ 85007

City of Phoenix Project Number:
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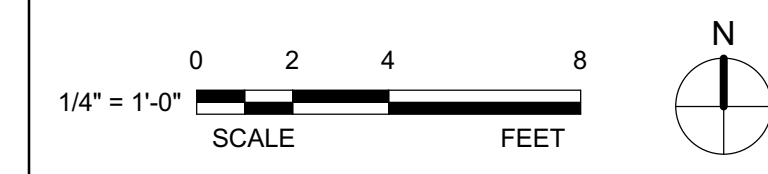
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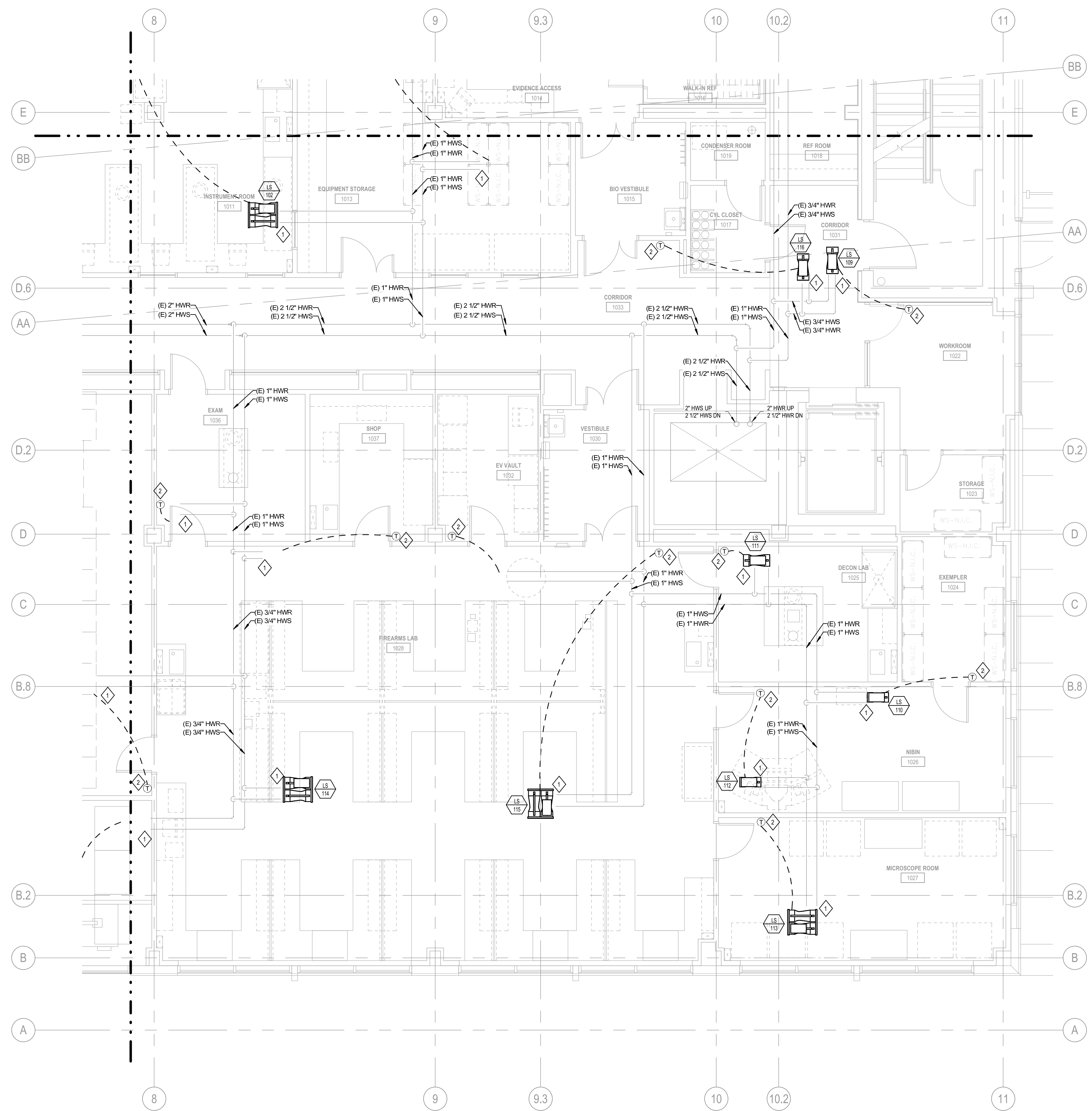
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Sheet Title
**PIPING PLAN -
LEVEL 1 - AREA E**

Sheet Number
M3.01E





1 LEVEL 1 - PIPING PLAN - AREA F
SCALE: 1/4" = 1'-0"

GENERAL NOTES

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KEYNOTES

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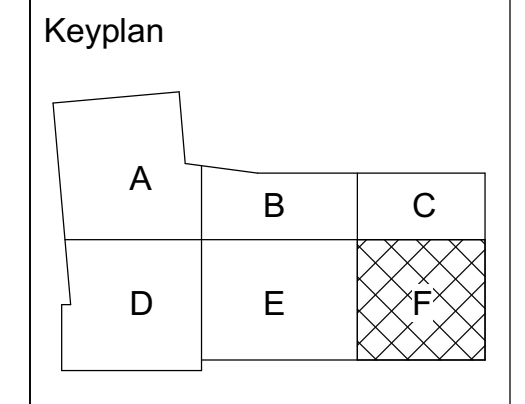
AEI Affiliated Engineers
Affiliated Engineers Inc.
4742 N. 24th Street, Suite 100
Phoenix, Arizona 85016
Tel 602-429-5800 Fax 602-783-9424
AEI Project No.: 23457-00

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Issuance and Revisions

Rev	Date	Description



Project Title
POLICE CRIME LAB
AUTOMATION SYSTEM
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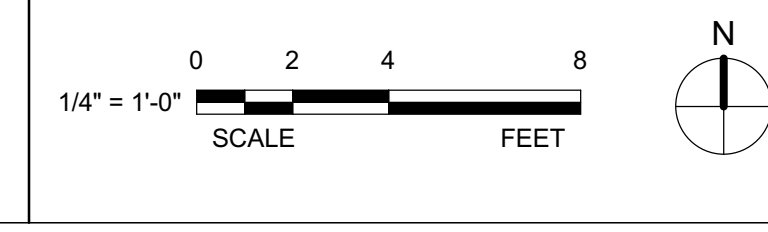
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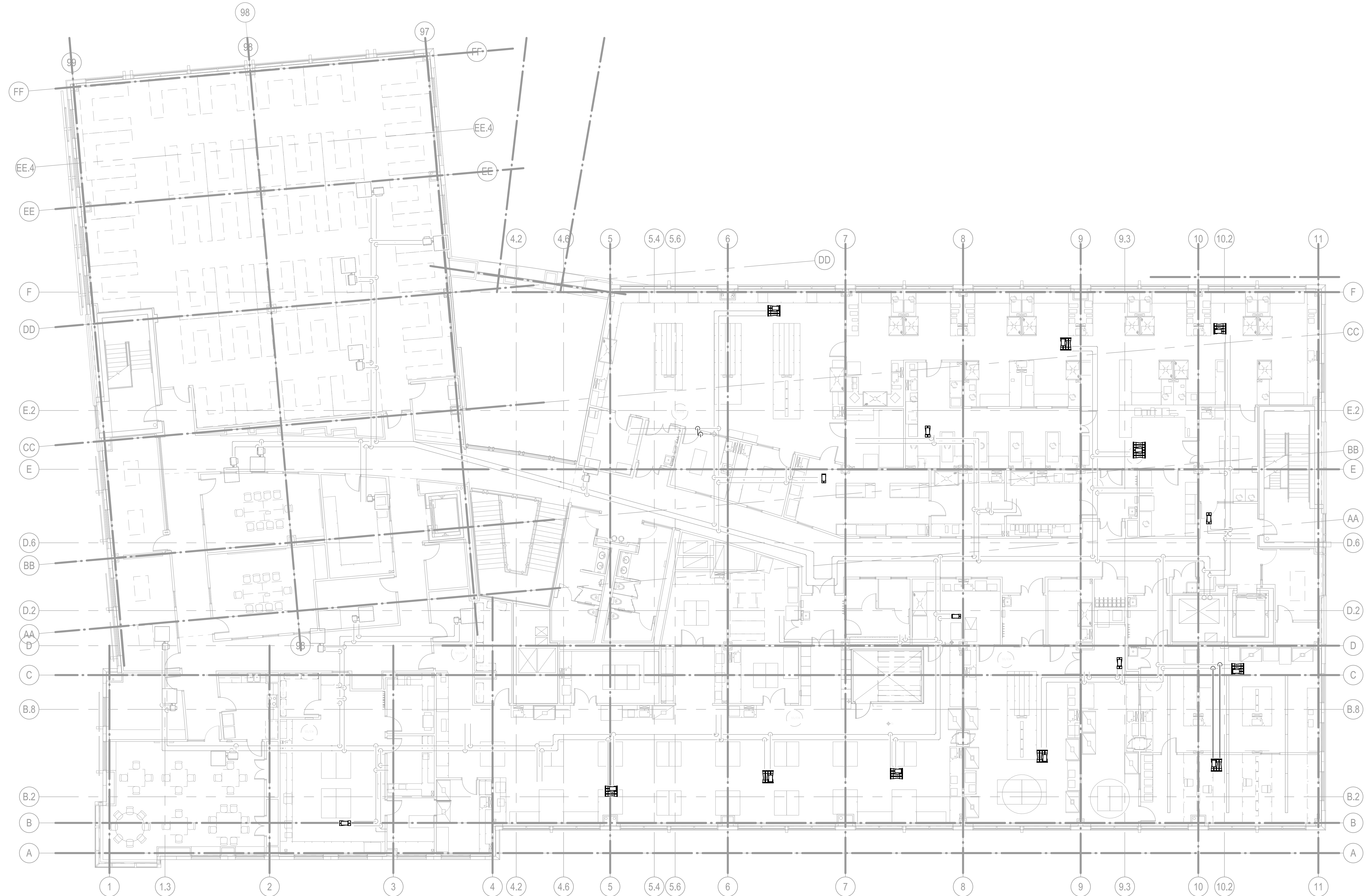


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Date Issued 04/25/23 **Scale** 1/4" = 1'-0"
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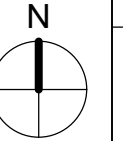
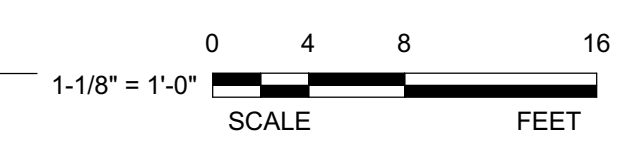
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PIPING PLAN -
LEVEL 1 - AREA F

Sheet Number
M3.01F





1 LEVEL 2 - PIPING PLAN - OVERALL
 SCALE: 1/8" = 1'-0"



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Rev	Date	Description

Keyplan

Project Title
**POLICE CRIME LAB
 AUTOMATION SYSTEM
 REPLACEMENT**

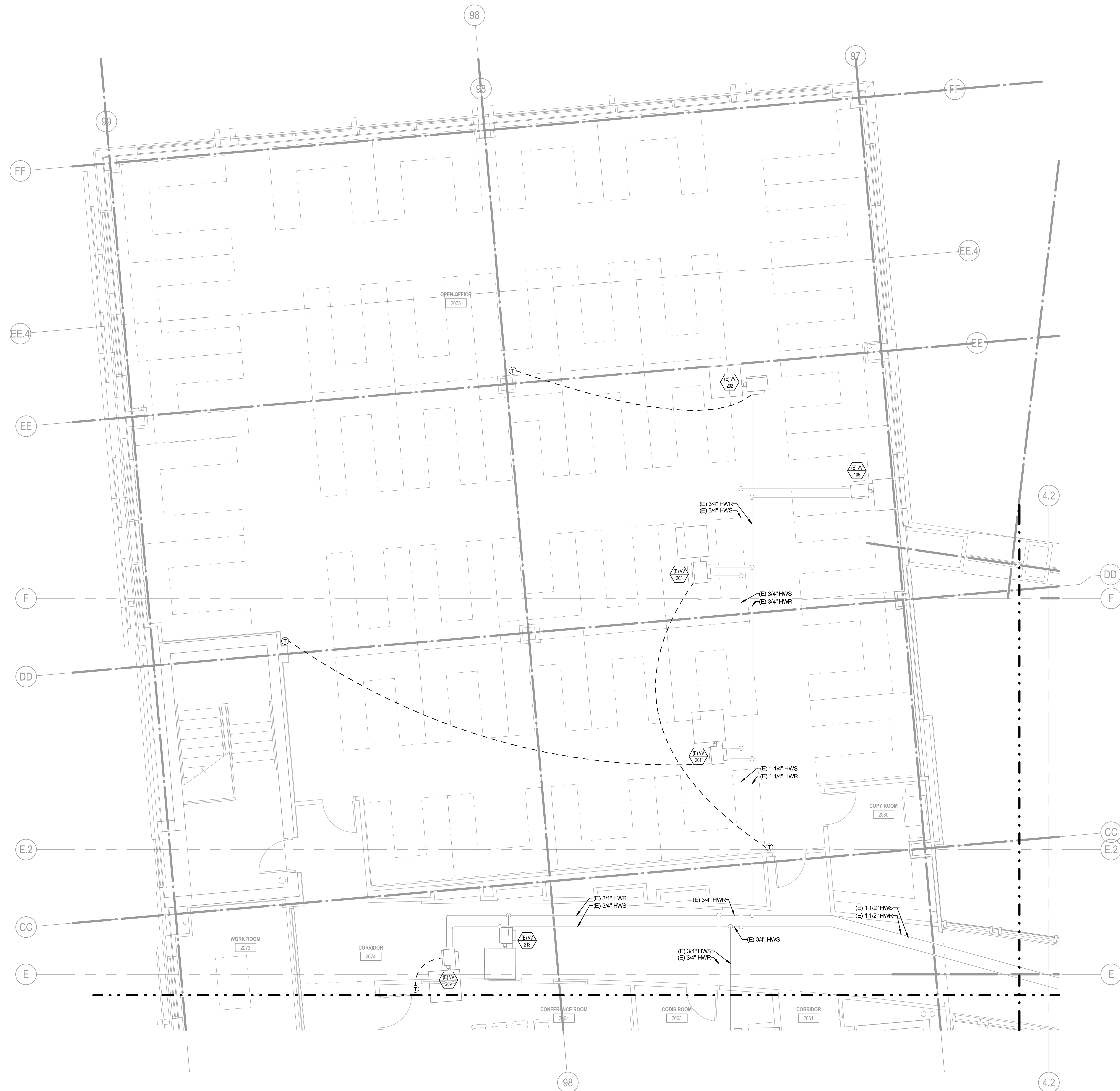
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Sheet Title
**PIPING PLAN -
 LEVEL 2 -
 OVERALL**

Sheet Number
M3.02



1 LEVEL 2 - PIPING PLAN - AREA A
SCALE: 1/4" = 1'-0"

GENERAL NOTES

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KEYNOTES

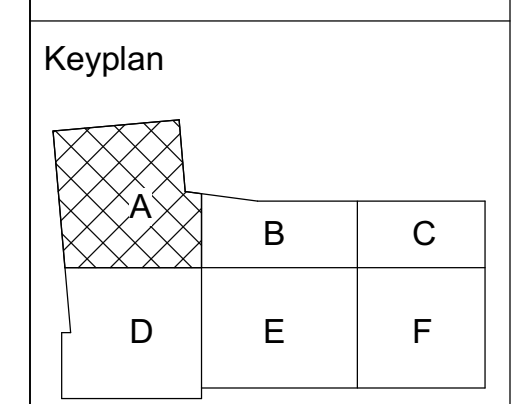
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AEI Project No.: 23457-00

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Issuance and Revisions

Rev	Date	Description



Project Title
**POLICE CRIME LAB
AUTOMATION SYSTEM
REPLACEMENT**

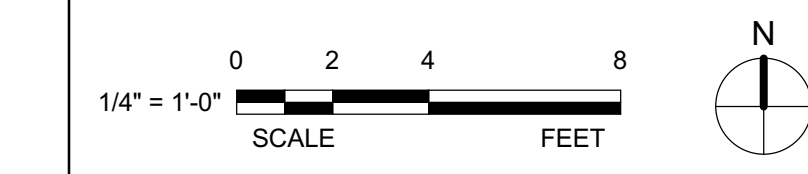
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23457-00
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Sheet Title
**PIPING PLAN -
LEVEL 2 - AREA A**

Sheet Number
M3.02A



GENERAL NOTES

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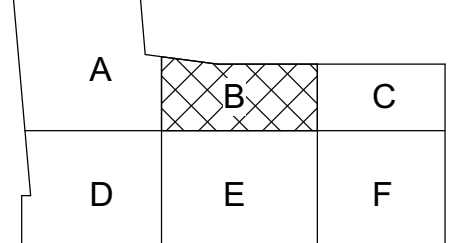
Issuance and Revisions

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Keyplan



Project Title

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Date Issued
04/25/23

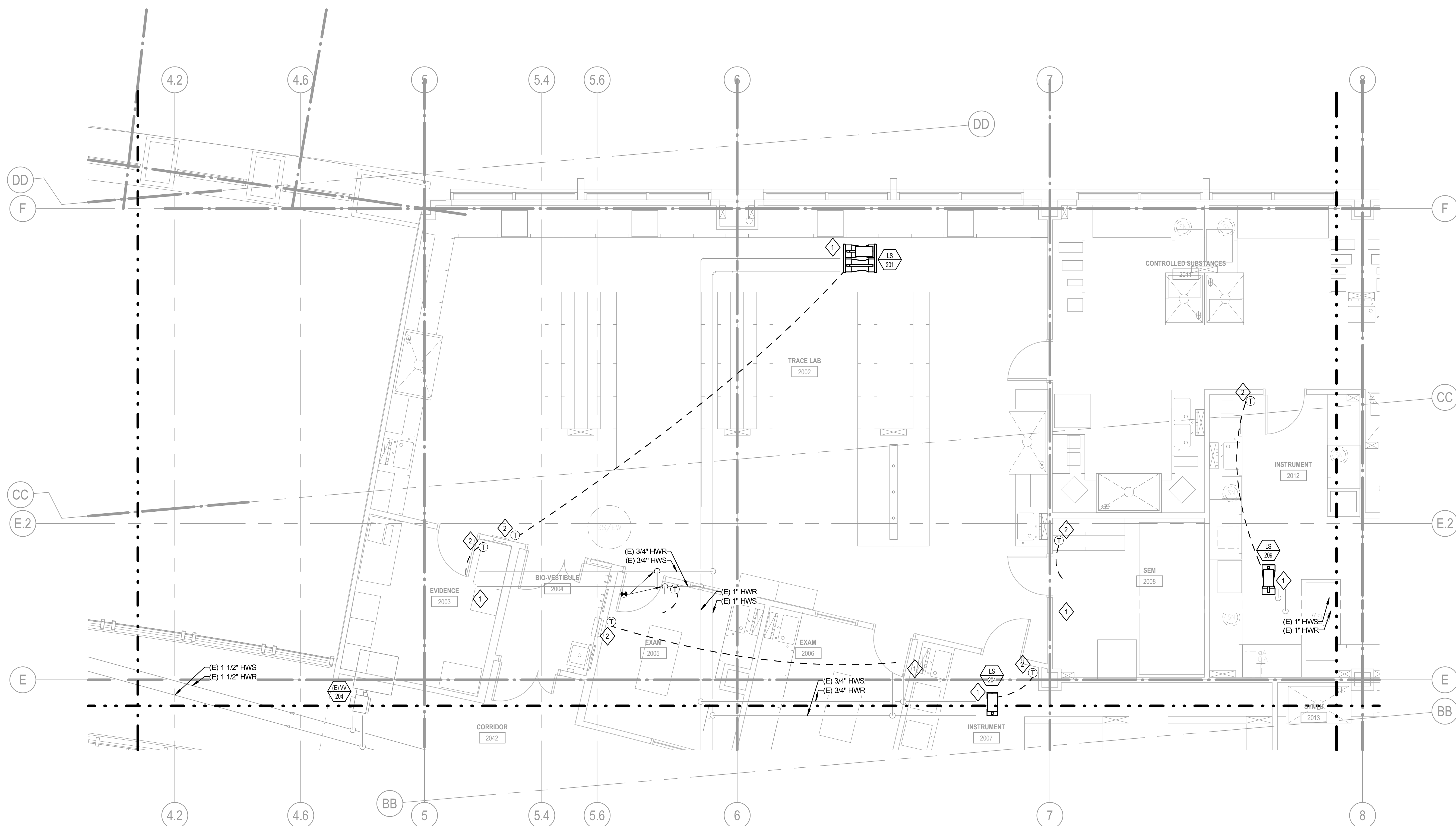
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Author

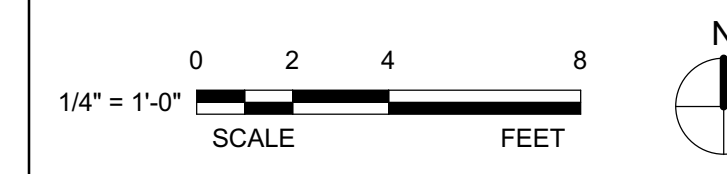
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Sheet Title
**PIPING PLAN -
LEVEL 2 - AREA B**

Sheet Number
M3.02B



1 LEVEL 2 - PIPING PLAN - AREA B
SCALE: 1/4" = 1'-0"



GENERAL NOTES

- EXISTING CONDITIONS ARE BASED ON EXISTING PLANS AND FIELD VERIFICATION WHERE POSSIBLE. ACTUAL CONDITIONS MAY DIFFER FROM THOSE INDICATED. FIELD VERIFY IN ADVANCE THE LOCATION AND CONDITION OF THOSE EXISTING SYSTEMS SHOWN TO BE MODIFIED OR REMOVED. NOTIFY ENGINEER SHOULD CONDITIONS BE FOUND TO DIFFER SIGNIFICANTLY FROM CONSTRUCTION DOCUMENTS.
- DESIGN INTENT IS TO REMOVE ALL EXISTING SUPPLY AND EXHAUST AIR VALVES AND REPLACE WITH NEW. REMOVE DUCTWORK AND PIPING AS REQUIRED TO INSTALL NEW VALVES. REHEAT COILS ARE TO REMAIN. TRANSITION AS REQUIRED FOR NEW CONNECTION TO EXISTING HEAT COILS DOWNSTREAM OF NEW SUPPLY VALVES.
- INTENT IS TO PROVIDE ALL NEW CONTROL SYSTEMS WITH AIR-VALVES. ALL THERMOSTATS AND REHEAT CONTROL VALVES WILL BE REPLACED WITH NEW.
- AIR VALVE UNIT CONTROLLERS SHALL BE MOUNTED ON THE SAME SIDE AS HEATING COIL PIPING. COIL PIPING TO RUN ABOVE CONTROLLERS TO ALLOW ACCESS.
- COORDINATE THE LOCATIONS OF DUCTWORK MAINS AND BRANCHES, AIR VALVES, CONTROL PANELS, ETC. WITH ALL OTHER APPLICABLE PRIOR TO INSTALLATION.
- NO PIPING, DUCTWORK, OR MECHANICAL EQUIPMENT SHALL BE INSTALLED ABOVE ELECTRICAL EQUIPMENT OR IN IDF ROOMS.
- DUCTWORK AND PIPING SHALL BE INSTALLED AS CLOSE TO STRUCTURE AS POSSIBLE.
- ALL EQUIPMENT, DAMPERS, AND VALVES SHALL BE ACCESSIBLE AND LOCATED WITHIN 2'0" OF THE FINISHED CEILING ELEVATION.
- DUCT SIZE TO DIFFUSERS, REGISTERS AND GRILLES SHALL BE SAME AS NECK SIZE UNLESS OTHERWISE NOTED.
- DIFFUSERS/GRILLES WITHIN GYPSUM CEILINGS SHALL BE ALIGNED WITH OTHER CEILING MOUNTED DEVICES. COORDINATE FINAL LOCATION PER ARCHITECTURAL DRAWINGS.
- PROVIDE BALANCING DAMPERS FOR ALL INLETS/OUTLETS. DIFFUSERS IN GYPSUM OR OTHER INACCESSIBLE CEILING TYPES SHALL HAVE REMOTE TYPE BALANCING DAMPERS ACCESSIBLE VIA FACE OF DIFFUSER.

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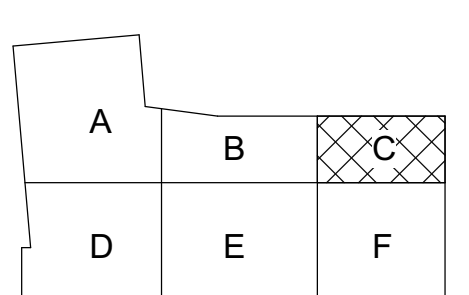
Issuance and Revisions

Rev	Date	Description
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KEYNOTES

- EXISTING THERMOSTAT LOCATION FOR LS-001, LS-002, AND LS-020. DEMO EXISTING THERMOSTAT AND COORDINATE NEW THERMOSTAT IN NEW LOCATION.
- NEW THERMOSTAT TO BE LOCATED IN SAME LOCATION AS REMOVED EXISTING THERMOSTAT AS SHOWN.

Keyplan



Project Title

**POLICE CRIME LAB
AUTOMATION SYSTEM
REPLACEMENT**

621 W WASHINGTON ST.
PHOENIX, AZ 85007

City of Phoenix Project Number:
PW26480024-1



City of Phoenix

Project Number
23457-00

Date Issued
04/25/23

Scale
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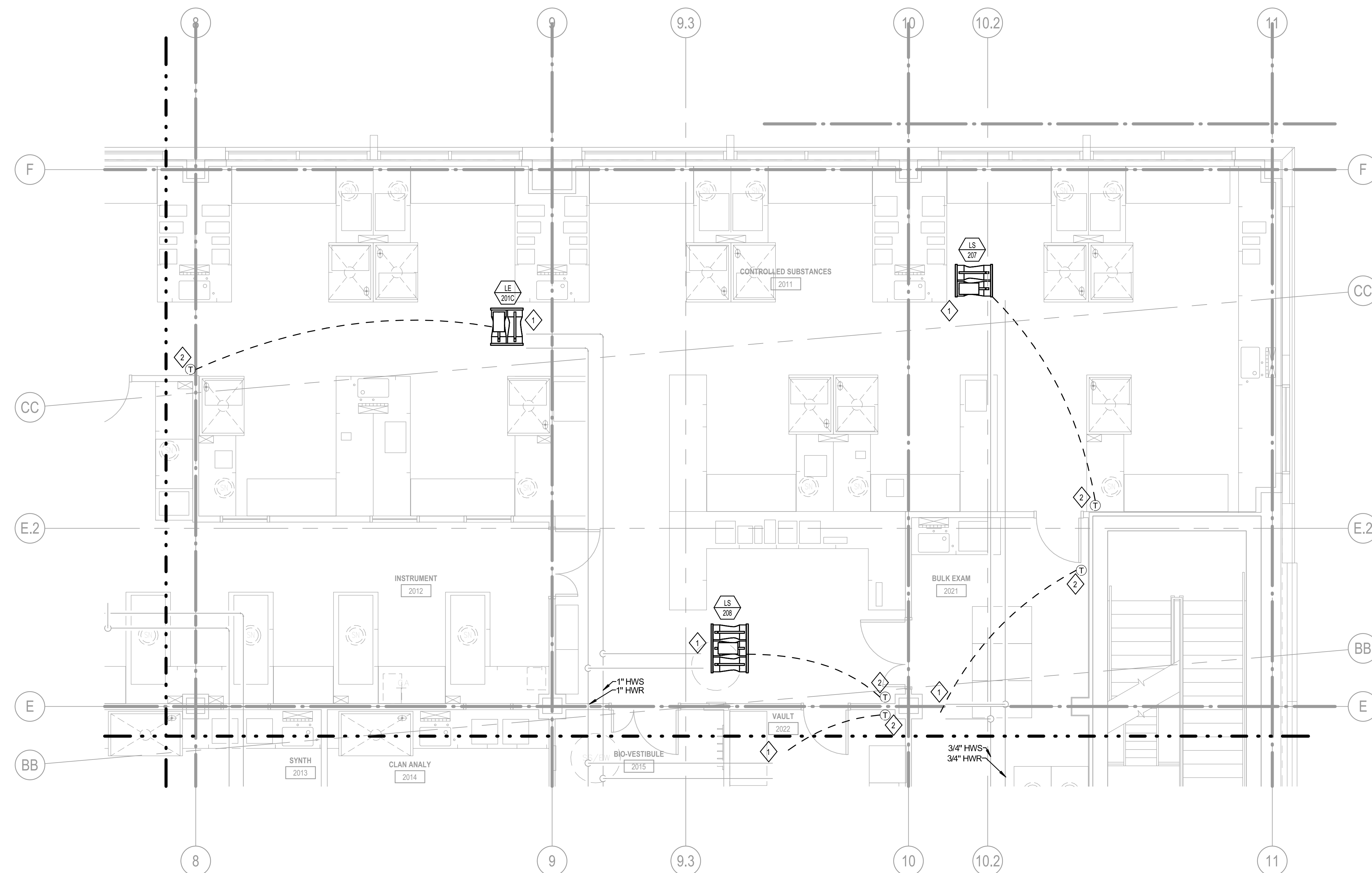
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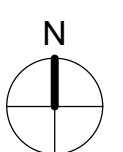
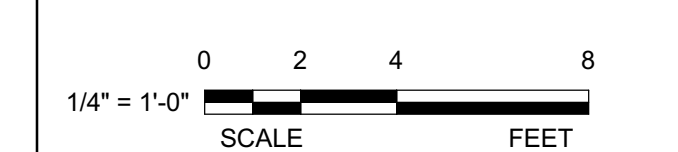
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LEVEL 2 - AREA C**

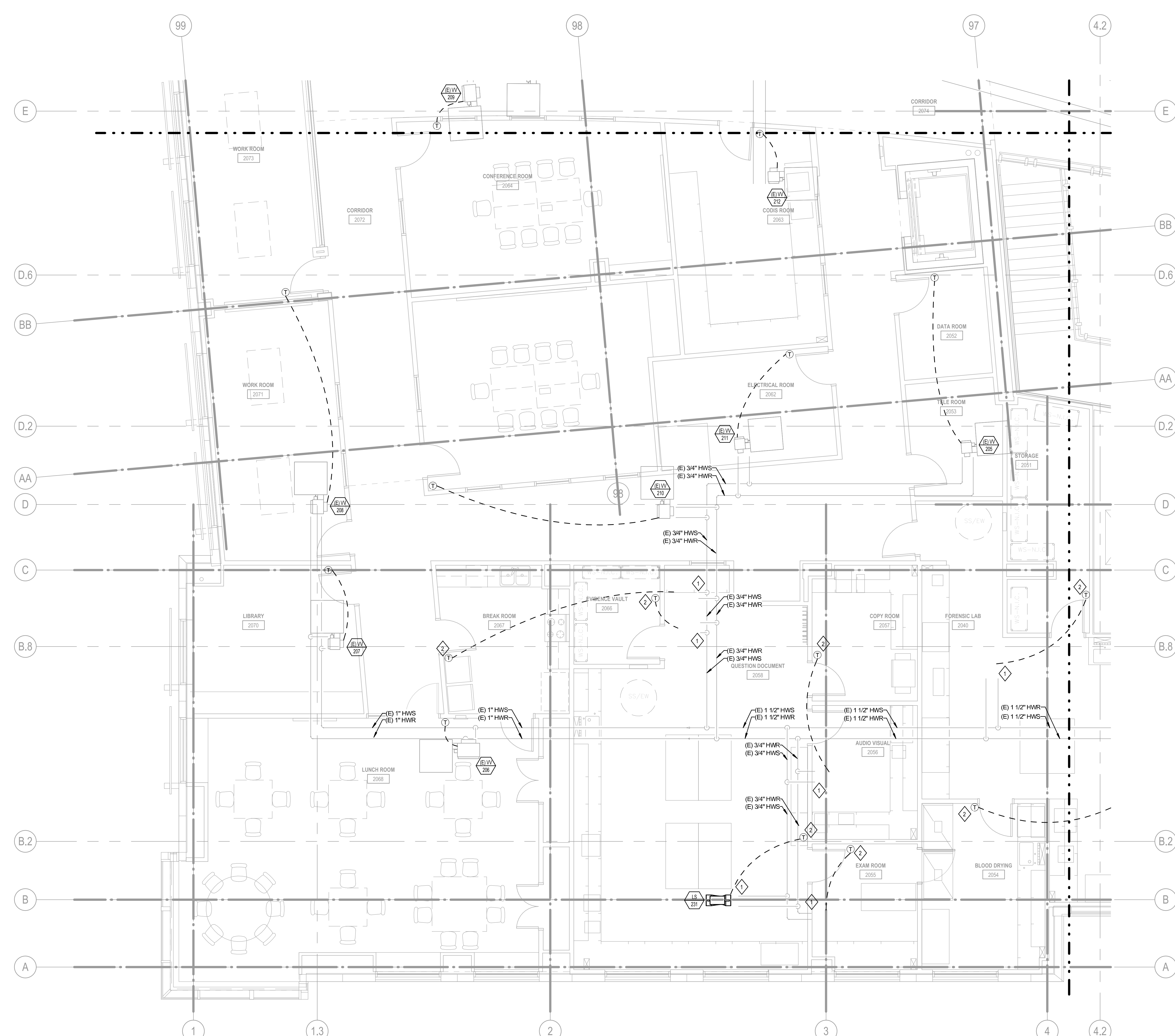
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1 LEVEL 2 - PIPING PLAN - AREA C
SCALE: 1/4" = 1'-0"





1 LEVEL 2 - PIPING PLAN - AREA D
SCALE: 1/4" = 1'-0"

GENERAL NOTES

1. EXISTING CONDITIONS ARE BASED ON EXISTING PLANS AND FIELD VERIFICATION WHERE POSSIBLE. ACTUAL CONDITIONS MAY DIFFER FROM THOSE INDICATED. FIELD VERIFY IN ADVANCE THE LOCATION AND CONDITION OF THOSE EXISTING SYSTEMS SHOWN TO BE MODIFIED OR REMOVED. NOTIFY ENGINEERS SHOULD CONDITIONS BE FOUND TO DIFFER SIGNIFICANTLY FROM CONSTRUCTION DOCUMENTS.
2. DESIGN INTENT IS TO REMOVE ALL EXISTING SUPPLY AND EXHAUST AIR VALVES AND REPLACE WITH NEW. REMOVE DUCTWORK AND PIPING AS REQUIRED TO INSTALL NEW VALVES. REHEAT COILS ARE TO REMAIN. TRANSITION AS REQUIRED FOR NEW CONNECTION TO EXISTING HEAT COILS DOWNSTREAM OF NEW SUPPLY VALVES.
3. INTENT IS TO PROVIDE ALL NEW CONTROL SYSTEMS WITH AIR VALVES. ALL THERMOSTATS AND REHEAT CONTROL VALVES WILL BE REPLACED WITH NEW.
4. AIR VALVE UNIT CONTROLLERS SHALL BE MOUNTED ON THE SAME SIDE AS HEATING COIL PIPING. COIL PIPING TO RUN ABOVE CONTROLLERS TO ALLOW ACCESS.
5. COORDINATE THE LOCATIONS OF DUCTWORK MAINS AND BRANCHES, AIR VALVES, CONTROL PANELS, ETC. WITH ALL OTHER APPLICABLE PRIOR TO INSTALLATION.
6. NO PIPING, DUCTWORK, OR MECHANICAL EQUIPMENT SHALL BE INSTALLED ABOVE ELECTRICAL EQUIPMENT OR IN IDF ROOMS.
7. DUCTWORK AND PIPING SHALL BE INSTALLED AS CLOSE TO STRUCTURE AS POSSIBLE.
8. ALL EQUIPMENT, DAMPERS, AND VALVES SHALL BE ACCESSIBLE AND LOCATED WITHIN 2' OF THE FINISHED CEILING ELEVATION.
9. DUCT SIZE TO DIFFUSERS, REGISTERS AND GRILLES SHALL BE SAME AS NECK SIZE UNLESS OTHERWISE NOTED.
10. DIFFUSERS/GRILLES WITHIN GYPSUM CEILINGS SHALL BE ALIGNED WITH OTHER CEILING MOUNTED DEVICES. COORDINATE FINAL LOCATION PER ARCHITECTURAL DRAWINGS.
11. PROVIDE BALANCING DAMPERS FOR ALL INLETS/OUTLETS, DIFFUSERS IN GYPSUM OR OTHER INACCESSIBLE CEILING TYPES SHALL HAVE REMOTE TYPE BALANCING DAMPERS ACCESSIBLE VIA FACE OF DIFFUSER.

KEYNOTES

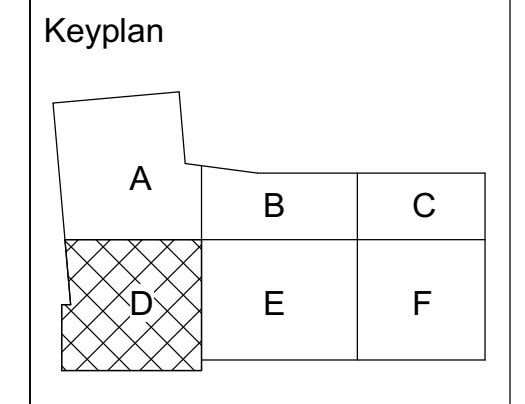
1. INSTALL VALVE ASSEMBLY AS SHOWN IN DIAGRAM 4/M8.01. REFER TO AIR VALVE SCHEDULES FOR MORE INFORMATION FOR CONTROL VALVE SIZING. VALVES SHALL BE PRESSURE INDEPENDENT TYPE CONTROL VALVES. RECONNECT NEW VALVE ASSEMBLY TO TO EXISTING REHEAT COIL.
2. NEW THERMOSTAT TO BE LOCATED IN SAME LOCATION AS REMOVED EXISTING THERMOSTAT AS SHOWN.



PROGRESS SET
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Issuance and Revisions

Rev	Date	Description



Project Title

**POLICE CRIME LAB
AUTOMATION SYSTEM
REPLACEMENT**

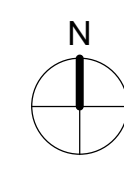
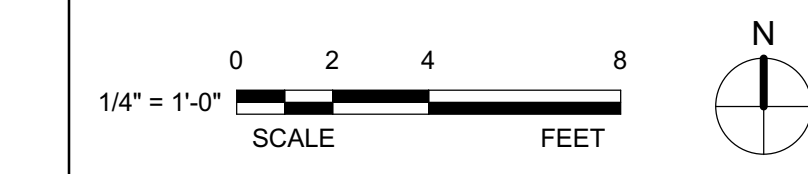


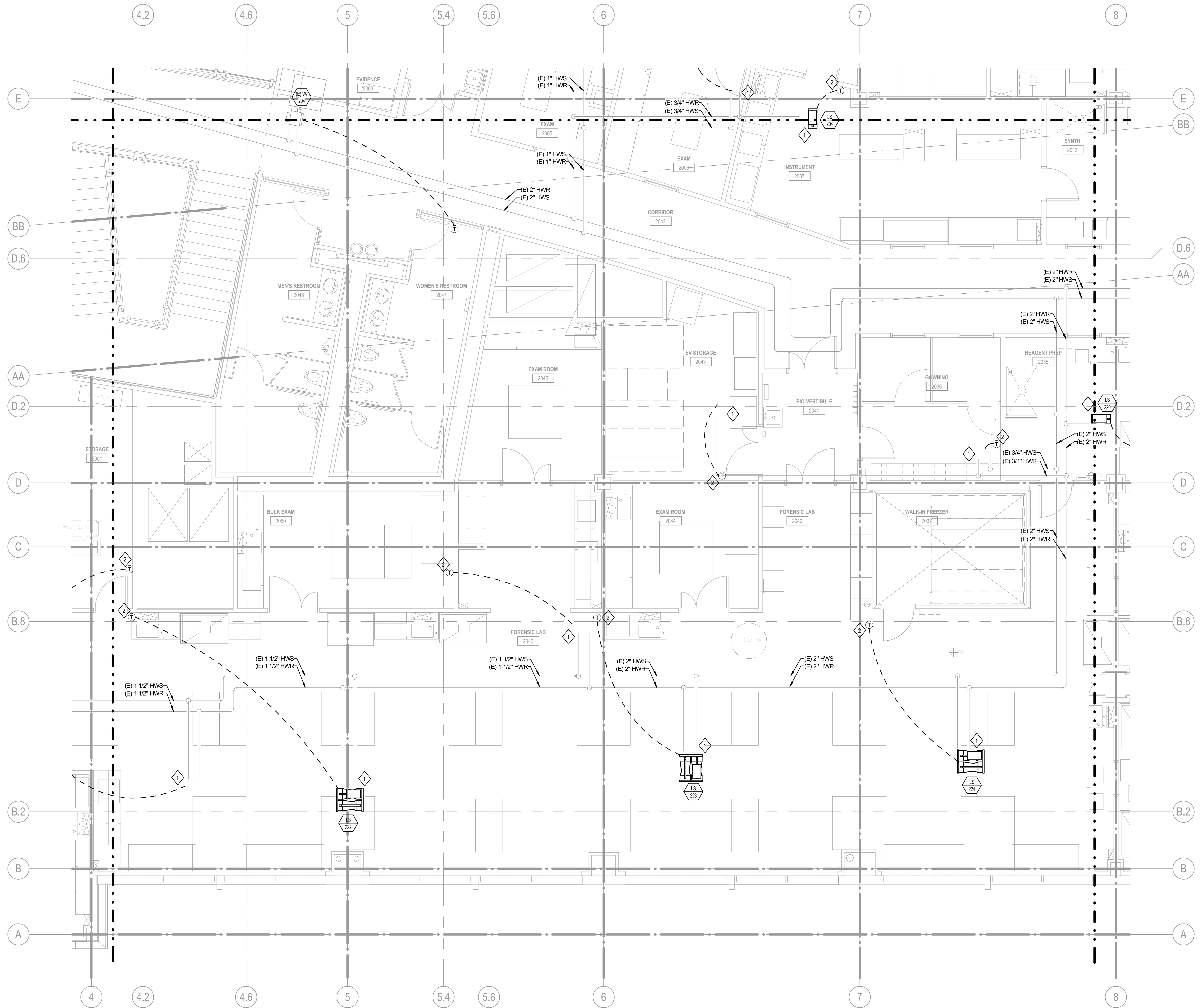
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Date Issued
04/25/23
Scale
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Sheet Title

**PIPING PLAN -
LEVEL 2 - AREA D**

Sheet Number
M3.02D





1 LEVEL 2 - PIPING PLAN - AREA E
SCALE: 1/4" = 1'-0"

GENERAL NOTES

- EXISTING CONDITIONS ARE BASED ON EXISTING PLANS AND FIELD VERIFICATION WHERE POSSIBLE. ACTUAL CONDITIONS MAY DIFFER FROM THOSE INDICATED. FIELD VERIFY IN ADVANCE THE LOCATION AND CONDITION OF THOSE EXISTING SYSTEMS SHOWN TO BE MODIFIED OR REMOVED. NOTIFY ENGINEER SHOULD CONDITIONS BE FOUND TO DIFFER SIGNIFICANTLY FROM CONSTRUCTION DOCUMENTS.
- DESIGN INTENT IS TO REMOVE ALL EXISTING SUPPLY AND EXHAUST AIR VALVES AND REPLACE WITH NEW. REMOVE DUCTWORK AND PIPING AS REQUIRED TO INSTALL NEW VALVES. REHEAT COILS ARE TO REMAIN. TRANSITION AS REQUIRED FOR NEW CONNECTION TO EXISTING HEAT COILS DOWNSTREAM OF NEW SUPPLY VALVES.
- INTENT IS TO PROVIDE ALL NEW CONTROL SYSTEMS WITH AIR-VALVES. ALL THERMOSTATS AND REHEAT CONTROL VALVES WILL BE REPLACED WITH NEW.
- AIR VALVE UNIT CONTROLLERS SHALL BE MOUNTED ON THE SAME SIDE AS HEATING COIL PIPING. COIL PIPING TO RUN ABOVE CONTROLLERS TO ALLOW ACCESS.
- COORDINATE THE LOCATIONS OF DUCTWORK MAINS AND BRANCHES, AIR VALVES, CONTROL PANELS, ETC. WITH ALL OTHER APPLICABLE PRIOR TO INSTALLATION.
- NO PIPING, DUCTWORK, OR MECHANICAL EQUIPMENT SHALL BE INSTALLED ABOVE ELECTRICAL EQUIPMENT OR IN IDF ROOMS.
- DUCTWORK AND PIPING SHALL BE INSTALLED AS CLOSE TO STRUCTURE AS POSSIBLE.
- ALL EQUIPMENT, DAMPERS, AND VALVES SHALL BE ACCESSIBLE AND LOCATED WITHIN 20" OF THE FINISHED CEILING ELEVATION.
- DUCT SIZE TO DIFFUSERS, REGISTERS AND GRILLES SHALL BE SAME AS NECK SIZE UNLESS OTHERWISE NOTED.
- DIFFUSERS/GRILLES WITHIN GYPSUM CEILINGS SHALL BE ALIGNED WITH OTHER CEILING MOUNTED DEVICES. COORDINATE FINAL LOCATION PER ARCHITECTURAL DRAWINGS.
- PROVIDE BALANCING DAMPERS FOR ALL INLETS/OUTLETS. DIFFUSERS IN GYPSUM OR OTHER INACCESSIBLE CEILING TYPES SHALL HAVE REMOTE TYPE BALANCING DAMPERS ACCESSIBLE VIA FACE OF DIFFUSER.

KEYNOTES

- INSTALL VALVE ASSEMBLY AS SHOWN IN DIAGRAM 4/M8.01. REFER TO AIR VALVE SCHEDULES FOR MORE INFORMATION FOR CONTROL VALVE SIZING. VALVES SHALL BE PRESSURE INDEPENDENT TYPE CONTROL VALVES. RECONNECT NEW VALVE ASSEMBLY TO TO EXISTING REHEAT COIL.
- NEW THERMOSTAT TO BE LOCATED IN SAME LOCATION AS REMOVED EXISTING THERMOSTAT AS SHOWN.

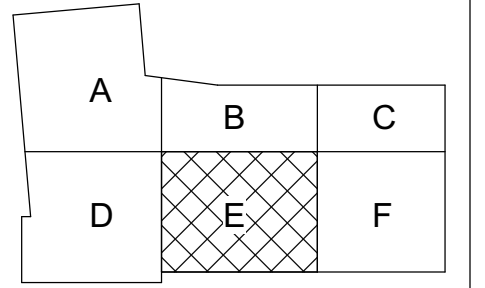


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Issuance and Revisions

Rev	Date	Description

Keyplan



Project Title
**POLICE CRIME LAB
AUTOMATION SYSTEM
REPLACEMENT**

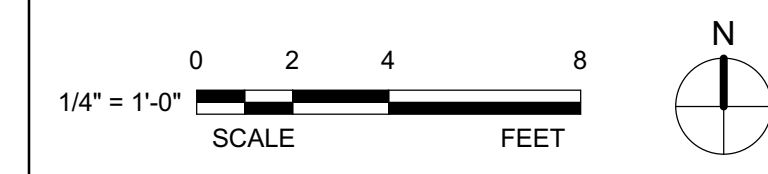
621 W WASHINGTON ST.
PHOENIX, AZ 85007
City of Phoenix Project Number:
PW26480024-1

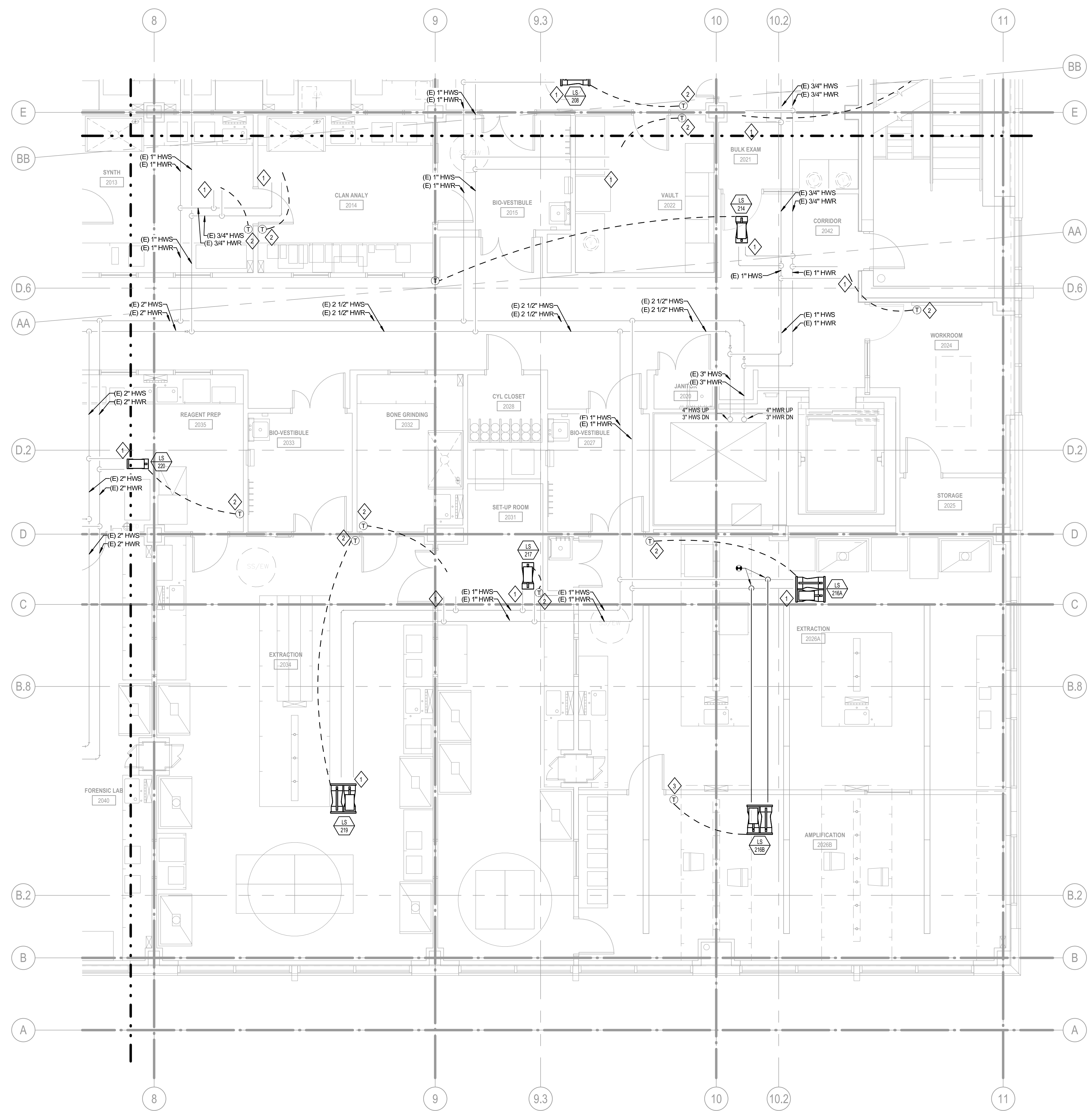


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23457-00
Date Issued
04/25/23
Scale
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Sheet Title
**PIPING PLAN -
LEVEL 2 - AREA E**

Sheet Number
M3.02E





1 LEVEL 2 - PIPING PLAN - AREA F
SCALE: 1/4" = 1'-0"

GENERAL NOTES

- EXISTING CONDITIONS ARE BASED ON EXISTING PLANS AND FIELD VERIFICATION WHERE POSSIBLE. ACTUAL CONDITIONS MAY DIFFER FROM THOSE INDICATED. FIELD VERIFY IN ADVANCE THE LOCATION AND CONDITION OF THOSE EXISTING SYSTEMS SHOWN TO BE MODIFIED OR REMOVED. NOTIFY ENGINEER SHOULD CONDITIONS BE FOUND TO DIFFER SIGNIFICANTLY FROM CONSTRUCTION DOCUMENTS.
- DESIGN INTENT IS TO REMOVE ALL EXISTING SUPPLY AND EXHAUST AIR VALVES AND REPLACE WITH NEW. REMOVE DUCTWORK AND PIPING AS REQUIRED TO INSTALL NEW VALVES. REHEAT COILS ARE TO REMAIN. TRANSITION AS REQUIRED FOR NEW CONNECTION TO EXISTING HEAT COILS DOWNSTREAM OF NEW SUPPLY VALVES.
- INTENT IS TO PROVIDE ALL NEW CONTROL SYSTEMS WITH AIR-VALVES. ALL THERMOSTATS AND REHEAT CONTROL VALVES WILL BE REPLACED WITH NEW.
- AIR VALVE UNIT CONTROLLERS SHALL BE MOUNTED ON THE SAME SIDE AS HEATING COIL PIPING. COIL PIPING TO RUN ABOVE CONTROLLERS TO ALLOW ACCESS.
- COORDINATE THE LOCATIONS OF DUCTWORK MAINS AND BRANCHES, AIR VALVES, CONTROL PANELS, ETC. WITH ALL OTHER APPLICABLE PRIOR TO INSTALLATION.
- NO PIPING, DUCTWORK, OR MECHANICAL EQUIPMENT SHALL BE INSTALLED ABOVE ELECTRICAL EQUIPMENT OR IN IDF ROOMS.
- DUCTWORK AND PIPING SHALL BE INSTALLED AS CLOSE TO STRUCTURE AS POSSIBLE.
- ALL EQUIPMENT, DAMPERS, AND VALVES SHALL BE ACCESSIBLE AND LOCATED WITHIN 2' OF THE FINISHED CEILING ELEVATION.
- DUCT SIZE TO DIFFUSERS, REGISTERS AND GRILLES SHALL BE SAME AS NECK SIZE UNLESS OTHERWISE NOTED.
- DIFFUSERS/GRILLES WITHIN GYPSUM CEILINGS SHALL BE ALIGNED WITH OTHER CEILING MOUNTED DEVICES. COORDINATE FINAL LOCATION PER ARCHITECTURAL DRAWINGS.
- PROVIDE BALANCING DAMPERS FOR ALL INLETS/OUTLETS, DIFFUSERS IN GYPSUM OR OTHER INACCESSIBLE CEILING TYPES SHALL HAVE REMOTE TYPE BALANCING DAMPERS ACCESSIBLE VIA FACE OF DIFFUSER.

KEYNOTES

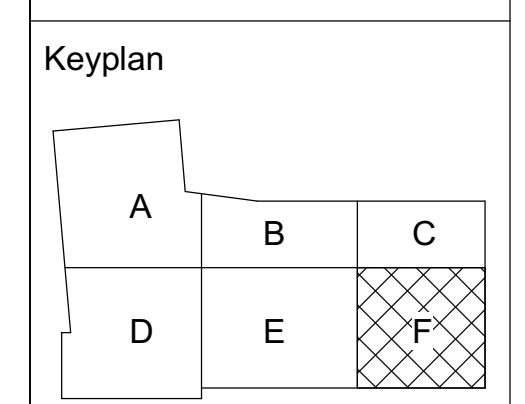
- INSTALL VALVE ASSEMBLY AS SHOWN IN DIAGRAM 4/M8.01. REFER TO AIR VALVE SCHEDULES FOR MORE INFORMATION FOR CONTROL VALVE SIZING. VALVES SHALL BE PRESSURE INDEPENDENT TYPE CONTROL VALVES. RECONNECT NEW VALVE ASSEMBLY TO TO EXISTING REHEAT COIL.
- NEW THERMOSTAT TO BE LOCATED IN SAME LOCATION AS REMOVED EXISTING THERMOSTAT AS SHOWN.
- NEW THERMOSTAT LOCATION.



