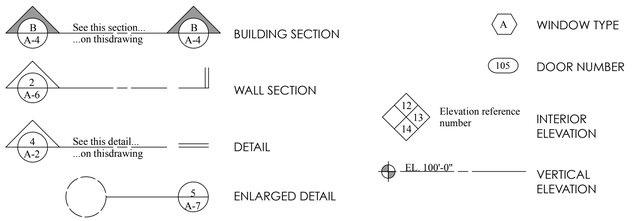
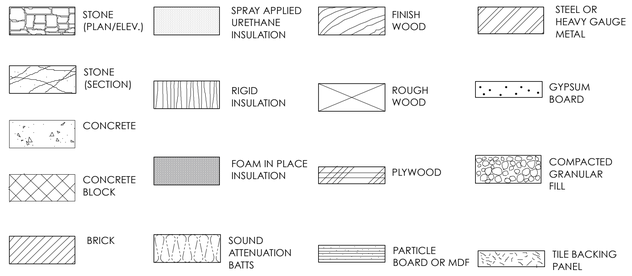
DRAWING SYMBOLS



CONSTRUCTION MATERIALS



ABBREVIATIONS

ABI	additive bid item	FF	finish floor	PNT	paint(ed)
ACT	acoustic ceiling tile	FE	fire extinguisher	PR	pair
ADJ	adjustable	FLG	flashing	PL	plate
AFF	above finish floor	FD	floor drain	PT	pressure treated
ALUM	aluminum	FRT	fire retardant	PWD	plywood
ANC	anchor, anchorage	FTG	footing	REF	refrigerator
ARCH	architect(ural)	FND	foundation	R	riser
BSMT	basement	GA	gage, gauge	RM	room
BIT	bituminous	GALV	galvanized	RO	rough opening
BLKG	blocking	GC	general contract(or)	SAC	suspended acoustic ceiling
BD	board	GWB	gypsum wall board	SHTH	sheathing
BOT	bottom	GFE	Government furnished equipment	SIM	similar
BRK	brick			SPEC	specification(s)
BLDG	building	GFCI	Government furnished-contractor installed	SQ	square
BTWN	between			SS	stainless steel
CB	catch basin	HPDL	high pressure decorative laminate	STD	standard
CJ	control joint			SD	storm drain
CLG	ceiling	HWD	hardwood	STRUC	structural
CT	ceramic tile	HVAC	heating, ventilating & air conditioning	SYS	system
CO	clean out			TBP	tile backing panel
CL	closet	HT	height	TDO	thermoset decorative overlay
CLR	clear(ance)	HOR	horizontal	TEL	telephone
COL	column	ID	inside diameter	TG	tempered glass
CONC	concrete	INSUL	insulation	THK	thick(ness)
CMU	concrete masonry unit	JAN	janitor	TH	threshold
CONT	continuous or continue	JT	joint	T&G	tongue & groove
DP	dampproofing	LAV	lavatory	TOC	top of concrete
DEM	demolish, demolition	MAX	maximum	TOM	top of masonry
DET	detail	MECH	mechanical	TOS	top of steel
DIA	diameter	MFR	manufacturer	TOW	top of wall
DWG	drawing	MH	manhole	T	tread
DF	drinking fountain	MO	masonry opening	TYP	typical
ELEC	electric(al)	MTL	metal	UNO	unless noted otherwise
EL	elevation	MIN	minimum	VERT	vertical
ELEV	elevator	NIC	not in contract	VCT	vinyl composition tile
EQ	equal	NTS	not to scale	VR	vapor retarder
EXG	existing	OC	on center	VT	vinyl tile
EXT	exterior	OD	outside diameter	WG	wire glass
FG	fiberglass	OPNG	opening	W/O	with out
FIN	finish			WD	wood

CODE SUMMARY

NFPA 101, LIFE SAFETY CODE 2015 EDITION

CHAPTER 43: BUILDING REHABILITATION:

BUILDING REHABILITATION CLASSIFICATION:

- WILLEY LIBRARY:
  - RECONSTRUCTION: THE RECONFIGURATION OF A SPACE THAT AFFECTS AN EXIT OR CORRIDOR OR THE RECONFIGURATION OF A SPACE SUCH THAT THE REHABILITATION WORK AREA IS NOT PERMITTED TO BE OCCUPIED BECAUSE EXISTING EGRESS OR PROTECTION SYSTEMS ARE NOT CONTINUOUSLY MAINTAINED.
  - RECONSTRUCTION:
  - NEWLY CONSTRUCTED ELEMENTS AND SYSTEMS MUST MEET THE REQUIREMENTS OF NEW CONSTRUCTION. FEATURES RETAINED AND NOT CHANGED ARE TO COMPLY WITH EXISTING OCCUPANCY CHAPTER.
  - MEANS OF EGRESS SHALL COMPLY WITH REQUIREMENTS OF EXISTING OCCUPANCY CHAPTER EXCEPT FOR THE REQUIREMENTS OF ILLUMINATION AND EMERGENCY LIGHTING.

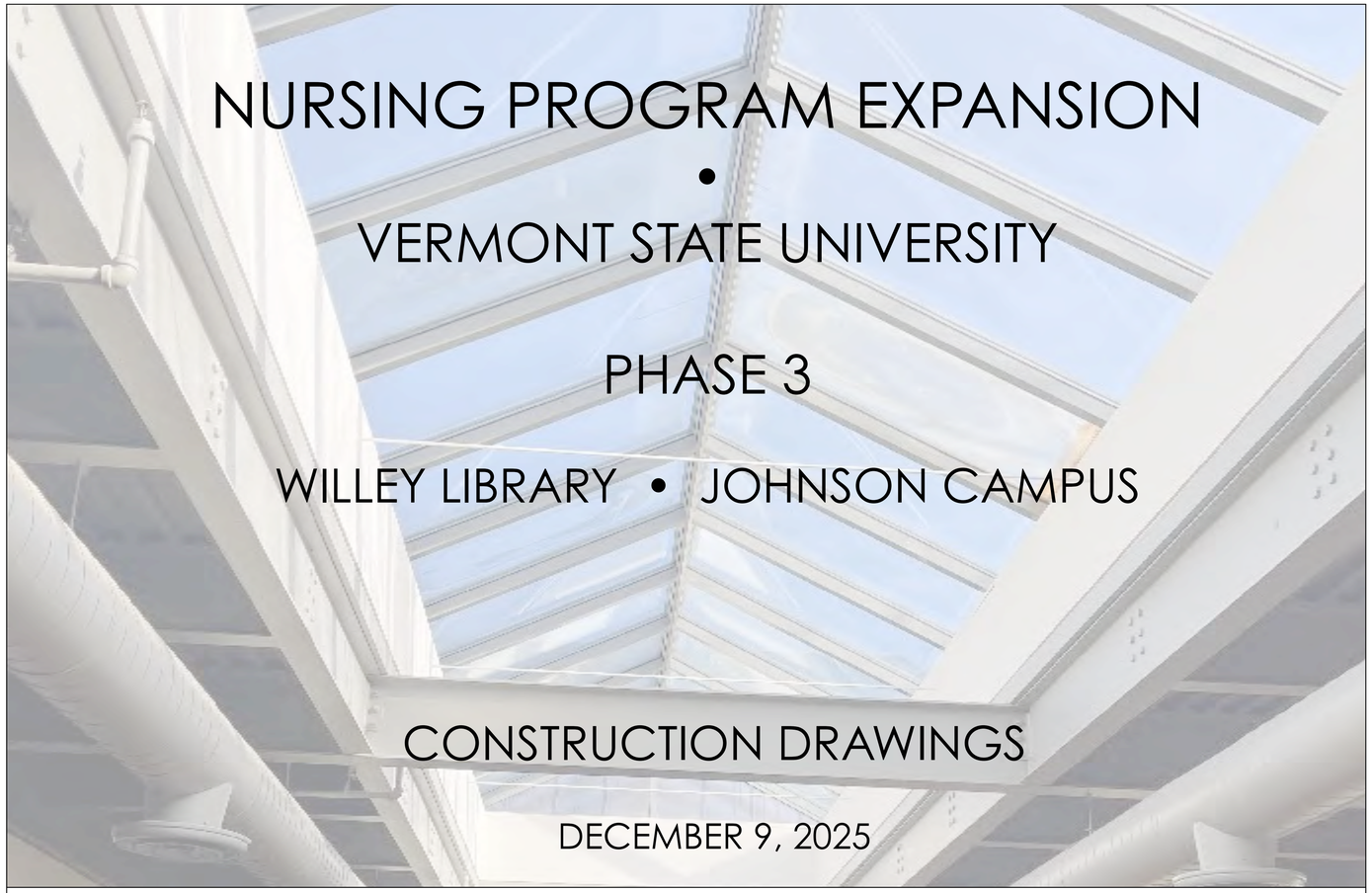
MEANS OF EGRESS ARRANGEMENT:

- BUSINESS - SPRINKLERED (7.6):

	NEW BUSINESS:
COMMON PATH:	100'
DEAD END LIMIT:	50'
TOTAL TRAVEL DISTANCE:	200'

NEW – BUSINESS:
- CLEAR WIDTH OF ANY CORRIDOR SERVING AN OCCUPANT LOAD OF 50 OR MORE SHALL NOT BE LESS THAN 44".
- CORRIDORS SERVING LESS THAN 50 CAN BE 36" WIDE.
- (2) SEPARATE MEANS OF EGRESS REQUIRED FROM EVERY FLOOR AND STORY.
- INTERIOR FINISH – CLASS A OR B IN EXITS AND EXIT ACCESS CORRIDORS. CLASS A, B, OR C IN OTHER AREAS.

NEW BUSINESS – CORRIDORS:
- CORRIDORS ARE NOT REQUIRED TO HAVE FIRE RATINGS IF THE BUILDING IS SPRINKLERED.



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PHASE 3

WILLEY LIBRARY • JOHNSON CAMPUS

CONSTRUCTION DRAWINGS

DECEMBER 9, 2025

LIST OF DRAWINGS

ARCHITECTURAL DRAWINGS

A-1.0 JOHNSON – WILLEY • SECOND FLOOR PLAN DEMOLITION PLAN & WALL TYPES
A-1.1 JOHNSON – WILLEY • SECOND FLOOR PLAN & ROOM FINISHES
A-1.2 JOHNSON – WILLEY • SECOND FLOOR REFLECTED CEILING PLAN
A-2.0 JOHNSON – WILLEY • PARTIAL ROOF PLAN AND DETAILS
A-3.0 JOHNSON – WILLEY • EXTERIOR ELEVATIONS & DETAILS
A-3.1 JOHNSON – WILLEY • BUILDING SECTION AND PENTHOUSE ELEVATION
A-4.0 JOHNSON – WILLEY • INTERIOR ELEVATIONS 1-16
A-4.1 JOHNSON – WILLEY • INTERIOR ELEVATIONS 17-32
A-4.2 JOHNSON – WILLEY • INTERIOR ELEVATIONS 33-36
A-4.3 JOHNSON – WILLEY • INTERIOR ELEVATIONS 37-43
A-4.4 JOHNSON – WILLEY • INTERIOR ELEVATIONS 44-51
A-5.0 JOHNSON – WILLEY • DOOR SCHEDULE, ELEVATIONS AND DETAILS
A-6.0 JOHNSON – WILLEY • INTERIOR DETAILS

MECHANICAL DRAWINGS

M-0.21 MECHANICAL – SECOND FLOOR LEVEL DEMOLITION PLAN
M-0.22 MECHANICAL – SECOND FLOOR LEVEL DEMOLITION PLAN
M-0.31 MECHANICAL – THIRD FLOOR LEVEL DEMOLITION PLAN
M-0.41 MECHANICAL – PENTHOUSE LEVEL MECH. PIPING DEMO. PLAN
M-0.42 MECHANICAL – PENTHOUSE LEVEL DUCTWORK DEMO. PLAN
M-1.11 MECHANICAL – FIRST FLOOR LEVEL NEW WORK PLAN
M-1.21 MECHANICAL – SECOND FLOOR LEVEL NEW WORK PLAN
M-1.22 MECHANICAL – SECOND FLOOR LEVEL NEW WORK PLAN
M-1.31 MECHANICAL – THIRD FLOOR LEVEL NEW WORK PLAN
M-1.41 MECHANICAL – PENTHOUSE LEVEL NEW WORK PLAN
M-1.42 MECHANICAL – SECTIONS AND DETAILS
M-3.01 MECHANICAL – CONTROLS, NOTES, LEGEND & SCHEMATICS
M-3.02 MECHANICAL – CONTROLS SCHEMATICS
M-3.03 MECHANICAL – CONTROLS SCHEMATICS
M5.01 MECHANICAL – EQUIPMENT SCHEDULES AND DETAILS
M5.02 MECHANICAL – EQUIPMENT SCHEDULES AND DETAILS
M5.03 MECHANICAL – EQUIPMENT SCHEDULES AND DETAILS

PLUMBING DRAWINGS

P-0.41 PLUMBING – PENTHOUSE LEVEL DEMOLITION PLAN
P-1.11 PLUMBING – FIRST FLOOR LEVEL NEW WORK PLAN
P-1.21 PLUMBING – SECOND FLOOR LEVEL NEW WORK PLAN
P-1.22 PLUMBING – FIXTURE SCHEDULE AND DETAILS
P-1.41 PLUMBING – PENTHOUSE LEVEL NEW WORK PLAN

ELECTRICAL DRAWINGS

E-0.21 ELECTRICAL – SECOND FLOOR LEVEL DEMOLITION PLAN
E-0.22 ELECTRICAL – SECOND FLOOR LEVEL DEMOLITION PLAN
E-0.41 ELECTRICAL – PENTHOUSE LEVEL DEMOLITION PLAN
E-1.21 ELECTRICAL – SECOND FLOOR LEVEL POWER & S.S. NEW WORK PLAN
E-1.22 ELECTRICAL – SECOND FLOOR LEVEL POWER & S.S. NEW WORK PLAN
E-1.41 ELECTRICAL – PENTHOUSE LEVEL NEW WORK PLAN
E-2.21 ELECTRICAL – SECOND FLOOR LEVEL LIGHTING NEW WORK PLAN
E2.22 ELECTRICAL – SECOND FLOOR LEVEL LIGHTING NEW WORK PLAN
E5.01 ELECTRICAL – NOTES, LEGEND AND SCHEDULES
E5.02 ELECTRICAL – EQUIPMENT AND PANEL SCHEDULES
E6.01 ELECTRICAL – TYPICAL DETAILS AND DIAGRAMS
E6.02 ELECTRICAL – TYPICAL DETAILS AND DIAGRAMS

FIRE PROTECTION

FP-0.21 FIRE PROTECTION – SECOND FLOOR LEVEL DEMOLITION PLAN
FP-0.22 FIRE PROTECTION – SECOND FLOOR LEVEL DEMOLITION PLAN
FP-1.21 FIRE PROTECTION – SECOND FLOOR LEVEL NEW WORK PLAN
FP-1.22 FIRE PROTECTION – SECOND FLOOR LEVEL NEW WORK PLAN
FP-1.41 FIRE PROTECTION – PENTHOUSE LEVEL DEMO. & NEW WORK PLAN

ALTERNATE MEP DRAWINGS

MECHANICAL

M-0.21 MECHANICAL – SECOND FLOOR LEVEL DEMOLITION PLAN
M-0.22 MECHANICAL – SECOND FLOOR LEVEL DEMOLITION PLAN
M-0.31 MECHANICAL – THIRD FLOOR LEVEL DEMOLITION PLAN
M-0.41 MECHANICAL – PENTHOUSE LEVEL MECH. PIPING DEMO. PLAN
M-0.42 MECHANICAL – PENTHOUSE LEVEL DUCTWORK DEMO. PLAN
M-1.21 MECHANICAL – SECOND FLOOR LEVEL NEW WORK PLAN
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M-1.42 MECHANICAL – PENTHOUSE LEVEL NEW WORK PLAN
M-3.01 MECHANICAL – CONTROLS, NOTES, LEGEND & SCHEMATICS
M-3.02 MECHANICAL – CONTROLS SCHEMATICS
M5.01 MECHANICAL – EQUIPMENT SCHEDULES AND DETAILS
M5.02 MECHANICAL – EQUIPMENT SCHEDULES AND DETAILS

PLUMBING

P-0.41 PLUMBING – PENTHOUSE LEVEL DEMOLITION PLAN
P-1.11 PLUMBING – FIRST FLOOR LEVEL NEW WORK PLAN
P-1.21 PLUMBING – SECOND FLOOR LEVEL NEW WORK PLAN
P-1.22 PLUMBING – FIXTURE SCHEDULE AND DETAILS
P-1.41 PLUMBING – PENTHOUSE LEVEL NEW WORK PLAN

ELECTRICAL

E0.41 ELECTRICAL – PENTHOUSE LEVEL DEMOLITION PLAN
E-1.21 ELECTRICAL – SECOND FLOOR LEVEL POWER & S.S. NEW WORK PLAN
E-1.41 ELECTRICAL – PENTHOUSE LEVEL NEW WORK PLAN
E5.01 ELECTRICAL – NOTES, LEGEND AND SCHEDULES
E5.02 ELECTRICAL – EQUIPMENT AND PANEL SCHEDULES

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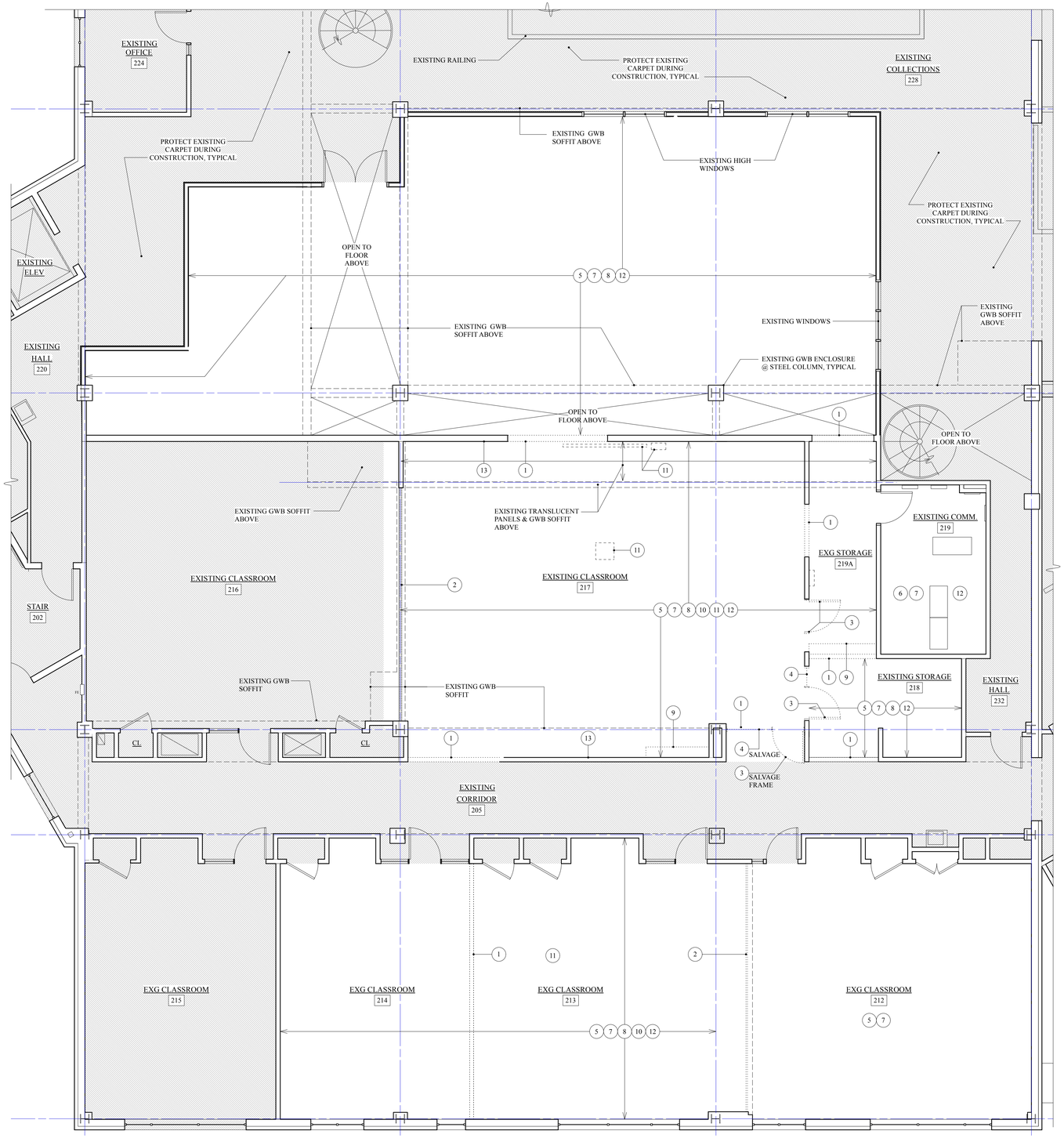
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JOHNSON CAMPUS

SAS PROJECT NO. 1612



PROJECT NORTH

PARTIAL ENLARGED SECOND FLOOR DEMOLITION PLAN

3/16" = 1'-0"

DEMOLITION DRAWING KEY

EXISTING CONSTRUCTION TO REMAIN

EXISTING CONSTRUCTION TO BE REMOVED

(2) SEE DEMOLITION NOTE

NOTE:
ALL DIMENSIONS AND RELATIONSHIPS OF THE EXISTING BUILDING ARE APPROXIMATE. THE DRAWINGS ARE BASED ON CONSTRCUTION DRAWINGS PROVIDED BY VTSU JOHNSON, BY GOSSENS BACHMAN, DATED 1/11/1995 AND PARTIAL FIELD VERIFICATION IN NOVEMBER 2023.

GENERAL DEMOLITION NOTES

A. THE DEMOLITION DRAWINGS ARE GENERAL IN NATURE AND ARE NOT INTENDED TO SHOW ALL DEMOLITION REQUIREMENTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ALL DEMOLITION NECESSARY FOR CONSTRUCTION OF THE PROJECT.

B. NOTIFY THE ARCHITECT IMMEDIATELY, IN WRITING, OF ANY SIGNIFICANT VARIATIONS IN FIELD CONDITIONS FROM THOSE SHOWN ON THE DEMOLITION DRAWINGS.

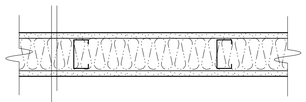
C. VTSU TO REMOVE ALL AV EQUIPMENT PRIOR TO CONSTRUCTION.

D. CONTRACTOR IS RESPONSIBLE FOR THE DEMO/RELOCATION OF ALL MECHANICAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION NECESSARY FOR THE CONSTRUCTION OF THE PROJECT.

E. CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL OF ALL WHITEBOARDS AND CORK BOARDS NECESSARY FOR THE CONSTRUCTION OF THE PROJECT. VTSU TO IDENTIFY BOARDS TO SALVAGE.

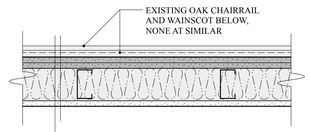
DEMOLITION NOTES:

1. REMOVE GWB PARTITION AS REQUIRED FOR NEW CONSTRUCTION.
2. REMOVE MOVABLE PARTITION, TRACK AND HARDWARE COMPLETE. EXISTING SOFFIT TO REMAIN
3. REMOVE DOOR, FRAME, AND HARDWARE. SALVAGE IF NOTED.
4. REMOVE INTERIOR HM FRAMED WINDOW OR SIDELIGHT. SALVAGE IF NOTED.
5. REMOVE CARPET FLOORING.
6. REMOVE VCT FLOORING.
7. REMOVE VINYL WALL BASE.
8. REMOVE SUSPENDED OR GRID MOUNTED LIGHT FIXTURE.
9. REMOVE CABINET OR SHELVING. DELIVER TO OWNER.
10. REMOVE ALL WHITE BOARDS WITHIN ROOM AND DELIVER TO OWNER
11. REMOVE PROJECTION SCREEN AND PROJECTOR. SALVAGE FOR REUSE.
12. REMOVE SUSPENDED ACOUSTIC TILE CEILING IN ROOM.
13. REMOVE PERIMETER WIRE MOULD AND CEILING DROPS.



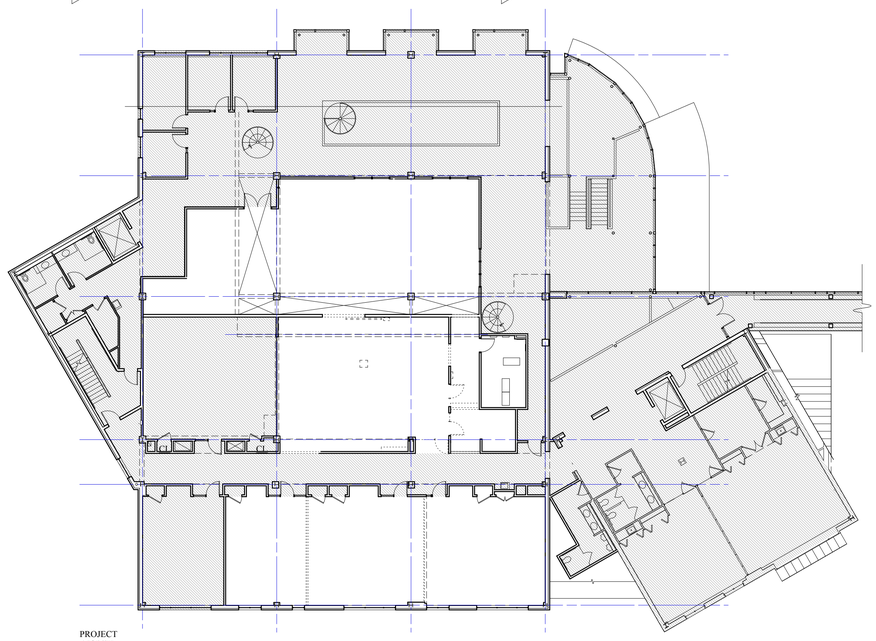
- 5/8" TYPE X GWB, TAPE AND PAINT
- 3 5/8" METAL FRAMING @ 16" O.C. @ TYPICAL
- 3 1/2" SOUNDS ATTENUATION BATTS
- NO SOUND BATTS AT SIMILAR
- 5/8" TYPE X GWB, TAPE AND PAINT

1 INTERIOR ACOUSTIC PARTITION
1 1/2"=1'-0"



- EXISTING 5/8" GWB (OR PWD BACKER BEHIND OAK WAINSCOT)
- EXISTING 5/8" GWB
- EXISTING 3 5/8" METAL FRAMING @ 16" O.C.
- 3 1/2" SOUNDS ATTENUATION BATTS
- 5/8" TYPE X GWB, TAPE AND PAINT

2 INTERIOR ACOUSTIC PARTITION
1 1/2"=1'-0"



PROJECT NORTH

OVERALL SECOND FLOOR DEMOLITION PLAN

1/16" = 1'-0"

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PROJECT

NURSING EXPANSION

PHASE 3

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SECOND FLOOR DEMOLITION PLAN & WALL TYPES

A-1.0

WALL CONSTRUCTION NOTES:

1. PROVIDE SOUND ATTENUATION BATTS IN GWB PARTITIONS AS INDICATED IN THE WALL TYPES. WALL TYPES THAT INCLUDE SOUND ATTENUATION BATTS ARE CONSIDERED "ACOUSTIC PARTITIONS". EXTEND ALL GWB ACOUSTIC PARTITIONS TO THE UNDERSIDE OF CORRUGATED METAL DECK AND STRUCTURE ABOVE. WHERE STRUCTURE DOES NOT FALL COMPLETELY WITHIN THE ACOUSTIC PARTITION, EXTEND THE WALL CONSTRUCTION TO ENCLOSE THE STRUCTURE WITHIN. SEAL ACOUSTIC GWB PARTITIONS AT TOP, BOTTOM AND SIDES WITH ACOUSTIC OR FIRE SEALANT. THE GWB IS AN INTEGRAL PART OF THE ACOUSTIC ASSEMBLY AND ALL JOINTS, CONCEALED AND EXPOSED, MUST BE TAPED. STUFF DECK FLUTES W/ SOUND ATTENUATION BATTS AT ACOUSTIC PARTITIONS. STUFF DECK FLUTES WITH COMPRESSED MINERAL WOOL. COPE ALL LAYERS OF GWB TO UNDERSIDE PROFILE OF CORRUGATED METAL DECK. LEAVE 1/4" TO 1/2" JOINT AND FILL WITH ACOUSTIC SEALANT.
2. PROVIDE BLOCKING AT GWB WALLS AT ALL WALL HUNG ITEMS.
3. ANY INTERIOR FRAMING OVER 6" DEPTH AND/OR 23'-0" IN HEIGHT, TO BE COLD FORMED METAL.
4. ELECTRICAL BOXES AT ALL ACOUSTIC AND FIRE RATED WALLS:
   - BOXES ON SAME SIDE OF WALL MAY SHARE SAME STUD CAVITY (BOXES MAY BE SIDE BY SIDE OR STACKED).
   - BOXES ON OPPOSITE SIDES OF WALL MUST USE ALTERNATE STUD CAVITIES (BOXES MAY NOT BE BACK TO BACK).
5. VTSU HAS PURCHASED THE NURSING BEDS AND THE BEDSARE CURRENTLY STORED IN AN ADJACENT BUILDING ON CAMPUS. IT WILL BE THE CONTACTOR'S RESPONSIBILITY TO MOVE THE BEDS FROM THEIR STORED LOCATION TO THE SECOND FLOOR NURSING SPACES IDENTIFIED AS HAVING BEDS.

ROOM FINISH SCHEDULE

	FINISH	REMARKS
WALLS		
W1	EXISTING GWB	PATCH AND PAINT
W2	GWB	TAPE AND PAINT
W3	GWB, LEVEL 5 FINISH	TAPE, PRIME & APPLY PROJECTION SCREEN PAINT
BASE/ TYPE		
B1	EXISTING RUBBER	
B2	RUBBER	
FLOORS		
F1	EXISTING CARPET (BROADLOOM)	PATCH AS REQUIRED
F2	EXISTING VCT	PATCH AS REQUIRED
F3	CARPET	MODULAR CARPET TILE, TYPE 1
F4	LINOLEUM	2" x 2" TILE
F5	VCT	MATCH EXISTING
F6	CARPET	MODULAR CARPET TILE, TYPE 2

DRAWING KEY

- EXISTING CONSTRUCTION TO BE REMOVED
- EXISTING CONSTRUCTION TO REMAIN
- NEW CONSTRUCTION

TYPICAL DRAWING NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL DIMENSIONS IN THE FIELD AND WILL PROMPTLY NOTIFY THE OWNER OF ANY DISCREPANCIES. IN THE CASE OF DISCREPANCIES THE OWNER WILL ISSUE REVISIONS IN WRITING WITHIN SEVEN CALENDAR DAYS.
2. ALL DIMENSIONS ARE FROM THE FACE OF EXISTING FINISHED WALL SURFACE OR METAL FRAMING UNLESS NOTED OTHERWISE.
3. EXTEND ACOUSTIC WALL SYSTEMS TO UNDERSIDE OF CEILING / DECK ABOVE. SEAL TOP, BOTTOM AND SIDES WITH ACOUSTIC SEALANT.
4. ACOUSTIC WALLS REQUIRE ACOUSTICAL SEALING OF ANY PENETRATION INCLUDING ELECTRICAL BOXES. NO BACK TO BACK JUNCTION BOXES PERMITTED. BOXES TO BE OFFSET 12" MINIMUM.

LEGEND

WALL FINISHES: W2 / W1 / W2

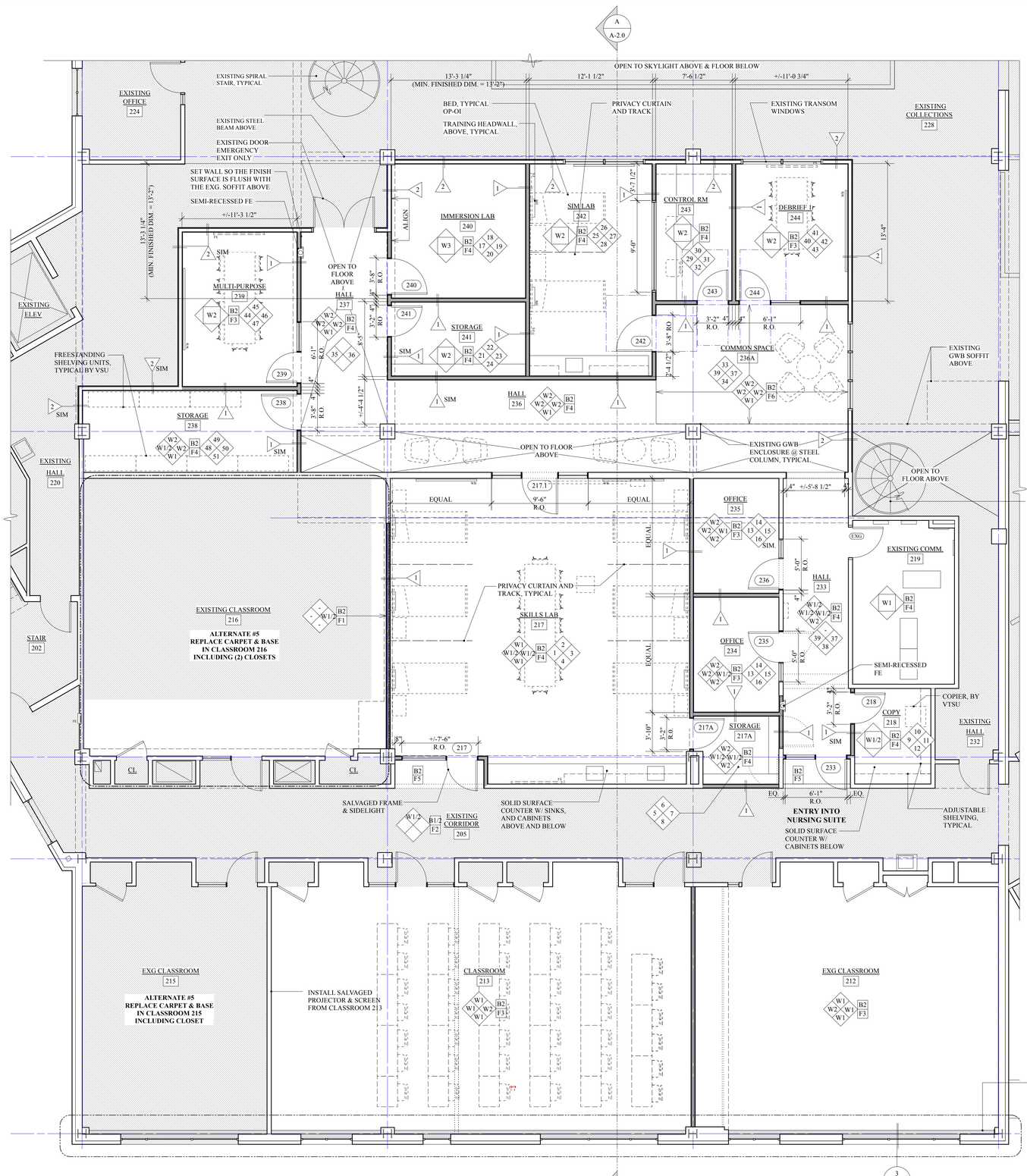
B1 — BASE FINISH

F1 — FLOOR FINISH

1 — WALL TYPE

2 / 1 — INTERIOR ELEVATION KEY

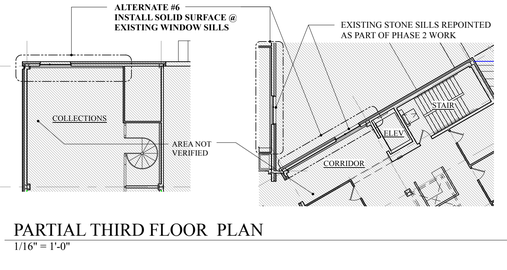
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PROJECT NORTH

PARTIAL ENLARGED SECOND FLOOR PLAN

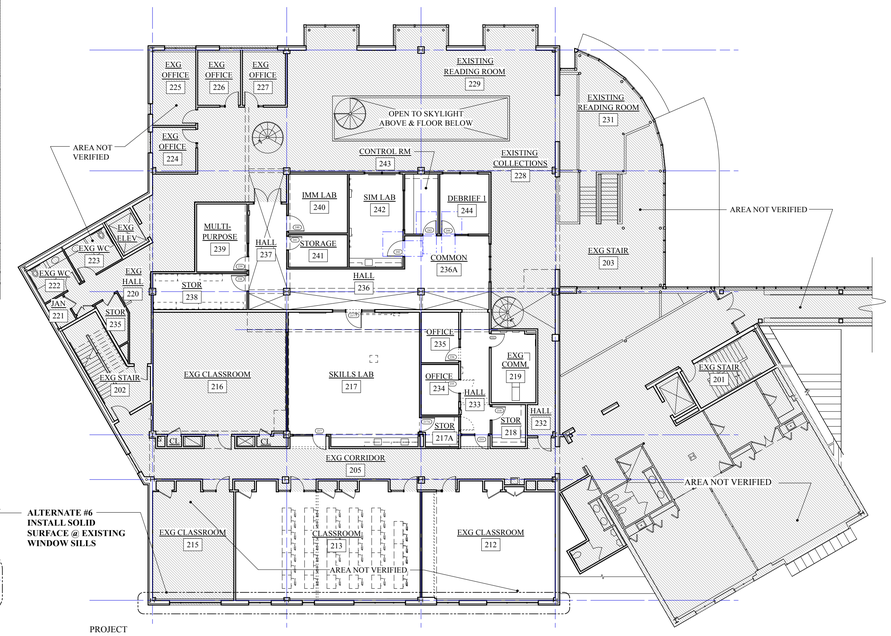
3/16" = 1'-0"



PROJECT NORTH

PARTIAL THIRD FLOOR PLAN

1/16" = 1'-0"



PROJECT NORTH

OVERALL SECOND FLOOR PLAN

1/16" = 1'-0"

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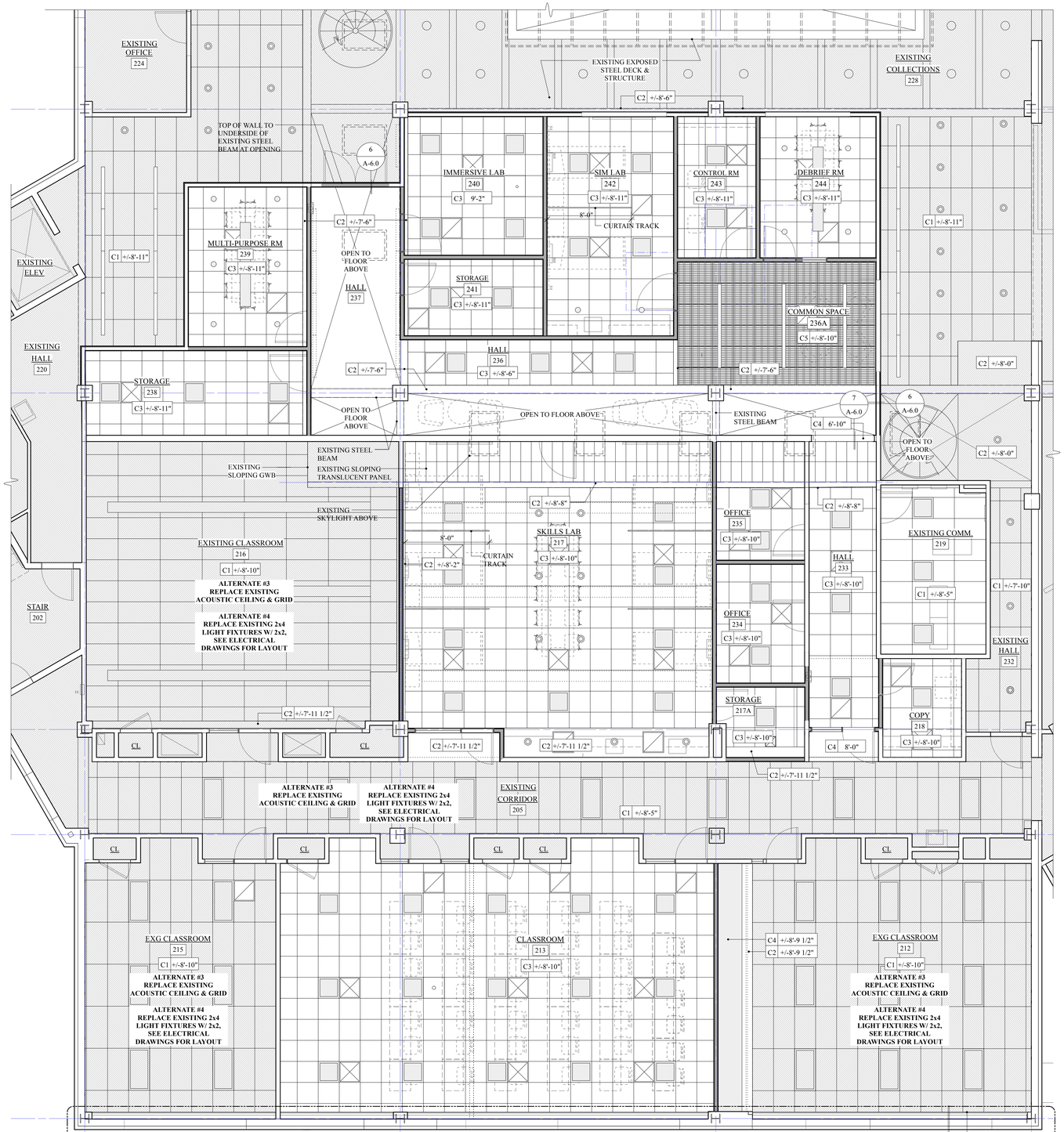
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SECOND FLOOR PLAN & ROOM FINISHES

A-1.1

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PARTIAL ENLARGED SECOND FLOOR REFLECTED CEILING PLAN
3/16" = 1'-0"

TYPICAL CEILING NOTES

1. CEILING PLAN IS GENERAL IN NATURE AND DOES NOT INDICATE SPRINKLER, SMOKE DETECTORS, EXIT SIGNS AND SIMILAR DEVICES.
2. REMOVE EXISTING LIGHT FIXTURES AS REQUIRED FOR NEW CONSTRUCTION.

CEILING FINISH SCHEDULE

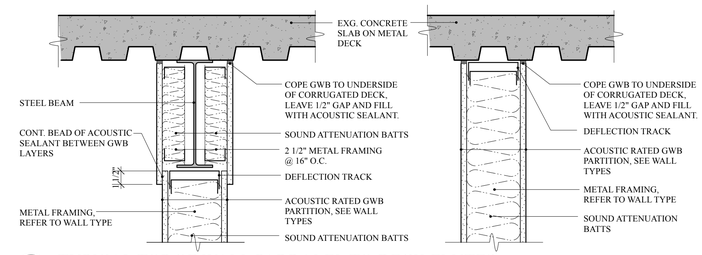
		REMARKS
C1	EXISTING SAC	
C2	EXISTING GWB OR GWB SOFFIT	PATCH & PAINT
C3	2 x 2 SUSPENDED ACOUSTIC CEILING	
C4	GWB OR GWB SOFFIT	
C5	SUSPENDED WOOD SLAT CEILING	

DRAWING KEY

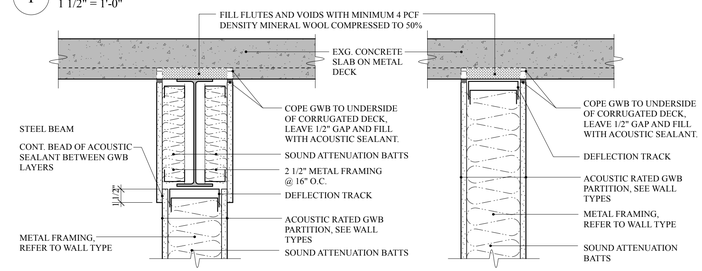
- EXISTING CONSTRUCTION TO BE REMOVED
- EXISTING CONSTRUCTION TO REMAIN
- NEW CONSTRUCTION

CEILING LEGEND [EXISTING]

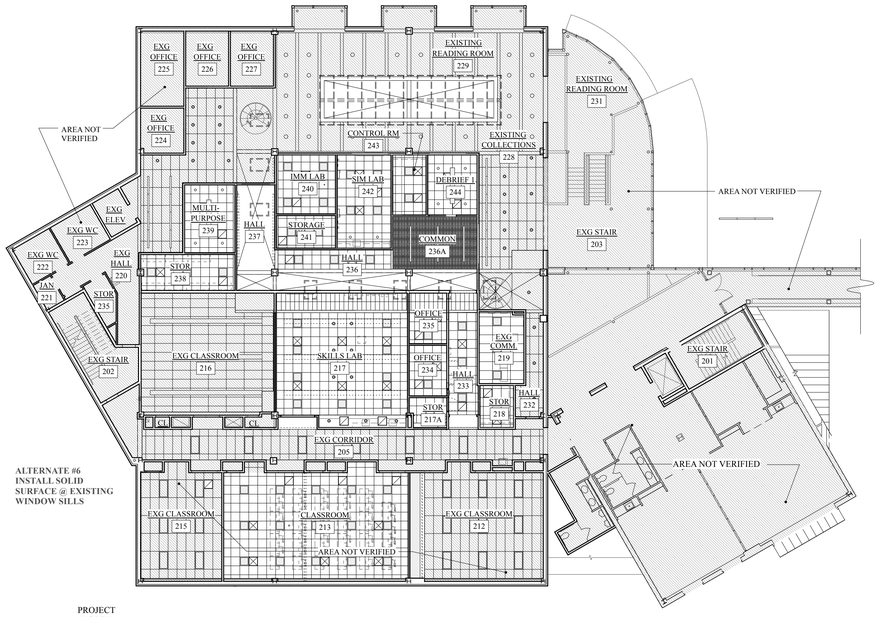
- C1 8'-0" — CEILING FINISH / CEILING HEIGHT
- EXISTING PENDANT MOUNTED LIGHT FIXTURE
- EXISTING RECESSED CAN LIGHT FIXTURE
- EXISTING SURFACE OR PENDANT MOUNTED LIGHT FIXTURE
- EXISTING SAC LAY IN LIGHT FIXTURES



1 TYPICAL TOP OF WALL PARRALEL TO DECK FLUTES
1 1/2" = 1'-0"



2 TYPICAL TOP OF WALL PERPENDICULAR TO DECK FLUTES
1 1/2" = 1'-0"



OVERALL SECOND FLOOR REFLECTED CEILING PLAN
1/16" = 1'-0"

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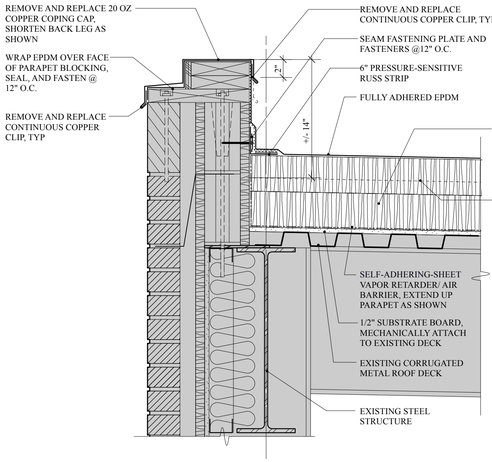
PROJECT
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DATE: DECEMBER 9, 2025
SCALE: NOTED
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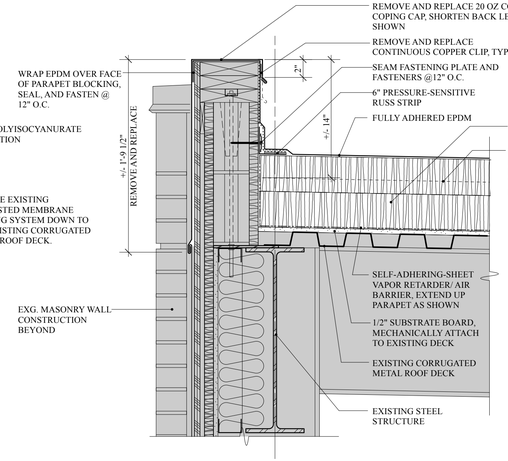
REVISIONS

SECOND FLOOR REFLECTED CEILING PLAN

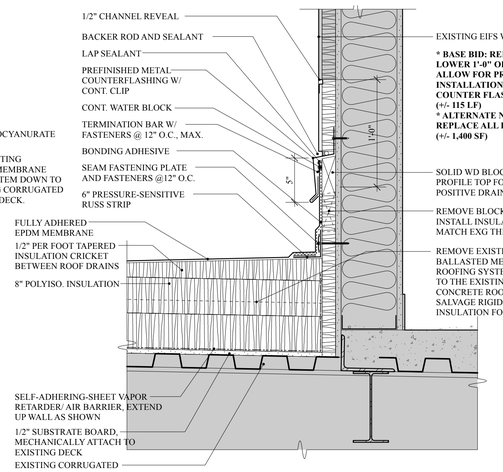
A-1.2



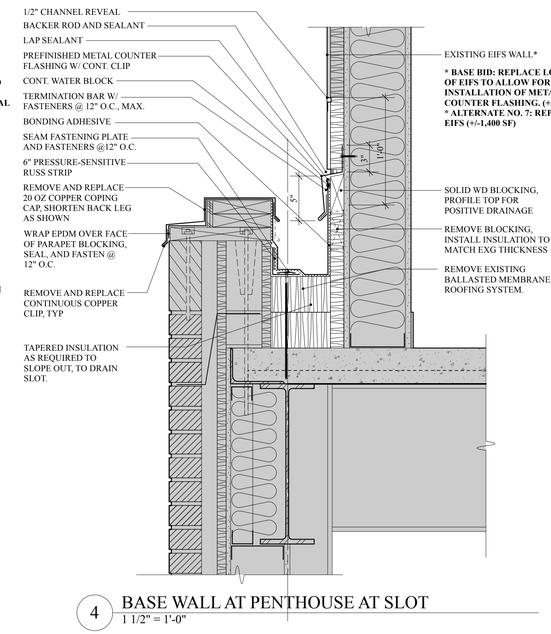
1 TYPICAL PARAPET DETAIL
1 1/2" = 1'-0"



2 PARAPET DETAIL AT VERTICAL REVEAL
1 1/2" = 1'-0"



3 BASE WALL AT PENTHOUSE
1 1/2" = 1'-0"



4 BASE WALL AT PENTHOUSE AT SLOT
1 1/2" = 1'-0"

GENERAL ROOFING NOTES:

1. COMPLETELY REMOVE AND LEGALLY DISPOSE OF ROOFING MATERIAL INDICATED TO BE REMOVED.
2. ORGANIZE AND PERFORM THE WORK TO MINIMIZE THE DANGER OF DAMAGE TO THE EXISTING BUILDING. PROTECT THE BUILDING INTERIORS FROM DAMAGE AT ALL TIMES. PERFORM DEMOLITION WORK ONLY IN CLEAR WEATHER.
3. TO MAINTAIN BUILDING IN WEATHER TIGHT CONDITIONS AT ALL TIMES, DO NOT REMOVE MORE ROOFING THAN CAN BE REPLACED THE SAME DAY. ANY DAMAGE RESULTING FROM FAILURE TO MAINTAIN A WEATHER TIGHT BUILDING WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. REMOVE EXISTING LOOSE LAID ROOF INSULATION AND DISCARD.
5. INSTALL 6" POLYISO INSULATION AND TAPERED AS DETAILED ON EXISTING METAL ROOF DECK. MECHANICALLY ATTACH ALL LAYERS. IT IS THE CONTRACTORS RESPONSIBILITY TO IDENTIFY WHERE EXISTING CONDUIT AND/OR PIPING OCCUR, AND TO LAYOUT AND SIZE FASTENERS TO AVOID DAMAGE.
6. ROOFING CONTRACTOR IS RESPONSIBLE FOR DISCONNECTING / RECONNECTING ANY DUCTWORK, VENTS, ELECTRICAL CONNECTION, ETC IN CONJUNCTION WITH REROOFING.
7. THE BUILDING IS OCCUPIED, MAINTAIN SAFE ACCESS AND EGRESS AT ALL TIMES.
8. ALL ACCESS POINTS FOR REMOVAL OF MATERIALS AND STAGING FOR NEW MATERIALS WILL BE COORDINATED WITH THE OWNER.
9. EXISTING ROOF DRAIN BODIES TO REMAIN. REPLACE CAGES WHERE MISSING OR BROKEN. INSTALL TAPERED INSULATION SUMP INSERTS AT DRAINS AND LAP THE MEMBRANE INTO THE DRAIN BODY AS REQUIRED. INSTALL IN ACCORDNANCE WITH THE MEMBRANE MANUFACTURER'S STANDARD INSTALLATION INSTRUCTIONS, TYPICAL AT [2] ROOF DRAINS.
10. INSTALL FULLY ADHERED ROOFING SYSTEM.
11. PROTECT EXISTING LANDSCAPE SHRUBS, TREES, ETC.
12. RESTORE ALL LAWNS DAMAGED BY CONSTRUCTION WITH TOPSOIL, SEED, AND MULCH.
13. ALL CONSTRUCTION DEBRIS TO BE PICKED UP ON A DAILY BASIS.