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Issuance and Revisions

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Project Title
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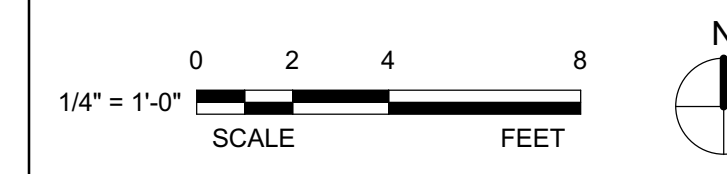
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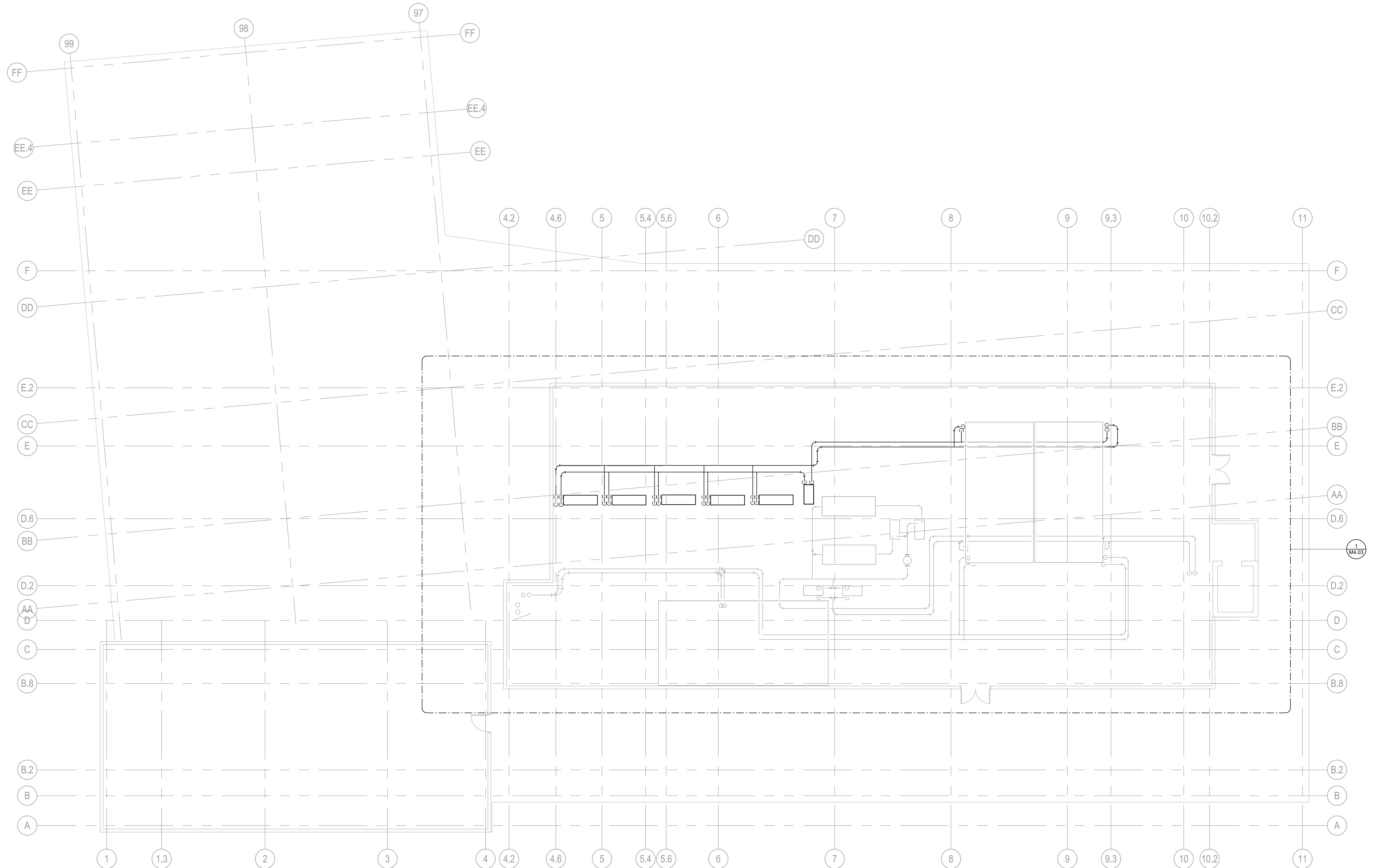


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Date Issued
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Sheet Title
**PIPING PLAN -
LEVEL 2 - AREA F**

Sheet Number
M3.02F





1 ROOF - PIPING PLAN - OVERALL
SCALE: 1/8" = 1'-0"



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Issuance and Revisions

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Keyplan

Project Title

**POLICE CRIME LAB
AUTOMATION SYSTEM
REPLACEMENT**

621 W WASHINGTON ST.
PHOENIX, AZ 85007

City of Phoenix Project Number:
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City of Phoenix

Project Number
23457-00

Date Issued
04/25/23

Scale
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Sheet Title
**PIPING PLAN -
ROOF - OVERALL**

Sheet Number

M3.03

GENERAL NOTES

- EXISTING CONDITIONS ARE BASED ON EXISTING PLANS AND FIELD VERIFICATION WHERE POSSIBLE. ACTUAL CONDITIONS MAY DIFFER FROM THOSE INDICATED. FIELD VERIFY IN ADVANCE THE LOCATION AND CONDITION OF THOSE EXISTING SYSTEMS SHOWN TO BE MODIFIED OR REMOVED. NOTIFY ENGINEER SHOULD CONDITIONS BE FOUND TO DIFFER SIGNIFICANTLY FROM CONSTRUCTION DOCUMENTS.
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- INTENT IS TO PROVIDE ALL NEW CONTROL SYSTEMS WITH AIR VALVES. ALL THERMOSTATS AND REHEAT CONTROL VALVES WILL BE REPLACED WITH NEW.
- AIR VALVE UNIT CONTROLLERS SHALL BE MOUNTED ON THE SAME SIDE AS HEATING COIL PIPING. COIL PIPING TO RUN ABOVE CONTROLLERS TO ALLOW ACCESS.
- COORDINATE THE LOCATIONS OF DUCTWORK MAINS AND BRANCHES, AIR VALVES, CONTROL PANELS, ETC. WITH ALL OTHER APPLICABLE PRIOR TO INSTALLATION.
- NO PIPING, DUCTWORK, OR MECHANICAL EQUIPMENT SHALL BE INSTALLED ABOVE ELECTRICAL EQUIPMENT OR IN IDF ROOMS.
- DUCTWORK AND PIPING SHALL BE INSTALLED AS CLOSE TO STRUCTURE AS POSSIBLE.
- ALL EQUIPMENT, DAMPERS AND VALVES SHALL BE ACCESSIBLE AND LOCATED WITHIN 2'-0" OF THE FINISHED CEILING ELEVATION.
- DUCT SIZE TO DIFFUSERS, REGISTERS AND GRILLES SHALL BE SAME AS NECK SIZE UNLESS OTHERWISE NOTED.
- DIFFUSERS/GRILLES WITHIN GYPSUM CEILINGS SHALL BE ALIGNED WITH OTHER CEILING MOUNTED DEVICES. COORDINATE FINAL LOCATION PER ARCHITECTURAL DRAWINGS.
- PROVIDE BALANCING DAMPERS FOR ALL INLETS/OUTLETS. DIFFUSERS IN GYPSUM OR OTHER INACCESSIBLE CEILING TYPES SHALL HAVE REMOTE TYPE BALANCING DAMPERS ACCESSIBLE VIA FACE OF DIFFUSER.

KEYNOTES

- TRANSFER DUCT IN WALL. TERMINATE RETURN DIFFUSER AT 2' AFF. ROUTE DUCT UP THROUGH THE WALL AND OPEN TO PLENUM SPACE ABOVE CEILING FOR TRANSFER AIR INTO PLENUM.
- DESIGN INTENT IS TO PRESSURIZE CEILING PLENUM ABOVE CLEAN ROOM. AIR VALVES PROVIDE OAKA FOR PRESSURIZATION. FFU PROVIDES AIR CHANGES AND HEPA FILTRATION. BALANCE AIR VALVES, BEGINNING BY ADJUSTING EXHAUST AIR FLOW, IN ORDER TO ACHIEVE INITIAL PRESSURIZATION.

Keyplan

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Issuance and Revisions

Rev	Date	Description

Project Title
**POLICE CRIME LAB
AUTOMATION SYSTEM
REPLACEMENT**

621 W WASHINGTON ST.
PHOENIX, AZ 85007

City of Phoenix Project Number:
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City of Phoenix

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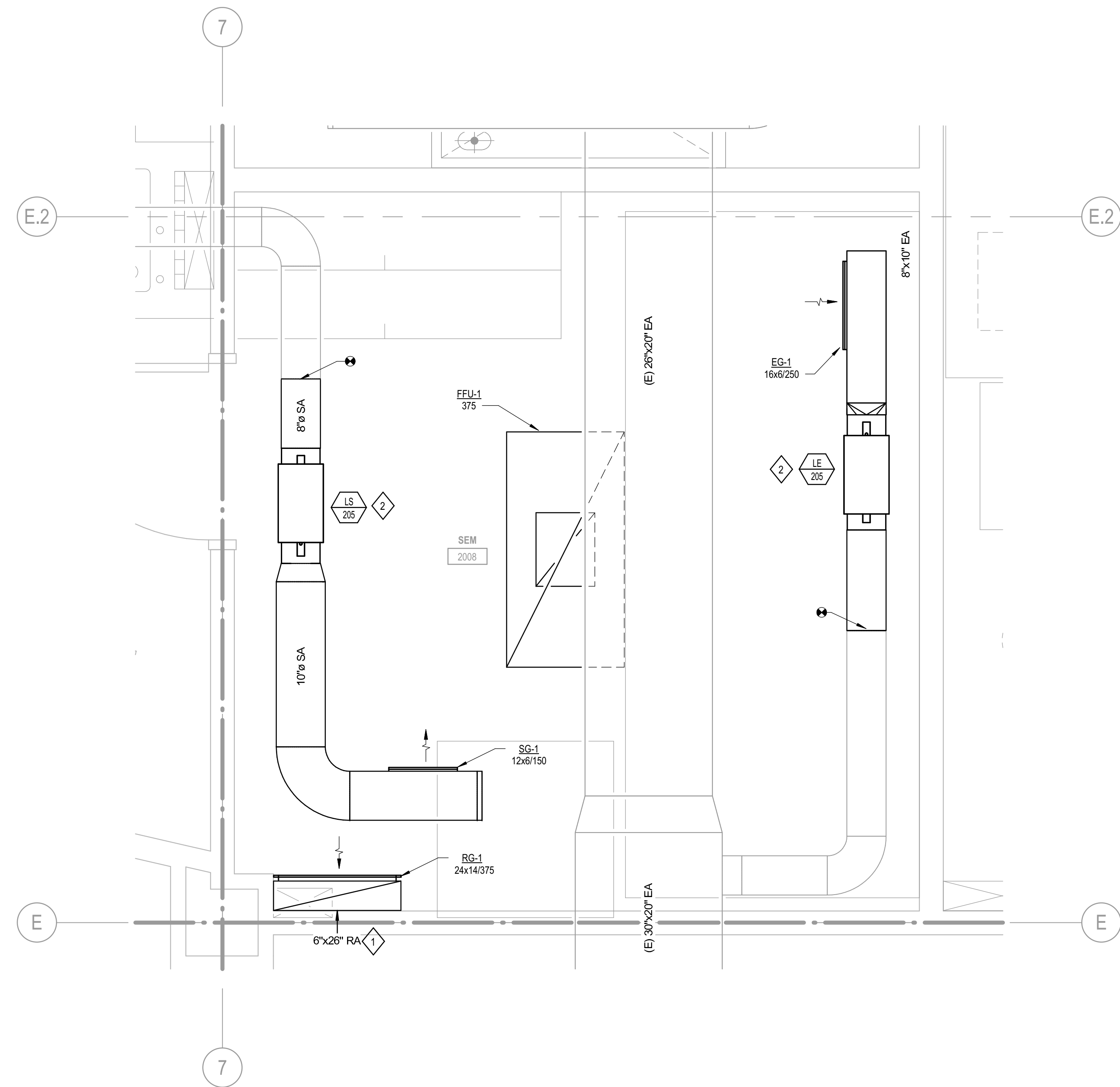
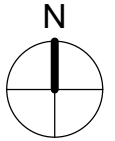
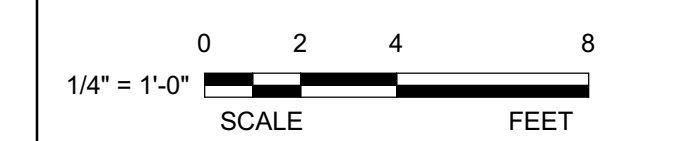
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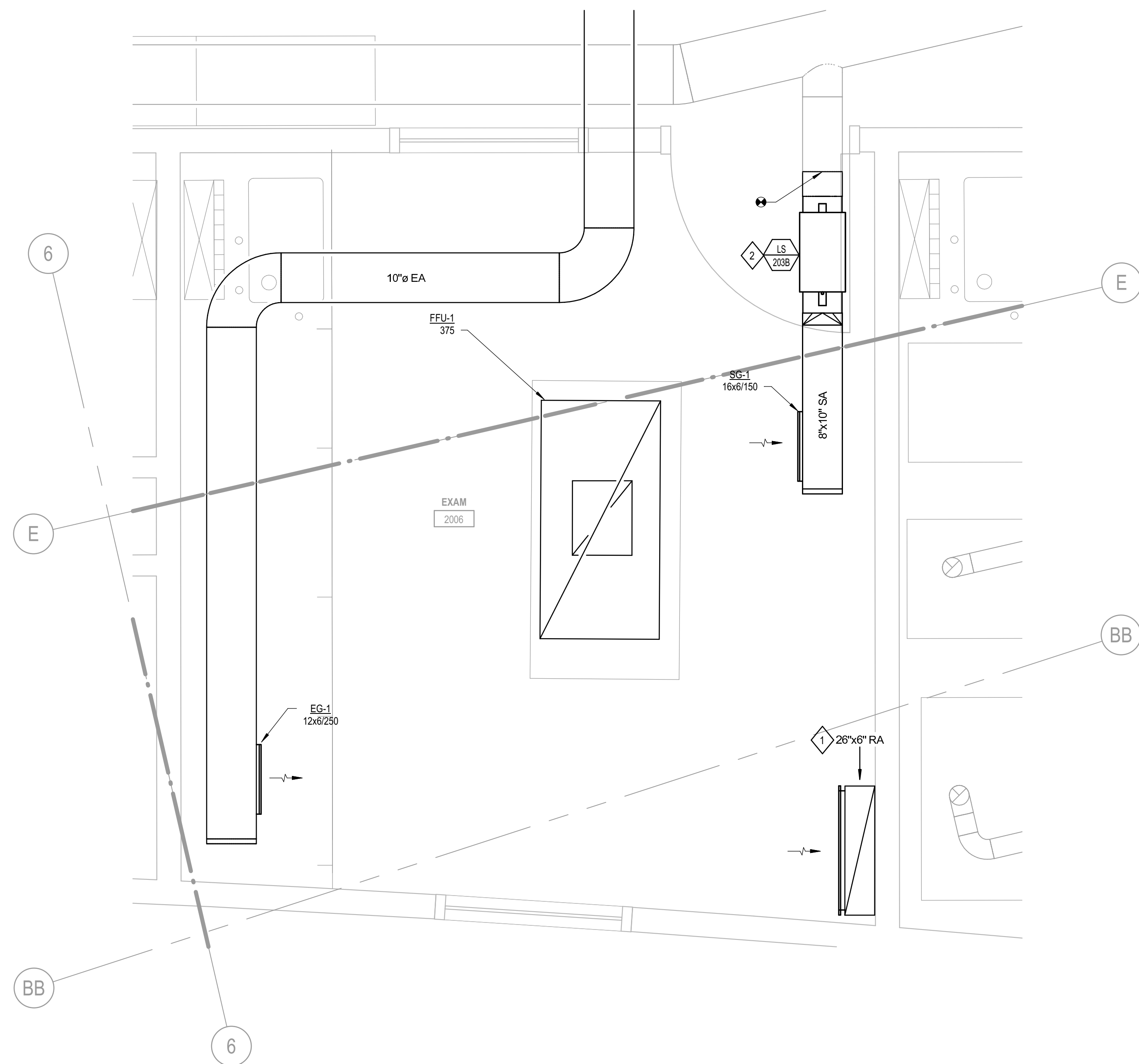
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Sheet Title
**ENLARGED
PLANS**

Sheet Number
M4.01



1 LEVEL 2 - HVAC PLAN - AREA B - CALLOUT 1 (CLEAN ROOM)
SCALE: 3/4" = 1'-0"



2 LEVEL 2 - HVAC PLAN - AREA B - CALLOUT 2 (CLEAN ROOM)
SCALE: 3/4" = 1'-0"

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Issuance and Revisions

Rev	Date	Description
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Keyplan

Project Title

**POLICE CRIME LAB
 AUTOMATION SYSTEM
 REPLACEMENT**

621 W WASHINGTON ST.
 PHOENIX, AZ 85007

City of Phoenix Project Number:
 PW26480024-1



City of Phoenix

Project Number
 23457-00

Date Issued 05/22/23	Scale 1/8" = 1'-0"
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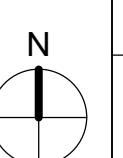
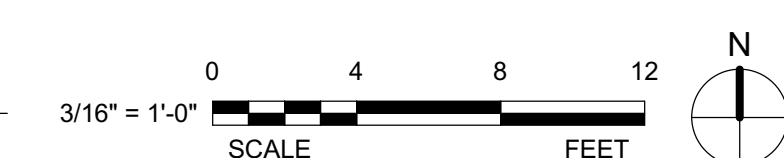
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**ENLARGED ROOF
 HVAC PLAN**

Sheet Number

M4.02



1 ROOF - ENLARGED HVAC PLAN
 SCALE: 1/8" = 1'-0"



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Issuance and Revisions

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Keyplan

Project Title
**POLICE CRIME LAB
 AUTOMATION SYSTEM
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621 W WASHINGTON ST.
 PHOENIX, AZ 85007
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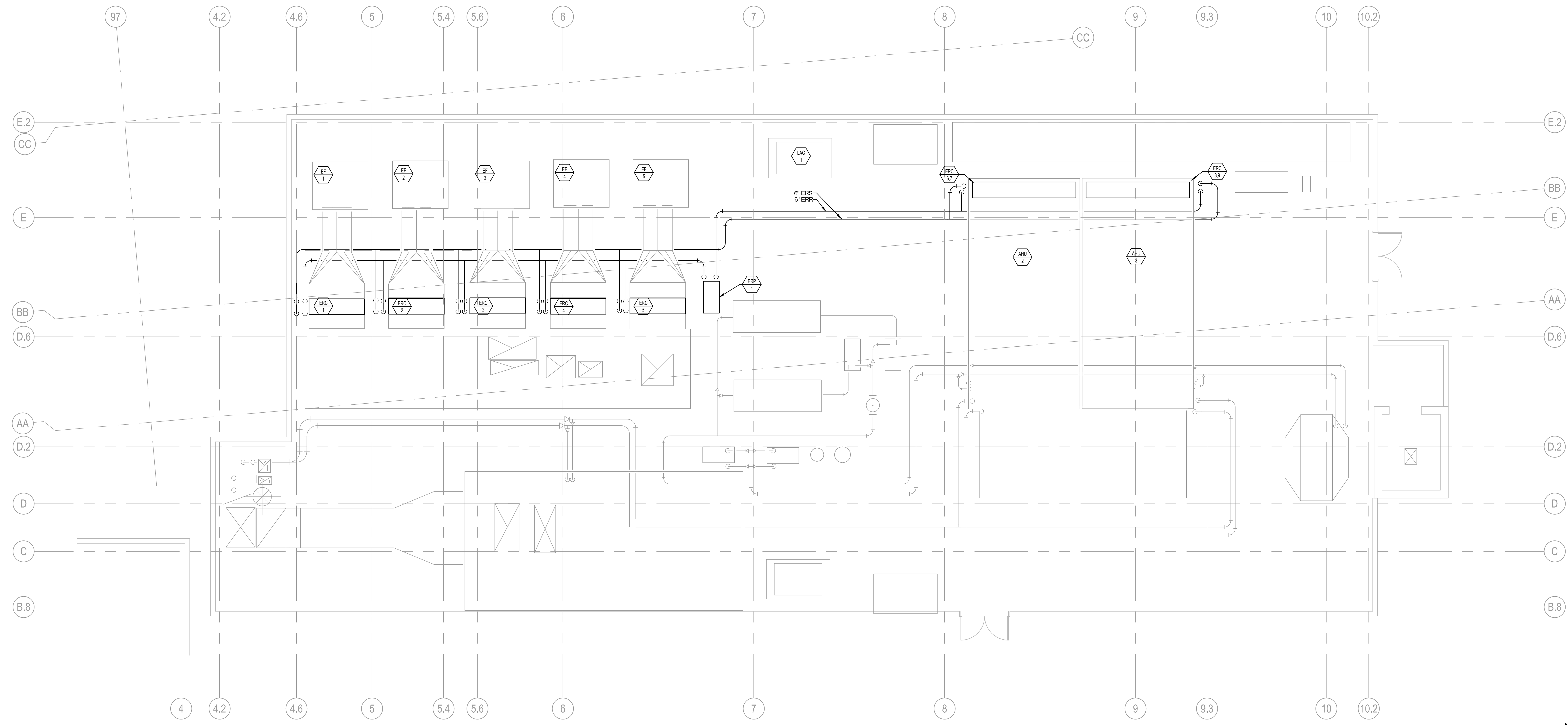


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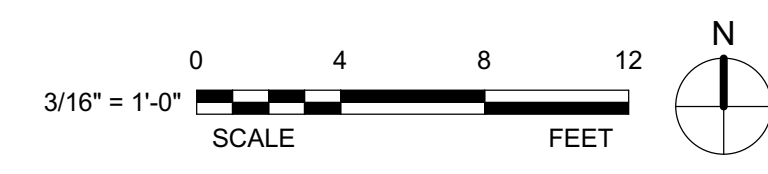
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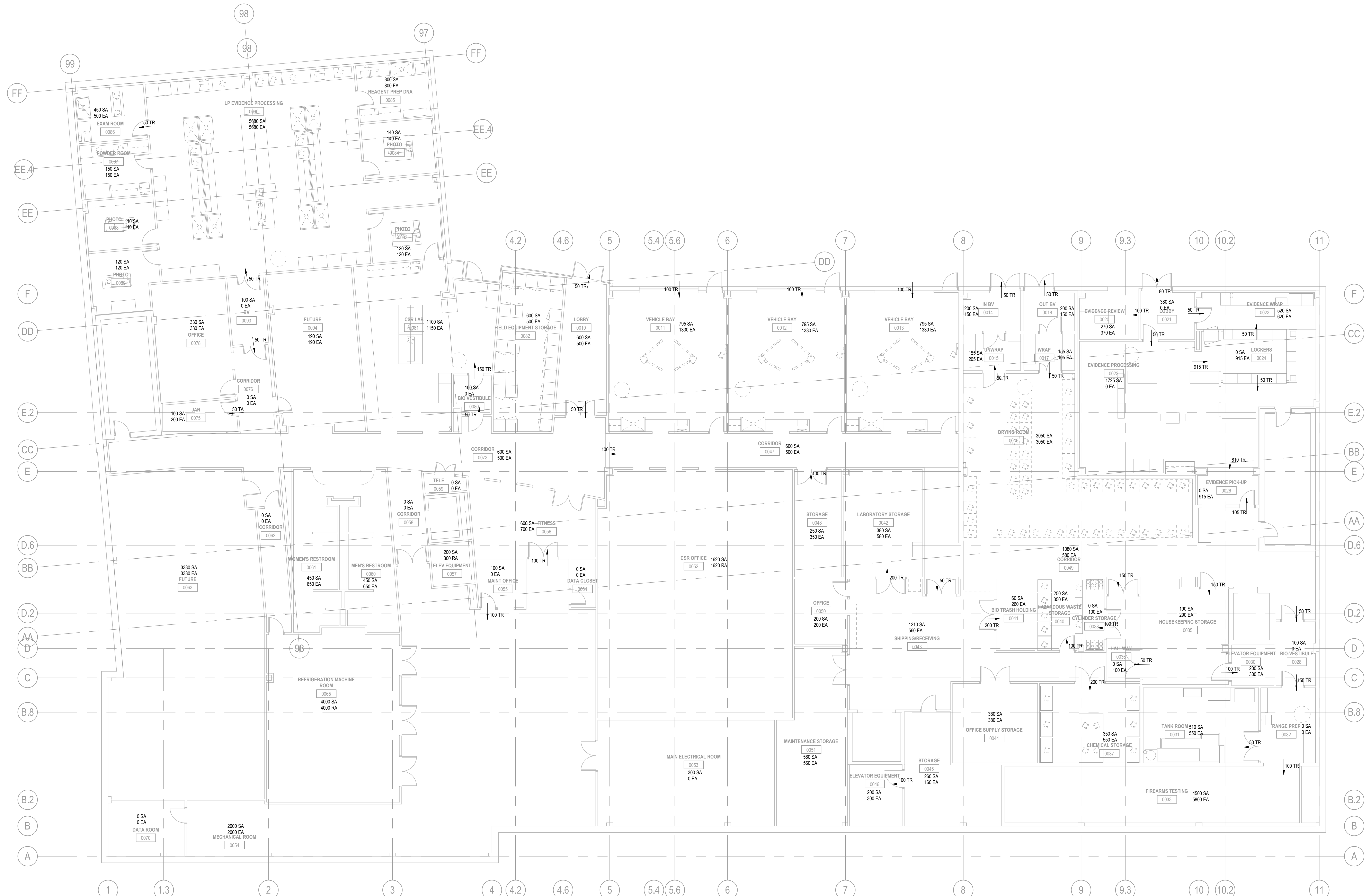
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**ENLARGED ROOF
 PIPING PLAN**

Sheet Number
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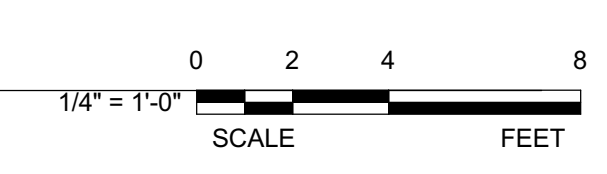


1 ROOF - ENLARGED PIPING PLAN
 SCALE: 3/16" = 1'-0"





1 BASEMENT - AIR BALANCE PLAN - OVERALL SCALE: 1/8" = 1'-0"



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Keyplan

Project Title POLICE CRIME LAB AUTOMATION SYSTEM REPLACEMENT

621 W WASHINGTON ST. PHOENIX, AZ 85007

City of Phoenix Project Number: PW26480024-1



City of Phoenix

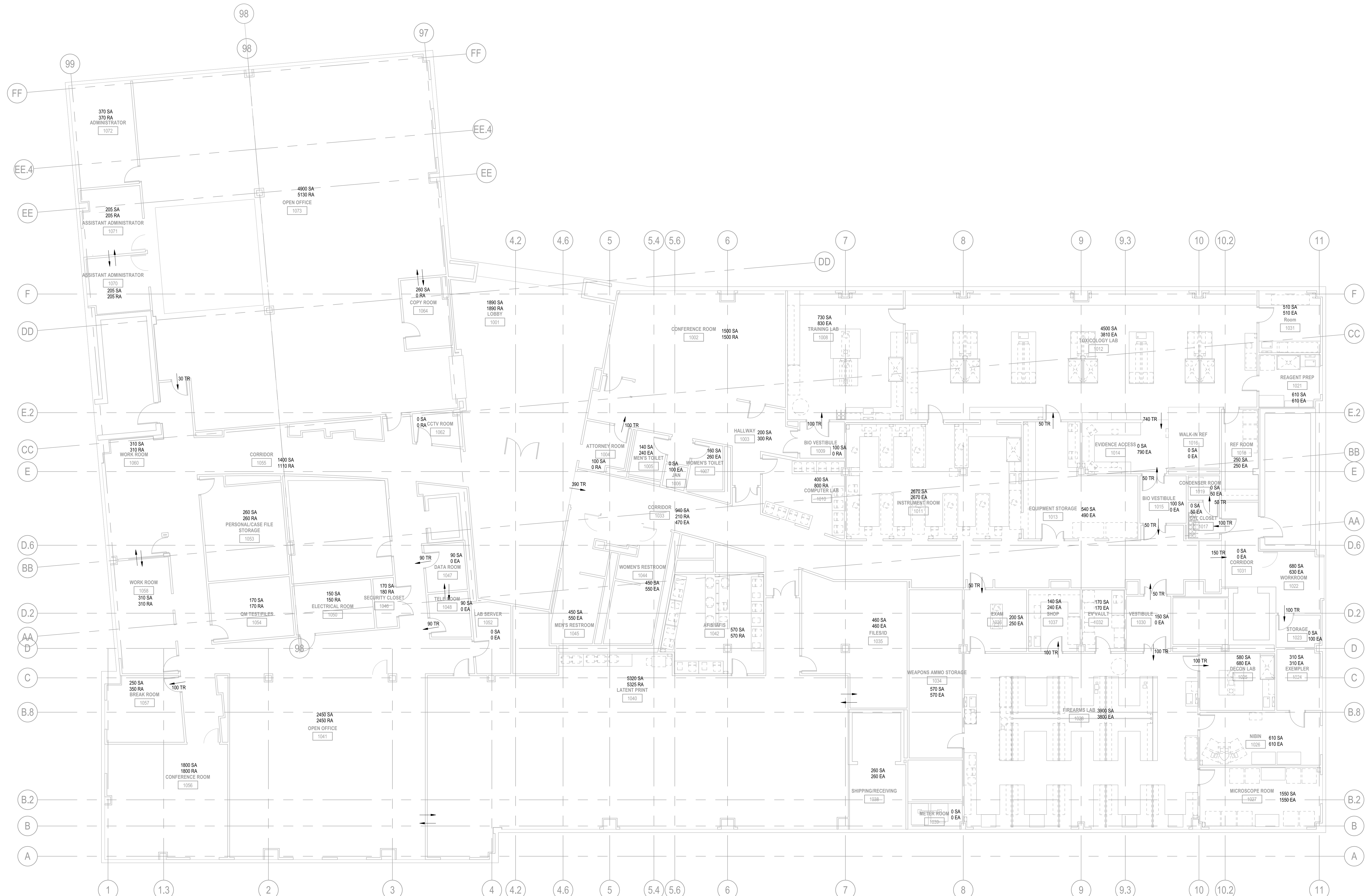
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Date Issued 06/21/23 Scale 1/8" = 1'-0"

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Sheet Title MECHANICAL AIR BALANCE PLAN - BASEMENT

Sheet Number M5.00



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Project Title

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Date Issued 06/21/23 Scale 1/8" = 1'-0"

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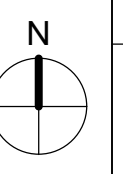
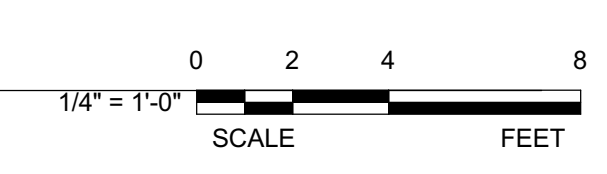
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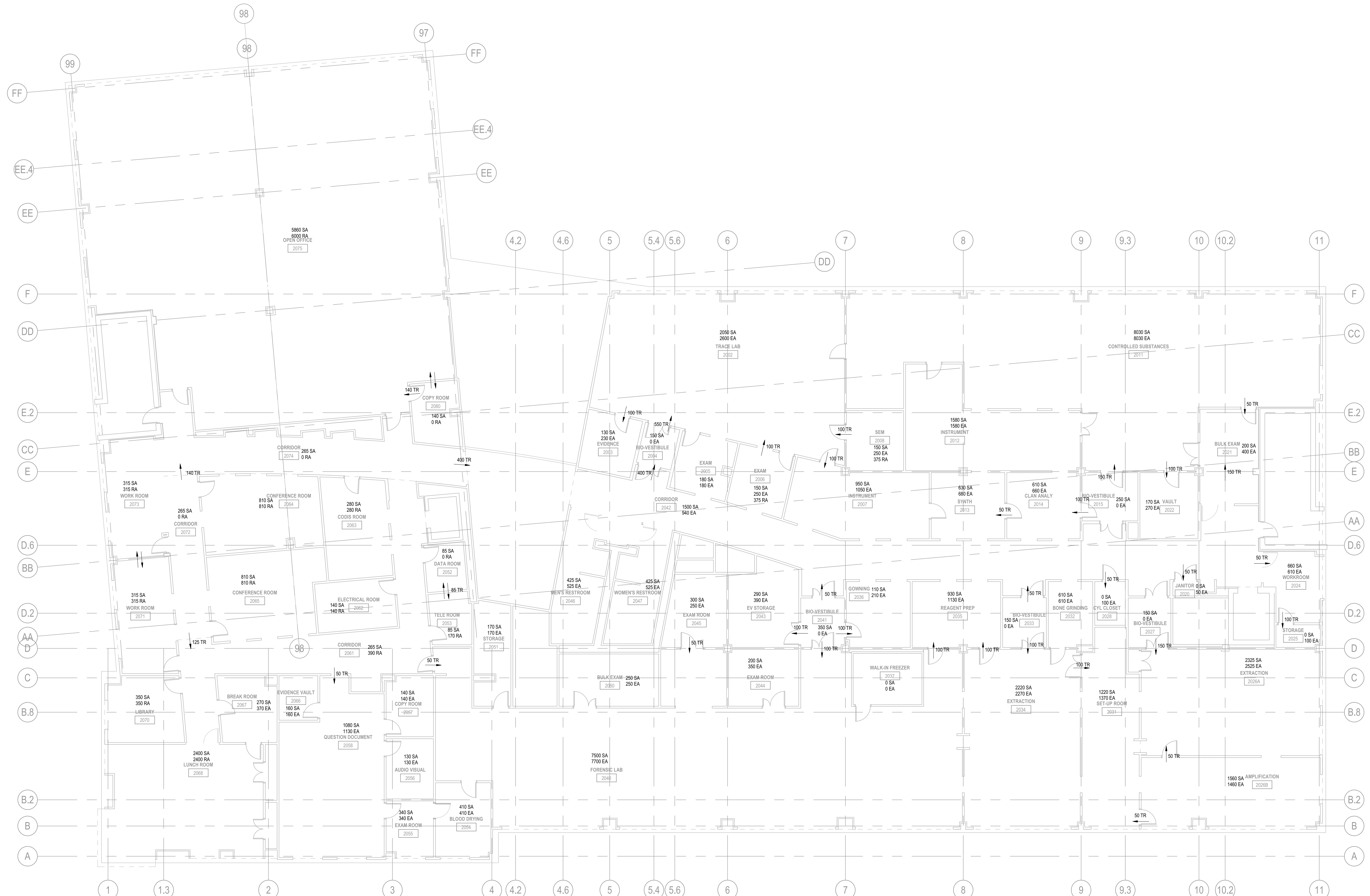
**MECHANICAL AIR
 BALANCE PLAN -
 LEVEL 1**

Sheet Number

M5.01

1 LEVEL 1 - AIR BALANCE PLAN - OVERALL
 SCALE: 1/8" = 1'-0"





PROGRESS SET
NOT FOR CONSTRUCTION

Issuance and Revisions

Rev	Date	Description

Keyplan

Project Title

**POLICE CRIME LAB
 AUTOMATION SYSTEM
 REPLACEMENT**

621 W WASHINGTON ST.
 PHOENIX, AZ 85007

City of Phoenix Project Number:
 PW26480024-1



City of Phoenix

Project Number
 23457-00

Date Issued
 06/21/23

Scale
 1/8" = 1'-0"

Drawn By
 Author

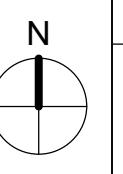
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Sheet Title

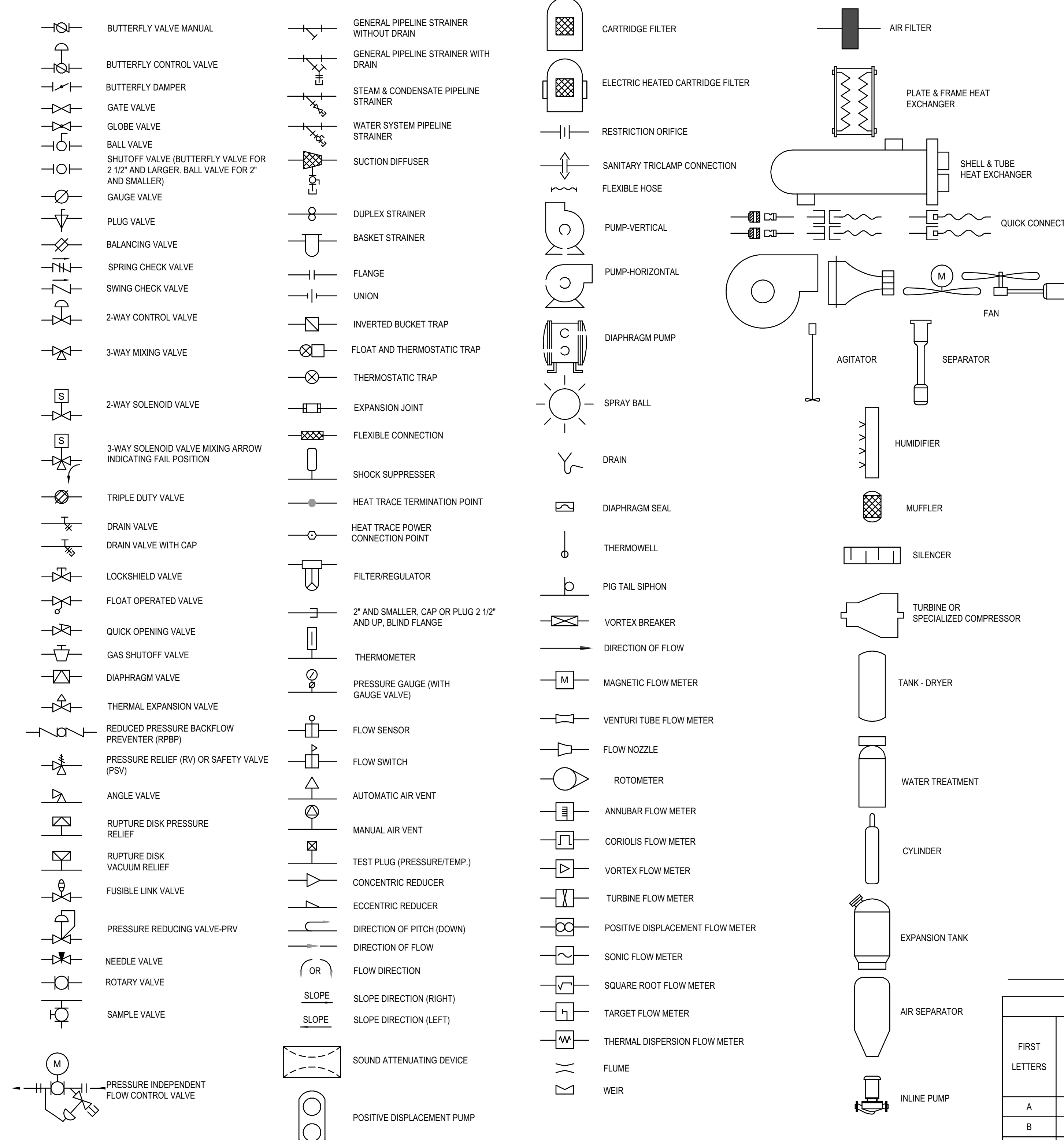
**MECHANICAL AIR
 BALANCE PLAN -
 LEVEL 2**

Sheet Number
M5.02

1 LEVEL 2 - AIR BALANCE PLAN - OVERALL
 SCALE: 1/8" = 1'-0"



PROCESS AND INSTRUMENTATION DIAGRAM SYMBOLS



ISA ABBREVIATION MATRIX

FIRST LETTERS	INITIATING OR MEASURED VARIABLE	CONTROLLERS					READOUT DEVICES			SWITCHES and ALARM DEVICES			TRANSMITTERS			SOLENOIDS, RELAYS, & COMPUTING DEVICES	PRIMARY ELEMENT	TEST POINT	WELL or PROBE	VIEWING DEVICE GLASS	SAFETY DEVICE	FINAL CONTROL ELEMENT
		RECORDING	INDICATING	BLIND	SELF-ACTUATED CONTROL VALVES	SELF-ACTUATED DAMPERS	RECORDING	INDICATING	HIGH	LOW	COB.	RECORDING	INDICATING	BLIND								
A	ANALYSIS	ARC	AIC	AC	ACV	ACD	AR	AI	ASH	ASL	ASHL	ART	AIT	AT	AY	AE	AP	AW	AG	AV		
B	BURNER/COMBUSTION	BR	BIC	BC	BCV	BCD	BR	BI	BSH	BSL	BSHL	BRT	BIT	BT	BY	BE	BP	BW	BG	BZ		
C	CONDUCTIVITY	CRC	CIC	CC	CCV	CCD	CR	CI	CSH	CSL	CSHL	CRT	CIT	CT	CY	CE	CP	CW	CG	CV		
CR	CONTROL RELAY																					
D	DENSITY/VISCOSITY	DRC	DIC	DC	DCV	DCD	DR	DI	DSH	DSL	DSHL	DRT	DIT	DT	DY	DE	DP	DW	DG	DV		
E	VOLTAGE	ERC	EIC	EC	ECV	ECD	ER	EI	ESH	ESL	ESHL	ERT	EIT	ET	EY	EE	EP	EW	EG	EZ		
F	FLOW RATE	FRC	FIC	FC	FCV	FCD	FR	FI	FSH	FSL	FSHL	FRT	FIT	FT	FY	FE	FP	FW	FG	FV		
FQ	FLOW QUANTITY	FQRC	FQIC	FQC	FQCV	FQCD	FQR	FQI	FQSH	FQSL	FQSHL	FQRT	FQIT	FQT	FQY	FQE	FQP	FQW	FQG	FQV		
FF	FLOW RATIO	FFRC	FFIC	FFC	FFCV	FFCD	FFR	FFI	FFSH	FFSL	FFSHL	FFRT	FFIT	FFT	FFY	FFE	FFP	FFW	FFG	FFV		
H	HAND	HRC	HIC	HC	HCV	HCD	HR	HI	HSH	HSL	HSHL	HRT	HIT	HT	HY	HE	HP	HW	HG	HZ		
I	CURRENT	IRC	IIC	IC	ICV	ICD	IR	II	ISH	ISL	ISHL	IRT	IIT	IT	IY	IE	IP	IW	IG	IZ		
J	POWER	JRC	JIC	JC	JCV	JCD	JR	JI	JSH	JSL	JSHL	JRT	JIT	JT	JY	JE	JP	JW	JG	JV		
K	TIME	KRC	KIC	KC	KCV	KCD	KR	KI	KSH	KSL	KSHL	KRT	KIT	KT	KY	KE	KP	KW	KG	KV		
L	LEVEL	LRC	LIC	LC	LCV	LCD	LR	LI	LSH	LSL	LSHL	LRT	LIT	LT	LY	LE	LP	LW	LG	LV		
M	MOISTURE	MRC	MIC	MC	MCV	MCD	MR	MI	MSH	MSL	MSHL	MRT	MIT	MT	MY	ME	MP	MW	MG	MV		
N	FREQUENCY	NRC	NIC	NC	NCV	NCD	NR	NI	NSH	NSL	NSHL	NRT	NIT	NT	NY	NE	NP	NW	NG	NZ		
P	PRESS./VACUUM	PRC	PIC	PC	PCV	PCD	PR	PI	PSH	PSL	PSHL	PRT	PIT	PT	PY	PE	PP	PW	PG	PSV/PSE	PV	
PD	PRESS./DIFF.	PDR	PDI	PDC	PDCV	PDCD	PDR	PDI	PDSH	PDSL	PDSHL	PDRT	PDIT	PDT	PDY	PDE	PDP	PDW	PDG	PDV		
Q	QUANTITY	QRC	QIC	QC	QCV	QCD	QR	QI	QSH	QSL	QSHL	QRT	QIT	QT	QY	QE	QP	QW	QG	QZ		
R	RADIATION	RRC	RIC	RC	RCV	RCD	RR	RI	RSH	RSL	RSHL	RRT	RIT	RT	RY	RE	RP	RW	RG	RZ		
S	SPEED	SRC	SIC	SC	SCV	SCD	SR	SI	SSH	SSL	SSHL	SRT	SIT	ST	SY	SE	SP	SW	SG	SV		
T	TEMPERATURE	TRC	TIC	TC	TCV	TCD	TR	TI	TSH	TSL	TSHL	TRT	TIT	TT	TY	TE	TP	TW	TG	TSE	TV	
TD	TEMPERATURE/DIFF.	TDR	TDI	TDC	TDCV	TDCD	TDR	TDI	TDSH	TDSL	TDSHL	TDRT	TDIT	TDT	TDY	TDE	TDP	TDW	TDG	TDV		
U	MULTIVARIABLE	URC	UIC	UC	UCV	UCD	UR	UI	USH	USL	USHL	URT	UIT	UT	UY	UE	UP	UW	UG	UV		
V	VIBRATION/MACHINERY ANALYSIS	VRC	VIC	VC	VCV	VCD	VR	VI	VSH	VSL	VSHL	VRT	VIT	VT	VY	VE	VP	VW	VG	VZ		
W	WEIGHT/FORCE	WRC	WIC	WC	WCV	WCD	WR	WI	WSH	WSL	WSHL	WRT	WIT	WT	WY	WE	WP	WW	WG	WZ		
X	ON/OFF	XRC	XIC	XC	XCV	XCD	XR	XI	XSH	XSL	XSHL	XRT	XIT	XT	XY	XE	XP	XW	XG	XZ		
Y	EVENT STATE/PRESENCE	YRC	YIC	YC	YCV	YCD	YR	YI	YSH	YSL	YSHL	YRT	YIT	YT	YY	YE	YP	YW	YG	YZ		
Z	POS./DIMEN.	ZRC	ZIC	ZC	ZCV	ZCD	ZR	ZI	ZSH	ZSL	ZSHL	ZRT	ZIT	ZT	ZY	ZE	ZP	ZW	ZG	ZV		

NOTE: THIS TABLE IS NOT ALL INCLUSIVE

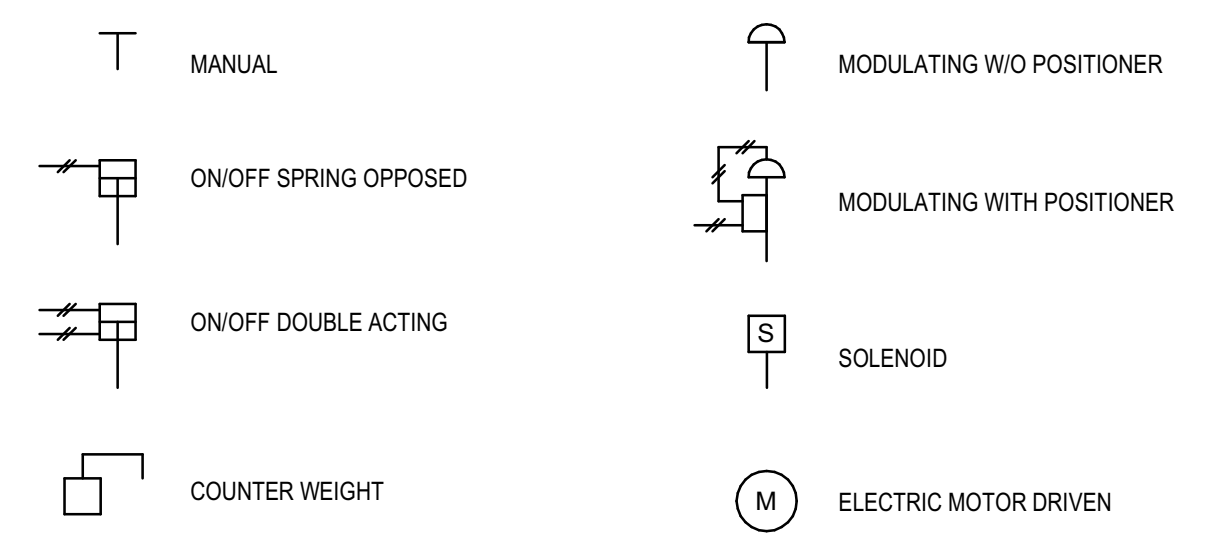
*A, ALARM, THE ANNUNCIATING DEVICE, MAY BE USED IN THE SAME FASHION AS S, SWITCH, THE ACTUATING DEVICE.

† THE LETTERS H AND L MAY BE OMITTED IN THE UNDEFINED CASE

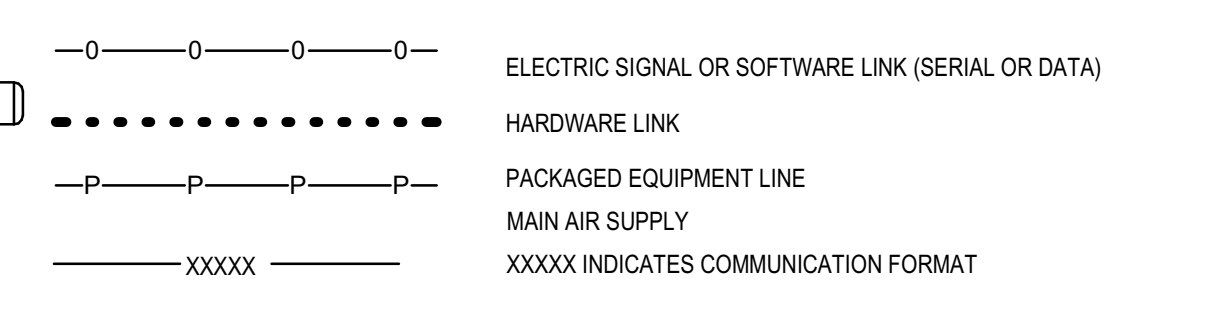
OTHER POSSIBLE COMBINATIONS

TJR (SCANNING RECORDER)	FO (RESTRICTION ORIFICE)	PFR (RATIO)	HMS (HAND MOMENTARY SWITCH)
LLH (PILOT LIGHT)	FRK/HK (CONTROL STATIONS)	KOI (RUNNING TIME INDICATOR)	XY (PILOT SOLENOID VALVE)
XC (MOTOR STARTER)	FX (ACCESSORIES)	WKIC (RATE-OF-WEIGHT LOSS CONTROLLER)	XS (MOTOR AUXILIARY)
PRV (PRESSURE REGULATING VALVE)	ZSC (POSITION SWITCH CLOSED)	ZSO (POSITION SWITCH OPEN)	OS (OCCUPANCY SENSOR)

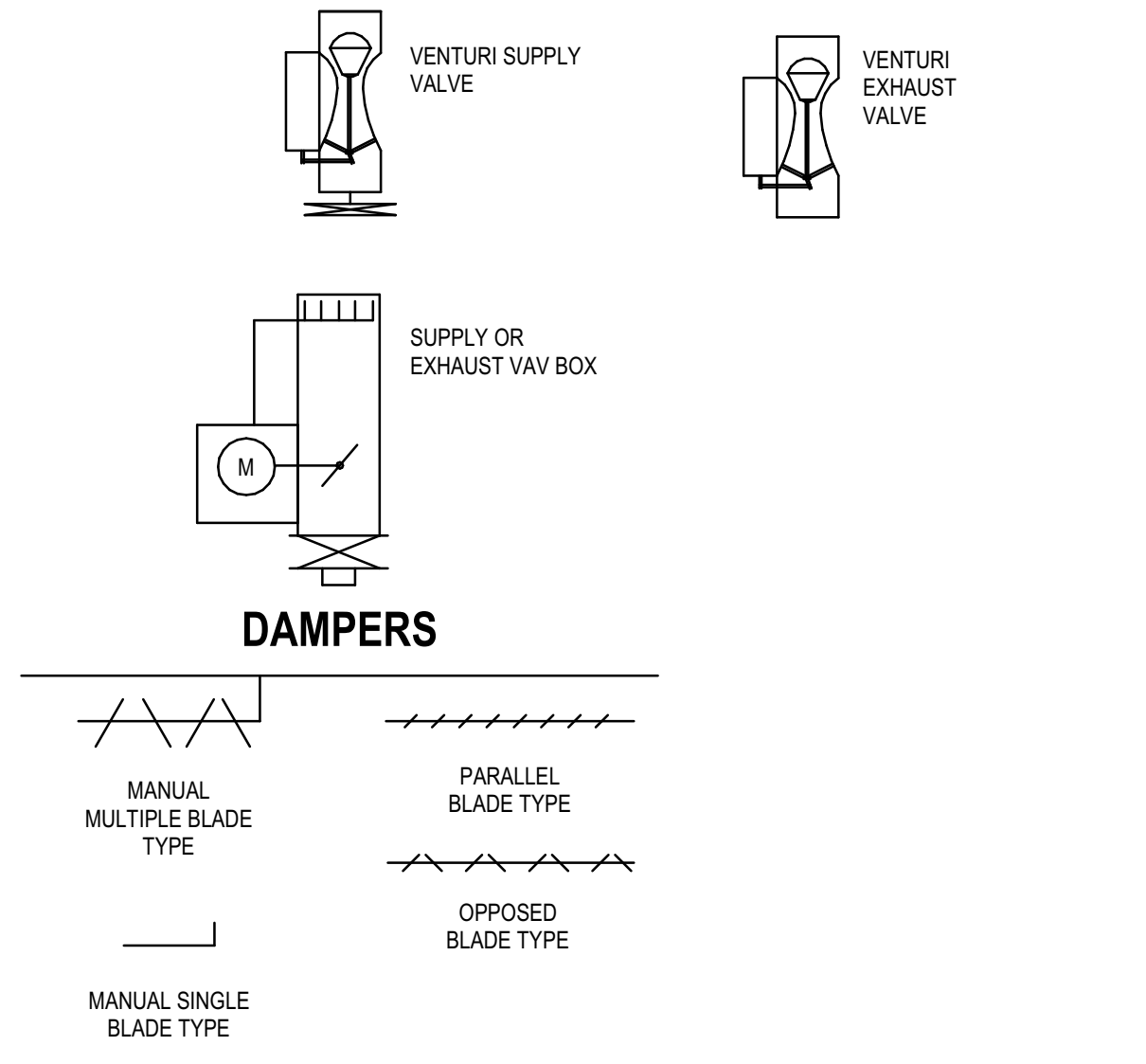
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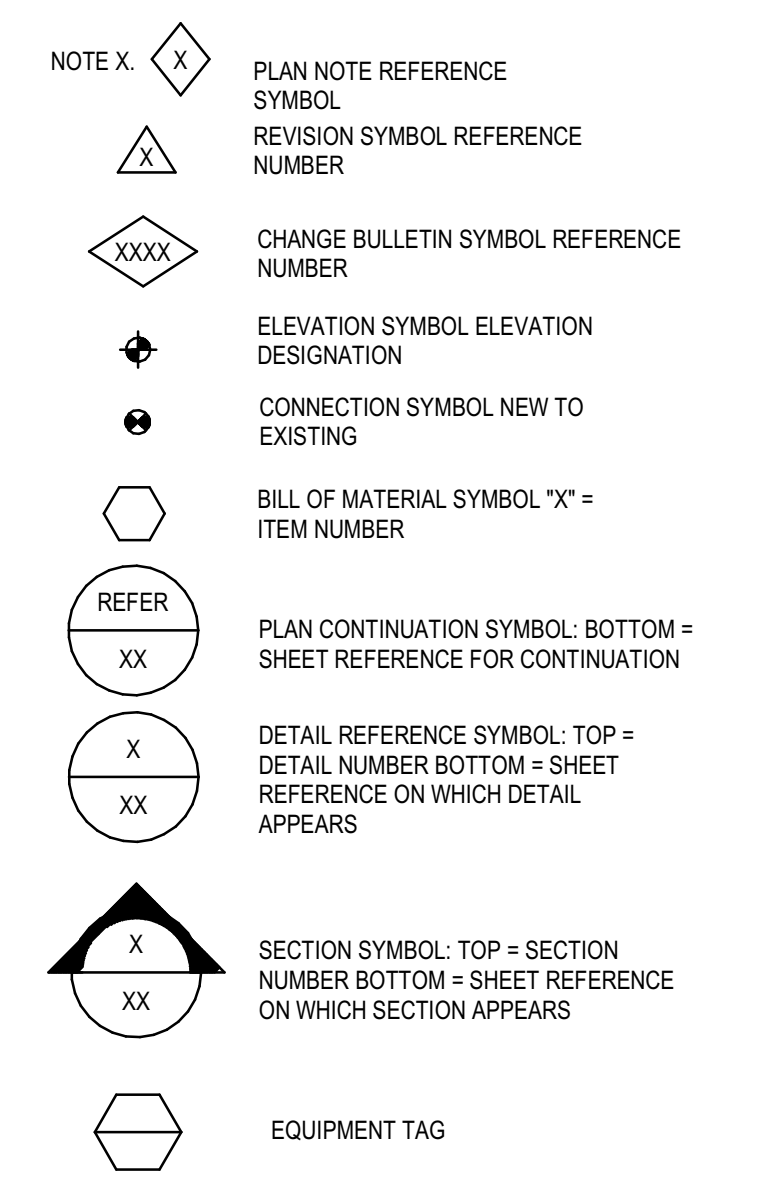
INSTRUMENT LINE SYMBOLS



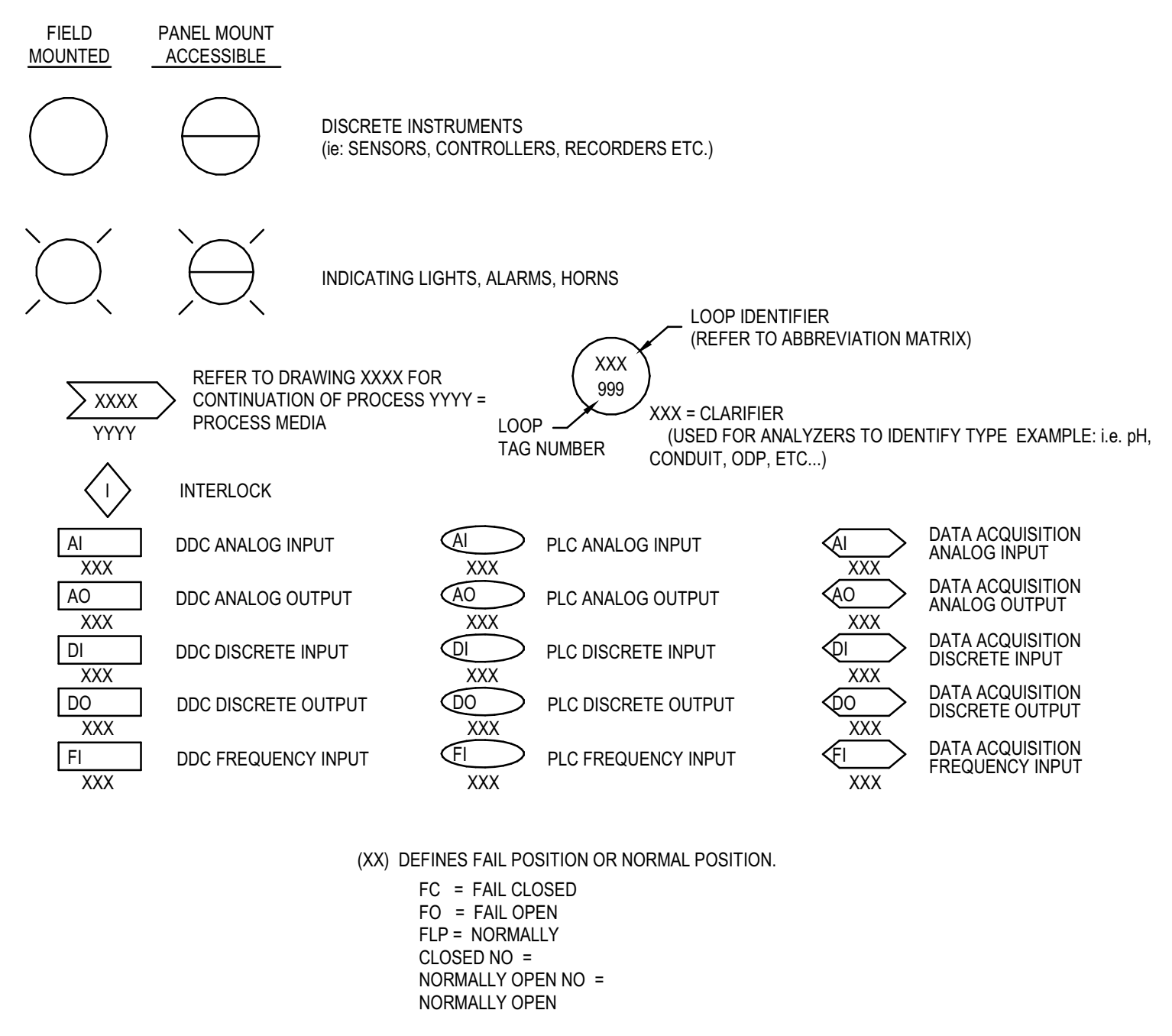
PROCESS AND INSTRUMENTATION DIAGRAM SYMBOLS



GENERAL SHEET SYMBOLS



GENERAL INSTRUMENT OR FUNCTION SYMBOLS



PROGRESS SET
NOT FOR CONSTRUCTION

Issuance and Revisions

Rev	Date	Description

Keyplan

Project Title
POLICE CRIME LAB AUTOMATION SYSTEM REPLACEMENT

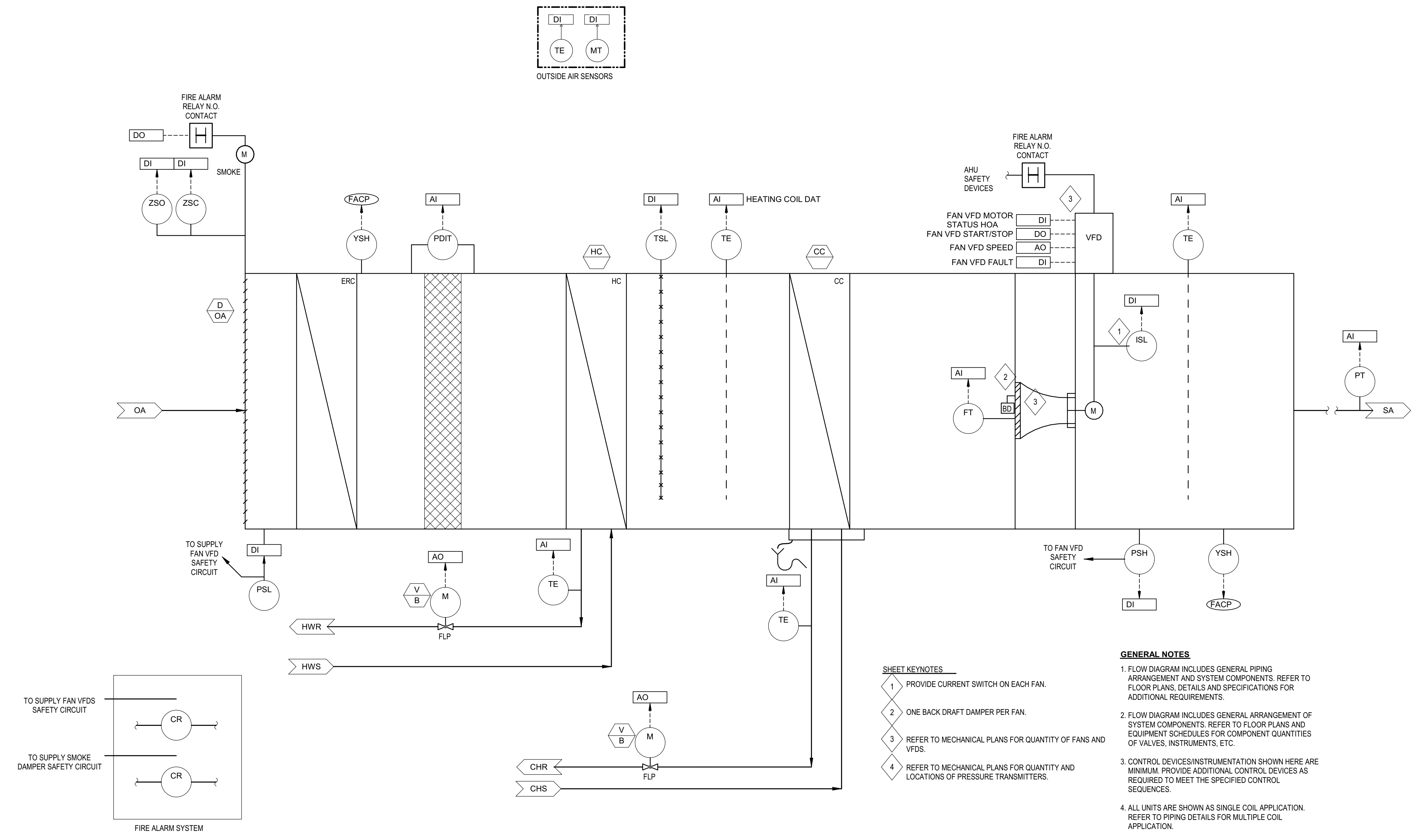
621 W WASHINGTON ST.
 PHOENIX, AZ 85007
 City of Phoenix Project Number:
 PW26480024-1



Project Number
 23457-00
 Date Issued
 04/25/23
 Scale
 NA
 Drawn By
 Author
 Checked By
 Checker

Sheet Title
MECHANICAL CONTROL DIAGRAMS

Sheet Number
M7.01



- SHEET KEYNOTES**
- 1 PROVIDE CURRENT SWITCH ON EACH FAN.
 - 2 ONE BACK DRAFT DAMPER PER FAN.
 - 3 REFER TO MECHANICAL PLANS FOR QUANTITY OF FANS AND VFDs.
 - 4 REFER TO MECHANICAL PLANS FOR QUANTITY AND LOCATIONS OF PRESSURE TRANSMITTERS.
- GENERAL NOTES**
1. FLOW DIAGRAM INCLUDES GENERAL PIPING ARRANGEMENT AND SYSTEM COMPONENTS. REFER TO FLOOR PLANS, DETAILS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
 2. FLOW DIAGRAM INCLUDES GENERAL ARRANGEMENT OF SYSTEM COMPONENTS. REFER TO FLOOR PLANS AND EQUIPMENT SCHEDULES FOR COMPONENT QUANTITIES OF VALVES, INSTRUMENTS, ETC.
 3. CONTROL DEVICES/INSTRUMENTATION SHOWN HERE ARE MINIMUM. PROVIDE ADDITIONAL CONTROL DEVICES AS REQUIRED TO MEET THE SPECIFIED CONTROL SEQUENCES.
 4. ALL UNITS ARE SHOWN AS SINGLE COIL APPLICATION. REFER TO PIPING DETAILS FOR MULTIPLE COIL APPLICATION.

1 AHU-2 & 3 - 100%OA
SCALE: NOT TO SCALE

- A. SCOPE**
- a. SYSTEM IS DESIGNED AS COOLING ONLY, SINGLE DUCT, VARIABLE VOLUME SYSTEM. SYSTEM IS DESIGNED FOR 100% OUTSIDE AIR
 - b. CONTROL DIAGRAM PICTURES EXISTING UNIT. DESIGN INTENT IS TO INSTALL NEW CONTROL SYSTEM FOR EXISTING UNITS. REPLACE ALL SENSORS AS REQUIRED FOR OPERATION ACCORDING TO NEW CONTROL SEQUENCES AND CONNECTION TO NEW BAS.
 - c. IT IS THE JOINT RESPONSIBILITY OF THE EQUIPMENT SUPPLIER, ENVIRONMENTAL CONTROLS CONTRACTOR (ECC/CTC) AND MECHANICAL CONTRACTOR TO PROVIDE ALL DEVICES, HARDWARE, SOFTWARE AND PROGRAMMING TO PERFORM ALL SEQUENCES LISTED.
- B. OPERATING MODE**
- a. UNIT SHALL OPERATE AT ALL TIMES WITH SINGLE OPERATING MODE.
 - b. UNIT SHALL BE STARTED AND STOPPED MANUALLY.
- C. OCCUPIED, UNOCCUPIED AND MORNING WARM-UP OPERATION:**
- a. UNIT DOES NOT REQUIRE OCCUPIED-UNOCCUPIED OPERATION. UNIT SHALL OPERATE CONTINUOUSLY WITH OUTSIDE AIR DAMPERS FULLY OPEN. OUTSIDE AIR DAMPERS SHALL CLOSE WHENEVER UNIT STOPS.
- D. SYSTEM AIR VOLUME CONTROL:**
- a. SYSTEM VOLUME CONTROL WILL BE ACCOMPLISHED BY VARIABLE FREQUENCY DRIVE(S).
 - b. ARRANGE CONTROLS SO THAT FANS WILL START ALWAYS ON LOW SPEED. ON FAILURE OF FAN VOLUME CONTROL SIGNAL, FANS SHALL GO TO LOW SPEED AND STOP.
 - c. STATIC PRESSURE CONTROLLER WITH ITS STATIC PRESSURE SENSING STATION IN SUPPLY DUCT SHALL MODULATE SUPPLY FAN VOLUME CONTROL DEVICE(S) TO MAINTAIN SET STATIC PRESSURE OF 1.0 INCHES WG (FA).
 - d. UNLESS OTHERWISE SHOWN ON DRAWINGS, LOCATE STATIC PRESSURE SENSOR IN MAIN SUPPLY DUCT AT TWO-THIRDS DOWN FROM UNIT SUPPLY FAN.
- E. DISCHARGE AIR TEMPERATURE CONTROL:**
- a. DISCHARGE AIR CONTROLLER SHALL MODULATE IN SEQUENCE, CONTROL VALVE ON HEATING COIL, AND THE CONTROL VALVE ON COOLING COIL TO MAINTAIN 57°F (FA) DISCHARGE AIR TEMPERATURE.
- F. ALARMS, INTERLOCKS AND SAFETIES TO BE INSTALLED BY TCC:**
- a. BEFORE EACH SUPPLY AND RETURN FAN IS ALLOWED TO START, RESPECTIVE FAN DISCHARGE DAMPER SHALL BE FULLY OPENED AND BE PROVEN BY END SWITCHES. WHENEVER FANS STOP, RESPECTIVE FAN DISCHARGE DAMPER SHALL CLOSE. OUTSIDE AIR DAMPER SHALL CLOSE AFTER A 15 SEC TIME-DELAY (FA).
 - b. SUPPLY FAN FAULT ALARM
 - c. DIRTY FILTER ALARM: ALARM WHEN DIFFERENTIAL PRESSURE EXCEEDS 0.5" W.C. (FA)
 - d. PROVIDE HIGH STATIC PRESSURE LIMIT CONTROL WITH SENSOR LOCATED IN UNIT DISCHARGE TO OVERRIDE FAN VOLUME CONTROL WHEN PRESSURE REACHES 2.0 INCHES WG (FA).
 - e. PROVIDE LOW STATIC PRESSURE LIMIT CONTROL WITH SENSOR IN FILTER INLET DUCT TO OVERRIDE FAN VOLUME CONTROL WHEN PRESSURE FALLS BELOW 0.5 INCHES WG (FA).
 - f. IF FIRE ALARM SYSTEM IS ACTIVATED ALL UNITS SHALL SHUT DOWN
 - g. ON SUPPLY FAN FAILURE WITH THE EXHAUST SYSTEM OPERATIONAL, THE OA DAMPER SHALL REMAIN OPEN AND THE TEMPERATURE CONTROLS SHALL CONTINUE TO OPERATE. THE SUPPLY BOXES ASSOCIATED WITH THE SUPPLY FAN SHALL OPEN TO FULL FLOW AND AN ALARM SHALL BE SENT TO THE BMS.
 - h. ON EXHAUST SYSTEM FAILURE, THE SUPPLY FAN SHALL BE DE-ENERGIZED, THE OA DAMPER SHALL CLOSE AND THE SUPPLY BOXES (ASSOCIATED WITH THE SUPPLY FAN) SHALL LOSE AIRFLOW AND AN ALARM SHALL BE SENT TO THE BMS.

PROGRESS SET
NOT FOR CONSTRUCTION

Issuance and Revisions

Rev	Date	Description

Keyplan

Project Title

**POLICE CRIME LAB
AUTOMATION SYSTEM
REPLACEMENT**

621 W WASHINGTON ST.
PHOENIX, AZ 85007

City of Phoenix Project Number:
PW26480024-1



City of Phoenix

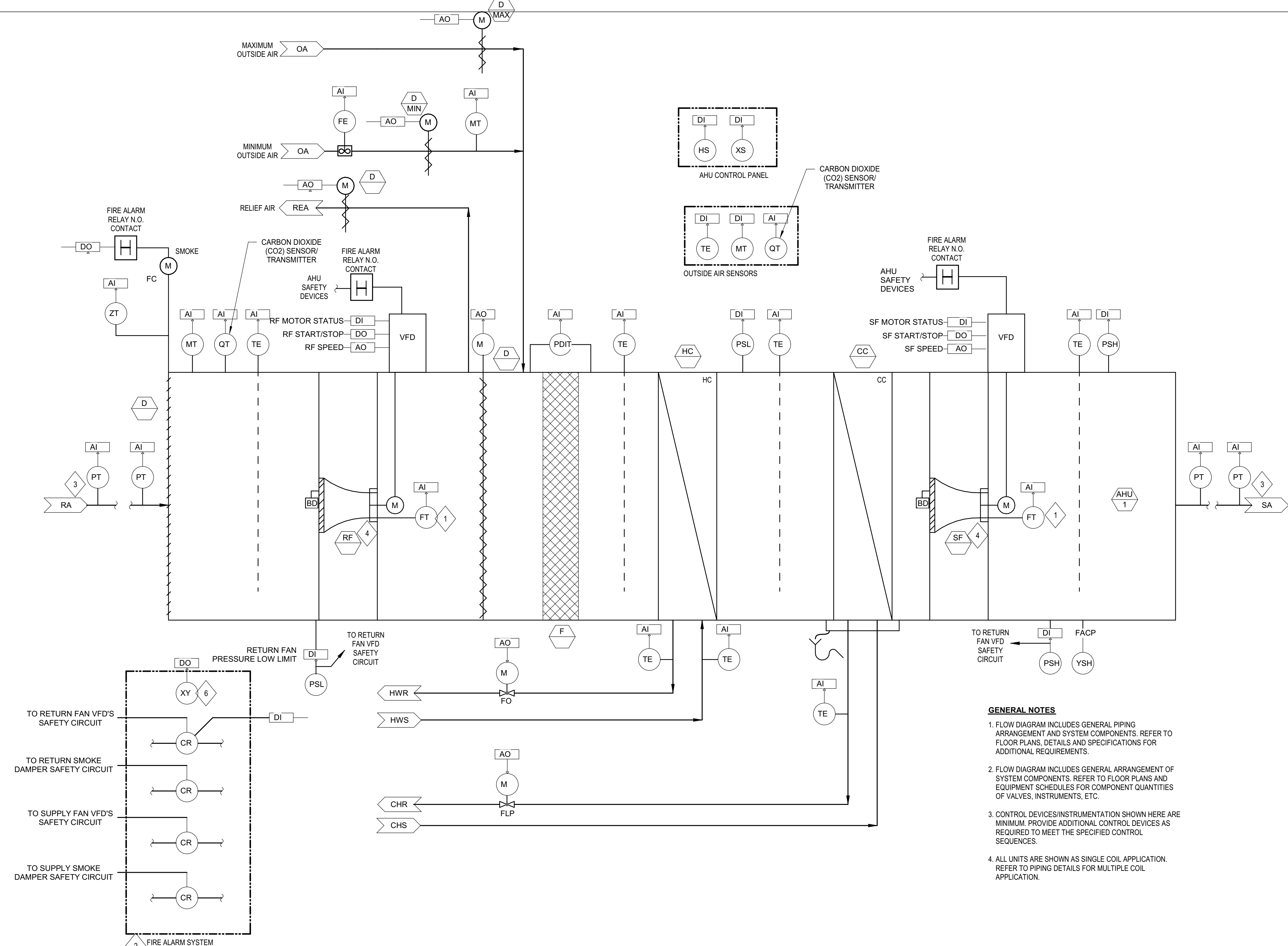
Project Number
23457-00

Date Issued 04/25/23	Scale NA
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Drawn By Author	Checked By Checker
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Sheet Title
**MECHANICAL
CONTROL
DIAGRAMS**

Sheet Number
M7.02



GENERAL NOTES

1. FLOW DIAGRAM INCLUDES GENERAL PIPING ARRANGEMENT AND SYSTEM COMPONENTS. REFER TO FLOOR PLANS, DETAILS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. FLOW DIAGRAM INCLUDES GENERAL ARRANGEMENT OF SYSTEM COMPONENTS. REFER TO FLOOR PLANS AND EQUIPMENT SCHEDULES FOR COMPONENT QUANTITIES OF VALVES, INSTRUMENTS, ETC.
3. CONTROL DEVICES/INSTRUMENTATION SHOWN HERE ARE MINIMUM. PROVIDE ADDITIONAL CONTROL DEVICES AS REQUIRED TO MEET THE SPECIFIED CONTROL SEQUENCES.
4. ALL UNITS ARE SHOWN AS SINGLE COIL APPLICATION. REFER TO PIPING DETAILS FOR MULTIPLE COIL APPLICATION.

1 AHU-1
 SCALE: NOT TO SCALE

- A. SCOPE**
1. SYSTEM IS DESIGNED AS COOLING ONLY, SINGLE DUCT, VARIABLE VOLUME SYSTEM.
 2. CONTROL DIAGRAM PICTURES EXISTING UNIT DESIGN INTENT IS TO INSTALL NEW CONTROL SYSTEM FOR EXISTING UNITS. REPLACE ALL SENSORS AS REQUIRED FOR OPERATION ACCORDING TO NEW CONTROL SEQUENCES AND CONNECTION TO NEW BAS.
 3. IT IS THE JOINT RESPONSIBILITY OF THE EQUIPMENT SUPPLIER, ENVIRONMENTAL CONTROLS CONTRACTOR (ECC/CC) AND MECHANICAL CONTRACTOR TO PROVIDE ALL DEVICES, HARDWARE, SOFTWARE AND PROGRAMMING TO PERFORM ALL SEQUENCES LISTED.
- B. OPERATING MODE**
1. UNIT OPERATION SHALL BE AUTOMATIC AND ACTIVATED THROUGH BUILDING AUTOMATION SYSTEM.
- C. OCCUPIED, UNOCCUPIED AND MANUAL PURGE OPERATION:**
1. BAS SHALL BE PROGRAMMED WITH THE FOLLOWING TENTATIVE OCCUPANCY SCHEDULE:
 - OCCUPIED MODE
 - 1. MONDAY THRU FRIDAY 6:00AM - 7:00PM (FA)
 - UNOCCUPIED MODE
 - 1. ALL OTHER TIMES
 2. DURING OCCUPIED CYCLE, UNIT SUPPLY FANS SHALL RUN CONTINUOUSLY WITH MINIMUM OUTSIDE AIR DAMPER FULLY OPEN.
 3. DURING UNOCCUPIED CYCLE, THE MAXIMUM OUTSIDE AIR DAMPER SHALL BE FULLY CLOSED WHILE THE MINIMUM OUTSIDE AIR AND RETURN AIR DAMPERS SHALL BE FULLY OPEN. SUPPLY AND RETURN AIR FANS WILL CONTINUE TO OPERATE. THE SUPPLY FAN SHALL VARY ITS SPEED TO MAINTAIN A CONSTANT DOWNSTREAM DUCT SYSTEM STATIC PRESSURE. THE RETURN FAN SHALL MODULATE TO MAINTAIN A ZERO AIRFLOW DIFFERENTIAL.
 4. MANUAL PURGE MODE
 - PURGE MODE SHALL BE INITIATED MANUALLY. UPON ACTIVATION, THE SUPPLY AND RETURN AIR FANS SHALL RUN AT 100% SPEED. THE ASSOCIATED TERMINAL UNITS SHALL GO TO THEIR FULL OPEN POSITIONS. THE OUTSIDE AIR AND RETURN AIR DAMPERS SHALL BE POSITIONED FOR 100% OUTSIDE AIR.
 - AFTER A PERIOD OF 15 MINUTES (FA), THE SYSTEM SHALL AUTOMATICALLY RETURN TO NORMAL OPERATION.
- D. SYSTEM AIR VOLUME CONTROL**
1. SYSTEM VOLUME CONTROL WILL BE ACCOMPLISHED BY VARIABLE FREQUENCY DRIVE(S).
 2. ARRANGE CONTROLS SO THAT FANS WILL START ALWAYS ON LOW SPEED. ON FAILURE OF FAN VOLUME CONTROL SIGNAL, FANS SHALL GO TO LOW SPEED AND STOP.
 3. STATIC PRESSURE CONTROLLER WITH ITS STATIC PRESSURE SENSING STATION IN SUPPLY DUCT SHALL MODULATE SUPPLY FAN VOLUME CONTROL DEVICE(S) TO MAINTAIN SET STATIC PRESSURE OF 1.0 INCHES WG (FA).
 4. STATIC PRESSURE SETPOINT SHALL BE RESET BY THE BAS TO THE MINIMUM VALUE THAT SATISFIES THE AIR INLET PRESSURE REQUIREMENT OF ALL TERMINAL UNITS. SUPPLY AND RETURN AIR VOLUMES SHALL MODULATE ACCORDINGLY.
 5. UNLESS OTHERWISE SHOWN ON DRAWINGS, LOCATE STATIC PRESSURE SENSOR IN MAIN SUPPLY DUCT AT TWO-THIRDS DOWN FROM UNIT SUPPLY FAN.
 6. RETURN AIR FAN SPEED SHALL VARY THROUGH ITS VFD TO MAINTAIN A FLOW EQUAL TO THE TOTAL SUPPLY AIR VOLUME MINUS FIXED EXHAUST AIR VOLUME (TOILET EA, ETC.).
 7. OUTSIDE AIR, RELIEF AIR AND RETURN AIR DAMPERS SHALL MODULATE TO MAINTAIN MINIMUM OUTSIDE AIR QUANTITY.
 8. THE DUCT STATIC SETPOINT SHALL BE RESET TO MINIMUM VALUE THAT SATISFIES THE AIR INLET PRESSURE REQUIREMENT OF ALL AIR TERMINAL UNITS. SUPPLY AND RETURN AIR VOLUMES SHALL MODULATE ACCORDINGLY.
- E. DISCHARGE AIR TEMPERATURE CONTROL**
1. DISCHARGE AIR CONTROLLER SHALL MODULATE IN SEQUENCE, THE MAXIMUM OUTSIDE AIR DAMPER, THE RETURN AND RELIEF AIR DAMPERS, THE CONTROL VALVE ON HEATING COIL, AND THE CONTROL VALVE ON COOLING COIL TO MAINTAIN 57°F (FA) DISCHARGE AIR TEMPERATURE.
 2. MODULATE MAXIMUM OUTSIDE AIR / RETURN / RELIEF DAMPERS FOR ECONOMIZER OPERATION WHEN THE RETURN AIR ENTHALPY IS GREATER THAN THAT OF THE OUTSIDE AIR. MECHANICAL COOLING SHALL BE AVAILABLE TO AID ECONOMIZER OPERATION AT ALL AMBIENT CONDITIONS.
 3. IF MAXIMUM AIR DAMPER IS FULLY CLOSED, MODULATE THE RETURN / RELIEF AIR DAMPERS TO MAINTAIN SPECIFIED MINIMUM OUTSIDE AIR QUANTITY.
- F. ALARMS, INTERLOCKS AND SAFETIES (TO BE INSTALLED BY ICC)**
1. BEFORE EACH SUPPLY AND RETURN FAN IS ALLOWED TO START, RESPECTIVE FAN DISCHARGE DAMPER SHALL BE FULLY OPENED AND BE PROVEN BY END SWITCHES. WHENEVER FANS STOP, RESPECTIVE FAN DISCHARGE DAMPER SHALL CLOSE. OUTSIDE AIR DAMPER SHALL CLOSE AFTER A 15 SEC TIME-DELAY (FA).
 2. SUPPLY FAN FAULT ALARM
 3. RETURN FAN FAULT STATUS
 4. DIRTY FILTER ALARM, ALARM WHEN DIFFERENTIAL PRESSURE EXCEEDS 0.5" W.C. (FA)
 5. PROVIDE HIGH STATIC PRESSURE LIMIT CONTROL WITH SENSOR LOCATED IN UNIT DISCHARGE TO OVERRIDE FAN VOLUME CONTROL WHEN PRESSURE REACHES 2.0 INCHES WG (FA).
 6. PROVIDE LOW STATIC PRESSURE LIMIT CONTROL WITH SENSOR IN FILTER INLET DUCT TO OVERRIDE FAN VOLUME CONTROL WHEN PRESSURE FALLS BELOW 0.5 INCHES WG (FA).
 7. IF FIRE ALARM SYSTEM IS ACTIVATED ALL UNITS SHALL SHUT DOWN

PROGRESS SET
NOT FOR CONSTRUCTION

Issuance and Revisions

Rev	Date	Description

Keyplan

Project Title

**POLICE CRIME LAB
 AUTOMATION SYSTEM
 REPLACEMENT**

621 W WASHINGTON ST.
 PHOENIX, AZ 85007

City of Phoenix Project Number:
 PW26480024-1



City of Phoenix

Project Number
 23457-00

Date Issued
 04/25/23

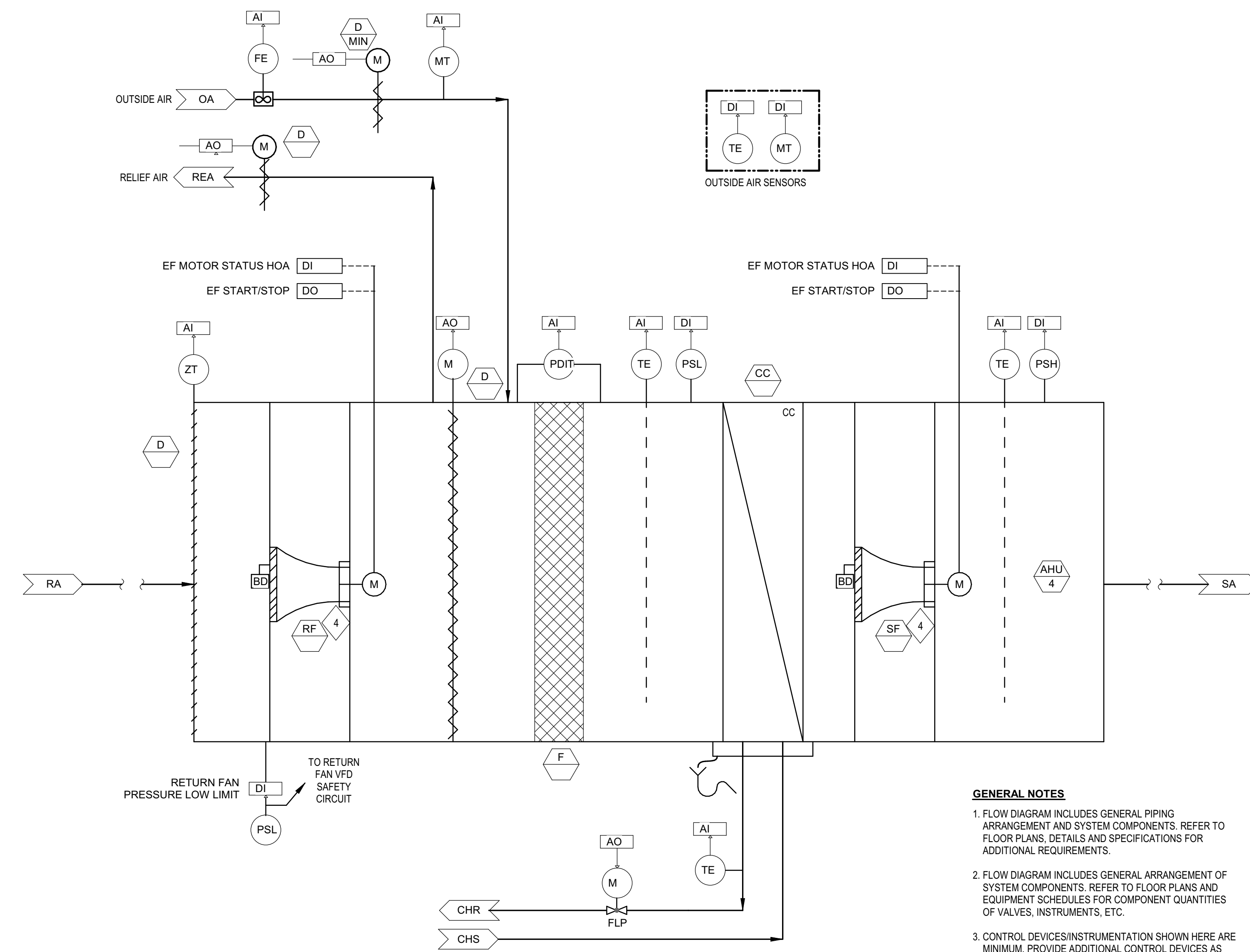
Scale
 NA

Drawn By
 Author

Checked By
 Checker

Sheet Title
**MECHANICAL
 CONTROL SYSTEM
 DIAGRAMS**

Sheet Number
M7.03



- GENERAL NOTES**
1. FLOW DIAGRAM INCLUDES GENERAL PIPING ARRANGEMENT AND SYSTEM COMPONENTS. REFER TO FLOOR PLANS, DETAILS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
 2. FLOW DIAGRAM INCLUDES GENERAL ARRANGEMENT OF SYSTEM COMPONENTS. REFER TO FLOOR PLANS AND EQUIPMENT SCHEDULES FOR COMPONENT QUANTITIES OF VALVES, INSTRUMENTS, ETC.
 3. CONTROL DEVICES/INSTRUMENTATION SHOWN HERE ARE MINIMUM. PROVIDE ADDITIONAL CONTROL DEVICES AS REQUIRED TO MEET THE SPECIFIED CONTROL SEQUENCES.
 4. ALL UNITS ARE SHOWN AS SINGLE COIL APPLICATION. REFER TO PIPING DETAILS FOR MULTIPLE COIL APPLICATION.

1 AHU-4
SCALE: NOT TO SCALE

- A. SCOPE**
- a. SYSTEM IS DESIGNED AS COOLING ONLY, SINGLE DUCT, CONSTANT VOLUME SYSTEM.
 - b. CONTROL DIAGRAM PICTURES EXISTING UNIT. DESIGN INTENT IS TO INSTALL NEW CONTROL SYSTEM FOR EXISTING UNITS. REPLACE ALL SENSORS AS REQUIRED FOR OPERATION ACCORDING TO NEW CONTROL SEQUENCES AND CONNECTION TO NEW BAS.
 - c. IT IS THE JOINT RESPONSIBILITY OF THE EQUIPMENT SUPPLIER, ENVIRONMENTAL CONTROLS CONTRACTOR (ECC/CC) AND MECHANICAL CONTRACTOR TO PROVIDE ALL DEVICES, HARDWARE, SOFTWARE AND PROGRAMMING TO PERFORM ALL SEQUENCES LISTED.
- B. OPERATING MODE**
- a. UNIT SHALL OPERATE AT ALL TIMES WITH SINGLE OPERATING MODE.
 - b. UNIT SHALL BE STARTED AND STOPPED MANUALLY.
- C. OCCUPIED, UNOCCUPIED AND PURGE OPERATION:**
- a. UNIT DOES NOT REQUIRE OCCUPIED/UNOCCUPIED OPERATION. UNIT SHALL OPERATE CONTINUOUSLY.
 - b. WHEN UNITS IS STARTED UP, THE SUPPLY AND RETURN AIR DAMPERS SHALL BE POSITIONED FOR MINIMUM OUTSIDE AIR (2180 CFM).
 - c. AUTOMATIC PURGE MODE
 - AUTOMATIC PURGE MODE SHALL BE ACTIVATED BY THE REFRIGERANT GAS DETECTION SYSTEM.
 - UPON ACTIVATION, THE SUPPLY AND RETURN AIR DAMPERS SHALL BE POSITIONED FOR 100% OUTSIDE AIR.
 - THE SYSTEM SHALL RETURN TO NORMAL OPERATION AFTER ALARM HAS BEEN CLEARED AND RESET, BUT IN NO CASE SHALL PURGE MODE OPERATE FOR LESS THAN 30 MINUTES.
 - d. MANUAL PURGE MODE
 - PURGE MODE SHALL BE INITIATED MANUALLY WITH THE REFRIGERANT GAS DETECTION SYSTEM MANUAL PANIC ALARM.
 - UPON ACTIVATION, THE SUPPLY AND RETURN AIR DAMPERS SHALL RUN AT 100% SPEED AND THE OUTSIDE AIR AND RETURN AIR DAMPERS SHALL BE POSITIONED FOR 100% OUTSIDE AIR.
 - THE SYSTEM SHALL RETURN TO NORMAL OPERATION AFTER A MINIMUM OF 30 MINUTES (FA) OR WHEN THE PANIC ALARM HAS BEEN CLEARED AND RESET AT THE REFRIGERANT GAS DETECTION CONTROL PANEL.
- D. SYSTEM AIR VOLUME CONTROL**
- a. SYSTEM IS CONSTANT VOLUME.
 - b. OUTSIDE AIR, RETURN AIR AND EXHAUST AIR DAMPERS SHALL MODULATE TO MAINTAIN A NEGATIVE PRESSURE OF 0.05" WG AS INDICATED BY SPACE PRESSURE SENSOR (FA) WITH A 2 DEGREE DEADBAND.
- E. DISCHARGE AIR TEMPERATURE CONTROL**
- a. MODULATE IN SEQUENCE, THE OUTSIDE AIR DAMPER, THE RETURN AIR DAMPER AND THE CONTROL VALVE ON COOLING COIL TO MAINTAIN A SPACE TEMPERATURE OF 78°F (FA) WITH A 2 DEGREE DEADBAND.
 - b. MODULATE OUTSIDE AIR / RETURN AIR DAMPERS FOR ECONOMIZER OPERATION WHEN THE RETURN AIR ENTHALPY IS GREATER THAN THAT OF THE OUTSIDE AIR. MECHANICAL COOLING SHALL BE AVAILABLE TO AD ECONOMIZER OPERATION AT ALL AMBIENT CONDITIONS.
- F. ALARMS, INTERLOCKS AND SAFETIES (TO BE INSTALLED BY ICC)**
- a. BEFORE EACH SUPPLY AND RETURN FAN IS ALLOWED TO START, RESPECTIVE FAN DISCHARGE DAMPER SHALL BE FULLY OPENED AND BE PROVEN BY END SWITCHES. WHENEVER FANS STOP, RESPECTIVE FAN DISCHARGE DAMPER SHALL CLOSE. OUTSIDE AIR DAMPER SHALL CLOSE AFTER A 15 SEC TIME-DELAY (FA).
 - b. SUPPLY FAN FAULT ALARM
 - c. RETURN FAN FAULT ALARM
 - d. DIRTY FILTER ALARM: ALARM WHEN DIFFERENTIAL PRESSURE EXCEEDS 0.5" WG (FA)
 - e. PROVIDE HIGH STATIC PRESSURE LIMIT CONTROL WITH SENSOR LOCATED IN UNIT DISCHARGE TO OVERRIDE FAN VOLUME CONTROL WHEN PRESSURE REACHES 2.0 INCHES WG (FA)
 - f. PROVIDE LOW STATIC PRESSURE LIMIT CONTROL WITH SENSOR IN FILTER INLET DUCT TO OVERRIDE FAN VOLUME CONTROL WHEN PRESSURE FALLS BELOW 0.5 INCHES WG (FA)
 - g. IF FIRE ALARM SYSTEM IS ACTIVATED ALL UNITS SHALL SHUT DOWN

PROGRESS SET
NOT FOR CONSTRUCTION

Issuance and Revisions

Rev	Date	Description

Keyplan

Project Title
**POLICE CRIME LAB
AUTOMATION SYSTEM
REPLACEMENT**

621 W WASHINGTON ST.
PHOENIX, AZ 85007

City of Phoenix Project Number:
PW26480024-1



City of Phoenix

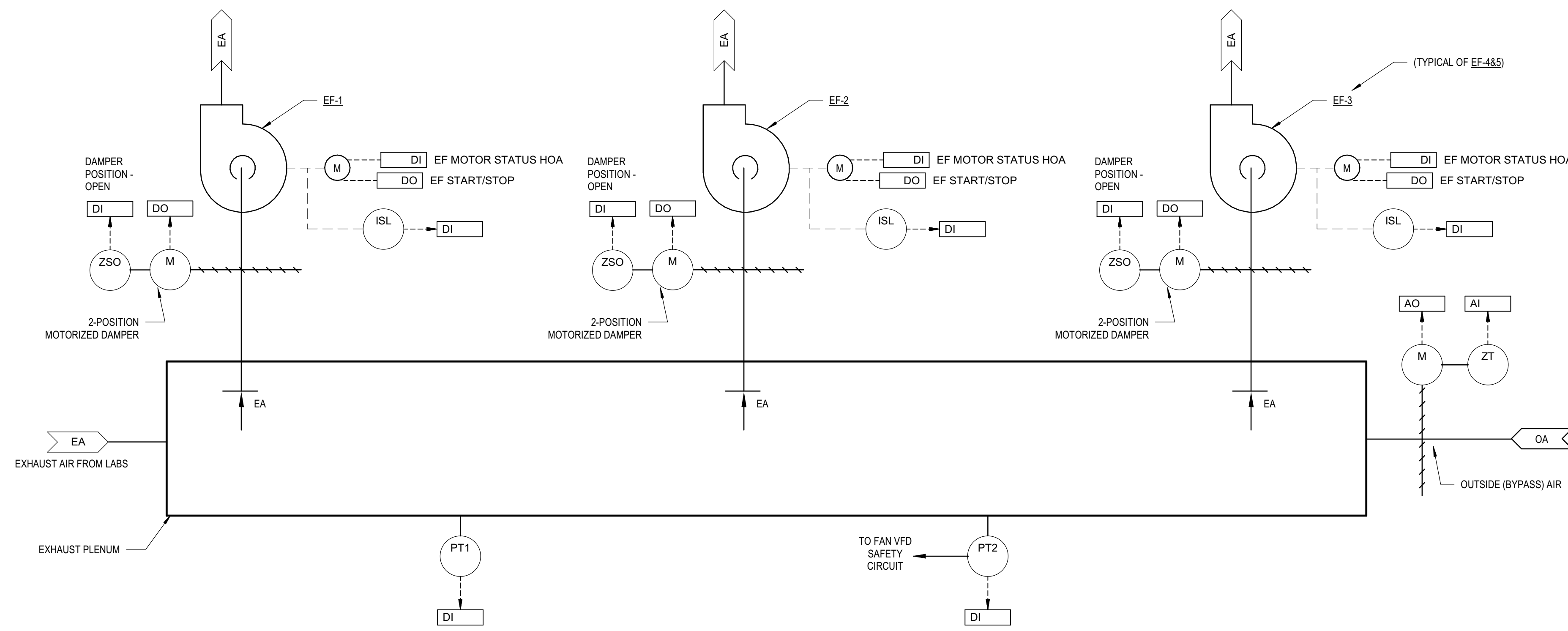
Project Number
23457-00

Date Issued 04/25/23	Scale NA
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Sheet Title
**MECHANICAL
CONTROL
DIAGRAMS**

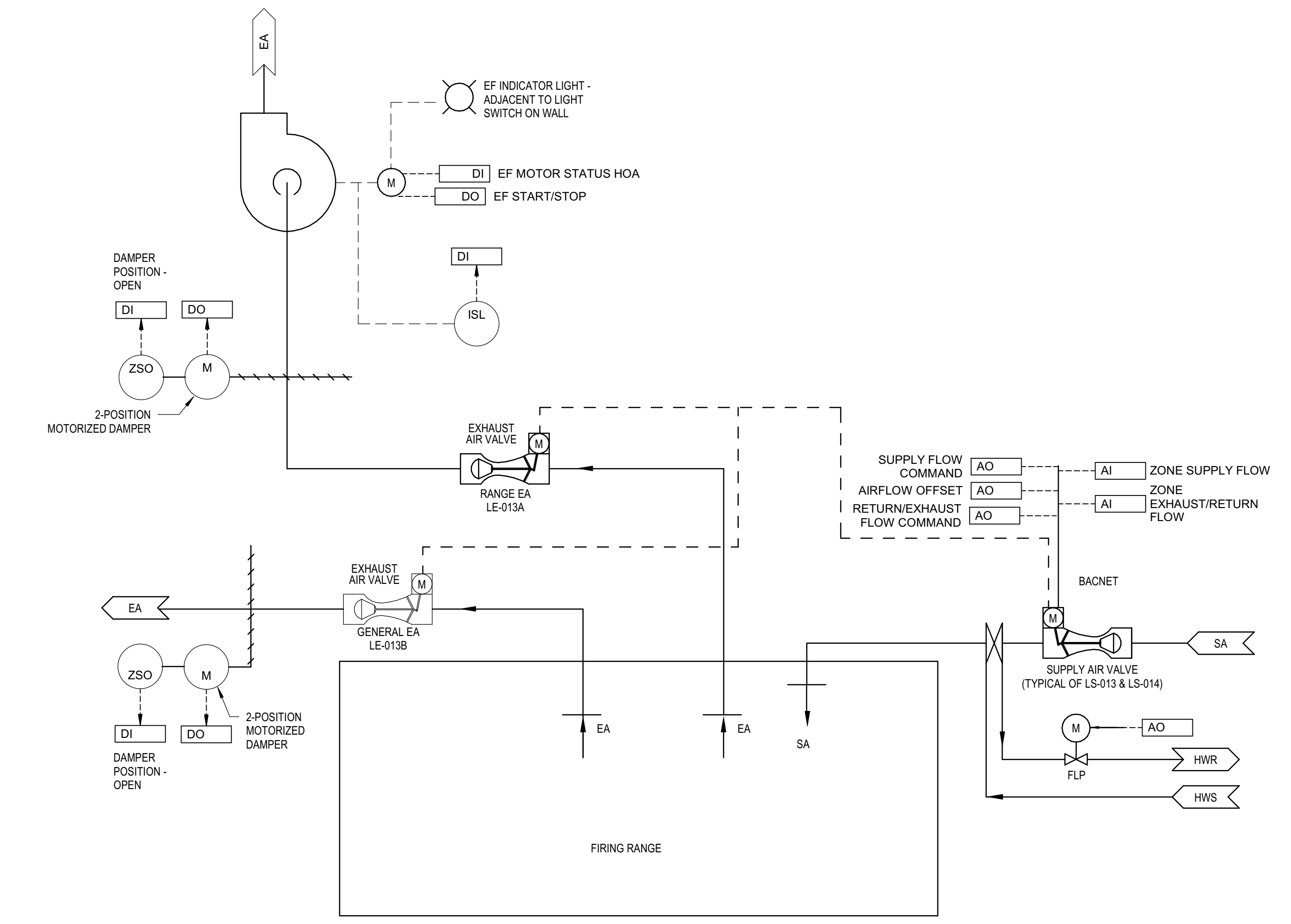
Sheet Number
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4 LABORATORY EXHAUST FANS EF-1 - 5 CONTROL DIAGRAM
SCALE: NOT TO SCALE

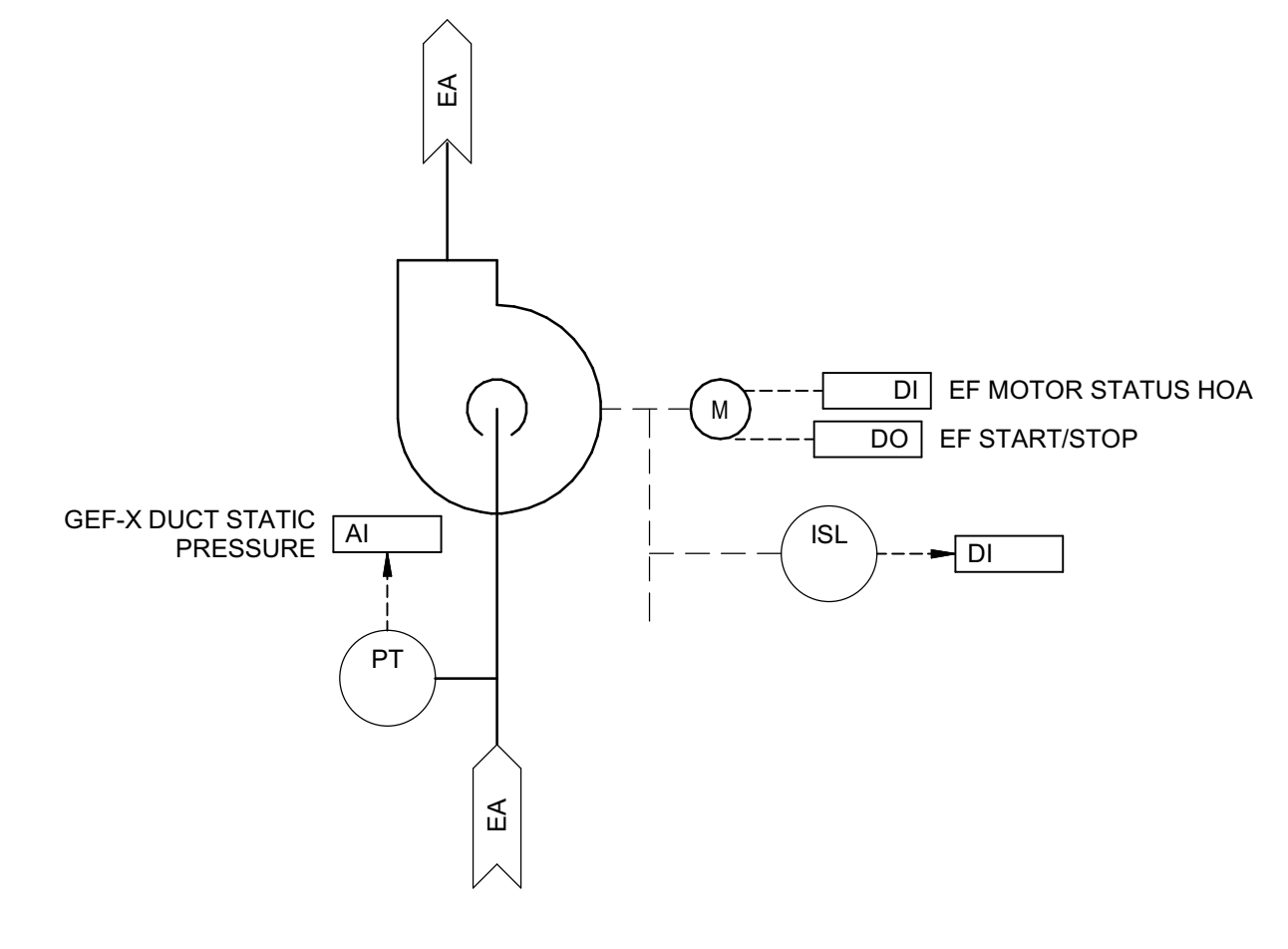
- A. SCOPE**
a. CONTROL DIAGRAM PICTURES EXISTING UNIT. DESIGN INTENT IS TO INSTALL NEW CONTROL SYSTEM FOR EXISTING UNITS. REPLACE ALL SENSORS AS REQUIRED FOR OPERATION ACCORDING TO NEW CONTROL SEQUENCES AND CONNECTION TO NEW BAS.
b. IT IS THE JOINT RESPONSIBILITY OF THE EQUIPMENT SUPPLIER, ENVIRONMENTAL CONTROLS CONTRACTOR (ECC/TCC) AND MECHANICAL CONTRACTOR TO PROVIDE ALL DEVICES, HARDWARE, SOFTWARE AND PROGRAMMING TO PERFORM ALL SEQUENCES LISTED.
- B. SEQUENCE OF OPERATION**
a. THE EXHAUST FANS MAY BE MANUALLY STARTED AND STOPPED AT THE FAN MOTOR STARTER THROUGH H-O-A SELECTOR SWITCH. "HAND" AND "OFF" POSITIONS SHALL BE USED FOR MAINTENANCE ONLY. WHEN IN THE "AUTO" POSITION, FANS SHALL BE CONTROLLED BY THE BMS.
b. INITIALLY, EF-1 THRU EF-4 ARE DUTY FANS & EF-5 SERVES AS A BACKUP CAPACITY ONLY (IN THE EVENT OF A FAN FAILURE).
c. FANS SHALL OPERATE IN AN AUTOMATICALLY ALTERNATING LEAD-LAG SEQUENCE, TO EQUALIZE FAN RUN TIME.
d. EXHAUST FANS SHALL START AND STOP ONLY WITH THEIR RESPECTIVE ISOLATION DAMPERS FULLY CLOSED AS PROVED BY THE DAMPER LIMIT SWITCHES.
e. WHEN THE SYSTEMS IS INITIALLY STARTED, THE BYPASS AIR DAMPER SHALL BE FULLY OPEN AND THE FAN ISOLATION DAMPERS SHALL BE FULLY CLOSED.
f. WHEN THE BYPASS DAMPERS POSITION IS CONFIRMED TO BE FULLY OPEN BY THE DAMPER LIMIT SWITCH, THE LEAD EXHAUST FAN SHALL START AND ITS RESPECTIVE ISOLATION DAMPER SHOW OPEN. THE LEAD EXHAUST FAN SHALL OPERATE CONTINUOUSLY AT CONSTANT SPEED.
g. EXHAUST FANS SHALL BE STAGED ON AND OFF BASED ON THE TOTAL SYSTEM EXHAUST AIR VOLUME, AS DETERMINED BY TOTTALING THE EXHAUST VOLUME OF THE EXHAUST VALVE CONTROLLERS. IF THE TOTAL SYSTEM EXHAUST AIR VOLUME RISES ABOVE THE SCHEDULED CFM CAPACITY OF THE FANS IN OPERATION, ANOTHER FAN SHALL START. IF THE TOTAL SYSTEM EXHAUST AIR VOLUME FALLS BELOW THE SCHEDULED CFM CAPACITY OF THE FANS IN OPERATION, A FAN SHALL SHUT DOWN. WHEN A FAN IS STAGED OFF, THE ASSOCIATED ISOLATION DAMPER SHALL CLOSE AND THE FAN SHALL BE DE-ENERGIZED. A MINIMUM OF ONE EXHAUST FAN SHALL OPERATE AT ALL TIMES.
h. WHEN THE EXHAUST FANS ARE OPERATING, THE BYPASS DAMPER SHALL MODULATE TO MAINTAIN THE PLENUM STATIC PRESSURE SETPOINT (FA).

- C. ALARMS, INTERLOCKS AND SAFETIES (TO BE INSTALLED BY TCC)**
a. BEFORE EACH EXHAUST IS ALLOWED TO START, RESPECTIVE FAN DISCHARGE DAMPER SHALL BE FULLY OPENED AND BE PROVEN BY END SWITCHES. WHENEVER FANS STOP, RESPECTIVE FAN DISCHARGE DAMPER SHALL CLOSE AFTER A 15 SEC TIME-DELAY (FA).
b. FAN FAULT ALARM
c. LOW SUCTION PRESSURE ALARM: IF A LOW SUCTION PRESSURE (4" WC, FA) IS DETECTED IN THE PLENUM, THE LEAD EXHAUST FAN SHALL SHUT DOWN AND A "LOW SUCTION PRESSURE" ALARM SHALL BE INITIATED AT THE BAS. THE SYSTEM MUST BE MANUALLY RESET AT THE BAS BEFORE THE FANS CAN BE RESTARTED.
d. IF POWER IS LOST TO THE CONTROL PANEL, EF-1 & 2 FAIL ON AND THEIR RESPECTIVE ISOLATION DAMPERS FAIL OPEN. EXHAUST FANS EF-3, EF-4 AND EF-5 SHALL FAIL OFF WITH THEIR RESPECTIVE DAMPERS FAILING CLOSED.
e. BYPASS DAMPERS AND ISOLATION DAMPERS FOR EF-3, EF-4 AND EF-5 CLOSE WITH ZERO VOLTS AND OPEN WITH 10 VOLTS
f. ISOLATION DAMPERS FOR EF-1 AND EF-2 OPEN WITH ZERO VOLTS AND CLOSE WITH 10 VOLTS.
g. CONTROL PANEL TRANSFORMER FAILURE SHALL NOT AFFECT ALL DAMPERS. PROVIDE DEDICATED DAMPER CONTROL TRANSFORMERS FOR EACH DAMPER FOR REDUNDANCY ALONG WITH 120V SINGLE POLE SWITCHES AND FUSES FOR EACH SET OF DAMPERS.
h. IF POWER IS LOST TO THE BUILDING, EF-1 AND EF-2 SHALL OPERATE NORMALLY (EMERGENCY POWER CIRCUIT) TO MAINTAIN NEGATIVE PRESSURE IN LABORATORY AREAS. EF-3, EF-4 AND EF-5 FAN ISOLATION DAMPERS FAIL CLOSED AND THE PLENUM OUTSIDE AIR BYPASS FAILS CLOSED.
i. IF AHU-1 OR AHU-2 IS OFF, THE LAB EXHAUST SYSTEM STAT PRESSURE SETPOINT SHALL BE RESET TO -2.0 INCHES WC (FA).