ROOF LEGEND

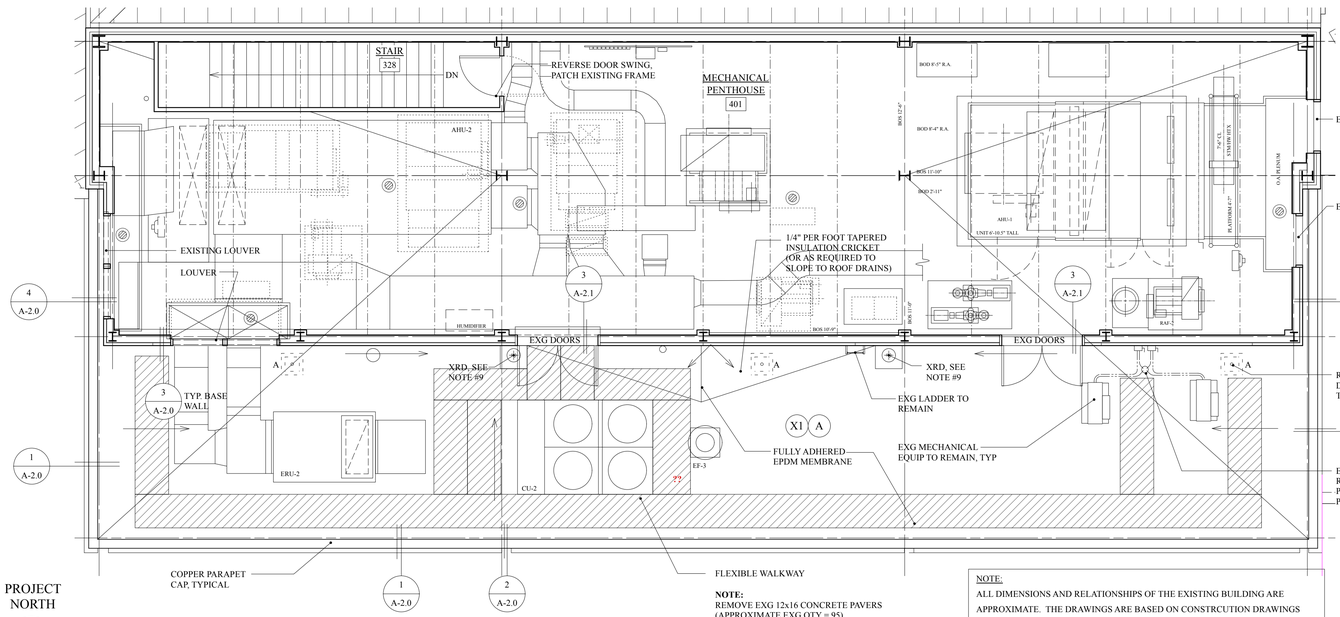
- FULLY ADHERED MEMBRANE ROOFING SYSTEM / 90 MIL, 30-YEAR WARRANTY
- XVTR — EXISTING VENT THROUGH ROOF
- XRD — EXISTING ROOF DRAIN
- A — ROOF ANCHOR
- SLOPE — DIRECTION OF ROOF SLOPE

REMOVE EXISTING ROOF SYSTEM

X1
- COPPER PARAPET CAP **(REMOVE)**
- STONE BALLAST **(REMOVE)**
- ROOF MEMBRANE (45 MIL) **(REMOVE)**
- TAPERED INSULATION, LOOSE LAID **(REMOVE)**
- RIGID INSULATION, LOOSE LAID **(REMOVE)**
- SLOPED METAL ROOF DECK - **TO REMAIN**

ROOF SYSTEM

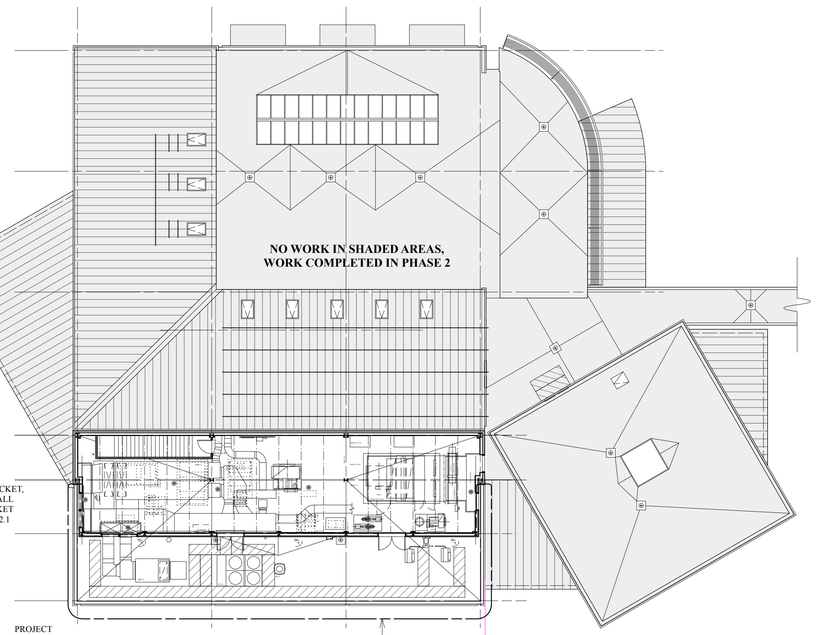
A
- EPDM ROOFING MEMBRANE, FULLY ADHERED
- 4" POLYISO INSULATION, FULLY ADHERED
- 4" POLYISO INSULATION, MECHANICALLY ATTACHED
- SELF-ADHERING-SHEET VAPOR RETARDER/ AIR BARRIER
- 1/2" SUBSTRATE BOARD, MECHANICALLY ATTACHED
- EXISTING SLOPED METAL ROOF DECK



PROJECT NORTH

ENLARGED PENTHOUSE AND PARTIAL ROOF PLAN
3/16" = 1'-0"

NOTE:
ALL DIMENSIONS AND RELATIONSHIPS OF THE EXISTING BUILDING ARE APPROXIMATE. THE DRAWINGS ARE BASED ON CONSTRCUTION DRAWINGS PROVIDED BY VTSU JOHNSON, BY GOSSENS BACHMAN, DATED 1/11/1995 AND PARTIAL FIELD VERIFICATION IN NOVEMBER 2023.



PROJECT NORTH

OVERALL ROOF PLAN
1/16" = 1'-0"

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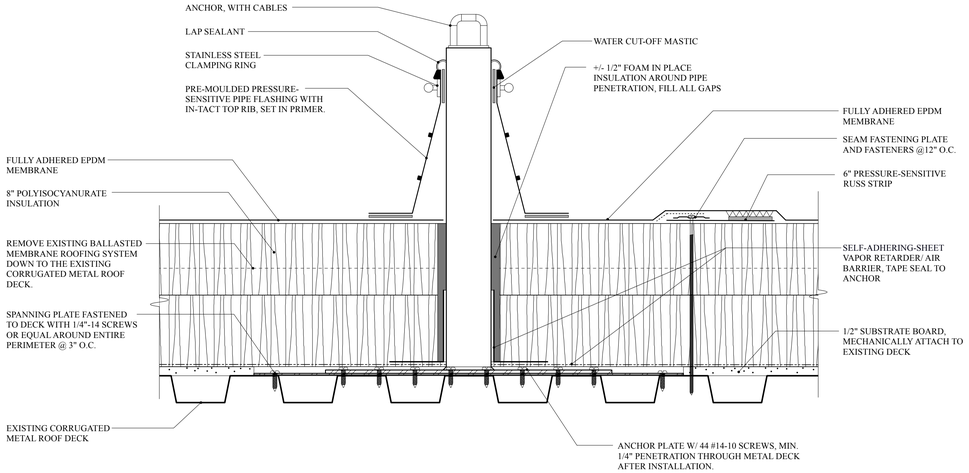
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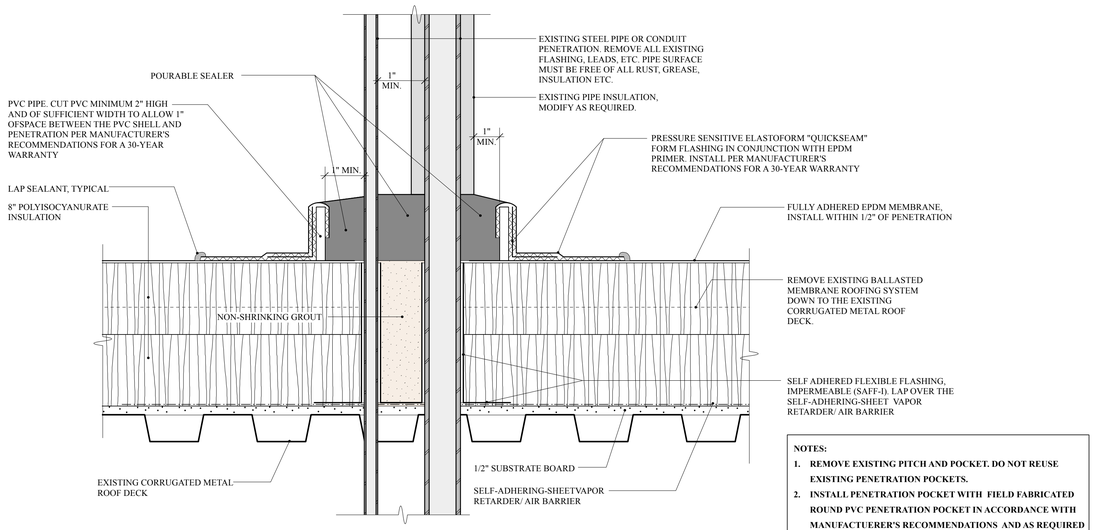
REVISIONS

PARTIAL ROOF PLAN AND DETAILS

A-2.0



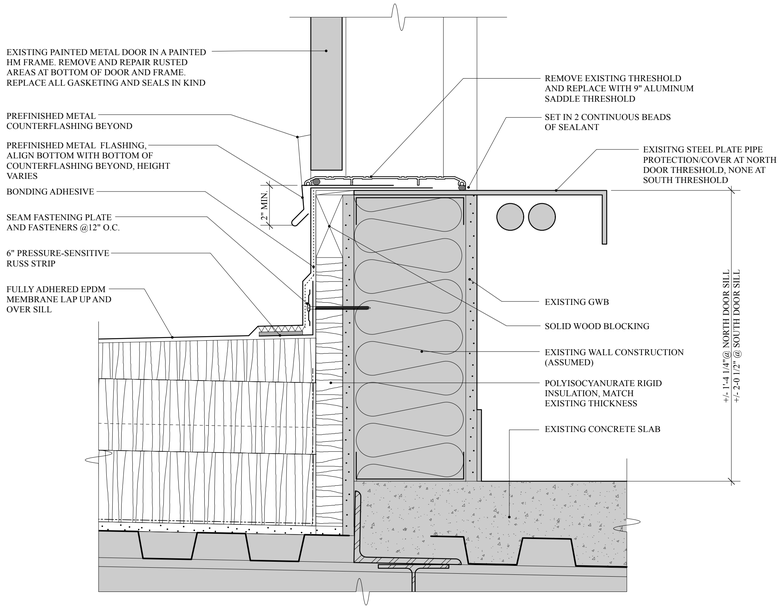
1 ROOF ANCHOR DETAIL
3" = 1'-0"



NOTES:

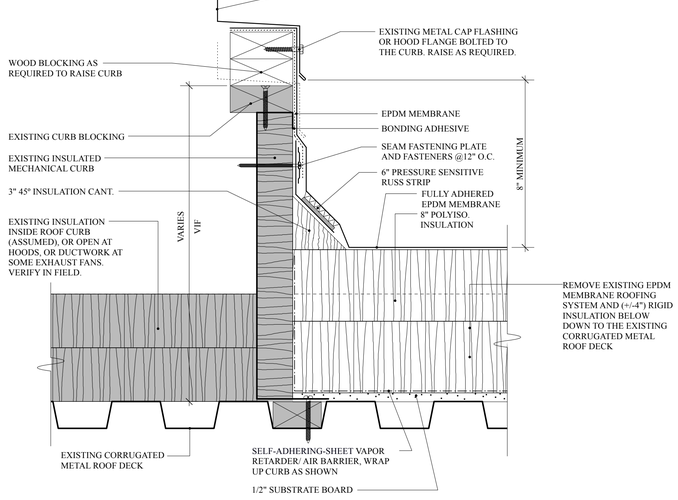
1. **REMOVE EXISTING PITCH AND POCKET. DO NOT REUSE EXISTING PENETRATION POCKETS.**
2. **INSTALL PENETRATION POCKET WITH FIELD FABRICATED ROUND PVC PENETRATION POCKET IN ACCORDANCE WITH MANUFACTUERER'S RECOMMENDATIONS AND AS REQUIRED FOR A 30-YEAR WARRANTY. REFER TO MANUFACTUER'S WEBSITE FOR MOST CURRENT INFORMATION.**

2 PIPE/PENETRATION POCKET PENETRATION
3" = 1'-0"



3 DOOR THRESHOLDS AT PENTHOUSE
3" = 1'-0"

DESIGN INTENT:
AT ALL CURB MOUNTED FANS, HOODS, AND EQUIPMENT, REMOVE SHEET METAL CURB MOUNTED FAN, HOOD OR EQUIPMENT. INSTALL BLOCKING AS REQUIRED TO RAISE THE CURB UP AND PROVIDE A MINIMUM OF 8" EPDM FLASHING HEIGHT UP THE CURB. FLASH THE NEW EPDM MEMBRANE OVER THE TOP OF THE CURB AND REINSTALL THE FAN, HOOD, OR EQUIPMENT.



4 EQUIPMENT CURB
3" = 1'-0"

(SIMILAR AT NEW FACTORY CURB MOUNTED EQUIPMENT)

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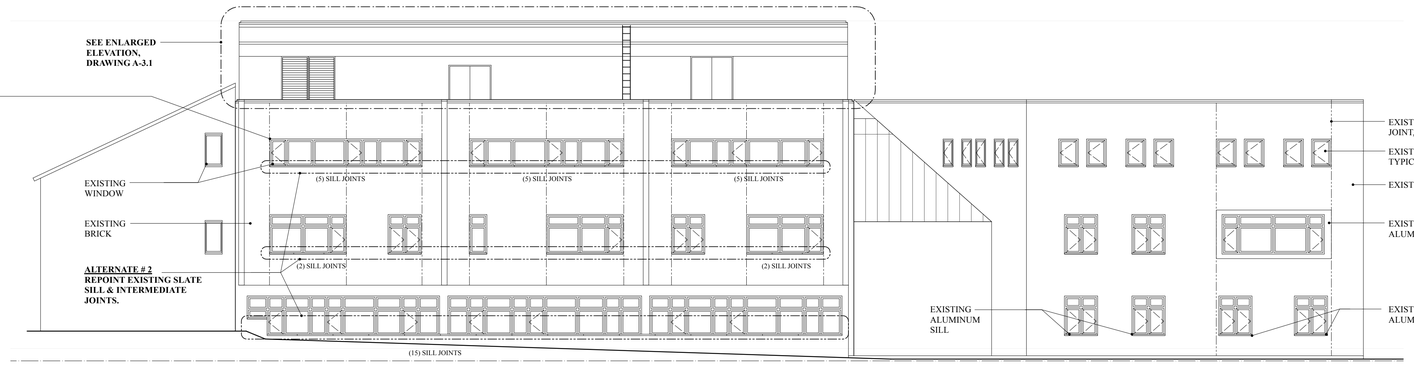
REVISIONS

ROOF DETAILS

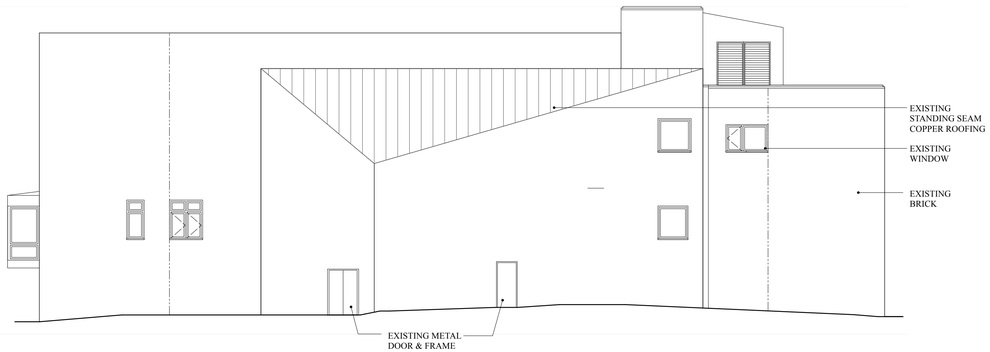
A-2.1



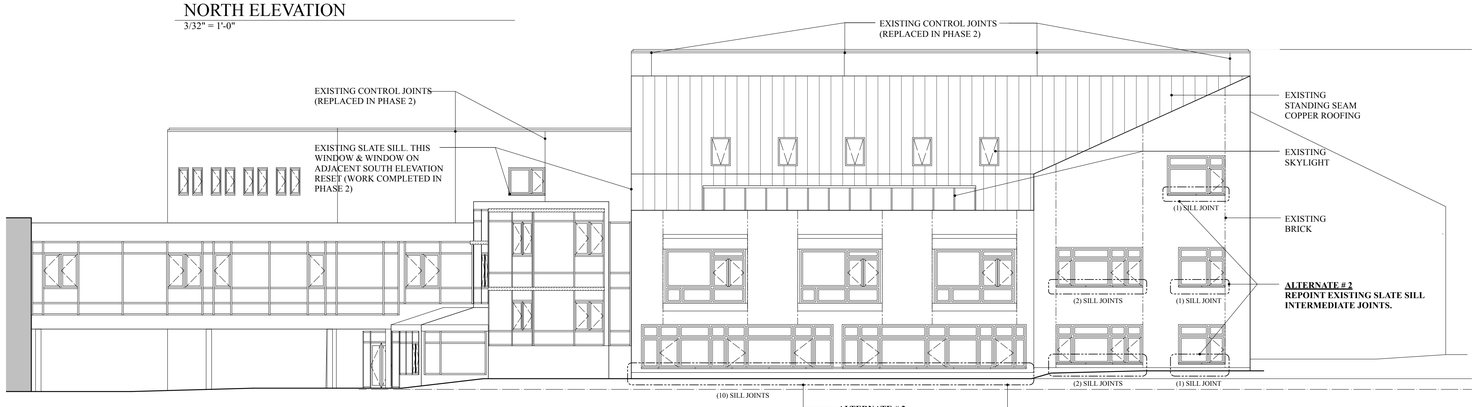




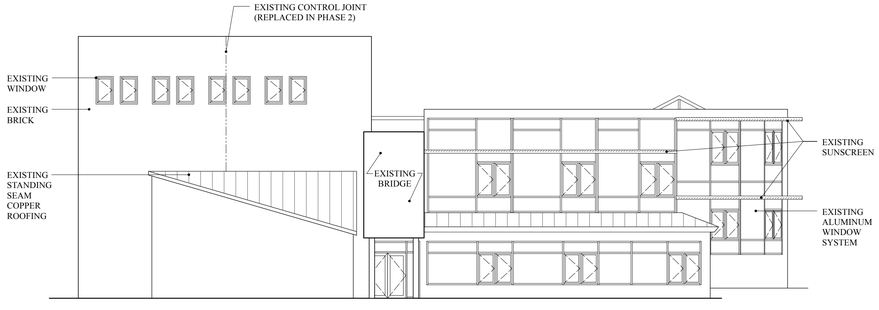
WEST ELEVATION
3/32" = 1'-0"



NORTH ELEVATION
3/32" = 1'-0"



EAST ELEVATION
3/32" = 1'-0"



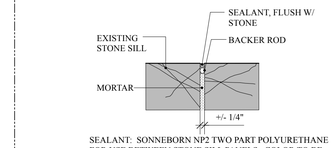
SOUTH ELEVATION
3/32" = 1'-0"



NOTE:

EXTERIOR ELEVATIONS NOT VERIFIED. DRAWINGS WERE TAKEN FROM CONSTRUCTION DRAWINGS BY GOSSENS BACHMAN DATED, JANUARY 11, 1995

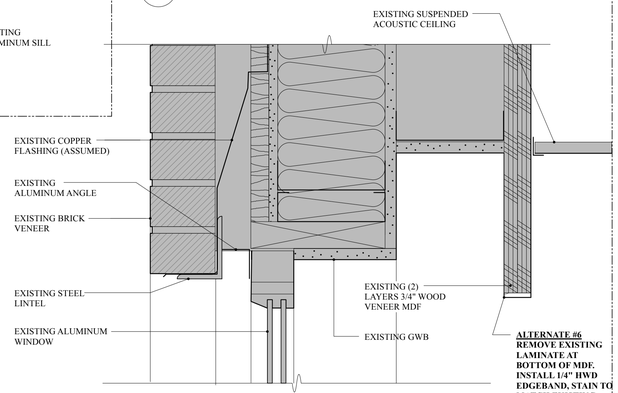
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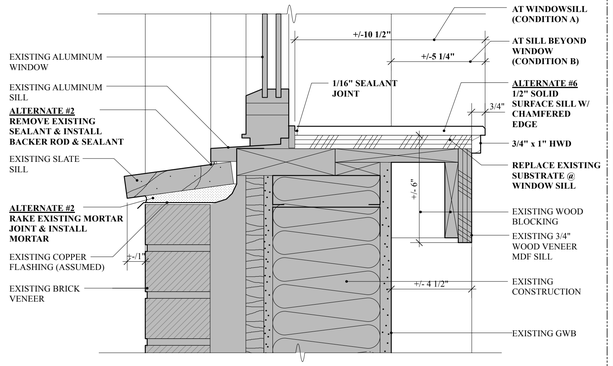
SEALANT: SONNEBORN NP2 TWO PART POLYURETHANE FOR USE BETWEEN STONE SILL PANELS. COLOR TO BE SELECTED BY ARCHITECT FROM SAMPLES OF AVAILABLE COLORS. INSTALL WITH SUITABLE BACKER ROD IN ACCORDANCE WITH MANUFACTURER'S DIRECTIONS.

1 TYPICAL STONE SILL JOINT
3" = 1'-0"

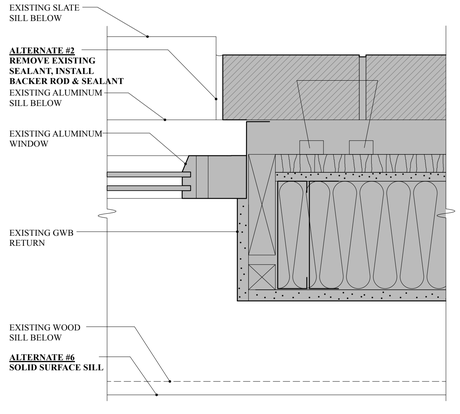
ALTERNATE #2 & #6



2 TYPICAL WINDOW HEAD
3" = 1'-0"



3 TYPICAL WINDOW SILL
3" = 1'-0"



4 TYPICAL WINDOW JAMB
3" = 1'-0"

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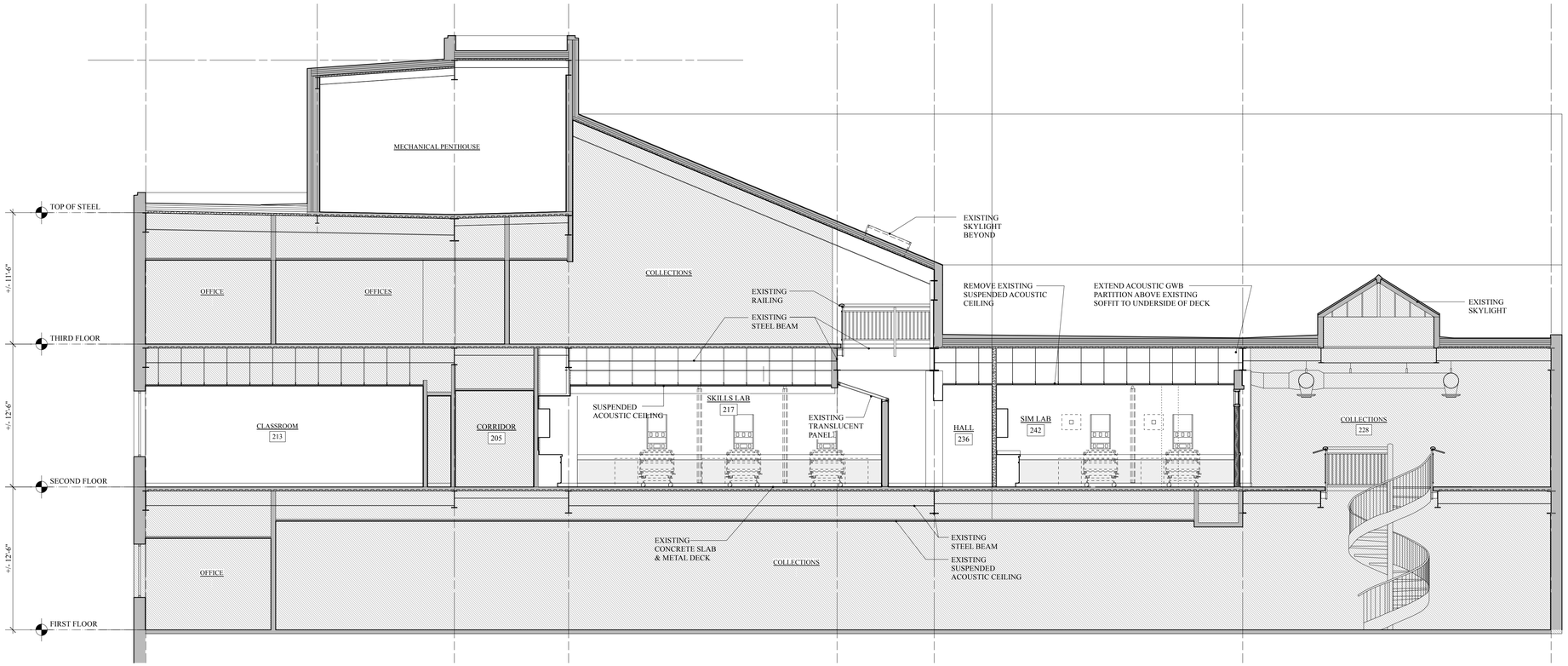
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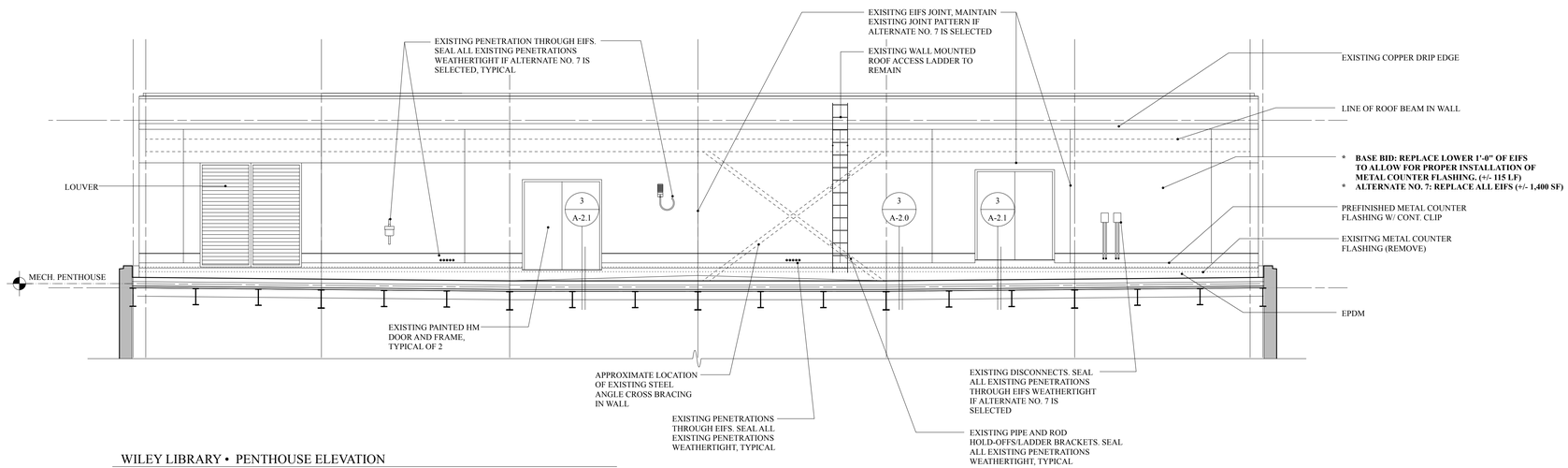
EXTERIOR ELEVATIONS & DETAILS

A-3.0



WILEY LIBRARY • BUILDING SECTION A-A

3/16" = 1'-0"



WILEY LIBRARY • PENTHOUSE ELEVATION

3/16" = 1'-0"

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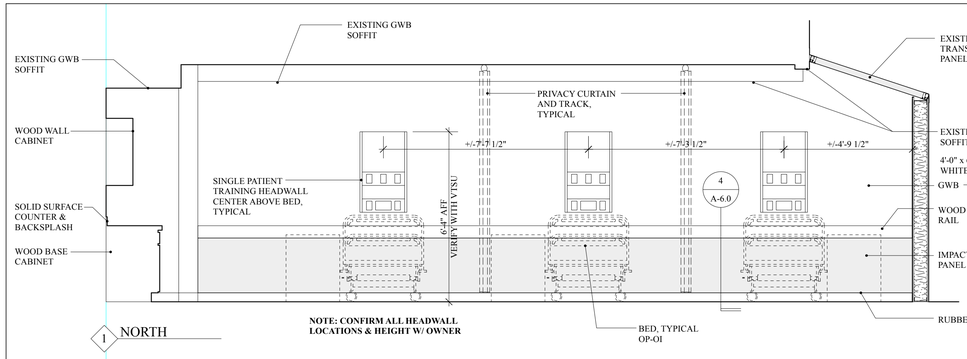
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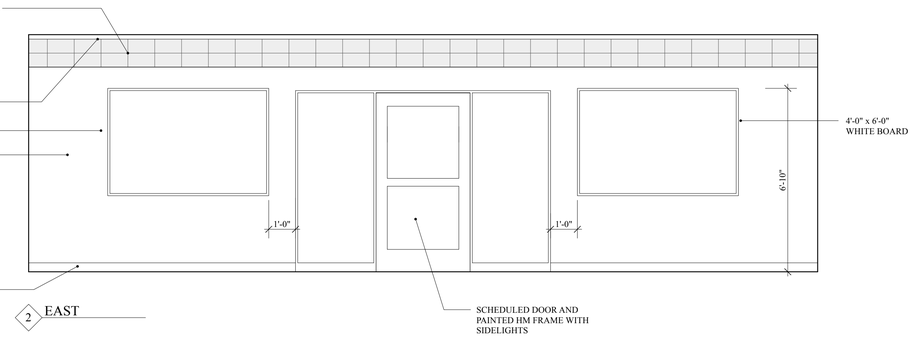
REVISIONS

BUILDING SECTION AND PENTHOUSE ELEVATION

A-3.1



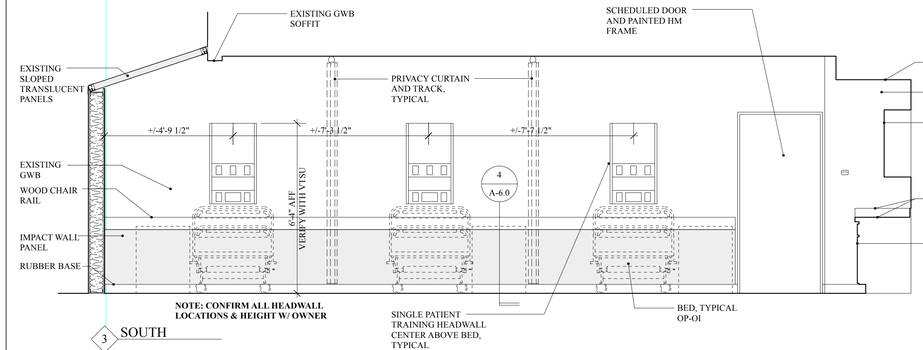
1 NORTH



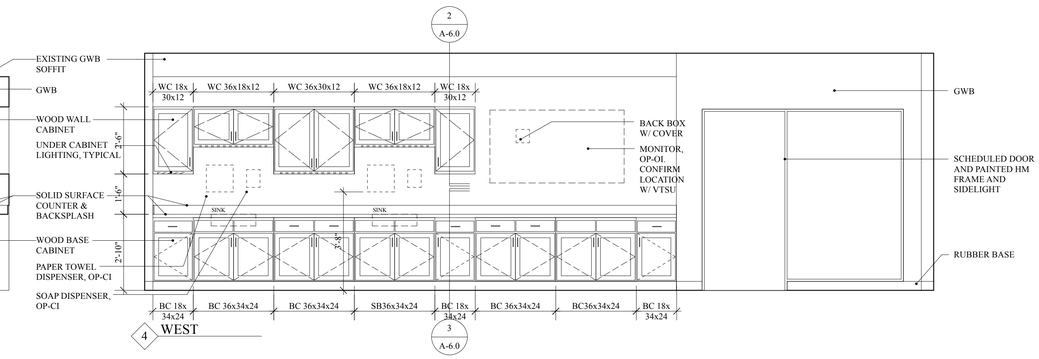
2 EAST

SKILLS LAB • 217

3/8" = 1'-0"



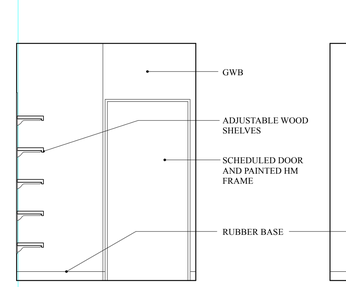
3 SOUTH



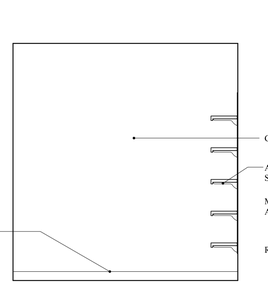
4 WEST

SKILLS LAB • 217

3/8" = 1'-0"



5 NORTH



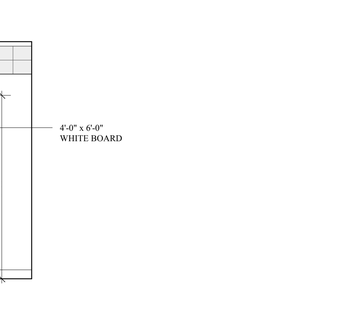
6 EAST

7 SOUTH

8 WEST

STORAGE • 217A

3/8" = 1'-0"

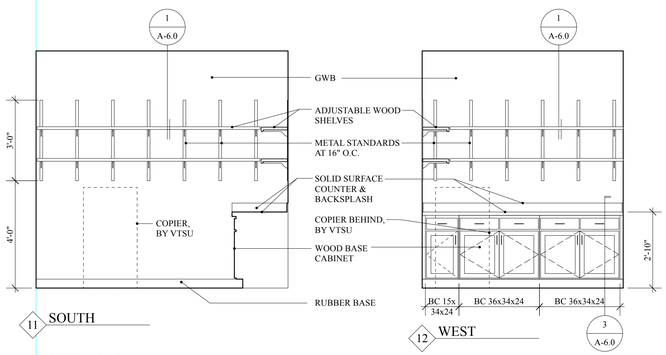


9 NORTH

10 EAST

COPY • 218

3/8" = 1'-0"

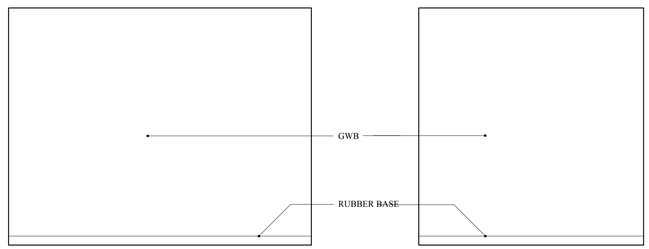


11 SOUTH

12 WEST

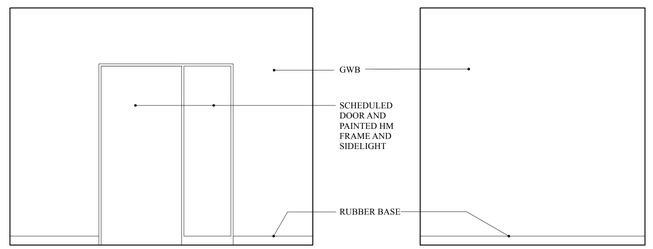
COPY • 218

3/8" = 1'-0"



13 NORTH

14 EAST



15 SOUTH

16 WEST

OFFICE • 235 (236 SIMILAR)

3/8" = 1'-0"

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SAS PROJECT NUMBER: 1612

PROJECT

NURSING EXPANSION

PHASE 3 • VERMONT STATE UNIVERSITY

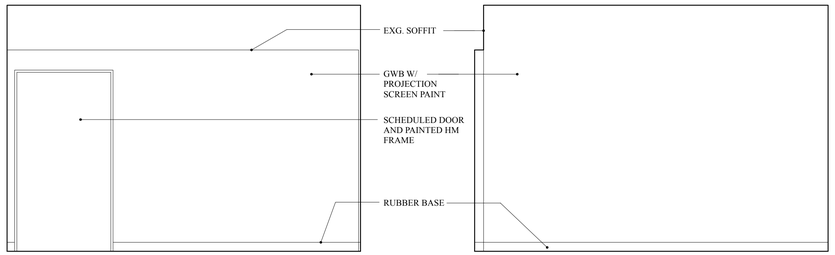
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REVISIONS

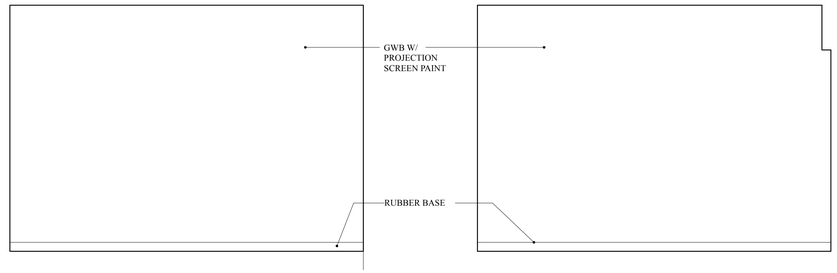
INTERIOR ELEVATIONS 1 - 16

A-4.0



17 NORTH

18 EAST

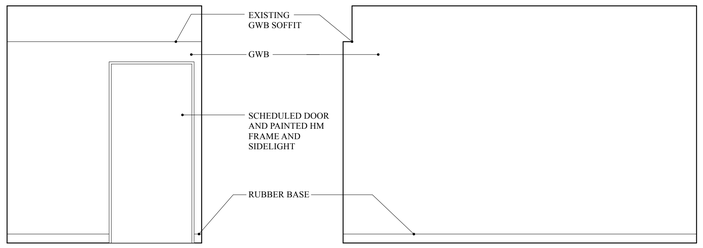


19 SOUTH

20 WEST

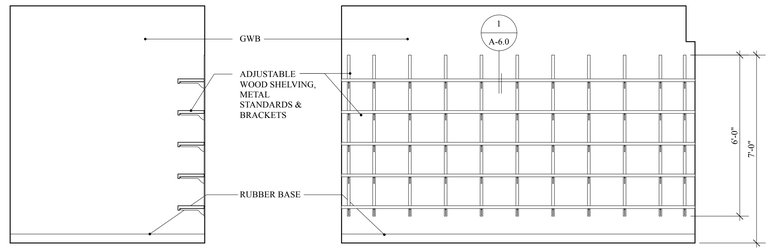
IMMERSIVE LAB• 240

3/8" = 1'-0"



21 NORTH

22 EAST

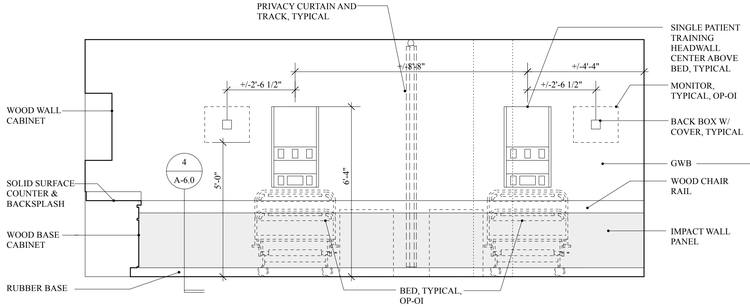


23 SOUTH

24 WEST

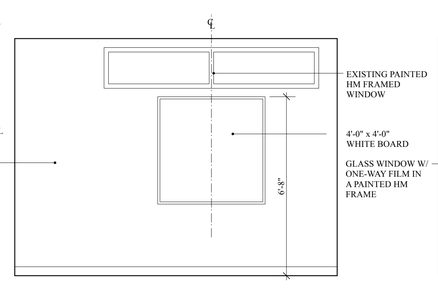
STORAGE• 241

3/8" = 1'-0"

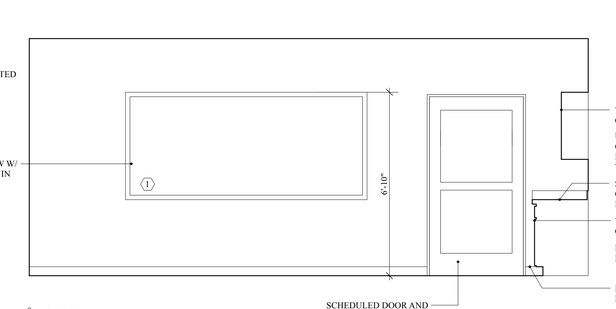


25 NORTH

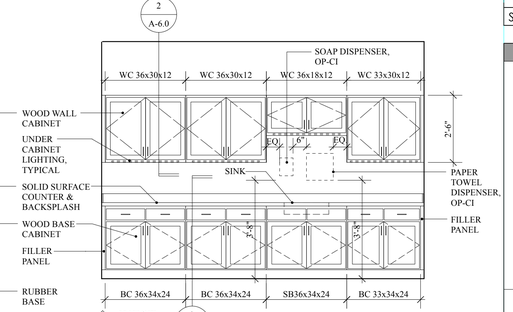
NOTE: CONFIRM ALL MONITOR & HEADWALL LOCATIONS & HEIGHT W/ OWNER



26 EAST



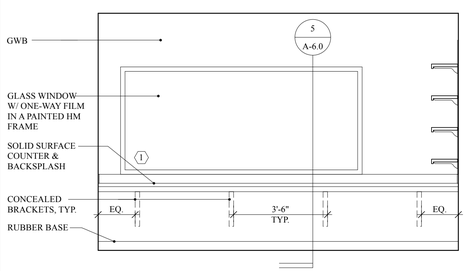
27 SOUTH



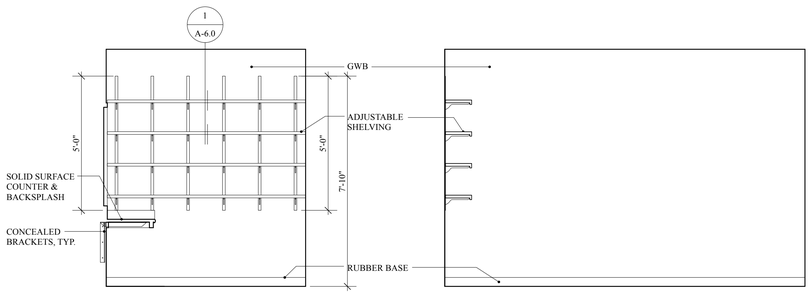
28 WEST

SIM LAB • 242

3/8" = 1'-0"

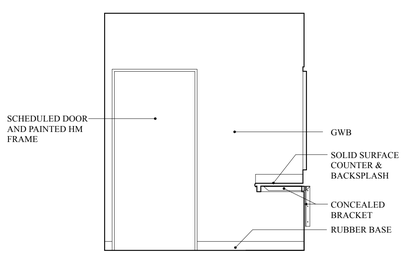


29 NORTH



30 EAST

31 SOUTH



32 SOUTH

CONTROL ROOM • 243

3/8" = 1'-0"

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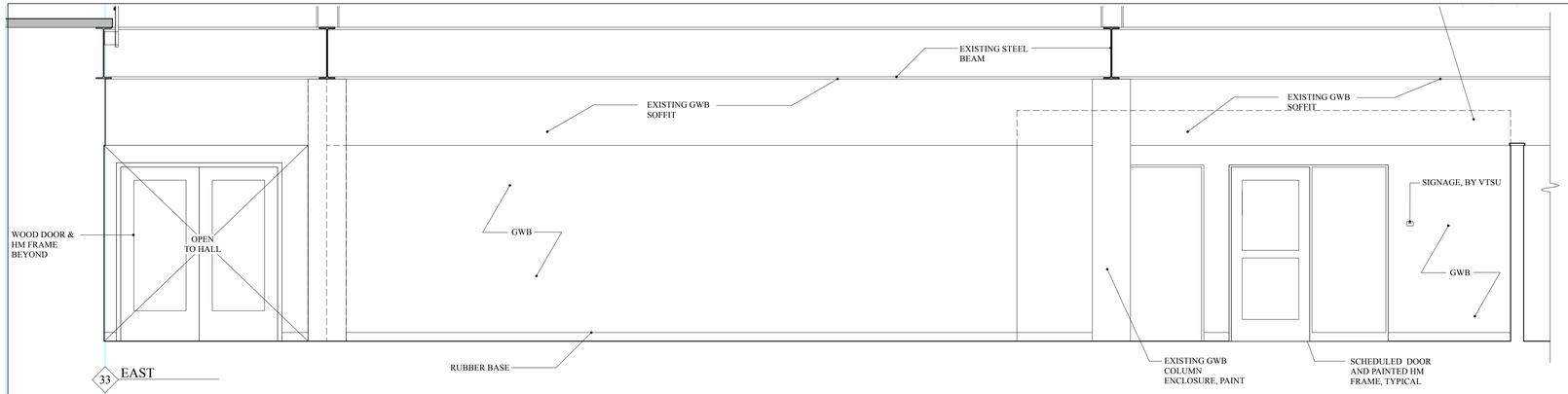
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REVISIONS

INTERIOR ELEVATIONS
17 - 32

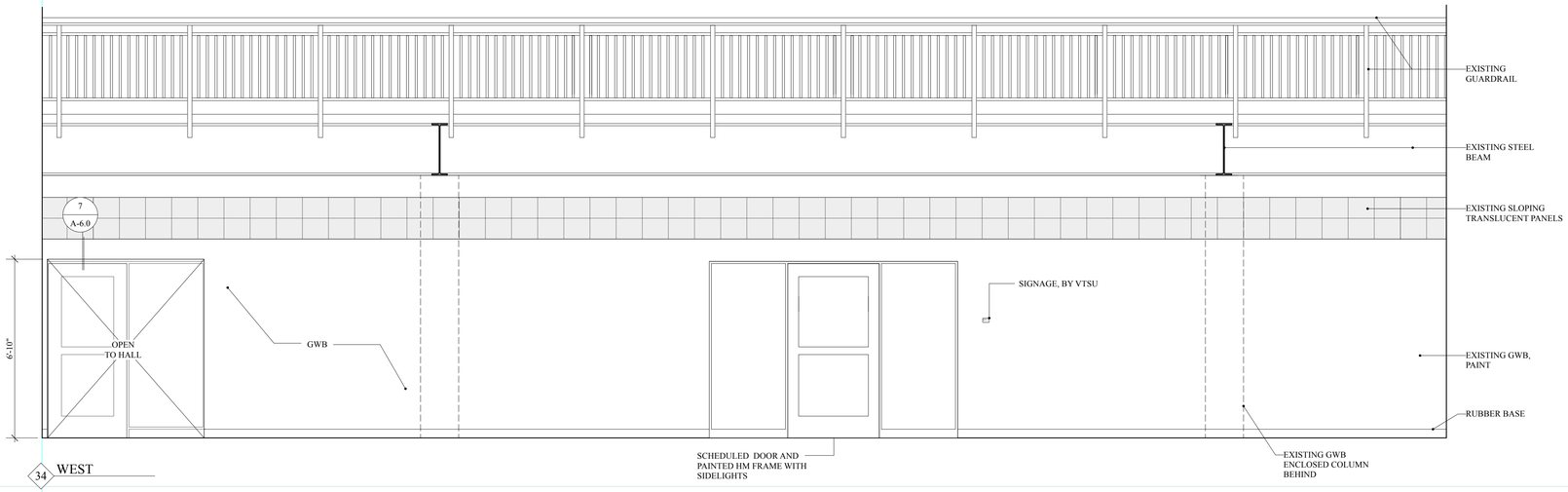
A-4.1



33 EAST

HALL • 236

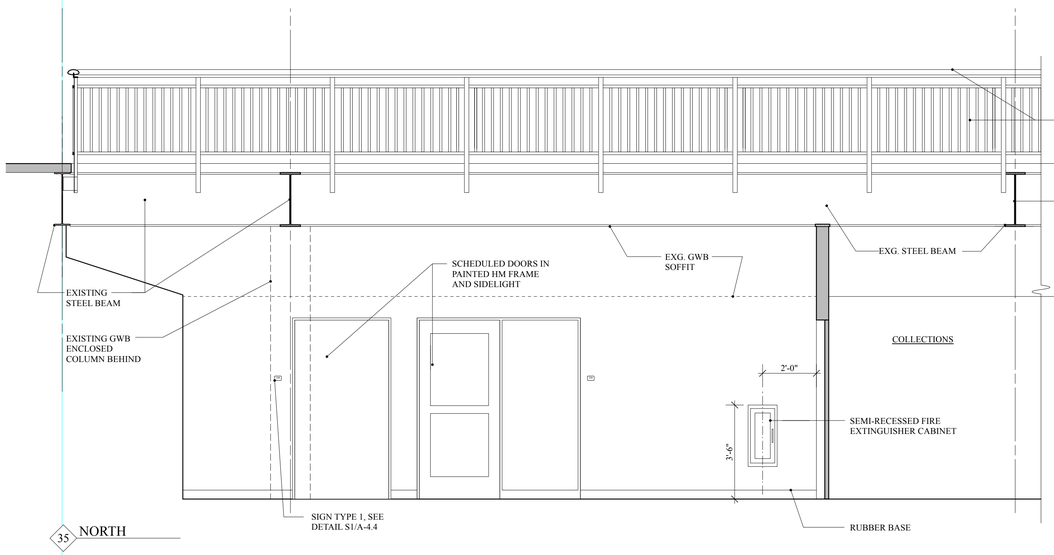
3/8" = 1'-0"



34 WEST

HALL • 236

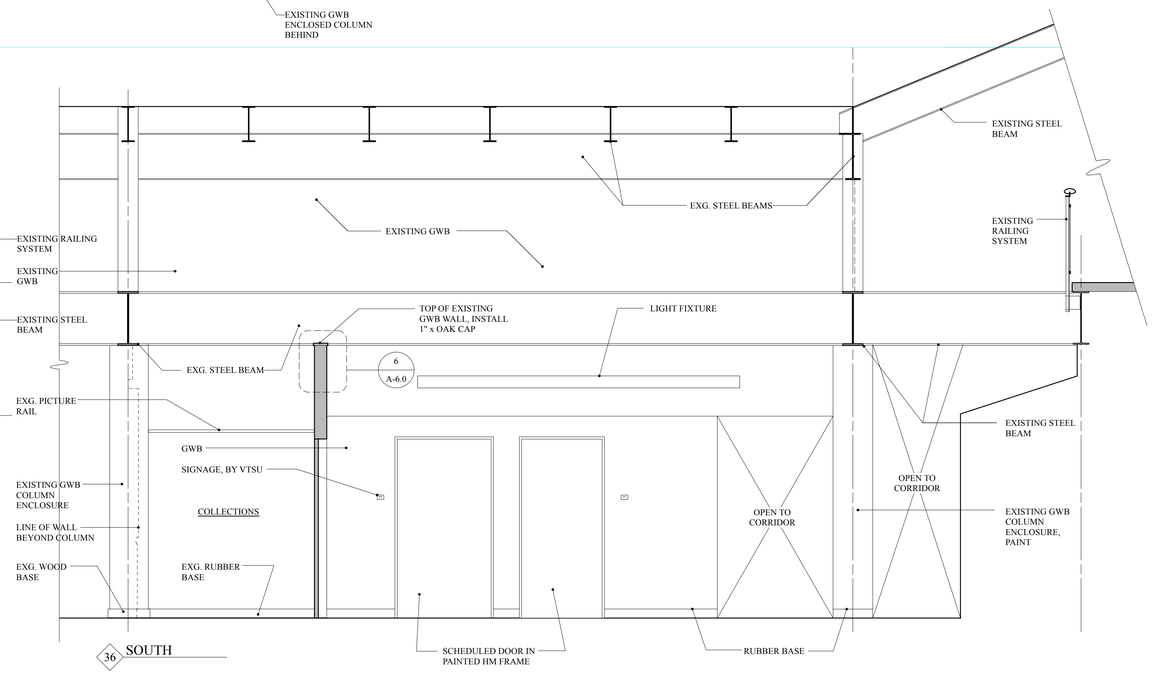
3/8" = 1'-0"



35 NORTH

HALL • 237

3/8" = 1'-0"



36 SOUTH

HALL • 237

3/8" = 1'-0"

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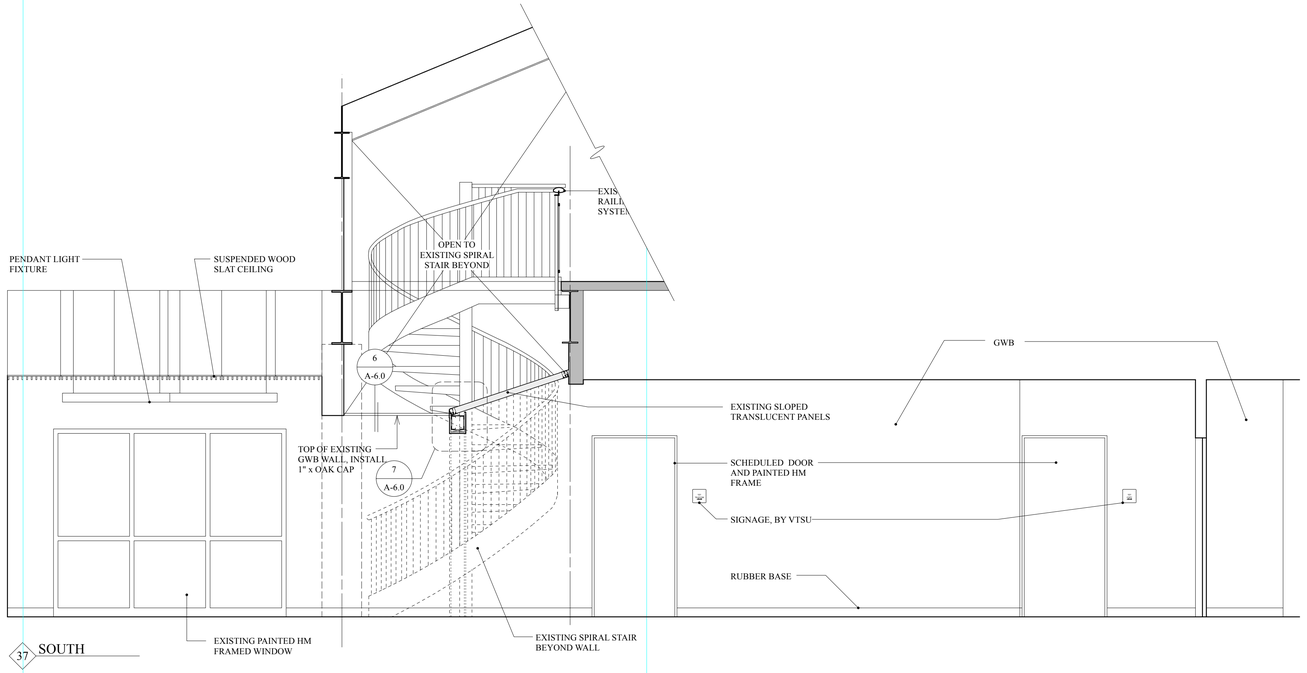
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REVISIONS

INTERIOR ELEVATIONS
33 - 36

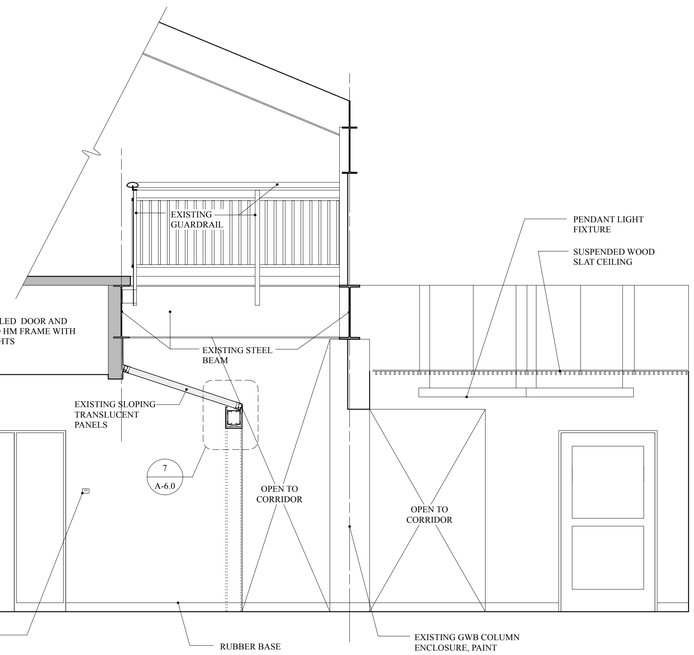
A-4.2



37 SOUTH

HALL • 233/236

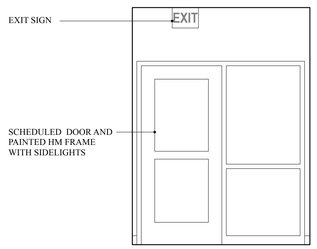
3/8" = 1'-0"



39 NORTH

HALL • 233/236

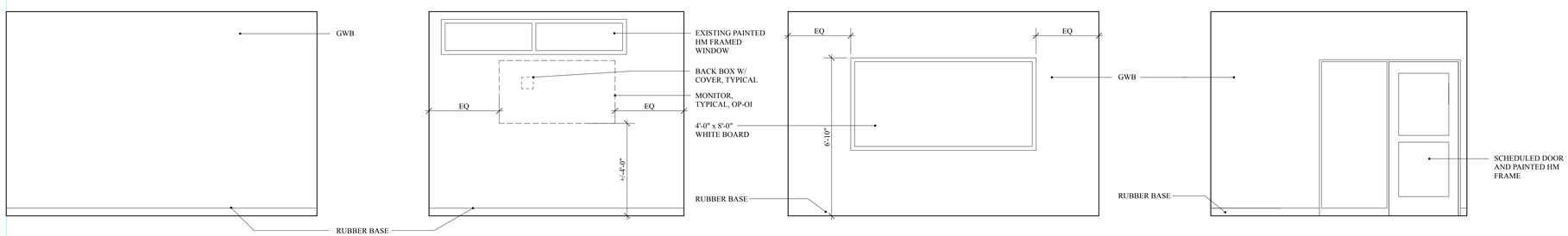
3/8" = 1'-0"



38 WEST

HALL • 233

3/8" = 1'-0"



40 NORTH

41 EAST

42 SOUTH

43 WEST

DEBRIEF ROOM • 244

3/8" = 1'-0"

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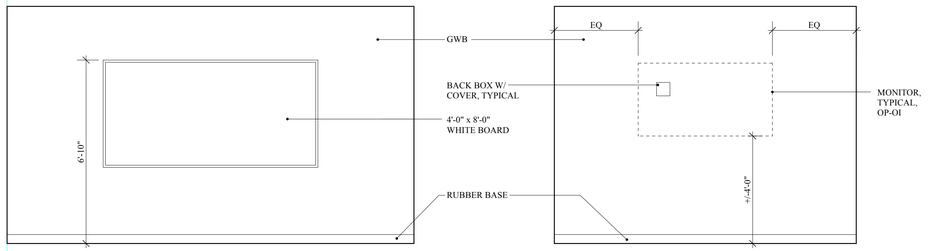
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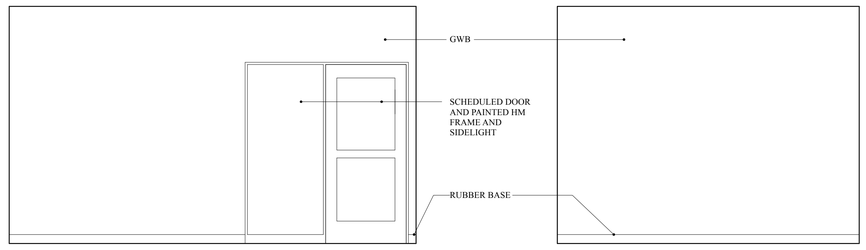
INTERIOR ELEVATIONS
37 - 43

A-4.3



44 NORTH

45 EAST

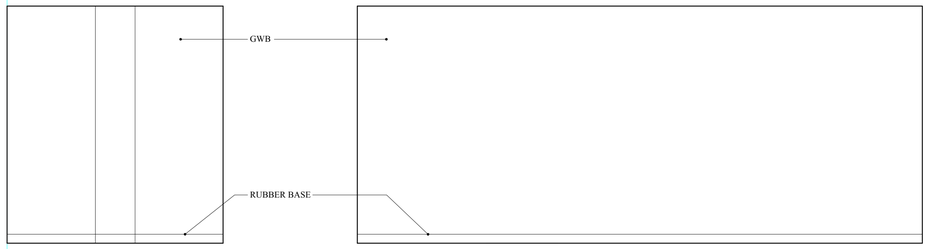


46 SOUTH

47 WEST

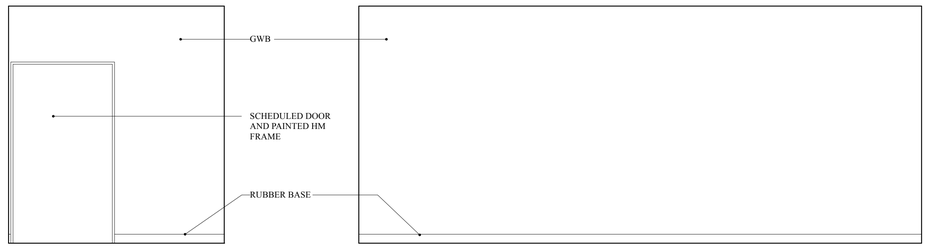
MULTI-PURPOSE • 239

3/8" = 1'-0"



48 NORTH

49 EAST



50 SOUTH

51 WEST

STORAGE• 238

3/8" = 1'-0"

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INTERIOR
ELEVATIONS
44 - 51

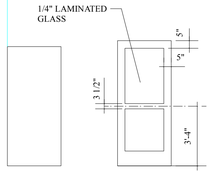
A-4.4

DOOR SCHEDULE

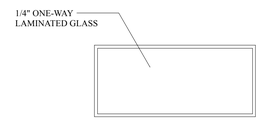
	DOOR SIZE (NOMINAL)			DOOR		FRAME		DETAILS				
NO.	WIDTH	HEIGHT	THK	ELEV	MAT	ELEV	MAT	HEAD	JAMB	THR	HW SET	REMARKS
217	3'0"	6'8"	1 3/4"	A	WD	E	HM	1/3	2/4/6	5	6	SALVAGED HM FRAME & SIDELIGHT
217.1	3'6"	6'8"	1 3/4"	B	WD	D	HM	1/3	4/6	7	6	
217A	3'0"	6'8"	1 3/4"	A	WD	A	HM	1	2		3	
218	3'0"	6'8"	1 3/4"	B	WD	A	HM	1	2		3	
233	3'0"	6'8"	1 3/4"	B	WD	F	HM	1/3	2/4/6	5	2	
235	3'0"	6'8"	1 3/4"	A	WD	B	HM	1/3	2/4/6	7/T1	1	
236	3'0"	6'8"	1 3/4"	A	WD	B	HM	1/3	2/4/6	7/T1	1	
238	3'6"	6'8"	1 3/4"	A	WD	A	HM	1	2		4	
239	3'0"	6'8"	1 3/4"	B	WD	C	HM	1/3	2/4/6	7/T1	1	
240	3'6"	6'8"	1 3/4"	A	WD	A	HM	1	2		5	
241	3'0"	6'8"	1 3/4"	A	WD	A	HM	1	2		3	
242	3'6"	6'8"	1 3/4"	B	WD	A	HM	1	2	T1	6	
243	3'0"	6'8"	1 3/4"	A	WD	A	HM	1	2	T1	1	
244	3'0"	6'8"	1 3/4"	B	WD	C	HM	1/3	2/4/6	7/T1	1	

ABBREVIATIONS FOR DOOR SCHEDULE

HM	HOLLOW METAL
SCWD	SOLID CORE WOOD DOOR



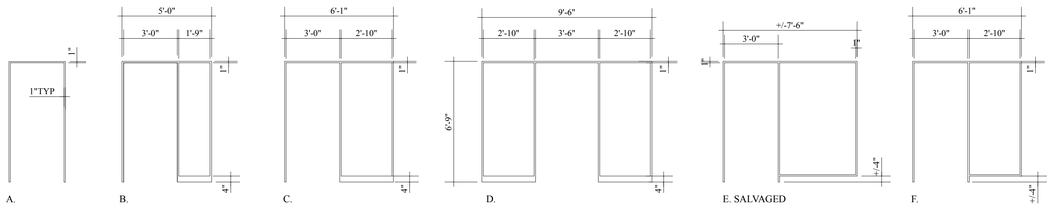
A. B.