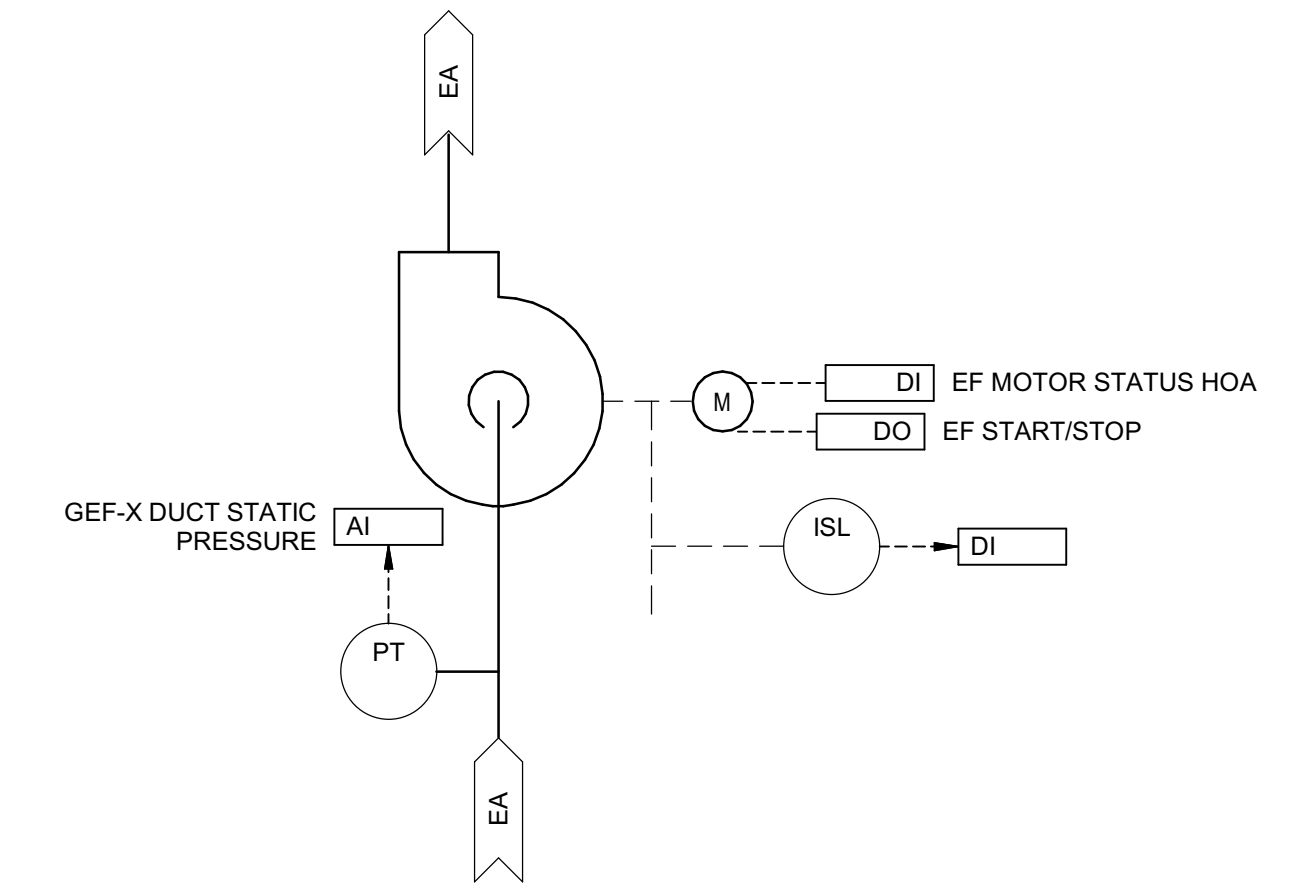
5 FIRING RANGE EXHAUST FAN - EF-8 CONTROL DIAGRAM
SCALE: NOT TO SCALE

- A. SCOPE**
a. CONTROL DIAGRAM PICTURES EXISTING UNIT. DESIGN INTENT IS TO INSTALL NEW CONTROL SYSTEM FOR EXISTING UNITS. REPLACE ALL SENSORS AS REQUIRED FOR OPERATION ACCORDING TO NEW CONTROL SEQUENCES AND CONNECTION TO NEW BAS.
b. IT IS THE JOINT RESPONSIBILITY OF THE EQUIPMENT SUPPLIER, ENVIRONMENTAL CONTROLS CONTRACTOR (ECC/TCC) AND MECHANICAL CONTRACTOR TO PROVIDE ALL DEVICES, HARDWARE, SOFTWARE AND PROGRAMMING TO PERFORM ALL SEQUENCES LISTED.
- B. SEQUENCE OF OPERATION**
a. UNOCCUPIED MODE
• EXHAUST FAN (EF-8) SHALL BE OFF
• SUPPLY VALVES (LS-013 & LS-014) SHALL OPERATE TO MAINTAIN SPECIFIED MINIMUM AIRFLOW.
• ISOLATION DAMPER (D-2) SHALL OPEN AND GENERAL EXHAUST VALVE (LE-013B) SHALL OPERATE TO SPECIFIED MAXIMUM AIRFLOW.
b. OCCUPIED MODE
• THE EXHAUST FAN (EF-8) SHALL BE INTERLOCKED WITH LIGHT SWITCH TO TURN ON.
• LE-013A, LS-013 AND LS-014 SHALL OPERATE TO MAINTAIN SPECIFIED MAXIMUM AIRFLOW.
• LE-013B SHALL GO TO ZERO AIRFLOW BY MEANS OF ASSOCIATED MOTORIZED ISOLATION DAMPER BEING CLOSED.
c. LS-013 & LS-014 REHEAT COILS:
• IF THE SPACE TEMPERATURE FALLS (IN EITHER MODE), THE HEATING HOT WATER CONTROL VALVE(S) SHALL MODULATE OPEN TO MAINTAIN THE SPACE TEMP SETPOINT, (75°F - SUMMER AND 72°F - WINTER, FA).
- C. ALARMS, INTERLOCKS AND SAFETIES (TO BE INSTALLED BY TCC)**
a. UPON STARTUP, THE FAN SHALL NOT START UNTIL ITS MOTORIZED DAMPER IS FULL OPEN, AS DETERMINED BY THE DAMPER LIMIT SWITCH. UPON SHUTDOWN, THE FAN SHALL STOP AND THE MOTORIZED DAMPER SHALL CLOSE AFTER A 30 SECOND TIME DELAY.
b. ALARM AT BAS IF THE SPACE TEMPERATURE IS MORE THAN 10°F (FA) ABOVE OR BELOW SETPOINT.
c. EXHAUST FAN FAULT ALARM



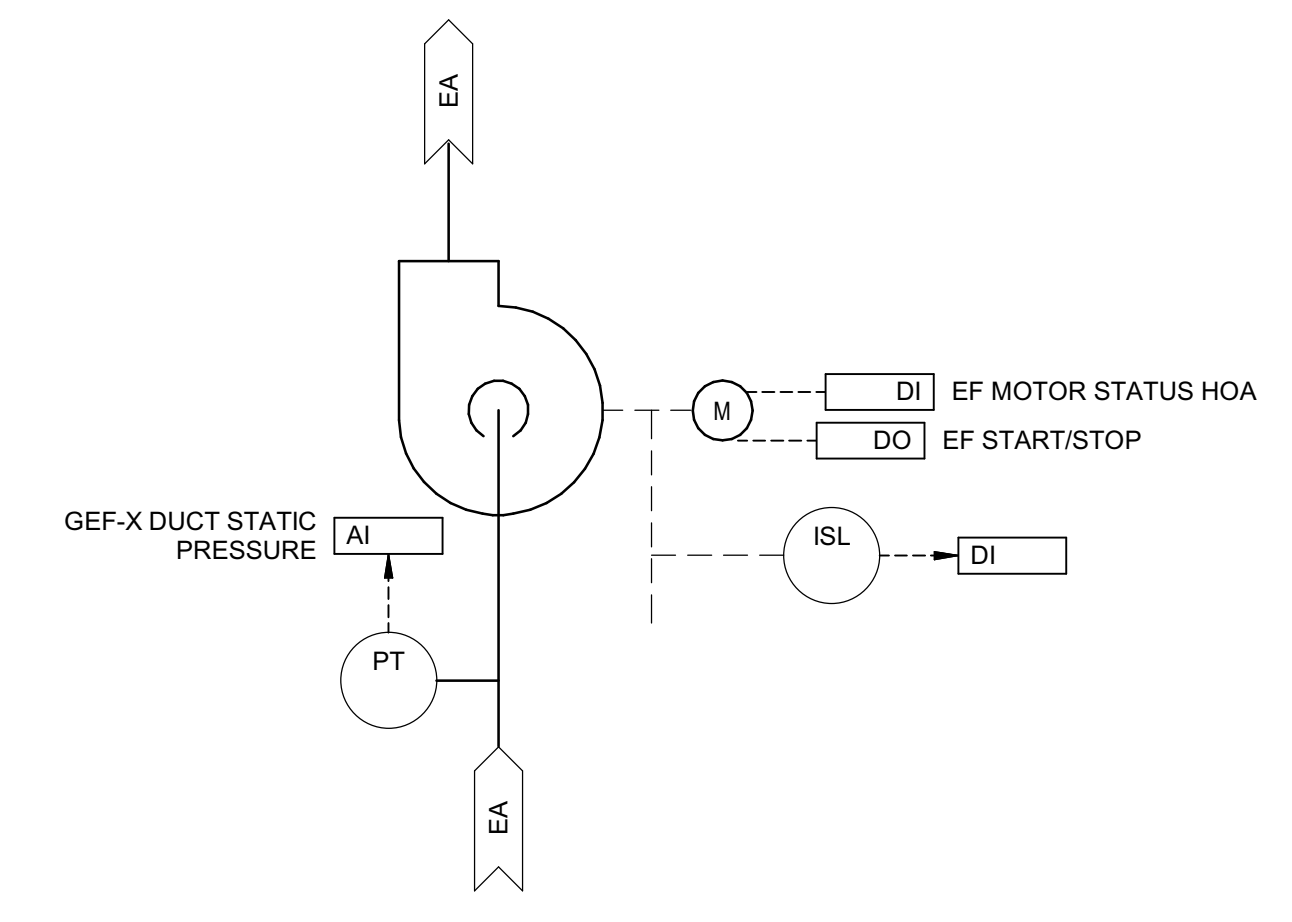
1 PARKING GARAGE EXHAUST FANS EF-9 - 11 CONTROL DIAGRAM
SCALE: NOT TO SCALE

- A. SCOPE**
a. CONTROL DIAGRAM PICTURES EXISTING UNIT. DESIGN INTENT IS TO INSTALL NEW CONTROL SYSTEM FOR EXISTING UNITS. REPLACE ALL SENSORS AS REQUIRED FOR OPERATION ACCORDING TO NEW CONTROL SEQUENCES AND CONNECTION TO NEW BAS.
b. IT IS THE JOINT RESPONSIBILITY OF THE EQUIPMENT SUPPLIER, ENVIRONMENTAL CONTROLS CONTRACTOR (ECC/TCC) AND MECHANICAL CONTRACTOR TO PROVIDE ALL DEVICES, HARDWARE, SOFTWARE AND PROGRAMMING TO PERFORM ALL SEQUENCES LISTED.
- B. SEQUENCE OF OPERATION**
a. THE EXHAUST FAN (EF-12) SHALL RUN CONTINUOUSLY.
- C. ALARMS, INTERLOCKS AND SAFETIES (TO BE INSTALLED BY TCC)**
a. UPON STARTUP, THE FAN SHALL NOT START UNTIL ITS MOTORIZED DAMPER IS FULL OPEN, AS DETERMINED BY THE DAMPER LIMIT SWITCH. UPON SHUTDOWN, THE FAN SHALL STOP AND THE MOTORIZED DAMPER SHALL CLOSE AFTER A 30 SECOND TIME DELAY.
b. ALARM AT BAS IF THE SPACE TEMPERATURE IS MORE THAN 10°F (FA) ABOVE OR BELOW SETPOINT.
c. EXHAUST FAN FAULT ALARM
- HTTPS://FIL.AEIENG.COM/KCMECHANICAL/WIKIHOME.ASPX



2 CHEMICAL STORAGE ROOM EXHAUST FAN EF-12 CONTROL DIAGRAM
SCALE: NTS

- A. SCOPE**
a. CONTROL DIAGRAM PICTURES EXISTING UNIT. DESIGN INTENT IS TO INSTALL NEW CONTROL SYSTEM FOR EXISTING UNITS. REPLACE ALL SENSORS AS REQUIRED FOR OPERATION ACCORDING TO NEW CONTROL SEQUENCES AND CONNECTION TO NEW BAS.
b. IT IS THE JOINT RESPONSIBILITY OF THE EQUIPMENT SUPPLIER, ENVIRONMENTAL CONTROLS CONTRACTOR (ECC/TCC) AND MECHANICAL CONTRACTOR TO PROVIDE ALL DEVICES, HARDWARE, SOFTWARE AND PROGRAMMING TO PERFORM ALL SEQUENCES LISTED.
- B. SEQUENCE OF OPERATION**
a. THE EXHAUST FAN (EF-12) SHALL RUN CONTINUOUSLY.
- C. ALARMS, INTERLOCKS AND SAFETIES (TO BE INSTALLED BY TCC)**
a. UPON STARTUP, THE FAN SHALL NOT START UNTIL ITS MOTORIZED DAMPER IS FULL OPEN, AS DETERMINED BY THE DAMPER LIMIT SWITCH. UPON SHUTDOWN, THE FAN SHALL STOP AND THE MOTORIZED DAMPER SHALL CLOSE AFTER A 30 SECOND TIME DELAY.
b. ALARM AT BAS IF THE SPACE TEMPERATURE IS MORE THAN 10°F (FA) ABOVE OR BELOW SETPOINT.
c. EXHAUST FAN FAULT ALARM
- HTTPS://FIL.AEIENG.COM/KCMECHANICAL/WIKIHOME.ASPX



3 MECHANICAL ROOM EXHAUST FANS EF-13, 14 CONTROL DIAGRAM
SCALE: NOT TO SCALE

- A. SCOPE**
a. CONTROL DIAGRAM PICTURES EXISTING UNIT. DESIGN INTENT IS TO INSTALL NEW CONTROL SYSTEM FOR EXISTING UNITS. REPLACE ALL SENSORS AS REQUIRED FOR OPERATION ACCORDING TO NEW CONTROL SEQUENCES AND CONNECTION TO NEW BAS.
b. IT IS THE JOINT RESPONSIBILITY OF THE EQUIPMENT SUPPLIER, ENVIRONMENTAL CONTROLS CONTRACTOR (ECC/TCC) AND MECHANICAL CONTRACTOR TO PROVIDE ALL DEVICES, HARDWARE, SOFTWARE AND PROGRAMMING TO PERFORM ALL SEQUENCES LISTED.
- B. SEQUENCE OF OPERATION**
a. THE EXHAUST FAN (EF-12) SHALL RUN CONTINUOUSLY.
- C. ALARMS, INTERLOCKS AND SAFETIES (TO BE INSTALLED BY TCC)**
a. UPON STARTUP, THE FAN SHALL NOT START UNTIL ITS MOTORIZED DAMPER IS FULL OPEN, AS DETERMINED BY THE DAMPER LIMIT SWITCH. UPON SHUTDOWN, THE FAN SHALL STOP AND THE MOTORIZED DAMPER SHALL CLOSE AFTER A 30 SECOND TIME DELAY.
b. ALARM AT BAS IF THE SPACE TEMPERATURE IS MORE THAN 10°F (FA) ABOVE OR BELOW SETPOINT.
c. EXHAUST FAN FAULT ALARM
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PROGRESS SET
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Issuance and Revisions

Rev	Date	Description

Keyplan

Project Title
**POLICE CRIME LAB
AUTOMATION SYSTEM
REPLACEMENT**

621 W WASHINGTON ST.
PHOENIX, AZ 85007

City of Phoenix Project Number:
PW26480024-1



City of Phoenix

Project Number
23457-00

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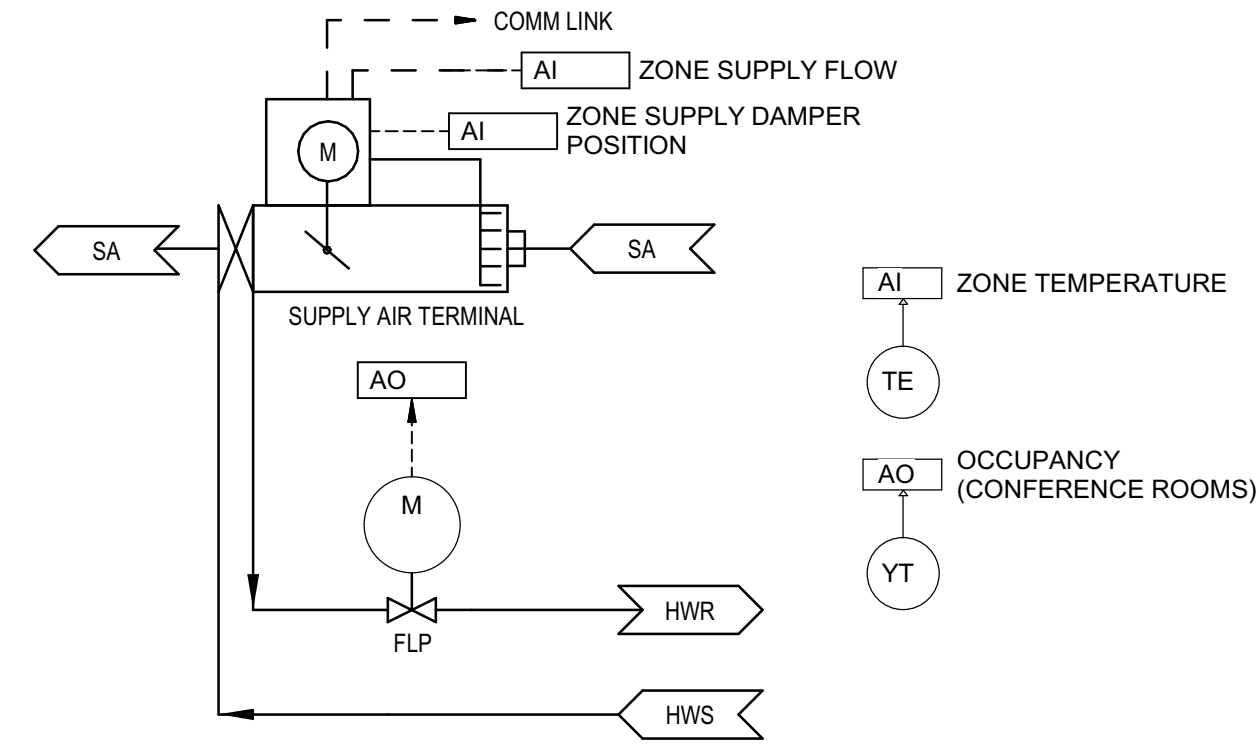
Scale
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Drawn By
Author

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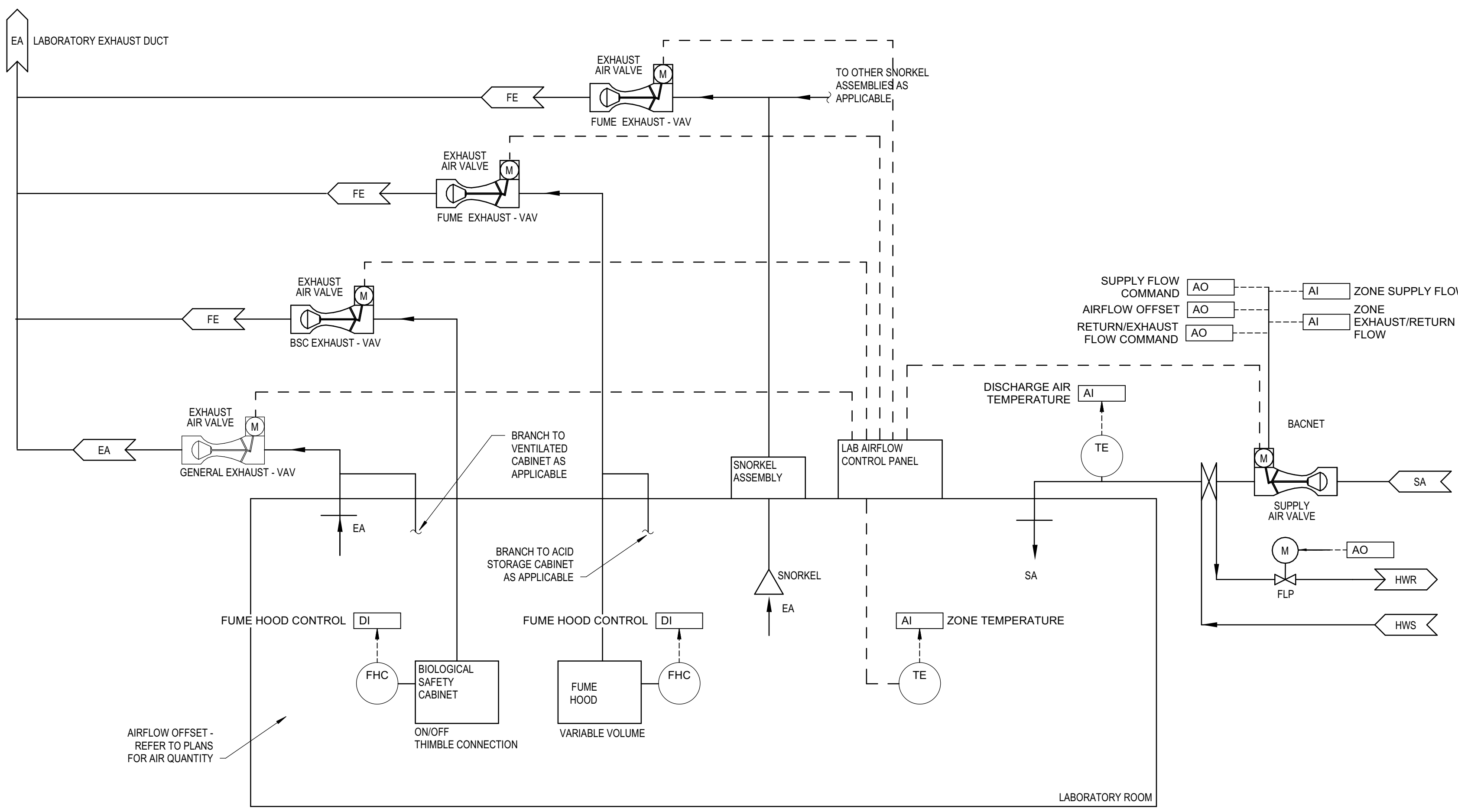
Sheet Title
**MECHANICAL
CONTROL
DIAGRAMS**

Sheet Number
M7.05

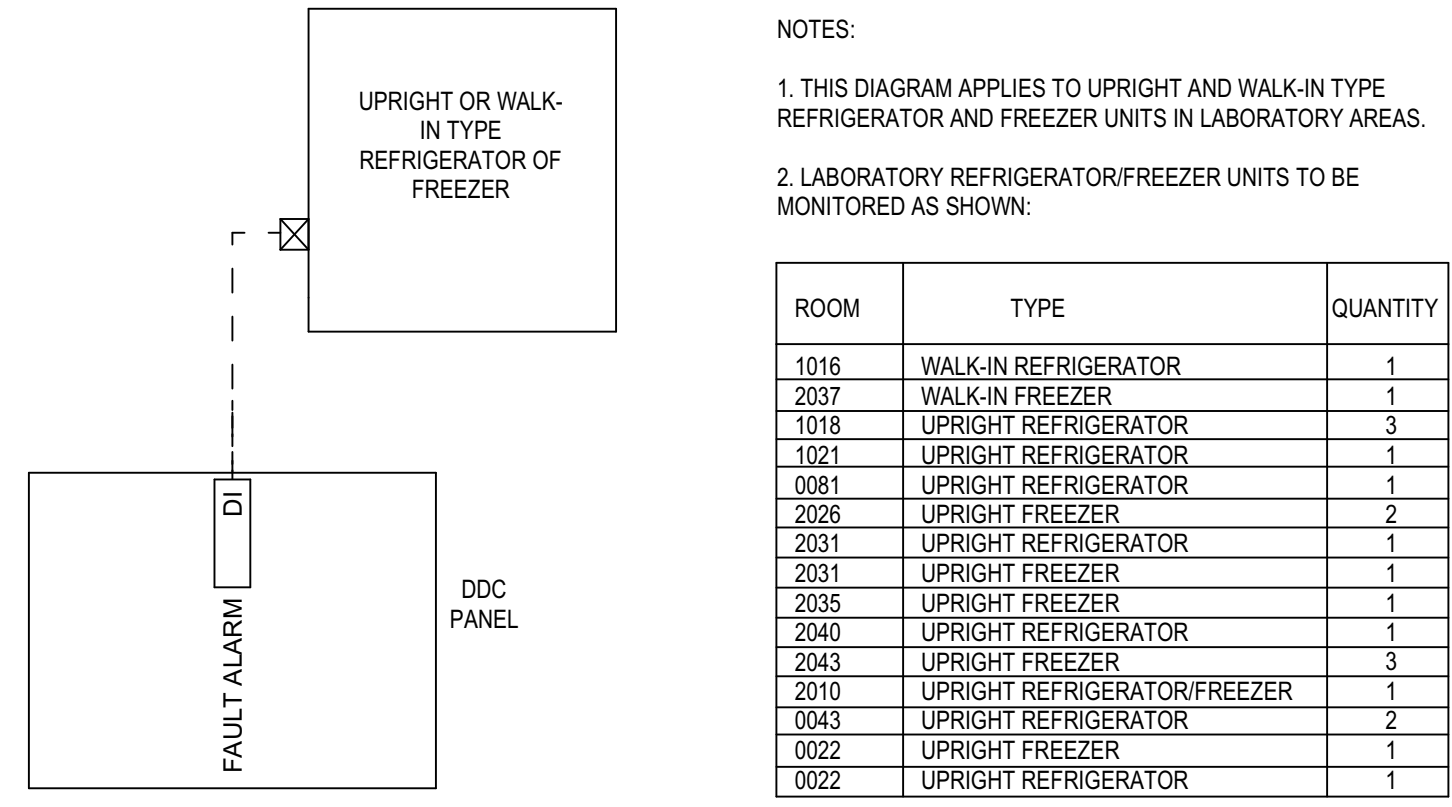


3 TERMINAL UNIT CONTROL DIAGRAM
SCALE: NOT TO SCALE

- A. SCOPE**
a. CONTROL DIAGRAM PICTURES EXISTING UNIT. DESIGN INTENT IS TO INSTALL NEW CONTROL SYSTEM FOR EXISTING UNITS. REPLACE ALL SENSORS AS REQUIRED FOR OPERATION ACCORDING TO NEW CONTROL SEQUENCES AND CONNECTION TO NEW BAS.
b. IT IS THE JOINT RESPONSIBILITY OF THE EQUIPMENT SUPPLIER, ENVIRONMENTAL CONTROLS CONTRACTOR (ECC/CC) AND MECHANICAL CONTRACTOR TO PROVIDE ALL DEVICES, HARDWARE, SOFTWARE AND PROGRAMMING TO PERFORM ALL SEQUENCES LISTED.
- B. SEQUENCE OF OPERATION**
a. VARIABLE VOLUME UNITS (NON-LAB UNITS)
• TERMINAL UNITS AND ASSOCIATED AIR HANDLING UNIT SHALL OPERATE DURING OCCUPIED HOURS ONLY, AS DETERMINED BY THE BMS. THE BMS SHALL ALSO DETERMINE OPERATING MODE (HEATING AND COOLING FOR THE TERMINAL UNITS AND AIR HANDLING UNITS).
• TERMINAL UNIT CONTROLLER SHALL MODULATE THE CONTROL DAMPER BETWEEN ITS PRESET MAXIMUM AND MINIMUM POSITIONS AS REQUIRED TO MAINTAIN THE SPACE TEMPERATURE SETPOINT (75°F - SUMMER AND 72°F - WINTER, FA).
• IF SPACE TEMPERATURE CONTINUES TO FALL WITH THE CONTROL DAMPER IN ITS MINIMUM POSITION, THE HEATING HOT WATER CONTROL VALVE SHALL MODULATE OPEN TO MAINTAIN THE SPACE TEMPERATURE SETPOINT.
b. CONSTANT VOLUME UNITS (NON-LAB UNITS)
• TERMINAL UNITS AND ASSOCIATED AIR HANDLING UNIT SHALL OPERATE DURING OCCUPIED HOURS ONLY, AS DETERMINED BY THE BMS. THE BMS SHALL ALSO DETERMINE OPERATING MODE (HEATING AND COOLING FOR THE TERMINAL UNITS AND AIR HANDLING UNITS).
• THE TERMINAL UNIT CONTROLLER SHALL MODULATE THE CONTROL DAMPER AS REQUIRED TO MAINTAIN A CONSTANT AIRFLOW RATE (FA).
• IF THE SPACE TEMPERATURE FALLS BELOW SETPOINT, THE HEATING HOT WATER CONTROL VALVE SHALL MODULATE OPEN TO MAINTAIN SPACE TEMPERATURE SETPOINT (75°F - SUMMER AND 72°F - WINTER, FA).
c. CONFERENCE ROOMS (TWO POSITION UNITS)
• TERMINAL UNITS AND ASSOCIATED AIR HANDLING UNIT SHALL OPERATE DURING OCCUPIED HOURS ONLY, AS DETERMINED BY THE BMS. THE BMS SHALL ALSO DETERMINE OPERATING MODE (HEATING AND COOLING FOR THE TERMINAL UNITS AND AIR HANDLING UNITS).
• DURING OCCUPIED MODE, AS DETERMINED BY THE SPACE OCCUPANCY SENSOR, THE TERMINAL UNIT CONTROLLER SHALL MODULATE THE CONTROL DAMPER AS REQUIRED TO MAINTAIN THE CONSTANT OCCUPIED AIRFLOW RATE. THE TERMINAL UNIT CONTROLLER SHALL, THROUGH A TIMER, MAINTAIN OCCUPIED OPERATION FOR A MINIMUM OF 30 MINUTES (FA), REGARDLESS OF ACTUAL OCCUPANCY DURATION.
• DURING UNOCCUPIED MODE, THE TERMINAL UNIT CONTROLLER SHALL MODULATE THE CONTROL DAMPER AS REQUIRED TO MAINTAIN THE CONSTANT UNOCCUPIED AIRFLOW RATE.
• IF THE SPACE TEMPERATURE FALLS (IN EITHER MODE), THE HEATING HOT WATER CONTROL VALVE SHALL MODULATE OPEN TO MAINTAIN THE SPACE TEMPERATURE SETPOINT (75°F - SUMMER AND 72°F - WINTER, FA).
• THE FOLLOWING ROOMS SHALL BE CONSIDERED "CONFERENCE ROOMS" AND UTILIZE THIS SEQUENCE OF OPERATION: 1051 - LIBRARY / MOCK-COURTROOM, 1056 - CONFERENCE ROOM, 1062 - CONFERENCE ROOM, 2064 - CONFERENCE ROOM & 2065 - CONFERENCE ROOM
- C. ALARMS, INTERLOCKS AND SAFETIES (TO BE INSTALLED BY TCC)**
a. ALARM AT BAS IF THE SPACE TEMPERATURE IS MORE THAN 10°F (FA) ABOVE OR BELOW SETPOINT.



1 730 VALVE CONSTANT AIR VOLUME SUPPLY WITH REHEAT - FUME HOOD EXHAUST
SCALE: NOT TO SCALE

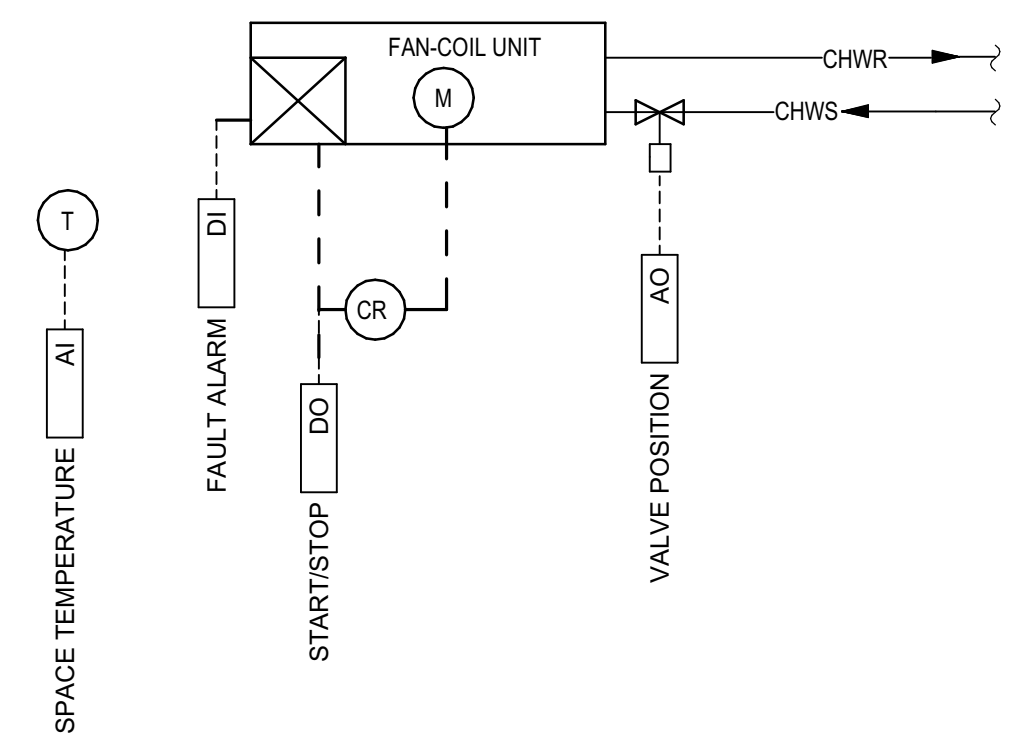


NOTES:
1. THIS DIAGRAM APPLIES TO UPRIGHT AND WALK-IN TYPE REFRIGERATOR AND FREEZER UNITS IN LABORATORY AREAS.
2. LABORATORY REFRIGERATOR/FREEZER UNITS TO BE MONITORED AS SHOWN:

ROOM	TYPE	QUANTITY
1016	WALK-IN REFRIGERATOR	1
2037	WALK-IN FREEZER	1
1018	UPRIGHT REFRIGERATOR	3
1021	UPRIGHT REFRIGERATOR	1
0091	UPRIGHT REFRIGERATOR	1
2026	UPRIGHT FREEZER	2
2031	UPRIGHT REFRIGERATOR	1
2031	UPRIGHT FREEZER	1
2035	UPRIGHT FREEZER	1
2040	UPRIGHT REFRIGERATOR	1
2043	UPRIGHT FREEZER	3
2010	UPRIGHT REFRIGERATOR/FREEZER	1
0043	UPRIGHT REFRIGERATOR	2
0022	UPRIGHT FREEZER	1
0022	UPRIGHT REFRIGERATOR	1

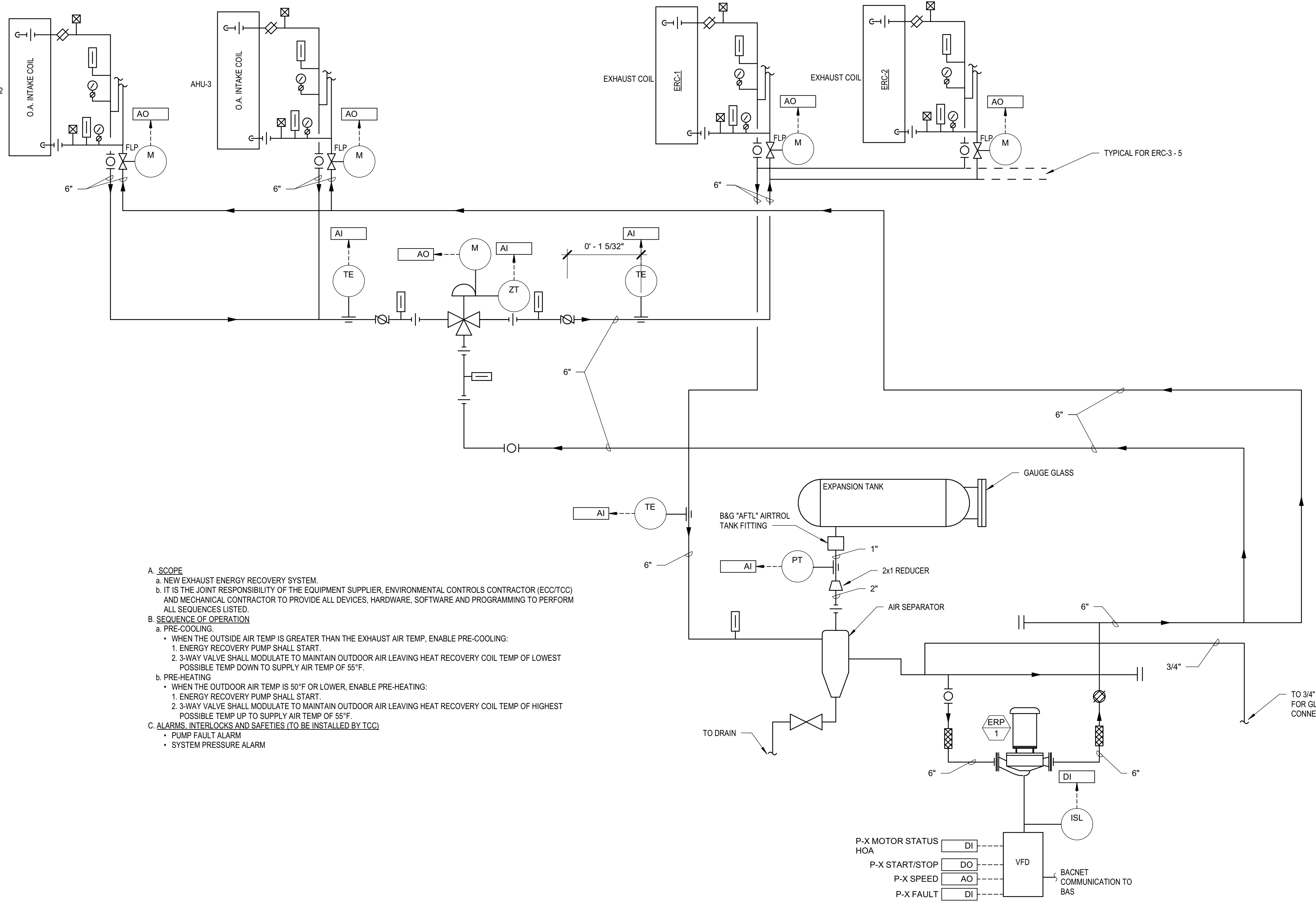
4 REFRIGERATOR/FREEZER MONITORING DIAGRAM
SCALE: NOT TO SCALE

- A. SCOPE**
a. CONTROL DIAGRAM PICTURES EXISTING UNIT. DESIGN INTENT IS TO INSTALL NEW CONTROL SYSTEM FOR EXISTING UNITS. REPLACE ALL SENSORS AS REQUIRED FOR OPERATION ACCORDING TO NEW CONTROL SEQUENCES AND CONNECTION TO NEW BAS.
b. IT IS THE JOINT RESPONSIBILITY OF THE EQUIPMENT SUPPLIER, ENVIRONMENTAL CONTROLS CONTRACTOR (ECC/CC) AND MECHANICAL CONTRACTOR TO PROVIDE ALL DEVICES, HARDWARE, SOFTWARE AND PROGRAMMING TO PERFORM ALL SEQUENCES LISTED.
- B. SEQUENCE OF OPERATION**
a. EACH REFRIGERATOR/FREEZER SHALL BE CONTROLLED THROUGH ITS INTERNAL CONTROL SYSTEM.
b. UNIT OPERATING STATUS SHALL BE TRANSMITTED TO THE DDC SYSTEM FOR REMOTE INDICATION. THE DDC SYSTEM SHALL INITIATE A UNIT SPECIFIC REFRIGERATOR/FREEZER FAULT ALARM IN THE EVENT OF A UNIT FAILURE.



5 FAN-COIL UNIT CONTROL DIAGRAM - FCU-1,2
SCALE: NOT TO SCALE

- A. SCOPE**
a. CONTROL DIAGRAM PICTURES EXISTING UNIT. DESIGN INTENT IS TO INSTALL NEW CONTROL SYSTEM FOR EXISTING UNITS. REPLACE ALL SENSORS AS REQUIRED FOR OPERATION ACCORDING TO NEW CONTROL SEQUENCES AND CONNECTION TO NEW BAS.
b. IT IS THE JOINT RESPONSIBILITY OF THE EQUIPMENT SUPPLIER, ENVIRONMENTAL CONTROLS CONTRACTOR (ECC/CC) AND MECHANICAL CONTRACTOR TO PROVIDE ALL DEVICES, HARDWARE, SOFTWARE AND PROGRAMMING TO PERFORM ALL SEQUENCES LISTED.
- B. SEQUENCE OF OPERATION**
a. THE FAN-COIL UNIT SHALL BE STARTED AND STOPPED BY THE BMS. THE FAN-COIL UNIT CONTROLLER SHALL MODULATE THE CHWS CONTROL VALVE AS REQUIRED TO MAINTAIN THE SPACE TEMPERATURE SETPOINT.



2 EXHAUST AIR ENERGY RECOVERY PIPING AND CONTROL DIAGRAM
SCALE: NOT TO SCALE

- A. SCOPE**
a. NEW EXHAUST ENERGY RECOVERY SYSTEM.
b. IT IS THE JOINT RESPONSIBILITY OF THE EQUIPMENT SUPPLIER, ENVIRONMENTAL CONTROLS CONTRACTOR (ECC/CC) AND MECHANICAL CONTRACTOR TO PROVIDE ALL DEVICES, HARDWARE, SOFTWARE AND PROGRAMMING TO PERFORM ALL SEQUENCES LISTED.
- B. SEQUENCE OF OPERATION**
a. PRE-COOLING
• WHEN THE OUTSIDE AIR TEMP IS GREATER THAN THE EXHAUST AIR TEMP, ENABLE PRE-COOLING:
1. ENERGY RECOVERY PUMP SHALL START
2. 3-WAY VALVE SHALL MODULATE TO MAINTAIN OUTDOOR AIR LEAVING HEAT RECOVERY COIL TEMP OF LOWEST POSSIBLE TEMP DOWN TO SUPPLY AIR TEMP OF 55°F.
b. PRE-HEATING
• WHEN THE OUTDOOR AIR TEMP IS 50°F OR LOWER, ENABLE PRE-HEATING:
1. ENERGY RECOVERY PUMP SHALL START
2. 3-WAY VALVE SHALL MODULATE TO MAINTAIN OUTDOOR AIR LEAVING HEAT RECOVERY COIL TEMP OF HIGHEST POSSIBLE TEMP UP TO SUPPLY AIR TEMP OF 55°F.
- C. ALARMS, INTERLOCKS AND SAFETIES (TO BE INSTALLED BY TCC)**
• PUMP FAULT ALARM
• SYSTEM PRESSURE ALARM

PROGRESS SET
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Issuance and Revisions

Rev	Date	Description

Keyplan

Project Title

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621 W WASHINGTON ST.
PHOENIX, AZ 85007

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PW26480024-1



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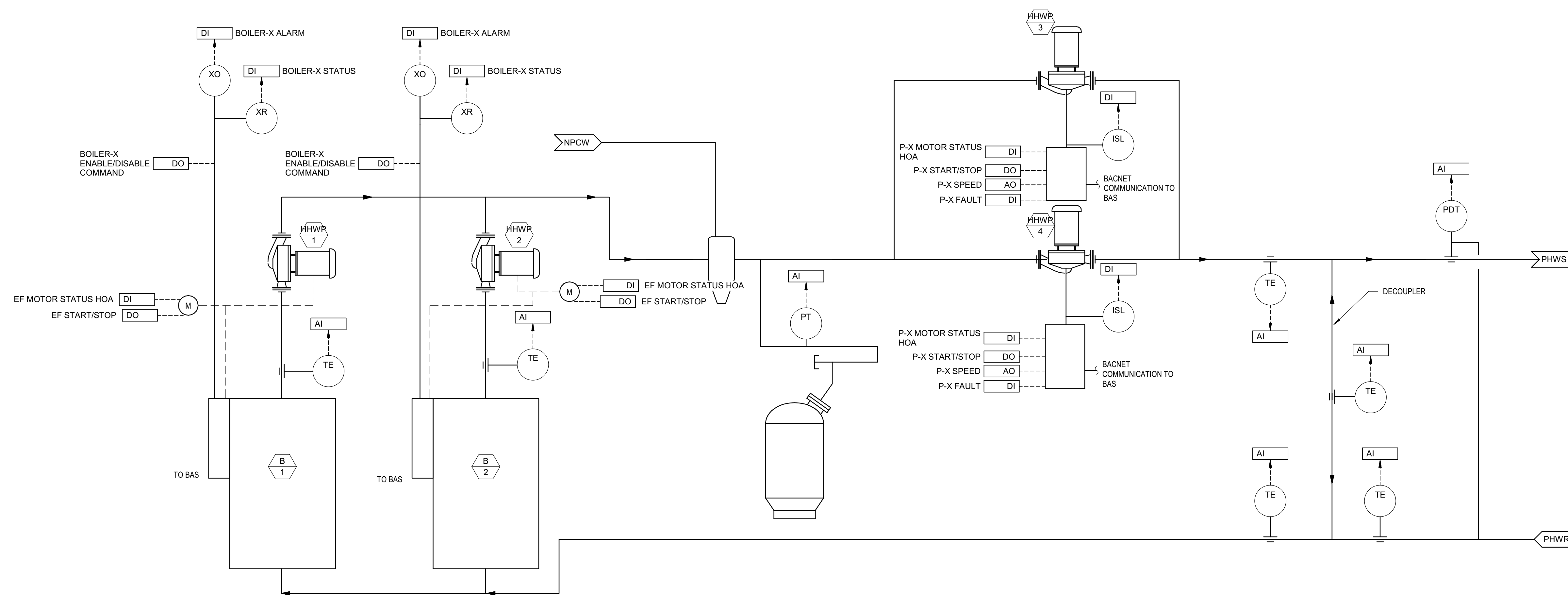
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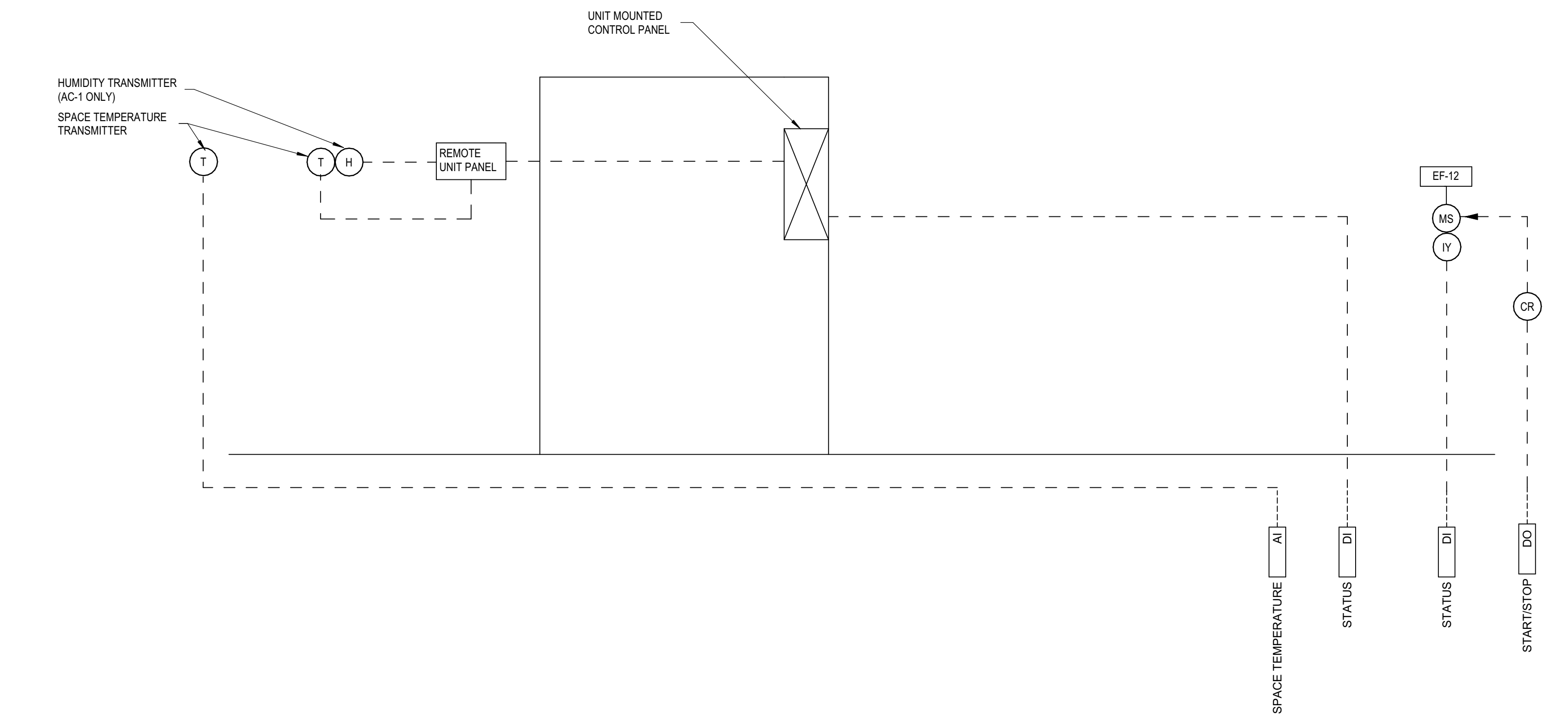
Sheet Title
**MECHANICAL
CONTROL
DIAGRAMS**

Sheet Number
M7.06



- A. SCOPE**
- CONTROL DIAGRAM PICTURES EXISTING UNIT. DESIGN INTENT IS TO INSTALL NEW CONTROL SYSTEM FOR EXISTING UNITS. REPLACE ALL SENSORS AS REQUIRED FOR OPERATION ACCORDING TO NEW CONTROL SEQUENCES AND CONNECTION TO BEV BAS.
 - IT IS THE JOINT RESPONSIBILITY OF THE EQUIPMENT SUPPLIER, ENVIRONMENTAL CONTROLS CONTRACTOR (ECC/CC) AND MECHANICAL CONTRACTOR TO PROVIDE ALL DEVICES, HARDWARE, SOFTWARE AND PROGRAMMING TO PERFORM ALL SEQUENCES LISTED.
- B. OPERATING MODE**
- THE BOILER IS ENABLED BY THE BAS WHENEVER THE BUILDING IS IN "OCCUPIED" OPERATING MODE.
 - WHEN ENABLED, THE LEAD BOILER AND PRIMARY HEATING HOT WATER PUMP SHALL START.
 - WHEN DISABLED, THE BOILERS AND HHW PUMPS ARE SHUT DOWN.
- C. SEQUENCE OF OPERATIONS**
- THE BOILER OPERATES THROUGH ITS INTERNAL CONTROLS TO MAINTAIN THE BOILER DISCHARGE TEMPERATURE SETPOINT OF 180°F (FA).
 - IF THIS OR THE DECOUPLER TEMPERATURE FALLS TO 10°F (FA) BELOW THE BOILER DISCHARGE TEMP SETPOINT, ANOTHER BOILER AND ASSOCIATED PRIMARY HHW PUMP SHALL START.
 - IF THE BOILER DISCHARGE TEMPERATURE RISES TO 5°F (FA) ABOVE THE BOILER DISCHARGE TEMPERATURE SETPOINT, ONE BOILER AND ASSOCIATED PRIMARY HHW PUMP SHALL SHUT DOWN.
 - IF TWO BOILERS ARE OPERATING AND THE DECOUPLER TEMPERATURE RISES TO 178°F OR ABOVE, ONE BOILER AND ASSOCIATED PRIMARY HHW PUMP SHALL SHUT DOWN.
 - THE SECONDARY HHW PUMPS SHALL OPERATE IN AN AUTOMATICALLY ALTERNATING LEAD-LAG SEQUENCE, CONTROLLED THROUGH THE BMS, TO MAINTAIN A CONSTANT HHW SUPPLY/RETURN DIFFERENTIAL PRESSURE OF 20PSI (FA). THE LAG PUMP SHALL START AUTOMATICALLY UPON A LEAD PUMP FAILURE.
 - BOILERS SHALL BE SEQUENCED TO EQUALIZE RUN TIME.
 - BOILER SHUT DOWN:
 - IN ALL CASES, UPON A BOILER SHUTDOWN, THE BOILERS SHALL MODULATE FROM HIGH TO LOW FIRE, THEN FROM LOW FIRE TO OFF (EXCEPT FOR A SAFETY SHUTDOWN).
 - UPON A BOILER SHUT DOWN, THE ASSOCIATED PRIMARY HHW PUMP SHALL CONTINUE TO RUN FOR 5 MINUTES PRIOR TO SHUTTING DOWN.
 - ONCE SHUT DOWN, THE BOILER SHALL NOT RE-START FOR A MINIMUM OF 30 MINUTES (FA).
- D. ALARMS, INTERLOCKS AND SAFETIES (TO BE INSTALLED BY TCC)**
- IF AFTER 30 SECONDS OF STARTUP, THE PRIMARY HEATING HOT WATER PUMPS DIFFERENTIAL PRESSURE SWITCH FAILS TO VERIFY PUMP OPERATION, A "PRIMARY PUMP FAILURE" ALARM SHALL BE INITIATED AT THE BAS AND THE ASSOCIATED BOILER SHALL BE COMMANDED OFF.
 - IF AFTER 30 SECONDS OF STARTUP, THE SECONDARY HEATING HOT WATER PUMPS DIFFERENTIAL PRESSURE SWITCH FAILS TO VERIFY PUMP OPERATION, A "SECONDARY PUMP FAILURE" ALARM SHALL BE INITIATED AT THE BAS.
 - A MOTOR STARTER HARDWIRED INTERLOCK SHALL PREVENT BOILER FROM STARTING IF THERE IS NO WATER FLOW.
 - IF THE HHW RETURN TEMPERATURE FALLS TO 140°F (FA) FOR MORE THAN 5 MINUTES (FA), A "LOW HHWR TEMP" ALARM SHALL BE INITIATED AT THE BAS.

1 HEATING HOT WATER SYSTEM CONTROL DIAGRAM
 SCALE: NOT TO SCALE



2 AC UNIT CONTROL DIAGRAM (AC-1-5)
 SCALE: NOT TO SCALE

- A. SCOPE**
- CONTROL DIAGRAM PICTURES EXISTING UNIT. DESIGN INTENT IS TO INSTALL NEW CONTROL SYSTEM FOR EXISTING UNITS. REPLACE ALL SENSORS AS REQUIRED FOR OPERATION ACCORDING TO NEW CONTROL SEQUENCES AND CONNECTION TO BEV BAS.
 - IT IS THE JOINT RESPONSIBILITY OF THE EQUIPMENT SUPPLIER, ENVIRONMENTAL CONTROLS CONTRACTOR (ECC/CC) AND MECHANICAL CONTRACTOR TO PROVIDE ALL DEVICES, HARDWARE, SOFTWARE AND PROGRAMMING TO PERFORM ALL SEQUENCES LISTED.
- B. SEQUENCE OF OPERATION**
- UNITS AC-1, AC-2 SHALL OPERATE THROUGH THEIR INTERNAL CONTROLS (COOLING, HUMIDIFICATION) TO MAINTAIN TEMPERATURE AND HUMIDITY SETPOINTS (72 DEG F/30%RH, ADJUSTABLE). THE SYSTEM SHALL OPERATE CONTINUOUSLY 24 HOURS/DAY 7 DAYS/WEEK.
 - IN THE EVENT OF A SYSTEM FAULT/ALARM AS DETECTED BY THE INTERNAL CONTROL/DIAGNOSTIC SYSTEM, A "GENERAL FAULT" ALARM SHALL BE INITIATED AT THE BMS.

PROGRESS SET
NOT FOR CONSTRUCTION

Issuance and Revisions

Rev	Date	Description

Keyplan

Project Title

**POLICE CRIME LAB
 AUTOMATION SYSTEM
 REPLACEMENT**

621 W WASHINGTON ST.
 PHOENIX, AZ 85007

City of Phoenix Project Number:
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City of Phoenix

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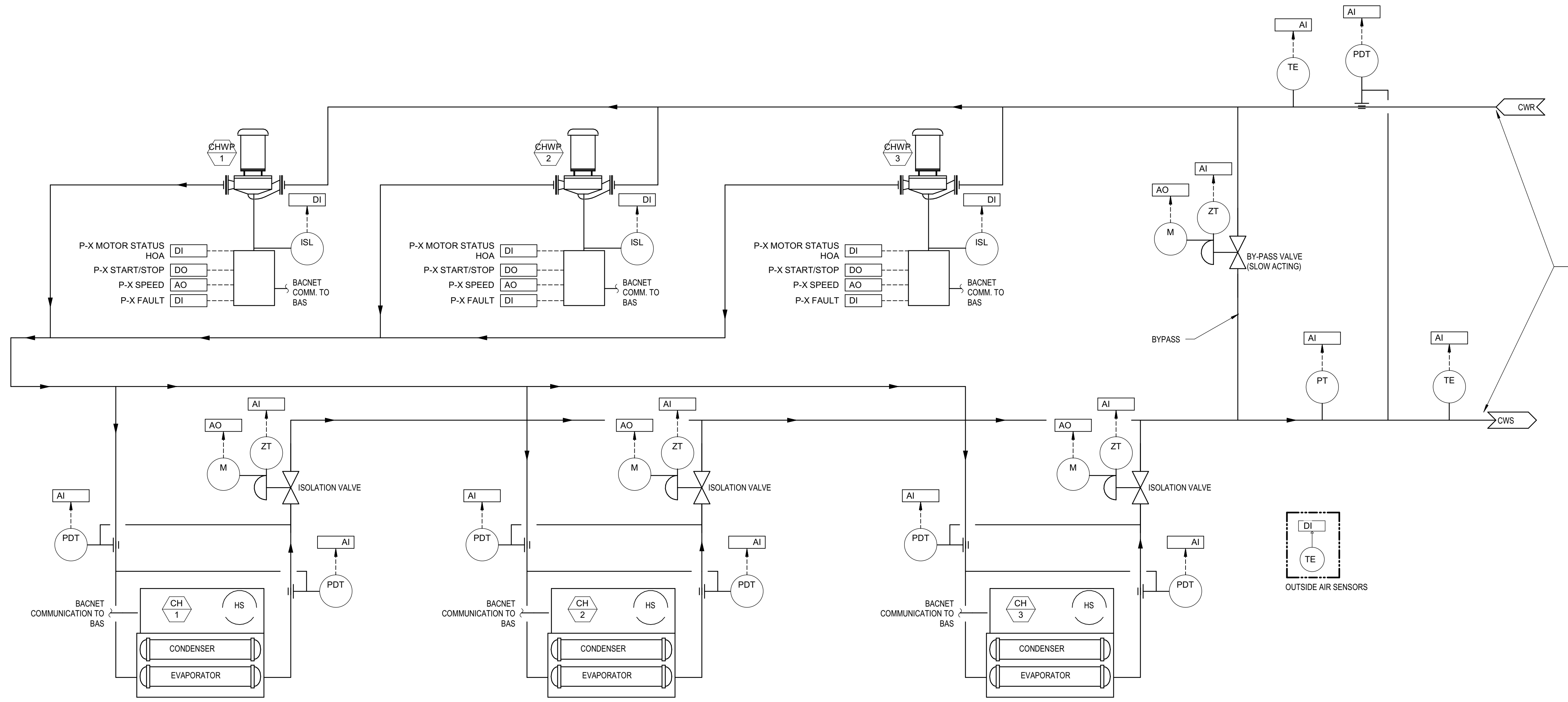
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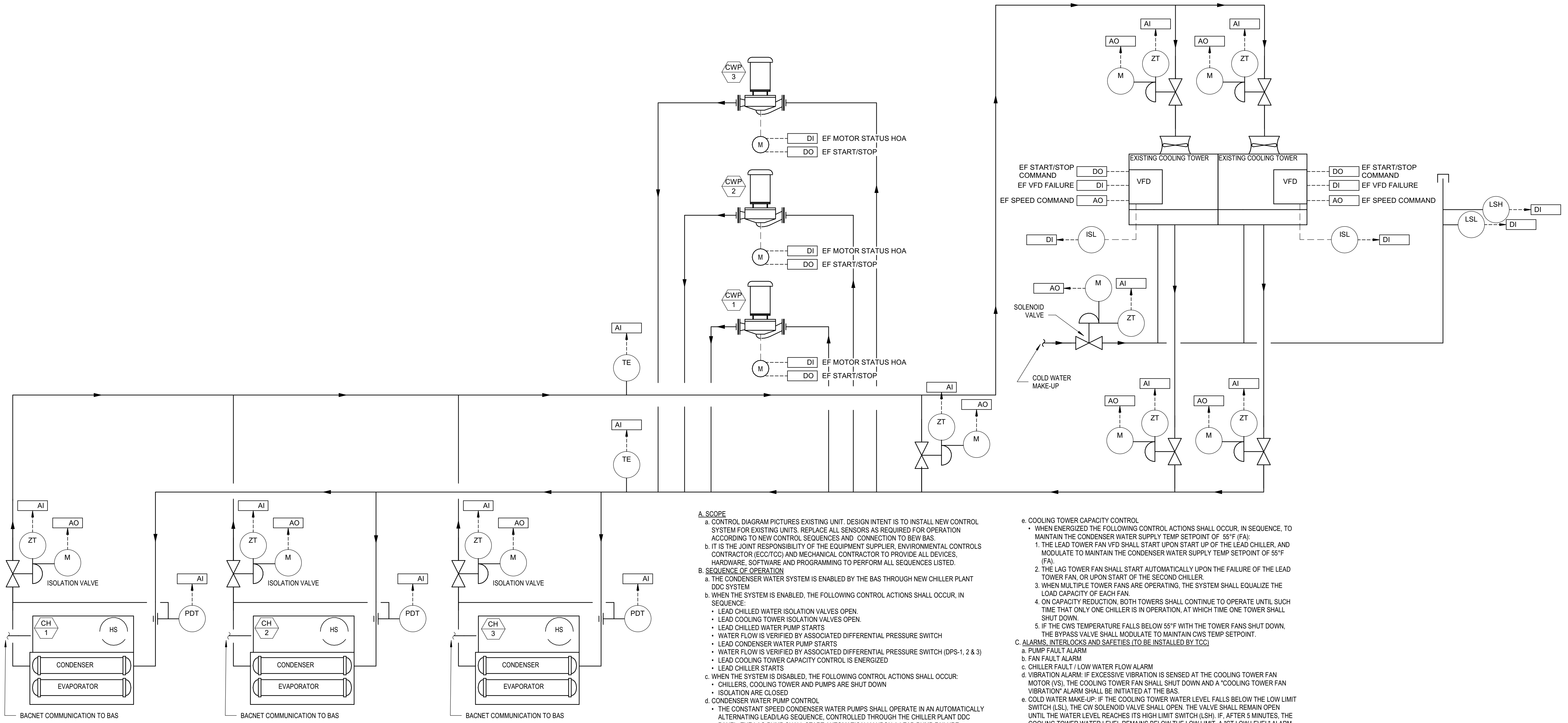
**MECHANICAL
 CONTROL
 DIAGRAMS**

Sheet Number
M7.07



- A. SCOPE**
- a. CONTROL DIAGRAM PICTURES EXISTING UNIT. DESIGN INTENT IS TO INSTALL NEW CONTROL SYSTEM FOR EXISTING UNITS. REPLACE ALL SENSORS AS REQUIRED FOR OPERATION ACCORDING TO NEW CONTROL SEQUENCES AND CONNECTION TO BEV BAS.
 - b. IT IS THE JOINT RESPONSIBILITY OF THE EQUIPMENT SUPPLIER, ENVIRONMENTAL CONTROLS CONTRACTOR (ECC/CC) AND MECHANICAL CONTRACTOR TO PROVIDE ALL DEVICES, HARDWARE, SOFTWARE AND PROGRAMMING TO PERFORM ALL SEQUENCES LISTED.
- B. SEQUENCE OF OPERATION**
- a. CHILLER IS ENABLED AND DISABLED BY THE BMS. REFER TO COMPREHENSIVE ENABLING SEQUENCE DESCRIBED IN THE CONDENSER WATER SYSTEM SEQUENCE OF OPERATION.
 - b. WHEN THE SYSTEM IS ENABLED:
 - THE LEAD CHILLED WATER ISOLATION VALVE OPENS AND THE LEAD CHILLER AND LEAD PRIMARY CHILLED WATER PUMP SHALL START. THE CHILLER OPERATES THROUGH ITS INTERNAL CONTROLS TO MAINTAIN THE CHILLER DISCHARGE TEMPERATURE SETPOINT OF 42°F (FA).
 - c. WHEN THE SYSTEM IS DISABLED:
 - THE CHILLERS AND CHILLED WATER PUMPS ARE SHUTDOWN. CHILLER ISOLATION VALVES ARE CLOSED.
- C. CHILLER SEQUENCING**
- WHEN ONE OPERATING CHILLER REACHES 75% LOAD (CURRENT BASED) FOR 5 MINUTES, THE SECOND CHILLER/PUMP SHALL START.
 - WHEN TWO OPERATING CHILLERS REACH 75% LOAD (CURRENT BASED) FOR 5 MINUTES, THE THIRD CHILLER/PUMP SHALL START.
 - WHEN THREE OPERATING CHILLERS FALL TO 33% LOAD (CURRENT BASED) FOR 5 MINUTES, THE THIRD CHILLER/PUMP SHALL SHUT DOWN.
 - WHEN TWO OPERATING CHILLERS FALL TO 33% LOAD (CURRENT BASED) FOR 5 MINUTES, THE SECOND CHILLER/PUMP SHALL SHUT DOWN.
 - WHEN MULTIPLE CHILLERS ARE OPERATING, THE SYSTEM SHALL EQUALIZE THE LOAD CAPACITY OF EACH CHILLER.
 - IF THE CHILLED WATER FLOW THROUGH EACH CHILLER FALLS BELOW THE MINIMUM SETPOINT (50% MAX. FLOW; FA), THE BYPASS VALVE SHALL OPEN TO INCREASE WATER FLOW RATE.
 - THE VARIABLE FLOW PRIMARY CHILLED WATER PUMPS OPERATE TO MAINTAIN A CONSTANT CHWSR DIFFERENTIAL PRESSURE OF 15PSI (FA).
 - THE BACKUP PUMP SHALL START AUTOMATICALLY UPON A LEAD OR LAG PUMP FAILURE. IF AFTER 30 SECONDS OF STARTUP, THE PRIMARY CHILLED WATER PUMPS DIFFERENTIAL PRESSURE SWITCH FAILS TO VERIFY PUMP OPERATION, A "SECONDARY PUMP FAILURE" ALARM SHALL BE INITIATED AT THE BMS.
- D. ALARMS, INTERLOCKS AND SAFETIES (TO BE INSTALLED BY TCC)**
- a. FAILURE OF THE CHILLER DUE TO LOW WATER FLOW SHALL INITIATE A "CHILLER FAULT" ALARM AT THE BAS.
 - b. PUMP FAILURE ALARM
 - c. A LAG CHILLER/PUMP SHALL START AUTOMATICALLY UPON A LEAD CHILLER/PUMP FAILURE.

1 CHILLED WATER SYSTEM CONTROL DIAGRAM
SCALE: NOT TO SCALE



- A. SCOPE**
- a. CONTROL DIAGRAM PICTURES EXISTING UNIT. DESIGN INTENT IS TO INSTALL NEW CONTROL SYSTEM FOR EXISTING UNITS. REPLACE ALL SENSORS AS REQUIRED FOR OPERATION ACCORDING TO NEW CONTROL SEQUENCES AND CONNECTION TO BEV BAS.
 - b. IT IS THE JOINT RESPONSIBILITY OF THE EQUIPMENT SUPPLIER, ENVIRONMENTAL CONTROLS CONTRACTOR (ECC/CC) AND MECHANICAL CONTRACTOR TO PROVIDE ALL DEVICES, HARDWARE, SOFTWARE AND PROGRAMMING TO PERFORM ALL SEQUENCES LISTED.
- B. SEQUENCE OF OPERATION**
- a. THE CONDENSER WATER SYSTEM IS ENABLED BY THE BAS THROUGH NEW CHILLER PLANT DDC SYSTEM.
 - b. WHEN THE SYSTEM IS ENABLED, THE FOLLOWING CONTROL ACTIONS SHALL OCCUR, IN SEQUENCE:
 - LEAD CHILLED WATER ISOLATION VALVES OPEN.
 - LEAD COOLING TOWER ISOLATION VALVES OPEN.
 - LEAD CHILLED WATER PUMP STARTS.
 - WATER FLOW IS VERIFIED BY ASSOCIATED DIFFERENTIAL PRESSURE SWITCH (DPS-1, 2 & 3).
 - LEAD CONDENSER WATER PUMP STARTS.
 - WATER FLOW IS VERIFIED BY ASSOCIATED DIFFERENTIAL PRESSURE SWITCH (DPS-1, 2 & 3).
 - LEAD COOLING TOWER CAPACITY CONTROL IS ENERGIZED.
 - LEAD CHILLER STARTS.
 - c. WHEN THE SYSTEM IS DISABLED, THE FOLLOWING CONTROL ACTIONS SHALL OCCUR:
 - CHILLERS, COOLING TOWER AND PUMPS ARE SHUT DOWN.
 - ISOLATION ARE CLOSED.
 - d. CONDENSER WATER PUMP CONTROL:
 - THE CONSTANT SPEED CONDENSER WATER PUMPS SHALL OPERATE IN AN AUTOMATICALLY ALTERNATING LEAD/LAG SEQUENCE, CONTROLLED THROUGH THE CHILLER PLANT DDC PANEL. THE LAG PUMP SHALL START AUTOMATICALLY UPON A LEAD PUMP FAILURE.
- C. ALARMS, INTERLOCKS AND SAFETIES (TO BE INSTALLED BY TCC)**
- a. PUMP FAILURE ALARM
 - b. FAN FAILURE ALARM
 - c. CHILLER FAULT / LOW WATER FLOW ALARM
 - d. VIBRATION ALARM: IF EXCESSIVE VIBRATION IS SENSED AT THE COOLING TOWER FAN MOTOR (VS), THE COOLING TOWER FAN SHALL SHUT DOWN AND A "COOLING TOWER FAN VIBRATION" ALARM SHALL BE INITIATED AT THE BAS.
 - e. COLD WATER MAKE-UP: IF THE COOLING TOWER WATER LEVEL FALLS BELOW THE LOW LIMIT SWITCH (LSL), THE CW SOLENOID VALVE SHALL OPEN. THE VALVE SHALL REMAIN OPEN UNTIL THE WATER LEVEL REACHES ITS HIGH LIMIT SWITCH (LSH). IF, AFTER 5 MINUTES, THE COOLING TOWER WATER LEVEL REMAINS BELOW THE LOW LIMIT, A "CT LOW LEVEL" ALARM SHALL BE INITIATED AT THE CHILLER PLANT DDC PANEL.
- e. COOLING TOWER CAPACITY CONTROL**
- WHEN ENERGIZED THE FOLLOWING CONTROL ACTIONS SHALL OCCUR, IN SEQUENCE, TO MAINTAIN THE CONDENSER WATER SUPPLY TEMP SETPOINT OF 55°F (FA):
 1. THE LEAD TOWER FAN VFD SHALL START UPON START UP OF THE LEAD CHILLER, AND MODULATE TO MAINTAIN THE CONDENSER WATER SUPPLY TEMP SETPOINT OF 55°F (FA).
 2. THE LAG TOWER FAN SHALL START AUTOMATICALLY UPON THE FAILURE OF THE LEAD TOWER FAN OR UPON START OF THE SECOND CHILLER.
 3. WHEN MULTIPLE TOWER FANS ARE OPERATING, THE SYSTEM SHALL EQUALIZE THE LOAD CAPACITY OF EACH FAN.
 4. ON CAPACITY REDUCTION, BOTH TOWERS SHALL CONTINUE TO OPERATE UNTIL SUCH TIME THAT ONLY ONE CHILLER IS IN OPERATION AT WHICH TIME ONE TOWER SHALL SHUT DOWN.
 5. IF THE CWS TEMPERATURE FALLS BELOW 55°F WITH THE TOWER FANS SHUT DOWN, THE BYPASS VALVE SHALL MODULATE TO MAINTAIN CWS TEMP SETPOINT.

2 CONDENSER WATER SYSTEM CONTROL DIAGRAM
SCALE: NOT TO SCALE

PROGRESS SET
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Issuance and Revisions

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Keyplan

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Project Number

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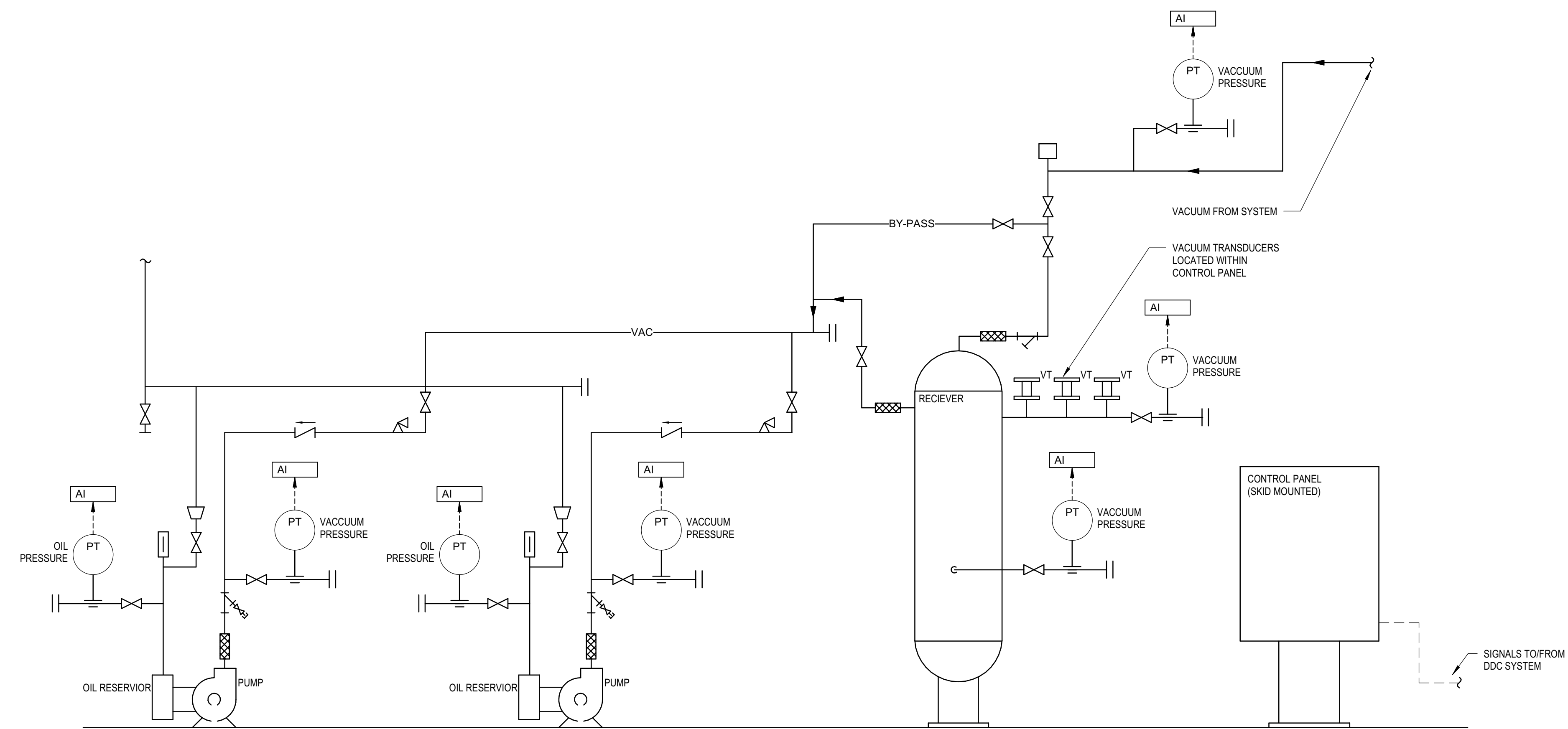
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Checked By: Checker

MECHANICAL CONTROL DIAGRAMS

Sheet Number

M7.08



1 LAB VACUUM (LVAC-1) - CONTROL DIAGRAM

SCALE: NOT TO SCALE

- A. SCOPE**
- THE VACUUM SYSTEM IS A PACKAGED DUPLEX SYSTEM. EACH PUMP MAY BE STARTED AND STOPPED MANUALLY AT LOCAL CONTROL PANEL.
 - CONTROL DIAGRAM PICTURES EXISTING UNIT. DESIGN INTENT IS TO INSTALL NEW CONTROL SYSTEM FOR EXISTING UNITS. REPLACE ALL SENSORS AS REQUIRED FOR OPERATION ACCORDING TO NEW CONTROL SEQUENCES AND CONNECTION TO BEW BAS.
 - IT IS THE JOINT RESPONSIBILITY OF THE EQUIPMENT SUPPLIER, ENVIRONMENTAL CONTROLS CONTRACTOR (ECC/CC) AND MECHANICAL CONTRACTOR TO PROVIDE ALL DEVICES, HARDWARE, SOFTWARE AND PROGRAMMING TO PERFORM ALL SEQUENCES LISTED.
- B. SEQUENCE OF OPERATION**
- WHEN THE HAND-OFF-AUTO SWITCH IS IN THE AUTO POSITION, THE PUMPS WILL AUTOMATICALLY BE STARTED AND STOPPED BASED ON SYSTEM VACUUM. THE LOCAL CONTROL PANEL SHALL ALTERNATE THE PUMPS.
 - IF THE LEAD PUMP IS IN OPERATION AND SYSTEM VACUUM DROPS BELOW VACUUM SETPOINT OF 26 IN HG (FA). THE LAG PUMP WILL BE ENERGIZED AND SHALL RUN IN CONJUNCTION WITH LEAD PUMP.
 - UPON A HIGH TEMPERATURE, THE TEMPERATURE SWITCH (TS) SHALL DE-ENERGIZE THE PUMP.
 - UPON A HIGH TEMPERATURE FAULT THE PUMP SHALL DE-ENERGIZE, START THE SECOND PUMP AND SEND A SIGNAL TO THE BAS FOR VACUUM HIGH TEMPERATURE FAULT.
 - BAS SHALL MONITOR SYSTEM VACUUM PRESSURE AND THE STATUS OF THE VACUUM SYSTEM (WHETHER EITHER PUMP IS RUNNING)
 - BAS SHALL BE CAPABLE OF STARTING AND STOPPING VACUUM SYSTEM
 - LOCAL ALARM PANEL SHALL ISSUE A "LOW VACUUM" ALARM WHEN THE VACUUM LEVEL FALLS BELOW 23 HG (FA).

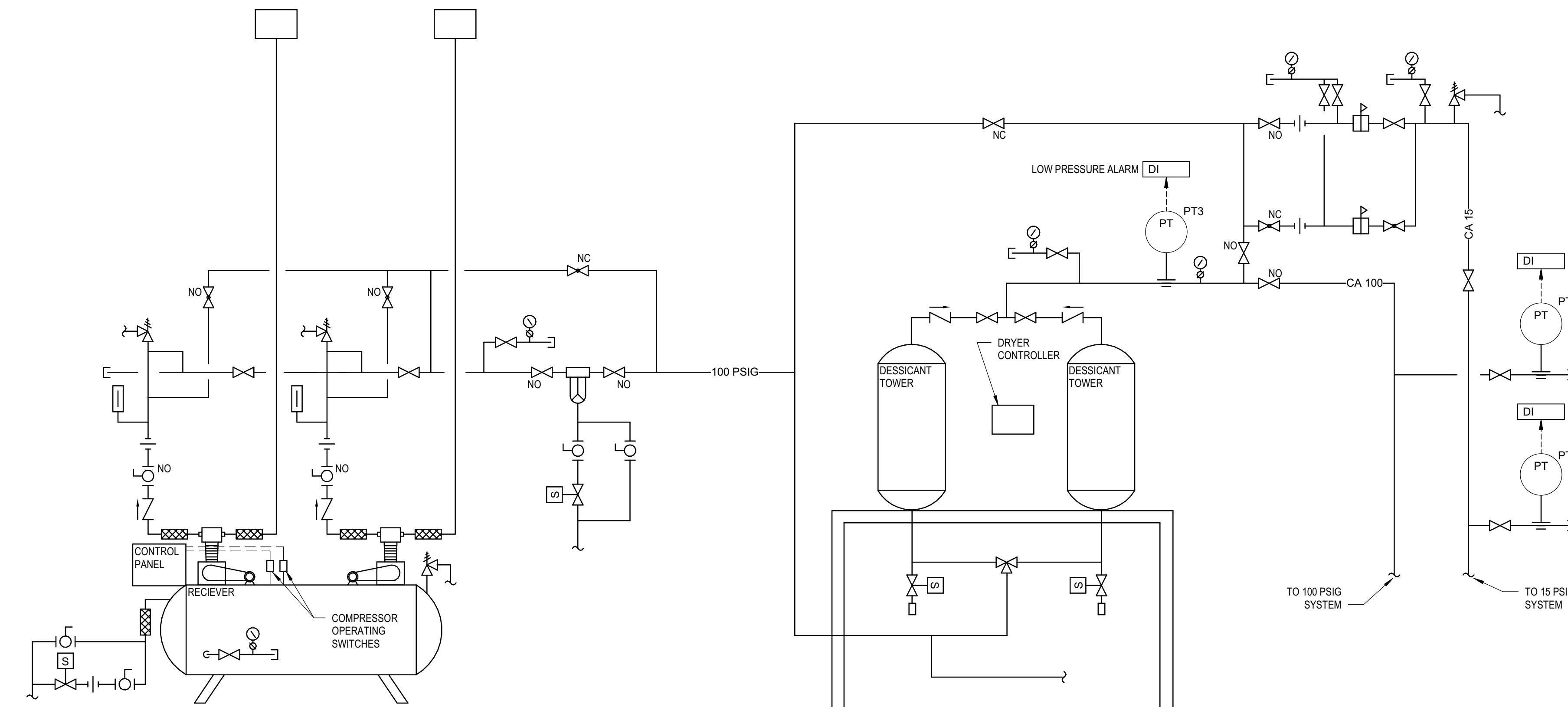
- C. CONTROL PANEL (SKID MOUNTED)**
- VACUUM PUMP CONTROL PANEL HAS THE FOLLOWING LOCAL ALARMS:
 - THERMAL MOTOR OVERLOAD SHUTDOWN (VISUAL AND AUDIBLE)
 - HIGH TEMPERATURE SHUT-DOWN (VISUAL AND AUDIBLE)
 - PROVIDE PANEL WITH EXTERNAL VISUAL & AUDIBLE (HORN/BUZZER) ALARMS. CANCEL BUTTON TO SILENCE AUDIBLE ALARM AND PUMP RUNNING LIGHTS (RED RUNNING-GREEN SAFE). PROVIDE HOUR METER FOR EACH PUMP.
 - CONSOLIDATE THERMAL MOTOR OVERLOAD SIGNAL AND HIGH TEMPERATURE SHUTDOWN INTO A SINGLE SIGNAL FOR TRANSMITTING TO THE MASTER ALARM PANEL.
 - CONTROL PANEL SHALL HAVE ONE COMPARTMENT PER MOTOR (EACH COMPARTMENT PHYSICALLY ISOLATED). EACH COMPARTMENT SHALL CONTAIN THE FOLLOWING:
 - FUSED DISCONNECT SWITCH
 - 120V SECONDARY CONTROL CIRCUIT TRANSFORMER
 - STARTER OVERLOAD PROTECTION IN EACH PHASE
 - PROVIDE AUX. CONTACTS, RUNNING LIGHTS, HAND-OFF-AUTO STARTERS. STARTERS SHALL BE WITH INDIVIDUAL POWER FEEDERS WITHIN CONTROL PANEL AND EACH MOTOR SHALL BE CAPABLE OF RUNNING THEN THE OTHER MOTOR STARTER DISCONNECT IS OFF. CONTROL PANEL SHALL HAVE UNH- POWER CONNECT.

PROGRESS SET
NOT FOR CONSTRUCTION

Issuance and Revisions

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Keyplan



2 COMPRESSED / LAB AIR SYSTEM - CONTROL DIAGRAM

SCALE: NOT TO SCALE

- A. SCOPE**
- CONTROL DIAGRAM PICTURES EXISTING UNIT. DESIGN INTENT IS TO INSTALL NEW CONTROL SYSTEM FOR EXISTING UNITS. REPLACE ALL SENSORS AS REQUIRED FOR OPERATION ACCORDING TO NEW CONTROL SEQUENCES AND CONNECTION TO BEW BAS.
 - IT IS THE JOINT RESPONSIBILITY OF THE EQUIPMENT SUPPLIER, ENVIRONMENTAL CONTROLS CONTRACTOR (ECC/CC) AND MECHANICAL CONTRACTOR TO PROVIDE ALL DEVICES, HARDWARE, SOFTWARE AND PROGRAMMING TO PERFORM ALL SEQUENCES LISTED.
- B. SEQUENCE OF OPERATION**
- THE COMPRESSOR PACKAGED CONTROLS SHALL CONTROL THE COMPRESSOR TO MAINTAIN A SYSTEM PRESSURE BETWEEN 100 PSIG AND 125PSIG.
 - THE PACKAGED CONTROLS SHALL SEQUENCE THE STARTING OF THE LEAD AND LAG COMPRESSORS TO MAINTAIN A PRESSURE WITHIN THE RECEIVER BETWEEN 110 AND 125PSIG. AN ALTERNATE SWITCH THE LEAD COMPRESSOR WITH THE LAG AFTER EACH START.
- C. ALARMS, INTERLOCKS AND SAFETIES (TO BE INSTALLED BY ECU)**
- BAS SHALL MONITOR COMPRESSOR STATUS THROUGH:
 - COMMON ALARM
 - DRYER ALARM
 - FINAL SYSTEM PRESSURE STATUS (PT1 & PT2)
 - LOW SYSTEM PRESSURE ALARM (PT3)

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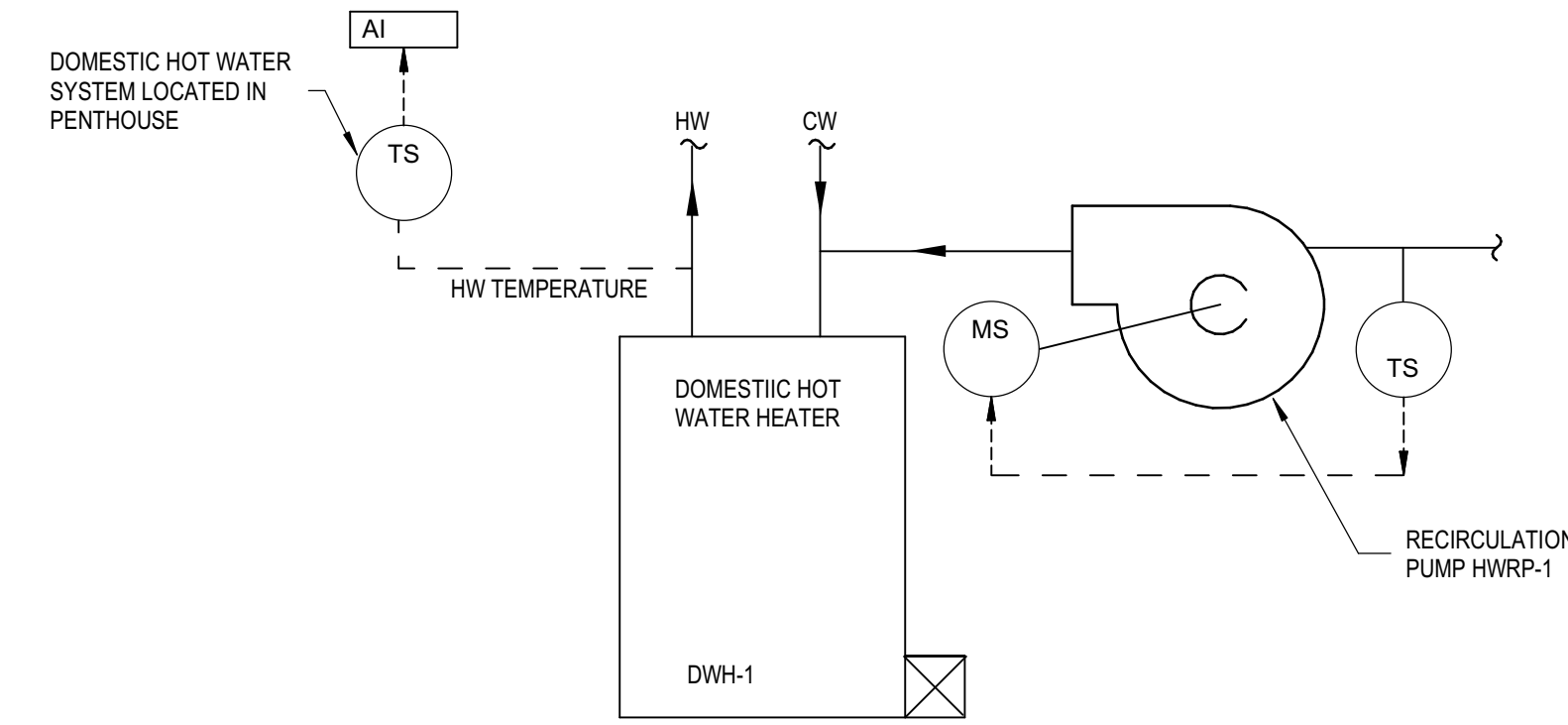
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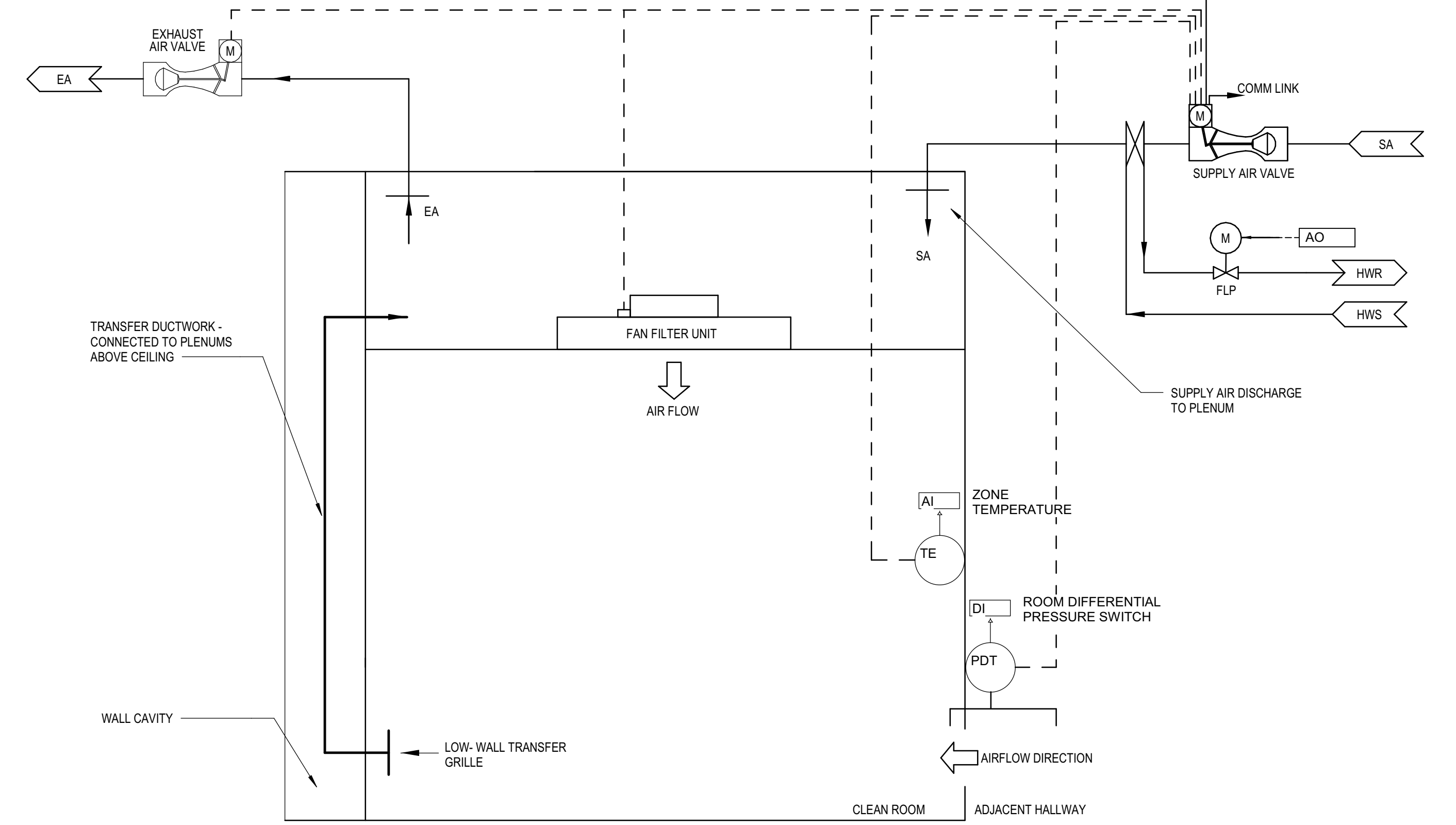
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**MECHANICAL
CONTROL
DIAGRAMS**

Sheet Number
M7.09



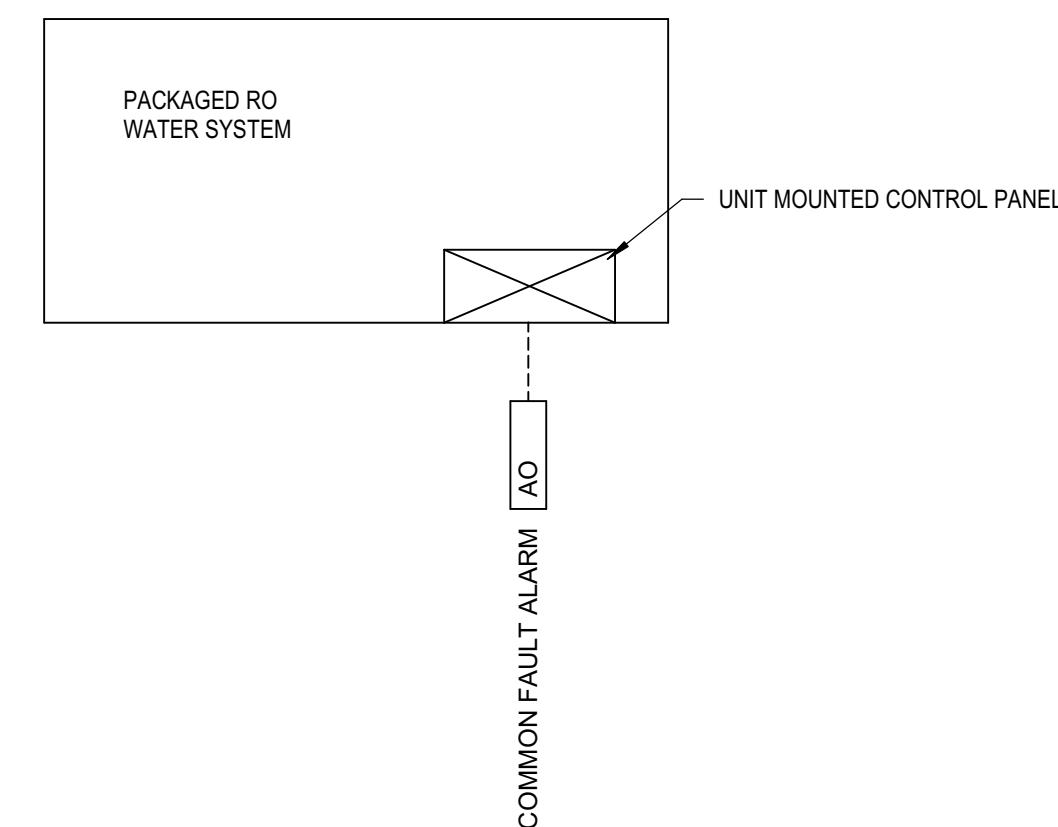
3 DOMESTIC WATER SYSTEM CONTROL DIAGRAM
SCALE: NOT TO SCALE

- A. SCOPE**
- CONTROL DIAGRAM PICTURES EXISTING UNIT. DESIGN INTENT IS TO INSTALL NEW CONTROL SYSTEM FOR EXISTING UNITS. REPLACE ALL SENSORS AS REQUIRED FOR OPERATION ACCORDING TO NEW CONTROL SEQUENCES AND CONNECTION TO NEW BAS.
 - IT IS THE JOINT RESPONSIBILITY OF THE EQUIPMENT SUPPLIER, ENVIRONMENTAL CONTROLS CONTRACTOR (ECC/CC) AND MECHANICAL CONTRACTOR TO PROVIDE ALL DEVICES, HARDWARE, SOFTWARE AND PROGRAMMING TO PERFORM ALL SEQUENCES LISTED.
- B. SEQUENCE OF OPERATION**
- THE DOMESTIC HOT WATER SYSTEM SHALL MAINTAIN 120°F WATER (FIELD ADJUSTABLE)
 - THE DDC SYSTEM SHALL MONITOR THE DOMESTIC HOT WATER TEMPERATURE.
 - THE RECIRCULATION PUMP SHALL RUN CONTINUOUSLY TO PROVIDE INSTANT HOT WATER AT POINT OF USE.



1 CLEAN ROOM CONTROL
SCALE: NOT TO SCALE

- A. SCOPE**
- SYSTEM IS NEW. REFER TO ENLARGED PLANS ON SHEET M4 01 FOR MORE INFORMATION.
 - DESIGN INTENT IS CONTROL SPACE TEMPERATURE VIA THE SUPPLY AIR VALVE
 - SUPPLY AIR VALVE AND EXHAUST AIR VALVE ARE DISCHARGED TO PRESSURIZED PLENUM
 - FFUS AIRFLOW IS SET TO REQUIRED AIR CHANGES PER HOUR FOR CLEAN ROOM FILTRATION.
 - THE TCC SHALL EXTEND THE FACILITY MANAGEMENT NETWORK TO THE BCU CONTROLLER. THE TCC SHALL PROVIDE ALL ADDITIONAL CONTROL COMPONENTS AS REQUIRED TO ACCOMPLISH SEQUENCE OF OPERATION AS LISTED BELOW.
 - IT IS THE JOINT RESPONSIBILITY OF THE BCU SUPPLIER, CONTROLS CONTRACTOR (ECC/CC) AND MECHANICAL CONTRACTOR TO PROVIDE ALL DEVICES, HARDWARE, SOFTWARE AND PROGRAMMING TO PERFORM ALL SEQUENCES LISTED.
- B. SYSTEM AND FAN OPERATION**
- ROOM CONTROLLER SHALL MAINTAIN A CONSTANT OCCUPIED SUPPLY AIR FLOW AT THE SUPPLY AIR VALVE(S) AND MODULATE THE HW REHEAT COIL(S) CONTROL VALVE TO MAINTAIN SPACE TEMPERATURE OF 72°F (FA) WITH A 2°F (FA) DEAD BAND.
 - UPON A FALL IN SPACE TEMPERATURE, THE REHEAT COIL CONTROL VALVE SHALL MODULATE OPEN TO MAINTAIN SPACE TEMP SETPOINT.
 - GENERAL EXHAUST AIR VALVE(S) SHALL MODULATE TO MAINTAIN A CONSTANT VOLUME OFFSET CFM (FA) AS INDICATED ON THE DRAWINGS.
- C. UNOCCUPIED CONTROL**
- AIRFLOW DEVICES SHALL MODULATE FROM OCCUPIED EXHAUST AIRFLOW TO UNOCCUPIED EXHAUST AIRFLOW AS DEFINED IN THE SCHEDULES.
 - WHEN THE SPACE IS UNOCCUPIED THE ROOM TEMPERATURE DEADBAND SHALL INCREASE TO +14°F (FA).
- D. COMMUNICATIONS FAILURE MODE:**
- UPON COMMUNICATIONS FAILURE, SUPPLY AND EXHAUST AIRFLOW DEVICES SHALL MAINTAIN LAST POSITION.
- C. ALARMS INTERLOCKS AND SAFETIES**
- FIRE ALARM RELAY
 - IF DISCHARGE AIR TEMP IS MORE THAN 5°F (ADJ) ABOVE OR BELOW SETPOINT.
 - IF ROOM PRESSURE DIFFERENTIAL FALLS BELOW -0.1" w.c. (ADJ) FOR GREATER THAN 30 SEC. (ADJ.)
 - FAN FILTER FAILURE ALARM
- D. GRAPHIC DISPLAY**
- DISPLAY GRAPHICS OF BCU USING INFORMATION RECEIVED FROM BACNET INTERFACE. THE FOLLOWING POINTS (TO BE INCLUDED BUT NOT LIMITED TO) SHALL BE MONITORED BY THE FMCS:
 - SPACE TEMP
 - SPACE DIFFERENTIAL PRESSURE(S)
 - SUPPLY AIR TEMP
 - SUPPLY AIR CFM
 - FFU ENABLE
- E. SETPOINTS - FMCS SHALL CONTROL SETPOINTS AS FOLLOWS**
- TEMPERATURE - 69°F HEATING (ADJ), 67°F COOLING (ADJ)



2 REVERSE OSMOSIS (RO) WATER SYSTEM DIAGRAM
SCALE: 12" = 1'-0"

- A. SCOPE**
- CONTROL DIAGRAM PICTURES EXISTING UNIT. DESIGN INTENT IS TO INSTALL NEW CONTROL SYSTEM FOR EXISTING UNITS. REPLACE ALL SENSORS AS REQUIRED FOR OPERATION ACCORDING TO NEW CONTROL SEQUENCES AND CONNECTION TO NEW BAS.
 - IT IS THE JOINT RESPONSIBILITY OF THE EQUIPMENT SUPPLIER, ENVIRONMENTAL CONTROLS CONTRACTOR (ECC/CC) AND MECHANICAL CONTRACTOR TO PROVIDE ALL DEVICES, HARDWARE, SOFTWARE AND PROGRAMMING TO PERFORM ALL SEQUENCES LISTED.
- B. SEQUENCE OF OPERATION**
- THE PACKAGED RO WATER SYSTEM SHALL OPERATE THROUGH ITS INTERNAL CONTROL SYSTEM TO MEET LABORATORY WATER DEMAND.
 - IN THE EVENT OF A SYSTEM FAULT / FAILURE, AS DETERMINED BY ITS INTERNAL DIAGNOSTIC SYSTEM, AN "RO SYSTEM FAULT" ALARM SHALL BE INITIATED AT THE BMS.

PROGRESS SET
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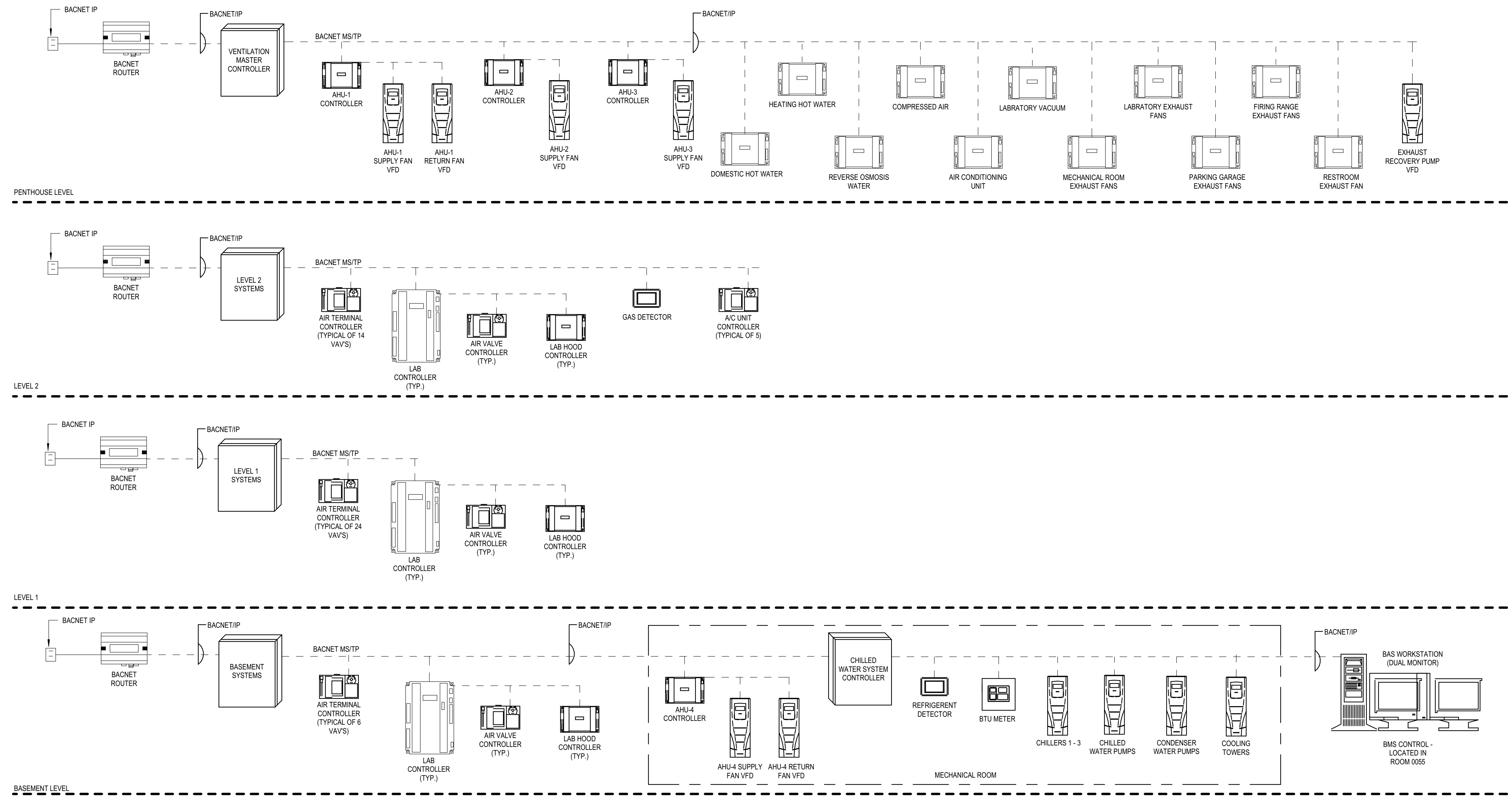
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Sheet Title
**MECHANICAL
CONTROL
DIAGRAMS**

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1 BAS Architecture
SCALE: NOT TO SCALE

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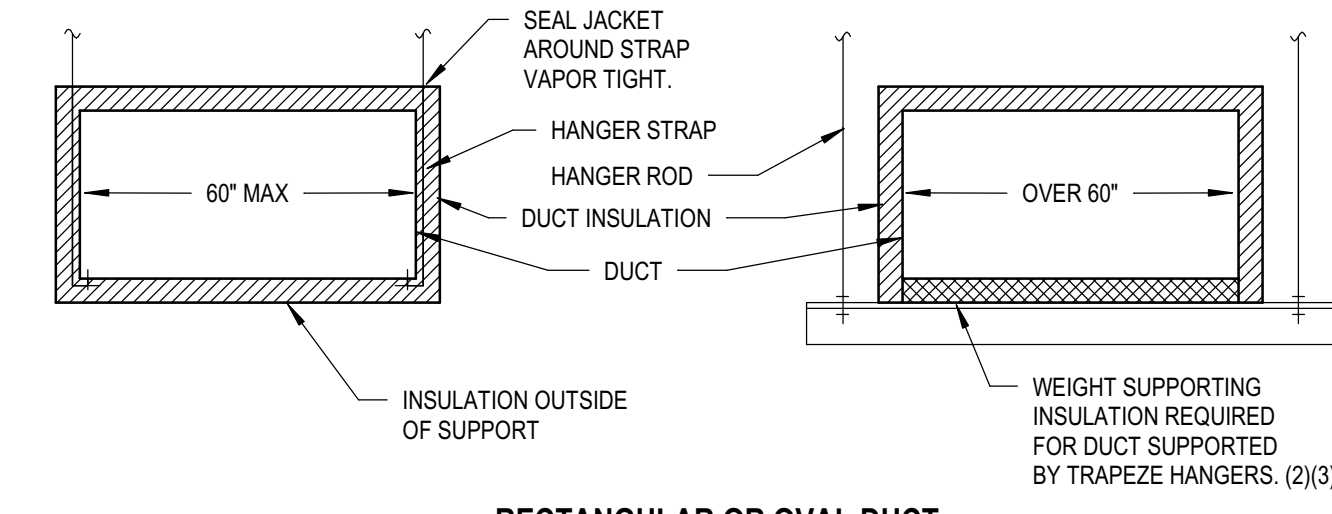
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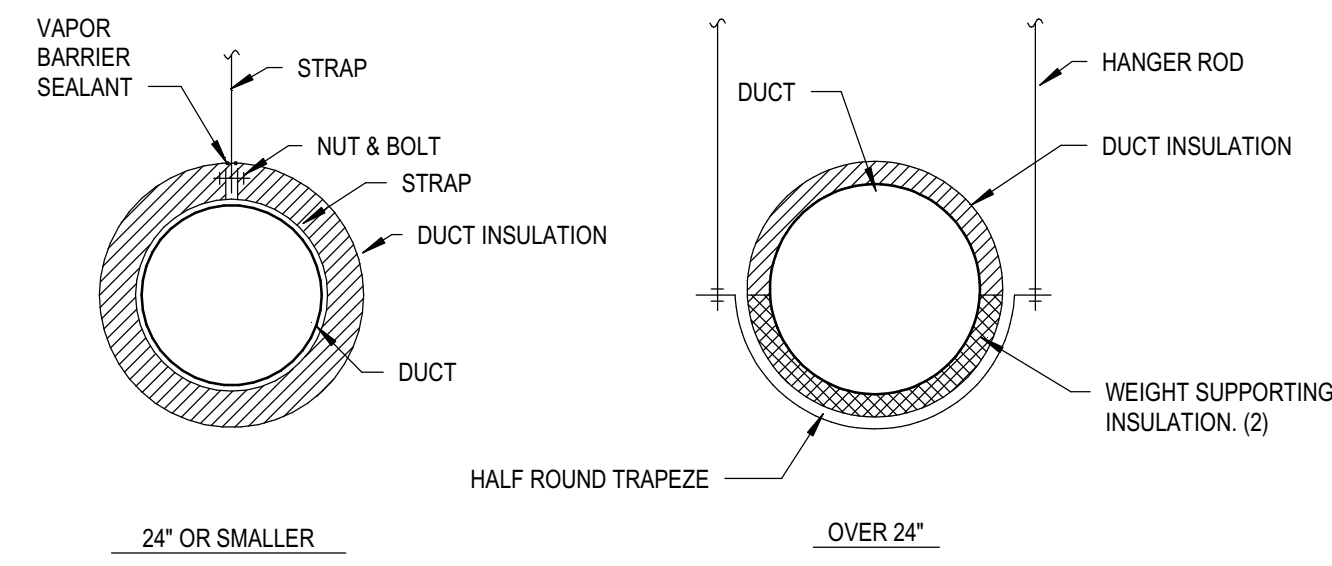
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**MECHANICAL BAS
ARCHITECTURE
CONTROL
DIAGRAM**

Sheet Number

M7.11



RECTANGULAR OR OVAL DUCT



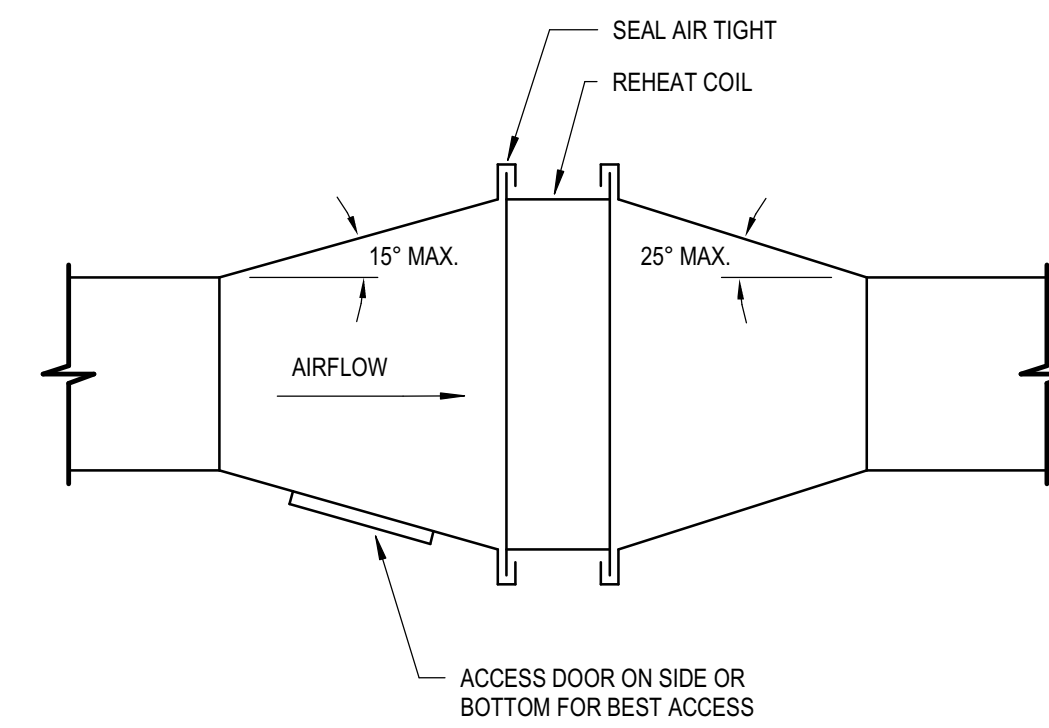
ROUND DUCT

NOTES:

- (1) INSULATION AND JACKET MUST RUN CONTINUOUSLY BETWEEN DUCT AND DUCT SUPPORTS, EXCEPT ROUND DUCTS 24\"/>

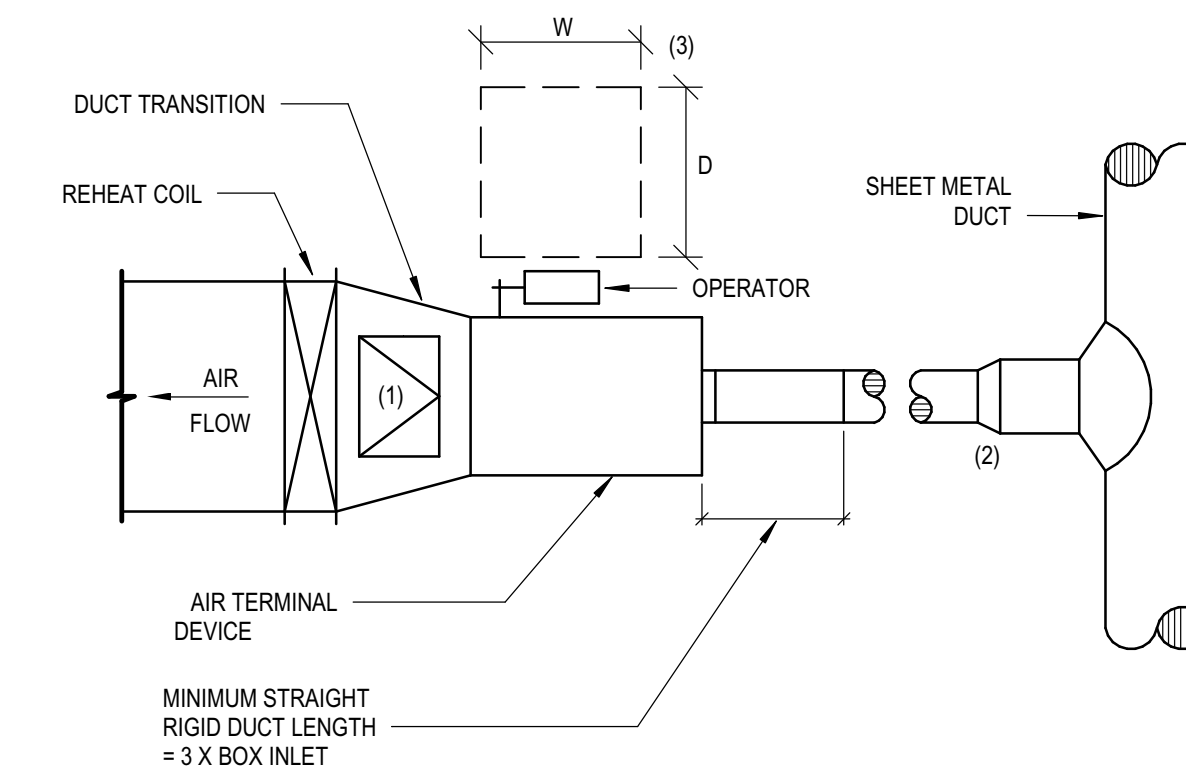
4 INSULATED DUCT SUPPORTS (FLEX GLASS FIBER INSUL TYPE-F)

SCALE: NOT TO SCALE



5 REHEAT COIL DUCT CONNECTION (ACCESS DOOR AT INLET SIDE ONLY)

SCALE: NOT TO SCALE

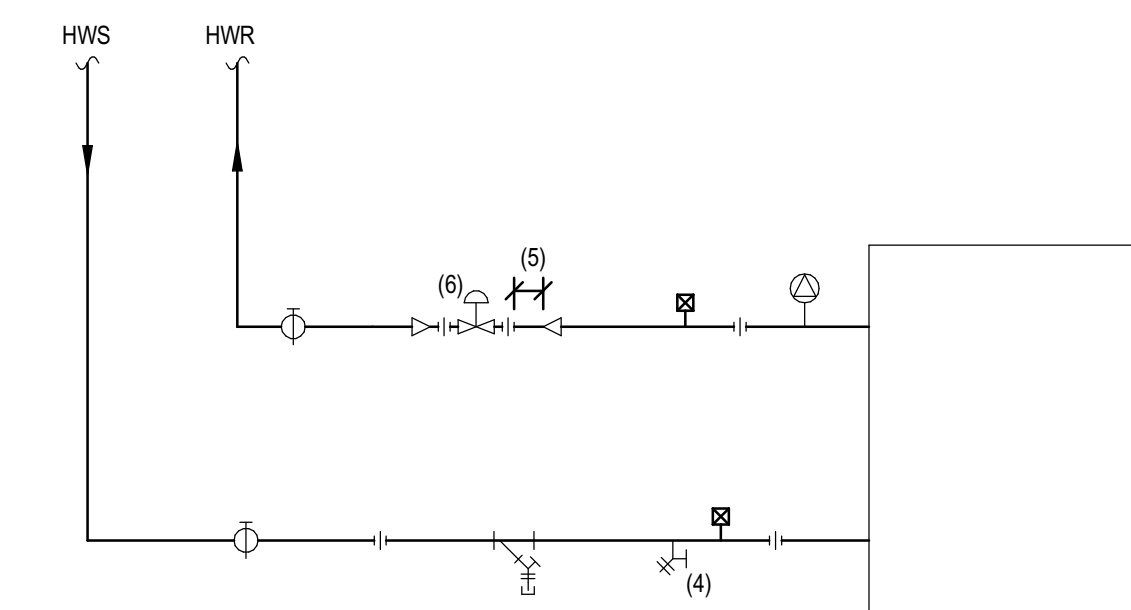


NOTES:

- (1) REFER TO SECTION 23 3314 FOR ACCESS DOOR.
- (2) UNLESS OTHERWISE SHOWN, INCREASE INLET DUCT SIZE BY 2\"/>

1 AIR TERMINAL DEVICE

SCALE: NOT TO SCALE

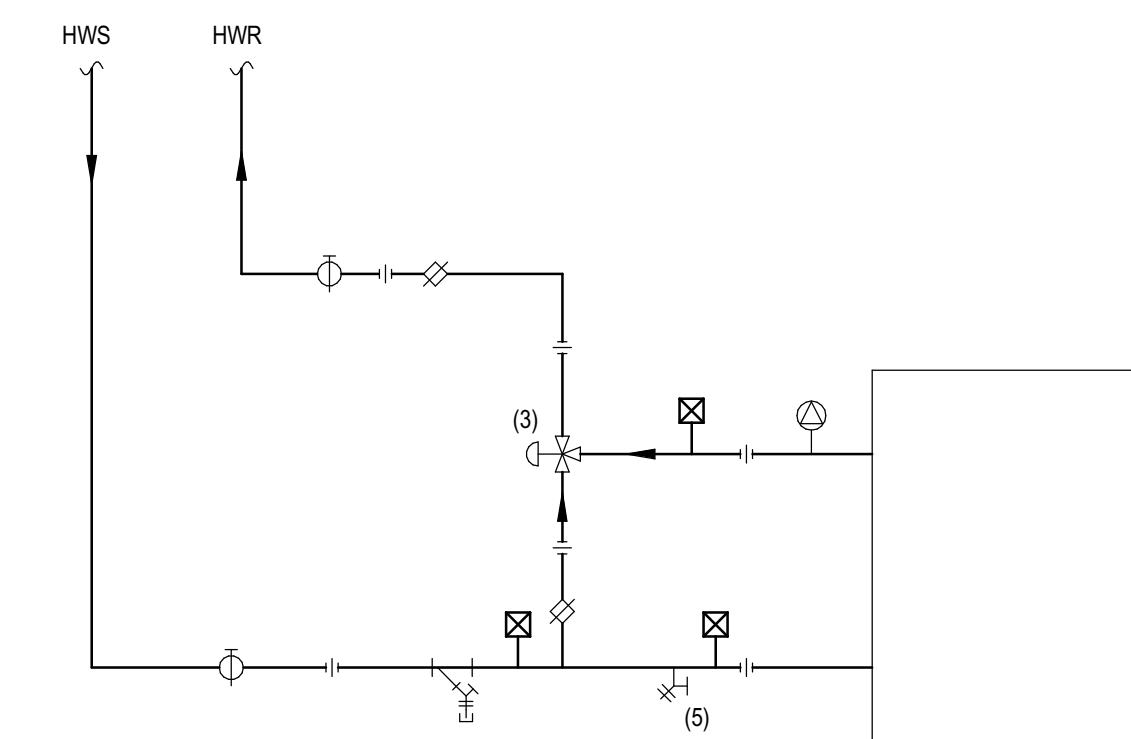


NOTES:

- (1) REFER TO SPECIFICATION SECTION 23 2116 FOR UNIONS AND REDUCING FITTINGS.
- (2) REFER TO SPECIFICATION SECTION 23 2118 FOR BALANCING VALVE SIZING AND STRAIGHT INLET AND OUTLET PIPING REQUIREMENTS.
- (3) PROVIDE MEANS OF BYPASSING COIL, CONTROL AND BALANCING VALVES DURING FLUSHING. REFER TO SPECIFICATION SECTION 23 2116.
- (4) DRAIN VALVE IS NOT REQUIRED IF STRAINER DRAIN VALVE IS PIPED AS LOW POINT DRAIN.
- (5) PROVIDE MINIMUM 5 DIAMETERS STRAIGHT PIPE AT CONTROL VALVE INLET.
- (6) DESIGN INTENT IS TO PROVIDE NEW PRESSURE INDEPENDENT CONTROL VALVES FOR ALL REHEAT COILS. REHEAT COILS ARE TO REMAIN. REMOVE EXISTING PIPING AS REQUIRED TO INSTALL NEW VALVES.