1.

DOOR ELEVATIONS
1/4" = 1'-0"

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

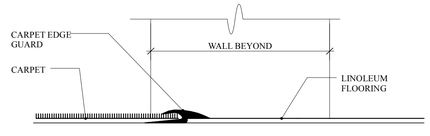


A. B. C. D. E. SALVAGED F.

DOOR FRAME ELEVATIONS
1/4" = 1'-0"

INTERIOR WINDOW SCHEDULE

MARK	ROUGH OPENING		OPERATION	GLAZING	MATERIAL	DETAILS			REMARKS
	WIDTH	HEIGHT				HEAD	JAMB	SILL	
1	9'-0"	4'-0"	FIXED	ONE-WAY	METAL	5/A-6.0	4	5/A-5.0	

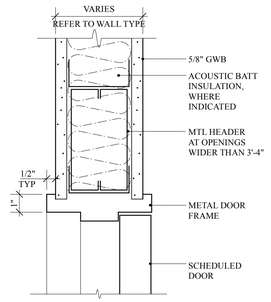


T1 CARPET TRANSITION TO LINOLEUM FLOOR
Half Actual Size

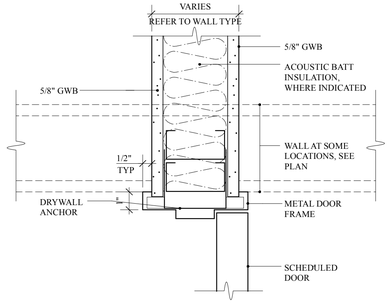
BLOCKING, FASTENING & GENERAL NOTES:

1. ALL BLOCKING IN CONTACT WITH MASONRY OR STEEL WILL BE PRESSURE TREATED. ALL OTHER BLOCKING WILL BE UNTREATED.
2. PRIOR TO INSTALLING BLOCKING, FOAM-IN-PLACE INSULATE ALL VOIDS THAT WILL BE MADE INACCESSIBLE BY BLOCKING.
3. SET ALL BLOCKING IN A BEAD OF SILICONE SEALANT.
4. FOAM-IN-PLACE INSULATE ALL VOIDS BETWEEN BLOCKING AND OTHER MATERIALS.
5. FOAM-IN-PLACE INSULATION AND SEALED BLOCKING WILL FORM THE AIR BARRIER.
6. PAINT ALL HOLLOW METAL FRAMES
7. PAINT ALL METAL DOORS

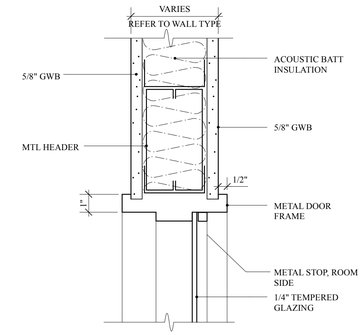
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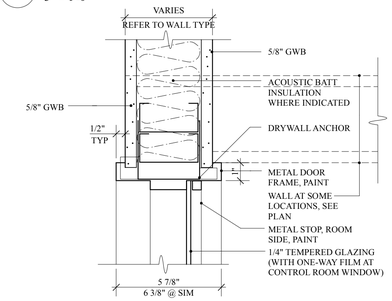
1 HEAD DETAIL @ TYP. GWB PARTITION
3" = 1'-0"



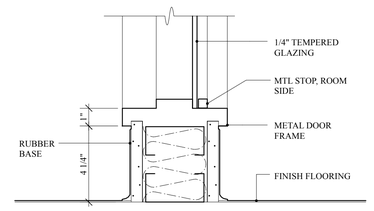
2 JAMB DETAIL @ TYP. GWB PARTITION
3" = 1'-0"



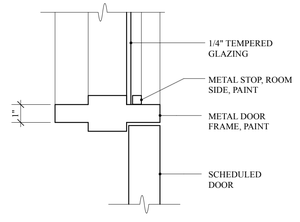
3 HEAD DETAIL @ SIDELIGHT/TRANSOM
3" = 1'-0"



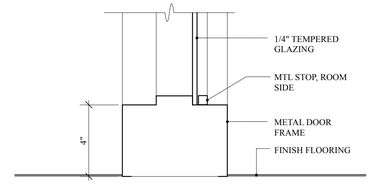
4 JAMB DETAIL @ SIDELIGHT
3" = 1'-0"



5 SILL DETAIL @ SIDELIGHT-CORRIDOR
3" = 1'-0"



6 MEETING JAMB DETAIL @ SIDELIGHT
3" = 1'-0"
SIMILAR @ TRANSOM



7 SILL DETAIL @ SIDELIGHT
3" = 1'-0"

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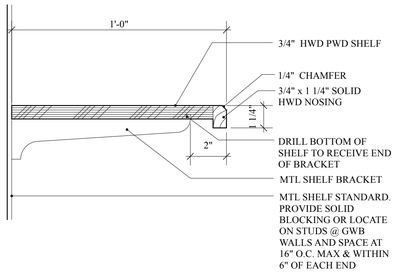
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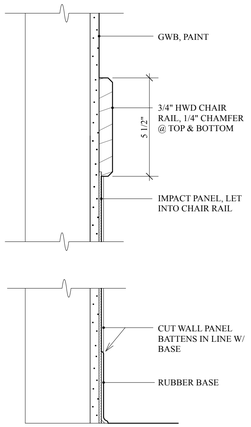
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DOOR SCHEDULE, ELEVATIONS AND DETAILS

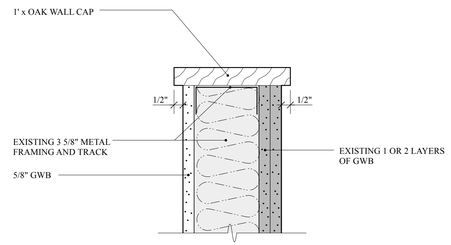
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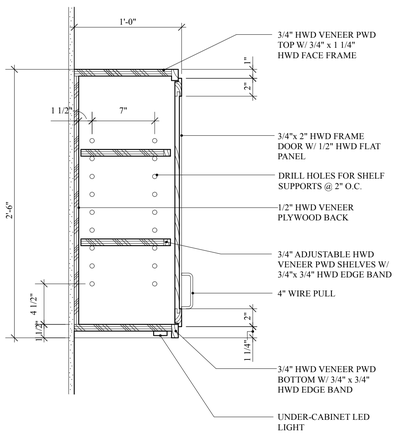
1 ADJUSTABLE WOOD SHELF
3" = 1'-0"



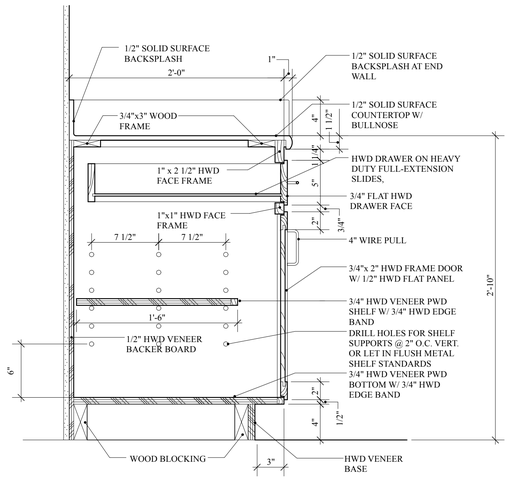
4 CHAIR RAIL / IMPACT PANEL DETAIL
3" = 1'-0"



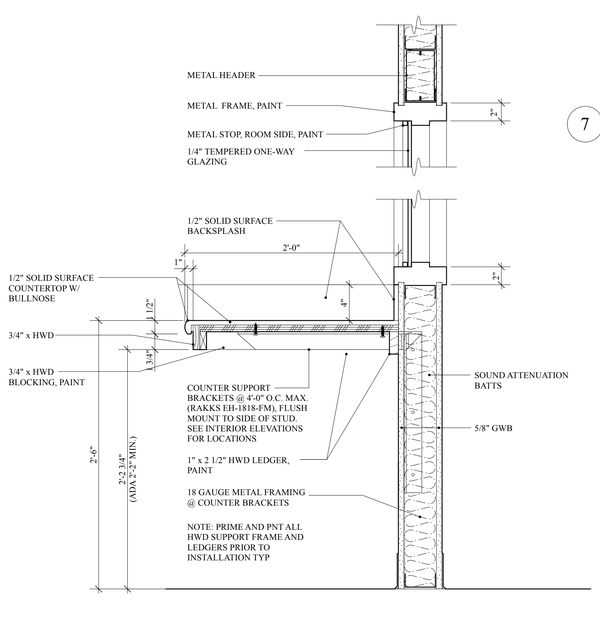
6 WOOD WALL CAP
3" = 1'-0"



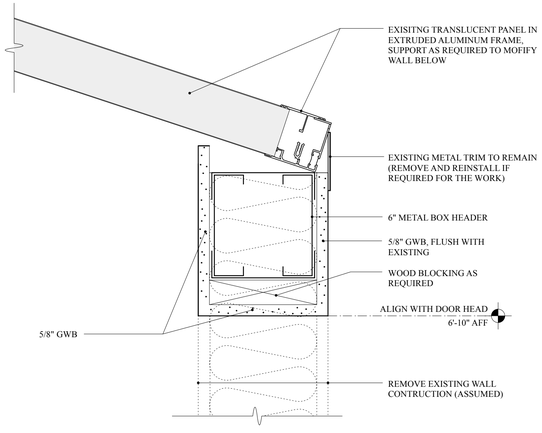
2 WALL CABINET
3" = 1'-0"



3 BASE CABINET
3" = 1'-0"



5 COUNTER AND WINDOW AT CONTROL ROOM
3" = 1'-0"



7 HEADER AT SLOPED TRANSLUCENT PANELS
3" = 1'-0"

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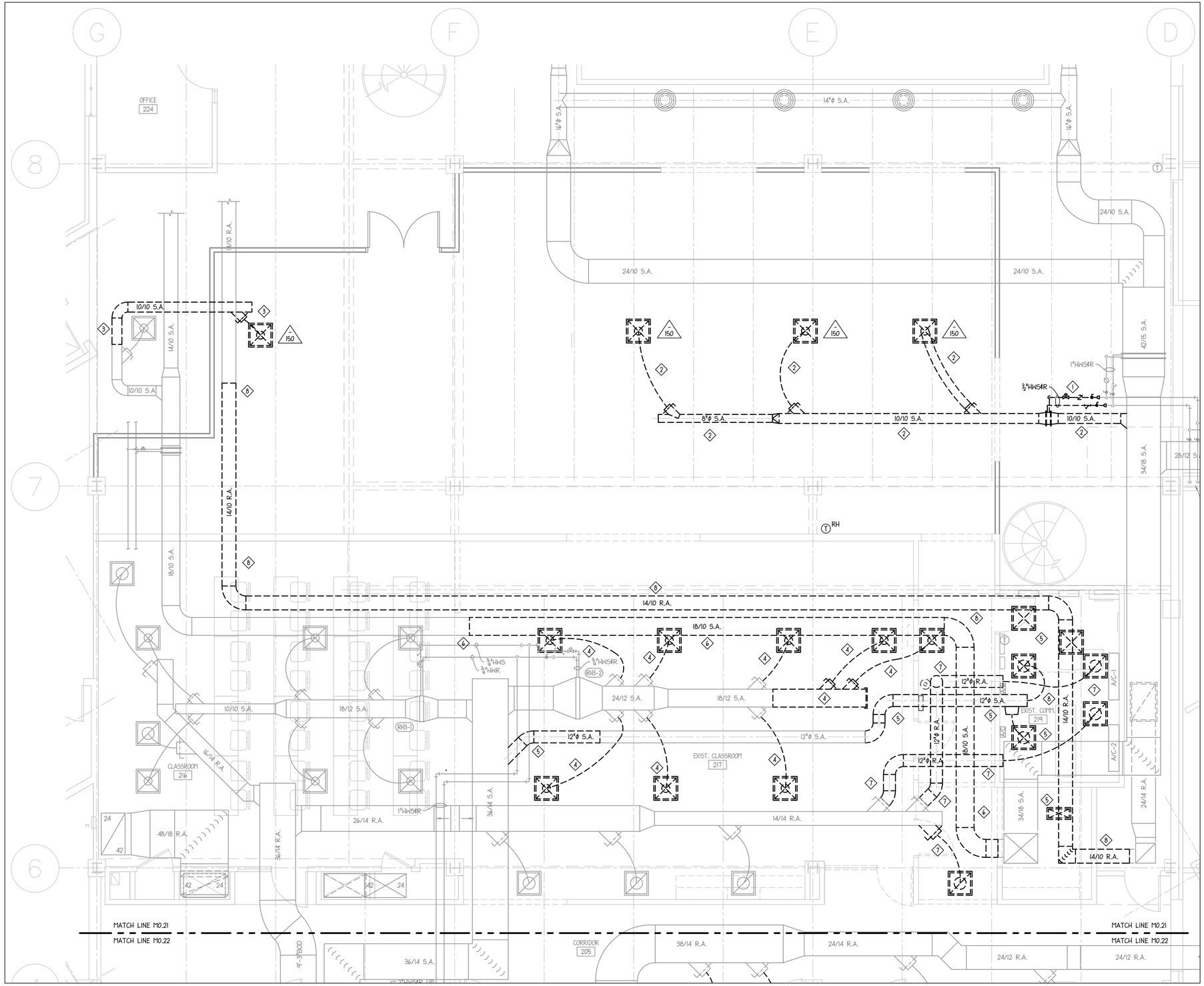
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INTERIOR DETAILS

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1 MECHAINCAL - SECOND FLOOR LEVEL DEMOLITION PLAN
1/4"=1'-0"

CONSTRUCTION NORTH

MECHANICAL DEMOLITION LEGEND

- MECHANICAL WORK TO BE DEMOLISHED
- EXISTING MECHANICAL WORK TO REMAIN

MECHANICAL SPECIFIC DEMOLITION NOTES:

1. DEMOLISH AND REMOVE THE HEATING WATER SUPPLY AND RETURN BRANCH PIPING, SERVING THE EXISTING REHEAT COIL. ISOLATE BRANCHES AND DRAIN. TEMPORARILY CAP LINES FOR EXTENSION UNDER NEW WORK.

2. DEMOLISH AND REMOVE THE EXISTING SUPPLY AIR DUCT, REHEAT COIL AND DIFFUSERS SERVING THE SHELL SPACE, AS INDICATED DASHED. REMOVE TAKE-OFF AT MAIN DUCT, PATCH AND SEAL FLUSH.

3. DEMOLISH AND REMOVE A SECTION OF SUPPLY AIR DUCT AND DIFFUSER SERVING THE SHELL SPACE. CAP AND SEAL END OF DUCT.

4. DEMOLISH AND REMOVE THE DIFFUSERS AND BRANCH DUCTWORK SERVING CLASSROOM 217. REMOVE A SECTION OF THE MAIN DUCT AS INDICATED DASHED. CAP AND SEAL END.

5. DEMOLISH AND REMOVE SECTIONS OF THE UN-TEMPERED SUPPLY AIR DUCT, SERVING THE COMM. ROOM (I.T.), COORDINATE WITH NEW WORK. CAP AND SEAL END OF DUCT. REMOVE THE EXISTING USED AND UNUSED DIFFUSERS. COORDINATE ALL WORK IN THIS SPACE WITH CAMPUS SECURITY.

6. DEMOLISH AND REMOVE A SECTION OF AHU-1 SUPPLY AIR BRANCH DUCT, FROM NEAR THE MAIN RISER TO THE POINT INDICATED. COORDINATE WITH NEW WORK. CAP AND SEAL AT RISER.

7. DEMOLISH AND REMOVE SECTIONS OF RETURN AIR DUCT AND GRILLES AS INDICATED DASHED BOLD. REMOVE TAKE-OFFS WHERE INDICATED AND PATCH AND SEAL DUCT. COORDINATE ALL WORK IN THE I.T. ROOM WITH CAMPUS SECURITY.

8. DEMOLISH AND REMOVE A SECTION OF RAF-1 RETURN AIR BRANCH DUCT. REMOVE FROM THE RISER TO THE POINT INDICATED. CAP AND SEAL AT RISER.

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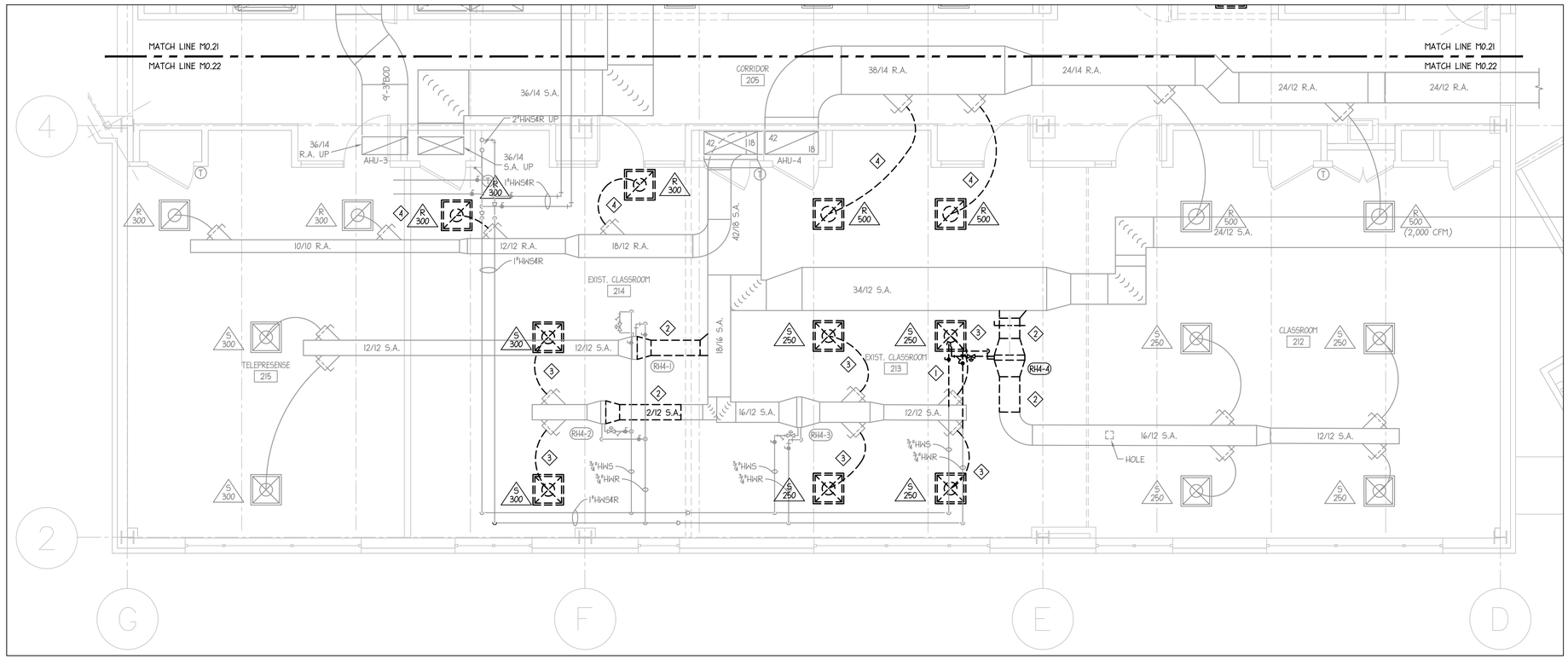
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MECHANICAL - SECOND FLOOR DEMOLITION PLAN

M-0.21

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CONSTRUCTION NORTH

1 MECHAINCAL - SECOND FLOOR LEVEL DEMOLITION PLAN
1/4"=1'-0"

MECHANICAL DEMOLITION LEGEND	
– – – –	MECHANICAL WORK TO BE DEMOLISHED
————	EXISTING MECHANICAL WORK TO REMAIN

MECHANICAL SPECIFIC DEMOLITION NOTES:

1. DEMOLISH AND REMOVE THE HEATING WATER SUPPLY AND RETURN BRANCH PIPING, SERVING THE EXISTING REHEAT COIL. ISOLATE BRANCHES AND DRAIN. TEMPORARILY CAP LINES FOR EXTENSION UNDER NEW WORK.

2. DEMOLISH AND REMOVE SHORT SECTIONS OF SUPPLY AIR DUCTWORK AS INDICATED DASHED BOLD. REMOVE FROM THE MAIN OR POINT INDICATED TO THE EXISTING REHEAT COIL. REMOVE THE INDICATED REHEAT COIL AND DUCTWORK, WHERE INDICATED. COORDINATE WITH NEW WORK.

3. DEMOLISH AND REMOVE THE EXISTING SUPPLY AIR DIFFUSERS AND BRANCH DUCTWORK BACK TO THE TAKE-OFFS, AS INDICATED DASHED BOLD.

4. DEMOLISH AND REMOVE THE EXISTING RETURN AIR GRILLES AND BRANCH DUCTWORK BACK TO THE TAKE-OFFS, AS INDICATED DASHED BOLD.

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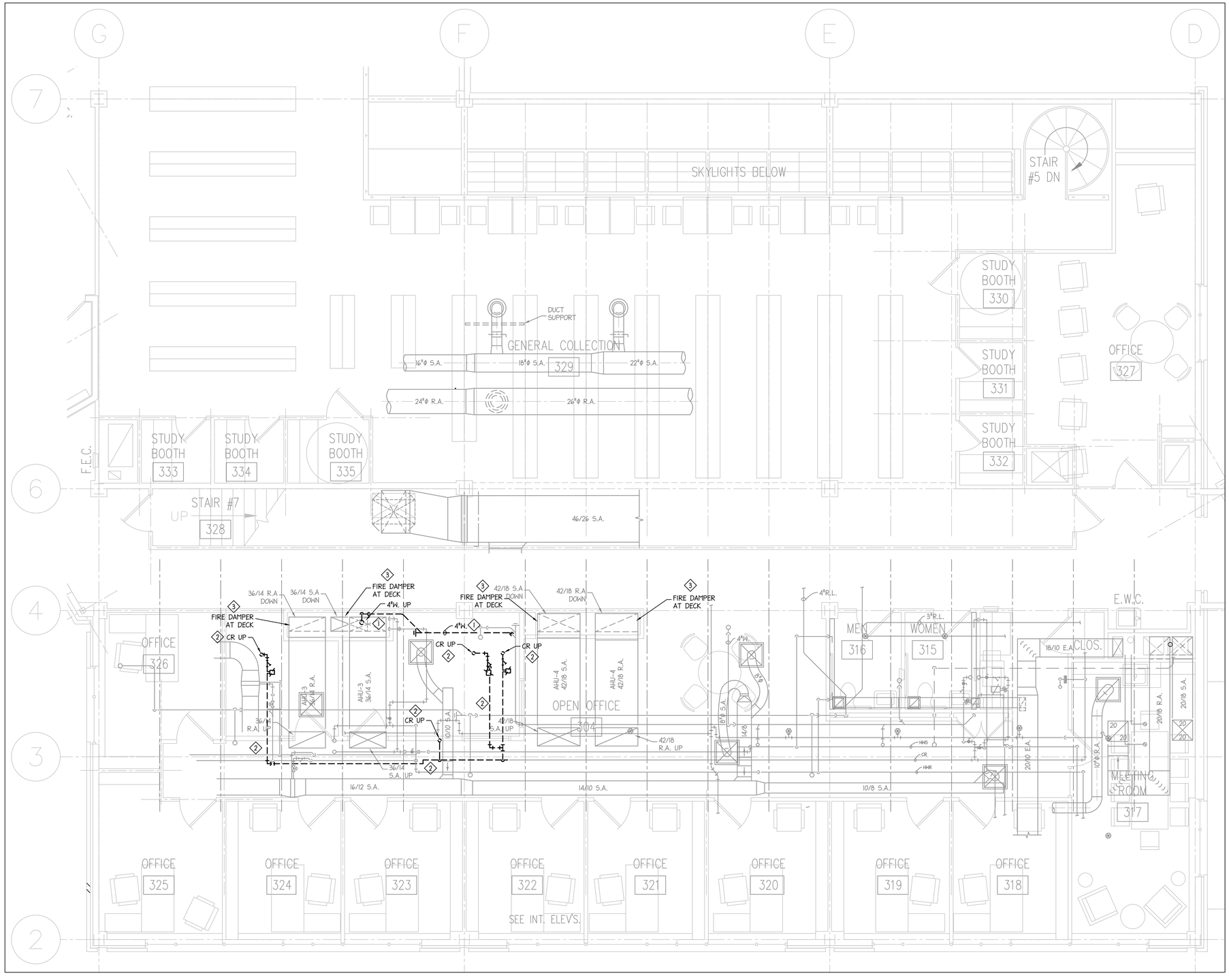
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MECHANICAL - SECOND FLOOR DEMOLITION PLAN

M-0.22



1 MECHAINCAL - THIRD FLOOR LEVEL DEMOLITION PLAN
1/4"=1'-0"

CONSTRUCTION NORTH

MECHANICAL DEMOLITION LEGEND

- MECHANICAL WORK TO BE DEMOLISHED
- EXISTING MECHANICAL WORK TO REMAIN

MECHANICAL SPECIFIC DEMOLITION NOTES:

1. DEMOLISH AND REMOVE A SECTION OF EXISTING SANITARY DRAIN PIPING AS INDICATED DASHED. REMOVE FROM THE FLOOR DRAIN TO THE POINT INDICATED AND CAP. SEE PLUMBING DEMOLITION PLANS.

2. DEMOLISH AND REMOVE SECTIONS OF EXISTING STEAM CONDENSATE RETURN PIPING AS INDICATED DASHED BOLD. REMOVE ALL VALVES, TRAPS AND SPECIALTIES. REMOVE PIPING TO THE POINT INDICATED AND CAP (WELDED). REPAIR INSULATION. COORDINATE WITH THE GENERAL TRADES CONTRACTOR FOR CEILING REMOVAL AS REQUIRED.

3. DEMOLISH AND REMOVE THE EXISTING FIRE DAMPERS AND ACCESS PANELS IN THE A.H.U. #3 AND #4 SUPPLY AND RETURN AIR DUCTS AT THE LEVEL THREE FLOOR DECK LEVEL. IT IS ASSUMED THIS WILL REQUIRE REMOVING SECTIONS OF DUCTWORK. PROVIDE TEMPORARY SUPPORT AS REQUIRED. COORDINATE WITH THE G.C. TO OPEN WALLS AS REQUIRED.

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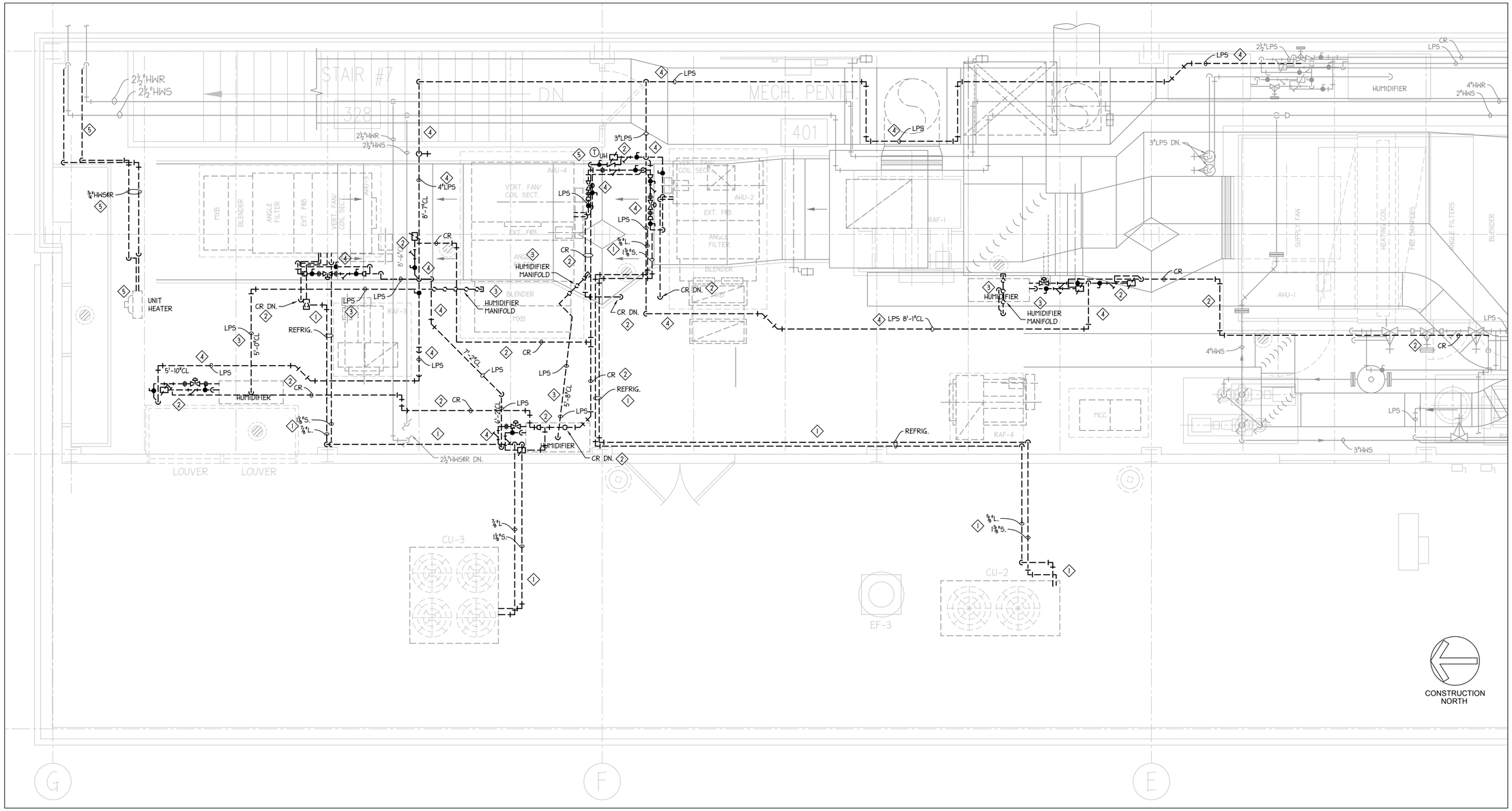
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MECHANICAL - THIRD FLOOR DEMOLITION PLAN

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MECHANICAL SPECIFIC DEMOLITION NOTES:

1. DEMOLISH AND REMOVE THE EXISTING REFRIGERANT PIPING FROM THE EXISTING ROOF MOUNTED CONDENSING UNITS TO THE COILS IN THE AIR HANDLER UNITS. PROVIDE THE SERVICES OF A REFRIGERATION TECHNICIAN TO EVACUATE ALL REFRIGERANT FROM THE SYSTEMS. RETURN TO THE OWNER OR DISPOSE OF PER THEIR DIRECTION. REMOVE ALL OIL FROM THE UNITS TO PREPARE THEM FOR DISPOSAL.

2. DEMOLISH AND REMOVE THE STEAM CONDENSATE PIPING FROM THE AIR HANDLER COILS, DRIP LEGS AND HUMIDIFIERS. REMOVE PIPING COMPLETE WITH ALL VALVES, TRAPS AND SPECIALTIES. DISCONNECT FROM THE UNITS AND REMOVE TO THE POINT INDICATED OR THE LEVEL BELOW, SEE LEVEL DEMOLITION PLAN. CAP BRANCH LINES AND REPAIR INSULATION. COORDINATE WITH THE GENERAL TRADES CONTRACTOR TO PATCH FLOOR.

3. DEMOLISH AND REMOVE THE STEAM PIPING FROM THE EXISTING HUMIDIFIERS TO THE DUCT MOUNTED DISTRIBUTION MANIFOLDS. REMOVE MANIFOLDS IN CONJUNCTION WITH DUCT DEMOLITION. WHERE DUCT REMAINS, REMOVE, PATCH AND SEAL DUCT.

4. DEMOLISH AND REMOVE THE EXISTING LOW PRESSURE STEAM PIPING SERVING THE EXISTING AIR HANDLER COILS AND HUMIDIFIER UNITS. SCHEDULE A SHUT-DOWN THROUGH FACILITIES. CUT AND CAP LINE NEAR THE POINT INDICATED. REMOVE PIPING FROM THIS POINT TO THE UNIT CONNECTIONS. NOTE; SECTIONS OF PIPING INACCESSIBLE ABOVE DUCTWORK AND HARD CEILINGS, MAY BE ABANDONED IN PLACE. INSTALL "FERNCO" TYPE CAPS ON ALL ENDS.

5. DEMOLISH AND REMOVE THE EXISTING UNIT HEATER AND HEATING WATER BRANCH PIPING AS INDICATED DASHED BOLD. ISOLATE AND REMOVE PIPING TO NEAR THE MAIN LINES AND CAP. COORDINATE WITH THE ELECTRICAL CONTRACTOR TO DISCONNECT POWER FROM THE HEATER AND REMOVE THE THERMOSTAT. CAREFULLY REMOVE THE UNIT HEATER, STORE AND PROTECT FOR FOR REUSE UNDER NEW WORK.

1 MECHAINCAL - PENTHOUSE LEVEL PIPING DEMO. PLAN
3/8"=1'-0"

MECHANICAL DEMOLITION LEGEND	
– – – –	MECHANICAL WORK TO BE DEMOLISHED
———	EXISTING MECHANICAL WORK TO REMAIN

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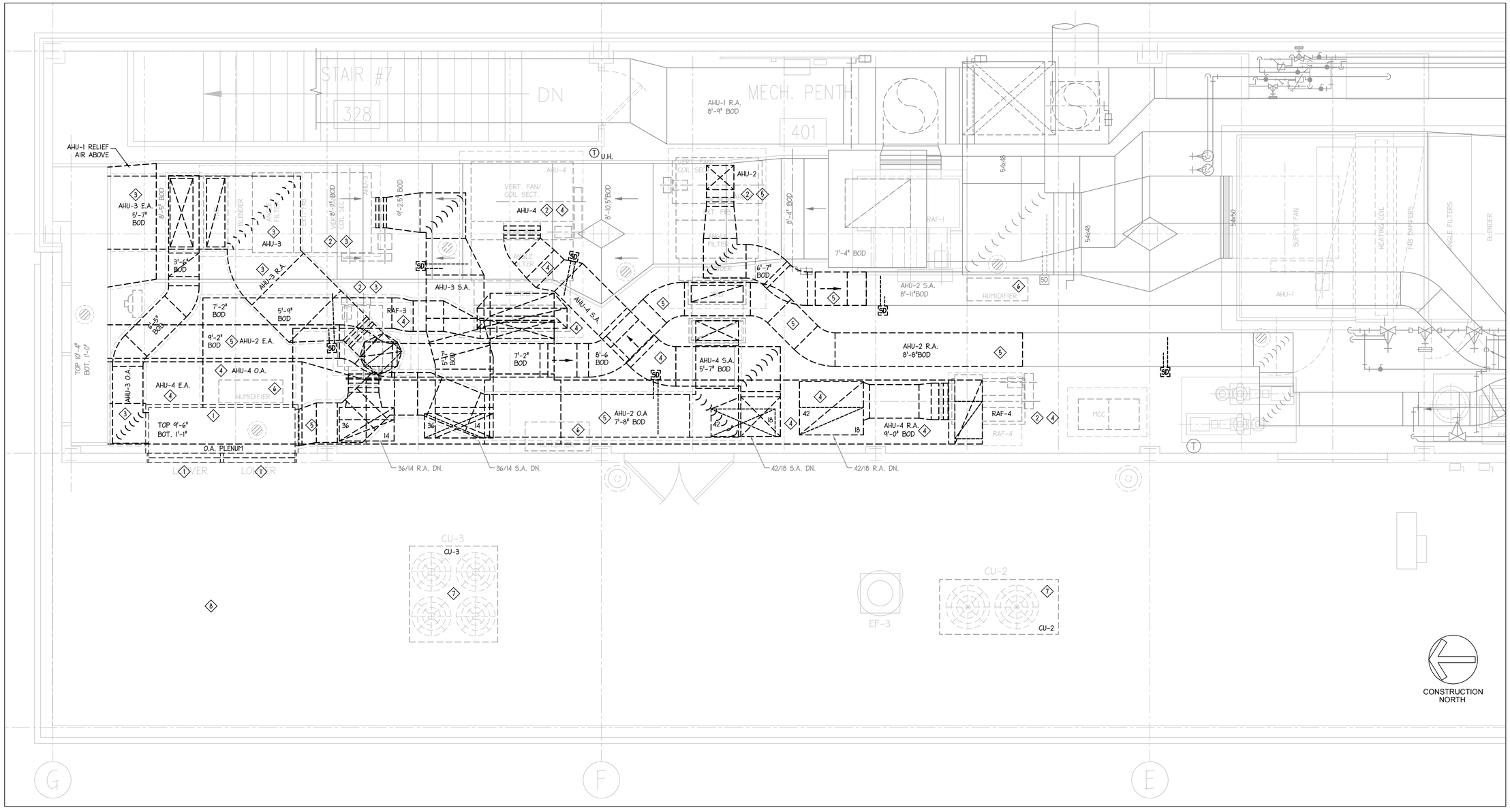
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MECHANICAL - PENTHOUSE LEVEL MECH. PIPING DEMOLITION PLAN

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MECHANICAL SPECIFIC DEMOLITION NOTES:

1. DEMOLISH AND REMOVE THE EXISTING OUTSIDE AIR INTAKE PLENUM. COORDINATE WITH THE GENERAL TRADES CONTRACTOR. REMOVE THE EXISTING LOUVERS. DEMOLISH AND REMOVE THE PLENUM, COMPLETE WITH ALL INSULATION. THIS IS TO BE THE PRIMARY EQUIPMENT MOVE ROUTE.

2. PROVIDE THE SERVICES OF THE OWNER'S CONTROLS VENDOR TO DISCONNECT ALL THE CONTROLS ASSOCIATED WITH AIR HANDLER UNITS #2, #3 AND #4 AND RETURN FANS #2, #3 AND #4. REMOVE ALL WIRING, PNEUMATIC TUBING, DEVICES AND PROGRAMMING.

3. DEMOLISH AND REMOVE THE AIR HANDLER UNIT #3 SYSTEM. COORDINATE WITH THE ELECTRICAL CONTRACTOR TO DISCONNECT POWER AND DUCT DETECTORS. REMOVE RETURN AIR DUCTWORK FROM THE DECK LEVEL, INCLUDING FIRE DAMPER TO THE RETURN FAN. REMOVE RETURN DUCTWORK FROM THE FAN THE A.H.U. MIXING BOX, AND RELIEF AIR DUCT TO THE EXHAUST PLENUM. REMOVE THE RETURN AIR FAN. REMOVE THE OUTSIDE AIR DUCT WORK FROM THE PLENUM TO THE UNIT MIXING BOX. REMOVE THE SUPPLY AIR DUCT WORK FROM THE UNIT TO THE DECK LEVEL, INCLUDING THE FIRE DAMPER. COORDINATE WITH THE GENERAL TRADES CONTRACTOR TO REMOVE ALL EQUIPMENT PADS.

4. DEMOLISH AND REMOVE THE AIR HANDLER UNIT #4 SYSTEM. SIMILAR TO A.H.U.-3 REMOVE ALL DUCTWORK, FIRE DAMPERS, RETURN FAN AND AIR HANDLER UNIT.

5. DEMOLISH AND REMOVE THE AIR HANDLER UNIT #2 SYSTEM. SIMILAR TO A.H.U.-3. REMOVE SUPPLY AND RETURN DUCTWORK TO THE POINTS INIDCATED. REMVOE OUTSIDE AIR AND RELIEF AIR DUCT TO THE PLENUMS. REMOVE THE AIR HANDLER UNIT. RETURN AIR FAN TO REMAIN IN PLACE AND IN SERVICE.

6. DEMOLISH AND REMOVE THE STEAM FIRED HUMIDIFIER UNITS. COORDINATE WITH THE ELECTRICAL AND CONTROLS CONTRACTORS FOR DISCONNECTION OF POWER AND CONTROLS.

7. DEMOLISH AND REMOVE THE CONDENSING UNITS CU-2 & 3. COORDINATE WITH THE ELECTRICAL CONTRACTOR FOR DISCONNECTION OF POWER AND CONTROL WIRING.

8. PROVIDE ALL LABOR AND EQUIPMENT AS REQUIRED TO RIG AND HOIST ALL EQUIPMENT OUT ON TO THE ROOF AREA AND FROM THE ROOF LEVEL TO GRADE AND TRANSPORT VEHICLES BELOW. REMOVE ALL EQUIPMENT AND MATERIALS FROM THE SITE AND PROPERLY DISPOSE OF. SORT AND RECYCLE MATERIALS TO THE GREATEST EXTENT FEASIBLE.

1 MECHAINCAL - PENTHOUSE LEVEL DUCTWORK DEMO. PLAN
3/8"=1'-0"

MECHANICAL DEMOLITION LEGEND	
- - - -	MECHANICAL WORK TO BE DEMOLISHED
———	EXISTING MECHANICAL WORK TO REMAIN

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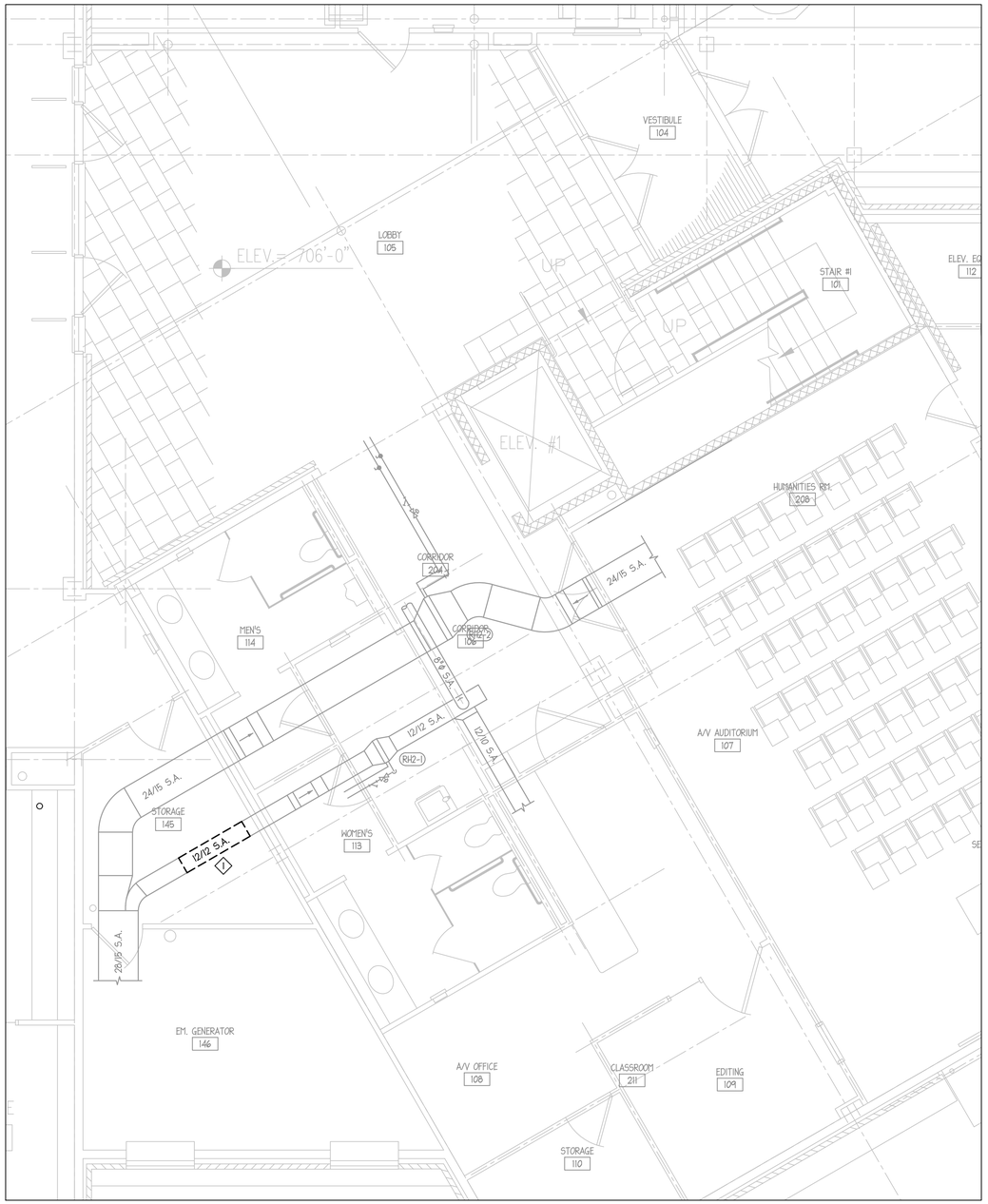
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MECHANICAL - PENTHOUSE LEVEL DUCTWORK DEMOLITION PLAN

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1 MECHANICAL - FIRST FLOOR DEMOLITION PLAN
1/4"=1'-0"



2 MECHANICAL - FIRST FLOOR NEW WORK PLAN
1/4"=1'-0"

MECHANICAL SPECIFIC DEMOLITION NOTES:

1. DEMOLISH AND REMOVE A SECTION OF EXISTING SUPPLY AIR DUCT FOR INSTALLATION OF THE PROPOSED V.A.V. BOX. COORDINATE WITH NEW WORK PLANS. COORDINATE WITH THE GENERAL TRADES CONTRACTOR FOR CEILING REMOVAL AS REQUIRED.

MECHANICAL DEMOLITION LEGEND	
- - - -	MECHANICAL WORK TO BE DEMOLISHED
———	EXISTING MECHANICAL WORK TO REMAIN

MECHANICAL SPECIFIC NEW WORK NOTES:

1. PROVIDE AND INSTALL NEW VARIABLE AIR CONTROL BOXES IN THE EXISTING SUPPLY AIR DUCTWORK. SEE EQUIPMENT SCHEDULES. CUT ACCESS OPENING IN THE SIDE OF THE DUCT INDICATED FOR THE "EBTRON" COMBINATION CONTROL UNIT. PATCH AND SEAL DUCT AND INSTALL AN ACCESS PANEL, TO ALLOW ACCESS FOR PROBE FUTURE CLEANING. PANEL TO BE 12x12, PER THE SPECIFICATIONS.

2. PROVIDE AND INSTALL NEW SECTIONS OF DUCTWORK AND THE PROPOSED V.A.V. BOX. PROVIDE TRANSITIONS AS INDICATED. FABRICATE DUCTWORK PER THE SPECIFICATIONS TO STANDARDS LISTED FOR +4.0" CLASS. INSULATE DUCTWORK PER THE SPECIFICATIONS.

3. COORDINATE WITH THE CONTROLS CONTRACTOR FOR CONTROL CONNECTIONS TO THE PROPOSED UNITS. PROVIDE NEW ROOM SENSORS (THERMOSTATS) IN THE LOCATIONS OF THE EXISTING.