2 HOT WATER REHEAT COIL PIPING (WITH 2-WAY CV)

SCALE: NOT TO SCALE



NOTES:

- (1) REFER TO SPECIFICATION SECTION 23 2116 FOR UNION REQUIREMENTS.
- (2) REFER TO SPECIFICATION SECTION 23 2118 FOR BALANCING VALVE SIZING AND STRAIGHT INLET AND OUTLET PIPING REQUIREMENTS.
- (3) REFER TO SPECIFICATION SECTION 23 0993 FOR CONTROL SEQUENCE AND CONTROL DIAGRAM IF VALVE FAIL POSITION AND INSTALL PIPING PROPERLY TO EACH PORT OF CONTROL VALVE. PROVIDED: VERIFY CONTROL VALVE.
- (4) PROVIDE MEANS OF BYPASSING COIL, CONTROL AND BALANCING VALVES DURING FLUSHING. REFER TO SPECIFICATION SECTION 23 2116.
- (5) DRAIN VALVE IS NOT REQUIRED IF STRAINER IS PIPED SO THAT ITS DRAIN VALVE SERVES AS COIL DRAIN. LOW POINT

3 HOT WATER REHEAT COIL PIPING (WITH 3-WAY CV)

SCALE: NOT TO SCALE

PROGRESS SET
NOT FOR CONSTRUCTION

Issuance and Revisions

Rev	Date	Description

Keyplan

Project Title

**POLICE CRIME LAB
AUTOMATION SYSTEM
REPLACEMENT**

621 W WASHINGTON ST.
PHOENIX, AZ 85007

City of Phoenix Project Number:
PW26480024-1



City of Phoenix

Project Number
23457-00

Date Issued 04/25/23	Scale NA
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Drawn By Author	Checked By Checker
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Sheet Title
**MECHANICAL
DETAILS**

Sheet Number

M8.01

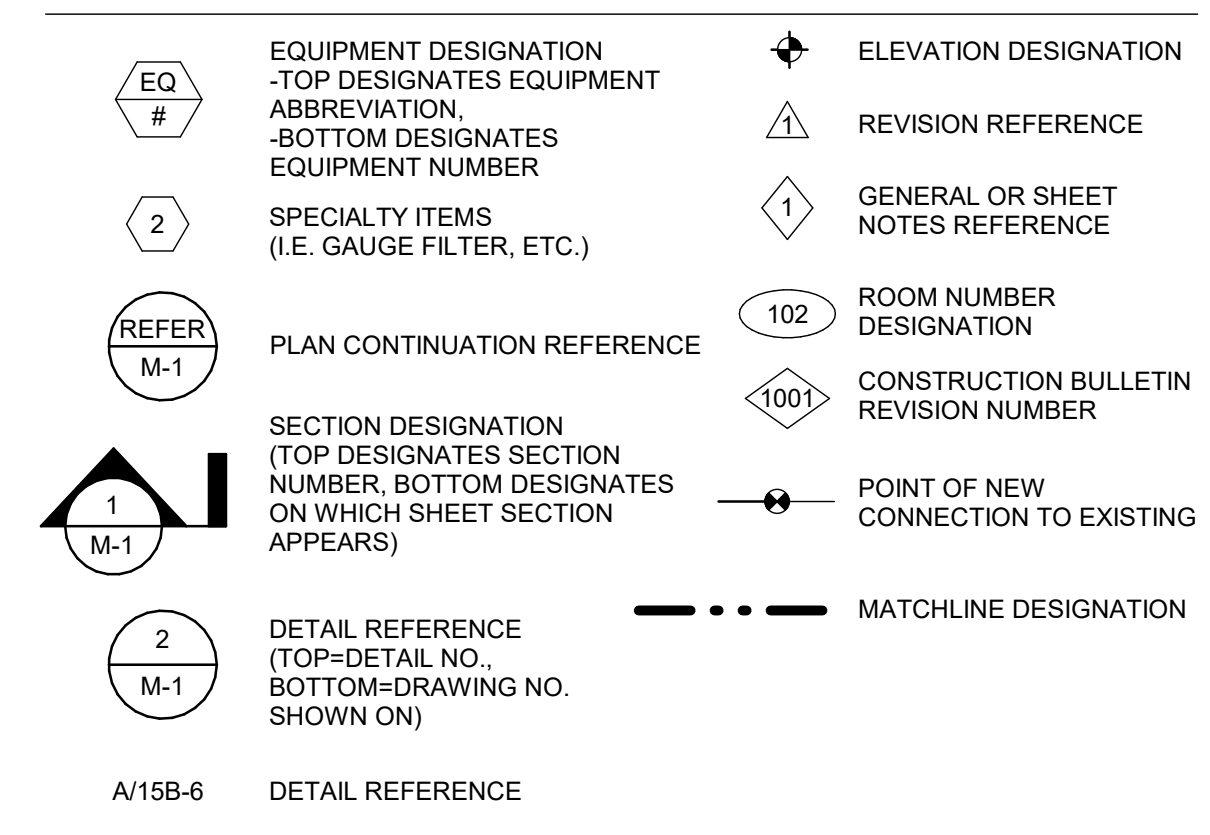
AIR-VALVE SCHEDULE

ROOM NUMBER	ROOM NAME	AIR CHANGE COMPUTATIONS							SUPPLY AIR VALVE							TERMINAL HEATING COIL							GENERAL EXHAUST AIR VALVE							LABORATORY EXHAUST AIR VALVE						
		ROOM AREA (SF)	ROOM HEIGHT (FT)	ROOM VOLUME (FT ³)	OCC. ACH MIN	OCC. ACH MAX	MIN UNOCC. ACH	PRESS. OFFSET	VALVE TAG	INLET SIZE (INCHES)	MAX OCC. AIRFLOW (CFM)	MIN OCC. AIRFLOW (CFM)	MIN UNOCC. AIRFLOW (CFM)	DESIGN AIRFLOW (CFM)	EWV (°F)	LWT (°F)	EAT (°F)	LAT (°F)	MBH	GPM	VALVE TAG	INLET SIZE (INCHES)	MAX OCC. AIRFLOW (CFM)	MIN OCC. AIRFLOW (CFM)	MIN UNOCC. AIRFLOW (CFM)	VALVE TAG	INLET SIZE (INCHES)	SERVICE	MAX AIRFLOW (CFM)	MIN OCC. AIRFLOW (CFM)	MIN UNOCC. AIRFLOW (CFM)					
0010	LOBBY/CORRIDOR	3,270	9.5	31065	4.0	2.9	2.0	100	LS-001	12	1490	1490	1180	1180	160	140	57	77	25.5	2.0	LE-001	8	500	500	500	--	--	--	--	--	--					
									LS-002	12	1490	1490	1180	1180	160	140	57	77	25.5	2.0	LE-002	8	500	500	500	--	--	--	--	--	--					
									LS-020	8	600	600	600	600	160	140	57	77	13.0	2.0	LE-020	8	500	500	500	--	--	--	--	--	--					
0011	VEHICLE BAY	690	9.5	6555	8.1	8.1	4.0	-100	LS-003	10	790	780	340	340	160	140	57	82	9.2	2.0	LE-003A	10	720	280	280	LE-003B	8	FH 5	610	160	160					
0012	VEHICLE BAY	690	9.5	6555	8.1	8.1	4.0	-100	LS-004	10	790	780	340	340	160	140	57	82	9.2	2.0	LE-004A	10	720	280	280	LE-004B	8	FH 5	610	160	160					
0013	VEHICLE BAY	690	9.5	6555	8.1	8.1	4.0	-100	LS-005	10	790	780	340	340	160	140	57	82	9.2	2.0	LE-005A	10	720	280	280	LE-005B	8	FH 5	610	160	140					
0014	WRAP/UNWRAP	380	9.5	3610	10.1	11.8	10.1	50	LS-006	10	710	710	710	710	160	140	57	82	19.2	2.0	LE-006	8	610	610	610	--	--	--	--	--	--					
0016	DRYING ROOM	1,090	9.5	10355	17.7	17.7	17.7	0	LS-007	2 @ 12	3050	3050	3050	3050	160	140	57	77	63.7	5.0	--	--	--	--	LE-007	3 @ 12	(5)JV	3050	3050	3050						
0020	EVIDENCE REVIEW	125	9.5	1188	10.1	18.7	10.1	-100	LS-008	8	270	100	100	270	160	140	57	82	2.7	1.0	LE-008	8	370	200	200	--	--	--	--	--	--					
0021	LOBBY	115	9.5	1090	16.5	16.5	16.5	380	LS-009	8	380	380	380	380	160	140	57	82	8.1	2.0	--	--	--	--	--	--	--	--	--	--						
0022	EVIDENCE PROCESSING	1,150	9.5	10925	10.1	10.1	10.1	-100	LS-010	2 @ 10	1730	1730	1730	1730	160	140	57	77	37.4	2.0	LE-010	2 @ 10	1830	1830	1830	--	--	--	--	--	--					
0023	EVIDENCE WRAP	360	9.5	3420	10.0	10.9	10.0	-100	LS-011	8	520	470	470	520	160	140	57	82	12.7	1.0	LE-011	8	620	570	570	--	--	--	--	--	--					
0031	TANK ROOM	400	9.5	3800	8.1	8.1	4.1	-50	LS-012	8	510	510	280	280	160	140	57	77	5.6	1.0	LE-012	8	550	550	260	--	--	--	--	--	--					
0033	FIREARMS TESTING	835	9.5	7933	34.8	34.8	-0.8	-100	LS-013	2 @ 12	2250	2250	565	565	160	140	57	77	12.2	2.0	LE-013A	4 @ 12	4600	4600	--	--	--	--	--	--	--					
									LS-014	2 @ 12	2250	2250	565	565	160	140	57	77	12.2	3.0	LE-013B	12	1200	1200	1200	--	--	--	--	--	--					
0035	HOUSEKEEPING STORAGE	370	9.5	3515	10.1	10.1	10.1	-100	LS-015	8	390	390	390	390	160	140	57	77	8.4	1.0	LE-015	8	590	590	590	--	--	--	--	--	--					
0037	CHEMICAL STORAGE	345	9.5	3278	10.1	10.1	10.1	-200	LS-016	8	350	350	350	350	160	140	57	77	7.6	1.0	LE-016A	8	350	350	350	LE-016B	8.0	(10)JV	200	200	200					
0038	CYLINDER STORAGE	60	9.5	570	21.1	21.1	21.1	-100	--	--	--	--	--	--	--	--	--	--	--	--	LE-017	8	200	200	200	--	--	--	--	--	--					
0040	HAZARDOUS WASTE STORAGE	265	9.5	2518	9.1	14.5	9.1	-100	LS-018	8	310	80	80	80	160	140	57	77	1.7	1.0	LE-018A	8	450	220	220	LE-018B	8	(8)JV	160	160	160					
0042	LABORATORY STORAGE	585	9.5	5558	10.0	10.0	10.0	-200	LS-020	10	600	600	600	600	160	140	57	77	15.8	1.0	LE-020	10	500	500	500	--	--	--	--	--	--					
0043	SHIPPING/RECEIVING	1,030	9.5	9785	4.0	11.4	2.0	650	LS-021	2 @ 10	1210	1210	560	560	160	140	57	77	33.0	5.0	LE-021	8	560	560	230	--	--	--	--	--	--					
0044	OFFICE SUPPLY STORAGE	300	9.5	2850	10.1	10.1	10.1	0	LS-022	8	380	380	380	380	160	140	57	77	8.2	1.0	LE-022	8	380	380	380	--	--	--	--	--	--					
0045	STORAGE	350	9.5	3325	10.1	10.1	10.1	100	LS-023	8	460	460	460	460	160	140	57	77	9.9	1.0	LE-023	8	460	460	460	--	--	--	--	--	--					
0048	STORAGE	208	9.5	1976	10.1	10.1	10.1	-100	LS-024	8	630	630	630	630	160	140	57	77	9.9	1.0	LE-024	8	930	930	930	--	--	--	--	--	--					
0050	OFFICE SUPPLY STORAGE	155	9.5	1473	4.1	8.1	2.0	0	LS-025	8	200	200	150	150	160	140	57	77	3.2	1.0	LE-025	8	200	200	200	--	--	--	--	--	--					
0051	MAINTENANCE STORAGE	480	9.5	4560	10.0	10.0	10.0	0	LS-026	8	560	560	560	560	160	140	57	77	12.1	2.0	LE-026	10	560	560	560	--	--	--	--	--	--					
0063	FUTURE	2,140	9.5	20330	8.0	10.1	4.0	0	LS-027	3 @ 12	3330	2620	1260	1260	160	140	57	77	27.2	3.0	LE-027	3 @ 12	3430	2720	1360	--	--	--	--	--	--					
0075	JANITOR	90	9.5	855	49.1	49.1	49.1	-100	LS-028	8	700	700	700	700	160	140	57	77	15.1	1.0	LE-028	8	700	700	700	--	--	--	--	--	--					
0078	OFFICE	370	9.5	3515	4.1	5.6	2.0	0	LS-029	8	330	240	120	120	160	140	57	77	2.6	1.0	LE-029	8	330	240	120	--	--	--	--	--	--					
0081	CSR LAB	860	9.5	8170	8.0	8.7	4.0	-50	LS-030	12	1190	1190	650	650	160	140	57	82	17.6	2.0	LE-030	10	1150	1150	550	--	--	--	--	--	--					
0082	EQUIPMENT STORAGE	410	9.5	3895	10.0	10.0	10.0	100	LS-031	8	550	550	550	550	160	140	57	82	14.9	1.0	LE-031	8	650	650	650	--	--	--	--	--	--					
0083	PHOTO ROOM	150	9.5	1425	6.3	7.2	4.2	0	LS-032	8	120	100	50	50	160	140	57	82	1.4	2.0	LE-032	8	170	150	100	--	--	--	--	--	--					
0084	PHOTO ROOM	150	9.5	1425	6.3	8.0	6.3	0	LS-033	8	140	100	100	100	160	140	57	82	2.7	1.0	LE-033A	8	190	150	150	--	--	--	--	--	--					
0085	PREP DNA	155	9.5	1473	13.9	34.6	13.9	0	LS-034	10	800	290	290	290	160	140	57	82	7.8	2.0	LE-034A	8	690	180	180	LE-034B	8	FH 5	610	160	160					
0086	EXAM ROOM	155	9.5	1473	8.1	20.4	8.1	-50	LS-035	8	450	150	150	150	160	140	57	82	4.1	1.0	LE-035	8	500	200	200	--	--	--	--	--	--					
0087	POWDER ROOM	155	9.5	1473	8.1	8.1	6.1	0	LS-036	8	150	150	100	100	160	140	57	77	2.2	1.0	LE-036	8	200	200	150	--	--	--	--	--	--					
0088	PHOTO ROOM	150	9.5	1425	6.3	6.7	4.2	0	LS-037	8	110	100	50	50	160	140	57	77	1.1	1.0	LE-037	8	160	150	100	--	--	--	--	--	--					
0089	PHOTO ROOM	165	9.5	1568	6.1	6.5	3.8	0	LS-038	8	120	110	50	50	160	140	57	77	1.1	1.0	LE-038	8	170	160	100	--	--	--	--	--	--					
0090	LP EVIDENCE PROCESSING	1,950	9.5	18525	8.0	9.8	5.9	0	LS-039	2 @ 12	2940	1410	1090	1090	160	140	57	82	29.4	3.0	LE-039A	10	860	220	220	LE-039B	8	(7)JV	140	140	140					
									LS-040	2 @ 12	2940	1410	1090	1090	160	140	57	82	29.4	3.0	--	--	--	--	LE-039C	8	(2)JV	190	190	190						
																					LE-039D	8	FH 5	610	160	160	--	--	--	--	--					
																					LE-039E	8	FH 5	610	160	160	--	--	--	--	--					
																					LE-039F	8	FH 5	610	160	160	--	--	--	--	--					

ELECTRICAL SYMBOLS AND ABBREVIATIONS

NOTES: 1. EXISTING TO REMAIN IS SHOWN WITH LIGHT LINES.
 2. NEW WORK IS SHOWN WITH SOLID HEAVY LINES.
 3. DEMOLITION IS SHOWN WITH HEAVY DASHED LINES.
 4. ALL DIMENSIONS ARE CENTERLINE MEASURED FROM FINISHED FLOOR UNLESS OTHERWISE NOTED.

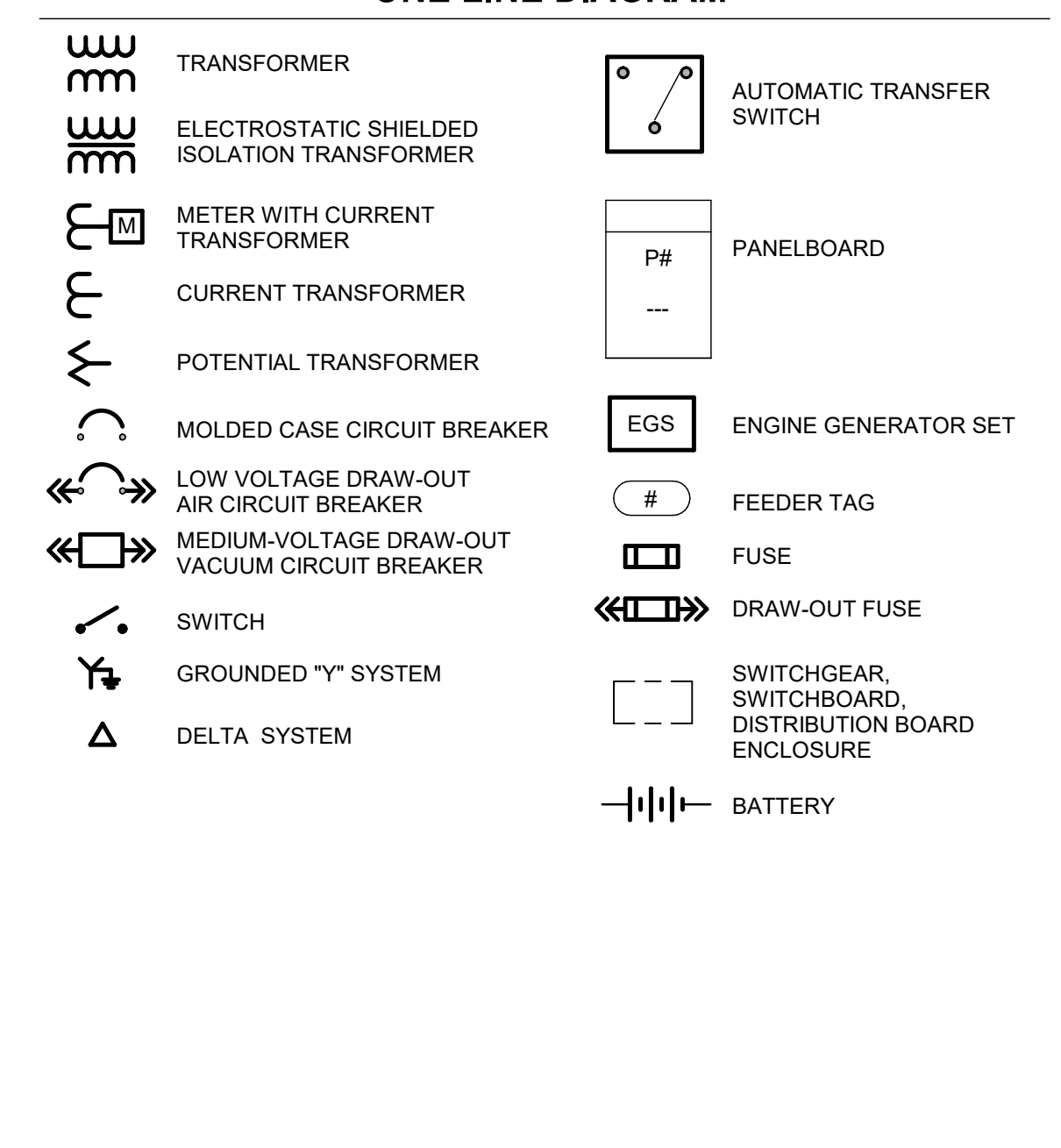
SHEET SYMBOLS



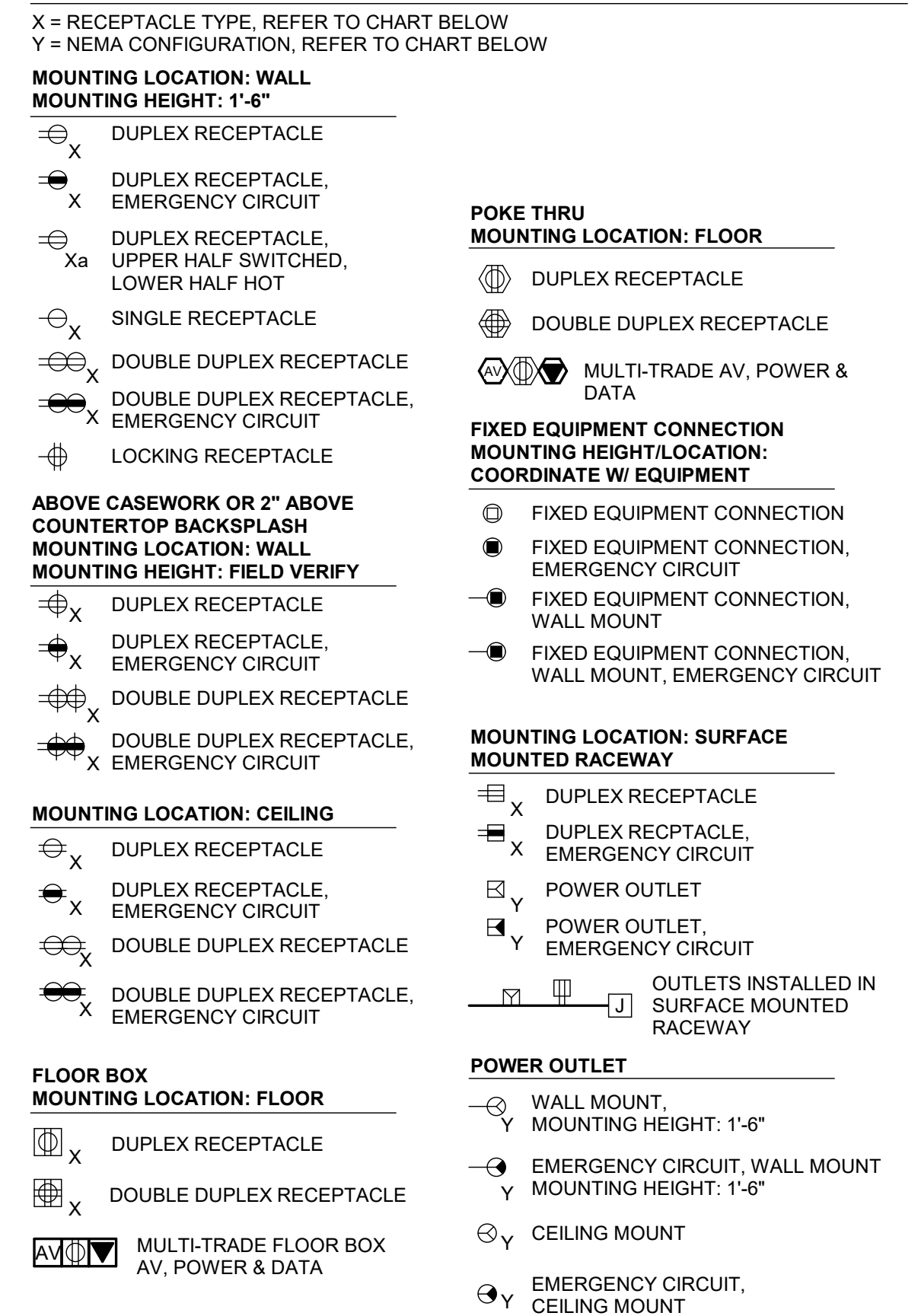
BRANCH CIRCUIT SCHEDULE

BRANCH CIRCUIT	BREAKER SIZE	WIRE	CONDUIT
SINGLE POLE - SINGLE PHASE	20A-1P	2#12-1#12G	3/4" C
	30A-1P	2#10-1#10G	3/4" C
	40A-1P	2#8-1#10G	3/4" C
	50A-1P	2#6-1#10G	3/4" C
	60A-1P	2#4-1#10G	1 1/4" C
TWO POLE - SINGLE PHASE	20A-2P	2#12-1#12G	3/4" C
	30A-2P	2#10-1#10G	3/4" C
	40A-2P	2#8-1#10G	3/4" C
	50A-2P	2#6-1#10G	3/4" C
	60A-2P	2#4-1#10G	1 1/4" C
TWO POLE - SINGLE PHASE WITH NEUTRAL	20A-2P	3#12-1#12G	3/4" C
	30A-2P	3#10-1#10G	3/4" C
	40A-2P	3#8-1#10G	3/4" C
	50A-2P	3#6-1#10G	3/4" C
	60A-2P	3#4-1#10G	1 1/4" C
THREE POLE - THREE PHASE	20A-3P	3#12-1#12G	3/4" C
	30A-3P	3#10-1#10G	3/4" C
	40A-3P	3#8-1#10G	3/4" C
	50A-3P	3#6-1#10G	3/4" C
	60A-3P	3#4-1#10G	1 1/4" C
THREE POLE - THREE PHASE 4WIRE WITH NEUTRAL	20A-3P	4#12-1#12G	3/4" C
	30A-3P	4#10-1#10G	3/4" C
	40A-3P	4#8-1#10G	3/4" C
	50A-3P	4#6-1#10G	1" C
	60A-3P	4#4-1#10G	1 1/4" C

ONE LINE DIAGRAM



RECEPTACLES



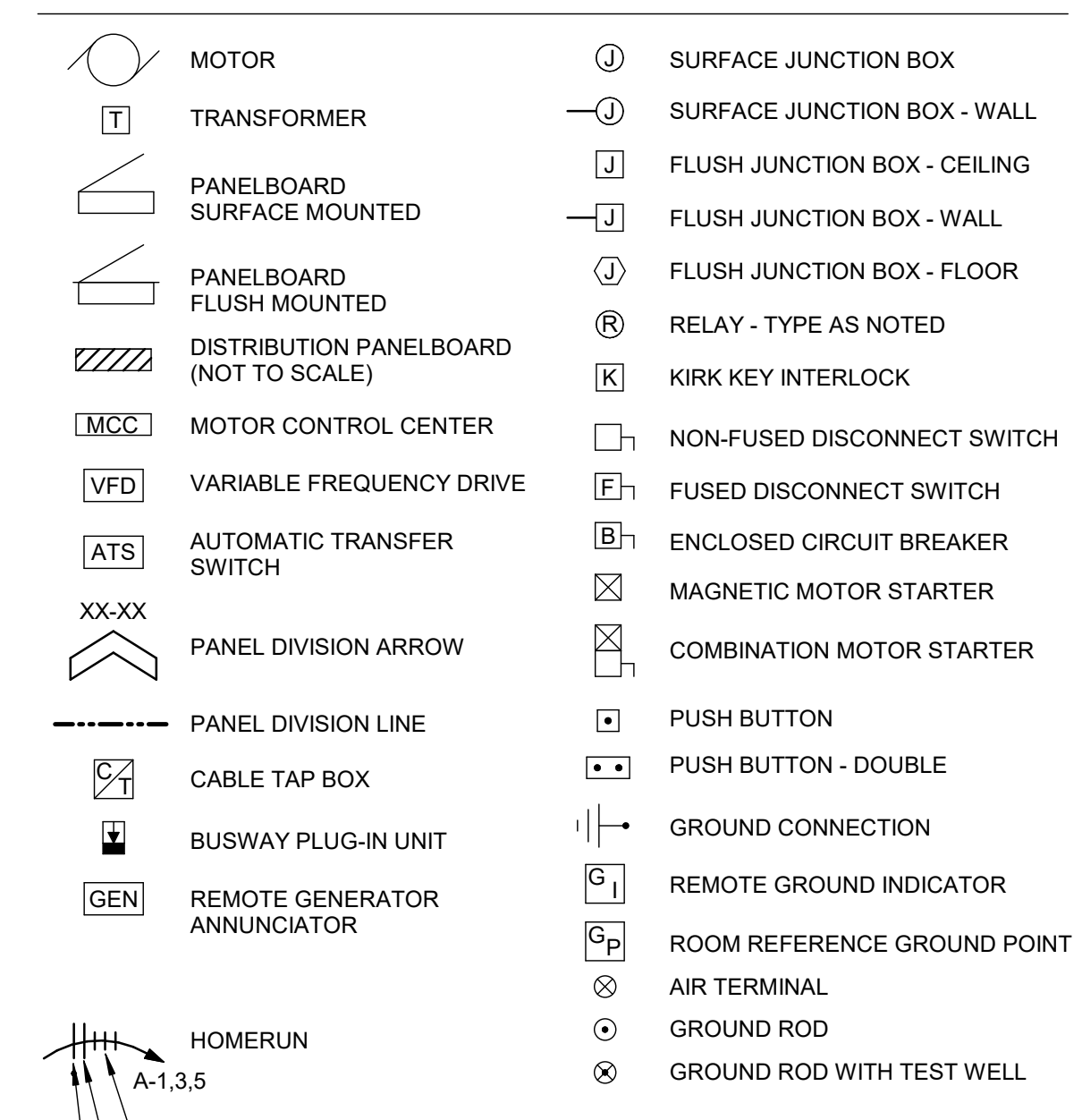
RECEPTACLE TYPE DESIGNATION CHART

X = TYPE	AF = AFCI RECEPTACLE	CR = CONTROLLED RECEPTACLE	DR = DEDICATED RECEPTACLE	IG = ISOLATED GROUND RECEPTACLE	GF = GFCI RECEPTACLE	SP = SURGE PROTECTION RECEPTACLE	SR = SPECIAL PURPOSE RECEPTACLE	TR = TAMPER RESISTANT RECEPTACLE	US = USB RECEPTACLE	WP = WEATHERPROOF, GFCI RECEPTACLE
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NEMA CONFIGURATION CHART

Y = NEMA CONFIGURATION	A = 20A, 125V, NEMA 5-20R	B = 30A, 125V, NEMA 5-20R	C = 30A, 125V, NEMA 5-30R	D = 30A, 125V, NEMA 5-30R	E = 50A, 125V, NEMA 5-50R	F = 50A, 125V, NEMA L5-50R	G = 20A, 250V, NEMA 6-20R	H = 20A, 250V, NEMA L5-20R	J = 30A, 250V, NEMA 6-30R	K = 30A, 250V, NEMA L6-30R	L = 50A, 250V, NEMA 6-50R	M = 50A, 250V, NEMA L6-50R	N = 20A, 250V, NEMA 15-20R	P = 20A, 250V, NEMA 15-20R	Q = 30A, 277V, NEMA 7-30R	R = 30A, 277V, NEMA L7-30R	S = 20A, 125/250V, NEMA 14-20R	T = 20A, 125/250V, NEMA L14-20R	U = 30A, 125/250V, NEMA 14-30R	V = 30A, 125/250V, NEMA 14-30R	W = 50A, 125/250V, NEMA 18-50R	Y = 30A, 125/250V, NEMA 15-30R
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EQUIPMENT AND WIRING



ELECTRICAL ABBREVIATIONS

A	- AMPERES	LAN	- LOCAL AREA NETWORK
AC	- ABOVE CEILING / ALTERNATING CURRENT	LED	- LIGHT EMITTING DIODE
ADO	- AUTOMATIC DOOR OPENER	LI	- LONG-TIME/INSTANTANEOUS
AF	- AMPERE FRAME	LSI	- LONG-TIME/SHORT-TIME/INSTANTANEOUS
AFCI	- ARC FAULT CIRCUIT INTERRUPTER	LSIA	- LONG-TIME/SHORT-TIME/INSTANTANEOUS/GROUND ALARM
AFF	- ABOVE FINISHED FLOOR	LSIG	- LONG-TIME/SHORT-TIME/INSTANTANEOUS/GROUND
AFIC	- AMP INTERRUPTING CAPACITY	LTCOP	- LOCAL TEMPERATURE CONTROL PANEL
ALT	- ALTERNATE	LTG	- LIGHTING
ARCH	- ARCHITECTURAL	LTS	- LIGHTS
ASC	- ABOVE SUSPENDED CEILING	LV	- LOW VOLTAGE
AT	- AMPERE TRIP	MATV	- MASTER ANTENNA TELEVISION
ATC	- ASTRONOMIC TIME CLOCK	MC	- MECHANICAL CONTRACTOR
ATS	- AUTOMATIC TRANSFER SWITCH	MCB	- MAIN CIRCUIT BREAKER
AUTO	- AUTOMATIC	MCC	- MOTOR CONTROL CENTER
BC	- BARE COPPER	MCP	- MOTOR CIRCUIT PROTECTOR
BFC	- BELOW FINISH CEILING	MER	- MECHANICAL EQUIPMENT ROOM
BFL	- BELOW FLOOR LEVEL	MH	- MANHOLE
BLDG	- BUILDING	MIC	- MICROPHONE
BPMP	- BOILER PLANT INSTRUMENTATION PANEL BREAKER	MICRO	- MICROWAVE
BRKR	- BREAKER	MLO	- MAIN LUGS ONLY
C	- CONDUIT	MPTB	- MUSIC & PAGE TERMINAL BOX
CB	- CIRCUIT BREAKER	MTD	- MOUNTED
CCTV	- CLOSED CIRCUIT TELEVISION	MTG	- MOUNTING
CFCI	- CONTRACTOR FURNISHED, CONTRACTOR INSTALLED	MTH	- MOUNTING HEIGHT
CLG	- CEILING	MTR	- MOTOR / METER
CO	- CONDUIT ONLY	MV	- MEDIUM VOLTAGE
CONTR	- CONTRACTOR	NA	- NOT APPLICABLE
CORR	- CORRIDOR	NAC	- NOTIFICATION APPLIANCE CIRCUIT
CR	- CONTROL RELAY	NC	- NORMALLY CLOSED
CT	- CURRENT TRANSFORMER	NEC	- NATIONAL ELECTRICAL CODE
DB	- DIRECT BURIAL	NIC	- NOT IN CONTRACT
DC	- DIRECT CURRENT	NO	- NORMALLY OPEN
DED	- DEDICATED	NTS	- NOT TO SCALE
DET	- DETAIL	OC	- ON CENTER
DIA	- DIAMETER	OFCI	- OWNER FURNISHED, CONTRACTOR INSTALLED
DISC	- DISCONNECT	OFOI	- OWNER FURNISHED, CONTRACTOR INSTALLED
DN	- DOWN		
DP	- DISTRIBUTION PANEL		
DS	- DISCONNECT SWITCH		
EC	- ELECTRICAL CONTRACTOR	P	- POLE
EDB	- ELECTRIC DUCT BANK	PA	- PUBLIC ADDRESS
EGC	- EQUIPMENT GROUND CONDUCTOR	PB	- FULL BOX / PUSHBUTTON
EGS	- ENGINE GENERATOR SET	PC	- PLUMBING CONTRACTOR / PHOTOCELL
EU	- EXPANSION JOINT	PCU	- POWER DISTRIBUTION UNIT
ELEC	- ELECTRIC / ELECTRICAL	PF	- POWER FACTOR
ELL	- EMERGENCY LIFE SAFETY LIGHTING	PH	- PHASE
ELP	- EMERGENCY LIFE SAFETY POWER	PLBG	- PLUMBING
EM/EMER-	- EMERGENCY	PNL	- PANEL
EMI	- ELECTROMAGNETIC INTERFERENCE	POD	- POWER OPERATED DAMPER
EMT	- ELECTRICAL METALLIC TUBING	PS	- POWER SUPPLY
EQUIP	- EQUIPMENT	PT	- POTENTIAL TRANSFORMER
ER	- EXISTING TO BE REMOVED	PTRV	- POWER TYPE ROOF VENTILATOR
ERL	- EXISTING TO BE RELOCATED	PWR	- POWER
ERMS	- ENERGY-REDUCING MAINTENANCE SWITCH	REC	- RECESSED RECEPTACLE
ESM	- ELECTRIC STRIP MOLD	RECP	- RECEPTACLE
EW	- ELECTRIC WATER COOLER	REF	- REFRIGERATOR
EX	- EXISTING TO REMAIN	REL	- RELOCATED
FA	- FIRE ALARM	REQD	- REQUIRED
FACP	- FIRE ALARM CONTROL PANEL	RMC	- RIGID METAL CONDUIT
FCU	- FAN COIL UNIT	RVAT	- REDUCED VOLTAGE AUTO TRANSFORMER
FDR	- FEEDER	SCCR	- SHORT CIRCUIT CURRENT RATING
FDS	- FUSED DISCONNECT SWITCH	SHT	- SHEET
FKT	- FIXTURE	SIG	- SIGNAL
FL	- AT FLOOR LINE	SIM	- SIMILAR
FLA	- FULL LOAD AMPERES	SPD	- SURGE PROTECTIVE DEVICE
FLEX	- FLEXIBLE	SPEC	- SPECIFICATION
FLR	- FLOOR	SS	- SAFETY SWITCH
FLOOR	- FLOURESCENT	SSBJ	- SUPPLY SIDE BONDING JUMPER
FS	- FLOW SWITCH	STA	- STATION
FSCP	- FLAME SAFEGUARD CONTROL PANEL	STR	- STARTER
FVNR	- FULL VOLTAGE NON-REVERSING SWITCHBOARD	SW	- SWITCH
GC	- GENERAL CONTRACTOR	SWBD	- SWITCHBOARD
GE	- GROUNDING ELECTRODE	SWGR	- SWITCHGEAR
GEN	- GENERATOR	TEL	- TELEPHONE
GFA	- GROUND FAULT ALARM	TFA	- TO FLOOR ABOVE
GFI	- GROUND FAULT CIRCUIT INTERRUPTER	TFB	- TO FLOOR BELOW
GFP	- GROUND FAULT PROTECTION	TS	- TAMPER SWITCH / TIME SWITCH
GND	- GROUND	TV	- TELEVISION
GTB	- GROUND TERMINAL BOX	TVTC	- TELEVISION TERMINAL CABINET
HH	- HANDHOLE	TYP	- TYPICAL
HQA	- HAND OFF AUTOMATIC	UC	- UNDER COUNTER
HP	- HORSE POWER	UG	- UNDERGROUND
HT	- HEIGHT / HEAT TRACE	UH	- UNIT HEATER
HV	- HIGH VOLTAGE	UNO	- UNLESS NOTED OTHERWISE
IMC	- INTERMEDIATE METAL CONDUIT	UPS	- UNINTERRUPTED POWER SUPPLY
INV	- INVERTER	V	- VOLTAGE
J or JB	- JUNCTION BOX	VFD	- VARIABLE FREQUENCY DRIVE
KV	- KILOVOLT	VP	- VAPOR PROOF
KVA	- KILOVOLT-AMPERES	W	- WIRE
KW	- KILOWATTS	W	- WITH
KWH	- KILOWATT HOURS	WS	- WALL SURFACE
		WT	- WATER TIGHT
		XFMR	- TRANSFORMER
		XP	- EXPLOSION PROOF

Drawing List - Electrical

E0.01	ELECTRICAL SYMBOLS AND ABBREVIATIONS
E2.00	LIGHTING PLAN - BASEMENT - OVERALL
E2.02	LIGHTING PLAN - LEVEL 2 - OVERALL
E3.00	POWER PLAN - BASEMENT - OVERALL
E3.00A	POWER PLAN - BASEMENT - AREA A
E3.00B	POWER PLAN - BASEMENT - AREA B
E3.00C	POWER PLAN - BASEMENT - AREA C
E3.00D	POWER PLAN - BASEMENT - AREA D
E3.00E	POWER PLAN - BASEMENT - AREA E
E3.00F	POWER PLAN - BASEMENT - AREA F
E3.01	POWER PLAN - LEVEL 1 - OVERALL
E3.01A	POWER PLAN - LEVEL 1 - AREA A
E3.01B	POWER PLAN - LEVEL 1 - AREA B
E3.01C	POWER PLAN - LEVEL 1 - AREA C
E3.01D	POWER PLAN - LEVEL 1 - AREA D
E3.01E	POWER PLAN - LEVEL 1 - AREA E
E3.01F	POWER PLAN - LEVEL 1 - AREA F
E3.02	POWER PLAN - LEVEL 2 - OVERALL
E3.02A	POWER PLAN - LEVEL 2 - AREA A
E3.02B	POWER PLAN - LEVEL 2 - AREA B
E3.02C	POWER PLAN - LEVEL 2 - AREA C
E3.02D	POWER PLAN - LEVEL 2 - AREA D
E3.02E	POWER PLAN - LEVEL 2 - AREA E
E3.02F	POWER PLAN - LEVEL 2 - AREA F
E4.01	ENLARGED LIGHTING PLANS
E4.02	ENLARGED POWER PLANS

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Keyplan



Project Title

POLICE CRIME LAB AUTOMATION SYSTEM REPLACEMENT
 621 W WASHINGTON ST.
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 City of Phoenix Project Number:
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Project Number

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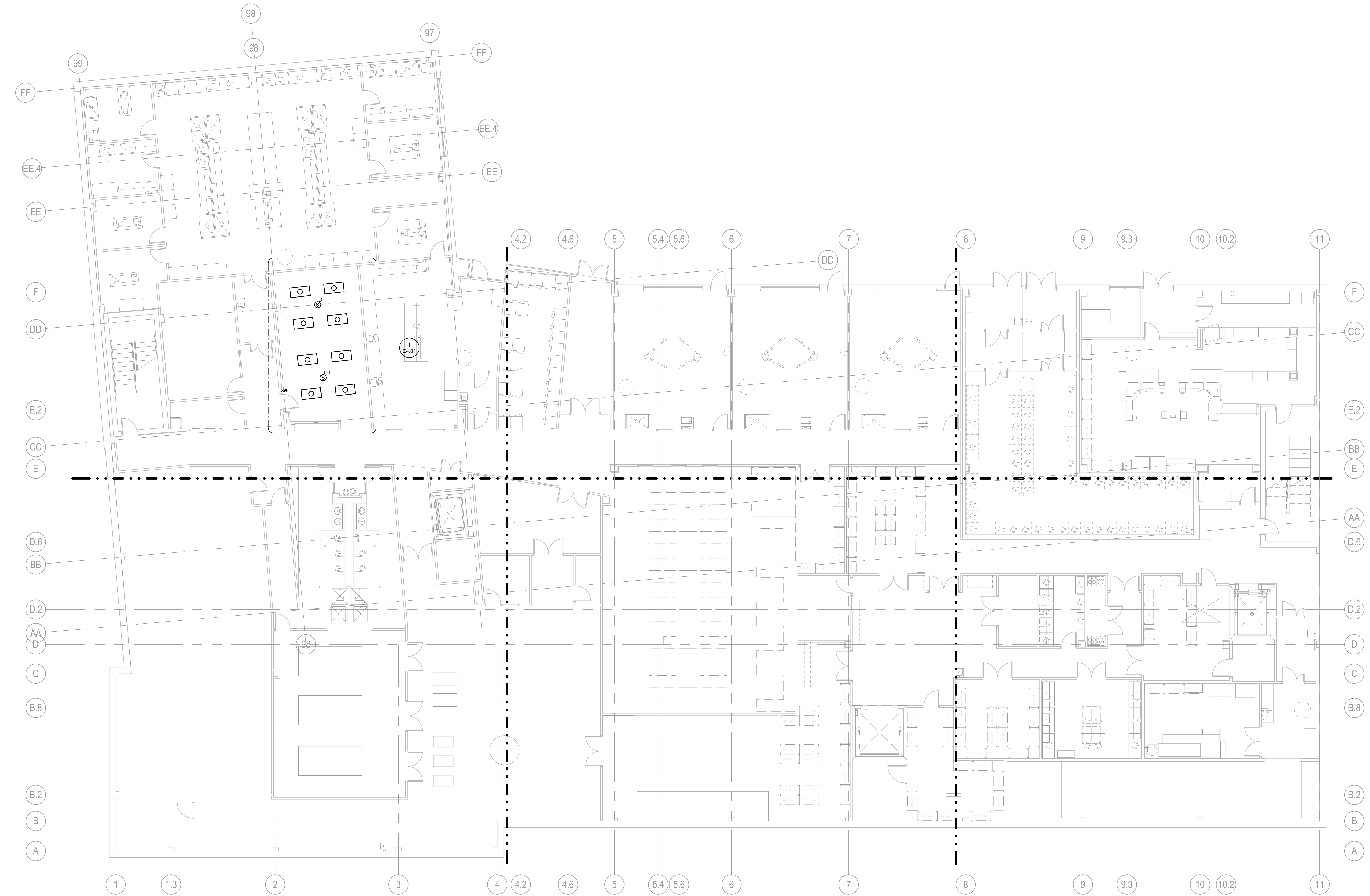
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Sheet Title

ELECTRICAL SYMBOLS AND ABBREVIATIONS

Sheet Number

E0.01



1 BASEMENT - LIGHTING PLAN - OVERALL
 SCALE: 1/8" = 1'-0"



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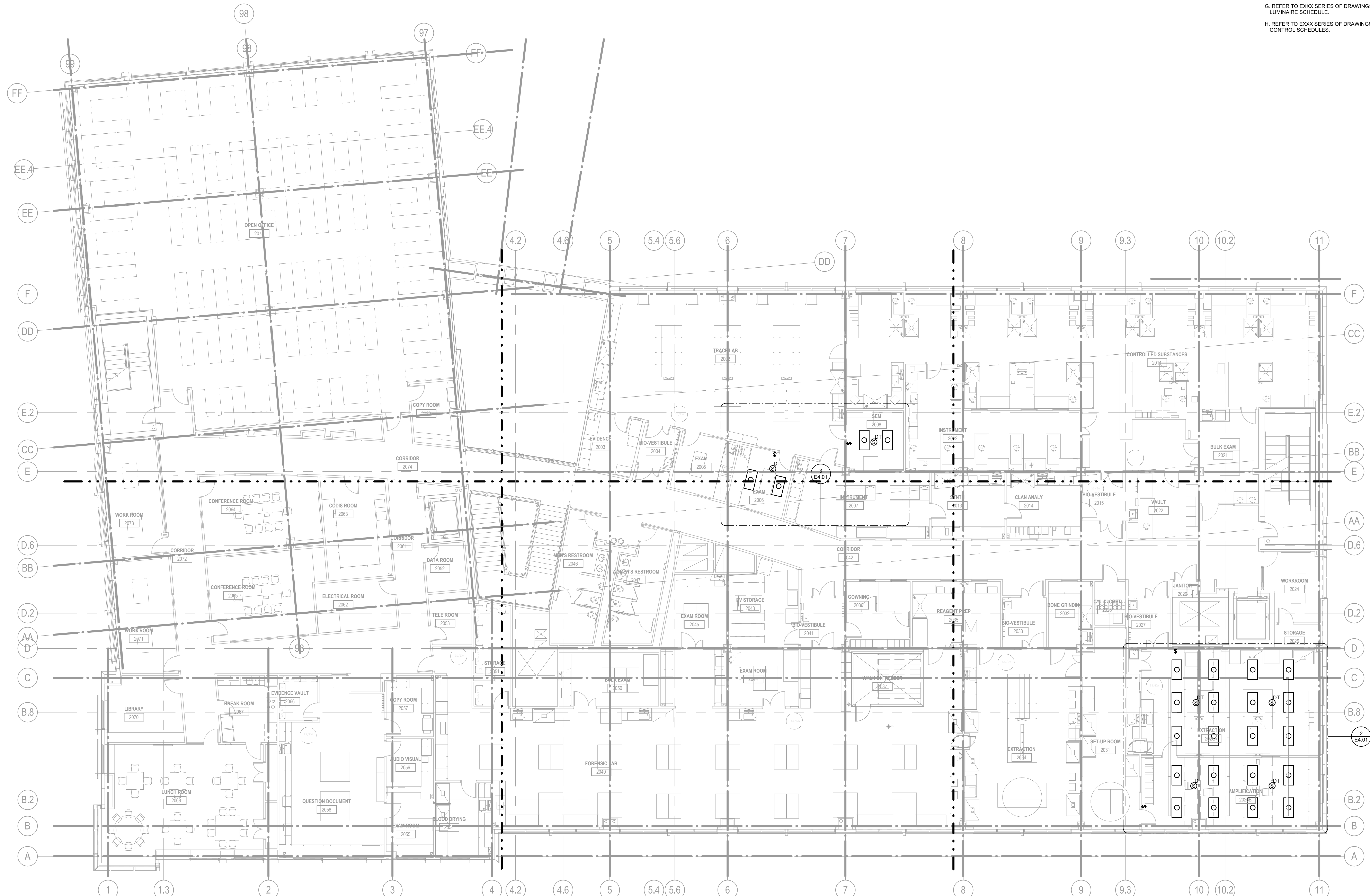
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 Author

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Sheet Title
**LIGHTING PLAN -
 BASEMENT -
 OVERALL**

Sheet Number
E2.00

- A. LIGHT FIXTURES SHOWN FOR QUANTITY AND ROUGH PROXIMITY WITHIN SPACES. REFER TO ARCHITECTURAL PLANS FOR EXACT PLACEMENT AND DIMENSIONS.
- B. OCCUPANCY/VACANCY SENSOR LOCATIONS ARE PROVIDED TO SHOW DESIGN INTENT. FINAL QUANTITY AND LOCATIONS SHALL BE DETERMINED BY VENDOR/MANUFACTURER TO IMPROVE COVERAGE AS NEEDED AND AVOID NUISANCE ACTIVATION DUE TO ADJACENT DIFFUSERS AND GLAZING.
- C. REFER TO LIGHT FIXTURE SCHEDULE FOR ADDITIONAL INFORMATION ABOUT FIXTURE TYPES AND INSTALLATION REQUIREMENTS.
- D. LIGHTING CONTROL DEVICES AND THERMOSTAT CONTROL TO BE INSTALLED AT THE SAME HEIGHT. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT ELEVATION.
- E. COMBINE MULTIPLE SWITCHES UNDER THE SAME MULTI-GANG SWITCH COVER PLATE.
- F. WALL MOUNTED EXIT LIGHTS SHOWN ABOVE DOORS SHALL BE CENTERED AND 1'-0" ABOVE DOOR FRAME TO BOTTOM OF EXIT LIGHT.
- G. REFER TO EXXX SERIES OF DRAWINGS FOR LUMINAIRE SCHEDULE.
- H. REFER TO EXXX SERIES OF DRAWINGS FOR LIGHTING CONTROL SCHEDULES.



1 LEVEL 2 - LIGHTING PLAN - OVERALL
 SCALE: 1/8" = 1'-0"



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Sheet Title
**LIGHTING PLAN -
 LEVEL 2 -
 OVERALL**

Sheet Number
E2.02



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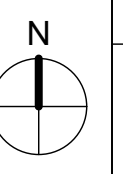
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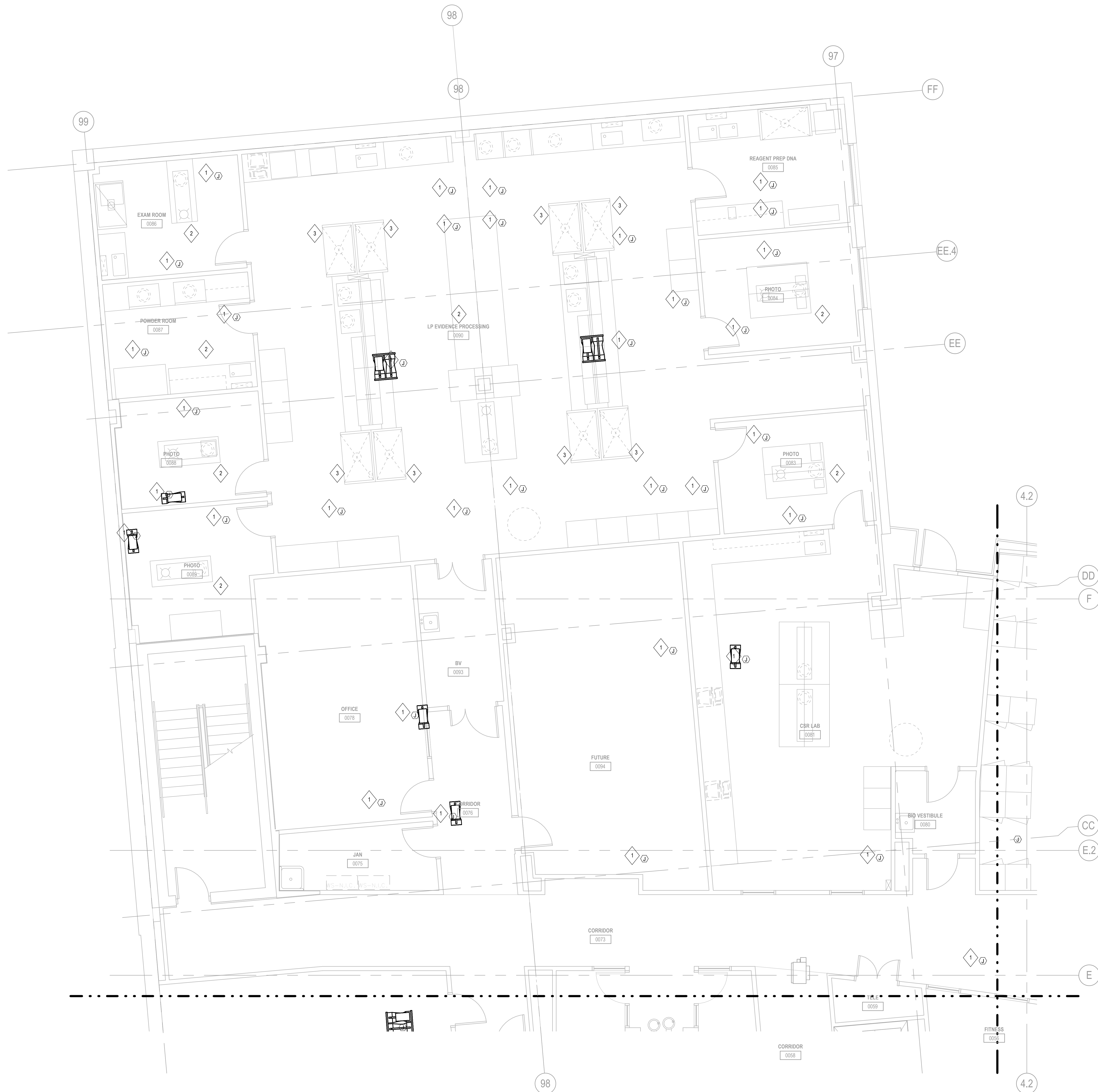
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**POWER PLAN -
 BASEMENT -
 OVERALL**

Sheet Number
E3.00

1 BASEMENT - POWER PLAN - OVERALL
 SCALE: 1/8" = 1'-0"



GENERAL NOTES



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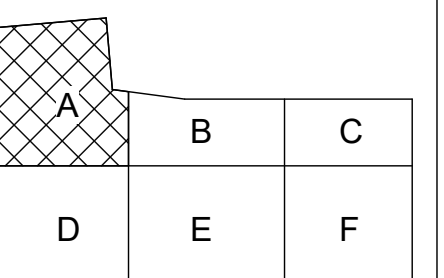
Issuance and Revisions

Rev	Date	Description

KEYNOTES

1. DISCONNECT POWER BRANCH CIRCUIT FROM MECHANICAL VALVE TO BE REMOVED AND RECONNECT POWER BRANCH CIRCUIT TO NEW MECHANICAL VALVE. COORDINATE EXACT LOCATION IN FIELD.
2. MAINTAIN OVERHEAD SERVICE CARRIER, REMOVE SNORKEL AND LIGHTS.
3. COORDINATE WITH THE MANUFACTURER FOR REPLACEMENT OF EXPLOSION PROOF RECEPTACLE WITH GFCI RECEPTACLE.

Keyplan



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**POLICE CRIME LAB
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Scale
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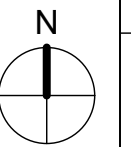
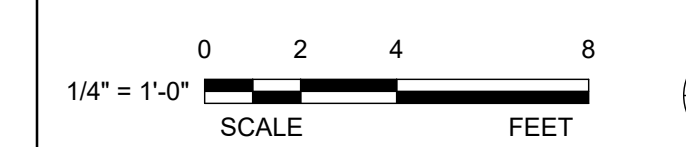
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Sheet Title
**POWER PLAN -
 BASEMENT -
 AREA A**

Sheet Number
E3.00A

1 **BASEMENT - POWER PLAN - AREA A**
 SCALE: 1/4" = 1'-0"



GENERAL NOTES

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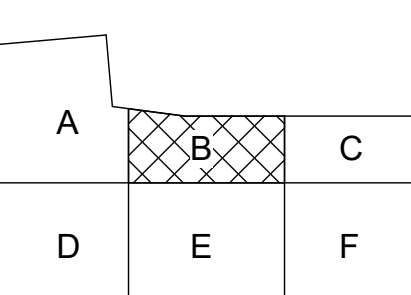
Issuance and Revisions

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KEYNOTES

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Keyplan



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City of Phoenix

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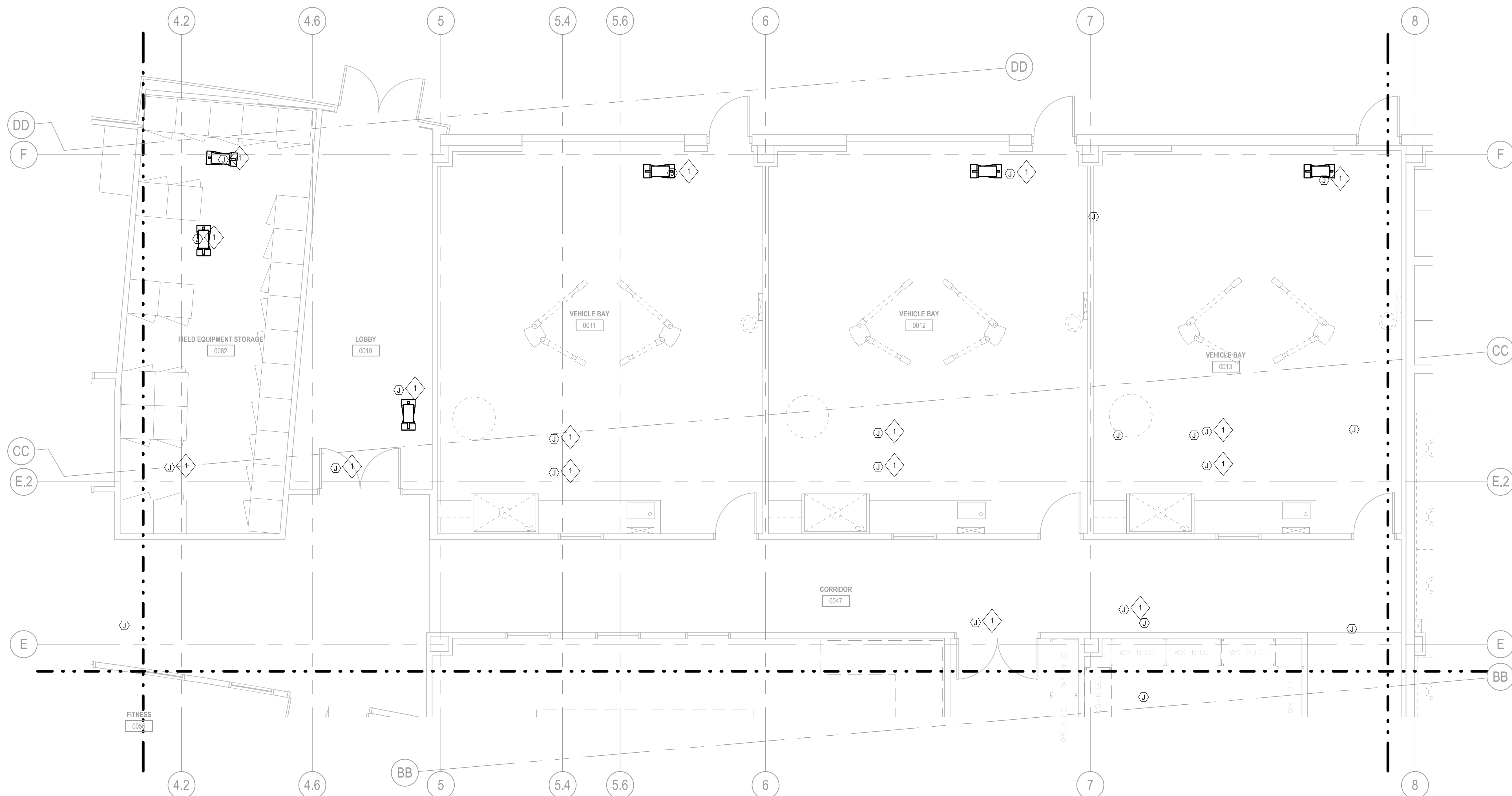
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Sheet Title
**POWER PLAN -
 BASEMENT -
 AREA B**

Sheet Number
E3.00B



1 BASEMENT - POWER PLAN - AREA B
 SCALE: 1/4" = 1'-0"



GENERAL NOTES



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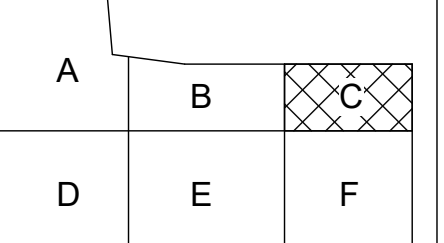
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KEYNOTES

1. DISCONNECT POWER BRANCH CIRCUIT FROM MECHANICAL VALVE TO BE REMOVED AND RECONNECT POWER BRANCH CIRCUIT TO NEW MECHANICAL VALVE. COORDINATE EXACT LOCATION IN FIELD.

Keyplan



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PHOENIX, AZ 85007

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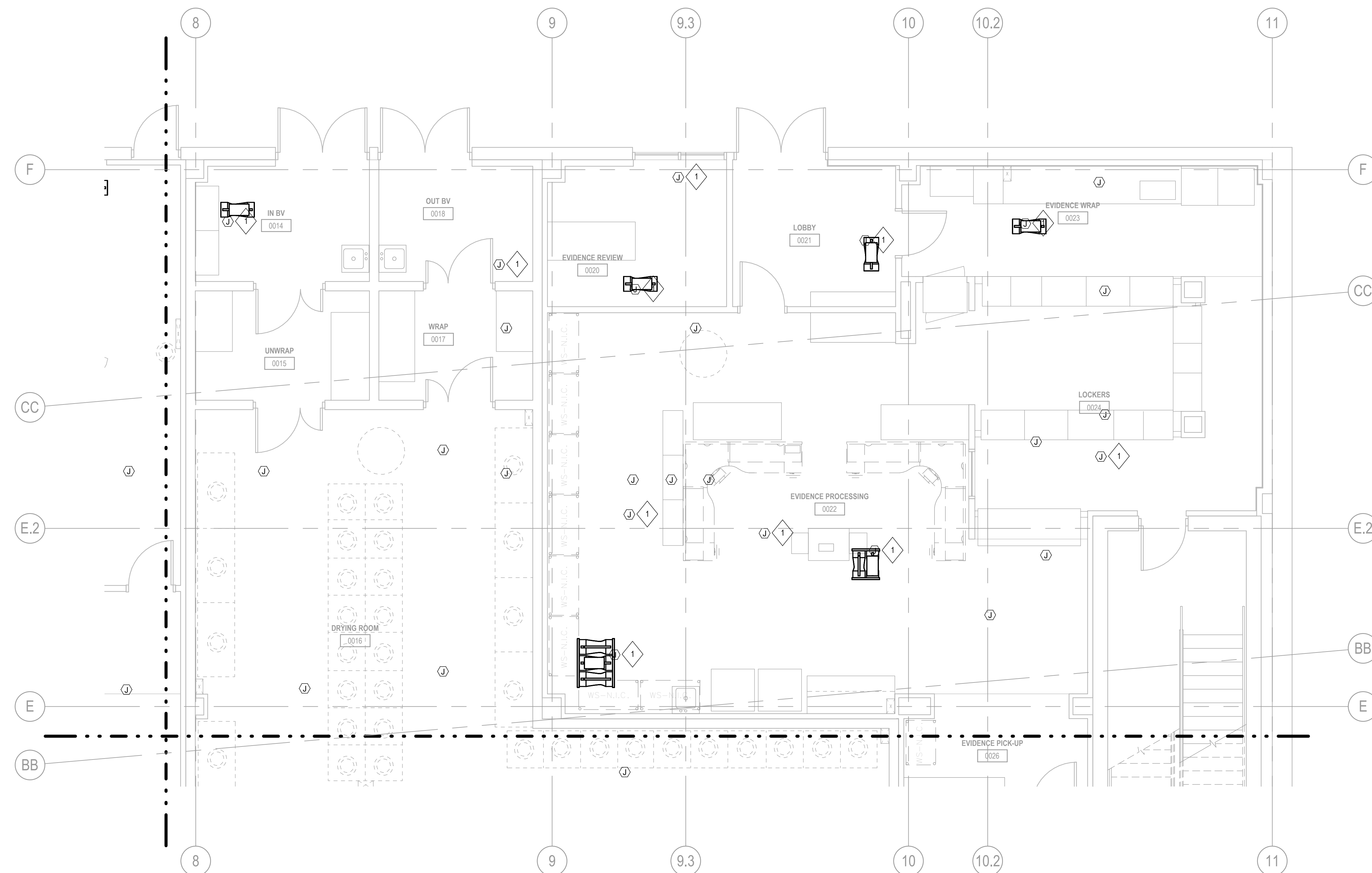
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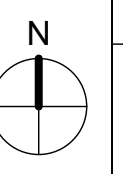
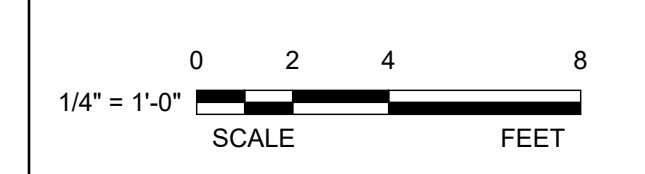
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Sheet Title
**POWER PLAN -
BASEMENT -
AREA C**

Sheet Number
E3.00C



1 BASEMENT - POWER PLAN - AREA C
SCALE: 1/4" = 1'-0"



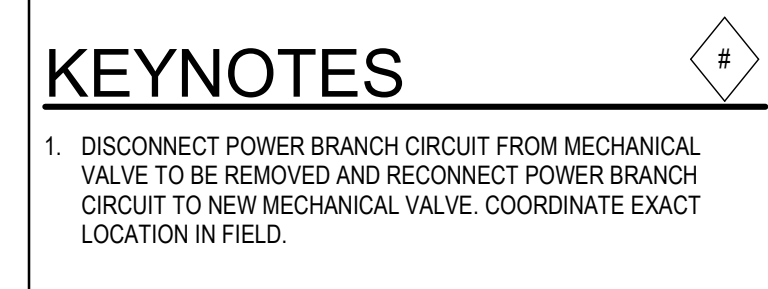


1 BASEMENT - POWER PLAN - AREA D
SCALE: 1/4" = 1'-0"

GENERAL NOTES

KEYNOTES

- DISCONNECT POWER BRANCH CIRCUIT FROM MECHANICAL VALVE TO BE REMOVED AND RECONNECT POWER BRANCH CIRCUIT TO NEW MECHANICAL VALVE. COORDINATE EXACT LOCATION IN FIELD.



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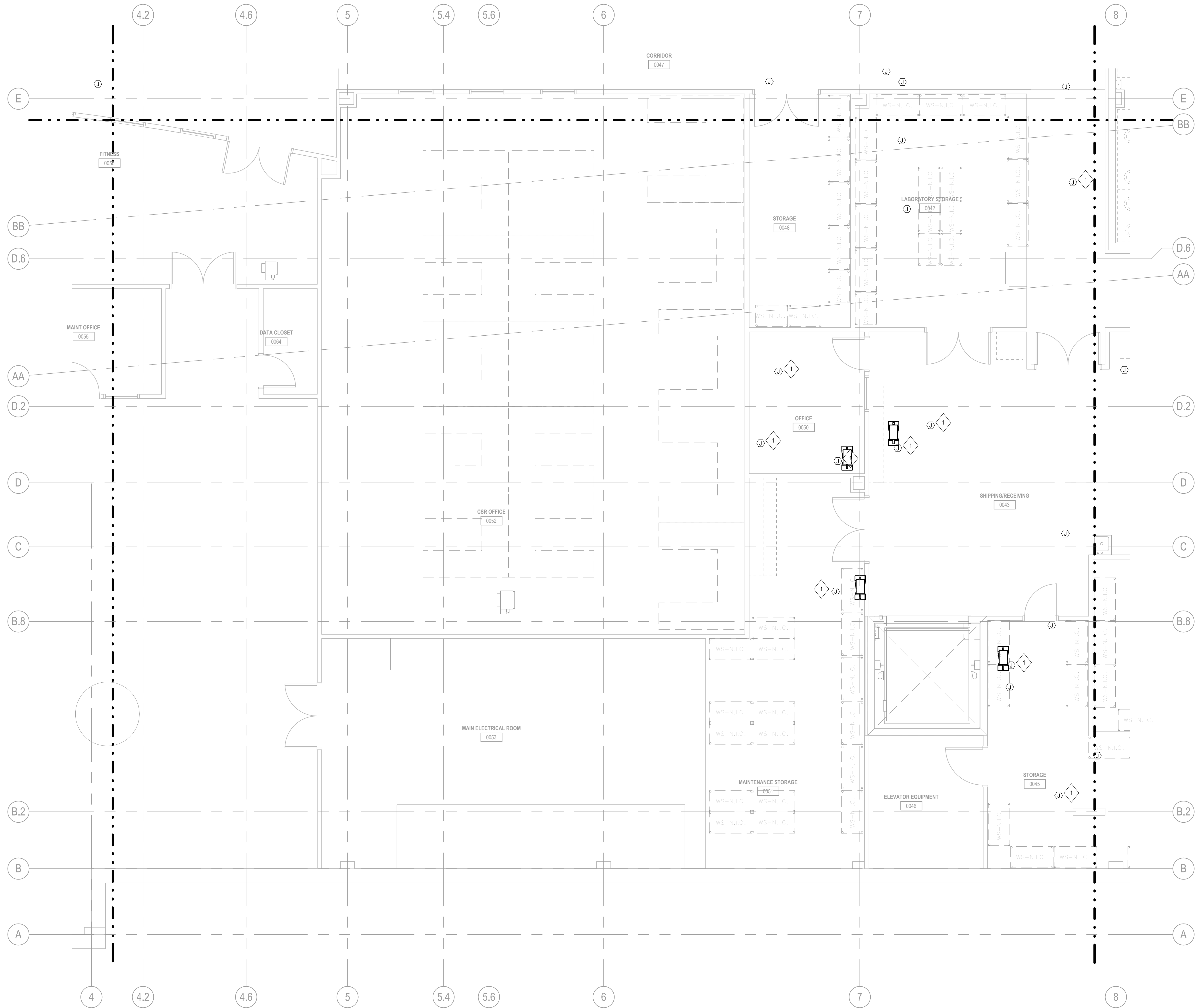


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**POWER PLAN -
BASEMENT -
AREA D**

Sheet Number
E3.00D





1 BASEMENT - POWER PLAN - AREA E
SCALE: 1/4" = 1'-0"

GENERAL NOTES

KEYNOTES

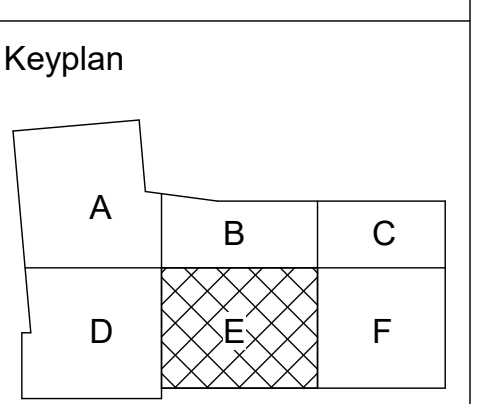
1. DISCONNECT POWER BRANCH CIRCUIT FROM MECHANICAL VALVE TO BE REMOVED AND RECONNECT POWER BRANCH CIRCUIT TO NEW MECHANICAL VALVE. COORDINATE EXACT LOCATION IN FIELD.



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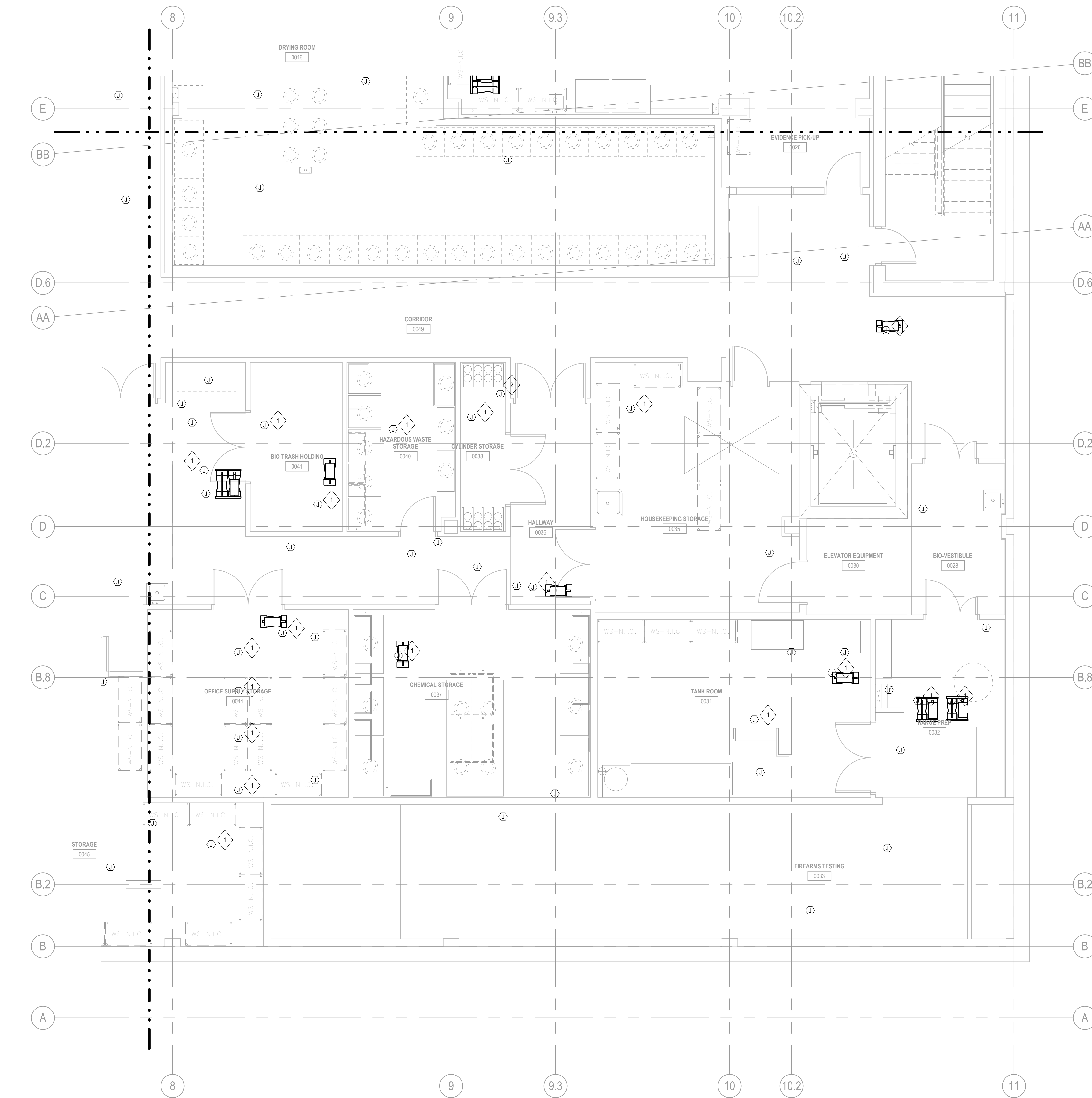


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Sheet Title
**POWER PLAN -
BASEMENT -
AREA E**

Sheet Number
E3.00E

GENERAL NOTES



1 BASEMENT - POWER PLAN - AREA F
 SCALE: 1/4" = 1'-0"

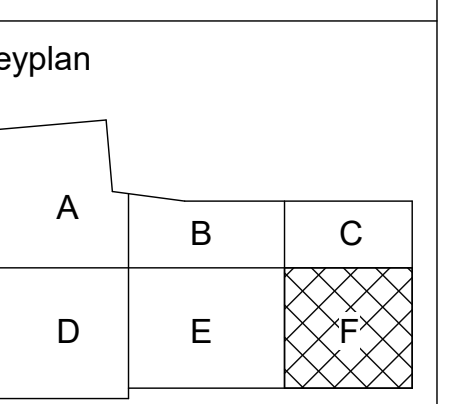
KEYNOTES

1. DISCONNECT POWER BRANCH CIRCUIT FROM MECHANICAL VALVE TO BE REMOVED AND RECONNECT POWER BRANCH CIRCUIT TO NEW MECHANICAL VALVE. COORDINATE EXACT LOCATION IN FIELD.
2. 120V CONNECTION FOR GAS DETECTOR

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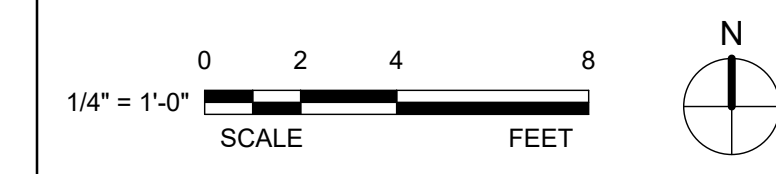
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Date Issued 04/25/23	Scale 1/4" = 1'-0"
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 BASEMENT -
 AREA F**

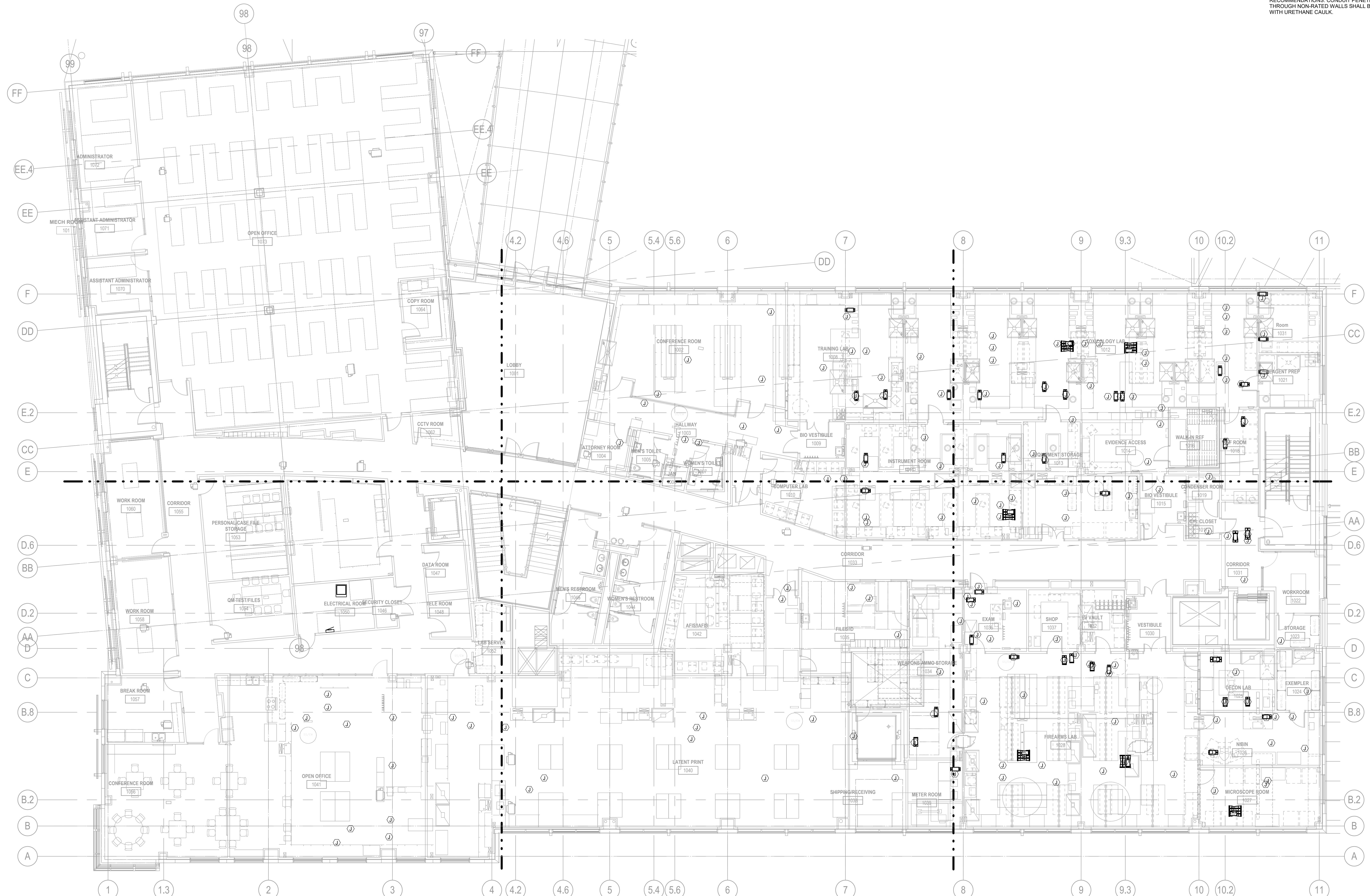
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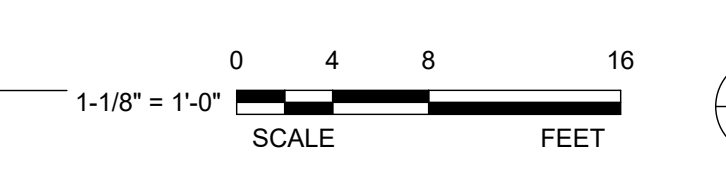
KEYNOTES

GENERAL NOTES

- A. ELECTRICAL FIXTURES AND EQUIPMENT LOCATIONS ARE DIAGRAMATIC REPRESENTATIONS AND NOT DIMENSIONED LOCATIONS. REFER TO ARCHITECTURAL PLANS, ELEVATIONS AND EQUIPMENT SHOP DRAWINGS FOR EXACT LOCATION.
- B. COORDINATE WITH DOOR HARDWARE SUPPLIER AND FIRE ALARM VENDOR TO INSTALL CONDUIT AND WIRING AS NEEDED FOR A FUNCTIONING, CODE COMPLIANT INSTALLATION.
- C. RECEPTACLES WITHIN 6'-0" OF A WATER SOURCE SHALL BE GFCI TYPE PER NEC 210.8(B)(5).
- D. VERIFY EXACT LOCATION OF ALL MECHANICAL AND PLUMBING EQUIPMENT PROVIDED BY OTHER TRADES PRIOR TO ROUGH IN.
- E. COORDINATE INSTALLATION AND WIRING REQUIREMENTS, INCLUDING EXACT LOCATION OF POINT OF CONNECTION, WITH THE EQUIPMENT SUPPLIER PRIOR TO ROUGH IN.
- F. PENETRATIONS THROUGH SMOKE OR FIRE WALLS SHALL BE SEALED BY APPROVED FIRESTOPPING METHOD PER MANUFACTURER'S RECOMMENDATIONS. CONDUIT PENETRATIONS THROUGH NON-RATED WALLS SHALL BE SEALED WITH URETHANE CAULK.



1 LEVEL 1 - POWER PLAN - OVERALL
SCALE: 1/8" = 1'-0"



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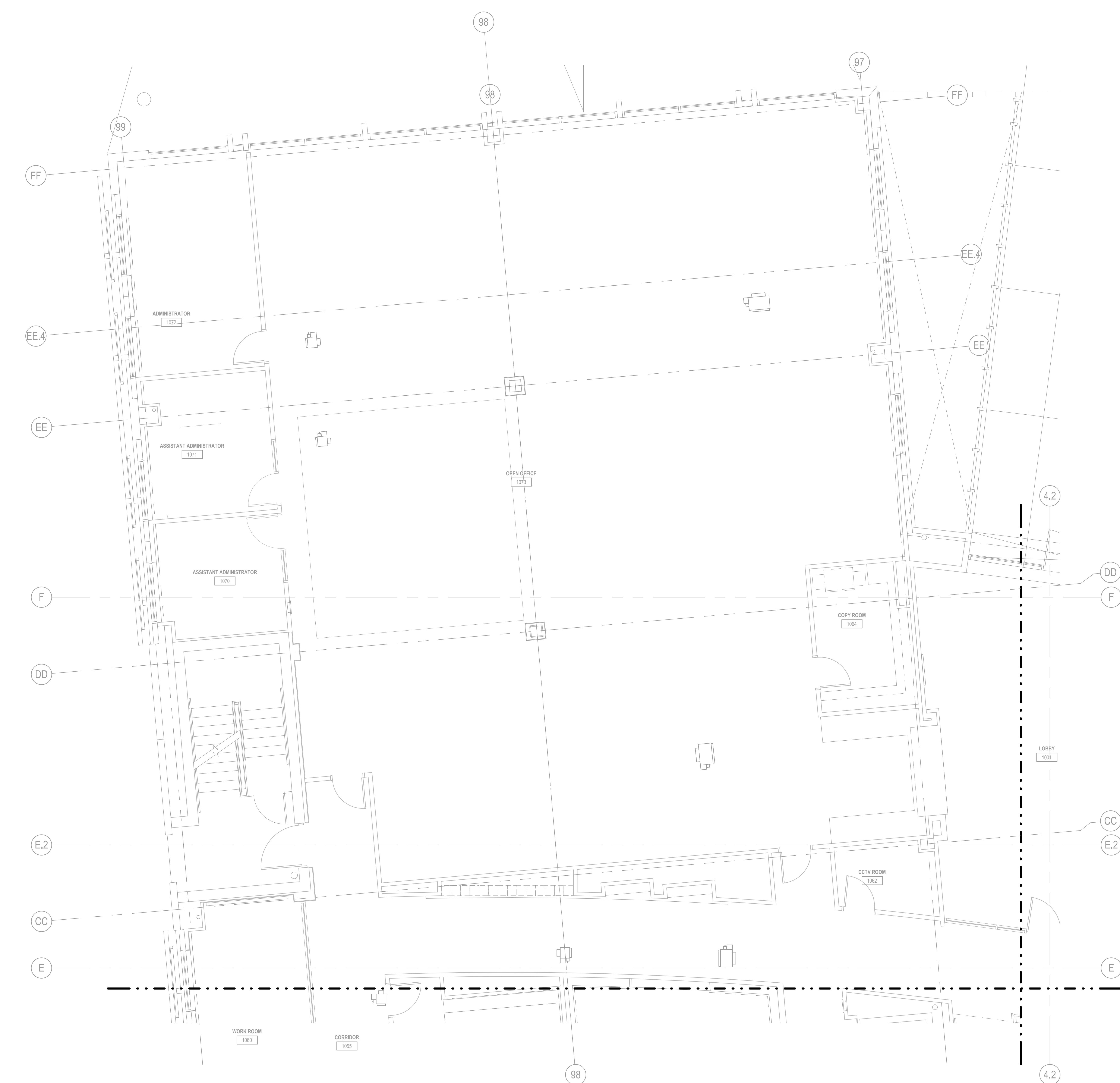
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Sheet Title
**POWER PLAN -
LEVEL 1 -
OVERALL**

Sheet Number
E3.01



1 LEVEL 1 - POWER PLAN - AREA A
SCALE: 1/4" = 1'-0"

GENERAL NOTES

KEYNOTES

1. DISCONNECT POWER BRANCH CIRCUIT FROM MECHANICAL VALVE TO BE REMOVED AND RECONNECT POWER BRANCH CIRCUIT TO NEW MECHANICAL VALVE. COORDINATE EXACT LOCATION IN FIELD.



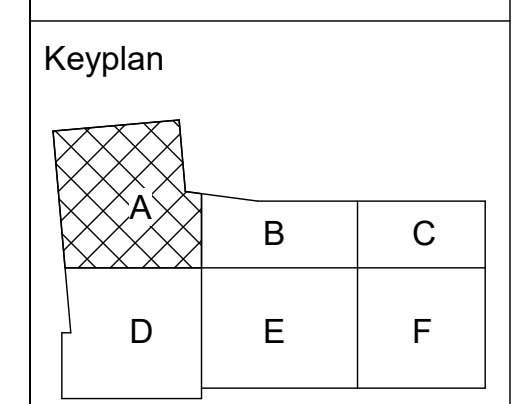
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**POWER PLAN -
LEVEL 1 - AREA A**

Sheet Number
E3.01A

GENERAL NOTES



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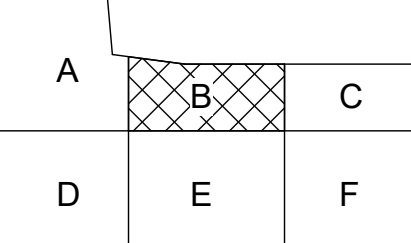
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KEYNOTES

- DISCONNECT POWER BRANCH CIRCUIT FROM MECHANICAL VALVE TO BE REMOVED AND RECONNECT POWER BRANCH CIRCUIT TO NEW MECHANICAL VALVE. COORDINATE EXACT LOCATION IN FIELD.

Keyplan



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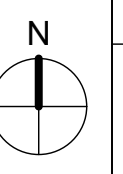
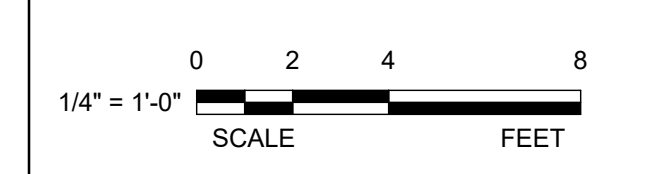
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Sheet Title
**POWER PLAN -
LEVEL 1 - AREA B**

Sheet Number
E3.01B



1 LEVEL 1 - POWER PLAN - AREA B
SCALE: 1/4" = 1'-0"



GENERAL NOTES



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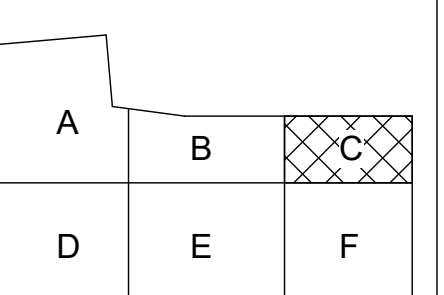
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KEYNOTES

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Keyplan



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City of Phoenix

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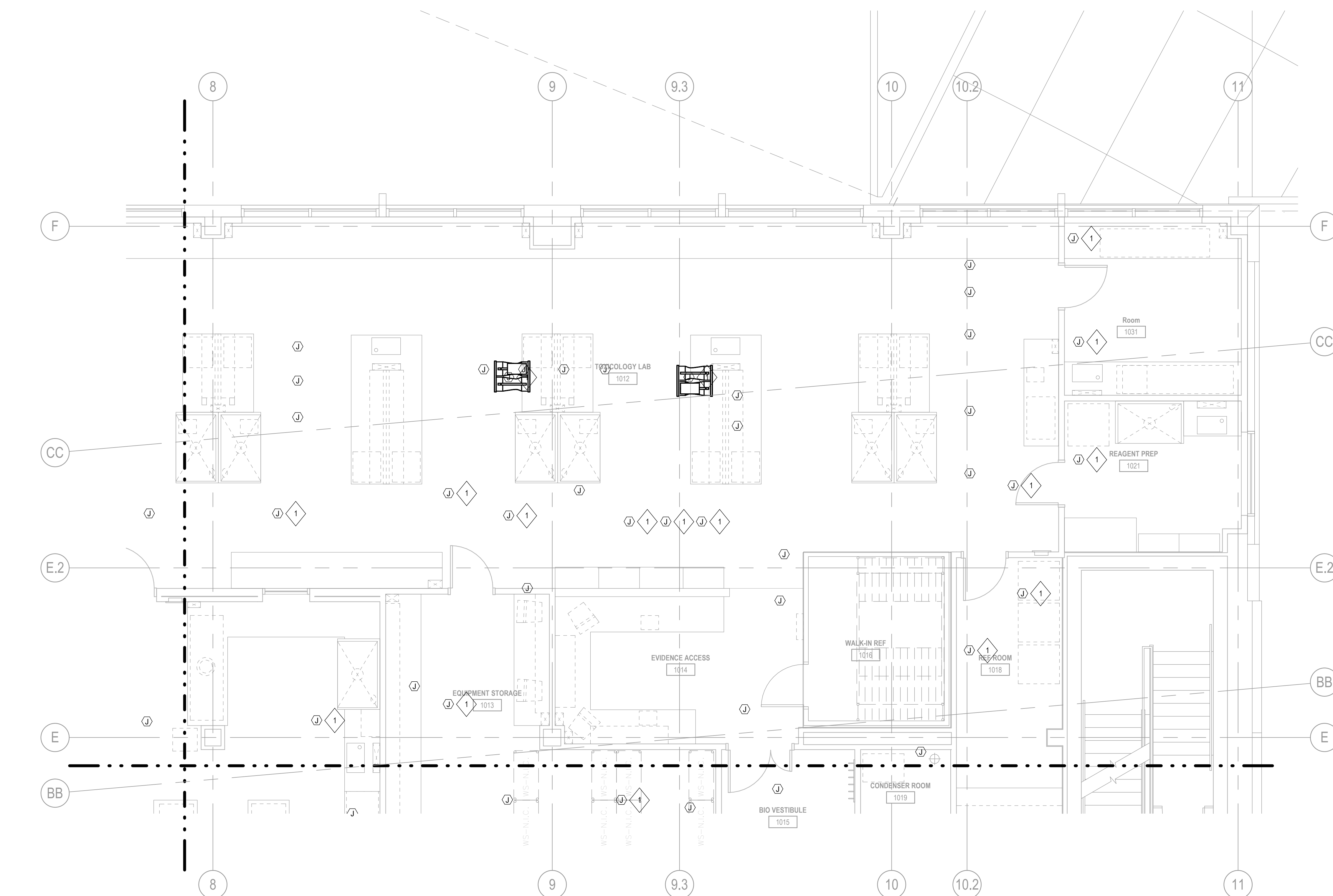
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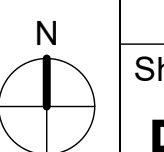
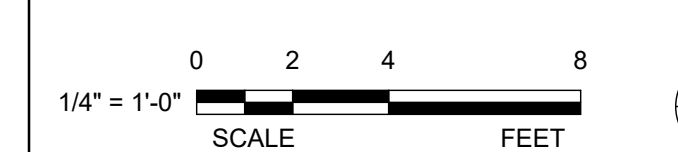
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Sheet Title
**POWER PLAN -
LEVEL 1 - AREA C**

Sheet Number
E3.01C



1 LEVEL 1 - POWER PLAN - AREA C
SCALE: 1/4" = 1'-0"



GENERAL NOTES



1 LEVEL 1 - POWER PLAN - AREA D
 SCALE: 1/4" = 1'-0"

KEYNOTES

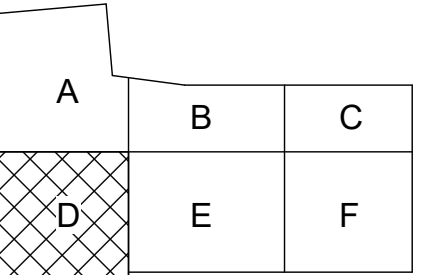
1. DISCONNECT POWER BRANCH CIRCUIT FROM MECHANICAL VALVE TO BE REMOVED AND RECONNECT POWER BRANCH CIRCUIT TO NEW MECHANICAL VALVE. COORDINATE EXACT LOCATION IN FIELD.

PROGRESS SET
NOT FOR CONSTRUCTION

Issuance and Revisions

Rev	Date	Description

Keyplan



Project Title

**POLICE CRIME LAB
 AUTOMATION SYSTEM
 REPLACEMENT**

621 W WASHINGTON ST.
 PHOENIX, AZ 85007

City of Phoenix Project Number:
 PW26480024-1



City of Phoenix

Project Number
 23457-00

Date Issued
 04/25/23

Drawn By
 Author

Scale
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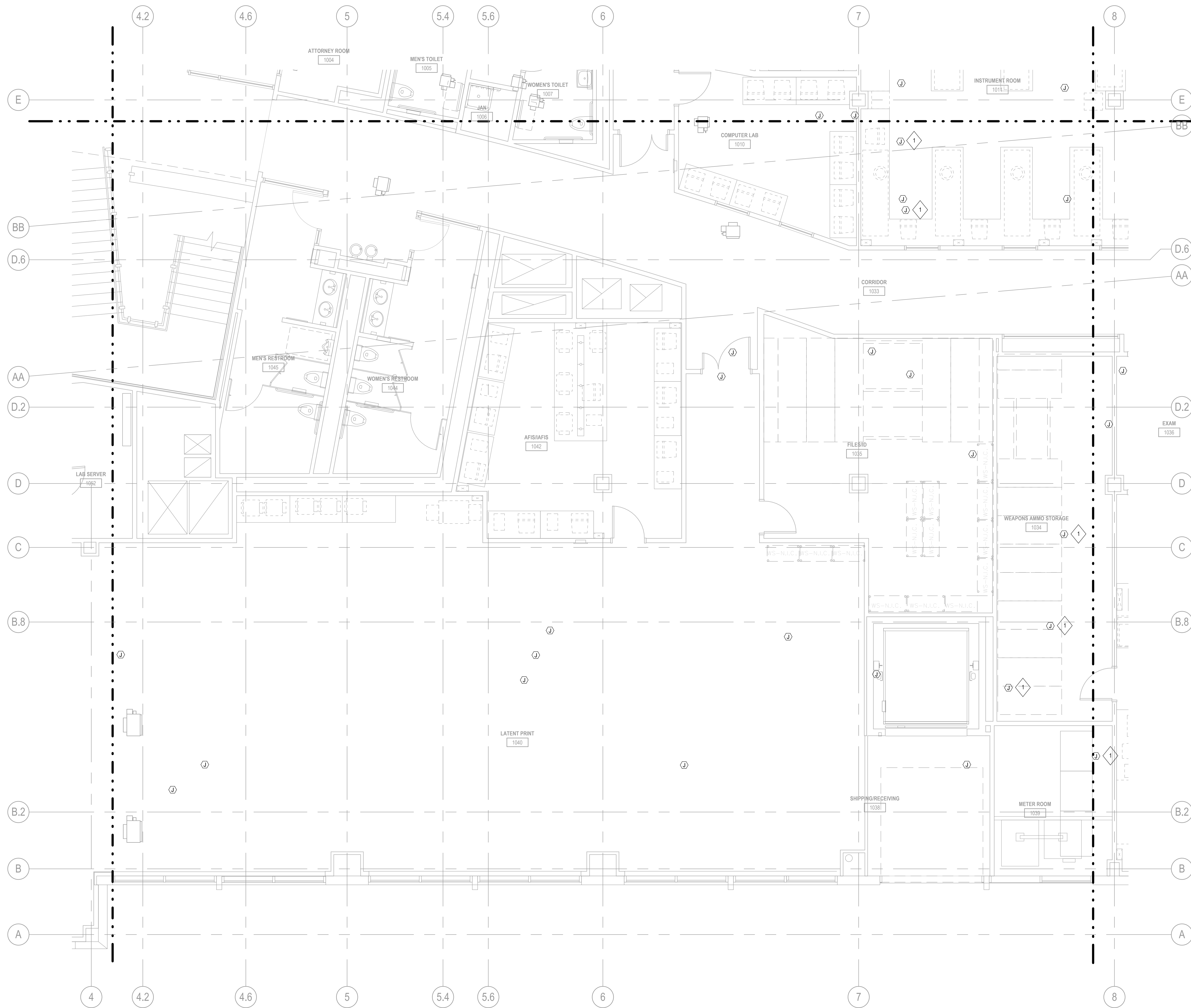
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Sheet Title
**POWER PLAN -
 LEVEL 1 - AREA D**

Sheet Number
E3.01D



GENERAL NOTES



1 LEVEL 1 - POWER PLAN - AREA E
 SCALE: 1/4" = 1'-0"

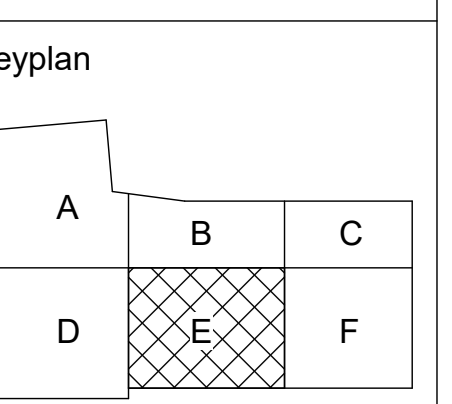
KEYNOTES

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 AUTOMATION SYSTEM
 REPLACEMENT**

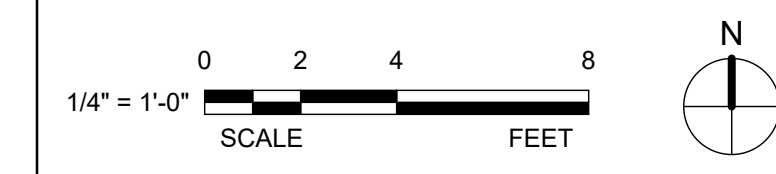
621 W WASHINGTON ST.
 PHOENIX, AZ 85007
 City of Phoenix Project Number:
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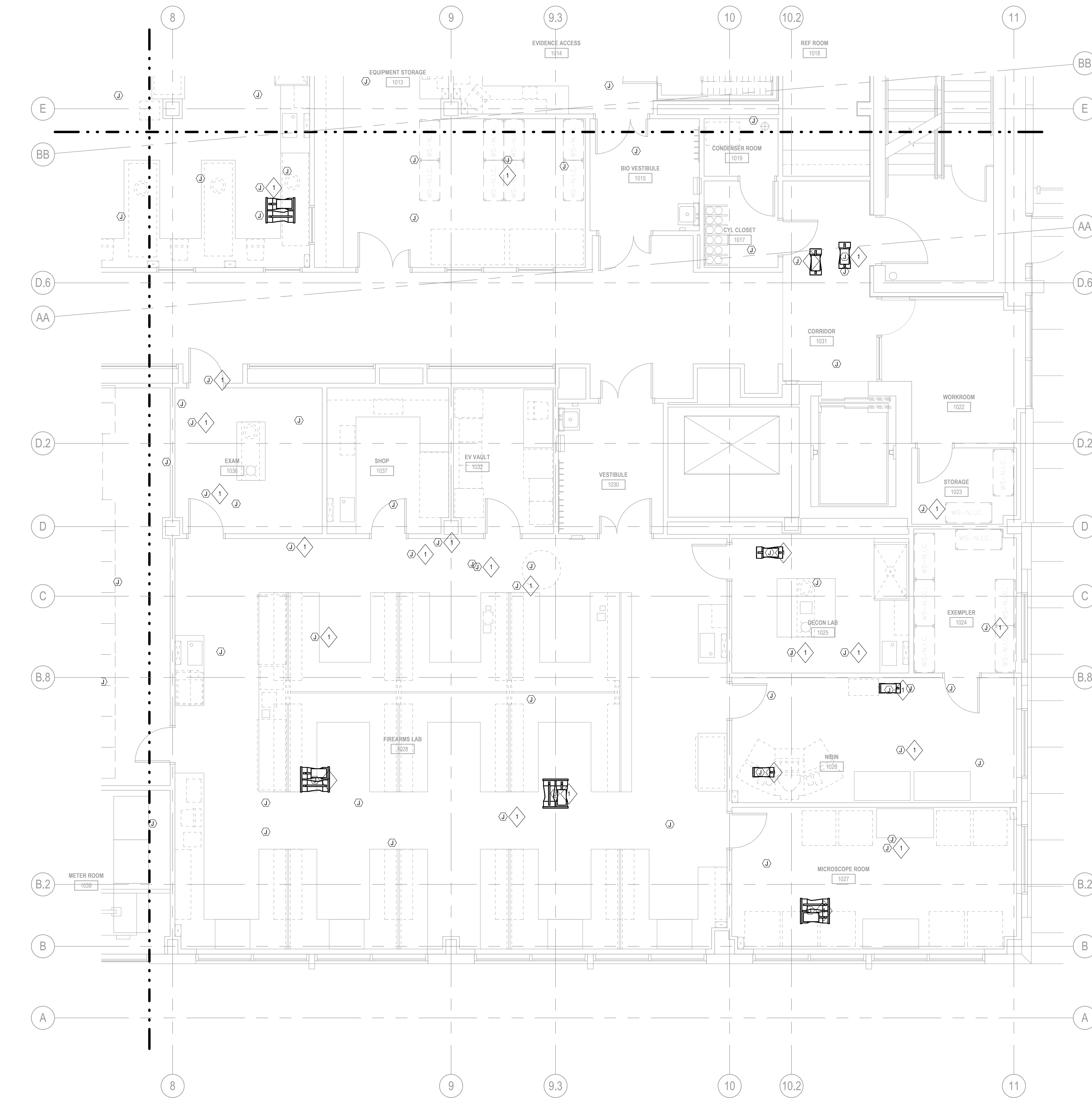
Project Number
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 Scale
 1/4" = 1'-0"
 Drawn By
 Author
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Sheet Title
**POWER PLAN -
 LEVEL 1 - AREA E**

Sheet Number
E3.01E



GENERAL NOTES



1 LEVEL 1 - POWER PLAN - AREA F
 SCALE: 1/4" = 1'-0"

KEYNOTES

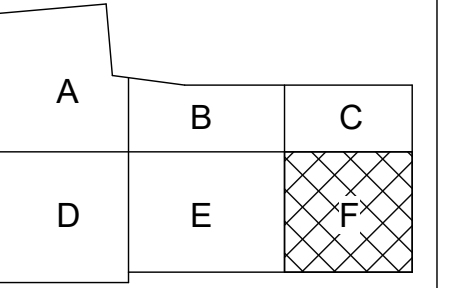
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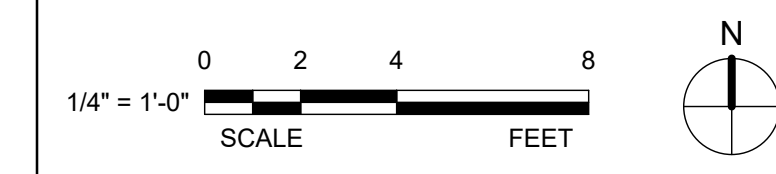
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Sheet Title
**POWER PLAN -
 LEVEL 1 - AREA F**

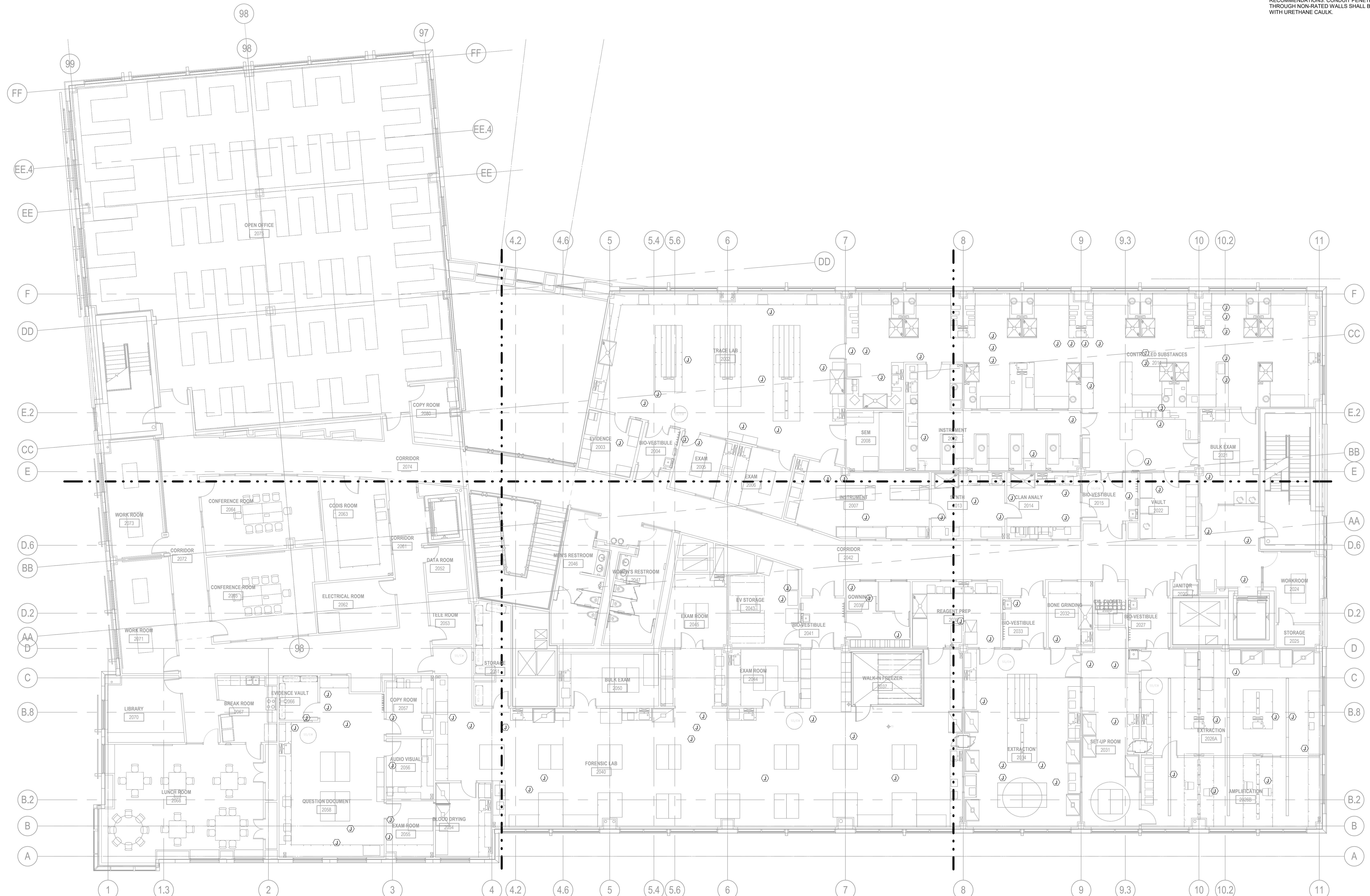
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KEYNOTES

GENERAL NOTES

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Project Title

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Project Number
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Date Issued
04/25/23

Scale
1/8" = 1'-0"

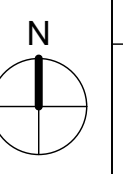
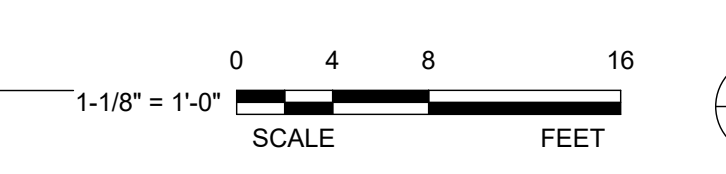
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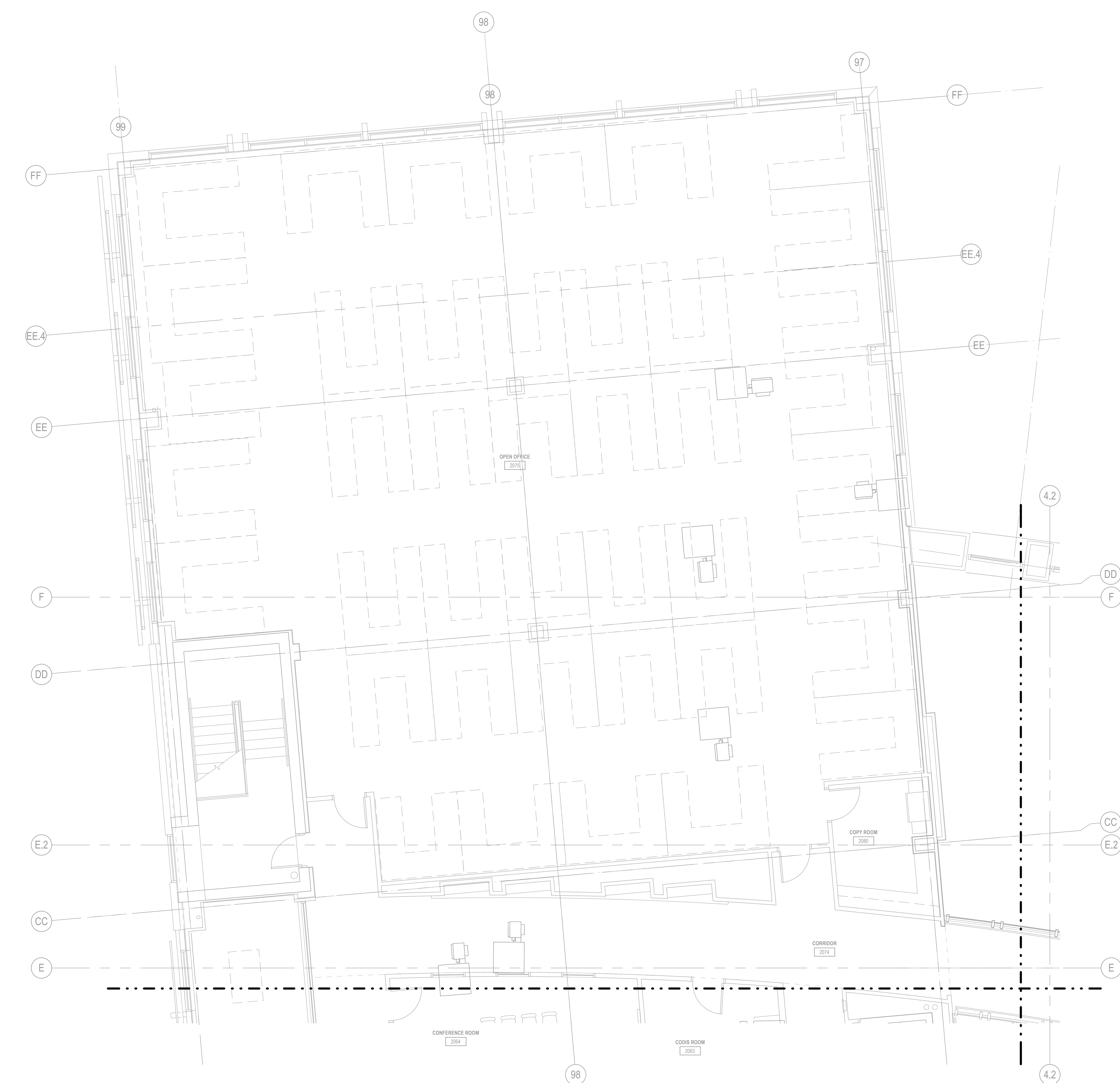
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Sheet Title
**POWER PLAN -
LEVEL 2 -
OVERALL**

Sheet Number
E3.02

1 LEVEL 2 - POWER PLAN - OVERALL
SCALE: 1/8" = 1'-0"





1 LEVEL 2 - POWER PLAN - AREA A
SCALE: 1/4" = 1'-0"

GENERAL NOTES

KEYNOTES

1. DISCONNECT POWER BRANCH CIRCUIT FROM MECHANICAL VALVE TO BE REMOVED AND RECONNECT POWER BRANCH CIRCUIT TO NEW MECHANICAL VALVE. COORDINATE EXACT LOCATION IN FIELD.