MECHANICAL NEW WORK LEGEND	
———	NEW MECHANICAL TO BE FURNISHED AND INSTALLED
———	EXISTING MECHANICAL TO REMAIN

CONSTRUCTION NORTH

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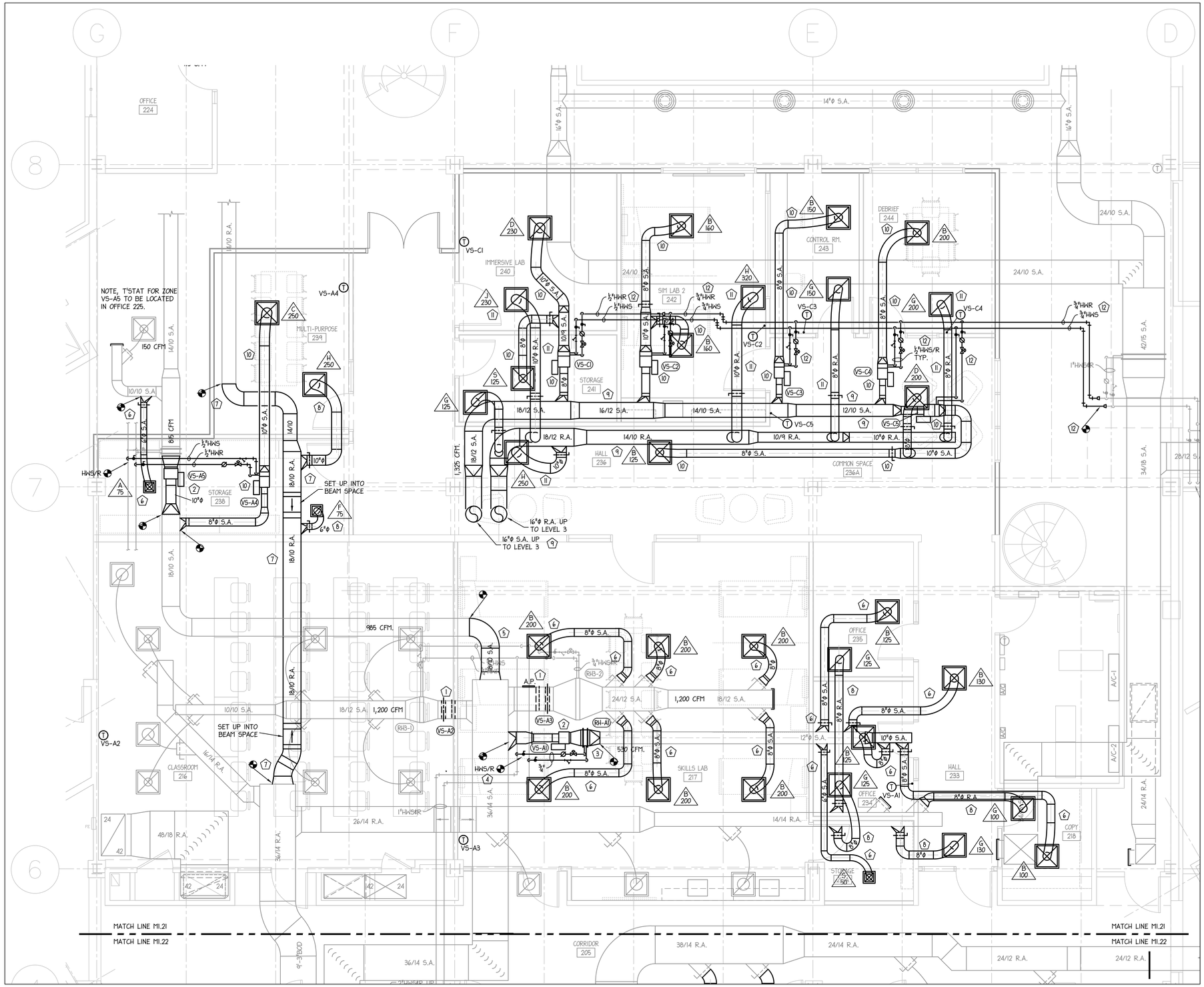
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MECHANICAL
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NEW WORK PLANS

M-1.11



1 MECHANICAL - SECOND FLOOR NEW WORK PLAN
1/4"=1'-0"

CONSTRUCTION NORTH

MECHANICAL NEW WORK LEGEND

- NEW MECHANICAL TO BE FURNISHED AND INSTALLED
- EXISTING MECHANICAL TO REMAIN

⑧ MECHANICAL SPECIFIC NEW WORK NOTES:

1. PROVIDE AND INSTALL NEW VARIABLE AIR CONTROL BOXES IN THE EXISTING SUPPLY AIR DUCTWORK. SEE EQUIPMENT SCHEDULES. CUT ACCESS OPENING IN THE SIDE OF THE DUCT INDICATED FOR THE "EBTRON" COMBINATION CONTROL UNIT. PATCH AND SEAL DUCT AND INSTALL AN ACCESS PANEL, TO ALLOW ACCESS FOR FUTURE PROBE CLEANING. PANEL TO BE 12X12, PER THE SPECIFICATIONS.

2. PROVIDE AND INSTALL NEW SECTIONS OF BRANCH DUCTWORK FROM THE MAIN AND THE PROPOSED V.A.V. BOXES WHERE SHOWN. PROVIDE TRANSITIONS AS INDICATED. RECONNECT TO THE EXISTING OR NEW REHEAT COILS. FABRICATE DUCTWORK PER THE SPECIFICATIONS TO STANDARDS LISTED FOR +4.0" CLASS. INSULATE DUCTWORK PER THE SPECIFICATIONS.

3. PROVIDE AND INSTALL A DUCT MOUNTED REHEAT COIL IN THE DUCT AFTER THE V.A.V., AS INDICATED AND PROVIDE INTEGRAL REHEAT COILS WHERE INDICATED, SEE EQUIPMENT SCHEDULES AND COIL DETAILS.

4. PROVIDE AND INSTALL NEW HEATING WATER SUPPLY AND RETURN BRANCH PIPING FROM THE EXISTING LINES TO THE PROPOSED REHEAT COILS. ISOLATE AND DRAIN AS REQUIRED TO CONNECT NEW LINES. RUN NEW BRANCH PIPING WITH VALVES AND SPECIALTIES AS INDICATED AND PER THE DETAILS. OBTAIN CONTROL VALVE FROM THE CONTROLS CONTRACTOR. PIPING AND INSULATION TO BE PER THE SPECIFICATIONS.

5. PROVIDE AND INSTALL A NEW SECTION OF SUPPLY AIR DUCT TO RECONNECT THE PREVIOUS AIR HANDLER UNIT #1 TO THE PREVIOUS A.H.U. #3 SUPPLY DUCTWORK. FABRICATE DUCTWORK PER THE SPECIFICATIONS TO +4.0" CLASS. INSULATE PER THE SPECIFICATIONS.

6. PROVIDE AND INSTALL NEW SECTIONS OF SUPPLY AIR DUCTWORK, BRANCH DUCTS AND DIFFUSERS FROM THE EXISTING SYSTEMS AS INDICATED BOLD. MAKE FINAL CONNECTIONS WITH INSULATED FLEXIBLE DUCT.

7. PROVIDE AND INSTALL A NEW RETURN AIR BRANCH DUCT TO RECONNECT A SECTION OF A.H.U. #1 DUCTWORK TO THE PREVIOUS A.H.U. #3 RETURN DUCTWORK. SET UP AND OVER THE EXISTING DUCTWORK AND DOWN UNDER BUILDING STEEL AND RECONNECT TO EXISTING. FABRICATE PER THE SPECIFICATIONS FOR -4.0" CLASS.

8. PROVIDE AND INSTALL NEW RETURN AIR BRANCH DUCT AND GRILLES AS INDICATED BOLD. PROVIDE NEW TAKE-OFFS AND CONNECT TO EXISTING AS SHOWN.

9. CONTINUE THE PROPOSED SUPPLY AND RETURN MAIN BRANCH DUCTS DOWN FROM THE LEVEL ABOVE. RUN CLOSE UNDER THE BUILDING STEEL TO ABOVE THE PROPOSED CEILING. TRANSITION TO RECTANGULAR DUCT AND RUN MAINS AS INDICATED BOLD. FABRICATE DUCT TO STANDARDS LISTED FOR +/-4.0" W.C. AND INSULATION PER THE SPECIFICATIONS.

10. PROVIDE AND INSTALL NEW SUPPLY AIR BRANCH DUCTWORK WITH V.A.V. BOXES, REHEAT COILS, TAKE-OFFS AND DIFFUSERS. SEE EQUIPMENT SCHEDULES. GENERALLY RUN BELOW BUILDING STEEL AND SET UP INTO THE BEAM BAY TO CROSS EXISTING DUCTS. MAKE FINAL CONNECTIONS WITH INSULATED FLEXIBLE DUCT.

11. PROVIDE AND INSTALL NEW RETURN AIR BRANCH DUCTWORK WITH TAKE-OFFS AND GRILLES. GENERALLY RUN OFF THE TOP OF THE DUCT, IN THE BEAM BAY. MAKE FINAL CONNECTIONS WITH FLEXIBLE DUCT.

12. CONNECT TO THE EXISTING HEATING WATER SUPPLY AND RETURN BRANCH PIPING AND RUN NEW DISTRIBUTION LINES AS INDICATED BOLD. INSTALL BRANCH PIPING TO EACH PROPOSED REHEAT COIL WITH VALVES AND SPECIALTIES AS INDICATED AND PER THE DETAILS. OBTAIN CONTROL VALVE FROM THE CONTROLS CONTRACTOR. PIPING AND INSULATION TO BE PER THE SPECIFICATIONS.

13. PROVIDE THE SERVICES OF A CONTROLS CONTRACTOR TO PROVIDE AND INSTALL A COMPLETE SYSTEM OF CONTROLS FOR ALL OF THE PROPOSED HVAC EQUIPMENT. SEE CONTROLS DRAWINGS AND SPECIFICATIONS FOR MORE COMPLETE SCOPE OF WORK.

14. PROVIDE THE SERVICES OF A TESTING AND BALANCE CONTRACTOR TO MEASURE, ADJUST AND BALANCE THE PROPOSED HVAC EQUIPMENT, SYSTEMS AND OUTLETS. SET UP EACH V.A.V. FOR DESIGN MAX. AND MIN. VOLUMES. PROVIDE UPSTREAM AND DOWNSTREAM STATIC PRESSURES. BALANCE EACH DIFFUSER AND GRILLE TO DESIGN VALUES. BALANCE REHEAT COIL MAXIMUM FLOW TO DESIGN VALUES. PERFORM ALL WORK AND PROVIDE REPORTS PER THE SPECIFICATIONS.

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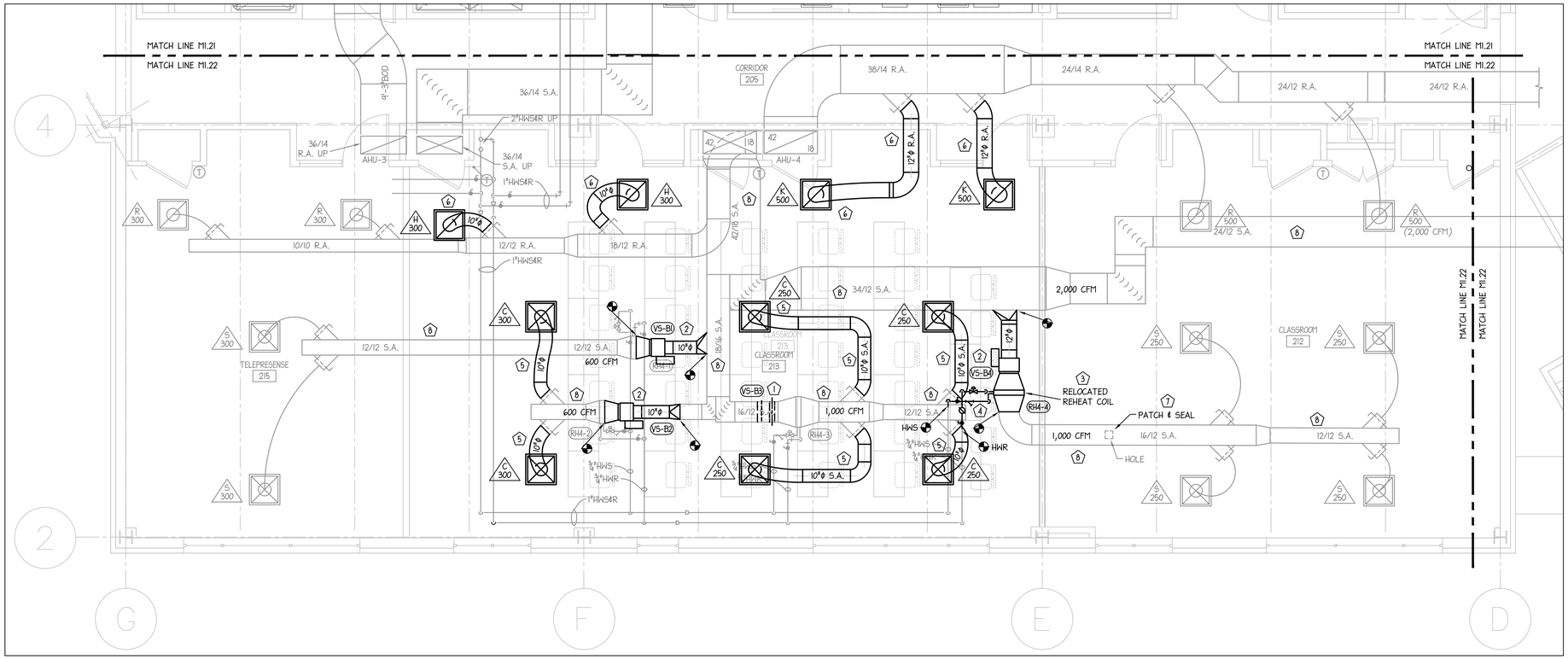
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MECHANICAL
SECOND FLOOR
NEW WORK PLAN

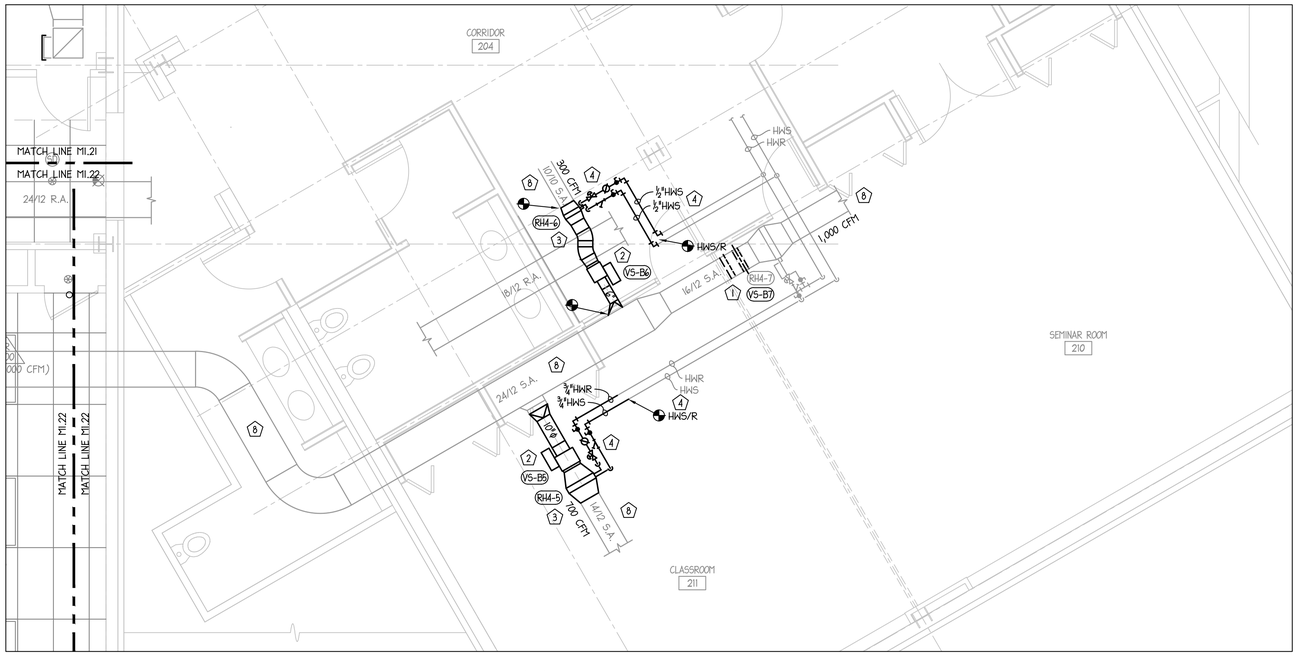
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CONSTRUCTION NORTH

1 MECHANICAL - SECOND FLOOR NEW WORK PLAN
1/4"=1'-0"



1 MECHANICAL - SECOND FLOOR NEW WORK PLAN
1/4"=1'-0"

MECHANICAL NEW WORK LEGEND

- NEW MECHANICAL TO BE FURNISHED AND INSTALLED
- EXISTING MECHANICAL TO REMAIN

(8) MECHANICAL SPECIFIC NEW WORK NOTES:

1. PROVIDE AND INSTALL NEW VARIABLE AIR CONTROL BOXES IN THE EXISTING SUPPLY AIR DUCTWORK. SEE EQUIPMENT SCHEDULES. CUT ACCESS OPENING IN THE SIDE OF THE DUCT INDICATED FOR THE "EBTRON" COMBINATION CONTROL UNIT. PATCH AND SEAL DUCT AND INSTALL AN ACCESS PANEL, TO ALLOW ACCESS FOR FUTURE PROBE CLEANING. PANEL TO BE 12X12, PER THE SPECIFICATIONS.

2. PROVIDE AND INSTALL NEW SECTIONS OF BRANCH DUCTWORK FROM THE MAIN AND THE PROPOSED V.A.V. BOXES WHERE SHOWN. PROVIDE TRANSITIONS AS INDICATED. RECONNECT TO THE EXISTING OR NEW REHEAT COILS. FABRICATE DUCTWORK PER THE SPECIFICATIONS TO STANDARDS LISTED FOR +4.0" CLASS. INSULATE DUCTWORK PER THE SPECIFICATIONS.

3. REINSTALL THE DUCT MOUNTED REHEAT COILS IN THE DUCT AFTER THE V.A.V, WITH TRANSITIONS AS INDICATED. SEE EQUIPMENT SCHEDULES AND COIL DETAILS.

4. PROVIDE AND INSTALL NEW SECTIONS OF HEATING WATER SUPPLY AND RETURN BRANCH PIPING TO EXTEND THE EXISTING LINES TO THE NEW REHEAT COIL LOCATIONS. ISOLATE AND DRAIN AS REQUIRED. RUN NEW BRANCH PIPING WITH VALVES AND SPECIALTIES AS INDICATED AND PER THE DETAILS. OBTAIN CONTROL VALVE FROM THE CONTROLS CONTRACTOR. PIPING AND INSULATION TO BE PER THE SPECIFICATIONS.

5. PROVIDE AND INSTALL NEW SECTIONS OF SUPPLY AIR DUCTWORK, BRANCH DUCTS AND DIFFUSERS FROM THE EXISTING SYSTEMS AS INDICATED BOLD. MAKE FINAL CONNECTIONS WITH INSULATED FLEXIBLE DUCT. GENERALLY RUN HARD DUCT TO WITHIN 4' OF THE DIFFUSER AND PROVIDE FITTINGS SUCH THAT THERE IS NO MORE THAN A 90 DEGREE BEND IN THE FLEXIBLE DUCT.

6. PROVIDE AND INSTALL NEW RETURN AIR BRANCH DUCT AND GRILLES AS INDICATED BOLD. PROVIDE NEW TAKE-OFFS AND CONNECT TO EXISTING AS SHOWN, SIMILAR TO AS NOTED FOR SUPPLY.

7. PATCH AND SEAL THE EXISTING OPENING IN THE RETURN AIR DUCT, NOTED ON THE PLAN. PATCH AND SEAL ANY OTHER OPENINGS OR LEAKAGE POINTS OBSERVED.

8. PROVIDE AND INSTALL NEW INSULATION ON THE PREVIOUS A.H.U.-4 SUPPLY AIR DUCT, CURRENT ZONE "2B". INSULATE ALL SECTIONS PER THE SPECIFICATIONS FOR "INTERIOR RECTANGULAR SUPPLY AIR DUCT". NOTE; NOT ALL BRANCH DUCTWORK IS ILLUSTRATED. COORDINATE WITH THE GENERAL TRADES CONTRACTOR FOR CEILING REMOVAL AS NECESSARY.

9. PROVIDE THE SERVICES OF A CONTROLS CONTRACTOR TO PROVIDE AND INSTALL A COMPLETE SYSTEM OF CONTROLS FOR ALL OF THE PROPOSED HVAC EQUIPMENT. SEE CONTROLS DRAWINGS AND SPECIFICATIONS FOR MORE COMPLETE SCOPE OF WORK.

10. PROVIDE THE SERVICES OF A TESTING AND BALANCE CONTRACTOR TO MEASURE, ADJUST AND BALANCE THE PROPOSED HVAC EQUIPMENT, SYSTEMS AND OUTLETS. SET UP EACH V.A.V. FOR DESIGN MAX. AND MIN. VOLUMES. PROVIDE UPSTREAM AND DOWNSTREAM STATIC PRESSURES. BALANCE EACH DIFFUSER AND GRILLE TO DESIGN VALUES. BALANCE REHEAT COIL MAXIMUM FLOW TO DESIGN VALUES. PERFORM ALL WORK AND PROVIDE REPORTS PER THE SPECIFICATIONS.

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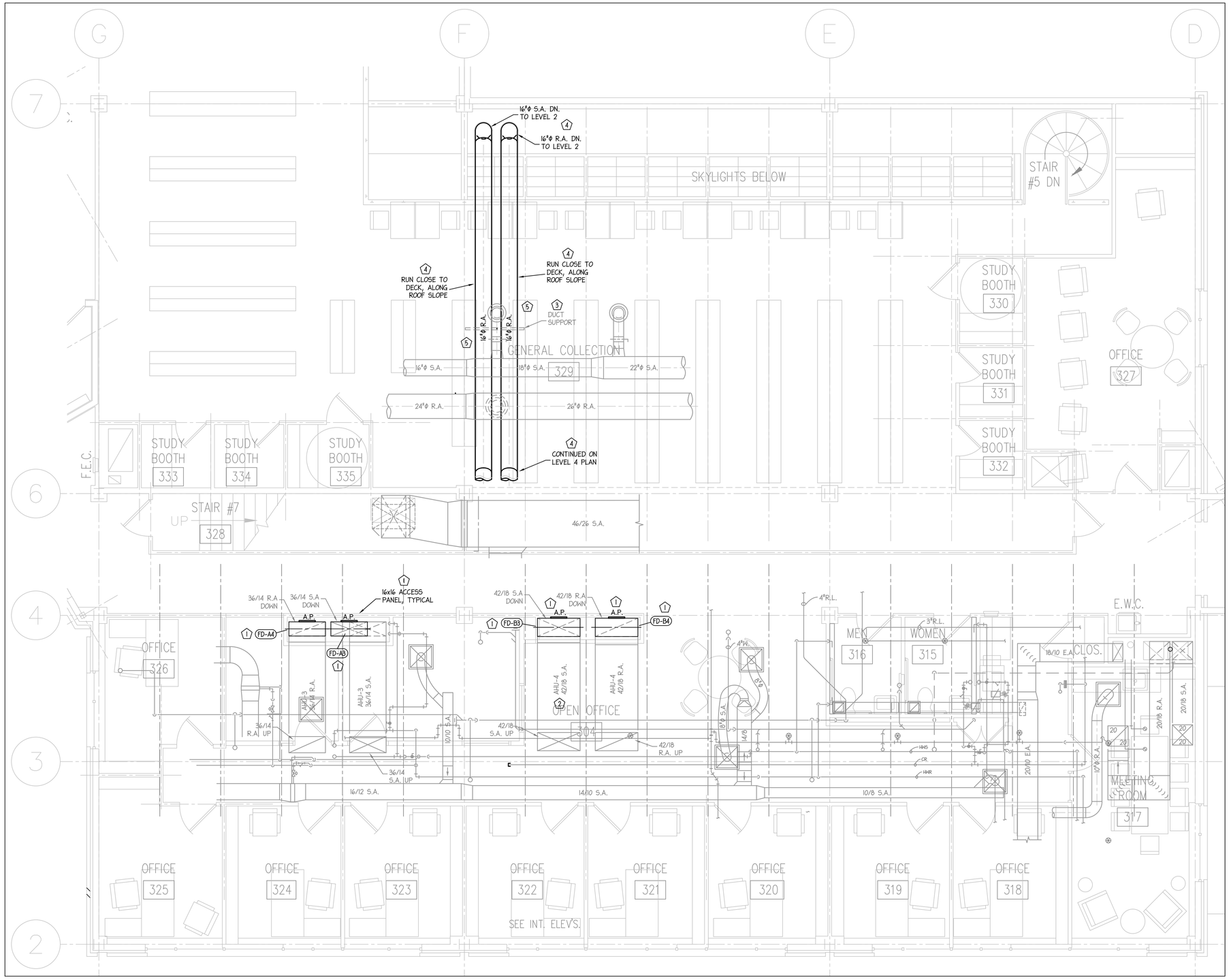
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MECHANICAL
SECOND FLOOR
NEW WORK PLAN

M-1.22



1 MECHANICAL - THIRD FLOOR NEW WORK PLAN
1/4"=1'-0"

CONSTRUCTION NORTH

MECHANICAL NEW WORK LEGEND

———	NEW MECHANICAL TO BE FURNISHED AND INSTALLED
———	EXISTING MECHANICAL TO REMAIN

(#) MECHANICAL SPECIFIC NEW WORK NOTES:

1. PROVIDE AND INSTALL NEW FIRE DAMPERS IN THE LOCATION OF THE PREVIOUS, SEE DEMOLITION PLANS AND EQUIPMENT SCHEDULES. COORDINATE WITH THE GENERAL TRADES CONTRACTOR TO OPEN WALLS AS REQUIRED. INSTALL THE FIRE DAMPER WITH A NEW SECTION OF DUCT, GAUGE TO COMPLY WITH FIRE DAMPER SLEEVE REQUIREMENTS. PROVIDE NEW GALVANIZED CLOSURE ANGLES AT FLOOR DECK TO SEAL OPENINGS. PROVIDE AND INSTALL NEW ACCESS PANELS IN EACH DUCT, SEE THE SPECIFICATIONS.

2. PROVIDE AND INSTALL INSULATION ON THE PREVIOUS A.H.U.-4 SUPPLY DUCT, CURRENT ZONE "2B". INSULATE PER THE SPECIFICATIONS FOR "INTERIOR RECTANGULAR SUPPLY AIR DUCT". COORDINATE WITH THE G.C. FOR CEILING REMOVAL AS NECESSARY.

3. REMOVE THE EXISTING SUPPORT STEEL FOR THE EXISTING SUPPLY AIR DUCT BRANCH AND INSTALL NEW CHANNEL AT THE TOP CHORD OF THE BEAMS WITH NEW SUPPORT HANGER TO THE DUCT.

4. PROVIDE AND INSTALL NEW SUPPLY AND RETURN AIR DUCTWORK FROM THE PENTHOUSE (LEVEL 4) TO LEVEL TWO BELOW. RUN DUCT UP IN THE BEAM BAY WITH SLOPE TO MATCH THE ROOF LINE. SEE SECTIONS. NOTE; WORK ABOVE THE EXISTING DUCTWORK AND SPRINKLER LINES. PROVIDE CHANNELS AT THE TOP CHORD OF THE BUILDING STEEL TO SUPPORT THE DUCT. DUCTWORK TO BE "SPIRAL" FORMED TYPE WITH STAMPED OR WELDED GORED TYPE FITTINGS, PER THE SPECIFICATIONS.

5. INSULATE THE PROPOSED SUPPLY AND RETURN DUCTWORK WITH PREFORMED PIPE INSULATION WITH ASJ COVERING, AS SPECIFIED FOR HVAC PIPING. LOCATE ALL SEAMS ON UPPER SIDE OF DUCT. INSULATION TO BE 1" THICK. INSULATION TO BE CONTINUOUS FOR ALL EXPOSED SECTIONS OF DUCTWORK. INSULATION TO BE FINISHED PAINTED UNDER THE GENERAL TRADES SECTIONS.

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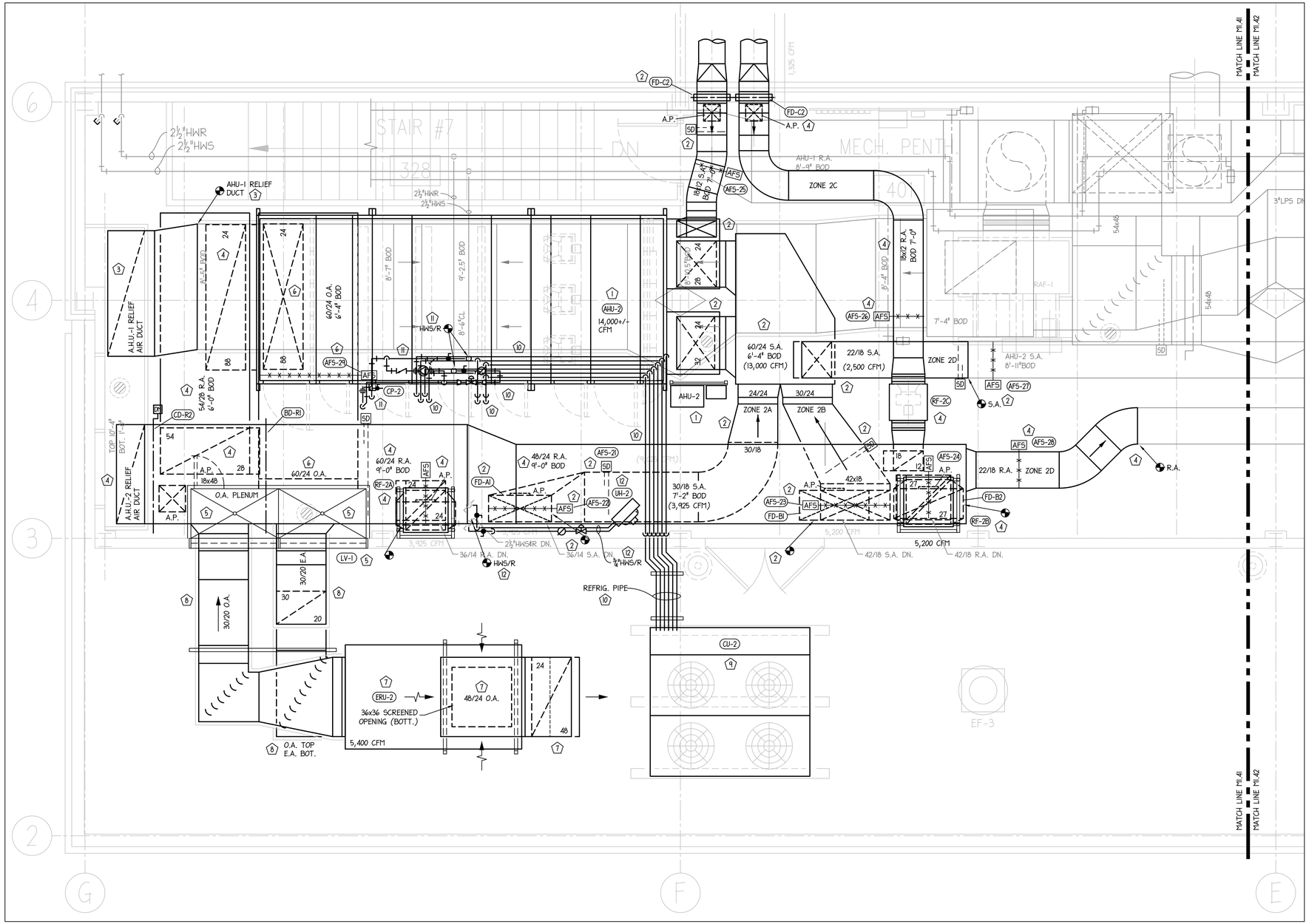
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MECHANICAL
THIRD FLOOR
NEW WORK PLAN

M-1.31

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1 MECHAINCAL - PENTHOUSE LEVEL NEW WORK PLAN
3/8"=1'-0"

CONSTRUCTION NORTH

MECHANICAL NEW WORK LEGEND

NEW MECHANICAL TO BE FURNISHED AND INSTALLED

EXISTING MECHANICAL TO REMAIN

② MECHANICAL SPECIFIC NEW WORK NOTES:

1. PROVIDE AND INSTALL A NEW MODULAR AIR HANDLER UNIT IN THE PENTHOUSE WHERE INDICATED, SEE EQUIPMENT SCHEDULES. COORDINATE FOR SHIPPING THE UNIT SECTIONS THAT CAN FIT THROUGH THE PROPOSED O.A. PLENUM LOUVER OPENING. PROVIDE ALL LABOR AND EQUIPMENT AS REQUIRED TO HOIST AND RIG THE UNIT ON TO THE ROOF AREA AND INTO POSITION IN THE PENTHOUSE. CAREFULLY INSPECT AND MEASURE THE FLOOR AND APPLY LEVELING GROUT UNDER ALL BASE RAILS ON THE UNIT. POSITION AND ASSEMBLE THE UNIT SECTIONS, PER THE MANUFACTURER'S INSTRUCTIONS. DELIVER THE CONTROL AND LEAK PANELS TO THE ELECTRICAL CONTRACTOR FOR INSTALLATION. COORDINATE FOR POWER AND CONTROLS CONNECTIONS.

2. FABRICATE AND INSTALL NEW SUPPLY AIR DUCTWORK FROM THE PROPOSED AIR HANDLER UNIT TO THE EXISTING AND NEW BRANCH DUCTS. FABRICATE DISCHARGE PLENUMS, SPLIT AROUND THE EXISTING COLUMN. PLENUMS TO BE LINED WITH ELASTOMERIC DUCT LINER PER THE SPECIFICATIONS. CONTINUE MAIN DUCTS UP TO A SUB PLENUM WITH BRANCH DUCTS TO RECONNECT TO THE EXISTING AND NEW. PROVIDE NEW FIRE DAMPERS AT ALL FLOOR DECK AND WALL PENETRATIONS, SEE SCHEDULES. PROVIDE ACCESS PANELS AT ALL DAMPERS. INSTALL AIR FLOW STATIONS IN EACH BRANCH DUCT, SEE SCHEDULES. INSTALL THE DUCT SMOKE DETECTORS, PROVIDED BY THE ELECTRICAL CONTRACTOR. FABRICATE AND INSULATE DUCTWORK PER THE SPECIFICATIONS.

3. INSTALL A NEW SECTION OF A.H.U.-1 RELIEF AIR DUCT TO CONNECT TO THE EXISTING RELIEF AIR PLENUM. HOLD BOTTOM OF DUCT FLAT AND INSTALL A "FISH MOUTH" TYPE CONNECTION. FABRICATE DUCT AND INSULATE PER THE SPECIFICATIONS.

4. FABRICATE AND INSTALL A NEW SYSTEM OF RETURN AIR DUCTWORK AND FANS, AS INDICATED BOLD. PROVIDE AND INSTALL NEW RETURN FANS FOR ZONES 2A, 2B & 2C, SEE EQUIPMENT SCHEDULES. FABRICATE STRUT SUPPORT FRAMES FOR THE VERTICAL FANS, WITH NEOPRENE MOUNTS. CONTINUE THE EXISTING DUCTS UP FROM BELOW WITH FIRE DAMPER AS NOTED FOR SUPPLY. TRANSITION TO FAN INLET WITH FLEXIBLE CONNECTOR. CONTINUE DUCT UP TO THE MAIN, WITH AN AIR FLOW STATION. DUCT THE HORIZONTAL FAN SIMILARLY. FABRICATE A NEW RETURN MAIN DUCT AND CONNECT EXISTING ZONE 2D. CONTINUE OVER THE OUTSIDE AIR PLENUM TO THE RELIEF AIR PLENUM AND MAKE A FISH MOUTH CONNECTION, SIMILAR TO AS NOTED ABOVE. INSTALL A BACK DRAFT DAMPER AND BRANCH DUCTS TO THE ENERGY RECOVERY UNIT AS INDICATED. INSTALL THE RELIEF AIR CONTROL DAMPER NEAR THE PLENUM AND INSTALL AN ACCESS PANEL. RUN A MAIN BRANCH RETURN DUCT OVER WITH DUCT DOWN TO THE AIR HANDLER INLET OPENING AND DAMPER. INSTALL THE DUCT SMOKE DETECTOR, PROVIDED BY THE ELECTRICAL CONTRACTOR. FABRICATE DUCTWORK PER THE SPECIFICATIONS. INSULATE THE DUCT TO THE RELIEF DAMPER.

5. FABRICATE AND INSTALL A NEW OUTSIDE AIR PLENUM. PROVIDE NEW LOUVERS TO THE GENERAL TRADES CONTRACTOR FOR INSTALLATION, SEE SCHEDULES. FABRICATE BOTTOM PANELS WITH 1.25" DRAIN TAPPINGS AS INDICATED. FABRICATED SIDE PANELS WITH REINFORCING SPINES AND TOP PANEL. PROVIDE AN ACCESS DOOR, EQUAL TO "A.J. MANUFACTURING", AD-K 1.7" THERMAL BREAK, DOUBLE WALL (R-11) CAKE-PAN DESIGN WITH S.S. HARDWARE. INSULATE PER THE SPECIFICATIONS.

6. PROVIDE AND INSTALL NEW OUTSIDE AIR DUCT CONNECTION FROM THE PROPOSED O.A. PLENUM TO THE AIR HANDLER UNIT INLET. INSTALL AIR FLOW STATION, SEE SCHEDULES. FABRICATE DUCTWORK AND INSULATE PER THE SPECIFICATIONS.

7. PROVIDE AND INSTALL AN ENERGY RECOVERY UNIT ON THE ROOF, WHERE INDICATED, SEE SCHEDULES. DELIVER THE UNIT CURB TO THE GENERAL TRADES CONTRACTOR FOR INSTALLATION. PROVIDE ALL EQUIPMENT AND LABOR AS REQUIRED TO HOIST AND RIG THE UNIT ON THE CURB. FABRICATE AND INSTALL AN OUTSIDE AIR INTAKE DUCT, GALVANIZED STEEL CONSTRUCTION, SEE SECTIONS. PROVIDE S.S. STRUT SUPPORT FRAMING FROM THE UNIT. INSTALL THE FACTORY SUPPLIED DISCHARGE HOOD. COORDINATE FOR POWER AND CONTROL CONNECTIONS.

8. FABRICATE AND INSTALL SUPPLY AND EXTRACT AIR DUCTWORK FROM THE ENERGY RECOVERY UNIT TO THE RETURN AIR DUCT. CONNECT TO UNIT WITH FLEXIBLE CONNECTORS. TRANSITION AND ELBOW AS INDICATED. SET UP ABOVE LOUVER, INTO THE BUILDING AND CONNECT TO THE RETURN DUCT. FABRICATE AND INSULATED DUCTWORK PER THE SPECIFICATIONS.

9. PROVIDE AND INSTALL A NEW SPLIT SYSTEM CONDENSING UNIT ON THE ROOF, SEE EQUIPMENT SCHEDULES. COORDINATE WITH THE GENERAL TRADES CONTRACTOR TO FABRICATE AND INSTALL DUNNAGE WITH FLASHING, TO SUPPORT THE UNIT. PROVIDE ALL EQUIPMENT AND LABOR AS REQUIRED TO HOIST AND RIG THE UNIT ON THE DUNNAGE. COORDINATE FOR POWER AND CONTROL CONNECTIONS.

10. PROVIDE AND INSTALL NEW REFRIGERANT PIPING FROM THE PROPOSED CONDENSING UNIT TO THE AIR HANDLER COILS. RUN PIPING FROM THE CONDENSING UNIT INTO THE BUILDING, SET UP OVER THE SUPPLY DUCT AND UNDER THE RETURN. SET DOWN TO NEAR THE TOP OF THE A.H.U, AND OVER AND DOWN TO THE COIL CONNECTIONS. PIPING SIZING AND CONFIGURATION TO BE PER THE MANUFACTURE'S REQUIREMENTS. PIPING AND INSULATION TO BE PER THE SPECIFICATIONS. SUPPORT PIPING ON ROOF 4' O.C MAXIMUM.

11. PROVIDE AND INSTALL HEATING WATER SUPPLY AND RETURN PIPING TO THE A.H.U. PREHEAT COIL. TAP NEW BRANCHES FROM THE EXISTING LINES WITH ISOLATION VALVES. SET DOWN AND INSTALL THE FREEZE PROTECTION CIRCULATOR, VALVES AND SPECIALTIES, SEE DIAGRAM. OBTAIN THE CONTROL VALVE FROM THE CONTROLS CONTRACTOR. PIPING AND INSULATION TO BE PER THE SPECIFICATIONS.

12. REINSTALL THE SALVAGED UNIT HEATER UNDER THE DUCTWORK WHERE INDICATED. PROVIDE FRAMING FOR SUPPORT AS REQUIRED. TAP NEW HEATING WATER BRANCH LINES FROM THE EXISTING AND CONNECT TO THE UNIT HEATER WITH VALVES AND SPECIALTIES AS INDICATED.

13. PROVIDE THE SERVICES OF A CONTROLS CONTRACTOR TO PROVIDE AND INSTALL A COMPLETE SYSTEM OF CONTROLS FOR ALL OF THE PROPOSED HVAC EQUIPMENT. SEE CONTROLS DRAWINGS AND SPECIFICATIONS FOR MORE COMPLETE SCOPE OF WORK.

14. PROVIDE THE SERVICES OF A TESTING AND BALANCE CONTRACTOR TO MEASURE, ADJUST AND BALANCE THE PROPOSED HVAC EQUIPMENT AND SYSTEMS. THE AIR HANDLER UNIT WILL OPERATE AS VARIABLE AIR VOLUME. WORK WITH THE CONTROLS CONTRACTOR TO SET ALL V.A.V.'S TO DESIGN VALUES AND MEASURE AIR VOLUME AND STATIC PRESSURE FOR EACH SUPPLY ZONE DUCT AND CALIBRATE AIR FLOW STATIONS. RECORD SUPPLY FAN OPERATING CONDITIONS AND FAN DATA. RETURN FANS ARE TO TRACK THE SUPPLIES. MEASURE AIR VOLUME AND RETURN FAN PROFILE WITH ALL UNIT DATA. CALIBRATE AIR FLOW STATIONS. BALANCE PREHEAT COIL AND UNIT HEATER MAXIMUM FLOWS TO DESIGN VALUES. PERFORM ALL WORK AND PROVIDE REPORTS PER THE SPECIFICATIONS.

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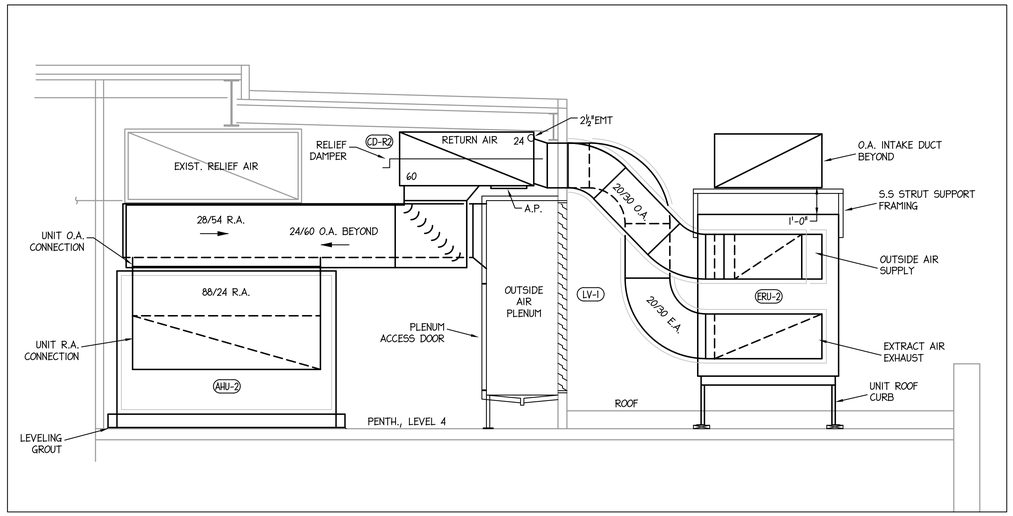
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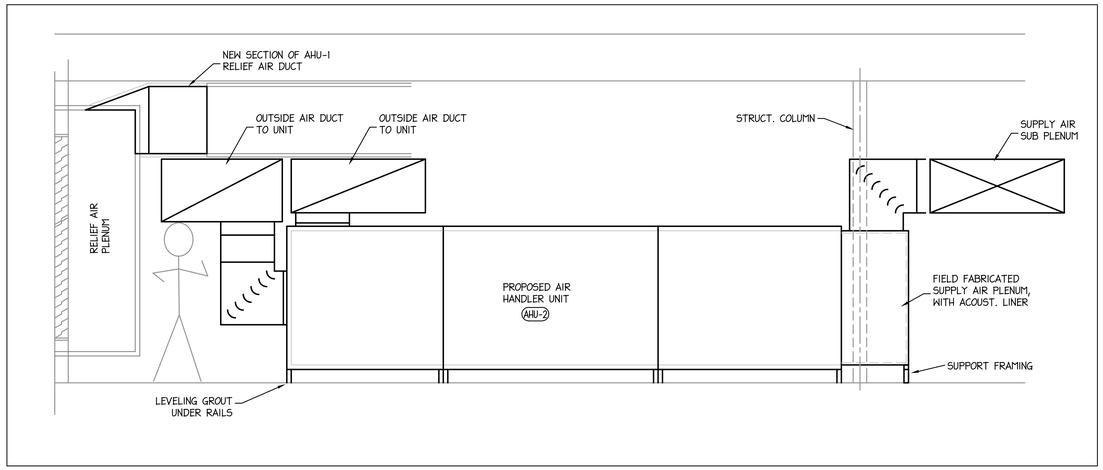
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MECHANICAL - PENTHOUSE LEVEL NEW WORK PLAN

M-1.41

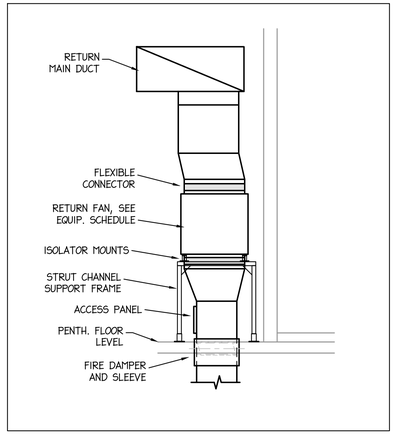


1 SECTION - PROPOSED A.H.U. & O.A. PLENUM
3/8"=1'-0"



2 SECTION - PROPOSED A.H.U., E.A. AND S.A. PLENUM
3/8"=1'-0"

3 SECTION - E.R.U. INTAKE AND EXHAUST HOODS
3/8"=1'-0"



4 SECTION - PROPOSED R.A.F. FAN & DUCT
3/8"=1'-0"

5 SECTION/VIEW - PROPOSED ZONE "2C" SUP. & RET. DUCTWORK
1/4"=1'-0"

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SAS PROJECT NUMBER: 1612

PROJECT
NURSING EXPANSION
PHASE 3
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MECHANICAL - SECTIONS AND DETAILS

M-1.42

LEGEND	
SYMBOL	DESCRIPTION
AFS	AIR FLOW STATION
CO	CARBON MONOXIDE SENSOR
CS	CURRENT SENSOR
DM	DAMPER MOTOR ACTUATOR
DPT	DIFFERENTIAL PRESSURE TRANSMITTER
DD	DUCT SMOKE DETECTOR (FURNISHED BY OTHERS)
DP	DIFFERENTIAL PRESSURE TRANSMITTER
SP	STATIC PRESSURE TRANSMITTER
FC	FLOAT CONTROLLER
FM	FLOW METER
FS	FREEZE STAT
HL	HUMIDITY HIGH LIMIT SWITCH
MG	MAGNEHELIC
PT	PRESSURE TRANSMITTER
RLD	REFRIGERANT ALARM SENSOR
RH	RELATIVE HUMIDITY SENSOR
SW	MOMENTARY CONTACT SWITCH
T	TEMPERATURE SENSOR
V	VALVE ACTUATOR
VPT	VELOCITY PRESSURE TRANSMITTER
◇8	SPECIFIC NOTE
	THERMOMETER WELL
=V	MOTORIZED BUTTERFLY VALVE
ATC	AUTOMATIC TEMPERATURE CONTROLS
CAV	CONSTANT AIR VOLUME
~~ATC~~	~~AUTOMATIC TEMPERATURE CONTROLS~~
~~CAV~~	~~CONSTANT AIR VOLUME~~
~~HWS~~	~~HEATING WATER SUPPLY~~
~~HWR~~	~~HEATING WATER RETURN~~
HWS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
EA	EXHAUST AIR
EAD	EXHAUST AIR DAMPER
FF	FINAL FILTER
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NSR	NON-SPRING RETURN
OA	OUTDOOR AIR
OAD	OUTDOOR AIR DAMPER
PF	PRE-FILTER
PHC	PRE-HEAT COIL
RA	RETURN AIR
RAF	RETURN AIR FAN
RHC	RE-HEAT COIL
SA	SUPPLY AIR
SAF	SUPPLY AIR FAN
SR	SPRING RETURN
VAV	VARIABLE AIR VOLUME

DIRECT DIGITAL CONTROLS GENERAL NOTES

1. THE CONTROLS CONTRACTOR SHALL PROVIDE ALL THE NECESSARY MATERIALS, LABOR AND ACCESSORIES IN ORDER TO PROVIDE A COMPLETE WORKING DIRECT DIGITAL CONTROLS SYSTEM.

2. PROVIDE A COMPLETE AND OPERATIONAL DIRECT DIGITAL CONTROLS SYSTEM INCLUDING ALL REQUIRED WIRING, PROGRAMMING, DEVICES, AND OPERATIONS MANUALS. THE CONTROLS CONTRACTOR'S WORK SHALL INCLUDE BUT NOT BE LIMITED TO: PROVIDING SENSORS FOR THE CONTROLS SYSTEM, AUTOMATIC CONTROL VALVES AND ACTUATORS, CONTROL MODULE(S), CONDUCTORS, CONDUIT, "FRONT END" GRAPHICS, PROGRAMMING, CONNECTION TO THE COMMUNICATIONS BUS, WEB ACCESS AND WEB PORTAL.

3. THE CONTROLS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONTROLS CONDUIT. ALL CONTROLS CONDUCTORS SHALL BE INSTALLED WITHIN E.M.T. OR FLEXIBLE METAL CONDUIT. THE CONTROLS CONDUIT SHALL BE A MINIMUM OF 3/4" EMT. FINAL DROPS TO TEMPERATURE SENSORS MAY BE IN 1/2" EMT. ALL CONTROL WIRING SHALL BE IN CONDUIT.

4. EXTEND TEMPERATURE CONTROLS COMMUNICATION BUS TO CONTROL MODULE LOCATIONS IN E.M.T.

5. A MAXIMUM DISTANCE OF 6'-0" SHALL BE PERMITTED FOR UTILIZING FLEXIBLE METAL CONDUIT OR SEAL TIGHT CONDUIT.

6. THE CONTROLS SYSTEM SHALL INCLUDE A WEB ACCESS SYSTEM INCLUDING ALL REQUIRED EQUIPMENT AND PROGRAMMING TO ALLOW ALL SYSTEMS TO BE ACCESSED AND MODIFIED THROUGH THE WEB. THE CONTROLS CONTRACTOR SHALL NOT BE RESPONSIBLE FOR THE COMMUNICATIONS CONDUCTOR FROM THE IT SYSTEM.

7. PROVIDE CONTROLS TO ACCOMMODATE CONTROLS POINTS LIST, DIAGRAMS AND SEQUENCE OF OPERATIONS.

8. ALL CONTROLS CONDUCTORS SHALL BE EXTENDED TO THE TEMPERATURE CONTROLS PANELS.

9 ALL CONTROLS MODULES SHALL BE MOUNTED IN A PROTECTIVE ENCLOSURE.

10. PROVIDE TIME CLOCK PROGRAM FOR THE CONTROL SYSTEM.

11. THE CONTROLS CONTRACTOR SHALL BE PRESENT DURING THE FINAL BALANCE OF THE NEW AIR HANDLING SYSTEMS.

12. COORDINATE LOCATION OF ALL THERMOSTATS, TEMPERATURE SENSORS, CO2 SENSORS, AND CONTROL VALVES IN FIELD. VERIFY LOCATION WITH ENGINEER PRIOR TO INSTALLATION.

13. THE TEMPERATURE CONTROLS CONTRACTOR IS REPONSIBLE FOR ASSISTING THE COMMISSIONING AGENT DURING THE COMMISSIONING PROCESS. THE TEMPERATURE CONTROLS CONTRACTOR SHALL WORK IN CONJUNCTION WITH THE COMMISSIONING AGENT TO COMPLETE THE PRE-FUNCTIONAL TEST SHEETS FOR ALL EQUIPMENT AND SYSTEMS TO BE COMMISSIONED. THE TEMPERATURE CONTROLS CONTRACTOR SHALL BE PRESENT TO ASSIST THE COMMISSIONING AGENT DURING THE SYSTEM AND EQUIPMENT FUNCTIONAL TESTING PERIOD.

15. THE TEMPERATURE CONTROLS CONTRACTOR IS RESPONSIBLE FOR ASSISTING THE TESTING AND BALANCE AGENT DURING THE BALANCING PROCESS. THE TEMPERATURE CONTROLS CONTRACTOR SHALL WORK IN CONJUNCTION WITH THE TESTING AND BALANCE AGENT TO COMPLETE THE BALANCE AND CALIBRATION OF ALL SYSTEMS.

16. THE CONTROLS CONTRACTOR SHALL FURNISH AND INSTALL ALL REQUIRED FRONT-END GRAPHICS AND PROGRAMMING TO DISPLAY AT THE OWNER'S EXISTING OPERATOR'S STATION.

17. THE CONTROLS CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING POWER AND CONTROLS TRANSFORMERS FOR ALL PROJECT BUILDING AUTOMATION SYSTEM CONTROLS PANELS AND CONTROLLERS. THE CONTROLS CONTRACTOR SHALL COORDINATE POWER REQUIREMENTS AND CONTROLS TRANSFORMER(S) SIZE(S) WITH THE ELECTRICAL CONTRACTOR PRIOR TO BID.

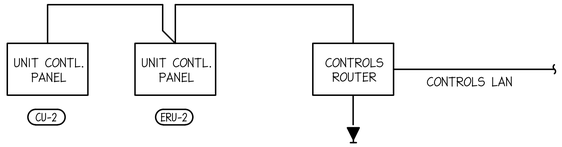
18. ALL POINTS LISTS SHOWN SHALL BE CONTROLLED FROM A SINGLE CONTROLLER OR MULTIPLE CONTROLLERS HARD-WIRED TOGETHER. THE BROADCASTING OF POINTS OVER THE COMMUNICATIONS BUS IS NOT ACCEPTABLE.

PROJECT SPECIFIC NOTES:

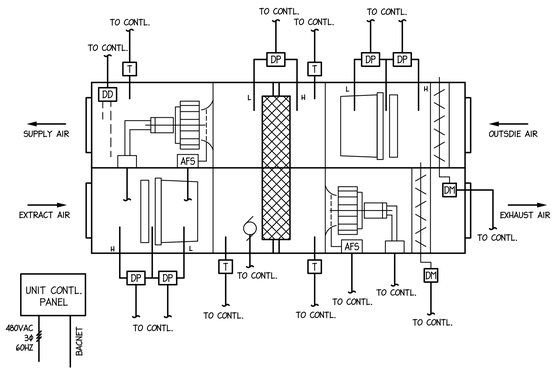
1. THE ONLY APPROVED CONTROLS VENDORS FOR THIS PROJECT ARE AUTHORIZED "JOHNSON CONTROLS" INSTALLERS..

2. SUBMIT COMPLETE CONTROLS EQUIPMENT DATA, DIAGRAMS AND SEQUENCES OF OPERATION, FOR REVIEW AND APPROVAL PRIOR TO START OF WORK.

3. THE CONTROLS CONTRACTOR SHALL SCHEDULE A MANDATORY SCOPE REVIEW COORDINATION MEETING THROUGH THE MECHANICAL CONTRACTOR, PRIOR TO SHOP DRAWING SUBMITTAL, A MINIMUM OF THREE (3) WEEKS PRIOR TO THE START OF ANY WORK. CONTRACTOR TO PRESENT HIS UNDERSTANDING OF THE SCOPE, AND A COMPLETE WORK SCHEDULE, INCLUDING ANY PRODUCT LEAD TIMES.



1 SYSTEM ARCHITECTURE SCHEMATIC
N.T.S.



2 ENERGY RECOVERY UNIT ERU-2 CONTROL SCHEMATIC
N.T.S.

ALARM POINTS

OUTSIDE AIR DAMPER FAIL
EXHAUST AIR DAMPER FAIL
O.A. PRE-FILTER D.P. HIGH
O.A. FILTER D.P. HIGH
E.A. PRE-FILTER D.P. HIGH
E.A. FILTER D.P. HIGH
SUPPLY FAN FAIL
EXHAUST FAN FAIL
ENERGY WHEEL FAIL

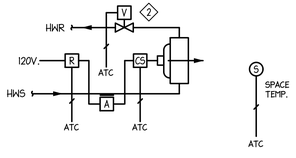
◇8 NOTES

1. GENERALLY ALL SENSORS AND CONTROL DEVICES ARE PROVIDED INTEGRAL WITH THE UNIT.

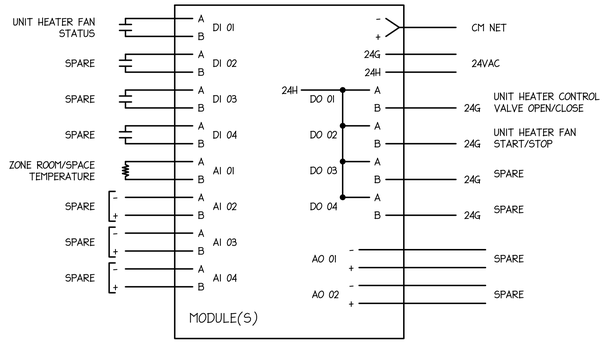
2. AIR FLOW MONITORING ACCURACY IS TO BE VERIFIED AND CALIBRATED WITH AIR BALANCE READINGS.