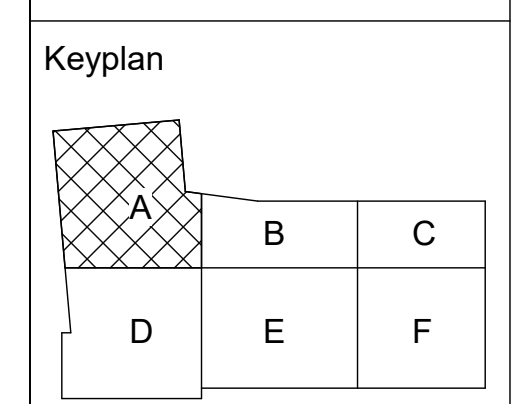
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Tel: 602-429-5800 Fax: 602-783-5424
AEI Project No.: 23457-00

ZGF
ZGF ARCHITECTS LLP

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Project Number
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Scale
1/4" = 1'-0"
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Sheet Title
**POWER PLAN -
LEVEL 2 - AREA A**

Sheet Number
E3.02A

GENERAL NOTES

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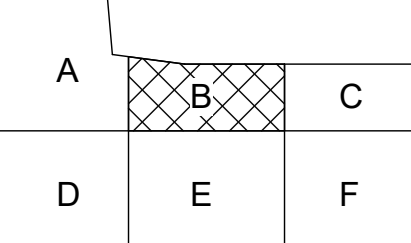
Issuance and Revisions

Rev	Date	Description

KEYNOTES

1. DISCONNECT POWER BRANCH CIRCUIT FROM MECHANICAL VALVE TO BE REMOVED AND RECONNECT POWER BRANCH CIRCUIT TO NEW MECHANICAL VALVE. COORDINATE EXACT LOCATION IN FIELD.
2. REMOVE OVERHEAD SERVICE CARRIER.

Keyplan



Project Title

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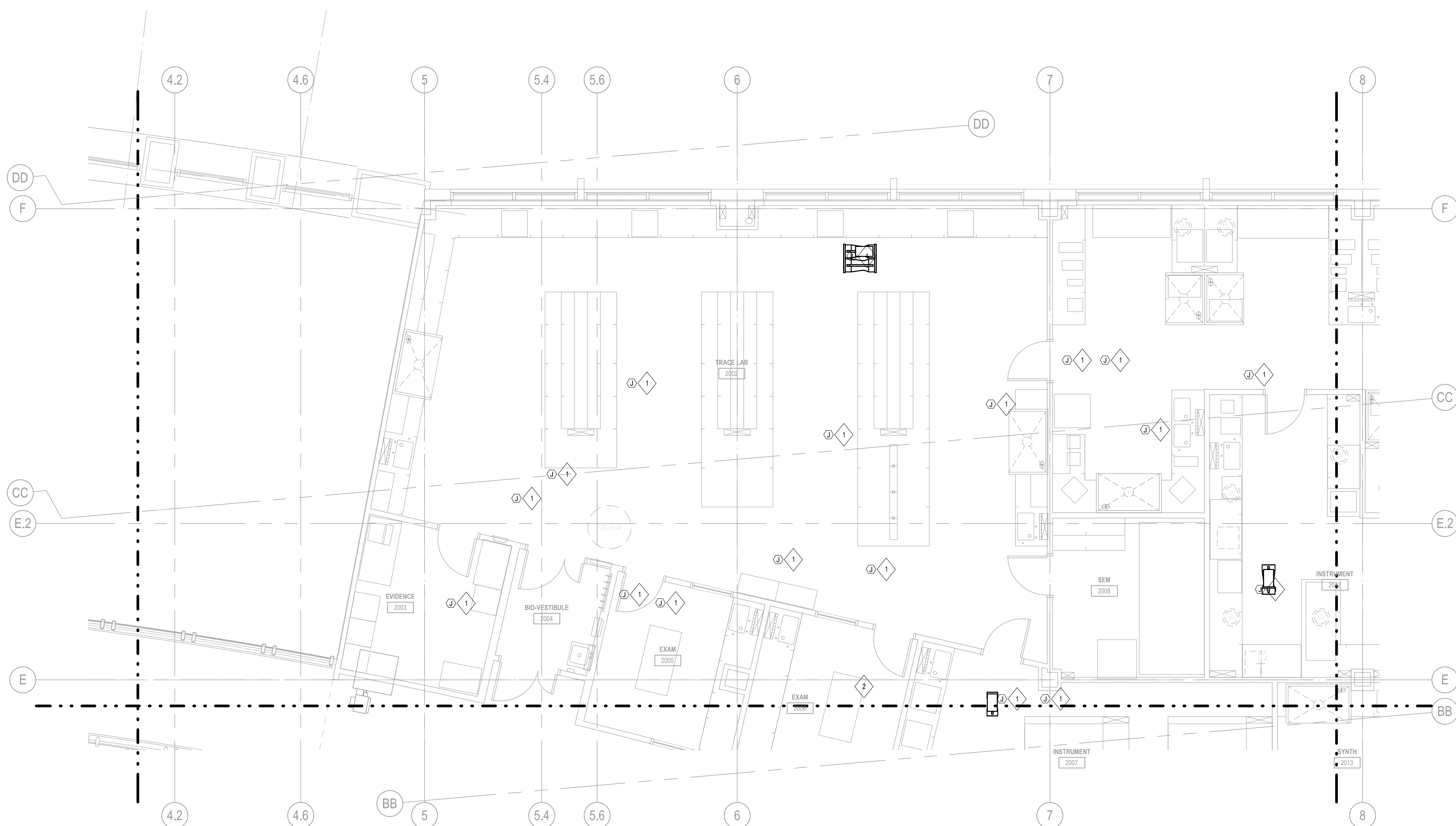
Project Number
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Date Issued 04/25/23 Scale 1/4" = 1'-0"

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Sheet Title
**POWER PLAN -
 LEVEL 2 - AREA B**

Sheet Number
E3.02B



1 LEVEL 2 - POWER PLAN - AREA B
 SCALE: 1/4" = 1'-0"



GENERAL NOTES



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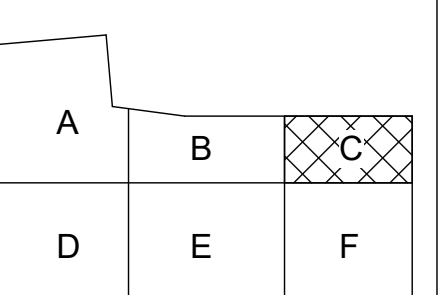
Issuance and Revisions

Rev	Date	Description
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KEYNOTES

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Keyplan



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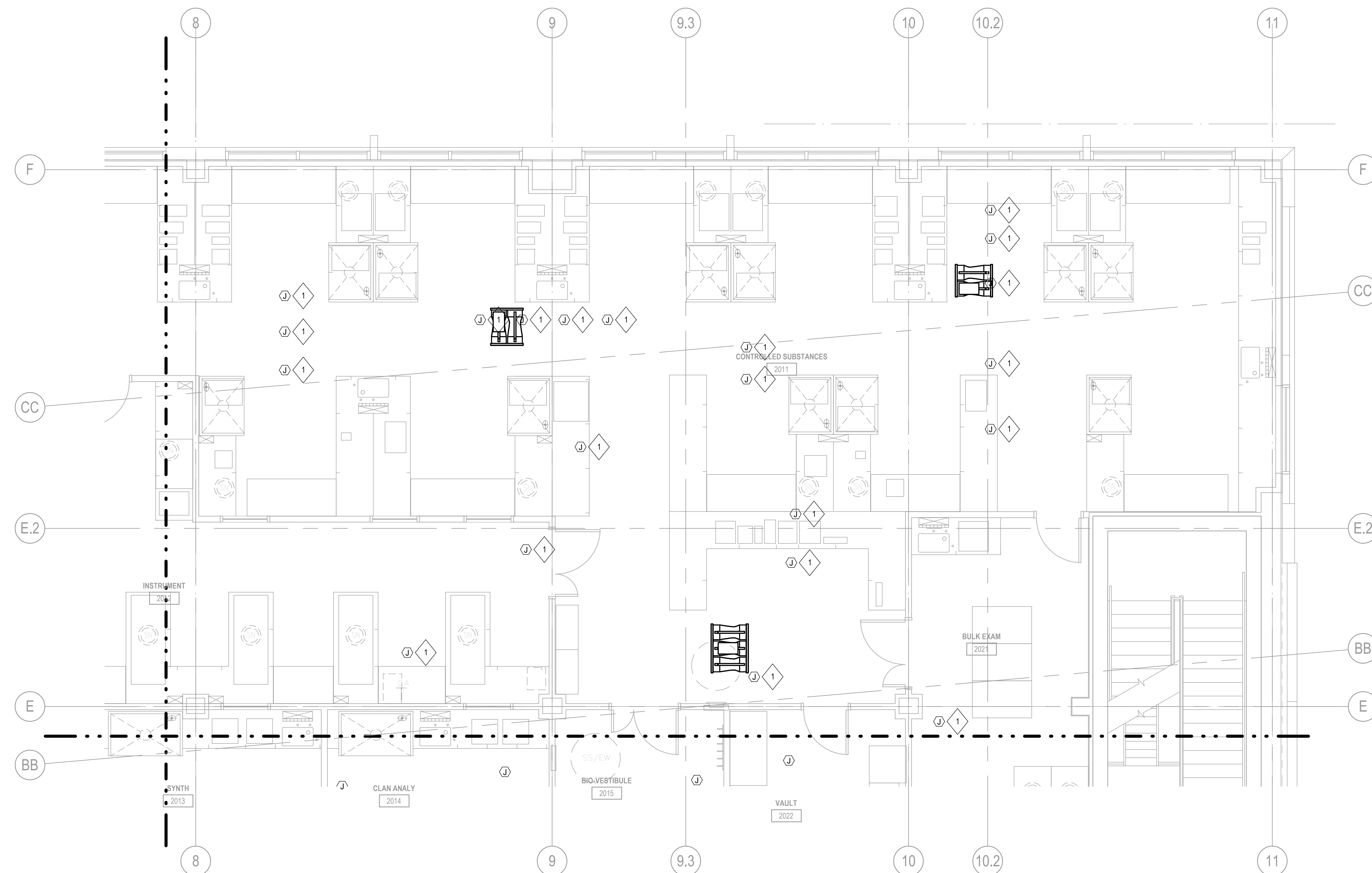
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Date Issued 04/25/23 Scale 1/4" = 1'-0"

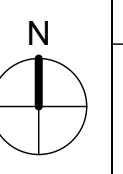
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Sheet Title
**POWER PLAN -
LEVEL 2 - AREA C**

Sheet Number
E3.02C



1 LEVEL 2 - POWER PLAN - AREA C
SCALE: 1/4" = 1'-0"



GENERAL NOTES



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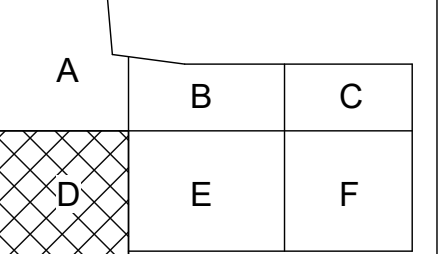
Issuance and Revisions

Rev	Date	Description

KEYNOTES

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Keyplan



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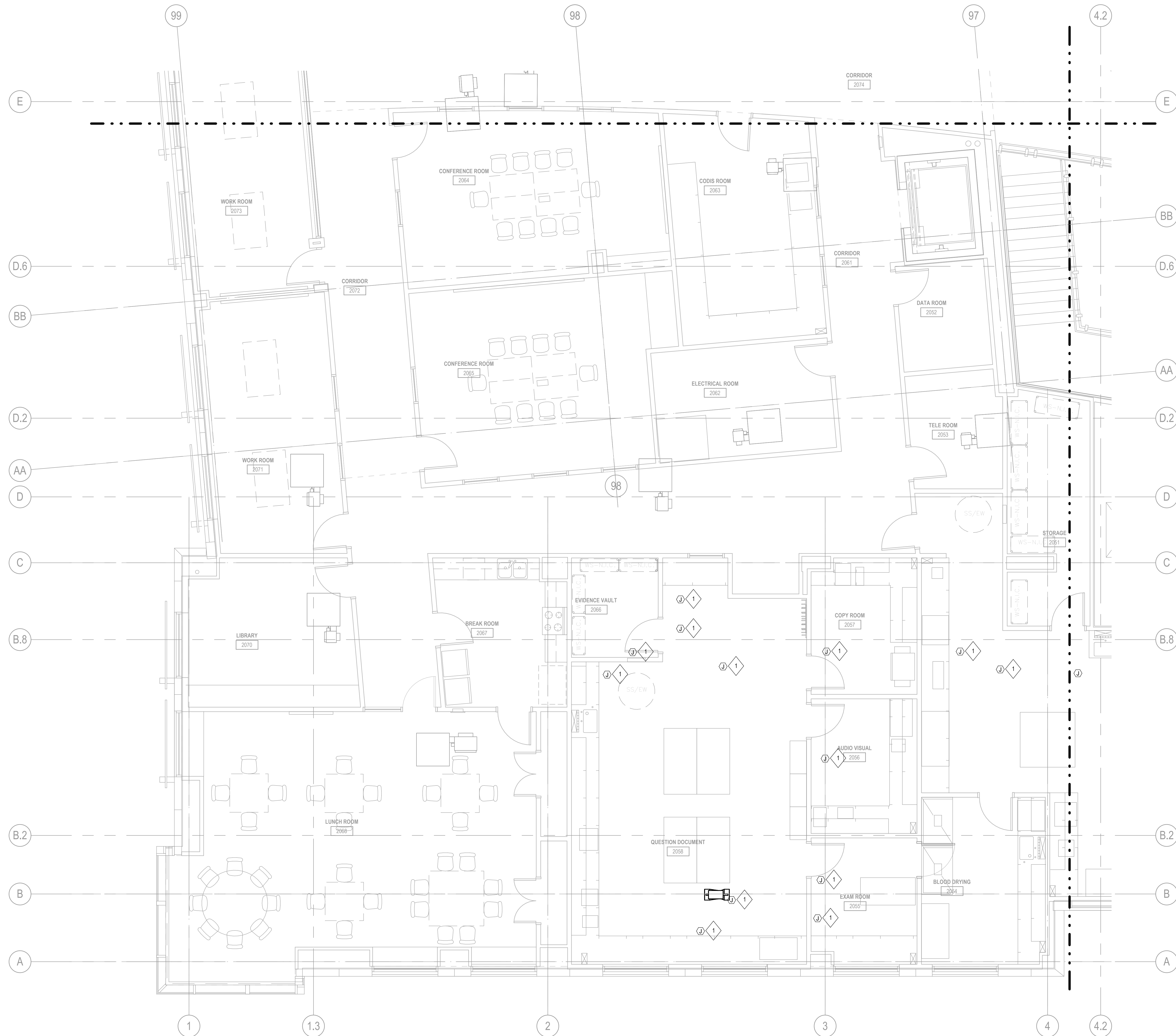
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Drawn By
Author

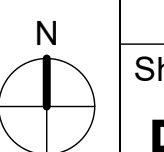
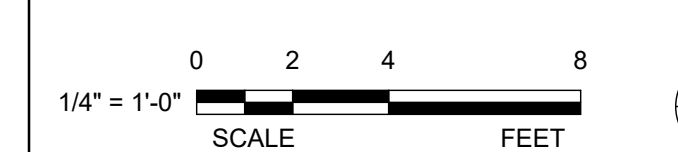
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LEVEL 2 - AREA D**

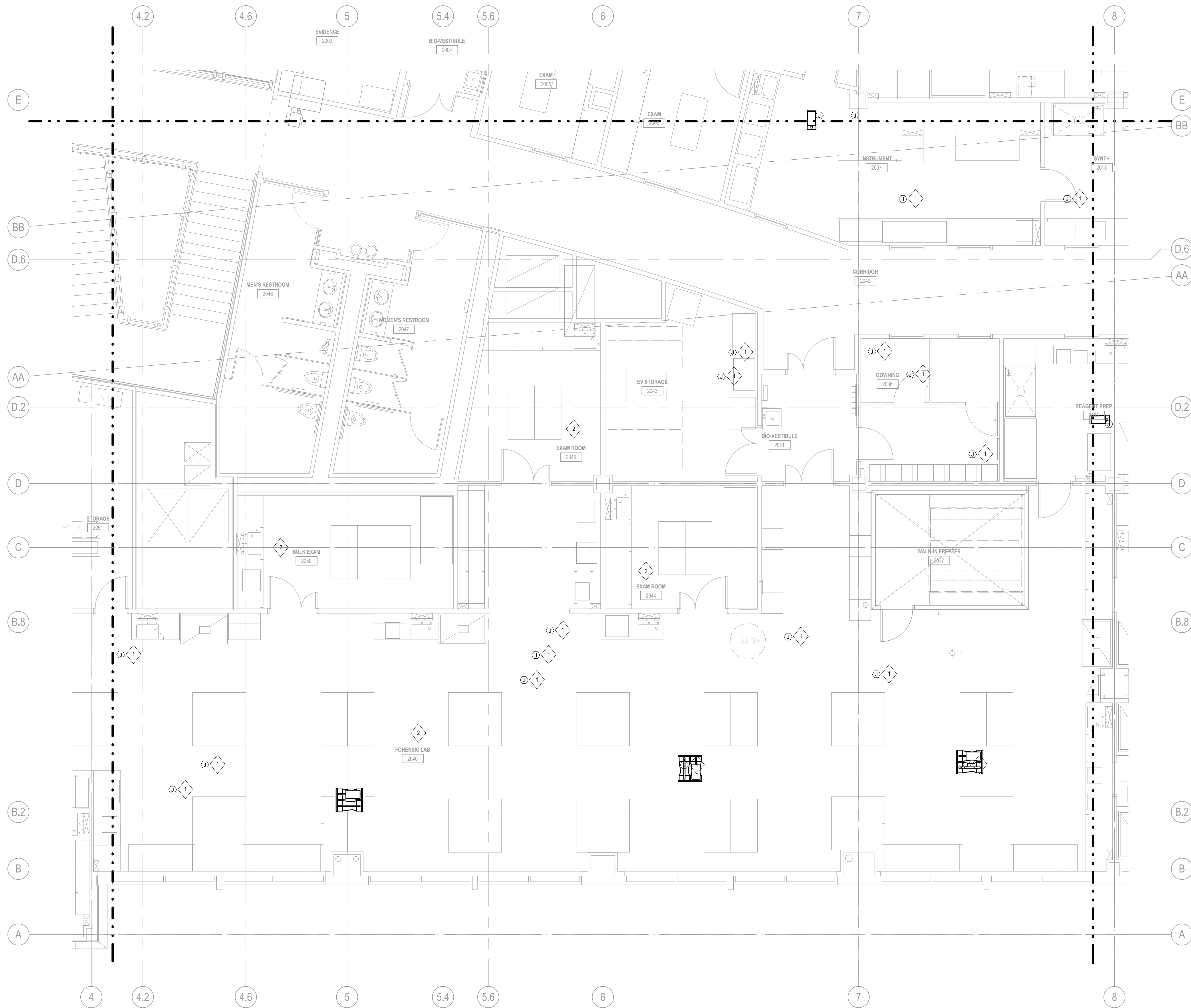
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1 LEVEL 2 - POWER PLAN - AREA D
SCALE: 1/4" = 1'-0"



GENERAL NOTES



1 LEVEL 2 - POWER PLAN - AREA E
 SCALE: 1/4" = 1'-0"

PROGRESS SET
NOT FOR CONSTRUCTION

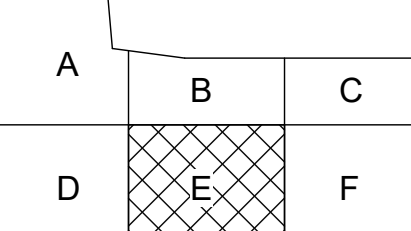
Issuance and Revisions

Rev	Date	Description

KEYNOTES

1. DISCONNECT POWER BRANCH CIRCUIT FROM MECHANICAL VALVE TO BE REMOVED AND RECONNECT POWER BRANCH CIRCUIT TO NEW MECHANICAL VALVE. COORDINATE EXACT LOCATION IN FIELD.
2. MAINTAIN OVERHEAD SERVICE CARRIERS AND COORDINATE THE REMOVAL OF PLUG-IN LIGHTS AS REQUIRED FOR SPACE.

Keyplan



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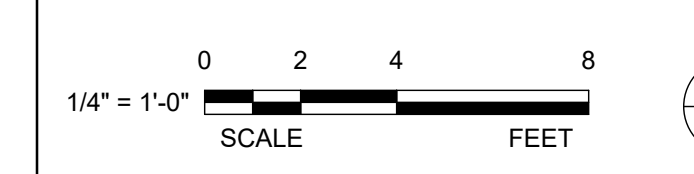
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Drawn By
 Author

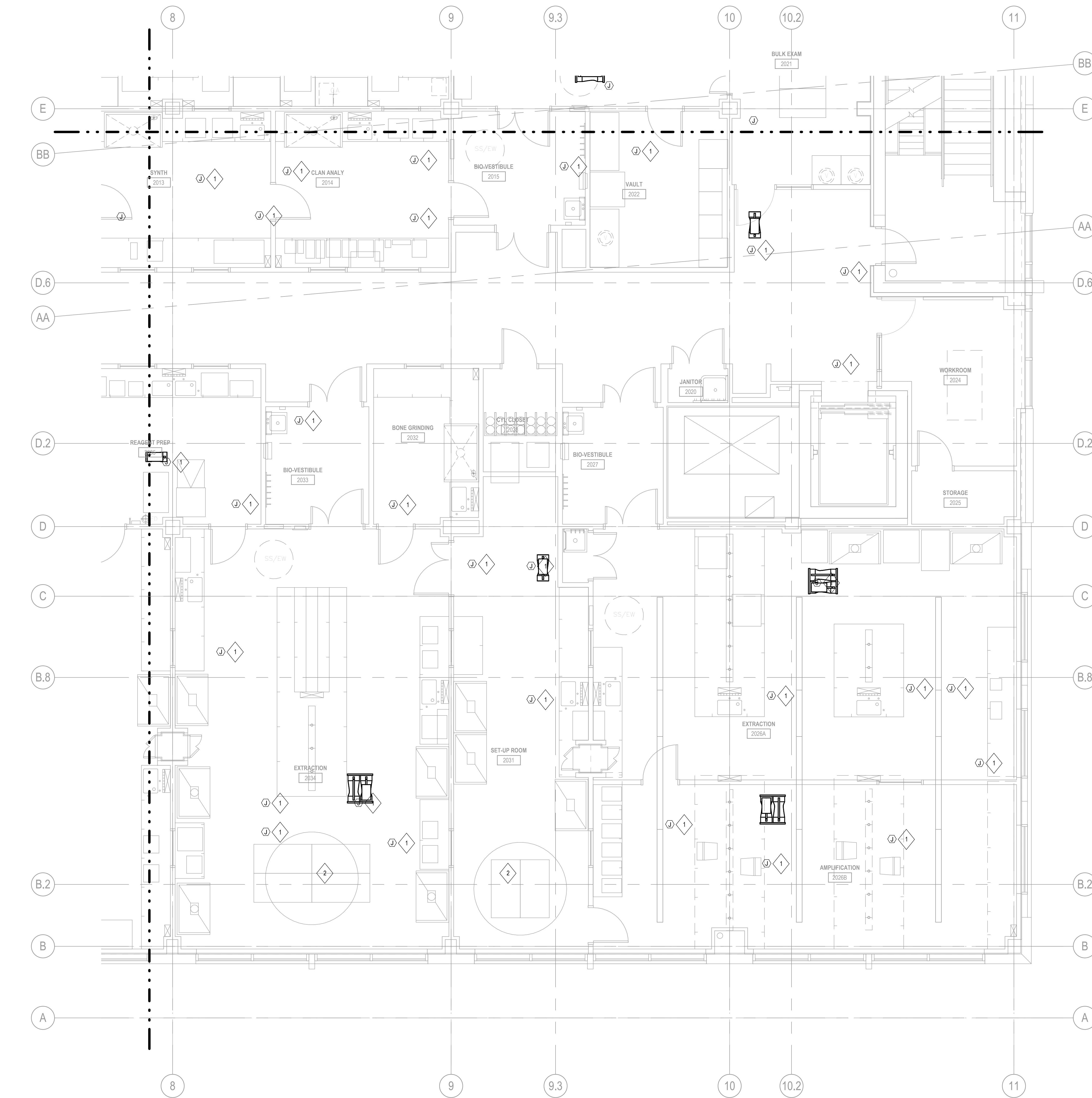
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Sheet Title
**POWER PLAN -
 LEVEL 2 - AREA E**

Sheet Number
E3.02E



GENERAL NOTES



1 LEVEL 2 - POWER PLAN - AREA F
 SCALE: 1/4" = 1'-0"

KEYNOTES

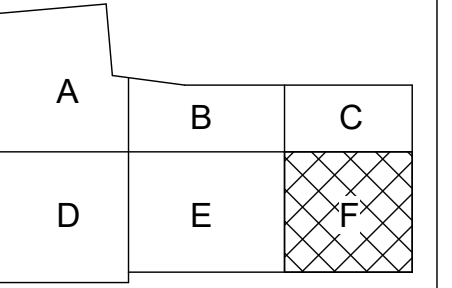
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2. REMOVE OVERHEAD SERVICE CARRIER

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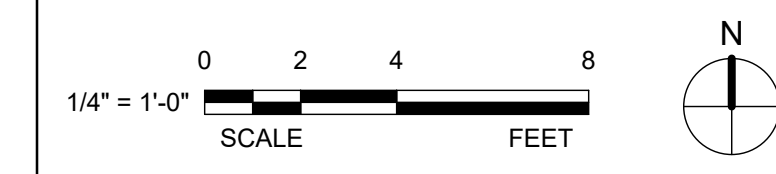
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Sheet Title
**POWER PLAN -
 LEVEL 2 - AREA F**

Sheet Number
E3.02F



KEYNOTES

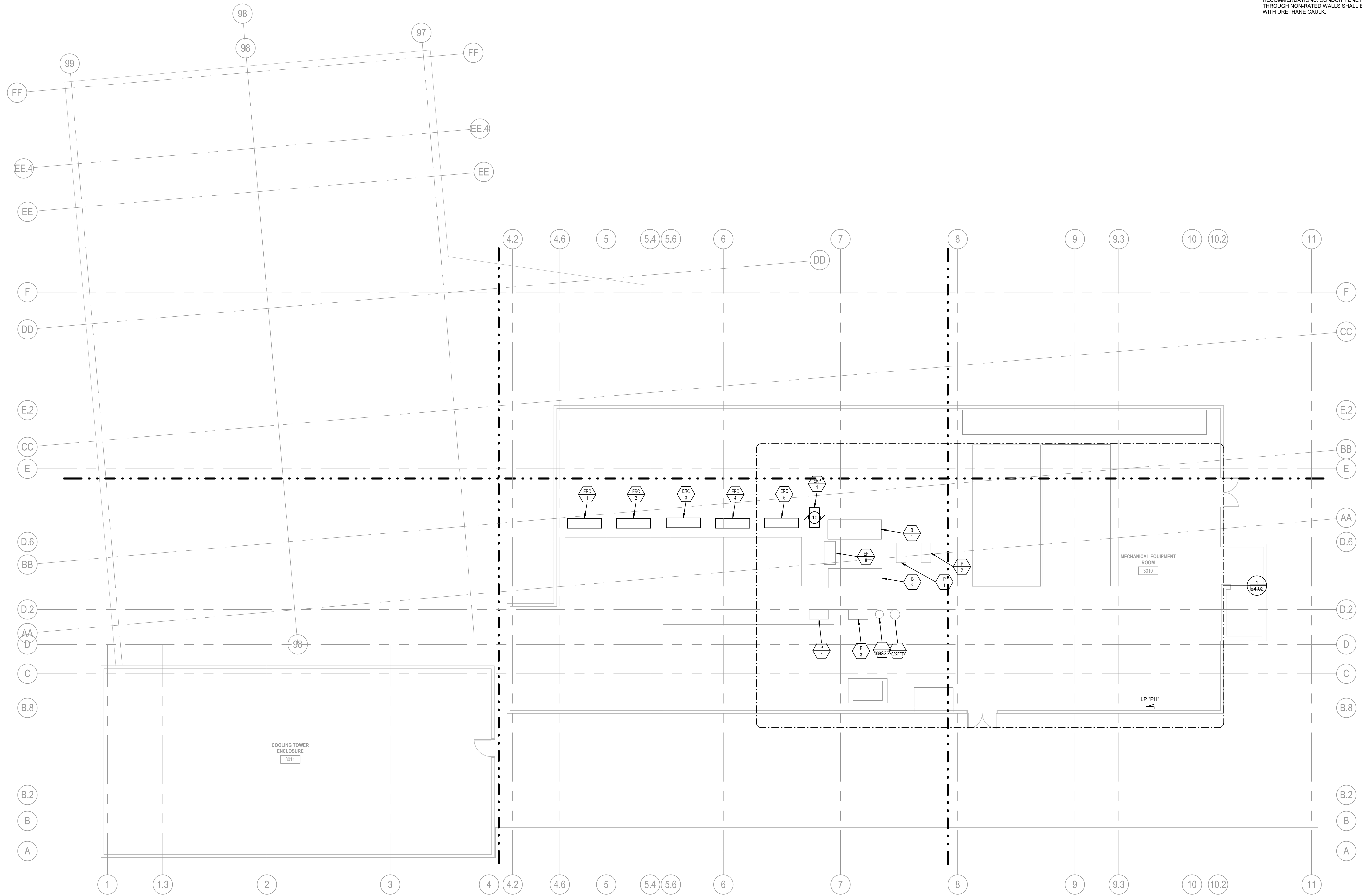
GENERAL NOTES



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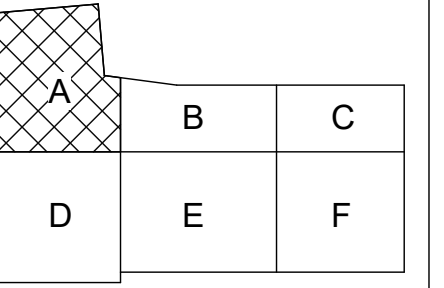


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Date Issued: 04/25/23 Scale: 1/8" = 1'-0"

Drawn By: Author Checked By: Checker

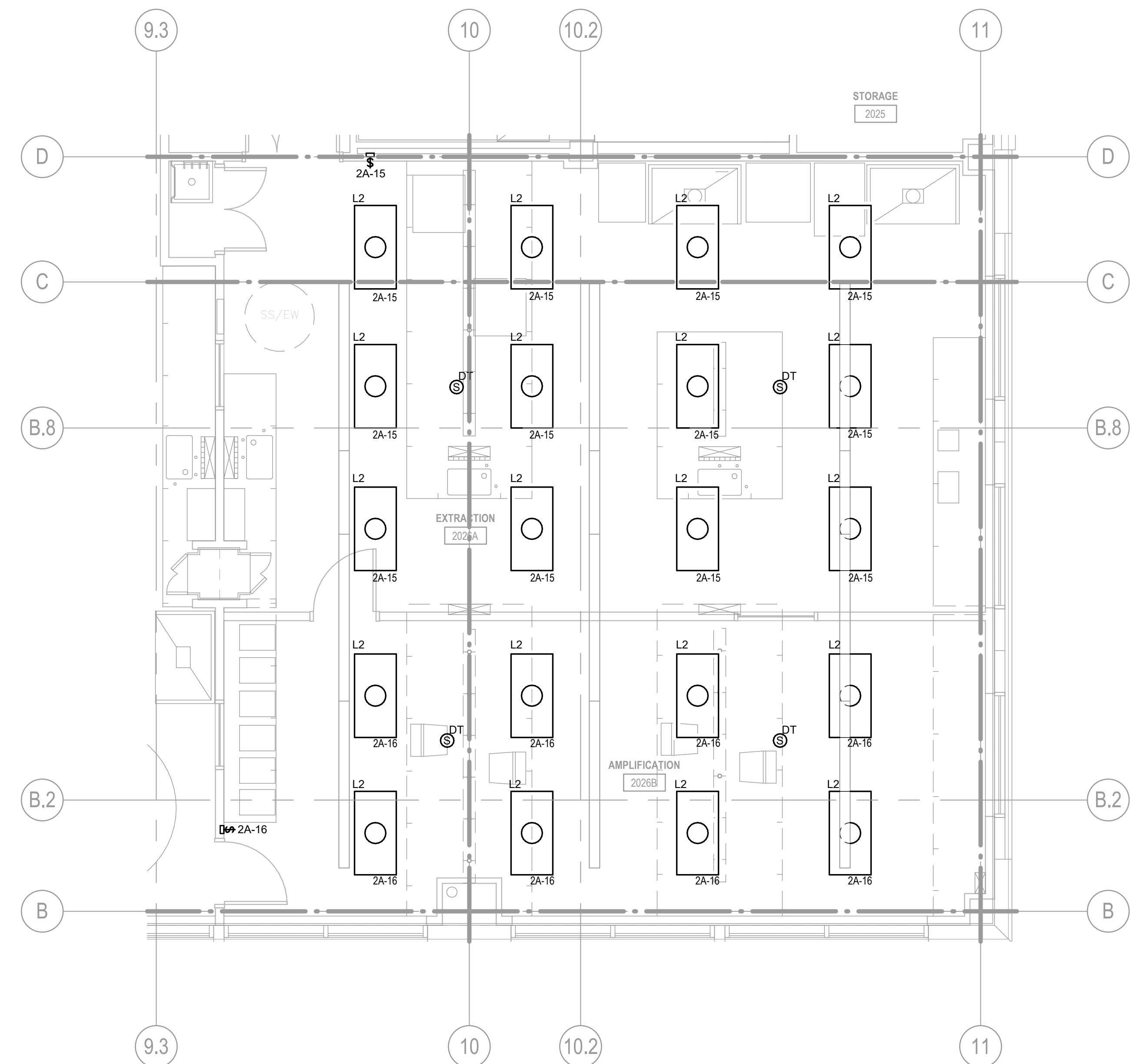
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**POWER PLAN -
ROOF - OVERALL**

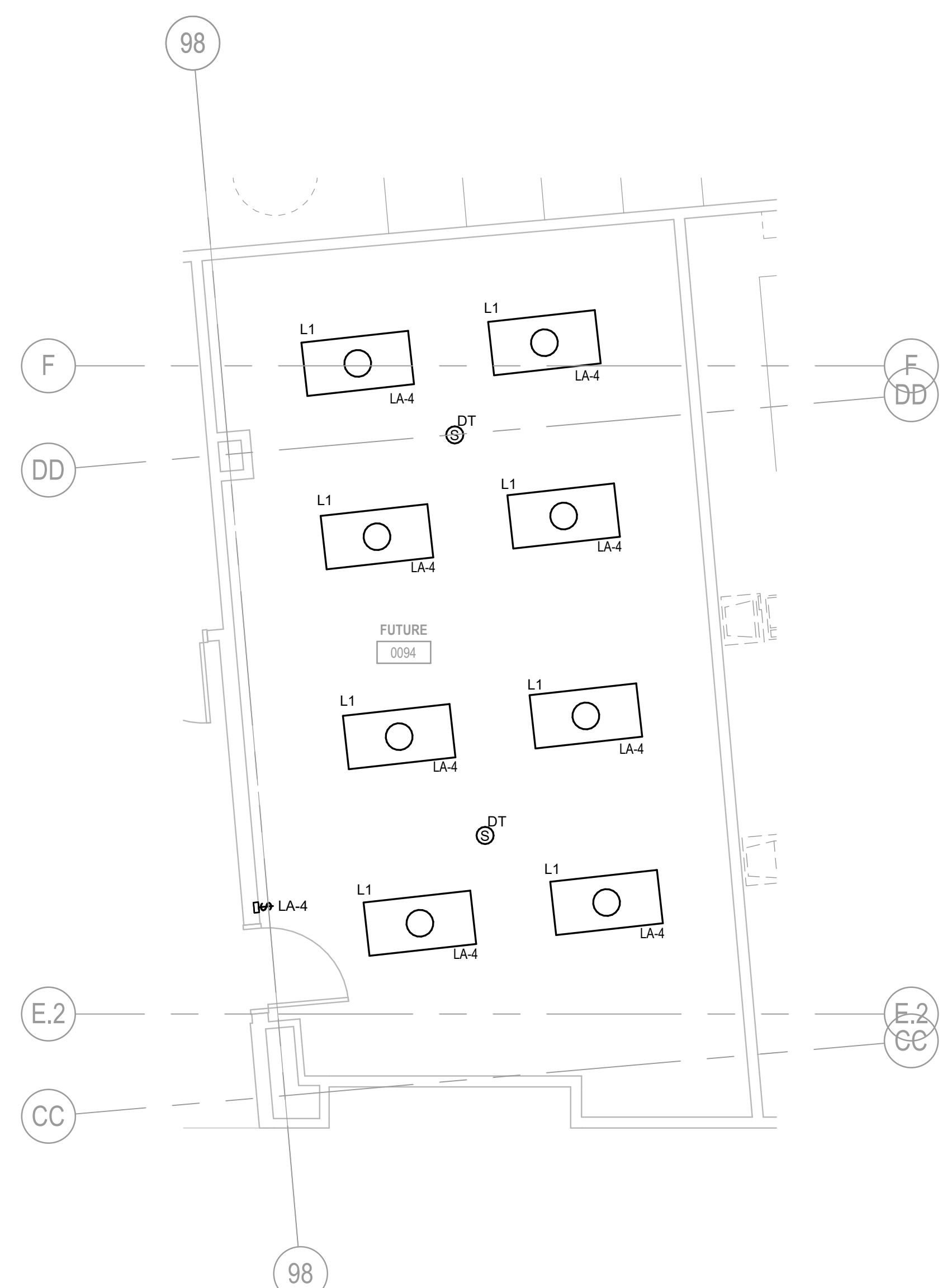
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1 ROOF - POWER PLAN - OVERALL
SCALE: 1/8" = 1'-0"

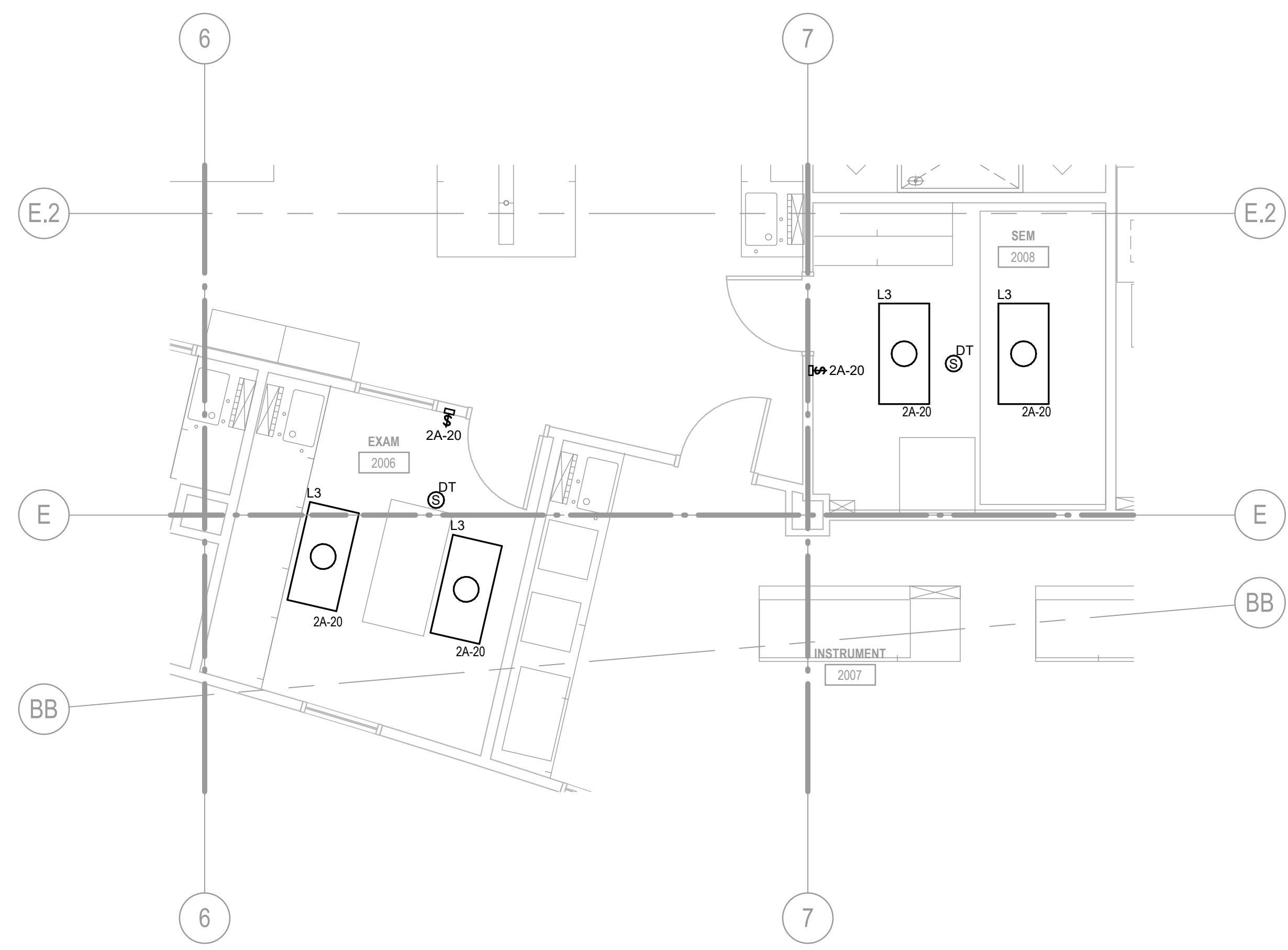




2 LEVEL 2 - LIGHTING PLAN - OVERALL - Callout 1
SCALE: 1/4" = 1'-0"



1 BASEMENT - LIGHTING PLAN - OVERALL - Callout 1
SCALE: 1/4" = 1'-0"



3 LEVEL 2 - LIGHTING PLAN - OVERALL - Callout 2
SCALE: 1/4" = 1'-0"

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Project Title
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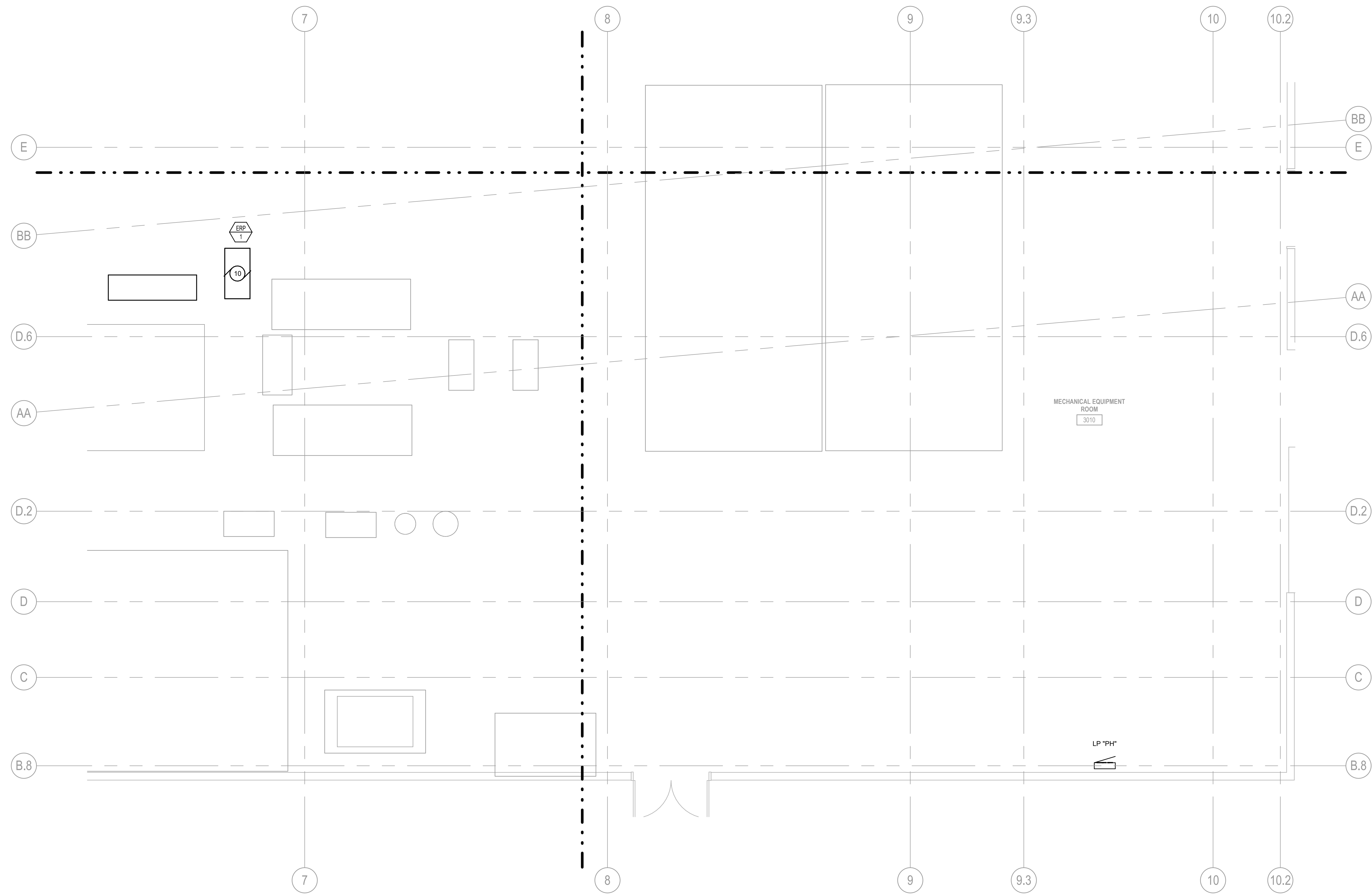
Sheet Title
**ENLARGED
LIGHTING PLANS**

Sheet Number
E4.01

MAIN TYPE: MLO		VOLTAGE: 480/277 Wye		LOCATION: HIGHEST POINT OF ROOFING									
MAIN RATING: 200 A		3 PHASE 4 WIRE		FED FROM: LDP									
BUS RATING: 200 A		MOUNTING: SURFACE		SCCR: 35 kA									
		ENCLOSURE: NEMA 1		CALCULATED AVAILABLE FAULT... kA									
REMARKS:													
LEFT SIDE, kVA			RIGHT SIDE, kVA										
DESCRIPTION	BRKR NOTES	BRKR AMP. POLES	CKT NO	A	B	C	CKT NO	A	B	C	BRKR AMP. POLES	BRKR NOTES	DESCRIPTION
LTS - PENTHOUSE		20 A	1	0.00		0.00	2	1	20 A				LTS - PENTHOUSE
			3				4	3	20 A				TRANSFORMER T3-1
			5				6						
			7			0.00	8						
			9				10	3	20 A				ERP-1
			11				12						
			13			0.00	14						
			15				16						
			17				18						
			19				20						
			21				22						
			23				24						
			25				26						
			27				28						
			29				30						
TOTAL PHASE SUMMARY													
PHASE SUBTOTAL (kVA): 0.01 0.00 0.00													
PHASE SUBTOTAL (AMPS): 0 A 0 A 0 A													
LOAD CLASSIFICATION			CONNECTED (kVA)			DEMAND FACTOR			DEMAND (kVA)				
POWER	0.00 kVA	100%	0.00 kVA			0.00 kVA							
LIGHTING	0.01 kVA	125%	0.01 kVA			0.01 kVA							
MOTOR	0.00 kVA	125% LARGEST, 100% OTHER	0.00 kVA			0.00 kVA							
RECEPTACLE	0.00 kVA	100% FIRST 10kVA, 50% OTHER	0.00 kVA			0.00 kVA							
HEATING	0.00 kVA	125%	0.00 kVA			0.00 kVA							
TOTAL LOAD	0.01 kVA		0.01 kVA			0.01 kVA							
TOTAL AMPS	0 A		0 A			0 A							

E02.1 ELECTRICAL EQUIPMENT CONNECTION SCHEDULE

EQUIPMENT		Appears in Equipment Connection Schedule	MOTOR/EQUIPMENT DATA				CIRCUIT INFORMATION			CONDUIT AND WIRE REQUIREMENTS						
EQ. TAG	EQ. ID		DESCRIPTION	VOLTAGE	PHASE	APPARENT LOAD (kVA)	FLA (A)	MCA (A)	PANEL	CIRCUIT #	CB SIZE	PARALLEL SET	# OF CONDUCTORS	CONDUCTOR SIZE	GROUND CONDUCTOR SIZE	CONDUIT SIZE
1	ERP	ENERGY RECOVERY MOTOR	Yes	480 V	1	0.00 kVA	0 A	0 A	LP "PH"	10,12,14	15 A	1 SET	1	#12	#12 G	3/4" C



1 ROOF - POWER PLAN - OVERALL - Callout 1
SCALE: 1/4" = 1'-0"

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NA

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Author

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Sheet Title
**ENLARGED
POWER PLANS**

Sheet Number
E4.02

LUMINAIRE SCHEDULE

	DESCRIPTION	MANUFACTURER	MODEL NO.	BALLAST/DRIVER		MOUNTING	REMARKS
				TYPE	APPARENT LOAD		
				VOLTAGE			
edit this	edit this	edit this	edit this	INTEGRAL	277 V	0.00 kVA	
L1	RECESSED PANEL LIGHT	LITHONIA	CPANL 2X4 AL06 SWW7 M2 4000-35-55	INTEGRAL	277 V	0.00 kVA	RECESSED ROOM 0094
L2	RECESSED PANEL LIGHT	LITHONIA	CPANL 2X4 AL06 SWW7 M2 6000-35-55	INTEGRAL	277 V	0.00 kVA	RECESSED ROOM 202A & 202B
L3	AIRTIGHT RECESSED LIGHT PANEL	LITHONIA	CPANL 2X4 AL06 SWW7 M2 6000-35-55 DGA24	INTEGRAL	277 V	0.00 kVA	RECESSED ROOM 2006 & 2008

PROGRESS SET
NOT FOR CONSTRUCTION

Issuance and Revisions

Rev	Date	Description

Keyplan

Project Title
**POLICE CRIME LAB
AUTOMATION SYSTEM
REPLACEMENT**

621 W WASHINGTON ST.
PHOENIX, AZ 85007

City of Phoenix Project Number:
PW26480024-1



City of Phoenix

Project Number
23457-00

Date Issued 04/25/23	Scale NA
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Drawn By Author	Checked By Checker
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Sheet Title
**LUMINARE
SCHEDULES**

Sheet Number
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