3. PROVIDE BACNET COMMUNICATIONS FOR MONITORING AND CONTROL OF THE UNIT. LOSS OF COMMUNICATION SHALL SHUT-DOWN THE UNIT.

4. THE CONTROLS CONTRACTOR SHALL MAP ALL AVAILABLE (USED) POINTS TO THE CONTROLS SYSTEM AND PROVIDE GRAPHICS TO DISPLAY SYSTEM WITH POINTS AND CONTROL INPUTS.



3 UNIT HEATER CONTROLS SCHEMATIC
N.T.S.



4 U.H. CONTROLS POINTS SCHEMATIC
N.T.S.

SEQUENCES OF OPERATION

START-UP;
THE UNIT SHALL OPERATE BASED ON THE OWNER'S OCCUPANCY SCHEDULE AND IN CONJUNCTION WITH THE AIR HANDLER UNIT #2 CONTROLS. PROVIDE A PROGRAMMED 365 DAY TIME CLOCK SCHEDULE TO REFLECT THE OWNER'S OCCUPANCY SCHEDULE. DEFAULT CONDITIONS - UNIT IS OFF AND THE OUTDOOR AIR AND EXHAUST AIR ISOLATION DAMPERS ARE CLOSED.
ON COMMAND TO START, BASED ON THE OCCUPANCY SCHEDULE AND WITH AHU-2 OPERATING, THE UNIT OUTSIDE AIR AND EXHAUST AIR DAMPERS SHALL BE OPENED. THE EXHAUST FAN SHALL BE STARTED AND RAMP UP TO 25% SPEED. AFTER A BRIEF DELAY THE SUPPLY FAN SHALL BE STARTED AND RAMP UP TO 25% SPEED. FANS SHALL COME UNDER CONTROL AND RAMP TO CALCULATED DESIGN AIR VOLUMES. THE SUPPLY AND EXHAUST AIR VOLUMES SHALL BE CONTROLLED TO BE 40% OF THE AHU-2 TOTAL SUPPLY AIR VOLUME. FANS TO OPERATE IN A PRESSURE INDEPENDENT MANOR. UNIT IS TO BE OFF DURING UNOCCUPIED PERIODS.
FAILURE OF EITHER FAN SHALL SHUT-DOWN THE UNIT. SHUT-DOWN OF AHU-2 SHALL ALSO SHUT-DOWN THIS UNIT. FIRE ALARM SYSTEM ALARM STATUS SHALL SHUT-DOWN THE UNIT.

ECONOMIZER MODE;
WHEN THE AHU-2 DISCHARGE AIR TEMPERATURE RISES ABOVE SET POINT THE E.R.U. SHALL REDUCE RECOVERY (AND SUPPLY TEMPERATURE) BY MODULATING THE WHEEL SPEED DOWN TO MINIMUM SPEED. WHEN THE AHU UNIT GOES INTO ECONOMIZER MODE THE UNIT SHALL BE SHUT DOWN. WHEN THE A.H.U. IS IN MECHANICAL COOLING MODE THE UNIT SHALL OPERATE WITH FULL RECOVERY.

FROST PROTECTION;
THE UNIT CONTROLS SHALL MODULATE WHEEL TEMPERATURE TO CONTROL FROSTING.

SEQUENCE OF OPERATIONS

START-UP;
WHEN SPACE TEMPERATURE DROPS BELOW SET POINT THE UNIT HEATER SHALL BE CALLED OPERATE.
ON CALL TO START THE HEATING WATER CONTROL VALVE SHALL BE OPENED AND THE FAN RELAY ENGAGED. WHEN THE HEATING WATER TEMPERATURE AT THE AQUASTAT REACHES SET POINT, THE UNIT FAN SHALL BE STARTED. WHEN SPACE TEMPERATURE IS SATISFIED THE HEATING WATER CONTROL VALVE SHALL BE CLOSED. AFTER A 90 SECOND (ADJ.) DELAY THE FAN RELAY SHALL STOP THE FAN.
PROVIDE A PROGRAMMED FAN STATUS DELAY, FROM CALL TO START.

ALARM POINTS

FAN FAIL
SPACE TEMPERATURE LOW

◇8 NOTES

1. PROVIDE SPACE TEMPERATURE SENSORS WITH LIMITED ACCESSIBLE LOCAL ADJUSTMENT AND WITH A DIGITAL TEMPERATURE DISPLAY. WALL MOUNT AT 54"+/- A.F.F. LABEL WITH ZONE NUMBER.

2. PROVIDE CONTROL VALVE TO THE MECHANICAL CONTRACTOR FOR INSTALLATION. CALCULATE FINAL SIZING FOR ALL VALVES. CONTROL VALVES TO CHARACTERIZED BALL TYPE WITH BRASS BODY, STAINLESS STEEL BALL AND TRIM, EQUAL TO "BELIMO" "B2" SERIES. PROVIDE WITH TWO POSITION, ACTUATOR, FAIL OPEN.

3. PROVIDE A STRAP-ON TYPE AQUA STAT TO START FAN WHEN HEATING WATER IS FLOWING, FIELD DETERMINE SET POINT.

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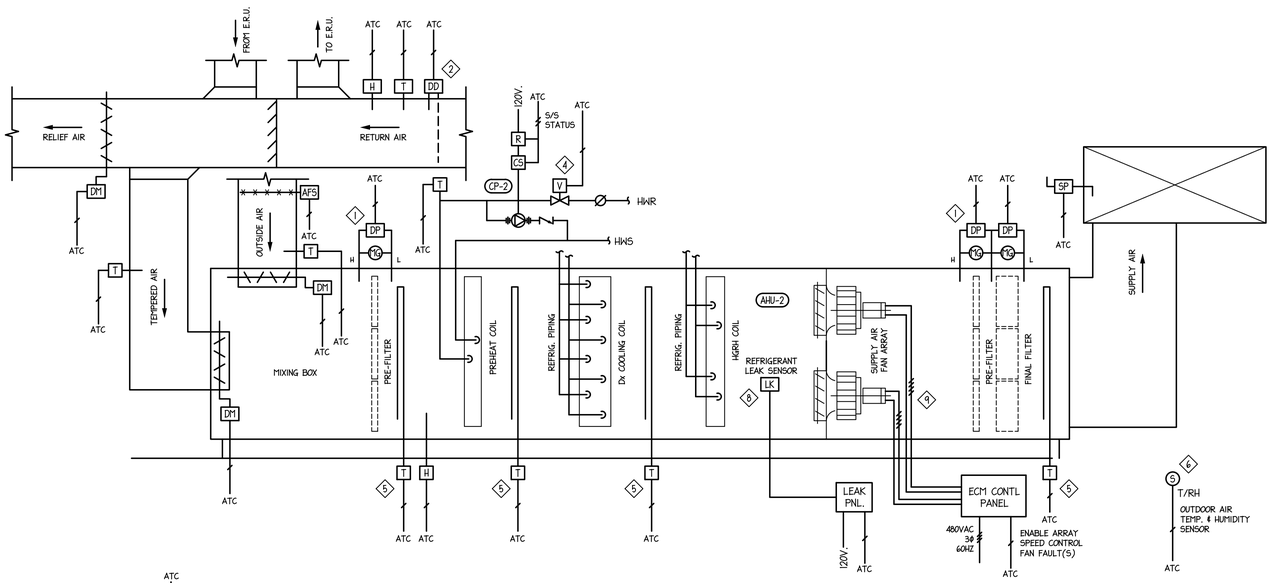
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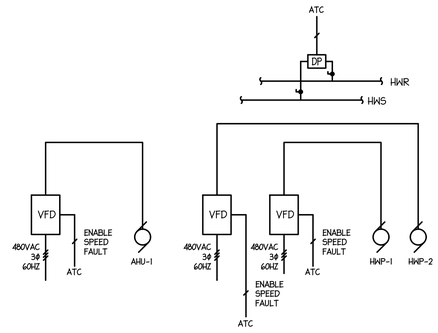
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MECHANICAL - CONTROLS, NOTES, LEGEND & SCHEMATICS

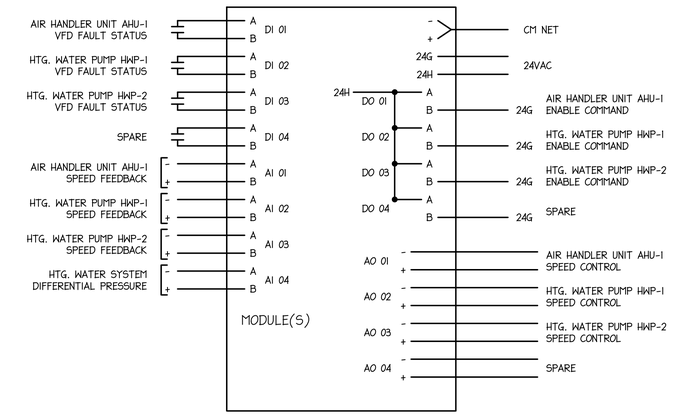
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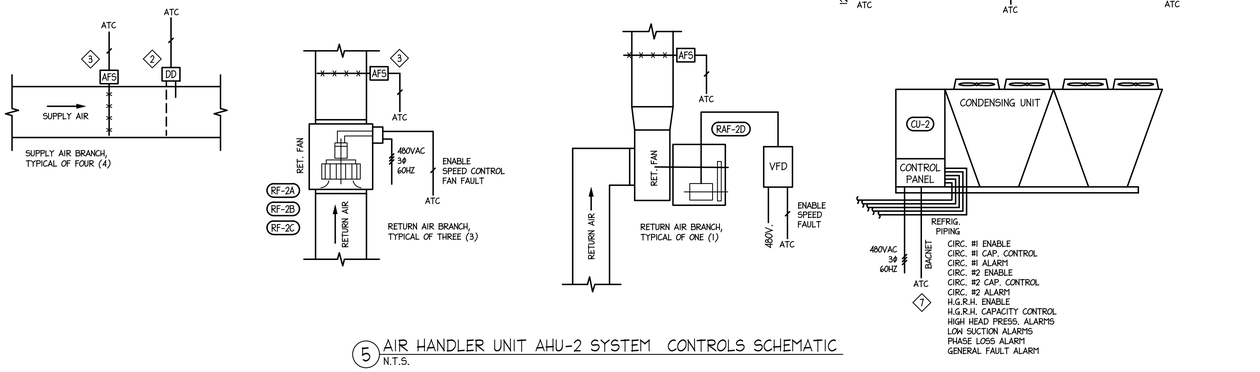
5 AIR HANDLER UNIT AHU-2 SYSTEM CONTROLS SCHEMATIC
N.T.S.



6 EXISTING EQUIPMENT VFD CONTROLS SCHEMATIC
N.T.S.



7 EXIST. EQUIP. VFD CONTROLS POINTS SCHEMATIC
N.T.S.



SEQUENCES OF OPERATION

START-UP:
THE AIR HANDLER UNIT SHALL BE MANUALLY COMMANDED TO START FROM THE OPERATOR STATION. INITIAL STATUS - E.R.U. UNIT IS OFF. THE SUPPLY AND RETURN FANS ARE OFF. THE UNIT RETURN AIR DAMPER IS FULL OPEN, THE OUTSIDE AIR AND RELIEF AIR DAMPERS ARE CLOSED.
UPON COMMAND TO START THE SUPPLY FAN SHALL BE ENABLED AND RAMPED UP TO THE MINIMUM DISCHARGE STATIC PRESSURE SET POINT. THE RETURN FANS SHALL BE ENABLED AND RAMP UP TO SPEED AS REQUIRED FOR THE CALCULATED OPERATING AIR VOLUME. THE E.R.U. UNIT SHALL BE STARTED. THE MIXED AIR DAMPERS SHALL COME UNDER CONTROL (REMAIN IN FULL RETURN POSITIONS, UNLESS IN ECONOMIZER MODE). SUPPLY AIR VOLUME TO EACH MAIN SUPPLY BRANCH SHALL BE MONITORED TO THE SYSTEM. THE RESPECTIVE RETURN FANS AIR VOLUME SHALL BE MONITORED AND CONTROLLED TO TRACK THE SUPPLY AIR VOLUME WITH AN OFFSET AS ESTABLISHED DURING AIR BALANCING. UPON A FAILURE OF THE E.R.U. UNIT, THE OUTSIDE AIR, RETURN AND RELIEF AIR DAMPERS SHALL MOVE TO MINIMUM OUTSIDE AIR POSITIONS. THIS SHALL BE CALCULATED AS 40% OF THE SUPPLY AIR VOLUME.
DUCT SMOKE DETECTOR TRIP OR FIRE ALARM SYSTEM "ALARM" STATUS, SHALL SHUT-DOWN THE SYSTEM. A REFRIGERANT LEAK, AS DETECTED BY THE UNIT MONITORING PANEL, SHALL SHUT-DOWN THE UNIT FANS. ON SHUT-DOWN ALL DAMPERS SHALL RETURN TO THEIR NORMAL POSITIONS.

OCCUPIED PERIODS:
THE ENERGY RECOVERY UNIT SHALL BE ENABLED. SEE E.R.U. CONTROLS AND SEQUENCE OF OPERATION.
THE A.H.U. SUPPLY AIR DISCHARGE STATIC SET POINT SHALL BE RESET BASED ON THE SYSTEM V.A.V. BOX POSITIONS. MINIMUM VALUE TO BE 0.5" W.C. (ADJ.), PRESSURE SHALL BE INCREASED SLOWLY UNTIL NOT MORE THAN TWO (2) ZONE V.A.V. BOXES ARE 100% OPEN. DISCHARGE STATIC PRESSURE SET POINT SHALL SIMILARLY DECREASE UNTIL ONLY ONE OR TWO BOXES ARE FULL OPEN.

TEMPERATURE CONTROL:
HEATING - WHEN THE A.H.U. DISCHARGE AIR TEMPERATURE IS BELOW THE CALCULATED SET POINT, THE PRE-HEAT HEATING WATER CONTROL VALVE SHALL BE MODULATED OPEN AS REQUIRED TO MAINTAIN SET POINT. LOW AIR TEMPERATURE MEASURED AFTER THE PREHEAT COIL SHALL OVERRIDE THE CONTROL VALVE OPEN. COIL LEAVING AIR TEMPERATURES BELOW 35 DEG. F, SHALL SHUT DOWN THE UNIT AND ALARM THE SYSTEM. WHEN OUTDOOR AIR TEMPERATURES ARE BELOW 36 DEG. F THE COIL FREEZE PROTECTION CIRCULATOR SHALL BE STARTED AND OPERATE UNTIL O.A. TEMPERATURES RISE. WHEN THE UNIT IS OFF, THE COIL CONTROL VALVE SHALL BE MODULATED TO MAINTAIN AN AIR HANDLER CABINET TEMPERATURE OF 54° F, MEASURED AT THE COIL DISCHARGE STAT. SUPPLY DISCHARGE AIR TEMPERATURE SET POINT TO BE RESET BASED ON OUTSIDE AIR TEMPERATURE, 55° @ 60° O.A TO 60° @ 20° O.A. (ADJ.).

ECONOMIZER MODE - PROVIDE A PROGRAMMED COMPARATIVE ENTHALPY BASED ECONOMIZER CONTROL SEQUENCE. ON A RISE IN MIXED AIR ENTHALPY ABOVE THE SUPPLY AIR SET POINT, THE E.R.U. SHALL OPERATE IN ECONOMIZER MODE. WHEN THE A.H.U. SUPPLY AIR TEMPERATURE CAN NO LONGER BE MAINTAINED VIA THE E.R.U., AND THE OUTSIDE AIR ENTHALPY 1.0+ DEG. F BELOW THE THE SUPPLY AIR SET POINT, THE E.R.U. SHALL BE SHUT DOWN AND THE A.H.U. OUTSIDE AIR, RETURN AIR AND RELIEF AIR DAMPERS MODULATED IN ECONOMIZER MODE TO MAINTAIN UNIT DISCHARGE AIR TEMPERATURE SET POINT. DISCHARGE AIR TEMPERATURE SET POINT TO BE RESET BASED ON OUTSIDE AIR TEMPERATURE, 55° @ 60° O.A TO 60° @ 20° O.A.
ON A MIXED AIR TEMPERATURE INCREASE ABOVE SET POINT, WITH THE DAMPERS AT 100% OUTSIDE AIR POSITION, AND OUTSIDE AIR ENTHALPY BELOW DISCHARGE AIR SET POINT, MECHANICAL COOLING SHALL BE ENABLED AND MODULATED AS REQUIRED TO MAINTAIN SET POINT. WHEN O.A. ENTHAPLY RISES ABOVE SET POINT, THE ECONOMIZER DAMPERS RETURNED TO NORMAL CLOSED/OPEN POSITIONS AND THE E.R.U. RESTARTED IN FULL RECOVERY MODE.

COOLING - ON A DEMAND FOR COOLING BEYOND ECONOMIZER OPERATION, THE CONDENSING UNIT SHALL BE ENABLED. THE CONDENSING UNIT SHALL BE CALLED ON IN STAGES TO AS REQUIRED TO MAINTAIN SUPPLY AIR TEMPERATURE SET POINT. GENERALLY THE CONDENSING UNIT REFRIGERATION SHALL BE CONTROLLED BY THE UNIT MANUFACTURER PROVIDED CONTROLS. THE CONTROLS CONTRACTOR SHALL SEND ENABLE, SEQUENCING AND CAPACITY CONTROL SIGNALS TO THE UNIT. THE LEAD COOLING STAGE SHALL ALTERNATE EVERY 48 HOURS.

HUMIDITY CONTROL:
WHEN ZONE HUMIDITY LEVELS EXCEED THE SET POINT LEVELS, THE COOLING COIL CAPACITY SHALL BE INCREASED AS REQUIRED TO REDUCE DISCHARGE AIR HUMIDITY (DEW POINT) LEVELS TO MAINTAIN SET POINT. THE HOT GAS REHEAT SYSTEM SHALL BE ENABLED. THE HOT GAS REHEAT CAPACITY SHALL BE MODULATED AS REQUIRED TO MAINTAIN DISCHARGE AIR TEMPERATURE SET POINT.

PROVIDE PROGRAMMED SET POINT DIFFERENTIAL SETTINGS FOR ALL PARAMETERS TO AVOID "HUNTING", MAINTAIN SET POINTS WITHIN TOLERANCES AND PROPERLY SEQUENCE ALL CONTROLS.

ALARM POINTS

PRE-FILTER DIFF. PRESSURE HIGH
PREHEAT COIL CIRCULATOR FAIL
PREHEAT COIL LAT LOW TEMP.
A.H.U.-2 REFRIGERANT LEAK
SUPPLY FAN FAIL (x6)
FINAL FILTER PRE-FILTER D.P.
FINAL FILTER DIFF. PRESS.
SUPPLY AIR PLENUM STATIC HIGH/LOW
S.A. ZONE VOL. OUT OF RANGE (x4)
RETURN AIR FAN FAIL (x4)
R.A. ZONE VOL. OUT OF RANGE (x4)
RETURN AIR HUMIDITY HIGH
COND. UNIT CIRC. FAIL (x4)
COND. UNIT HIGH HEAD ALARM
COND. UNIT LOW SUCTION ALARM
COND. PHASE LOSS ALARM
COND. UNIT GENERAL FAULT

4 NOTES

1. PROVIDE FILTER DIFFERENTIAL PRESSURE TRANSMITTERS AT EACH FILTER BANK. PROVIDE A MAGNEHELIC GAUGE AT EACH FILTER BANK, CONNECTED TO THE SAME SENSOR TIPS.

2. COORDINATE WITH THE ELECTRICAL CONTRACTOR FOR POWER SUPPLIES AND FIRE ALARM CONNECTIONS TO THE DUCT SMOKE DETECTORS.

3. PROVIDE POWER TO ALL AIR FLOW MONITORING STATIONS.

4. PROVIDE CONTROL VALVES TO THE MECHANICAL CONTRACTOR FOR INSTALLATION. CONTROL VALVES TO CHARACTERIZED BALL TYPE WITH BRASS BODY, STAINLESS STEEL BALL AND TRIM, EQUAL TO "BELIMO" "B2" SERIES. ACTUATORS TO BE MODULATING TYPE.

5. PROVIDE AVERAGING TYPE TEMPERATURE SENSORS WHERE INDICATED, GENERALLY AT ALL COIL LOCATIONS.

6. PROVIDE AND INSTALL AN OUTDOOR AIR TEMPERATURE AND HUMIDITY SENSOR. MOUNT OFF THE NORTH SIDE OF THE PENTHOUSE WITH WEATHER SHIELD.

7. GENERALLY ALL POINTS AVAILABLE VIA NETWORK CONNECTIONS MAY BE "SOFT" POINTS. PROVIDE ROUTERS OR SIMILAR AS REQUIRED FOR COMMUNICATION AND MAP ALL POINTS TO THE SYSTEM GRAPHICS.

8. MOUNT THE MFGR. PROVIDED REFRIGERANT LEAK SENSOR IN THE A.H.U. AFTER THE REHEAT COIL. INSTALL CONTROL WIRING FROM THE SENSOR TO THE LEAK TERMINAL PANEL. COORDINATE WITH THE ELECTRICAL CONTRACTOR FOR POWER CONNECTION.

9. PROVIDE AND INSTALL CONTROL WIRING FROM EACH OF THE SUPPLY ARRAY FANS, TO THE TERMINAL PANEL (ENABLE, SPEED, FAULT). WIRING TO BE IN CONDUIT. COORDINATE WITH ELECTRICAL POWER WIRING. SEAL ALL CASING PENETRATIONS.

SEQUENCE OF OPERATIONS

START-UP;
AIR HANDLER UNIT AHU-1 SHALL BE COMMANDED TO START FROM THE OPERATOR STATION. UNIT SHALL OPERATE AT A FIXED SPEED CONTROL (ADJ.) TO MATCH CURRENT OPERATING CONDITIONS.
A LEAD HEATING WATER PUMP (HWP-1/2) SHALL BE SELECTED TO OPERATE. ON PUMP FAILURE THE LAG PUMP SHALL BE AUTOMATICALLY STARTED AND THE LEAD PUMP STOPPED, WITH AN ALARM TO THE SYSTEM. LEAD/LAG ORDER SHALL BE REVERSED EVERY 120 HOURS. PUMP SPEED SHALL BE CONTROLLED TO MAINTAIN SYSTEM DIFFERENTIAL PRESSURE.

ALARM POINTS

AHU-1 FAN FAIL
HWP-1 PUMP FAIL
HWP-2 PUMP FAIL
HTG. WATER SYS. D.P. LOW

8 NOTES

1. WORK WITH THE AIR BALANCE CONTRACTOR TO ESTABLISH AHU-1 SUPPLY FAN SPEED TO MATCH EXISTING OPERATING CONDITIONS.

2. RECONNECT THE EXISTING HEATING WATER SYSTEM DIFFERENTIAL PRESSURE SENSOR TO THE PROPOSED CONTROLS MODULE. REVIEW EXISTING D.P. SET POINT WITH THE ENGINEER.

3. COORDINATE WITH THE ELECTRICAL CONTRACTOR FOR PROVISION AND MOUNTING OF VFD'S.

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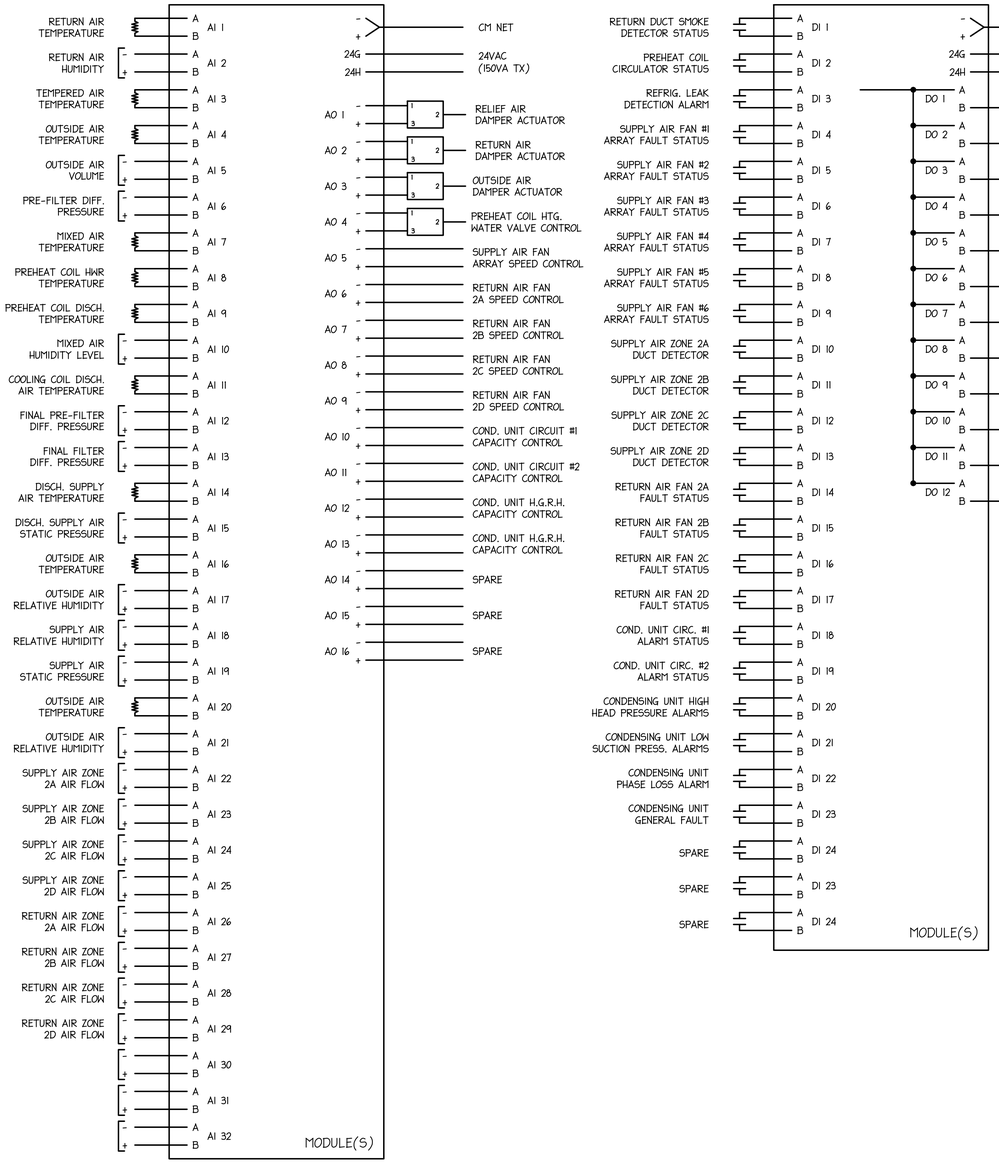
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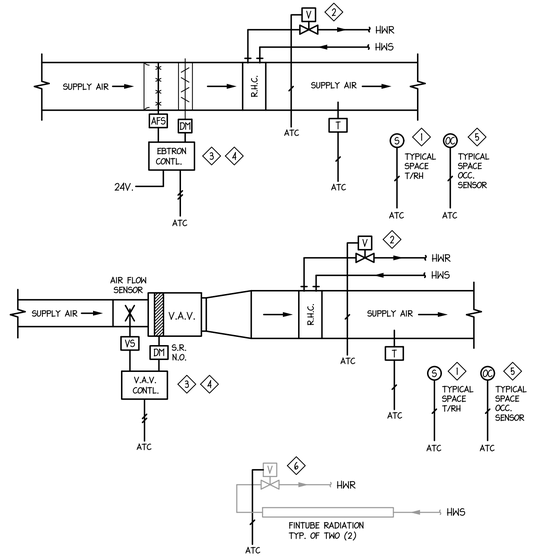
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MECHANICAL - CONTROLS SCHEMATICS

M-3.02



6 A.H.U.-2 SYSTEM CONTROLS POINTS SCHEMATIC
N.T.S.



7 TYPICAL V.A.V HVAC. ZONE CONTROL SCHEMATICS
N.T.S.

NOTE; THE SUPPLY ZONES INDICATED ABOVE ARE TYPICAL OF MANY, SEE PLANS AND EQUIPMENT SCHEDULES.

8 TYPICAL V.A.V. HVAC ZONE CONTROL POINTS SCHEMATIC
N.T.S.

NOTE; THE CONTROL POINTS INDICATED ABOVE ARE TYPICAL OF MANY, SEE PLANS AND EQUIPMENT SCHEDULES.

SEQUENCE OF OPERATIONS

START-UP;
PROVIDE A PROGRAMMED TIME CLOCK SCHEDULE TO INDICATE NORMAL OCCUPIED AND UNOCCUPIED HOURS. PROGRAM TO INCLUDE WEEKENDS AND HOLIDAYS PER THE OWNER'S SCHEDULE.

UNOCCUPIED PERIODS;
SPACE OCCUPANCY SHALL BE FURTHER MONITORED BY THE OCCUPANCY SENSOR. WHEN NO OCCUPANCY IS DETECTED FOR FIEVE (5) MINUTES THE SPACE SHALL GO TO UNOCCUPIED MODE.
DURING UNOCCUPIED PERIODS THE ZONE SUPPLY V.A.V. BOXES SHALL OPERATE AT THE MINIMUM DESIGN CFM VALUES (PER EQUIPMENT SCHEDULES).
THE REHEAT COIL CONTROL VALVE SHALL BE MODULATED OPEN AS REQUIRED TO MAINTAIN SPACE UNOCCUPIED TEMPERATURE SET POINT. FOR ZONES WITH FIN TUBE RADIATION, ON A CALL FOR HEATING THE REHEAT COIL SHALL BE MODULATED TO SUPPLY AIR AT 2° (A.D.J.) ABOVE SET POINT AND THE FIN TUBE RADIATION SHALL BE MODULATED TO MAINTAIN SET POINT..

OCCUPIED PERIODS;
THE ZONE SUPPLY V.A.V. BOXES SHALL OPERATE AT THE LISTED DESIGN CFM VALUES (PER EQUIPMENT SCHEDULES).
THE REHEAT COIL CONTROL VALVE SHALL BE MODULATED OPEN AS REQUIRED TO MAINTAIN THE SPACE OCCUPIED SET POINT TEMPERATURE. ZONES WITH FIN TUBE RADIATION SHALL OPERATE AS NOTED ABOVE.
PROVIDE PROGRAMMED SPACE OCCUPIED AND UNOCCUPIED TEMPERATURE SET POINTS.
SPACE HUMIDITY SHALL BE MONITORED TO THE SYSTEM.
ZONE SUPPLY AIR VOLUME AND BOX DAMPER POSITION SHALL BE MONITORED TO THE SYSTEM.

ALARM POINTS

SUPPLY V.A.V. AIR VOLUME LOW
SUPPLY V.A.V. AIR VOLUME HIGH
DISCHARGE AIR TEMPERATURE LOW
SPACE TEMPERATURE HIGH
SPACE TEMPERATURE LOW

◇ NOTES

1. PROVIDE SPACE TEMPERATURE AND HUMIDITY SENSORS WITH LIMITED ACCESSIBLE LOCAL ADJUSTMENT AND WITH A DIGITAL TEMPERATURE DISPLAY. WALL MOUNT AT 54"+/- A.F.F. LABEL WITH ZONE NUMBER.

2. PROVIDE CONTROL VALVES TO THE MECHANICAL CONTRACTOR FOR INSTALLATION. CALCULATE FINAL SIZING FOR ALL VALVES. CONTROL VALVES TO CHARACTERIZED BALL TYPE WITH BRASS BODY, STAINLESS STEEL BALL AND TRIM, EQUAL TO "BELIMO" "B2" SERIES. PROVIDE WITH MODULATING, ACTUATOR, FAIL LAST.

3. VERIFY V.A.V. BOX VOLUME MIN./MAX. CONTROL SET POINTS WITH AIR BALANCE READINGS.

4. PROVIDE PROGRAMMING TO DISPLAY V.A.V. BOX VELOCITY PRESSURE IN EQUIVALENT CFM VALUE AT THE OPERATOR STATION.

5. PROVIDE AND INSTALL OCCUPANCY SENSORS IN EACH V.A.V. ZONE SPACE. PROVIDE MULTIPLE SENSORS IN LARGER SPACES FOR FULL COVERAGE. WHERE MULTIPLE SPACES ARE SERVED BY A SINGLE ZONE, SELECT A REPRESENTATIVE SPACE.

6. RADIATION CONTROL VALVES ARE EXISTING. RECONNECT TO THE NEW CONTROLS MODULES. VERIFY OPERATION AND MODIFY CONTROL AS REQUIRED.

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MECHANICAL - CONTROLS SCHEMATICS

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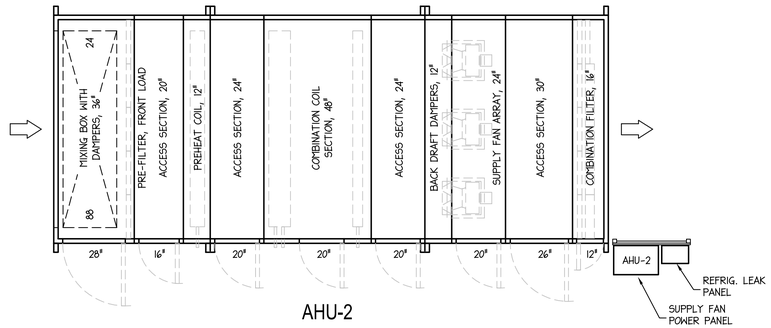
MODULAR AIR HANDLER UNIT AHU-2 SCHEDULE

					SUPPLY FAN FAN ARRAY STYLE, 3x2 (6) FANS									PRE-FILTER			PREHEAT COIL, HOT WATER TYPE									COOLING COIL									FINAL FILTER		
																	AIR SIDE					WATER SIDE				AIR SIDE								REFRIGERANT				
TAG	DESCRIPTION	LOCATION	TOTAL CFM	MINIMUM O.A.	TYPE	CFM	MIN E.S.P.	TOT. S.P.	RPM	MOTOR	VOLTS	ϕ	MTR. HP	TYPE	EFF.	OPTIONS	ROWS	F.P.I.	E.A.T	L.A.T	MBH	E.W.T.	L.W.T.	GPM	A.P.D.	ROWS	F.P.I.	E.A.T.	L.A.T.	T.MBH	S.MBH	F.P.M.	A.P.D.	TYPE	SST	TYPE	EFF.	OPTIONS
AHU-2	MODULAR INDOOR AIR HANDLER UNIT	LEVEL 4, (PENTH.)	14,000 CFM	5,400 CFM (FROM E.R.U.)	BAF PLENUM	14,000 TOT.	2.0"	4.49"	2,943	ECM	480	3	3.3 EA.	DISP. MERV 8	30%	2" FLAT FILTER RACK FRONT LOAD	1	12	35.0°F	60.0°F	374.7	160° F	130° F	25.5	0.12"	8 MIN.	6	80.0db/67.0wb	53.0db/52.1wb	609.5	403.4	421	0.58"	R-32	44.0°F	4" PLEATED MERV 13	80-85%	MERV 8 PRE-FILTER, 2" SIDE ACCESS
	BASIS OF DESIGN DAIKIN #CAH034GDCM																PREHEAT COIL - 2 SECTIONS, STACKED									Dx COOLING COIL TO BE TWO (2) CIRCUIT INTERTWINED.													

NOTES:
1. CONTRACTOR TO COORDINATE WITH THE MANUFACTURER'S REPRESENTATIVE FOR SHIPPING SPLITS AS REQUIRED TO HOIST AND RIG INTO THE BUILDING.
2. PROVIDE UNIT WITH 2" THICK FOAM INSULATED GALVANIZED WALL PANELS WITH SOLID INTERIOR LINING. EXTERIOR TO HAVE BAKED ENAMEL PAINT FINISH, MANUFACTURER'S STANDARD COLOR.
3. UNITS TO BE "RIGHT HAND" CONFIGURATION WITH ALL ACCESS DOORS, COIL CONNECTIONS, DRAIN CONNECTIONS, ETC. ON THE RIGHT SIDE.
4. PROVIDE UNIT WITH BASE RAILS FOR SLAB MOUNTING.
5. PROVIDE UNIT WITH A FAN ARRAY UTILIZING ECM TYPE DIRECT DRIVE FANS AND I.E.5 PREMIUM EFFICIENCY MOTORS.
6. PROVIDE FAN ARRAY WITH VERTICAL BLADE, ZERO A.P.D. TYPE BACK DRAFT DAMPERS.
7. PROVIDE EACH FAN WITH AIR FLOW PIEZOMETER RING, FOR POTENTIAL FUTURE USE.
8. PROVIDE UNIT WITH "SHIPPED LOOSE" CONTROL PANEL FOR REMOTE INSTALLATION. MECHANICAL CONTRACTOR TO COORDINATE WITH ELECTRICAL AND CONTROLS CONTRACTORS FOR FAN POWER AND CONTROL WIRING.
9. PROVIDE UNIT WITH STAINLESS STEEL DRAIN PANS.
10. PROVIDE UNIT WITH A REFRIGERANT (AL2) LEAK SENSOR AND MONITOR PANEL, SHIPPED LOOSE FOR FIELD INSTALLATION.

HOT GAS REHEAT COIL

AIR SIDE								
ROWS	F.P.I.	E.D.B.	L.D.B	E.W.B.	L.W.B.	MBH	F.P.M.	A.P.D.
1 MIN.	-	53.0°F	60.0°F	-	-	105.8	488	0.11"
H.G. REHEAT COIL - 2 SECTIONS, STACKED								



AHU-2

CONDENSER UNIT SCHEDULE

TAG	DESCRIPTION	MAKE & MODEL	CAPACITY	CAPACITY @ CONDITIONS	REFRIG.	ELECTRICAL	FLA	MOCP	REMARKS;
CU-2	SPLIT SYSTEM CONDENSING UNIT	DAIKIN DCSA052	NOM. 50 TONS @ 90.0°db/72.0°wb OUTDOOR AIR	613.3 MBH @ 45.0° SUCTION TEMPERATURE	R-32	480V., 3PH.	106.1	125.0	SEE NOTES

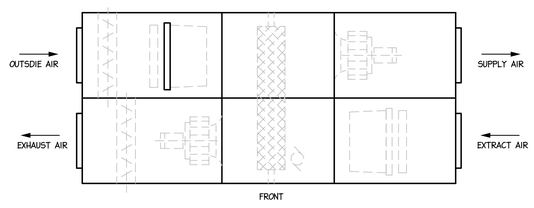
NOTES:
1. TYPE R32 REFRIGERANT.
2. UNIT TO BE DUAL CIRCUIT.
3. ALL COMPRESSORS TO BE VFD DRIVEN MODULATING SCROLL.
4. PROVIDE UNIT WITH MODULATING HOT GAS REHEAT CONTROL.
5. PROVIDE UNIT WITH SUCTION SERVICE VALVES, SIGHT GLASS, SUCTION PRESSURE TRANSDUCER AND PRESSURE GAUGES.
6. PROVIDE UNIT WITH COMPRESSOR SOUND BLANKET INSULATION.
7. CONDENSER FANS TO BE ECM TYPE, LOW SOUND WITH HEAD PRESSURE CONTROL.
8. PROVIDE UNIT WITH MANUFACTURER SUPPLIED REFRIGERATION CONTROLS, SET UP FOR CAPACITY CONTROLS FROM THE BUILDING BMS, VIA BACNET COMMUNICATION PROTOCOL.
9. PROVIDE UNIT WITH SINGLE POINT POWER CONNECTION AND 24 VOLT TERMINAL STRIP FOR CONTROLS INTERFACE CONNECTIONS.
10. UNIT CABINET TO BE GALVANIZED STEEL WITH BAKED ENAMEL PAINT FINISH, MANUFACTURER'S STANDARD COLOR.
11. PROVIDE UNIT WITH EXTENDED COMPRESSOR WARRANTY.
12. MOUNT UNIT ON DUNNAGE PROVIDED BY THE GENERAL TRADES CONTRACTOR WITH CORROSION RESISTANT HOUSED SPRING MOUNTS, PROPERLY SIZED FOR THE UNIT WEIGHT.

ENERGY RECOVERY UNIT SCHEDULE

								SUPPLY FAN							EXHAUST FAN							FILTERS	
TAG	DESCRIPTION	LOCATION	MAKE & MODEL	OUTDOOR CFM	EXH. CFM	PURGE	ELECTRICAL	QTY	MIN E.S.P.	MOTOR	VOLTS	ϕ	MTR. HP	RPM	QTY	MIN E.S.P.	MOTOR	VOLTS	ϕ	MTR. HP	RPM	PRE-FILTER	FINAL
ERU-2	ENERGY RECOVERY UNIT	LEVEL 4 ROOF	SWEGON GOLD F RX 030	5,400 CFM	5,400 CFM	294 CFM	480V-36-17.1MCA -20 MOCP	1	1.00"	ECM	480	3	6.71	1,467	1	1.00"	ECM	480	3	6.71	1,531	MERV 8	MERV 13

	SUMMER HEAT EXCHANGER DESIGN						WINTER HEAT EXCHANGER DESIGN					
	ENTERING O.A.	ENTERING EXHAUST	LEAVING SUPPLY	WHEEL A.P.D.	SENSIBLE EFF.	LATENT EFF.	ENTERING O.A.	ENTERING EXHAUST	LEAVING SUPPLY	WHEEL A.P.D.	SENSIBLE EFF.	LATENT EFF.
E.R.U.-2	90.0° DB/ 73.0° WB	77.0° DB/ 64.0° WB	80.6° DB/ 70.0° WB	0.96"	72.2%	57.6%	-20.0° DB -	71.6° DB/ 51.0° WB	52.2° DB/ 40.5° WB	1.01"	78.8%	77.6%

NOTES:
1. UNIT TO BE PROVIDED WITH A MICROPROCESSOR BASED CONTROLS SYSTEM. ALL UNIT FUNCTIONS SHALL BE CONTROLLED BY THE PROCESSOR, INCLUDING FROST CONTROL AND ECONOMIZER CONTROL. UNIT IS TO HAVE BACNET COMMUNICATION TO BMS. MAP AVAILABLE POINTS TO THE BMS. PROVIDE CONTROLS CABINET HEATER AS REQUIRED FOR EXTERIOR INSTALLATION.
2. UNIT TO BE CONSTRUCTED FOR EXTERIOR INSTALLATION. FINISH TO BE MANUFACTURER'S STANDARD FINISH COLOR.
3. PROVIDE UNIT WITH 20" INSULATED CURB. PROVIDE TO THE G.C. FOR INSTALLATION.
4. PROVIDE 2" PLEATED MERV 8 PRE-FILTER AND MERV 13 FINAL FILTER.
5. PROVIDE UNIT CONFIGURATION PER SCHEMATIC BELOW. .
6. ALL MOTORS SHALL BE PREMIUM EFFICIENCY VARIABLE SPEED EC MOTORS.
7. UNIT TO BE CAPABLE OF 100% ECONOMIZER OPERATION WITH COMPARATIVE ENTHALPY CONTROLS.
8. PROVIDE SINGLE POINT ELECTRICAL CONNECTION WITH DISCONNECT SWITCH.
9. PROVIDE UNIT WITH FACTORY INSTALLED AND WIRED SMOKE DETECTOR.
10. PROVIDE HINGED ACCESS DOORS FOR EACH SECTION.
11. PROVIDE HIGH EFFICIENCY ENTHALPY WHEEL.
12. PROVIDE UNIT WITH OUTSIDE AIR AND EXHAUST AIR ISOLATION DAMPERS.
13. PROVIDE UNIT WITH EXHAUST DISCHARGE HOOD, SHIPPED LOOSE FOR FIELD INSTALLATION.
14. NOTE; OUTSIDE AIR INTAKE HOOD TO BE FIELD FABRICATED AND INSTALLED, SEE PLANS.



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MECHANICAL EQUIPMENT SCHEDULES & DETAILS

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SUPPLY AIR VAV SCHEDULE

TAG	AREA SERVED	MAKE & MODEL	SIZE	MAX. CFM	MIN. CFM	INLET SIZE	INLET SP	REMARKS
VS-A1	OFFICES 217A, 218, 234 & 235	NAILOR MODEL 3001	8"	530	350	8"ϕ	0.25"	--
VS-A2	CLASSROOM 216	EBTRON AIR-1Q2 GTC116e	18x12	1,200	800	-	0.25"	FIELD VERIFY DUCT SIZE.
VS-A3	SKILLS LAB 217	EBTRON AIR-1Q2 GTC116e	24x12	1,200	800	-	0.25"	FIELD VERIFY DUCT SIZE.
VS-A4	MULTI-PURPOSE 239	NAILOR MODEL 30RW	6"	250	170	6"ϕ	0.25"	--
VS-A5	EXIST. OFFICES 224-227	NAILOR MODEL 3001	10"	815	600	10"ϕ	0.25"	--
VS-B1	TELEPRESENCE RM. 215	NAILOR MODEL 3001	10"	600	400	10"ϕ	0.25"	--
VS-B2	CLASSROOM 213	NAILOR MODEL 3001	10"	600	400	10"ϕ	0.25"	--
VS-B3	CLASSROOM 213	EBTRON AIR-1Q2 GTC116e	16x12	1,000	675	-	0.25"	--
VS-B4	CLASSROOM 212	NAILOR MODEL 3001	12"	1,000	675	12"ϕ	0.25"	--
VS-B5	CLASSROOM 211	NAILOR MODEL 3001	10"	700	470	10"ϕ	0.25"	--
VS-B6	CORRIDOR 204	NAILOR MODEL 3001	6"	300	200	6"ϕ	0.25"	--
VS-B7	SEMINAR ROOM 210	EBTRON AIR-1Q2 GTC116e	16x12	1,000	675	-	0.25"	--
VS-C1	IMMERSIVE LAB 240, STORAGE 241	NAILOR MODEL 30RW	8"	355	235	8"ϕ	0.25"	--
VS-C2	SIM LAB 2 242	NAILOR MODEL 30RW	8"	320	200	8"ϕ	0.25"	--
VS-C3	CONTROL 243	NAILOR MODEL 30RW	6"	150	100	6"ϕ	0.25"	--
VS-C4	DEBRIEF 244	NAILOR MODEL 30RW	6"	200	130	6"ϕ	0.25"	--
VS-C5	HALL/COMMON 236/236A	NAILOR MODEL 30RW	8"	325	225	8"ϕ	0.25"	--
VS-D1	AUDIO/VISUAL AUD. 107	EBTRON AIR-1Q2 GTC116e	24x15	1,900	1,200	-	0.25"	--
VS-D2	CORRIDOR 106, OFFICES 108, 109 & 110	NAILOR MODEL 3001	10"	750	500	10"ϕ	0.25"	--

NOTES:
1. V.A.V. BOXES SHALL BE CAPABLE OF TIGHT SHUT-OFF.
2. BOXES TO 22 GAUGE GALVANIZED STEEL CONSTRUCTION MINIMUM, LOW LEAKAGE.
3. DAMPERS TO BE 16 G.A. GALVANIZED STEEL, OPPOSED BLADE TYPE WITH EDGE SEALS.
4. BOXES TO BE INSULATED WITH 3/4" ELASTOMERIC DUCT INSULATION. ALL EDGES TO BE GALVANIZED STEEL NOSINGS.
5. PROVIDE BOX "HANDING" AS INDICATED ON DRAWING OR DETERMINED IN FIELD BY THE CONTRACTOR.
6. PROVIDE ALL UNITS SET UP FOR FIELD INSTALLED DDC CONTROLLER/ACTUATOR.
7. ENVIRO-TEC SERIES SDR-SA V.A.V. BOXES ARE AN APPROVED EQUIVALENT.
8. NO SUBSTITUTIONS ARE ALLOWED FOR THE "EBTRON" AIR FLOW CONTROL STATIONS.
9. VERIFY ALL DUCT SIZES FOR THE "EBTRON" UNITS. PROVIDE TO FIT EXISTING DUCTS.

REHEAT COIL SCHEDULE

TAG	SIZE	V.A.V. ZONE	AIR FLOW	E.A.T.	L.A.T.	E.W.T.	GPM	RATING	MAX. A.P.D.	NOTES:
RH-A1	16x12	VS-A1	530 CFM	55° F	80° F	170° F	1.25	14.3 MBH	0.10" W.C.	FLANGED STYLE COIL
RH-3.1	EXIST.	VS-A2	1,200 CFM	-	-	-	-	-	-	-
RH-3.2	EXIST.	VS-A3	1,200 CFM	-	-	-	-	-	-	-
RH-A4	INTEGRAL	VS-A4	250 CFM	55° F	80° F	170° F	0.75	6.75 MBH	0.10" W.C.	INTEGRAL WITH V.A.V.
RH-1.14	EXIST.	VS-A5	815 CFM	-	-	-	-	-	-	-
RH-4.1	EXIST.	VS-B1	600 CFM	-	-	-	-	-	-	-
RH-4.2	EXIST.	VS-B2	600 CFM	-	-	-	-	-	-	-
RH-4.3	EXIST.	VS-B3	1,000 CFM	-	-	-	-	-	-	-
RH-4.4	EXIST.	VS-B4	1,000 CFM	-	-	-	-	-	-	RELOCATE EXISTING COIL, SEE PLANS.
RH-4.5	EXIST.	VS-B5	700 CFM	-	-	-	-	-	-	RELOCATE EXISTING COIL, SEE PLANS.
RH-4.6	EXIST.	VS-B6	300 CFM	-	-	-	-	-	-	RELOCATE EXISTING COIL, SEE PLANS.
RH-4.7	EXIST.	VS-B7	1,000 CFM	-	-	-	-	-	-	-
RH-C1	INTEGRAL	VS-C1	355 CFM	55° F	80° F	170° F	0.80	9.60 MBH	0.10" W.C.	INTEGRAL WITH V.A.V.
RH-C2	INTEGRAL	VS-C2	320 CFM	55° F	80° F	170° F	0.75	8.65 MBH	0.10" W.C.	INTEGRAL WITH V.A.V.
RH-C3	INTEGRAL	VS-C3	150 CFM	55° F	80° F	170° F	0.50	4.05 MBH	0.10" W.C.	INTEGRAL WITH V.A.V.
RH-C4	INTEGRAL	VS-C4	200 CFM	55° F	80° F	170° F	0.50	5.40 MBH	0.10" W.C.	INTEGRAL WITH V.A.V.
RH-C5	INTEGRAL	VS-C5	325 CFM	55° F	80° F	170° F	0.75	8.78 MBH	0.10" W.C.	INTEGRAL WITH V.A.V.
RH-2.2	EXIST.	VS-D1	1,900 CFM	-	-	-	-	-	-	-
RH-2.1	EXIST.	VS-D2	750 CFM	-	-	-	-	-	-	-

REMARKS:
1. PROVIDE ACCESS DOOR IN AIR DUCT UPSTREAM AND DOWN STREAM OF REHEAT COIL.
2. EACH ACCESS DOOR SHALL BE DOUBLE WALL, INSULATED, HINGED WITH CAM LOCKS.
3. PROVIDE PIPING CONNECTIONS TO RE-HEAT COIL AS PER DETAIL DRAWINGS.
4. PROVIDE ACCESS PANELS AS PER DETAIL DRAWINGS.
5. INSTALL RE-HEAT COIL IN AIR DUCT AS PER DETAIL DRAWINGS.
6. SEAL RE-HEAT COIL DUCT CONNECTIONS WITH AN APPROVED SEALANT.
7. RE-HEAT COIL AIR LEAKAGE SHALL NOT EXCEED 1.0% OF BRANCH AIR FLOW AT 4.0"W.C.

DAMPER SCHEDULE

TAG	DESCRIPTION	MAKE & MODEL	SIZE	FRAME	BLADES	OPTIONS
FD-A1	AHU-2 BRANCH A S.A. DUCT, LEVEL 4	RUSKIN DFD-60	36x14	5" x 1" x 16GA. GALV. STEEL	6" AIR FOIL, 14GA. EQUIV.	RATED FOR 4,0000 FPM & 8"W.C., PROVIDE WITH STYLE "A" SLEEVE.
FD-A2	AHU-2 BRANCH A R.A. DUCT, LEVEL 4	RUSKIN DFD-60	36x14	5" x 1" x 16GA. GALV. STEEL	6" AIR FOIL, 14GA. EQUIV.	RATED FOR 4,0000 FPM & 8"W.C., PROVIDE WITH STYLE "A" SLEEVE.
FD-A3	AHU-2 BRANCH A S.A. DUCT, LEVEL 3	RUSKIN DFD-60	36x14	5" x 1" x 16GA. GALV. STEEL	6" AIR FOIL, 14GA. EQUIV.	RATED FOR 4,0000 FPM & 8"W.C., PROVIDE WITH STYLE "A" SLEEVE.
FD-A4	AHU-2 BRANCH A R.A. DUCT, LEVEL 3	RUSKIN DFD-60	36x14	5" x 1" x 16GA. GALV. STEEL	6" AIR FOIL, 14GA. EQUIV.	RATED FOR 4,0000 FPM & 8"W.C., PROVIDE WITH STYLE "A" SLEEVE.
FD-B1	AHU-2 BRANCH B S.A. DUCT, LEVEL 4	RUSKIN DFD-60	42x18	5" x 1" x 16GA. GALV. STEEL	6" AIR FOIL, 14GA. EQUIV.	RATED FOR 4,0000 FPM & 8"W.C., PROVIDE WITH STYLE "A" SLEEVE.
FD-B2	AHU-2 BRANCH B R.A. DUCT, LEVEL 4	RUSKIN DFD-60	42x18	5" x 1" x 16GA. GALV. STEEL	6" AIR FOIL, 14GA. EQUIV.	RATED FOR 4,0000 FPM & 8"W.C., PROVIDE WITH STYLE "A" SLEEVE.
FD-B3	AHU-2 BRANCH B S.A. DUCT, LEVEL 3	RUSKIN DFD-60	42x18	5" x 1" x 16GA. GALV. STEEL	6" AIR FOIL, 14GA. EQUIV.	RATED FOR 4,0000 FPM & 8"W.C., PROVIDE WITH STYLE "A" SLEEVE.
FD-B4	AHU-2 BRANCH B R.A. DUCT, LEVEL 3	RUSKIN DFD-60	42x18	5" x 1" x 16GA. GALV. STEEL	6" AIR FOIL, 14GA. EQUIV.	RATED FOR 4,0000 FPM & 8"W.C., PROVIDE WITH STYLE "A" SLEEVE.
FD-C1	AHU-2 BRANCH C S.A. DUCT, LEVEL 4	RUSKIN DFD-60, STYLE C	18x12	5" x 1" x 16GA. GALV. STEEL	6" AIR FOIL, 14GA. EQUIV.	RATED FOR 4,0000 FPM & 8"W.C., PROVIDE WITH SLEEVE FOR STYLE "C".
FD-C2	AHU-2 BRANCH C R.A. DUCT, LEVEL 4	RUSKIN DFD-60, STYLE C	18x12	5" x 1" x 16GA. GALV. STEEL	6" AIR FOIL, 14GA. EQUIV.	RATED FOR 4,0000 FPM & 8"W.C., PROVIDE WITH SLEEVE FOR STYLE "C".
BD-R1	AHU-2 RETURN DUCT BACK DRAFT DAMPER	RUSKIN CBD4	60x24 (2 SECT)	4" x 1" 6063T5 EXTRUDED AL.	6063T5 EXTRUD. AL., .07" THICK	RATED FOR 2,500 FPM, ADJSUT FOR BLADES FULL OPEN AT 0.05" W.C.
CD-R2	AHU-2 RELIEF AIR CONTROL DAMPER	RUSKIN CD-40	60x24 (2 SECT)	4" x 1" 6063T5 EXTRUDED AL.	4" AIR FOIL, 6063T5 AL.	RATED FOR 2,500 FPM, OPPOSED BLADE CONFIG., PROVIDE LINKAGE FOR SINGLE OPERATOR

NOTES:
1. DAMPER SIZE TO BE DETERMINED BASED ON A.H.U. SUBMITTAL DATA.
2. PROVIDE GASKET TO SEAL DAMPERS TO CASING/WALL.
3. COORDINATE MOUNTING TO ALLOW ACTUATOR INSTALLATION.

AIRFLOW MONITOR SCHEDULE

TAG	DESCRIPTION	MAKE & MODEL	DUCT SIZE	MAXIMUM FLOW	MINIMUM FLOW	REMARKS
AFS-21	AHU-2 ZONE 2A SUPPLY AIR VOLUME	EBTRON GOLD SERIES GTx116e-P+	FIELD	3,925 CFM	1,965 CFM	--
AFS-22	AHU-2 ZONE 2A RETURN AIR VOLUME	EBTRON GOLD SERIES GTx116e-P+	FIELD	3,925 CFM	1,965 CFM	--
AFS-23	AHU-2 ZONE 2B SUPPLY AIR VOLUME	EBTRON GOLD SERIES GTx116e-P+	FIELD	5,200 CFM	2,600 CFM	--
AFS-24	AHU-2 ZONE 2B RETURN AIR VOLUME	EBTRON GOLD SERIES GTx116e-P+	FIELD	5,200 CFM	2,600 CFM	--
AFS-25	AHU-2 ZONE 2C SUPPLY AIR VOLUME	EBTRON GOLD SERIES GTx116e-P+	FIELD	1,325 CFM	660 CFM	--
AFS-26	AHU-2 ZONE 2C RETURN AIR VOLUME	EBTRON GOLD SERIES GTx116e-P+	FIELD	1,325 CFM	660 CFM	--
AFS-27	AHU-2 ZONE 2D SUPPLY AIR VOLUME	EBTRON GOLD SERIES GTx116e-P+	FIELD	2,500 CFM	1,250 CFM	--
AFS-28	AHU-2 ZONE 2D RETURN AIR VOLUME	EBTRON GOLD SERIES GTx116e-P+	FIELD	2,500 CFM	1,250 CFM	--
AFS-29	AHU-2 OUTSIDE AIR DUCT (MIN. O.A.)	EBTRON GOLD SERIES GTx116e-P+	FIELD	14,000 CFM	-0- CFM	NORMAL OPERATING RANGE 5,400 CFM

6 NOTES
1. FIELD VERIFY ALL DUCT SIZES AND MOUNTING LOCATIONS PRIOR TO SELECTION OF UNITS.
2. PROVIDE WITH EBTRON GOLD "-P" SERIES DUCT SENSORS.
3. PROVIDE FACTORY CONNECTOR CABLE AIR FLOW PROBES FLOW TRANSMITTER.
4. FIELD MOUNT TRANSMITTERS WITHIN CONDITIONED SPACES. PROVIDE CABLES OF SUFFICIENT LENGTH FOR ALL INTERCONNECTIONS.

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FAN SCHEDULE

TAG	DESCRIPTION	MAKE & MODEL	CFM	E.S.P.	BHP	RPM	ELECTRICAL	NOTES:
RF-2A	AHU-2, BRANCH A RETURN AIR FAN	GREENHECK SQ 16-M12-VG	3,925	1.25"	1.27	1,586	480V.,3PH-2.0HP	1 2 3
RF-2B	AHU-2, BRANCH B RETURN AIR FAN	GREENHECK SQ 18-M12-VG	5,200	1.25"	1.69	1,470	480V.,3PH-3.0HP	1 2 3
RF-2C	AHU-2, BRANCH C RETURN AIR FAN	GREENHECK SQ 140HP-VG	1,325	1.25"	0.46	1,597	480V.,3PH-1.0HP	1 3

NOTES:

1. PROVIDE FAN WITH ND ISOLATOR MOUNTS.
2. PROVIDE BRACKETS FOR VERTICAL MOUNTING.
3. MOTOR TO BE SET UP FOR SPEED CONTROL INPUT FROM THE BUILDING B.M.S. CONTROLS.

LOUVER SCHEDULE

TAG	DESCRIPTION	MAKE & MODEL	OPENING SIZE	DEPTH	SP	NOTES
LV-1	OUTSIDE AIR INTAKE LOUVER	RUSKIN MODEL ELF375DX	102"W x 86"H	4"	-	1 2 3 4

NOTES:

1. PROVIDE WITH BIRD SCREEN.
2. PROVIDE LOUVER IN TWO SECTIONS, SPLIT VERTICALLY, EQUALLY.
3. PROVIDE MATCHING FLASHING, SEE ARCHITECTURAL DETAILS.
4. PROVIDE LOUVER WITH 50% PVDF MODIFIED FLUOROPOLYMER FINISH, COLOR AS SELECTED BY THE ARCHITECT.

PUMP SCHEDULE

TAG	DESCRIPTION	BASIS OF DESIGN	GPM	HEAD	RPM	CONN.	ELEC. DATA	NOTES:
CP-2	A.H.U.-2 HEATING COIL CIRCULATOR PUMP	GRUNDFOS MAGNA3 32-100 GF	25.0	12'	2994	1½" SIZE FLANGE	120V-1Φ-1/4HP	1 2 3

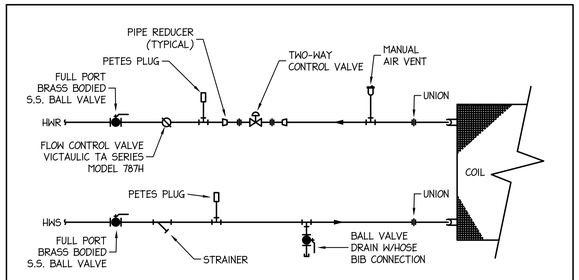
NOTES:

1. PROVIDE AUXILIARY SUPPORT FOR THE PUMPS.
2. PUMPS TO HAVE INTEGRAL SPEED CONTROL.
3. SET UP PUMPS FOR CONSTANT VOLUME FLOW OPERATION, AS REQUIRED.

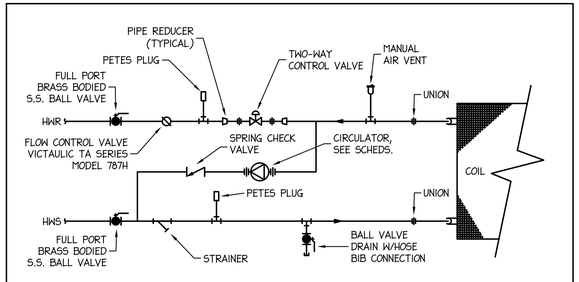
DIFFUSER & REGISTER SCHEDULE

TAG	MAKE & MODEL	PANEL	NECK	TYPE	MAX. CFM	NOTES:
A CFM	NAILOR #6200IV-6x6-S-AW-4A-5RO-06	-	6"Φ	SUPPLY DIFFUSER	75 CFM	CEILING SURFACE MOUNTED
B CFM	NAILOR #6200IV-9x9-24x24-PLA-AW-4A-5RO-08	24x24	8"Φ	SUPPLY DIFFUSER	200 CFM	T-BAR CEILING MOUNTED
C CFM	NAILOR #6200IV-12x12-24x24-PLA-AW-4A-5RO-10	24x24	10"Φ	SUPPLY DIFFUSER	200 CFM	T-BAR CEILING MOUNTED
D CFM	NAILOR #6200IV-12x12-24x24-PLA-SP-4A-5RO-10	24x24	10"Φ	SUPPLY DIFFUSER	350 CFM	T-BAR CEILING MOUNTED, BLACK PAINT FINISH
F CFM	NAILOR #5145H-8x8-S-24x24-AW-A-5RO-06	-	6"Φ	EXH./RET. GRILLE	75 CFM	CEILING SURFACE MOUNTED
G CFM	NAILOR #5145H-12x12-PLA-24x24-AW-5RO-08	24x24	8"Φ	EXH./RET. GRILLE	200 CFM	T-BAR CEILING MOUNTED
H CFM	NAILOR #5145H-14x14-PLA-24x24-AW-5RO-10	24x24	10"Φ	EXH./RET. GRILLE	350 CFM	T-BAR CEILING MOUNTED
I CFM	NAILOR #5145H-14x14-PLA-24x24-SP-5RO-10	24x24	10"Φ	EXH./RET. GRILLE	350 CFM	T-BAR CEILING MOUNTED, BLACK PAINT FINISH
K CFM	NAILOR #5145H-18x18-PLA-24x24-AW-5RO-12	24x24	12"Φ	EXH./RET. GRILLE	500 CFM	T-BAR CEILING MOUNTED

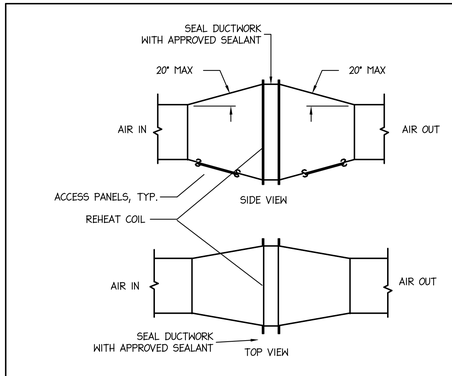
REMARKS:
1. PROVIDE BRANCH VOLUME DAMPER FOR EACH DIFFUSER AND REGISTER.
2. ALL ROUND VOLUME DAMPERS SHALL BE EQUAL TO "NAILOR" MODEL #1090 WITH QUADRANT OPERATOR AND STAND-OFF BRACKET FOR INSULATED DUCT.
3. ALL RECTANGULAR VOLUME DAMPERS SHALL BE EQUAL TO "NAILOR" MODEL #1020 WITH JAMB SEALS, QUADRANT OPERATOR AND STAND-OFF BRACKET FOR INSULATED DUCT.
4. PROVIDE CODE COMPLIANT FLEXIBLE CONNECTIONS TO CEILING MOUNTED DIFFUSERS AND GRILLES. MAXIMUM FLEXIBLE AIR DUCT LENGTH OF 4' IS PERMITTED.
5. CONNECT FLEXIBLE AIR DUCT TO DIFF./REG. NECK WITH S.S. DRAW CLAMP.
6. PROVIDE BRANCH DUCT TAKE-OFF AS PER DETAIL DRAWINGS AND AS INDICATED ON PLANS.
7. PROVIDE ADAPTER FRAMES FOR ALL T-BAR LAY-IN TYPE DIFFUSERS OR GRILLES INDICATED TO BE INSTALLED IN GYPSUM BOARD CEILINGS. DO NOT FASTEN UNITS DOWN SO THEY CAN BE UTILIZED AS ACCESS OPENINGS.
8. PAINT INTERIOR OF ALL GRILLE/DIFFUSER BOOTS FLAT BLACK. PAINT ANY SECTIONS OF DUCTWORK VISIBLE THROUGH GRILLES OR DIFFUSERS FLAT BLACK.
9. DUCT LINER FOR SOUND BOOTS TO BE 1/2" THICK AP ARMAFLEX SA, FULLY ADHERED TO DUCT WITH MANUFACTURED APPROVED ADHESIVE.



1 PROPOSED HEATING COIL PIPING SCHEMATIC
NTS

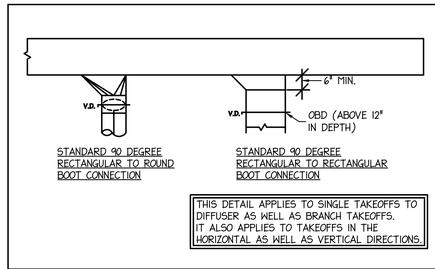


2 PROPOSED A.H.U. HEATING COIL PIPING SCHEMATIC
NTS



NOTE:
RE-HEAT COIL LEAKAGE SHALL BE LESS THAN 1.0% OF TOTAL ALLOWABLE BRANCH LEAKAGE

3 DUCTWORK CONNECTION TO RE-HEAT COIL
NTS



4 BRANCH DUCT TAKEOFFS
N.T.S.

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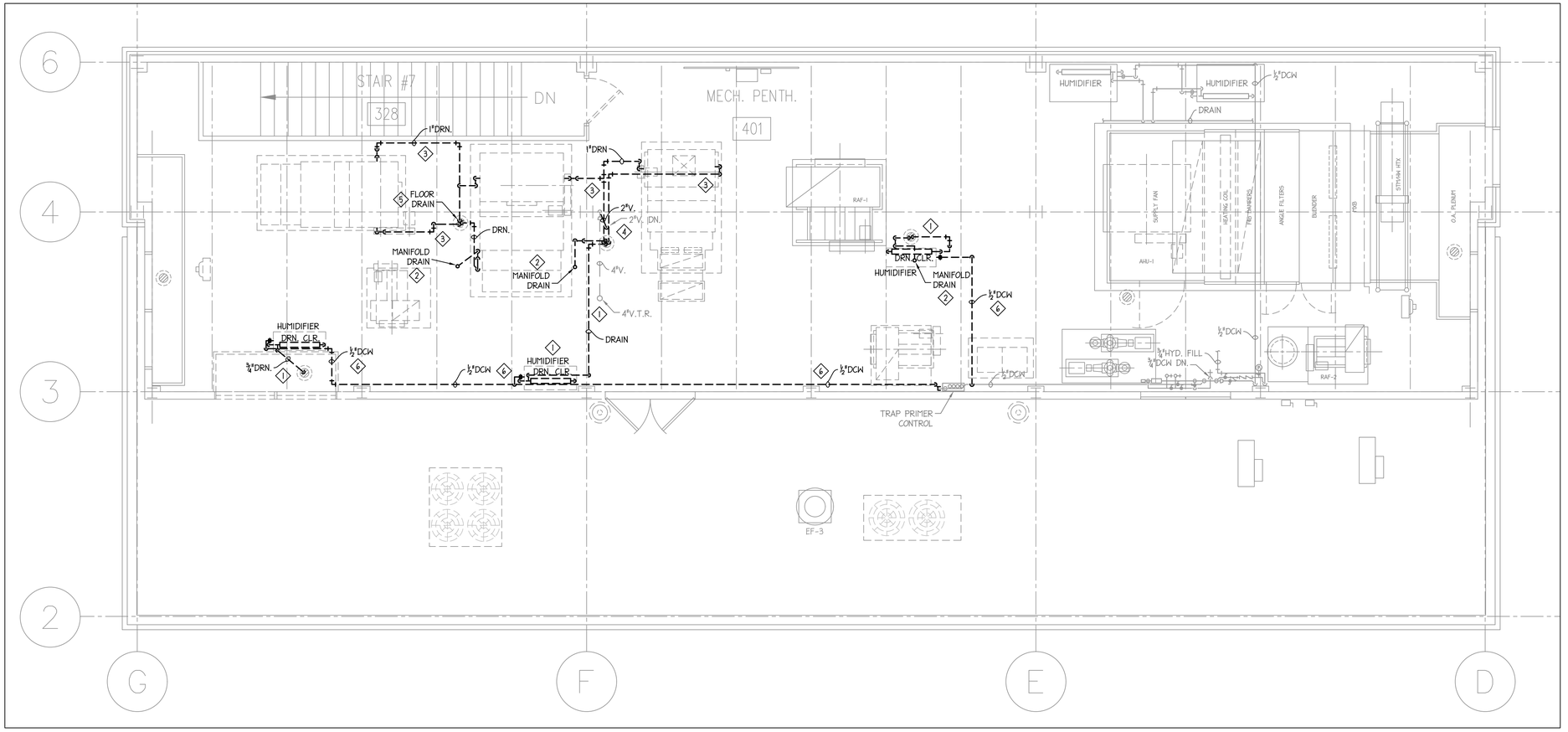
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CONSTRUCTION NORTH

1 PLUMBING - PENTHOUSE LEVEL DEMOLITION PLAN
1/4"=1'-0"

PLUMBING DEMOLITION LEGEND	
- - - -	PLUMBING WORK TO BE DEMOLISHED
———	EXISTING PLUMBING WORK TO REMAIN

2 PLUMBING SPECIFIC DEMOLITION NOTES:

1. DEMOLISH AND REMOVE THE EXISTING HUMIDIFIER DRAIN COOLERS AND ASSOCIATED DRAIN PIPING, FROM THE UNITS TO THE FLOOR DRAINS.

2. DEMOLISH AND REMOVE THE EXISTING HUMIDIFIER MANIFOLD DRAIN PIPING, FROM THE UNITS TO THE FLOOR DRAINS.

3. DEMOLISH AND REMOVE THE CONDENSATE DRAIN PIPING FROM THE EXISTING AIR HANDLER UNITS AS INDICATED DASHED. REMOVE FROM THE UNIT CONNECTIONS TO THE FLOOR DRAINS.

4. REMOVE/REWORK A SECTION OF EXISTING SANITARY VENT PIPING TO CLEAR THE PROPOSED DUCT WORK. OFFSET IMMEDIATELY ABOVE FLOOR LEVEL OVER TO THE EXISTING RISER.

5. DEMOLISH AND REMOVE THE EXISTING FLOOR DRAIN. REMOVE SECTIONS OF DRAIN PIPING IN THE LEVEL THREE CEILING, BACK TO THE MAIN AND CAP (SEE MECHANICAL PLANS). COORDINATE WITH THE GENERAL TRADES CONTRACTOR TO PATCH FLOOR.

6. DEMOLISH AND REMOVE SECTIONS OF EXISTING DOMESTIC COLD WATER SUPPLY PIPING TO THE HUMIDIFIERS. CUT AND CAP AT THE POINTS INDICATED AND REMOVE PIPING FROM THAT POINT TO THE UNIT CONNECTIONS.

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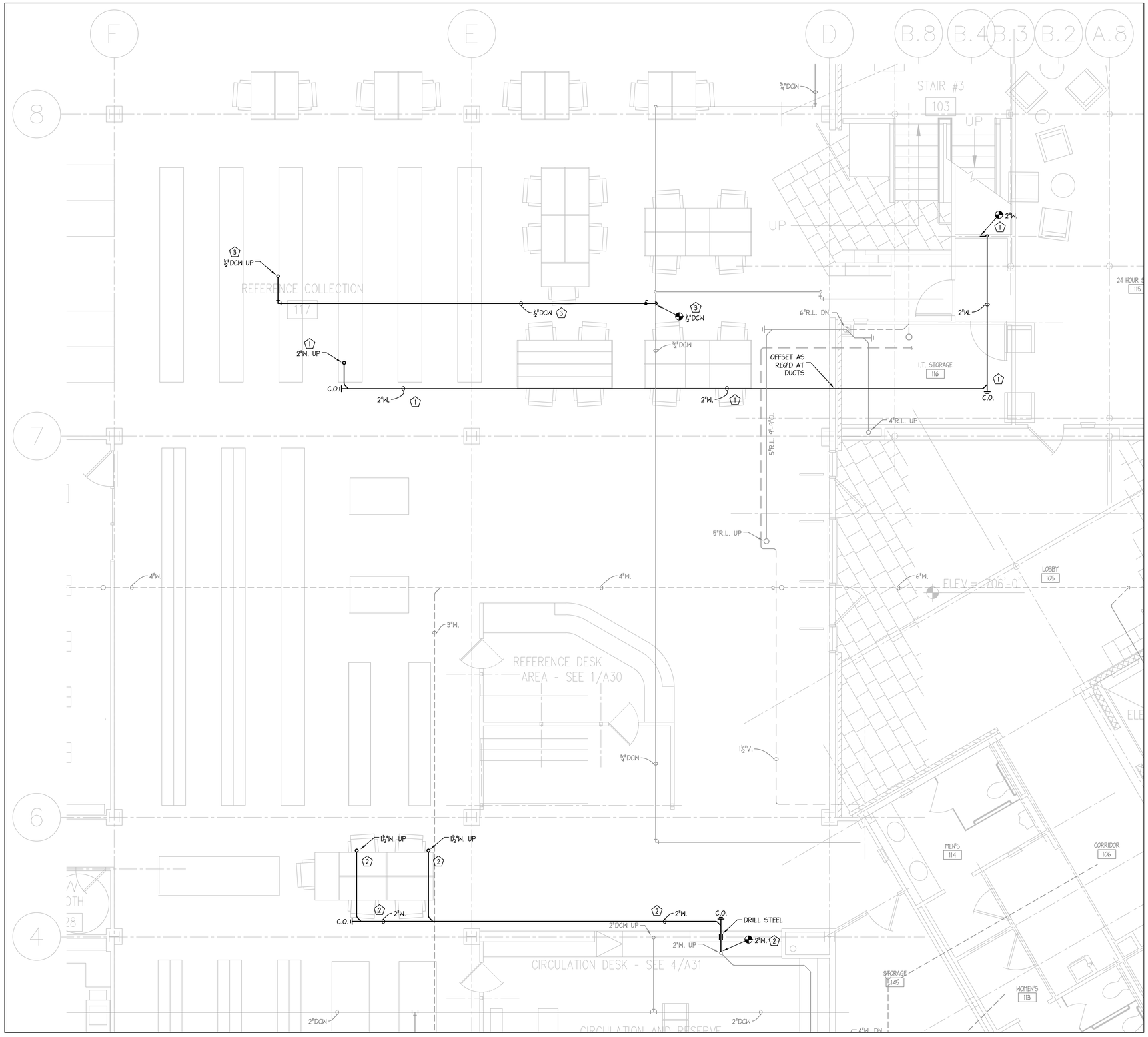
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PLUMBING
PENTH. LEVEL
DEMOLITION PLAN

P-0.41



1 PLUMBING - FIRST FLOOR LEVEL NEW WORK PLAN
1/4"=1'-0"

CONSTRUCTION NORTH

PLUMBING NEW WORK LEGEND

———	NEW PLUMB. WORK TO BE FURNISHED AND INSTALLED
———	EXISTING PLUMBING WORK TO REMAIN

2 SPECIFIC NEW WORK NOTES:

1. PROVIDE AND INSTALL NEW SANITARY DRAIN PIPING TO SERVE THE PROPOSED SINK IN THE NEW SPACES ON THE LEVEL ABOVE. CORE DRILL NEW OPENING THROUGH THE SLAB WHERE INDICATED. WORK WITH THE OWNER TO RELOCATE FURNITURE AND EQUIPMENT BELOW. COVER AND PROTECT ALL REMAINING FINISHES. RUN PIPING OVER BETWEEN THE BUILDING STEEL. CONTINUE ACROSS, STARTING TIGHT BELOW THE STEEL. CONTINUE LINE OVER ABOVE THE CEILING. DROP IN WALL AND CONNECT TO THE EXISTING DRAIN LINE ABOVE THE SLAB LEVEL. PIPING TO BE NO-HUB CAST IRON WITH HEAVY DUTY COUPLINGS PER THE SPECIFICATIONS.

2. PROVIDE AND INSTALL NEW SANITARY DRAIN PIPING TO SERVE THE PROPOSED SINKS IN THE MODIFIED CLASSROOM SPACES ON THE LEVEL ABOVE. RUN OVER BETWEEN THE BUILDING STEEL AND ALONG UNDER THE STEEL AS INDICATED. COORDINATE WITH THE GENERAL TRADES CONTRACTOR TO DRILL THE EXISTING STEEL BEAM WHERE INDICATED. CONNECT TO THE EXISTING DRAIN LINE. PIPING TO BE AS NOTED ABOVE.

3. PROVIDE AND INSTALL NEW DOMESTIC WATER SUPPLY LINES TO THE SINKS ON THE LEVEL ABOVE. ISOLATE THE EXISTING WATER LINES AS REQUIRED. INSTALL NEW BRANCH TEES AND RUN NEW PIPING OVER AND UP TO THE LEVEL ABOVE AS INDICATED BOLD. DRILL OPENINGS THROUGH SLAB. PROVIDE ISOLATION VALVES NEAR THE MAIN LINE. PIPING, VALVES AND INSTALLATION TO BE PER THE SPECIFICATIONS.

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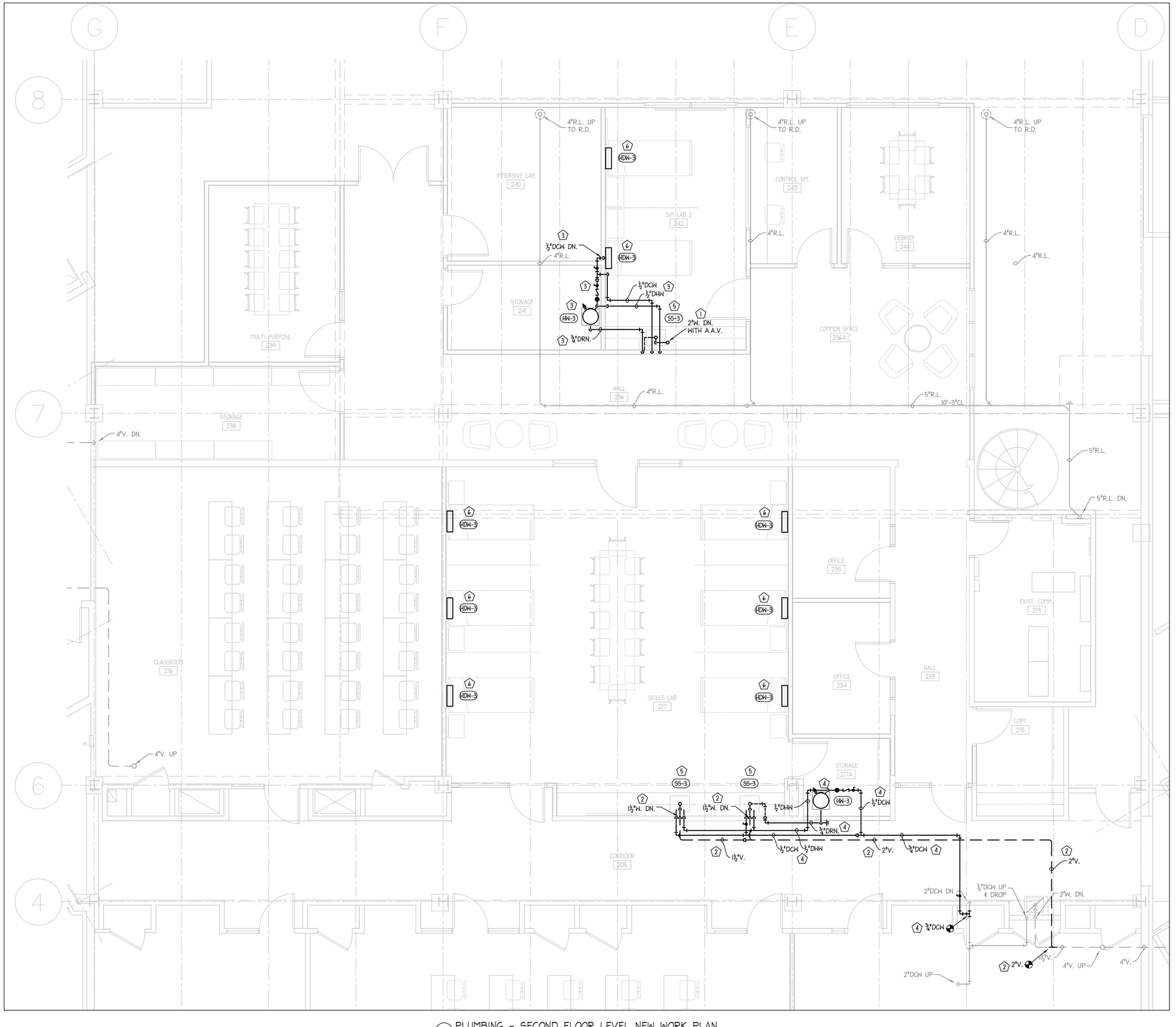
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PLUMBING FIRST FLR. LEVEL NEW WORK PLAN

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1 PLUMBING - SECOND FLOOR LEVEL NEW WORK PLAN
1/4"=1'-0"

CONSTRUCTION NORTH

PLUMBING NEW WORK LEGEND

- NEW PLUMB. WORK TO BE FURNISHED AND INSTALLED
- EXISTING PLUMBING WORK TO REMAIN

SPECIFIC NEW WORK NOTES:

1. PROVIDE AND INSTALL NEW DRAIN AND VENT ROUGHING FOR THE PROPOSED SIM LAB SINKS. CONTINUE THE SANITARY DRAIN PIPING UP FROM THE LEVEL BELOW. PROVIDE LINK SEAL AT CORE THROUGH DECK. TERMINATE LINE BELOW COUNTER WITH AND AIR ADMITTANCE VALVE. INSTALL BRANCH LINE TO SINK WITH P-TRAP. PIPING TO BE NO-HUB CAST IRON WITH HEAVY DUTY COUPLINGS PER THE SPECIFICATIONS.

2. PROVIDE AND INSTALL NEW DRAIN AND VENT ROUGHING FOR THE PROPOSED SKILLS LAB SINKS. CONTINUE THE DRAIN PIPING UP FROM THE LEVEL BELOW. INSTALL ROUGHING FOR THE PROPOSED SINKS AND CONTINUE VENT PIPING UP ABOVE THE CEILING AND CONNECT TO THE EXISTING SANITARY VENT LINE, APPROXIMATELY WHERE INDICATED. PIPING TO BE PER THE SPECIFICATIONS.

3. PROVIDE AND INSTALL NEW DOMESTIC WATER ROUGHING TO SERVE THE SIM LAB SINK. CONTINUE THE WATER SUPPLY LINE UP FROM THE LEVEL BELOW AND RUN CONCEALED IN WALL TO ABOVE THE CEILING LEVEL. PROVIDE AND INSTALL A DOMESTIC WATER HEATER MOUNTED ABOVE THE CEILING, SEE FIXTURE SCHEDULE. PROVIDE STRUT FRAMING TO SUPPORT THE UNIT FROM THE BUILDING STEEL, SEE DETAIL ON PLANS. MOUNT UNIT IN A DRIP PAN. PIPE WATER HEATER WITH ISOLATION VALVE, CHECK VALVE, THERMAL EXPANSION TANK AND MIXING VALVE. RUN HOT AND COLD PIPING DOWN TO THE SINK. PROVIDE A "DISHWASHER" TEE IN THE SINK DRAIN LINE AND RUN THE DRIP PAN DRAIN TO THIS TEE. PIPING VALVES AND INSULATION TO BE PER THE SPECIFICATIONS.

4. PROVIDE AND INSTALL NEW DOMESTIC WATER ROUGHING TO BE SERVE THE SKILLS LAB SINKS. CONNECT TO THE EXISTING DOMESTIC WATER MAIN RISER LINE, APPROXIMATELY WHERE INDICATED. RUN A NEW BRANCH LINE OVER AND INSTALL A HOT WATER HEATER ABOVE THE CEILING, SIMILAR TO AS NOTED ABOVE. RUN COLD AND HOT WATER PIPING DOWN TO THE SINKS. PIPE THE DRIP PAN DRAIN TO THE SINK DRAIN. MATERIALS TO BE AS NOTED ABOVE.

5. PROVIDE AND INSTALL NEW LAB SINKS IN THE PROPOSED COUNTERS, COORDINATE WITH THE GENERAL TRADES CONTRACTOR, SEE FIXTURE SCHEDULE. INSTALL FIXTURES COMPLETE WITH ALL TRIM AND ACCESSORIES. PROVIDE THE DESIGNATED SINK WITH A "DISH WASHER" TEE FOR THE WATER DRIP PAN DRAINS.

6. PROVIDE AND INSTALL NEW "TRAINING HEAD WALL" UNITS IN THE LOCATIONS INDICATED. WALL MOUNT PER THE ARCHITECTURAL DRAWINGS. COORDINATE WITH THE ELECTRICAL CONTRACTOR FOR POWER RECEPTACLES.

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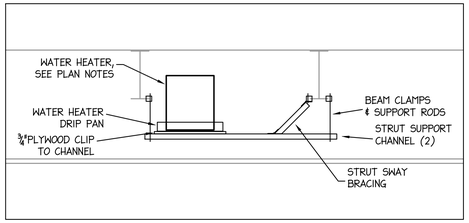
PLUMBING
SECOND FLR. LEVEL
NEW WORK PLAN

P-1.21

PLUMBING FIXTURE SCHEDULE

TAG	DESCRIPTION	MAKE & MODEL	C.W.	H.W.	WASTE	VENT	REMARKS
SS-3	STAINLESS STEEL UNDER MOUNT SINK	ELKAY PRODUCTS #ELUHAD2115	1/2"	1/2"	1 1/2"	N/A	PROVIDE WITH #LK18B GRID DRAIN ASSEMBLY, WITH #LKF4121RS FAUCET, 17. GA CP P-TRAP AND STOPS. COORDINATE COUNTER CUT OUT WITH GENERAL TRADES CONTR.
HW-3	ELECTRIC TANK TYPE WATER HEATER	STATE PROLINE ES6 10 SOMS K	1/2"	1/2"	-	-	COMMERCIAL GRADE, 10 GAL. NOM. STORAGE, 1.65 KW ELEMENT, 120 VOLT, 1 PH., 8.0 GPH RECOVERY @ 90° RISE. PROVIDE WITH T&P RELIEF VALVE.
MX-3	TEMPERED WATER MIXING VALVE	WATTS PRODUCTS #LFLM490-1	1/2"	1/2"	-	-	HYDRO GUARD THERMOSTATIC MIXING VALVE, THREADED ENDS, SET FOR 118° F DISCHARGE (OR AS DIRECTED IN FIELD).
TX-3	THERMAL EXPANSION TANK	WATTS PRODUCTS #THERM-X-TROL ST-1	1/2"	-	-	-	-
HDW-3	PATIENT TRAINING HEADWALL	HOSPITAL SYSTEMS, INC. COGENT SINGLE PATIENT	-	-	-	-	PROVIDE WITH INTEGRATED NURSE CALL & CODE BLUE, OXY. & MED AIR FLOW METERS, VAC. REGULATOR, VAC. CANISTER & HOLDER, FOR HARDWIRED INSTALL, 120 VOLT.

NOTES:
1. -



2 WATER HEATER MOUNTING DETAIL
1/2"=1'-0"

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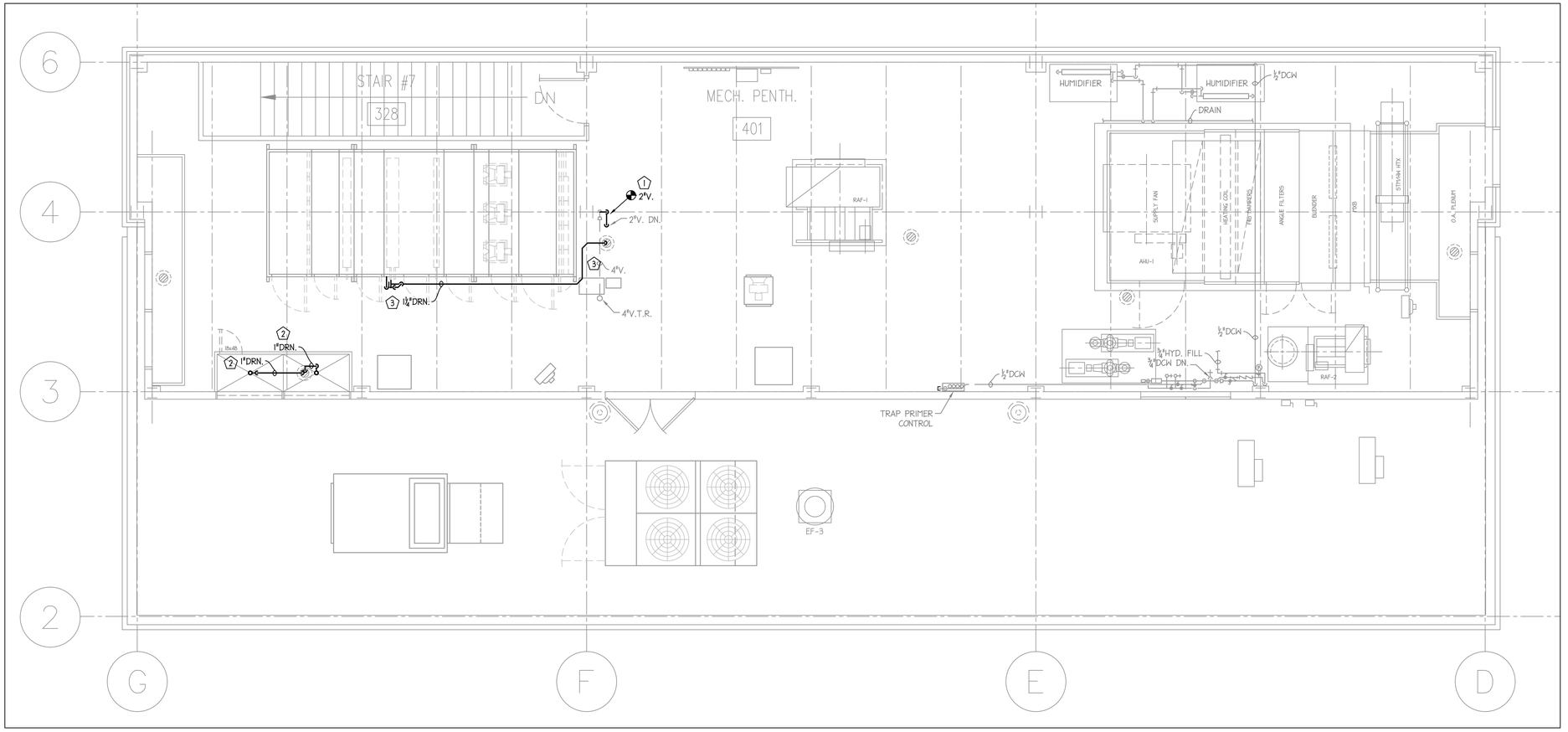
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PLUMBING FIXTURE SCHED. AND DETAILS

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CONSTRUCTION NORTH

1 PLUMBING - PENTHOUSE LEVEL NEW WORK PLAN
1/4"=1'-0"

PLUMBING NEW WORK LEGEND	
———	NEW PLUMB. WORK TO BE FURNISHED AND INSTALLED
———	EXISTING PLUMBING WORK TO REMAIN

② SPECIFIC NEW WORK NOTES:

1. PROVIDE AND INSTALL A NEW SECTION OF SANITARY VENT PIPING TO CLEAR THE PROPOSED DUCTWORK. SEE DEMOLITION NOTES. PIPING TO BE PER THE SPECIFICATIONS.

2. PROVIDE AND INSTALL DRAIN PIPING FROM THE PROPOSED OUTSIDE AIR PLENUM DRAIN TAPPINGS TO THE EXISTING FLOOR DRAIN. CONNECT TO THE BOTTOM PAN TAPPINGS AND INSTALL A DEEP SEAL TRAP. PIPE OVER AND DOWN AT THE EXISTING FLOOR DRAIN. PIPING TO BE TYPE "L" COPPER AS SPECIFIED FOR DOMESTIC WATER. INSULATE THE VERTICAL SECTION OFF THE DRAIN PAN.

3. PROVIDE AND INSTALL CONDENSATE DRAIN PIPING FROM THE PROPOSED AIR HANDLER UNIT TO THE EXISTING FLOOR DRAIN. CONNECT TO THE UNIT DRAIN PAN, INSTALL A P-TRAP, MINIMUM 4" DEEP SEAL. INSTALL DRAIN PIPING ALONG THE FLOOR TO THE FLOOR DRAIN, SLOPE 1/16"/FT+/-. CUT FLOOR DRAIN GRATE FOR ELBOW DOWN. PIPING TO BE AS NOTED ABOVE.

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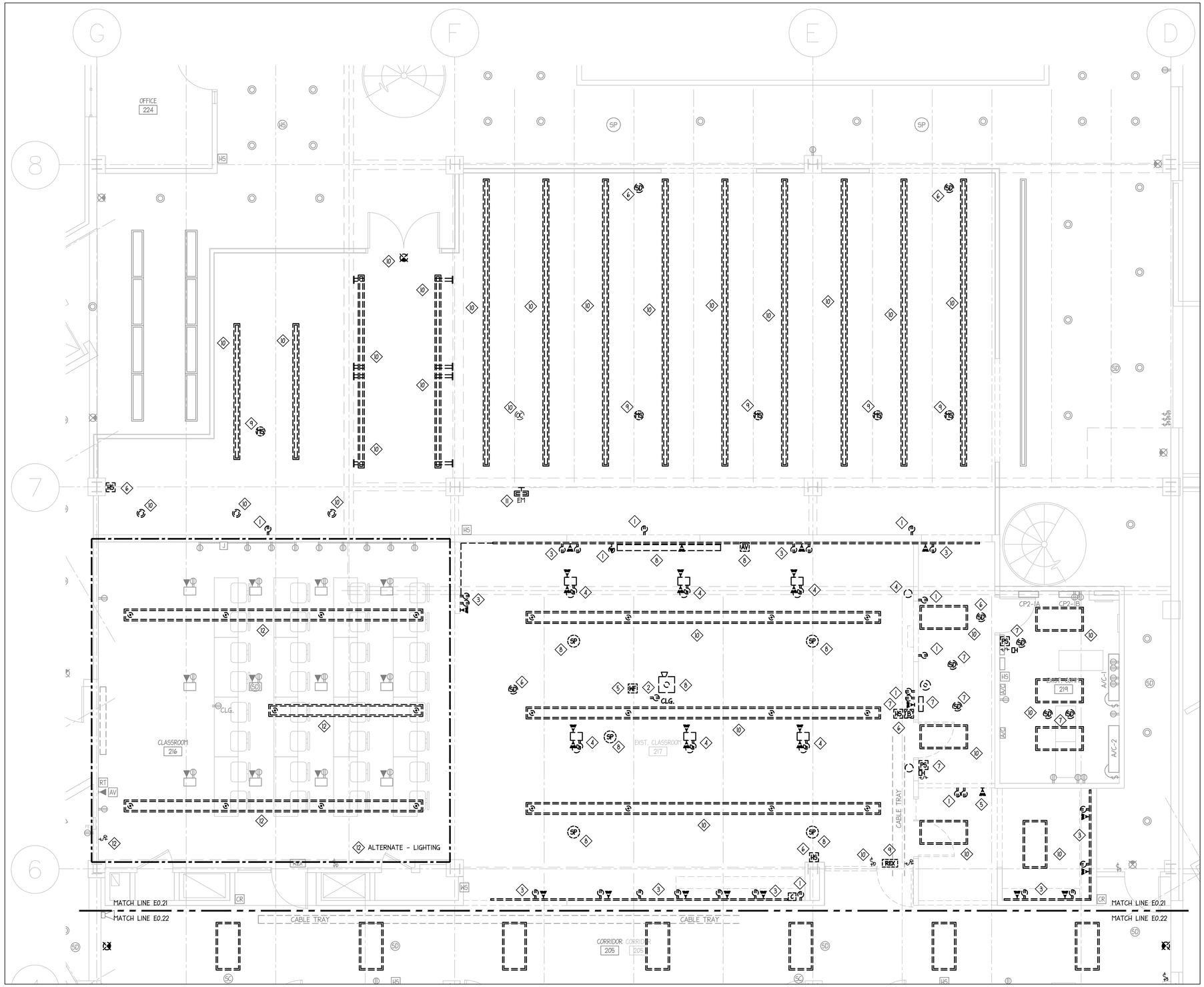
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PLUMBING
PENTH. LEVEL
NEW WORK PLAN

P-1.41



1 ELECTRICAL - SECOND FLOOR LEVEL DEMOLITION PLAN
1/4"=1'-0"

CONSTRUCTION NORTH

ELECTRICAL DEMOLITION LEGEND

- ELECTRICAL WORK TO BE DEMOLISHED
- EXISTING ELECTRICAL WORK TO REMAIN

ELECTRICAL SPECIFIC DEMOLITION NOTES:

1. DEMOLISH AND REMOVE THE EXISTING GENERAL USE AND SPECIAL PURPOSE WALL MOUNTED RECEPTACLES. REMOVE CIRCUITS BACK TO LAST ACTIVE POINT OR BREAKER IN PANEL, AS IS APPLICABLE. PROVIDE NEW CIRCUITING IF REQUIRED TO MAINTAIN CIRCUIT CONTINUITY.

2. DEMOLISH AND REMOVE THE EXISTING CEILING MOUNTED RECEPTACLE. REMOVE CIRCUITING AS NOTED ABOVE.

3. DEMOLISH AND REMOVE THE EXISTING WIRE MOLD WITH THE ASSOCIATED RECEPTACLES AND DATA OUTLETS. REMOVE POWER CIRCUITS AS NOTED ABOVE. REMOVE DATA CABLING BACK TO THE SWITCH IN THE I.T. ROOM.

4. DEMOLISH AND REMOVE THE EXISTING FLOOR MOUNTED RECEPTACLES AND DATA OUTLETS. REMOVE ALL HARDWARE TO BELOW FINISHED FLOOR LEVEL. REMOVE ALL WIRING AND CABLING BACK TO THE BREAKERS IN THE PANELS AND SWITCH IN THE I.T. ROOM. COORDINATE WITH THE GENERAL TRADES CONTRACTOR TO INFILL FLOOR OPENINGS.

5. DEMOLISH AND REMOVE THE BALANCE OF THE DATA OUTLETS IN THE PROJECT SPACES AND THE WIRELESS HUBS, AS INDICATED BOLD DASHED. REMOVE CABLING BACK TO THE SWITCH IN THE I.T. ROOM.

6. DEMOLISH AND REMOVE THE FIRE ALARM DETECTION AND ANNUNCIATION DEVICES INDICATED BOLD DASHED. REMOVE WIRING BACK AS REQUIRED FOR EXTENSION UNDER NEW WORK. MAINTAIN CIRCUIT/SYSTEM CONTINUITY.

7. DEMOLISH AND REMOVE THE EXISTING I.T. ROOM "HALON" SYSTEM CONTROL PANEL AND ALL ASSOCIATED SMOKE DETECTORS, E.P.O.'S, PULL STATIONS, ALARM DEVICES AND INTERFACE MODULES. COORDINATE WITH THE FIRE SUPPRESSION CONTRACTOR.

8. DEMOLISH AND REMOVE THE EXISTING AUDIO/VISUAL SPEAKERS, SCREEN POWER AND SCREEN CONTROLS. REMOVE ALL ASSOCIATED CABLING AND POWER WIRING.

9. DEMOLISH AND REMOVE THE EXISTING SECURITY AND DOOR ACCESS DEVICES INDICATED BOLD DASHED. REMOVE CABLING BACK TO PANEL OR LAST ACTIVE POINT. COORDINATE WITH THE OWNERS SECURITY VENDOR.

10. DEMOLISH AND REMOVE THE EXISTING LIGHTING FIXTURES AND ASSOCIATED SWITCHING AND CONTROL. REMOVE ALL ASSOCIATED SUPPORT HARDWARE. REMOVE CIRCUITING BACK TO LAST ACTIVE POINT. NOTE; RETAIN SUFFICIENT CIRCUITS FOR REUSE UNDER NEW WORK.

11. DEMOLISH AND REMOVE THE EXISTING EMERGENCY LIGHTING FIXTURE. REMOVE CIRCUITING BACK TO LAST ACTIVE POINT.

ALTERNATE;
12. CONTRACTOR TO PROVIDE A SEPARATE PRICE TO INCLUDE ALL COSTS ASSOCIATED WITH THE REPLACEMENT OF THE LIGHTING FIXTURES AND CONTROL IN THE INDICATED CLASSROOM AND CORRIDOR SPACES. REMOVE EXISTING FIXTURES, SUPPORT HARDWARE AND CONTROL. RETAIN POWER CIRCUIT FOR REUSE UNDER NEW WORK.

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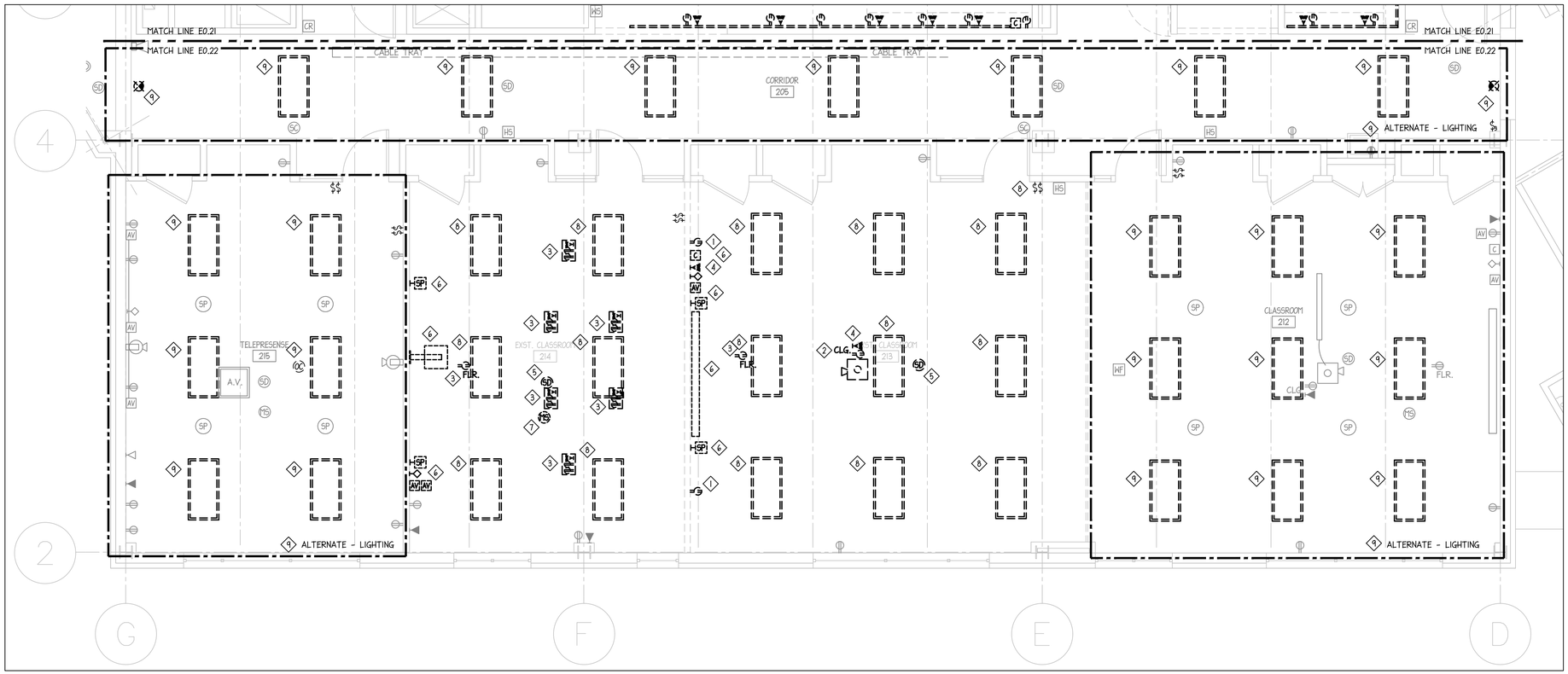
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ELECTRICAL
SECOND FLOOR
DEMOLITION PLAN

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CONSTRUCTION NORTH

1 ELECTRICAL - SECOND FLOOR LEVEL DEMOLITION PLAN
1/4"=1'-0"

ELECTRICAL DEMOLITION LEGEND	
– – – –	ELECTRICAL WORK TO BE DEMOLISHED
———	EXISTING ELECTRICAL WORK TO REMAIN

E ELECTRICAL SPECIFIC DEMOLITION NOTES:

1. DEMOLISH AND REMOVE THE EXISTING GENERAL USE WALL MOUNTED RECEPTACLES. REMOVE CIRCUITS BACK TO LAST ACTIVE POINT OR BREAKER IN PANEL, AS IS APPLICABLE. PROVIDE NEW CIRCUITING IF REQUIRED TO MAINTAIN CIRCUIT CONTINUITY.

2. DEMOLISH AND REMOVE THE EXISTING CEILING MOUNTED RECEPTACLE. REMOVE CIRCUITING AS NOTED ABOVE.

3. DEMOLISH AND REMOVE THE EXISTING FLOOR MOUNTED RECEPTACLES AND DATA OUTLETS. REMOVE ALL HARDWARE TO BELOW FINISHED FLOOR LEVEL. REMOVE ALL WIRING AND CABLING BACK TO THE BREAKERS IN THE PANELS AND SWITCHES IN THE I.T. ROOM. COORDINATE WITH THE GENERAL TRADES CONTRACTOR TO INFILL FLOOR OPENINGS.

4. DEMOLISH AND REMOVE THE INDICTED WALL AND CEILING MOUNTED DATA OUTLETS, AS INDICATED BOLD DASHED. REMOVE CABLING BACK TO THE SWITCH IN THE I.T. ROOM.

5. DEMOLISH AND REMOVE THE FIRE ALARM DETECTION AND ANNUNCIATION DEVICES INDICATED BOLD DASHED. REMOVE WIRING BACK AS REQUIRED FOR EXTENSION UNDER NEW WORK. MAINTAIN CIRCUIT/SYSTEM CONTINUITY.

6. DEMOLISH AND REMOVE THE EXISTING AUDIO/VISUAL PROJECTION DEVICES, SPEAKERS, SCREEN POWER AND SCREEN CONTROLS. REMOVE ALL ASSOCIATED CABLING AND POWER WIRING.

7. DEMOLISH AND REMOVE THE EXISTING SECURITY DEVICES INDICATED BOLD DASHED. REMOVE CABLING BACK TO PANEL OR LAST ACTIVE POINT. COORDINATE WITH THE OWNERS SECURITY VENDOR.

8. DEMOLISH AND REMOVE THE EXISTING LIGHTING FIXTURES AND ASSOCIATED SWITCHING AND CONTROL. REMOVE ALL ASSOCIATED SUPPORT HARDWARE. REMOVE CIRCUITING BACK TO LAST ACTIVE POINT. NOTE; RETAIN SUFFICIENT CIRCUITS FOR REUSE UNDER NEW WORK.

ALTERNATE;
9. CONTRACTOR TO PROVIDE A SEPARATE PRICE TO INCLUDE ALL COSTS ASSOCIATED WITH THE REPLACEMENT OF THE LIGHTING FIXTURES AND CONTROL IN THE INDICATED CLASSROOM AND CORRIDOR SPACES. REMOVE EXISTING FIXTURES, SUPPORT HARDWARE AND CONTROL. RETAIN POWER CIRCUIT FOR REUSE UNDER NEW WORK.

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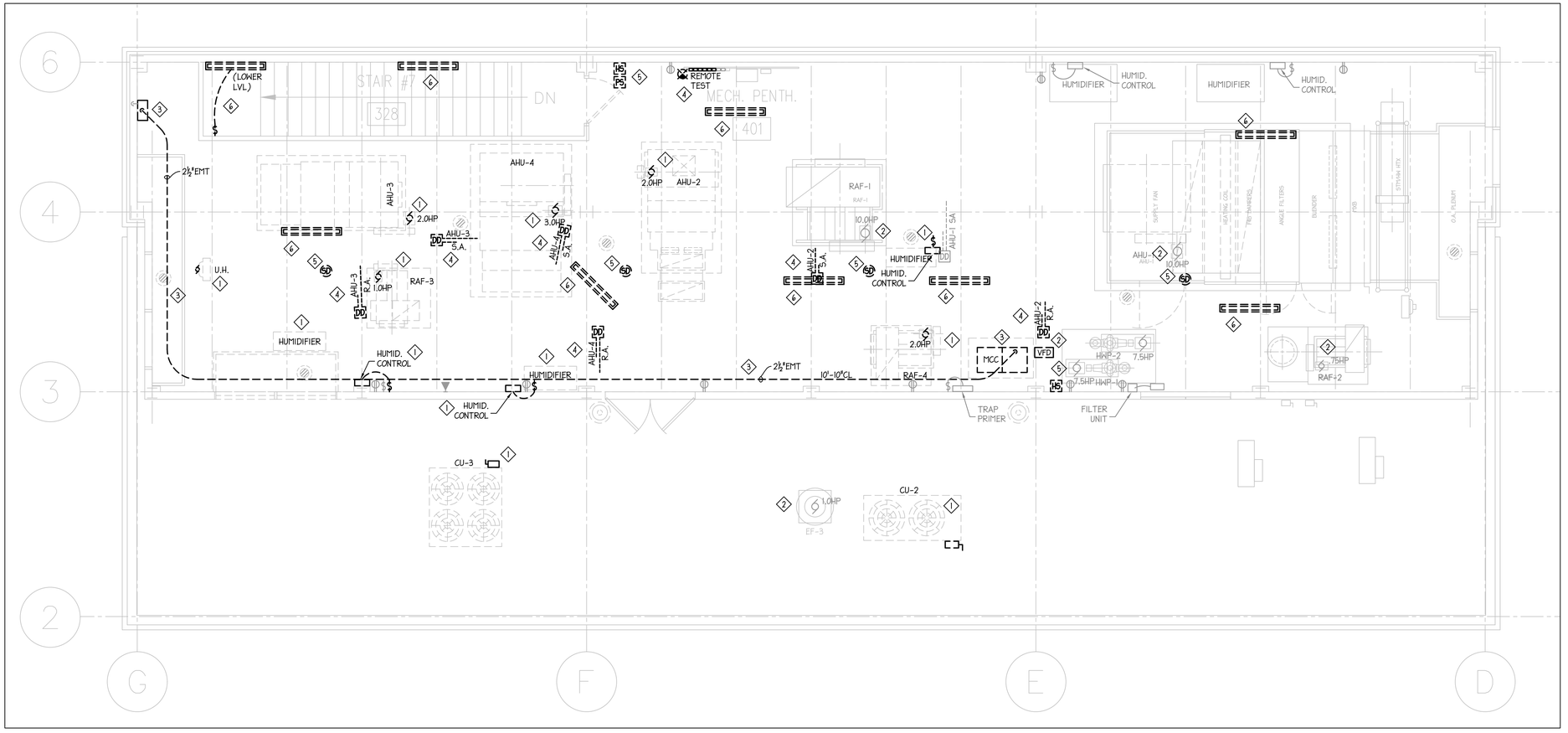
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DEMOLITION PLAN

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1 ELECTRICAL - PENTHOUSE LEVEL DEMOLITION PLAN
1/4"=1'-0"

ELECTRICAL DEMOLITION LEGEND	
– – – –	ELECTRICAL WORK TO BE DEMOLISHED
– – – –	EXISTING ELECTRICAL WORK TO REMAIN

E ELECTRICAL SPECIFIC DEMOLITION NOTES:

1. DEMOLISH AND REMOVE POWER CONNECTIONS AND CIRCUITS TO THE EQUIPMENT INDICATED FOR DEMOLITION. REMOVE FINAL CONNECTIONS TO EQUIPMENT AND POWER CIRCUITS BACK TO THE PANEL/MCC OR LAST ACTIVE POINT. PROVIDE NEW WIRING AS REQUIRED TO MAINTAIN CIRCUIT CONTINUITY, WHERE APPLICABLE.

2. DEMOLISH AND REMOVE THE POWER CIRCUITS FROM THE EXISTING MCC TO THE REMAINING EXISTING EQUIPMENT. REMOVE THE EMERGENCY POWER CIRCUIT SERVING THE HYDRONIC PUMPS BACK TO THE LEVEL BELOW FOR REROUTING. REMOVE THE EXISTING VFD.

3. DEMOLISH AND REMOVE THE EXISTING MCC. DE-ENERGIZE AND LOCK-OUT CIRCUIT IN THE ELECTRICAL ROOM ON LEVEL 1. REMOVE THE BRANCH FEEDER BACK TO THE EXISTING PULL BOX AS INDICATED DASHED. RETAIN SUFFICIENT LENGTH IN THE CONDUCTORS FOR SPLICING, UNDER NEW WORK.

4. DEMOLISH AND REMOVE THE EXISTING DUCT SMOKE DETECTORS AND ASSOCIATED REMOTE TEST SWITCHES. COORDINATE WITH MECHANICAL DEMOLITION WORK. REMOVE CABLING AND CONDUIT BACK TO LAST ACTIVE POINT, OR AS REQUIRED FOR EXTENSION UNDER NEW WORK.

5. DEMOLISH AND REMOVE THE EXISTING FIRE ALARM DETECTION AND ANNUNCIATION DEVICES AS INDICATED DASHED. REMOVE CABLING AND CONDUIT BACK AS REQUIRED FOR EXTENSION UNDER NEW WORK.

6. DEMOLISH AND REMOVE THE EXISTING LIGHTING FIXTURES AND CONTROL. REMOVE WIRING BACK TO LAST ACTIVE POINT. NOTE; INDICATED LOWER STAIR FIXTURE AND SWITCHING ARE PHYSICALLY ON LEVEL 3.

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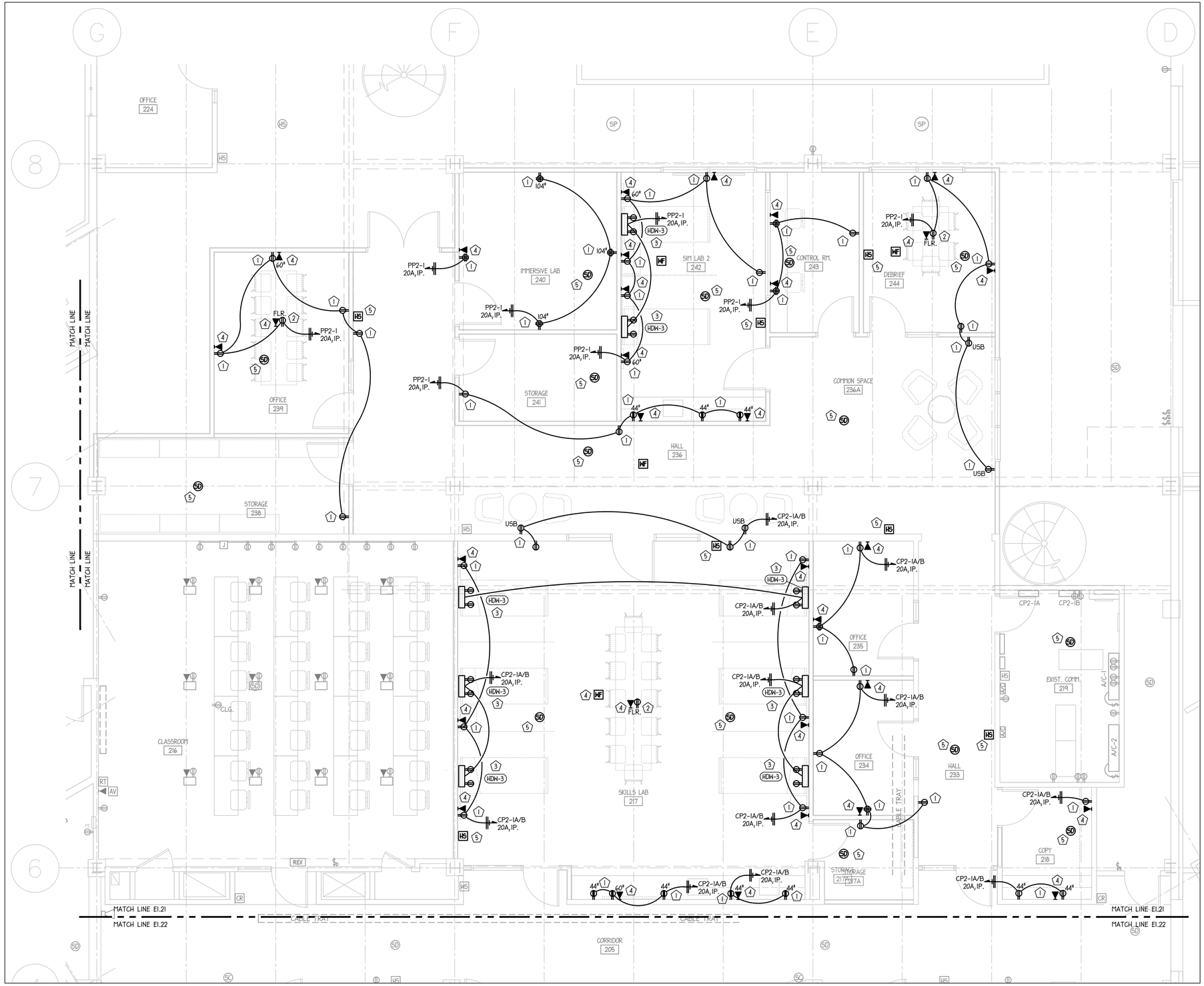
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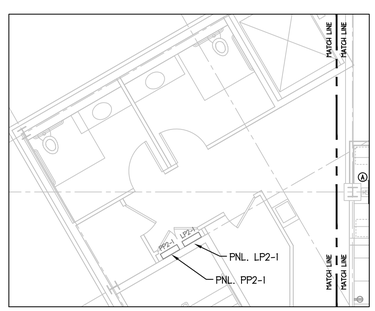
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PENTHOUSE LEVEL
DEMOLITION PLAN

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1 ELECTRICAL - SECOND FLOOR POWER & S.S NEW WORK PLAN
1/4"=1'-0"

CONSTRUCTION NORTH



2 ELECTRICAL - PANEL LOCATION PLAN
NOT TO SCALE

ELECTRICAL NEW WORK LEGEND

- ELECTRICAL NEW WORK TO BE INSTALLED
- EXISTING ELECTRICAL WORK TO REMAIN

(#) ELECTRICAL SPECIFIC NEW WORK NOTES:

1. PROVIDE AND INSTALL GENERAL PURPOSE RECEPTACLES THROUGHOUT THE PROJECT SPACE AS INDICATED BOLD. SEE SPECIFICATIONS. MOUNT AT DEFAULT HEIGHT UNLESS NOTED OTHERWISE FOR ABOVE COUNTER LOCATIONS AND FOR WALL MOUNTED MONITORS, COORDINATE WITH ARCHITECTURAL PLANS. PROVIDE DUPLEX RECEPTACLES, QUAD RECEPTACLES, GFCI TYPE RECEPTACLES AND USB CHARGER TYPE RECEPTACLES AS INDICATED ON THE PLANS. INSTALL CIRCUITING TO THE INDICATED POWER PANELS. UTILIZE EXISTING BREAKERS AND PROVIDE NEW WHERE NO SPARES EXIST.

2. PROVIDE AND INSTALL FLOOR RECEPTACLES APPROXIMATELY CENTERED IN THE ROOMS, INDICATED. PROVIDE POKE-THROUGH ASSEMBLIES TO ACCOMMODATE POWER AND DATA, SEE SPECIFICATIONS. PROVIDE CONDUIT AND DATA SLEEVES FROM THE CEILING SPACE ON THIS LEVEL TO THE CEILING SPACE BELOW AND TO THE POKE-THROUGH ASSEMBLY. CIRCUIT AS INDICATED.

3. PROVIDE AND INSTALL POWER FOR THE WALL MOUNTED "TRAINING HEADWALL" UNITS, SEE EQUIPMENT SCHEDULE. MAKE POWER CONNECTIONS TO THE UNIT PUMP AND RECEPTACLES, PER THE MANUFACTURER'S INSTRUCTIONS.

4. PROVIDE AND INSTALL DATA OUTLETS AND CABLING IN ALL LOCATIONS INDICATED. GENERALLY MATCH MOUNTING HEIGHT OF ADJACENT RECEPTACLES. PROVIDE TWO (2) ACTIVE PORTS IN EACH OUTLET WITH CABLING BACK TO THE SWITCHES IN THE I.T. ROOM. INSTALL THE WIRELESS STATIONS, PROVIDED BY THE OWNER, MOUNT TO THE CEILING GRID, WITH CABLING AS NOTED ABOVE. PROVIDE CABLING LABELING AND MAKE ALL TERMINATION PER THE OWNER'S I.T. DEPARTMENT DIRECTION.

5. PROVIDE AND INSTALL NEW FIRE PROTECTION DEVICES FOR DETECTION AND ANNUNCIATION. PROVIDE SMOKE DETECTOR COVERAGE IN ALL SPACES. PROVIDE HORN/STROBES AS INDICATED FOR FULL COVERAGE. EXTEND THE DETECTION AND ANNUNCIATION ZONE WIRING TO SERVE ALL DEVICES. LABEL ALL DEVICES WITH ZONE AND DEVICE NUMBER. PROVIDE NEW BATTERY CALCULATIONS AND INCREASE BATTERY CAPACITY AS REQUIRED.

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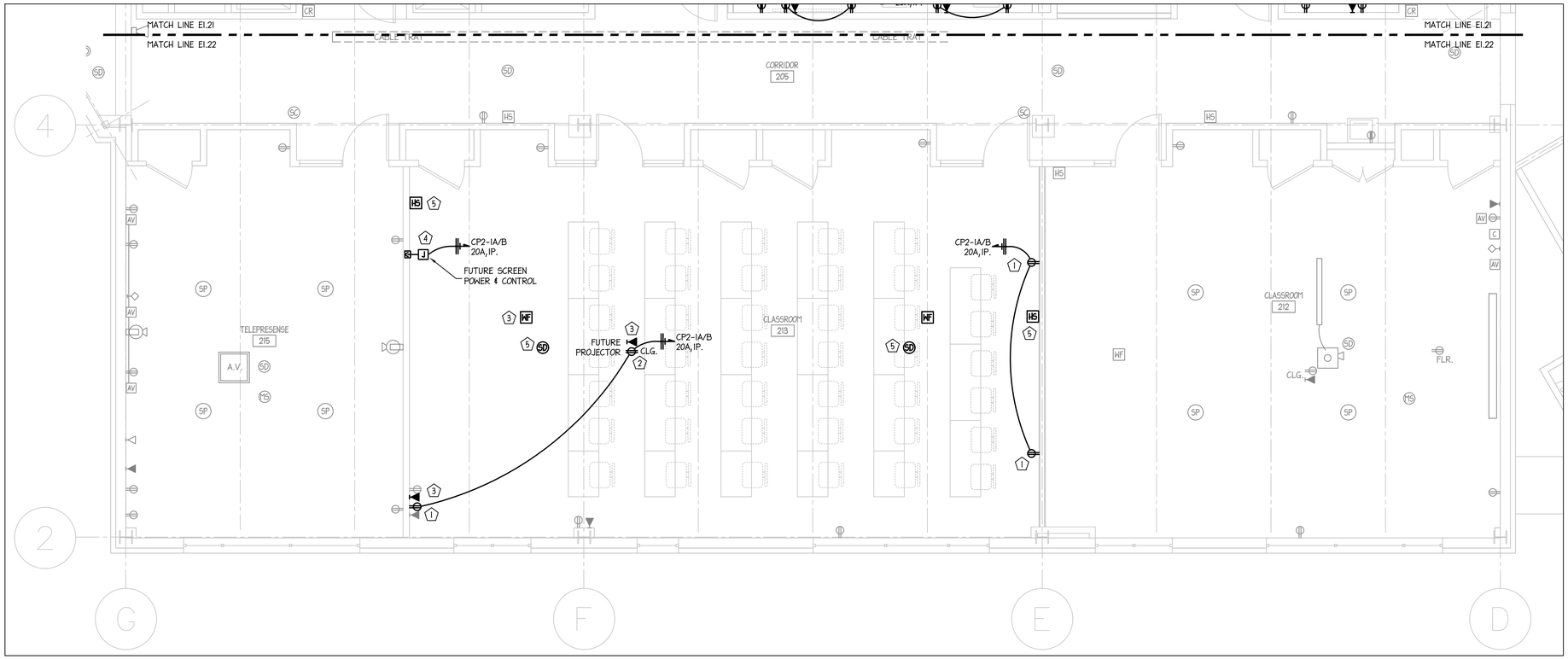
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ELECTRICAL
SECOND FLOOR
POWER & S.S.
NEW WORK PLAN

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CONSTRUCTION NORTH

1 ELECTRICAL - SECOND FLOOR POWER & S.S. NEW WORK PLAN
1/4"=1'-0"

ELECTRICAL NEW WORK LEGEND

- ELECTRICAL NEW WORK TO BE INSTALLED
- EXISTING ELECTRICAL WORK TO REMAIN

ELECTRICAL SPECIFIC NEW WORK NOTES:

1. PROVIDE AND INSTALL GENERAL PURPOSE RECEPTACLES THROUGHOUT THE PROJECT SPACE AS INDICATED BOLD. SEE SPECIFICATIONS. MOUNT AT DEFAULT HEIGHT UNLESS NOTED OTHERWISE FOR ABOVE COUNTER LOCATIONS AND FOR WALL MOUNTED MONITORS, COORDINATE WITH ARCHITECTURAL PLANS. PROVIDE DUPLEX RECEPTACLES, QUAD RECEPTACLES, GFCI TYPE RECEPTACLES AND USB CHARGER TYPE RECEPTACLES AS INDICATED ON THE PLANS. INSTALL CIRCUITING TO THE INDICATED POWER PANELS. UTILIZE EXISTING BREAKERS AND PROVIDE NEW WHERE NO SPARES EXIST.

2. PROVIDE AND INSTALL A CEILING MOUNTED RECEPTACLES TO SERVE THE PROPOSED PROJECTOR UNIT. COORDINATE LOCATION WITH ARCHITECTURAL DRAWINGS AND OWNER. CIRCUIT AS INDICATED.

3. PROVIDE AND INSTALL DATA OUTLETS AND CABLING IN ALL LOCATIONS INDICATED. GENERALLY MATCH MOUNTING HEIGHT OF ADJACENT RECEPTACLES. PROVIDE TWO (2) ACTIVE PORTS IN EACH OUTLET WITH CABLING BACK TO THE SWITCHES IN THE I.T. ROOM. INSTALL THE WIRELESS STATIONS, PROVIDED BY THE OWNER, MOUNT TO THE CEILING GRID, WITH CABLING AS NOTED ABOVE. PROVIDE CABLING LABELING AND MAKE ALL TERMINATION PER THE OWNER'S I.T. DEPARTMENT DIRECTION.

4. PROVIDE AND INSTALL ROUGING FOR A FUTURE PROJECTION SCREEN. INSTALL A SINGLE GANG BOX FOR SCREEN CONTROLS AND A J-BOX WITH POWER ABOVE THE CEILING.

5. PROVIDE AND INSTALL NEW FIRE PROTECTION DEVICES FOR DETECTION AND ANNUNCIATION. PROVIDE SMOKE DETECTOR COVERAGE IN ALL SPACES. PROVIDE HORN/STROBES AS INDICATED FOR FULL COVERAGE. EXTEND THE DETECTION AND ANNUNCIATION ZONE WIRING TO SERVE ALL DEVICES. LABEL ALL DEVICES WITH ZONE AND DEVICE NUMBER. PROVIDE NEW BATTERY CALCULATIONS AND INCREASE BATTERY CAPACITY AS REQUIRED.

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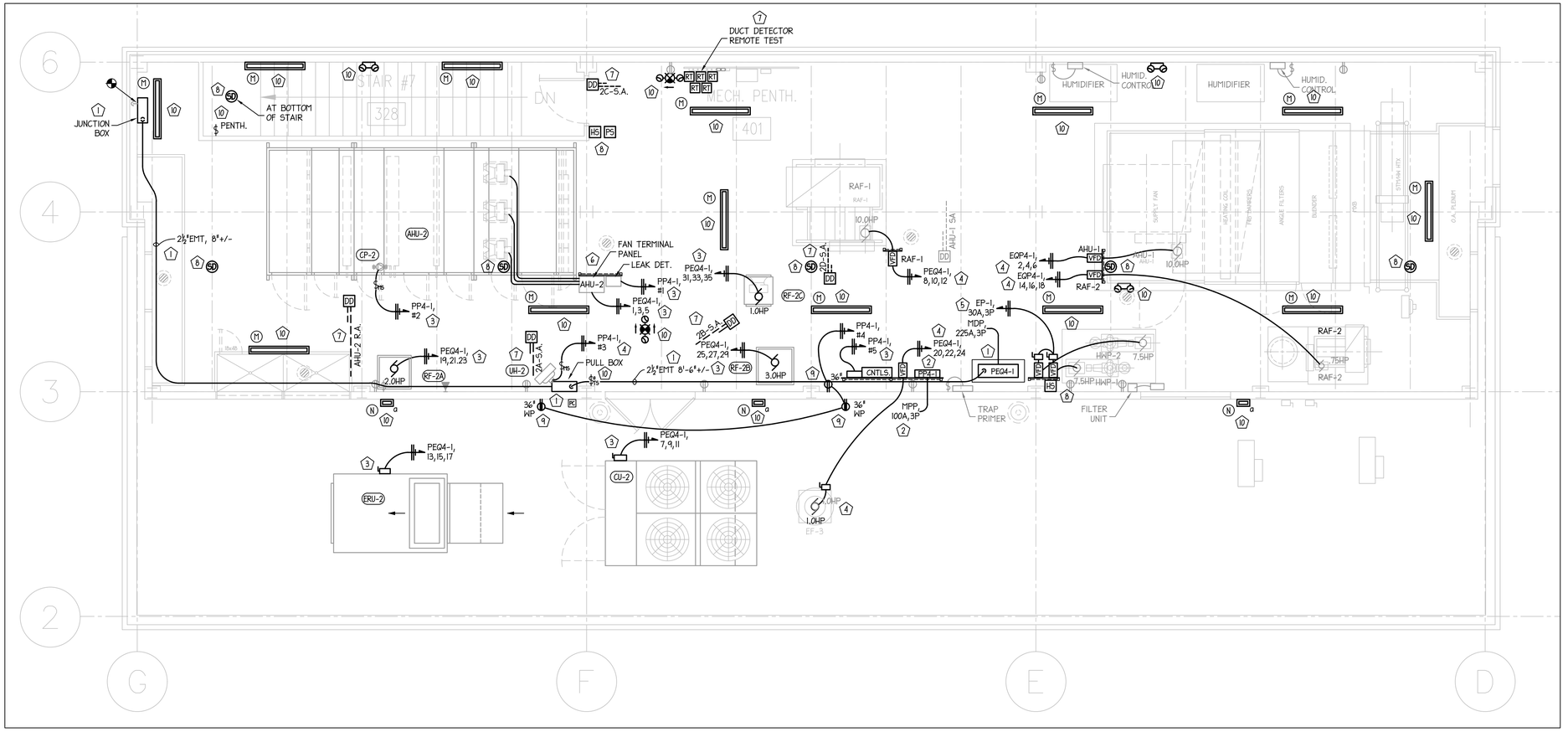
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ELECTRICAL
SECOND FLOOR
POWER & S.S.
NEW WORK PLAN

E-1.22



1 ELECTRICAL - PENTHOUSE LEVEL NEW WORK PLAN
1/4"=1'-0"

ELECTRICAL NEW WORK LEGEND

- ELECTRICAL NEW WORK TO BE INSTALLED
- EXISTING ELECTRICAL WORK TO REMAIN

⑧ ELECTRICAL SPECIFIC NEW WORK NOTES:

1. PROVIDE AND INSTALL A NEW POWER DISTRIBUTION PANEL IN THE LOCATION INDICATED, SEE PANEL SCHEDULES AND SPECIFICATIONS. COORDINATE WITH THE GENERAL TRADES CONTRACTOR TO PROVIDE A CONCRETE MOUNTING PAD. MOUNT THE PANEL WHERE INDICATED. PROVIDE AND INSTALL A NEW JUNCTION BOX IN THE LOCATION OF THE PREVIOUS PULL BOX, RECONNECT THE EXISTING CONDUIT. RUN NEW CONDUIT FROM THE J-BOX ALONG THE WALL, UNDER THE PLENUMS. INSTALL A PULL BOX AND RUN CONDUIT UP, OVERHEAD TO THE PROPOSED PANEL. SPLICE IN THE J-BOX AND RUN NEW CONDUCTORS TO THE PANEL (4-#4/0 & #4 GND, CU).

2. PROVIDE AND INSTALL A NEW POWER PANEL TO SERVE THE 120/208 VOLT LOADS, SEE PANEL SCHEDULES AND SPECIFICATIONS. FABRICATE A MOUNTING RACK WITH STRUT CHANNELS AND PLYWOOD MOUNTING BOARD, PER THE SPECIFICATIONS, WITH SPACE FOR THE INDICATED DEVICES. MOUNT THE PANEL APPROXIMATELY AS INDICATED. INSTALL A NEW BRANCH BREAKER IN PANEL "MPP" (LEVEL 1 ELECTRICAL RM.) AND RUN A NEW FEEDER TO THIS PANEL, FIELD DETERMINE ROUTING. CIRCUIT TO BE 4-#3 & #8 GND. IN 1 1/4" EMT.

3. PROVIDE AND INSTALL NEW POWER CIRCUITS TO SERVE THE PROPOSED MECHANICAL EQUIPMENT, SEE EQUIPMENT SCHEDULE. PROVIDE FUSED DISCONNECT SWITCHES, NEMA 3R FOR EXTERIOR EQUIPMENT, AND NEMA 1 FOR ANY INTERIOR EQUIPMENT WITHOUT LINE OF SIGHT TO THE PANEL OR INTEGRAL DISCONNECTS. PROVIDE PROPERLY SIZED BREAKERS IN THE PANEL AND RUN CIRCUITS PER THE EQUIPMENT SCHEDULE. CAREFULLY COORDINATE CONDUIT ROUTING WITH PROPOSED DUCTWORK AND PIPING.

4. PROVIDE AND INSTALL NEW POWER CIRCUITS TO RE-FEED THE EXISTING MECHANICAL EQUIPMENT, INDICATED TO REMAIN. FABRICATE MOUNTING RACKS, AS NOTED ABOVE. PROVIDE AND INSTALL VFD'S, PROPERLY SIZED TO SERVE THE EQUIPMENT. PROVIDE THE SERVICES OF THE VFD VENDOR TO VERIFY COMPATIBILITY OF THE EXISTING MOTORS AND SET UP AND PROGRAM THE VFD'S. PROVIDE PROPERLY SIZED BREAKERS IN THE PANEL AND RUN CIRCUITS PER THE EQUIP. SCHEDULE.

5. RE-FEED THE EXISTING HYDRONIC PUMPS SIMILAR TO AS NOTED ABOVE. PROVIDE MOUNTING BOARD, VFD'S AND FUSED DISCONNECT SWITCHES. INTERCEPT THE POWER CIRCUIT ON THE LEVEL BELOW AND EXTEND OVER. DRILL THROUGH THE DECK AT THE MOUNTING BOARD LOCATION AND EXTEND THE CIRCUIT. INSTALL A TAP FROM ONE SWITCH TO THE OTHER, AND PROPERLY FUSE SWITCHES. PROVIDE SEPARATE VFD'S AND POWER FEEDS TO EACH PUMP, SEE EQUIPMENT SCHEDULE.

6. FABRICATE A MOUNTING FRAME AND REMOTE MOUNT THE PROPOSED AIR HANDLER UNIT DISCONNECT SWITCH, TERMINAL PANEL AND REFRIGERANT ALARM BOX. PROVIDE POWER WIRING, INDIVIDUALLY FROM THE TERMINAL PANEL TO EACH SUPPLY AIR FAN. PROVIDE WIRING FROM THE REFRIGERANT LEAK DETECTOR TO THE TERMINAL BOX. PROVIDE POWER CIRCUITS PER THE EQUIPMENT SCHEDULE.

7. PROVIDE NEW DUCT DETECTORS TO THE MECHANICAL CONTRACTOR FOR INSTALLATION IN THE PROPOSED DUCTWORK. ALL DEVICES TO BE PROVIDED BY THE BUILDING FIRE ALARM VENDOR, CURRENT TECHNOLOGY AND FULLY COMPATIBLE WITH THE EXISTING SYSTEM. EXTEND THE FIRE ALARM DETECTION LOOP AND CONNECT THE NEW DEVICES, RETAIN EXISTING ZONING. PROVIDE INTERFACE MODULES WITH AUXILIARY CONTACTS FOR B.M.S. CONTROLS INTERFACE. MOUNT REMOTE TEST SWITCHES FOR EACH DEVICES ON THE MOUNTING BOARD IN THE LOCATION OF THE EXISTING. PROVIDE THE SERVICES OF THE FIRE ALARM VENDOR TO PROGRAM ALL NEW DEVICES INTO THE SYSTEM. LABEL ALL DEVICES PER THE SYSTEM STANDARDS.

8. PROVIDE AND INSTALL NEW FIRE ALARM DETECTION AND ANNUNCIATION DEVICES FOR THE PENTHOUSE. INSTALL A NEW SYSTEM OF SMOKE DETECTORS AT THE ROOF FRAMING TO PROVIDE COMPLETE COVERAGE (FACTOR IN DUCTWORK AND OBSTRUCTIONS). INSTALL NEW PULL STATION AND HORN STROBE UNITS, APPROXIMATELY AS INDICATED. EXTEND WIRING AND PROGRAM INTO THE SYSTEM AS NOTED ABOVE.

9. PROVIDE AND INSTALL GENERAL USE AND EXTERIOR RECEPTACLES APPROXIMATELY AS INDICATED. MOUNT ALL DEVICES 36" ABOVE FLOOR OR ROOF. PROVIDE GFCI TYPE AND IN-USE WEATHER COVERS FOR EXTERIOR DEVICES.

10. PROVIDE A COMPLETE SYSTEM OF GENERAL LIGHTING, EMERGENCY LIGHTING AND EXIT LIGHTING TO SERVE THE PENTHOUSE, STAIR AND ROOF AREAS. SEE LIGHTING FIXTURE SCHEDULE. WALL MOUNT FIXTURES IN THE STAIR IN THE CURRENT LOCATIONS. FIXTURES IN THE PENTHOUSE TO BE CHAIN HUNG, MOUNTED ON UNDER SIDE OF DUCTS OR WALL MOUNTED AS THE LOCATION DICTATES. GENERALLY CHAIN MOUNTED FIXTURES TO BE NEAR 9'-0" OR AT BOTTOM OF DUCTWORK. CONNECT TO THE EXISTING CIRCUIT AND PROVIDE NEW SWITCHING FROM THE CURRENT LOCATION. WALL MOUNT ROOF LIGHTING AT 9'-0"+/- ABOVE ROOF LEVEL AND CONTROL VIA A TIMER SWITCH, TWO HOUR MAXIMUM SETTING. INSTALL EXIT AND EMERGENCY LIGHTING APPROXIMATELY AS INDICATED, CONNECT TO LOCAL CIRCUIT, UN-SWITCHED.

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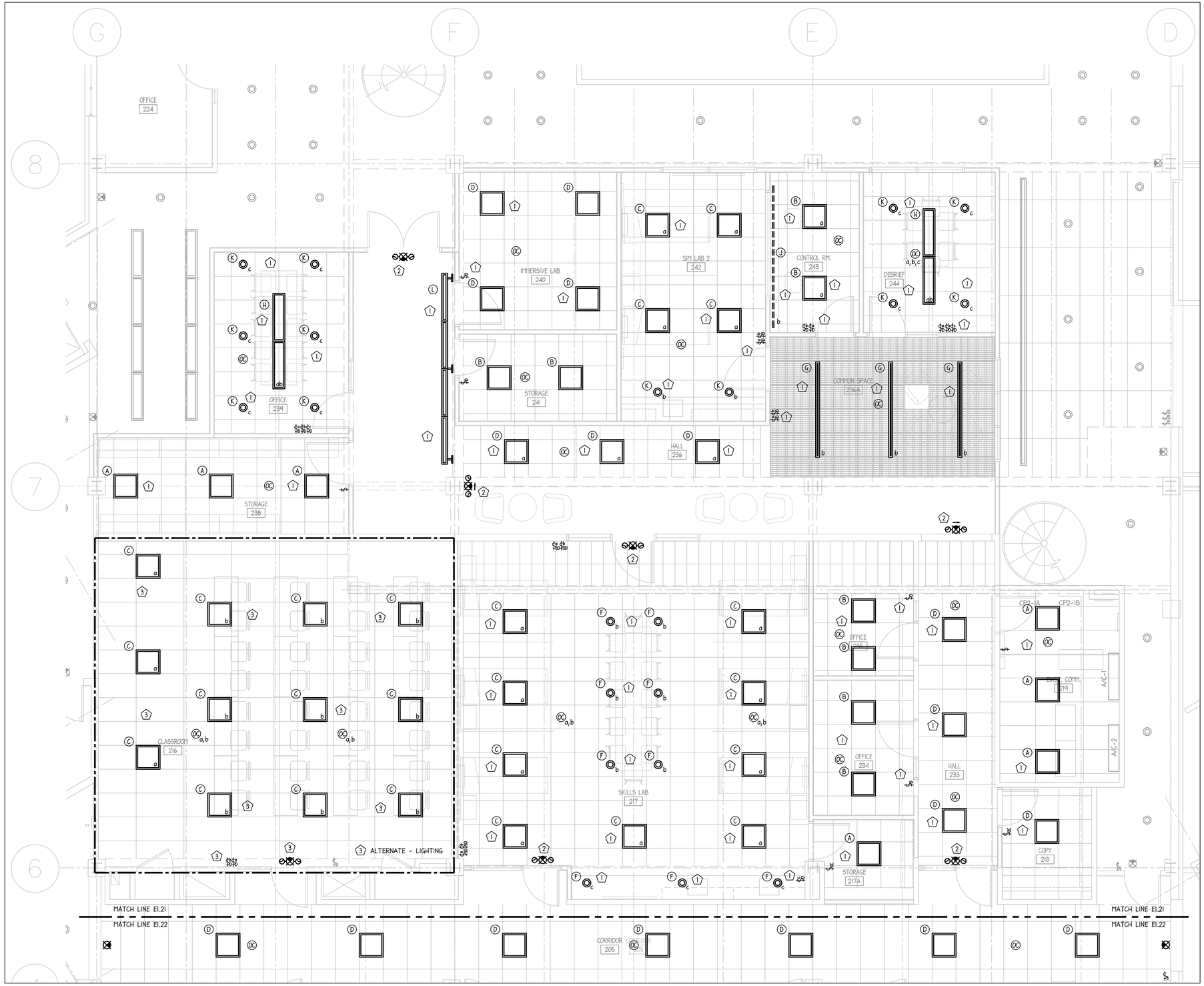
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ELECTRICAL
PENTHOUSE LEVEL
NEW WORK PLAN

E-1.41



1 ELECTRICAL - SECOND FLOOR LEVEL LIGHTING NEW WORK PLAN
1/4"=1'-0"

CONSTRUCTION NORTH

ELECTRICAL NEW WORK LEGEND

- ELECTRICAL NEW WORK TO BE INSTALLED
- EXISTING ELECTRICAL WORK TO REMAIN

ELECTRICAL SPECIFIC NEW WORK NOTES:

1. PROVIDE AND INSTALL A NEW SYSTEM OF LIGHTING TO SERVE THE EXISTING AND PROPOSED SPACES. SEE FIXTURE SCHEDULE AND SPECIFICATIONS. INSTALL GRID MOUNTED FIXTURES IN THE CEILING GRID OR TILES WITH SUPPLEMENTAL SUPPORT. PROVIDE FRAMING FROM THE BUILDING STRUCTURE TO SUPPORT PENDANT MOUNTED FIXTURES. PROVIDE CONTROL FOR ALL FIXTURES, SEE CONTROL DETAILS. CONNECT FIXTURES TO THE EXISTING POWER CIRCUITS SERVING THE PREVIOUS FIXTURES. UPDATE PANEL SCHEDULES ACCORDINGLY.

2. PROVIDE AND INSTALL EXIT AND EMERGENCY LIGHTING TO INDICATE AND ILLUMINATE ALL EGRESS PATHS AND AREAS AS INDICATED. CONNECT FIXTURES TO THE LOCAL LIGHTING CIRCUITS, UN-SWITCHED.

ALTERNATE;
3. CONTRACTOR TO PROVIDE A SEPARATE PRICE TO INCLUDE ALL COSTS ASSOCIATED WITH THE REPLACEMENT OF THE LIGHTING FIXTURES AND CONTROL IN THE INDICATED CLASSROOM AND CORRIDOR SPACES. PROVIDE AND INSTALL NEW LIGHTING AS INDICATED AND AS NOTED ABOVE FOR NEW LIGHTING AND CONTROL.

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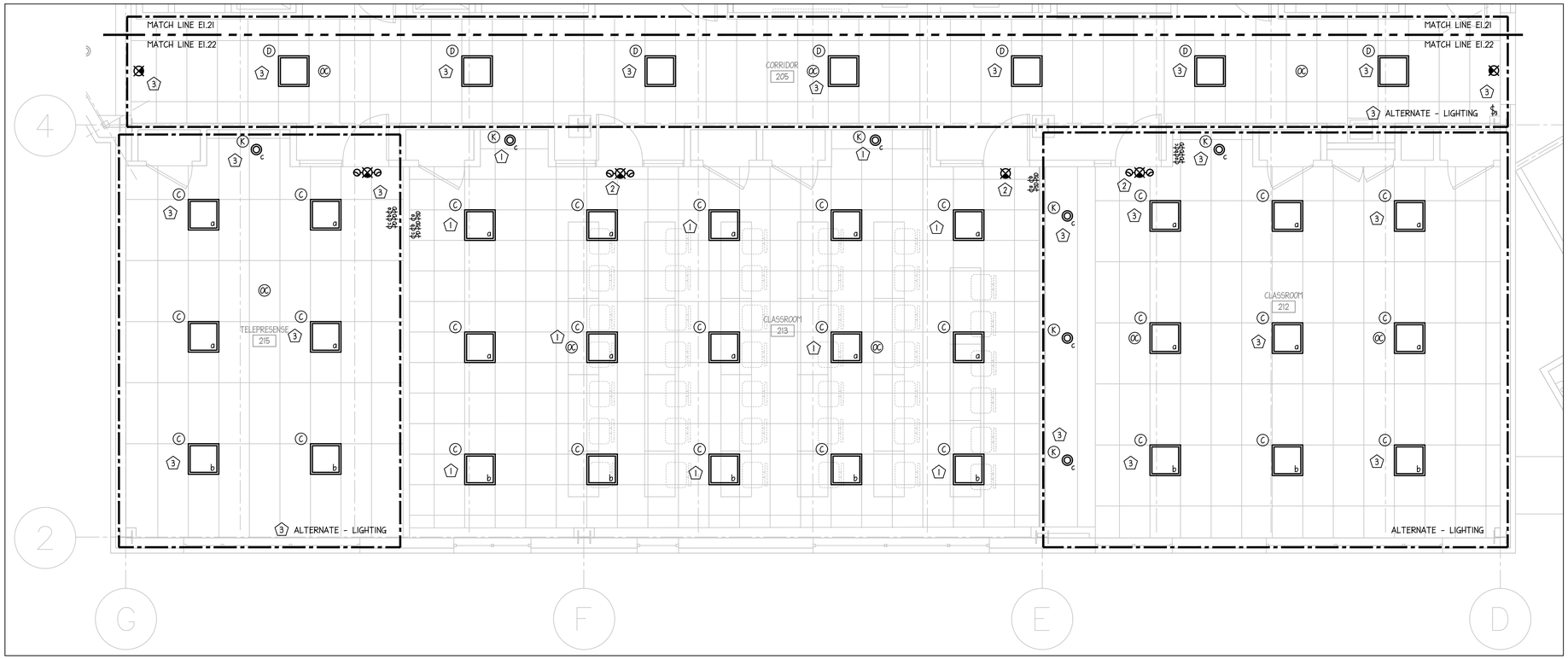
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ELECTRICAL
SECOND FLOOR
LIGHTING
NEW WORK PLAN

E-2.21

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CONSTRUCTION NORTH

1 ELECTRICAL - SECOND FLOOR LEVEL LIGHTING NEW WORK PLAN
1/4"=1'-0"

ELECTRICAL NEW WORK LEGEND	
———	ELECTRICAL NEW WORK TO BE INSTALLED
———	EXISTING ELECTRICAL WORK TO REMAIN

ELECTRICAL SPECIFIC NEW WORK NOTES:

1. PROVIDE AND INSTALL A NEW SYSTEM OF LIGHTING TO SERVE THE EXISTING AND PROPOSED SPACES. SEE FIXTURE SCHEDULE AND SPECIFICATIONS. INSTALL GRID MOUNTED FIXTURES IN THE CEILING GRID OR TILES WITH SUPPLEMENTAL SUPPORT. PROVIDE FRAMING FROM THE BUILDING STRUCTURE TO SUPPORT PENDANT MOUNTED FIXTURES. PROVIDE CONTROL FOR ALL FIXTURES, SEE CONTROL DETAILS. CONNECT FIXTURES TO THE EXISTING POWER CIRCUITS SERVING THE PREVIOUS FIXTURES. UPDATE PANEL SCHEDULES ACCORDINGLY.

2. PROVIDE AND INSTALL EXIT AND EMERGENCY LIGHTING TO INDICATE AND ILLUMINATE ALL EGRESS PATHS AND AREAS AS INDICATED. CONNECT FIXTURES TO THE LOCAL LIGHTING CIRCUITS, UN-SWITCHED.

ALTERNATE;
3. CONTRACTOR TO PROVIDE A SEPARATE PRICE TO INCLUDE ALL COSTS ASSOCIATED WITH THE REPLACEMENT OF THE LIGHTING FIXTURES AND CONTROL IN THE INDICATED CLASSROOM AND CORRIDOR SPACES. PROVIDE AND INSTALL NEW LIGHTING AS INDICATED AND AS NOTED ABOVE FOR NEW LIGHTING AND CONTROL.

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ELECTRICAL EQUIPMENT LEGEND

SYMBOL	DESCRIPTION
	DISCONNECT SWITCH
$	WALL SWITCH
$D	WALL SWITCH INDICATING CIRCUIT CONTROLLED TYPICAL. DIMMABLE UNLESS NOTED OTHERWISE.
$3	THREE-WAY SWITCH (4 = 4-WAY). FOR CLARIFICATION ONLY.
$T	WALL SWITCH WITH TIMER CONTROL
$OC	NON-DIMMING WALL SWITCH WITH OCCUPANCY SENSOR
$MS	THERMALLY PROTECTED MOTOR SWITCH
OC	OCCUPANCY SENSOR
	CABLE TV COAX JACK OR COMPUTER CABLE BOX
PE	PHOTOCELL
	DATA OUTLET. (2) CAT6A CABLES AND (2) JACKS PER LOCATION UNLESS NOTED OTHERWISE.
	DUPLEX RECEPTACLE
	QUADPLEX RECEPTACLE
	GFCI RECEPTACLE
USB	DUPLEX RECEPTACLE WITH USB CHARGING
J	JUNCTION BOX
	MOTOR SYMBOL
d	TYPICAL RECESSED CAN LIGHT, LETTER INDICATES CONTROL
d	TYPICAL RECESSED LIGHT FIXTURE, LETTER INDICATES CONTROL
	TYPICAL EXIT LIGHT FIXTURE
	EXIT LIGHT FIXTURE WITH EMERGENCY HEADS
	HOME RUN TO PANELBOARD
SP	SPEAKER
CR	CARD READER
DR	DOOR OPERATOR
PB	PUSH BUTTON
REX	REQUEST TO EXIT SENSOR
SC	SECURITY CAMERA (INTERIOR)
WF	WI-FI HUBB CEILING JACK. MOUNT IN SINGLE GANG BOX ON WALL IN CEILING SPACE WITHIN 5' OF DEVICE.

FIRE ALARM LEGEND

SYMBOL	DESCRIPTION
DD	DUCT SMOKE DETECTOR
HS	HORN STROBE
HS	CEILING MOUNTED HORN STROBE
S	STROBE
S	CEILING MOUNTED STROBE
SS	SPEAKER STROBE
SS	CEILING MOUNTED SPEAKER STROBE
SD	SMOKE DETECTOR
HD	HEAT DETECTOR
PS	PULL STATION
DH	DOOR HOLD
TS	TAMPER SWITCH
FS	FLOW SWITCH
RT	DUCT SMOKE DETECTOR TEST SWITCH

ELECTRICAL LEGEND

- EXISTING ELECTRICAL TO BE DEMOLISHED
- EXISTING ELECTRICAL TO REMAIN
- NEW ELECTRICAL WORK TO BE PROVIDED

ELECTRICAL GENERAL NOTES:

1. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL LABOR AND MATERIALS NECESSARY TO PROVIDE A COMPLETE, CODE COMPLIANT ELECTRICAL SYSTEM. THE DRAWINGS ARE SCHEMATIC IN NATURE AND INDICATE GENERAL ARRANGEMENT AND ROUTING OF CONDUIT. THE ELECTRICAL CONTRACTOR SHALL NOT INSTALL EQUIPMENT, DEVICES, OR CONDUIT IN A NON-CODE COMPLIANT FASHION DUE TO DRAWINGS INTERPRETATION. THE ELECTRICAL CONTRACTOR SHALL PROVIDE MODIFICATIONS OF ILLUSTRATED WORK IN ORDER TO ACCOMMODATE JOB CONDITIONS AT NO EXTRA COST TO THE OWNER.
2. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING POWER AND THE FINAL ELECTRICAL CONNECTIONS TO ALL EQUIPMENT REQUIRING POWER INDICATED ON THE ARCHITECTURAL AND MECHANICAL DRAWINGS. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR REVIEWING THE ARCHITECTURAL AND MECHANICAL DRAWINGS PRIOR TO BIDDING, AND FOR INDICATING CONFLICTS. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE ARCHITECTURAL AND MECHANICAL DRAWINGS DURING CONSTRUCTION.
3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE (NEC.) AND ALL LOCAL CODES.
4. ALL ELECTRICAL EQUIPMENT, TRANSFORMER, AND LUMINAIRES SHALL BE GROUNDED IN ACCORDANCE WITH ARTICLE 250 OF THE NEC.
5. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, SERVICES AND RELATED ACCESSORIES NEEDED FOR THE COMPLETE INSTALLATION OF ALL WORK SHOWN ON THE DRAWINGS AND REQUIRED BY CODE.
6. COORDINATE ALL WORK WITH OTHER TRADES. PROVIDE A COORDINATION DRAWING TO THE ENGINEER, CONSTRUCTION MANAGER, AND ALL OTHER TRADES SHOWING THE LOCATION OF ALL DEVICES AND EQUIPMENT.
7. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY POWER AND LIGHTING DURING ALL PHASES OF THE WORK.
8. PROVIDE CONDUIT SEAL SIMILAR TO JACKMOON SEALING PLUG FOR ALL EXTERIOR PENETRATIONS. COORDINATE SIZE AND CONDUCTOR QUANTITIES.
9. ALL INSTALLATIONS SHALL BE AS DICTATED IN SPECIFICATIONS.
10. CONTRACTOR TO PROVIDE ALL CONDUIT, CABLES, AND ACCESSORIES FOR TELECOM/DATA. CONTRACTOR TO COORDINATE WITH OWNER ROUTING OF CABLES TO LOCAL TELECOM/DATA ROOM.
11. 14. ELECTRICAL CONTRACTOR TO PROVIDE DISCONNECT SWITCHES FOR ALL EQUIPMENT UNLESS INTEGRAL WITH UNITS..
12. MECHANICAL CONTROLS CONTRACTOR RESPONSIBLE FOR PROVIDING POWER TO ALL CONTROL PANELS.

LIGHTING SCHEDULE

TAG	DESCRIPTION	MAKE & MODEL (OR EQUIVALENT)	LAMP(S)	LUMENS	ELEC.	REMARKS
A	2X2 RECESSED LED UTILITY TROFFER	LITHONIA LIGHTING - 2GTL-2-33L-AI2I25-MVOLT-EZI-LP840	28.6W LED	3,494	277	0-10V DIMMING
B	2X2 RECESSED LED DIR/INDIR.	LITHONIA LIGHTING - STAK-2x2-3000LM-80CRI-35K-COL-MINI-EZT-MVOLT	24.1W LED	3,141	277	0-10V DIMMING
C	2X2 RECESSED LED DIR/INDIR.	LITHONIA LIGHTING - STAK-2x2-4000LM-80CRI-35K-COL-MINI-EZT-MVOLT	33.3W LED	4,126	277	0-10V DIMMING
D	2X2 RECESSED LED FLAT PANEL	LITHONIA LIGHTING - CPX-2x2-AL07-SWW7-M4	28.7W LED	3,356	277	0-10V DIMMING
F	RECESSED LED DOWN LIGHT	LITHONIA LIGHTING - LDN6-AL01-35K-L06-AR-LSS-MVOLT-UGZ	9.0W LED	925	277	0-10V DIMMING
G	NARROW RECESSED LED STRIP LIGHT	LITE CONTROL - 75L-P-D-8'-08-C5-35K-D075-D01-IC-UNV-ECO-FAI-CBI	52.8W LED	6,000	277	0-10V DIMMING
H	LINEAR PENDANT DIRECT/ INDIRECT LED LIGHT	LITE CONTROL - STNC-PL-ID-STD-8'-8-SOF WH5-35K9-1050-D075-D01-2C-UNV-FAI/V-DCC	24.8W LED/ 72.0W LED	4,000/ 9,000	277	0-10V DIMMING, TWO CIRCUIT.
J	LED TAPE LIGHT WITH MTG. CHANNEL	JUNO LIGHITNG JFX-24V-300LM-16FT-30K-90CRI-DL-SLCH	54.4W LED	4,560	120	DRIVER - MODEL JFXDRV-MVOLT-ZT-60W., 0-10V DIMMING
K	RECESSED LED DOWN LIGHT	LITHONIA LIGHTING - LDN6-AL02-35K-L06-AR-LSS-MVOLT-UGZ	12.0W LED	1,383	277	0-10V DIMMING
L	WALL MOUNT LINEAR DIRECT/INDIRECT LED	A-LIGHT - ATM12-16'-ILH+DLS-35-CRI80-U-G-D-HE-HI-W-2-D	153.6LED/ 208.0W LED	13,824/ 22,464	277	0-10V DIMMING, TWO CIRCUIT.
M	LED STRIP UTILITY WALL/SUSPENDED	LITHONIA LIGHTING - ZLID-L48-5MR-5000LM-FST-MVOLT-40K-80CRI-WH	11W LED	3,540	120	PROVIDE WITH #HC36M12 CHAIN HANGER KIT AND #WGZ48 WIRE GUARD, 0-10V DIMMING.
N	EXTERIOR LED WALL PACK	RAB LIGHTING - WPX-I-30W-3000K-BRONZE-MVOLT-PHOTOCELL	32.0W LED	4,739	120	WALL MOUNT PER PLANS.
	LED EMERGENCY LIGHT	LITHONIA LIGHTING - ELM4L	3.2W LED	-	120	WITH NICKEL-CADMIUM BATTERY AND SELF DIAGNOSTICS.
	EXIT LIGHT, SINGLE/ DOUBLE FACE	LITHONIA LIGHTING - QUANTUM LQMS-W-RG-MVOLT-EL-SD	1.9W LED	-	120	WITH NICKEL-CADMIUM BATTERY AND SELF DIAGNOSTICS.
	COMBO EXIT/ EMERGENCY LIGHT	LITHONIA LIGHTING - QUANTUM LHQM-LED-R-SD-M6	4.3W LED	-	120	WITH NICKEL-CADMIUM BATTERY AND SELF DIAGNOSTICS.

GENERAL NOTES:

1. PROVIDE ALL MOUNTING HARDWARE REQUIRED BASED ON CEILING OR OTHER MOUNTING SURFACE TYPE. REFER TO ARCHITECTURAL DRAWINGS.
2. WHERE AVAILABLE FIXTURE SHALL BE PROVIDED WITH UNIVERSAL (120-277V) DRIVER OR POWER SUPPLY.
3. ALL DIMMABLE FIXTURES SHALL BE PROVIDED WITH COMPATIBLE DIMMING SWITCH PER MANUFACTURER LISTING.
4. REFER TO LIGHTING CONTROL DETAILS FOR CONTROL OF EMERGENCY FIXTURES WITH AND WITHOUT DIMMING.

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ELECTRICAL - NOTES, LEGENDS & SCHEDULES

E-5.01

EQUIPMENT SCHEDULE

TAG	DESCRIPTION	LOCATION	HP	KW	FLA	V	PH	CONDUCTORS	GROUND	CONDUIT	STARTER	BREAKER	PANEL	NOTES
AHU-2	PROPOSED AIR HANDLER UNIT	PENTHOUSE LEVEL 4	6-3.3	-	24.4	480	3	3-#10	#10	3/4"	ECM	25A, 3P	PEQ4-1	1
	AHU-2 REFRIGERANT LEAK PANEL	PENTHOUSE LEVEL 4	-	-	1.0	120	1	2-#12	#12	1/2"	-	15A, 1P	PP4-1	2
CU-2	PROPOSED AHU-2 CONDENSING UNIT	ROOF LEVEL 4	-	-	106.1	480	3	3-#1	#6	1 1/2"	N/A	125A, 3P	PEQ4-1	3
ERU-2	PROPOSED ENERGY RECOVERY UNIT	ROOF LEVEL 4	-	-	16.8	480	3	3-#10	#10	3/4"	ECM	25A, 3P	PEQ4-1	3
RF-2A	PROPOSED RETURN AIR FAN	PENTHOUSE LEVEL 4	2.0	-	3.4	480	3	3-#12	#12	1/2"	ECM	15A, 3P	PEQ4-1	4
RF-2B	PROPOSED RETURN AIR FAN	PENTHOUSE LEVEL 4	3.0	-	4.8	480	3	3-#12	#12	1/2"	ECM	15A, 3P	PEQ4-1	4
RF-2C	PROPOSED RETURN AIR FAN	PENTHOUSE LEVEL 4	1.0	-	1.8	480	3	3-#12	#12	1/2"	ECM	15A, 3P	PEQ4-1	4
CP-2	COIL FREEZE PROTECTION CIRCULATOR	PENTHOUSE LEVEL 4	-	-	1.5	120	1	2-#12	#12	1/2"	-	15A, 1P	PP4-1	5
UH-2	RELOCATED UNIT HEATER	PENTHOUSE LEVEL 4	-	-	2.0	120	1	2-#12	#12	1/2"	-	15A, 1P	PP4-1	5
AHU-1	EXISTING MAIN AIR HANDLER UNIT	PENTHOUSE LEVEL 4	10.0	-	14.0	480	3	3-#10	#10	3/4"	VFD	40A, 3P	PEQ4-1	6
RAF-1	EXISTING RETURN AIR FAN	PENTHOUSE LEVEL 4	10.0	-	14.0	480	3	3-#10	#10	3/4"	VFD	40A, 3P	PEQ4-1	6
RAF-2	EXISTING RETURN AIR FAN	PENTHOUSE LEVEL 4	1.0	-	1.8	480	3	3-#12	#12	1/2"	VFD	15A, 3P	PEQ4-1	6
EF-3	EXISTING EXHAUST FAN 3	ROOF LEVEL 4	0.5	-	1.0	480	3	3-#12	#12	1/2"	RELAY	15A, 3P	PEQ4-1	7
HWP-1	EXIST. HYDRONIC HEATING WATER PUMP	PENTHOUSE LEVEL 4	7.5	-	11.0	480	3	3-#12	#12	1/2"	VFD	30A, 3P	EP-1	8
HWP-2	EXIST. HYDRONIC HEATING WATER PUMP	PENTHOUSE LEVEL 4	7.5	-	11.0	480	3	3-#12	#12	1/2"	VFD	30A, 3P	EP-1	8
HW-3	DOMESTIC WATER HEATER	LEVEL 2 CEILING SPACE	-	1.5	-	120	1	2-#12	#12	1/2"	-	20A, 1P	PP2-1	9
HDW-3	TRAINING HEADWALL UNIT	CLASSROOM TRAINING LABS	-	-	2.0	120	1	2-#12	#12	1/2"	-	20A, 1P	PP2-1	10

NOTES:
1. REMOTE MOUNT THE AIR HANDLER SUPPLY FAN ARRAY TERMINAL PANEL, SEE PLANS. INSTALL POWER CIRCUIT PER SCHEDULE. INSTALL INDIVIDUAL POWER CONNECTIONS FROM THE TERMINAL PANEL TO EACH FAN. CIRCUITING TO BE PER THE MANUFACTURER'S INSTRUCTIONS AND THE N.E.C.
2. REMOTE MOUNT THE REFRIGERANT LEAK DETECTOR PANEL, SEE PLANS. INSTALL POWER CIRCUIT PER THE SCHEDULE. INSTALL WIRING CONNECTION FROM THE LEAK SENSOR TO THE PANEL, PER THE MANUFACTURER'S INSTRUCTIONS.
3. PROVIDE AND INSTALL A NEMA 3R HEAVY DUTY FUSED DISCONNECT SWITCH AT THE UNIT. PROVIDE S.S. STRUT FRAMING AS REQUIRED TO MOUNT UNIT. EXTERIOR PORTIONS OF THE CIRCUIT TO COMPLY WITH THE SPECIFICATIONS. PROVIDE PROPERLY SIZED FUSES FOR THE UNIT. MAKE FINAL CONNECTION TO UNIT WITH SEAL TIGHT FLEXIBLE CONDUIT.
4. PROVIDE POWER CONNECTION TO THE HVAC EQUIPMENT PER THE SCHEDULE. MAKE FINAL CONNECTION WITH SEAL TIGHT FLEXIBLE CONDUIT.
5. PROVIDE AND INSTALL A THERMALLY PROTECTED MOTOR SWITCH AT THE UNIT. PROVIDE POWER CONNECTION PER THE SCHEDULE AND MAKE FINAL CONNECTION WITH FLEXIBLE CONDUIT.
6. PROVIDE AND INSTALL A VARIABLE FREQUENCY DRIVE TO SERVE THE EXISTING HVAC EQUIPMENT, MOUNT PER PLANS. INSTALL POWER CIRCUIT PER THE SCHEDULE. MAKE FINAL CONNECTION TO MOTOR WITH CONDUIT TO WITHIN 4', AND FINAL CONNECTION WITH SEAL TIGHT FLEXIBLE CONDUIT.
7. PROVIDE AND INSTALL A VARIABLE FREQUENCY DRIVE TO SERVE THE EXISTING HVAC EQUIPMENT, MOUNT PER PLANS. PROVIDE AND INSTALL A NEMA 3R HEAVY DUTY FUSED DISCONNECT SWITCH AT THE UNIT. INSTALL POWER CIRCUIT PER THE SCHEDULE. PROVIDE PROPERLY SIZED FUSES FOR THE UNIT. MAKE FINAL CONNECTION TO UNIT WITH SEAL TIGHT FLEXIBLE CONDUIT.
8. PROVIDE AND INSTALL VARIABLE FREQUENCY DRIVES TO SERVE THE EXISTING UNITS AND FUSED DISCONNECT SWITCHES. SWITCHES TO BE COMPACT TYPE, WITH PROPERLY SIZED FUSES. EXTEND THE EXISTING CIRCUIT TO THE DISCONNECT SWITCHES, PROVIDE JUNCTION BOX OR SIMILAR AND TAP TO EACH SWITCH. INSTALL POWER WIRING TO THE VFD'S AND TO EACH RESPECTIVE PUMP. MAKE FINAL CONNECTIONS WITH SEAL TIGHT FLEXIBLE CONDUIT.
9. PROVIDE TOGGLE TYPE DISCONNECT SWITCH AT THE UNIT. INSTALL POWER CIRCUIT PER THE SCHEDULE AND MAKE FINAL CONNECTION WITH FLEXIBLE CONDUIT.
10. CAREFULLY ROUGH IN A RECESS POWER CONNECTION BOX PER THE MANUFACTURER'S INSTRUCTIONS. INSTALL POWER CIRCUIT TO THE EQUIPMENT PER THE SCHEDULE AND CONNECT TO THE UNIT TERMINALS.

GENERAL:
A. ALL WIRE SIZES LISTED ARE BASED ON COPPER CONDUCTORS. ALL BRANCH CIRCUITS TO UTILIZE COPPER CONDUCTORS.

ELECTRICAL PANEL SCHEDULE: PANEL PEQ4-1 (1-LINE PANEL)

PENTHOUSE, LEVEL 4

VOLTAGE:	480/277	NEUTRAL:	CU OR AL	LOCATION:	SEE DRAWINGS	FED FROM:	EXIST. MDP
AMPERAGE:	225A	NEUTRAL RATING:	100%	MAKE:	POWER DIST. PANEL		
INTERRUPTANCE:	18 KAIC	MAIN TYPE:	M.L.O.	MODEL NUMBER:	-		
PHASE:	3PH	MAIN RATING:	400A	MOUNTING:	SURFACE		
WIRE:	4W			TRIM STYLE:	-		

LOAD DESCRIPTION	CKT. BKR.	A	B	C	CKT. NO.		A	B	C	CKT. BKR.	LOAD SPARE
AIR HANDLER UNIT - AHU-2	3P-25A				1	2				3P-40A	AIR HANDLER UNIT - AHU-1
-	-				3	4				-	-
-	-				5	6				-	-
CONDENSING UNIT - CU-2	3P-110A				7	8				3P-40A	RETURN AIR FAN - RAF-1
-	-				9	10				-	-
-	-				11	12				-	-
ENERGY RECOVERY UNIT - ERU-2	3P-25A				13	14				3P-15A	RETURN AIR FAN - RAF-2
-	-				15	16				-	-
-	-				17	18				-	-
RETURN AIR FAN - RF-2A	3P-15A				19	20				3P-15A	EXHAUST AIR FAN - EF-3
-	-				21	22				-	-
-	-				23	24				-	-
RETURN AIR FAN - RF-2B	3P-15A				25	26				-	PREPARED SPACE - 225A/3P
-	-				27	28				-	-
-	-				29	30				-	-
RETURN AIR FAN - RF-2C	3P-15A				31	32				-	PREPARED SPACE - 100A/3P
-	-				33	34				-	-
-	-				35	36				-	-
PREPARED SPACE - 225A/3P	-				37	38				-	PREPARED SPACE - 100A/3P
-	-				39	40				-	-
-	-				41	42				-	
NOTES:	TOTAL	0.0	0.0	0.0			0.0	0.0	0.0	TOTAL	

1. NEUTRAL SHARING IS NOT PERMITTED. PROVIDE ONE NEUTRAL PER CIRCUIT.
2. EACH "PREPARED SPACE" TO BE BASED ON THE LISTED BREAKER SIZING.

ELECTRICAL PANEL SCHEDULE: PANEL PP4-1

PENTHOUSE, LEVEL 4

VOLTAGE:	208/120	NEUTRAL:	CU OR AL	LOCATION:	SEE DRAWINGS	FED FROM:	EXIST. MPP
AMPERAGE:	100A	NEUTRAL RATING:	100%	MAKE:	-		
INTERRUPTANCE:	10 KAIC	MAIN TYPE:	M.L.O.	MODEL NUMBER:	-		
PHASE:	3PH	MAIN RATING:	100A	MOUNTING:	SURFACE		
WIRE:	4W			TRIM STYLE:	-		

LOAD DESCRIPTION	CKT. BKR.	A	B	C	CKT. NO.		A	B	C	CKT. BKR.	LOAD DESCRIPTION
AHU-2 REFRIGERANT LEAK DETECTION	1P-20A				1	2				1P-20A	SPARE BREAKER
FREEZE PROT. CIRCULATOR - CP-2	1P-20A				3	4				1P-20A	SPARE BREAKER
UNIT HEATER - UH-2	1P-20A				5	6				1P-20A	SPARE BREAKER
EXTERIOR RECEPTACLES	1P-20A				7	8				1P-20A	SPARE BREAKER
BUILDING MANAGEMENT CONTROLS	1P-20A				9	10				1P-20A	SPARE BREAKER
LIGHTING - PENTHOUSE	1P-20A				11	12				1P-20A	SPARE BREAKER
SPARE BREAKER	1P-20A				13	14				1P-20A	SPARE BREAKER
SPARE BREAKER	1P-20A				15	16				1P-20A	SPARE BREAKER
SPARE BREAKER	1P-20A				17	18				1P-20A	SPARE BREAKER
PREPARED SPACE	-				19	20				-	PREPARED SPACE
PREPARED SPACE	-				21	22				-	PREPARED SPACE
PREPARED SPACE	-				23	24				-	PREPARED SPACE
PREPARED SPACE	-				25	26				-	PREPARED SPACE
PREPARED SPACE	-				27	28				-	PREPARED SPACE
PREPARED SPACE	-				29	30				-	PREPARED SPACE
NOTES:	TOTAL	0.0	0.0	0.0			0.0	0.0	0.0	TOTAL	

1. NEUTRAL SHARING IS NOT PERMITTED. PROVIDE ONE NEUTRAL PER CIRCUIT.

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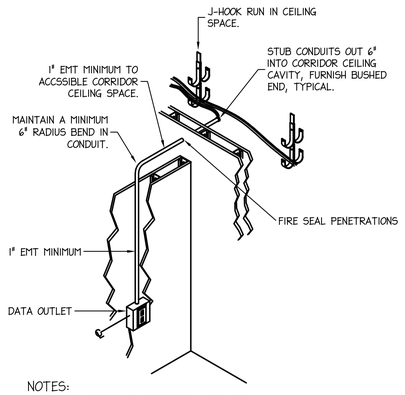
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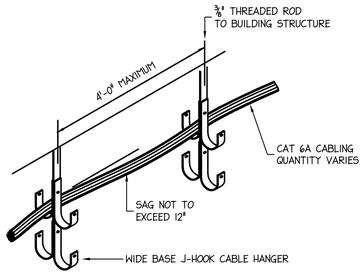
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ELECTRICAL - EQUIPMENT & PANEL SCHEDULES

E-5.02



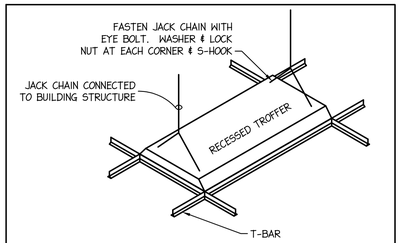
NOTES:
1. MOUNTING HEIGHT OF OUTLET BOX SHALL BE AS INDICATED ON ARCHITECTUAL DRAWINGS.

1 TYPICAL DATA DROP SCHEMATIC
N.T.S.



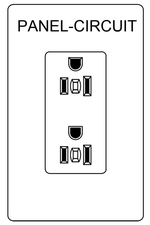
NOTES:
1. WHEN MAKING BENDS OR CORNERS MAINTAIN A MAXIMUM BEND RADIUS PER EIA/TIA STANDARDS AND MANUFACTURERS RECOMMENDATIONS.
2. INSTALL MULTIPLE CLOSELY SPACED CABLE HANGERS ON CORNERS TO MAINTAIN PROPER BENDING RADII.
3. CABLING SHALL BE ROUTED TO AVOID ALL SOURCES OF EMI OR AMBIENTELECTRICAL NOISE WHENEVER POSSIBLE. MINIMUM DISTANCES FROM FROM EMI SOURCES ARE AS FOLLOWS:
   - FIVE (5) INCHES FROM UNSHIELDED POWER LINES OF < 2 KVA.
   - TWELVE (12) INCHES FROM UNSHIELDED POWER LINES OF 2 TO 5 KVA.
   - TWENTY FOUR (24) INCHES FROM UNSHIELDED POWER LINES OF > 5 KVA.
   - TWELVE (12) INCHES FROM HIGH VOLTAGE LIGHTING INCLUDING FLUORESCENT.
   - FORTY (40) INCHES FROM TRANSFORMERS AND ELECTRIC MOTORS.
   - NO CABLE RUNS SHOULD BE PARALLEL WITH AC LINES.
4. FURNISH AND INSTALL 4" CONDUIT SLEEVES AT ALL RATED WALL PENETRATIONS. MAINTAIN 40% FILL RATIO TO ALLOW FOR FUTURE CABLING.
5. SEAL ALL CONDUIT SLEEVES WITH A UL RATED PILLOW TYPE FIRE SEAL.

2 J-HOOK SUPPORT SCHEMATIC
N.T.S.

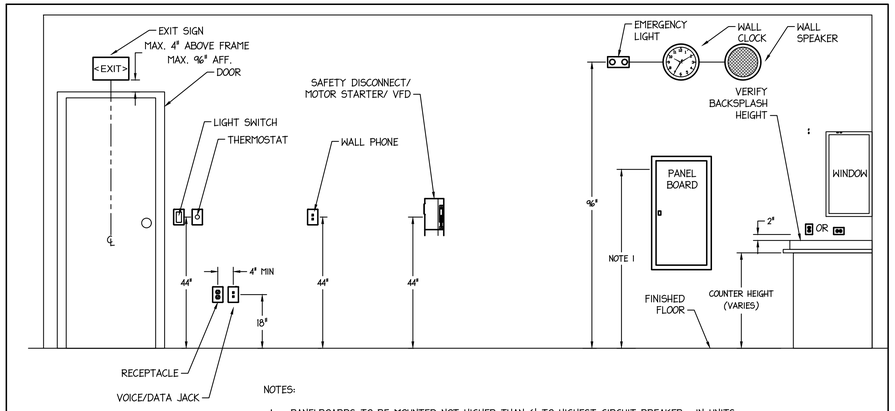


3 JACK CHAIN DETAIL
N.T.S.

NOTES:
1. LOCATE LABEL ON INSIDE COVER OF FACEPLATE.
2. LABEL WITH BLACK LETTERING ON CLEAR OR WHITE TAPE.

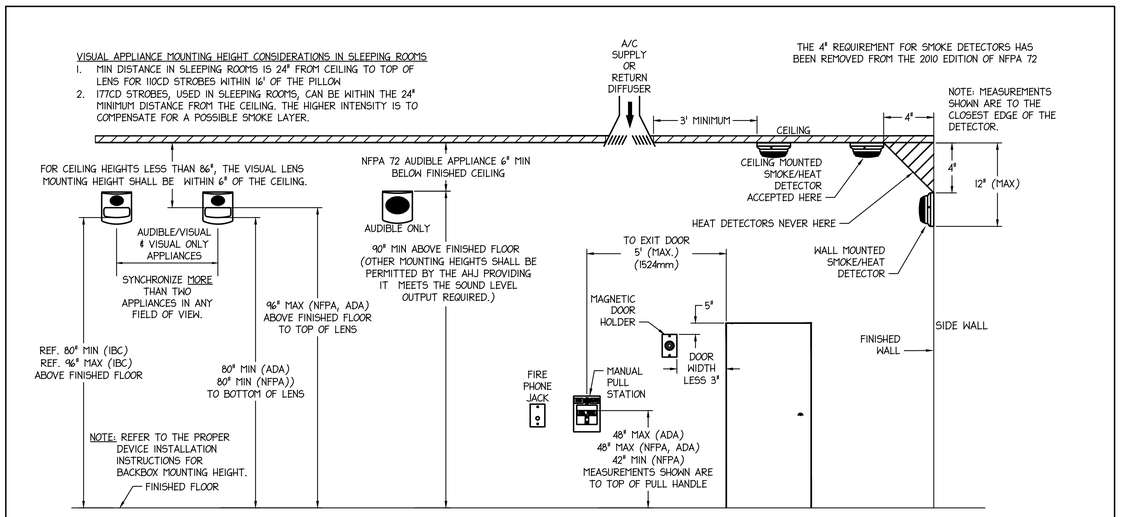


4 TYPICAL DEVICE LABEL DETAIL
N.T.S.



NOTES:
1. PANELBOARDS TO BE MOUNTED NOT HIGHER THAN 6' TO HIGHEST CIRCUIT BREAKER. IN UNITS CONSIDERED HC/ADA, MOUNT SO HIGHEST CIRCUIT BREAKER IS NOT HIGHER THAN 46" AFF.
2. TO ABOVE MOUNTING HEIGHTS SHOWN IN THE DETAIL SHALL APPLY TO ALL DEVICES UNLESS NOTED OTHERWISE ON PLANS. UNLESS NOTED OTHERWISE ALL NOTED DIMENSIONS ARE TO THE CENTERLINE OF THE DEVICE FROM FINISHED FLOOR.
3. WHERE EXISTING OR SPECIAL CONDITIONS PREVENT THE INSTALLATION OF DEVICES AT THE ABOVE HEIGHTS, THE CONTRACTOR SHALL VERIFY THE HEIGHTS ON SITE WITH THE ARCHITECT.
4. ALL DEVICES IN FINISHED AREAS SHALL BE INSTALLED WITH FLUSH DEVICE BOXES. NO SURFACE BOXES SHALL BE ALLOWED UNLESS APPROVED BY THE ARCHITECT.
5. CONTRACTOR SHALL VERIFY FINAL COUNTERTOP, CABINET, VANITY, ETC., HEIGHTS, INCLUDING BACKSPLASHES, ON SITE WITH THE GENERAL CONTRACTOR AND ARCHITECT PRIOR TO INSTALLATION OF BOXES. THIS ALSO INCLUDES LOCATION SUCH AS BATHROOMS WHERE TILE, WAINSCOTTING, ETC., MAKES UP PART OF WALL.
6. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION ON LOCATIONS. WHERE DESCREPANCIES EXIST COORDINATE FINAL LOCATIONS WITH THE ARCHITECT.
7. AREA OF REFUGE TACTILE SIGNAGE TO BE 60" TO CENTER. INSTRUCTIONAL SIGN BETWEEN 48"-60" FROM FLOOR TO TACTILE LETTERS.

5 ELECTRICAL DEVICE LOCATION DETAIL
N.T.S.



6 FIRE ALARM DEVICE MOUNTING HEIGHT REFERENCE DETAIL
N.T.S.

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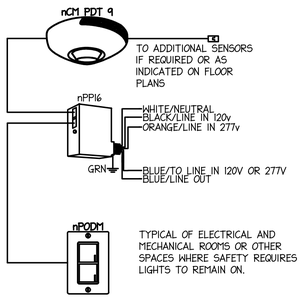
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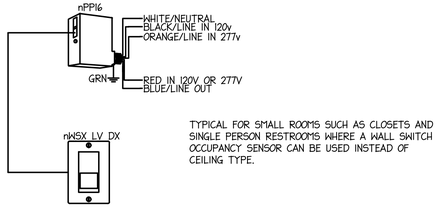
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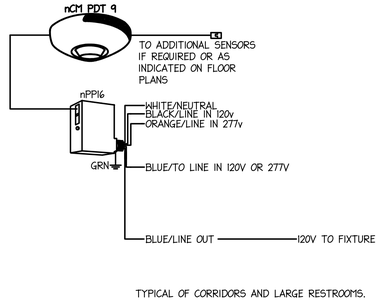
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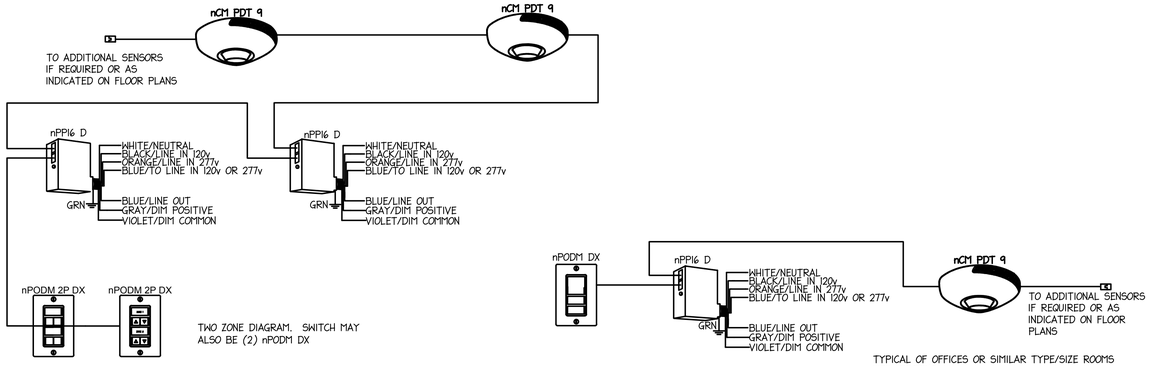
TYPICAL AUTO ON/AUTO OFF w/ LOCAL SWITCH



TYPICAL SMALL ROOM MANUAL ON/OFF w/ LOCAL OCCUPANCY SWITCH



TYPICAL CORRIDOR/EGRESS PATH AUTO ON/OFF w/ KEY SWITCH



TYPICAL MULTI- ZONE w/ DIMMING

TYPICAL SINGLE ZONE WITH DIMMING

NOTES:

1. BASIS OF DESIGN: ACUITY nLIGHT. NO SUBSTITUTIONS, SEE SPECIFICATIONS.
2. WHEN PROVIDING SUBMITTAL RISER DIAGRAMS, LABEL EACH ZONE CONTROL BASED ON ROOM NAME OR TYPE. DO NOT PROVIDE GENERIC LABELS THAT DO NOT INDICATE ROOM NAME OR TYPE.
3. NO 120/277V WALL SWITCHES OR DEVICES SHALL BE PERMITTED EXCEPT KEY SWITCHES. CIRCUITING SHOWN ON FLOOR PLANS CONNECTING SWITCHES IS DIAGRAMMATIC AND INTENDED TO INDICATE POWER TO ASSOCIATED RELAY DEVICE(S).
4. ALL LIGHTING ZONES EXCEPT CLOSETS, STAIRWELLS, RESTROOMS, MECH/ELEC/ELEV/SPRINKLER ROOMS, STORAGE AREAS AND JANITOR CLOSETS SHALL BE PROVIDED WITH DIMMING FUNCTIONALITY.
5. nPODM DX CONTROLLERS TO BE PROVIDED WITH ON/OFF/DIMMING CONTROL OF EACH ZONE.
6. ALL CABLING BETWEEN SWITCHES, TOUCH SCREENS, OCCUPANCY SENSORS, PHOTOCELLS AND RELAYS IS MINIMUM CAT 5E.
7. nSP5, nPP16 AND nPP16 D ARE LIGHTING CONTROL POWER RELAYS.
8. FINAL SEQUENCE OF OPERATION OF LIGHTING CONTROLS TO BE VERIFIED WITH OWNER DURING CONSTRUCTION PHASE.

TYPICAL ROOM CONTROLS:

1. SEE LIGHTING CONTROL SEQUENCE OF OPERATION FOR MORE INFORMATION REGARDING LIGHTING CONTROL.
2. ALL ROOMS TO BE PROVIDED WITH OCCUPANCY SENSING. WALL SWITCH OCCUPANCY SENSORS MAY BE USED INSTEAD OF CEILING TYPE SHOWN PROVIDED THEY CAN BE TIED TO NETWORK LIGHTING CONTROL.
3. FOR MOST SPACES, 3-BUTTON SWITCHES WITH ON/OFF/RAISE/LOWER (nPOD 2X) TO BE USED. WHERE THERE ARE MULTIPLE ZONES WITHIN A ROOM, PROVIDE MULTIPLE SWITCHES, DO NOT UTILIZE DEVICES WITH ADDITIONAL BUTTONS. ALL ZONES SHALL BE PROVIDED WITH FULL ON/OFF/RAISE/LOWER CONTROL.
4. SINGLE ZONE ROOMS:
   - 4.1. ZONE LETTERING NOT PROVIDED SINCE ALL LIGHT FIXTURES CONTROLLED VIA THE SWITCH WITHIN THE SPACE. EXCEPT FOR ELECT./MECH. ROOMS, OR UNLESS NOTED OTHERWISE, THESE ROOMS ARE MANUAL ON/AUTO OFF.
   - 4.2. ALL LIGHTING ZONES EXCEPT CLOSETS, STAIRWELLS, RESTROOMS, SHOWERS, LOCKER ROOMS, MECH/ELEC/ELEV/SPRINKLER ROOMS, IT HUBBS, STORAGE AREAS AND JANITOR CLOSETS SHALL BE PROVIDED WITH DIMMING FUNCTIONALITY.
5. MULTI-ZONE ROOMS: ZONE LETTERING PROVIDED. TYPICAL ROOM HAS SWITCHES AT ENTRY DOOR(S) .
6. BUILDING MOUNTED EXTERIOR LIGHTING:

LIGHTING CONTROL SEQUENCE OF OPERATION

LOCATION TYPE	DESCRIPTION	MANUAL ON/ AUTO OFF	AUTO ON/ AUTO OFF	LOCAL SWITCHING	LOCAL DIMMING	PROGRAMMED TIMECLOCK ON/OFF	PROGRAMMED DIMMING VIA OCC SENSOR	OCCUPANCY SENSOR/ TIME DELAY	DAYLIGHT SENSOR DIMMING	DAYLIGHT SENSOR ON/OFF	NOTES
CLOSETS, SINGLE PERSON BATHROOMS, IT CLOSETS,	VACANCY SENSING, LOCAL ON/OFF MANUAL CONTROL	X		X				10 MIN			INCLUDES BACK OF SPACE ROOMS INCLUDING LAUNDRY, STORAGE, ELEVATOR ROOMS
OFFICES, OTHER SINGLE LIGHTING ZONE ROOMS	VACANCY SENSING LOCAL MANUAL DIMMING	X			X			10 MIN			NON EGRESS ROOMS ONLY. STUDY ROOMS, SMALL CLASSROOMS.
MULTIPLE LIGHTING ZONE ROOMS	VACANCY SENSING LOCAL MANUAL DIMMING	X			X			10 MIN			OCCUPANCY SENSOR TURNS OFF ALL LIGHTING ZONES IN ROOM. TYPICAL OF LARGE ROOMS WITH MULTIPLE LIGHTING CONTROLS.
ELECTRIC ROOM, MECHANICAL ROOM, ATTIC	OCCUPANCY SENSING, LOCAL ON/OFF, AUTO ON		X	X				10 MIN			RESTORES TO AUTO ON/AUTO OFF AFTER 10 MIN TIME DELAY IF SWITCH TURNED OFF.
CORRIDORS, VESTIBULES, EGRESS PATHS	OCCUPANCY SENSING, AUTO ON		X					20 MIN			GOES TO 80% WHEN OCCUPANCY SENSED, 20% WHEN VACANCY SENSED. DURING OFF HOURS GOES TO 0% WHEN VACANCY SENSED.
LARGE RESTROOMS. LOCKER ROOMS	OCCUPANCY SENSING, AUTO ON		X					10 MIN			COMMON SPACE ONLY. INDIVIDUAL ROOMS CONTROLLED LIKE SINGLE PERSON BATHROOMS.

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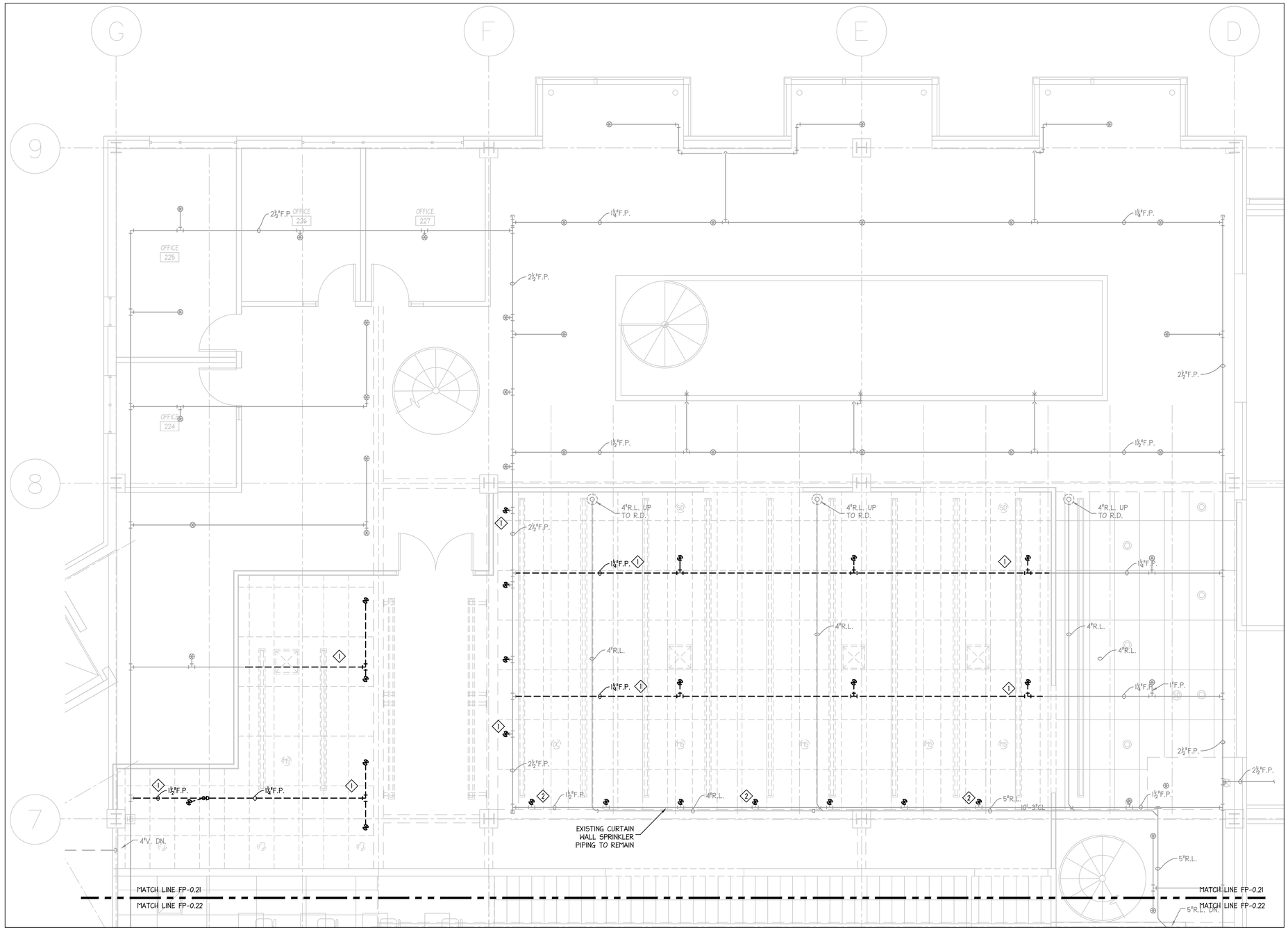
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ELECTRICAL - TYPICAL DETAILS AND DIAGRAMS

E-6.02



CONSTRUCTION NORTH

1 FIRE PROT. - SECOND FLOOR LEVEL DEMOLITION PLAN
1/4"=1'-0"

② FIRE PROTECTION SPECIFIC DEMOLITION NOTES:

1. DEMOLISH AND REMOVE THE EXISTING FIRE PROTECTION PIPING AND SPRINKLER HEADS INDICATED DASHED. REMOVE PIPING FROM THE POINTS INDICATED, COMPLETE WITH HEADS. COORDINATE WITH CEILING DEMOLITION. SCHEDULE DEMOLITION WORK WITH NEW WORK TO MAINTAIN FIRE PROTECTION COVERAGE FOR ALL SPACES AT THE END OF EACH WORK DAY.

2. DEMOLISH AND REMOVE THE EXISTING CURTAIN WALL SPRINKLER HEADS. PIPING TO REMAIN FOR NEW HEADS UNDER NEW WORK.

FIRE PROTECTION DEMOLITION LEGEND	
— — —	EXISTING FIRE PROT. TO BE DEMOLISHED
———	EXISTING FIRE PROT. WORK TO REMAIN

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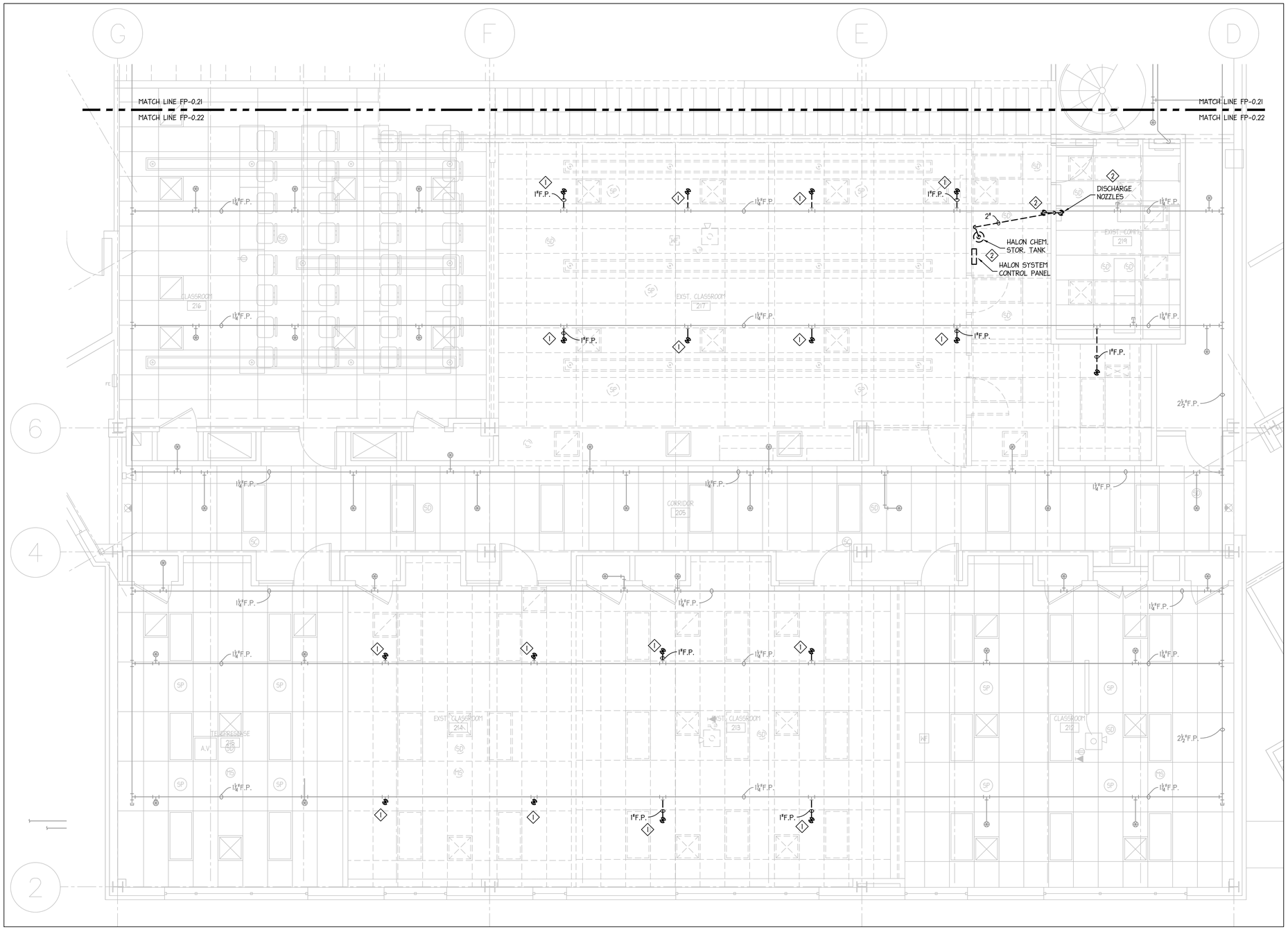
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FIRE PROTECTION
SECOND FLR. LEVEL
DEMOLITION PLAN

FP-0.21



CONSTRUCTION NORTH

② FIRE PROTECTION SPECIFIC DEMOLITION NOTES:

1. DEMOLISH AND REMOVE THE EXISTING SPRINKLER HEADS AND BRANCH PIPING BACK TO THE BRANCH TEE AT THE DISTRIBUTION LATERAL. COORDINATE WITH CEILING DEMOLITION. SCHEDULE DEMOLITION WORK WITH NEW WORK TO MAINTAIN FIRE PROTECTION COVERAGE FOR ALL SPACES AT THE END OF EACH WORK DAY.

2. PROVIDE THE SERVICES OF A FIRE SUPPRESSION CONTRACTOR TO DEMOLISH AND REMOVE THE EXISTING "HALON" FIRE SUPPRESSION SYSTEM FROM THE EXISTING I.T. SPACES. COORDINATE WITH THE ELECTRICAL CONTRACTOR FOR DEMOLITION OF THE SYSTEM CONTROL PANEL AND ASSOCIATED E.P.O.'S, ALARM BELLS, SMOKE DETECTORS AND PULL STATIONS. ISOLATE AND REMOVE THE HALON STORAGE CYLINDER. REMOVE THE HALON PIPING AND DISCHARGE NOZZLES.

① FIRE PROT. - SECOND FLOOR LEVEL DEMOLITION PLAN

1/4"=1'-0"

FIRE PROTECTION DEMOLITION LEGEND	
— — —	EXISTING FIRE PROT. TO BE DEMOLISHED
———	EXISTING FIRE PROT. WORK TO REMAIN

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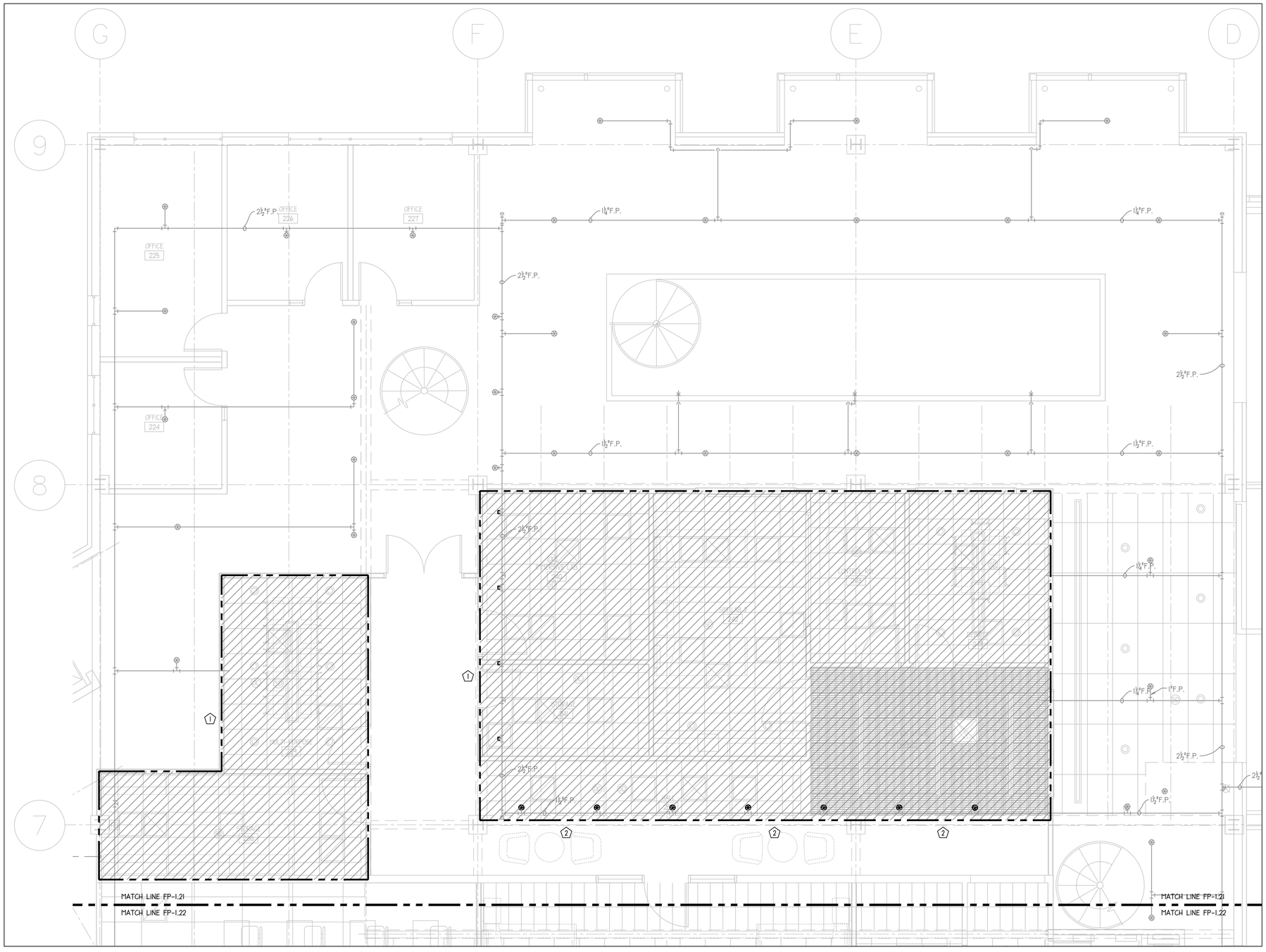
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DEMOLITION PLAN

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FIRE PROTECTION NEW WORK GRAPHIC LEGEND

HATCH PATTERN	DESCRIPTION
	FURNISH AND INSTALL NEW FIRE PROTECTION PIPING AND HEADS TO PROVIDE COMPLETE COVERAGE OF ALL INDICATED SPACES. CAREFULLY COORDINATE PIPE ROUTING WITH EXISTING AND PROPOSED SERVICES. HAZARD CLASS TO BE LIGHT HAZARD - 0.10 GPM/1500 SQFT + 250 GPM HOSE. SPRINKLER HEADS TO BE QUICK RESPONSE, PER THE SPECIFIC DRAWING NOTES.
	FURNISH AND INSTALL NEW FIRE PROTECTION PIPING AND HEADS TO PROVIDE COMPLETE COVERAGE OF ALL INDICATED SPACES. EXTEND NEW BRANCHES FROM EXISTING TEES. HAZARD CLASS TO BE LIGHT HAZARD - 0.10 GPM/1500 SQFT + 250 GPM HOSE. SPRINKLER HEADS TO BE QUICK RESPONSE, PER THE SPECIFIC DRAWING NOTES.

FIRE PROTECTION GENERAL NOTES:

1. FIRE PROTECTION SYSTEM AND SPRINKLER HEAD CONFIGURATION SHALL CONFORM TO NFPA 13, CURRENT EDITION, AUTHORITY HAVING JURISDICTION, LOCAL BUILDING CODE, OWNER'S INSURANCE COMPANY AND F.M. GLOBAL REQUIREMENTS.

2. GENERALLY ALL SPRINKLER HEADS INSTALLED IN OCCUPIED AREAS SHALL BE QUICK RESPONSE. ALL SPRINKLER HEADS TO BE FACTORY MUTUAL LISTED AND APPROVED. PROVIDE HEAD TYPE TO SUIT THE BUILDING CONSTRUCTION AND AS LISTED IN SPECIFIC NOTES. GENERALLY HEADS IN AREAS WITH FINISHED CEILINGS TO BE PENDANT TYPE, UNLESS OTHERWISE INDICATED. FINISH TYPE/COLOR TO BE AS SELECTED BY THE OWNER. SUBMIT A SAMPLE OF EACH TYPE OF HEAD PROPOSED FOR USE FOR REVIEW AND APPROVAL.

3. ALL PIPING SHALL BE SCHEDULE 40 BLACK STEEL COATED, PER THE SPECIFICATIONS. RUN CONCEALED WITHIN THE CEILING SPACE UNLESS OTHERWISE INDICATED. GROOVED TYPE COUPLINGS ARE ALLOWED FOR PIPING SIZES 2 1/2" AND ABOVE. NO MECHANICAL TEES ARE ALLOWED WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.

4. THE FIRE PROTECTION DRAWINGS ARE DIAGRAMMATIC IN NATURE AND SHOULD NOT BE UTILIZED FOR FIRE PROTECTION DESIGN. THE FIRE PROTECTION CONTRACTOR SHALL PROVIDE SPRINKLER SYSTEM DESIGN, SPRINKLER HEAD LAYOUT, AND FLOW CALCULATIONS (HYDRAULIC DESIGN). THIS SHALL BE COMPLETED BY A NICET LEVEL (3) THREE CERTIFIED TECHNICIAN. SHOP DRAWINGS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW AND APPROVAL.

5. FURNISH AND INSTALL NEW SPRINKLER HEADS IN ALL DESIGNATED PROJECT AREAS. THE REUSE OF EXISTING HEADS IS NOT PERMITTED.

6. WHERE APPLICABLE, ALL NEW SPRINKLER HEAD INSTALLATIONS SHALL BE CENTERED IN CEILING TILE.

7. PROVIDE FIRE AND SMOKE PROOF CAULKING FOR ALL WALL PENETRATIONS. COORDINATE ALL FIRE AND SMOKE PROOFING WITH THE CONSTRUCTION SUPERVISOR.

8. PROVIDE SEISMIC BRACING FOR SPRINKLER PIPING INSTALLATION PER NFPA 13 AND THE BUILDING CODES.

9. WHERE APPLICABLE, ALL NEW SPRINKLER HEADS SHALL HAVE REMOVABLE ESCUTCHEONS TO ALLOW CEILING TILE REPLACEMENT.

10. PROVIDE A 10 PSI CUSHION BETWEEN FIRE PROTECTION SYSTEM DEMAND AND FIRE PROTECTION SYSTEM WATER SUPPLY.

12. THE FIRE PROTECTION CONTRACTOR SHALL COORDINATE ALL WORK WITH THE MECHANICAL, ELECTRICAL, PLUMBING AND GENERAL TRADES CONTRACTORS. THE FIRE PROTECTION CONTRACTOR SHALL INDICATE ON THE MECHANICAL/ELECTRICAL COORDINATION DRAWINGS THE LOCATION, ROUTING AND ELEVATIONS OF ALL EXISTING FIRE PROTECTION PIPING TO REMAIN AND NEW FIRE PROTECTION PIPING TO BE INSTALLED. THE FIRE PROTECTION CONTRACTOR SHALL NOT START WORK UNTIL THE COORDINATION DRAWINGS ARE REVIEWED AND ACCEPTED BY THE ENGINEER. THE FIRE PROTECTION SUBMITTAL DRAWINGS ARE NOT ACCEPTABLE FOR COORDINATION DRAWINGS.

CONSTRUCTION NORTH

① SPECIFIC FIRE PROTECTION NEW WORK NOTES:

1. PROVIDE THE SERVICES OF A FIRE PROTECTION CONTRACTOR TO INSTALL NEW FIRE PROTECTION DISTRIBUTION LATERALS AND BRANCH PIPING FROM THE EXISTING PIPING. INSTALL NEW SPRINKLER HEADS IN THE PROPOSED CEILING TILES. PIPING TO BE AS NOTED ABOVE AND PER THE SPECIFICATIONS.

2. PROVIDE AND INSTALL NEW SPRINKLER HEADS TO REPLACE THE PREVIOUS CURTAIN WALL HEADS. ADJUST/REPLACE DROP NIPPLE LENGTH AS REQUIRED TO SUIT PROPOSED CEILING ELEVATION.

3. SPRINKLER HEADS TO BE FULLY CONCEALED TYPE, WHITE FINISH. PROVIDE BLACK FINISH FOR HEADS IN THE WOOD SLAT CEILING SYSTEM. SUBMIT SAMPLES TO THE ARCHITECT FOR REVIEW AND APPROVAL.

① FIRE PROT. - SECOND FLOOR LEVEL NEW WORK PLAN

1/4"=1'-0"

FIRE PROTECTION NEW WORK LEGEND

———	NEW FIRE PROT. TO BE FURNISHED AND INSTALLED
———	EXISTING FIRE PROT. WORK TO REMAIN

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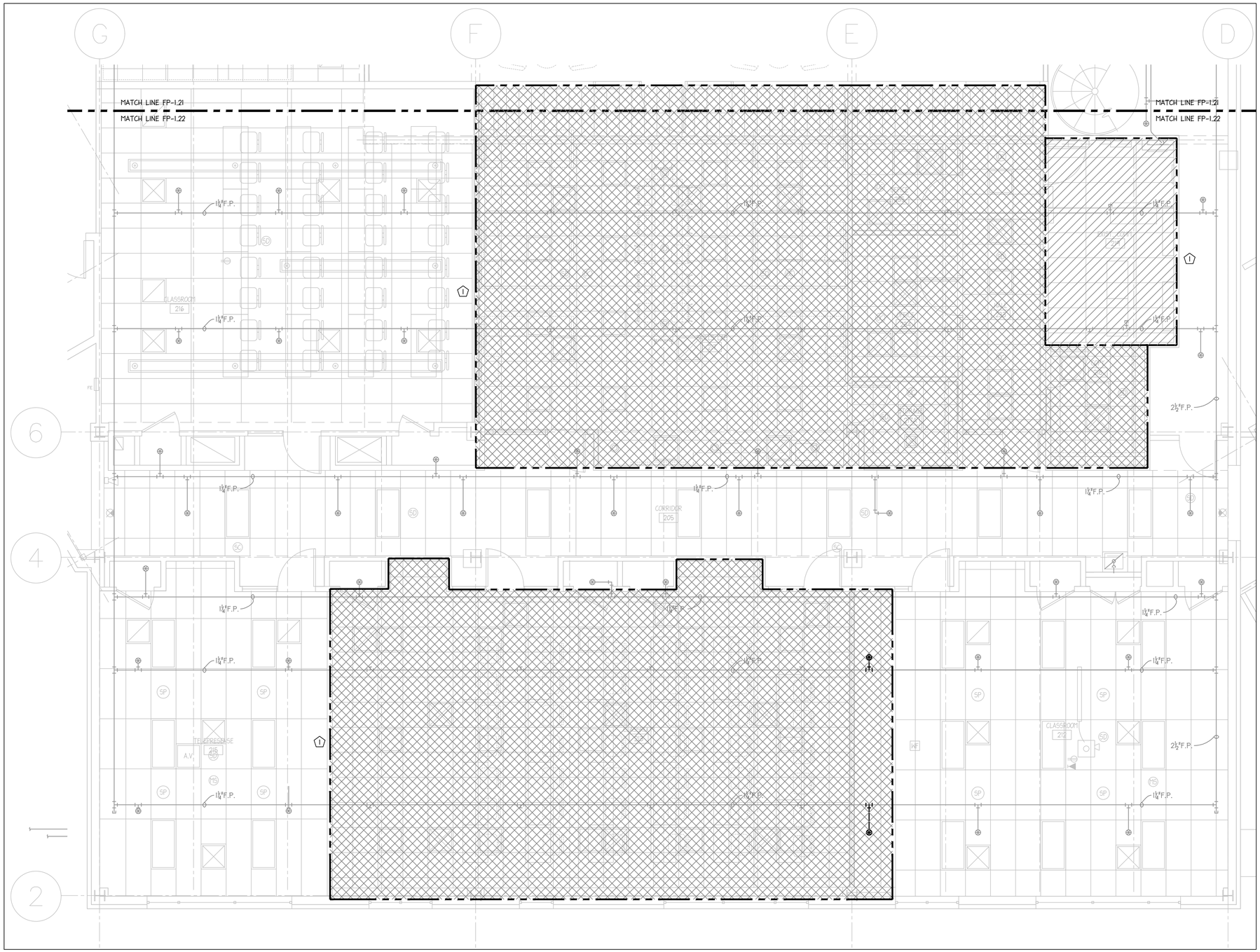
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SECOND FLR. LEVEL
NEW WORK PLAN

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FIRE PROTECTION NEW WORK GRAPHIC LEGEND

HATCH PATTERN	DESCRIPTION
	FURNISH AND INSTALL NEW FIRE PROTECTION PIPING AND HEADS TO PROVIDE COMPLETE COVERAGE OF ALL INDICATED SPACES. CAREFULLY COORDINATE PIPE ROUTING WITH EXISTING AND PROPOSED SERVICES. HAZARD CLASS TO BE LIGHT HAZARD - 0.10 GPM/1500 SQFT + 250 GPM HOSE. SPRINKLER HEADS TO BE QUICK RESPONSE, SEMI RECESSED, F.M. APPROVED.
	FURNISH AND INSTALL NEW FIRE PROTECTION PIPING AND HEADS TO PROVIDE COMPLETE COVERAGE OF ALL INDICATED SPACES. EXTEND NEW BRANCHES FROM EXISTING TEES. HAZARD CLASS TO BE LIGHT HAZARD - 0.10 GPM/1500 SQFT + 250 GPM HOSE. SPRINKLER HEADS TO BE QUICK RESPONSE, SEMI RECESSED, F.M. APPROVED.

FIRE PROTECTION GENERAL NOTES:

1. FIRE PROTECTION SYSTEM AND SPRINKLER HEAD CONFIGURATION SHALL CONFORM TO NFPA 13, CURRENT EDITION, AUTHORITY HAVING JURISDICTION, LOCAL BUILDING CODE, OWNER'S INSURANCE COMPANY AND F.M. GLOBAL REQUIREMENTS.

2. GENERALLY ALL SPRINKLER HEADS INSTALLED IN OCCUPIED AREAS SHALL BE QUICK RESPONSE. ALL SPRINKLER HEADS TO BE FACTORY MUTUAL LISTED AND APPROVED. PROVIDE HEAD TYPE TO SUIT THE BUILDING CONSTRUCTION AND AS LISTED IN SPECIFIC NOTES. GENERALLY HEADS IN AREAS WITH FINISHED CEILINGS TO BE PENDANT TYPE, UNLESS OTHERWISE INDICATED. FINISH TYPE/COLOR TO BE AS SELECTED BY THE OWNER. SUBMIT A SAMPLE OF EACH TYPE OF HEAD PROPOSED FOR USE FOR REVIEW AND APPROVAL.

3. ALL PIPING SHALL BE SCHEDULE 40 BLACK STEEL COATED, PER THE SPECIFICATIONS. RUN CONCEALED WITHIN THE CEILING SPACE UNLESS OTHERWISE INDICATED. GROOVED TYPE COUPLINGS ARE ALLOWED FOR PIPING SIZES 2 1/2" AND ABOVE. NO MECHANICAL TEES ARE ALLOWED WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.

4. THE FIRE PROTECTION DRAWINGS ARE DIAGRAMMATIC IN NATURE AND SHOULD NOT BE UTILIZED FOR FIRE PROTECTION DESIGN. THE FIRE PROTECTION CONTRACTOR SHALL PROVIDE SPRINKLER SYSTEM DESIGN, SPRINKLER HEAD LAYOUT, AND FLOW CALCULATIONS (HYDRAULIC DESIGN). THIS SHALL BE COMPLETED BY A NICET LEVEL (3) THREE CERTIFIED TECHNICIAN. SHOP DRAWINGS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW AND APPROVAL.

5. FURNISH AND INSTALL NEW SPRINKLER HEADS IN ALL DESIGNATED PROJECT AREAS. THE REUSE OF EXISTING HEADS IS NOT PERMITTED.

6. WHERE APPLICABLE, ALL NEW SPRINKLER HEAD INSTALLATIONS SHALL BE CENTERED IN CEILING TILE.

7. PROVIDE FIRE AND SMOKE PROOF CAULKING FOR ALL WALL PENETRATIONS. COORDINATE ALL FIRE AND SMOKE PROOFING WITH THE CONSTRUCTION SUPERVISOR.

8. PROVIDE SEISMIC BRACING FOR SPRINKLER PIPING INSTALLATION PER NFPA 13 AND THE BUILDING CODES.

9. WHERE APPLICABLE, ALL NEW SPRINKLER HEADS SHALL HAVE REMOVABLE ESCUTCHEONS TO ALLOW CEILING TILE REPLACEMENT.

10. PROVIDE A 10 PSI CUSHION BETWEEN FIRE PROTECTION SYSTEM DEMAND AND FIRE PROTECTION SYSTEM WATER SUPPLY.

12. THE FIRE PROTECTION CONTRACTOR SHALL COORDINATE ALL WORK WITH THE MECHANICAL, ELECTRICAL, PLUMBING AND GENERAL TRADES CONTRACTORS. THE FIRE PROTECTION CONTRACTOR SHALL INDICATE ON THE MECHANICAL/ELECTRICAL COORDINATION DRAWINGS THE LOCATION, ROUTING AND ELEVATIONS OF ALL EXISTING FIRE PROTECTION PIPING TO REMAIN AND NEW FIRE PROTECTION PIPING TO BE INSTALLED. THE FIRE PROTECTION CONTRACTOR SHALL NOT START WORK UNTIL THE COORDINATION DRAWINGS ARE REVIEWED AND ACCEPTED BY THE ENGINEER. THE FIRE PROTECTION SUBMITTAL DRAWINGS ARE NOT ACCEPTABLE FOR COORDINATION DRAWINGS.

CONSTRUCTION NORTH

⑥ SPECIFIC FIRE PROTECTION NEW WORK NOTES:

1. PROVIDE THE SERVICES OF A FIRE PROTECTION CONTRACTOR TO INSTALL NEW FIRE PROTECTION DISTRIBUTION LATERALS AND BRANCH PIPING FROM THE EXISTING PIPING. INSTALL NEW SPRINKLER HEADS IN THE PROPOSED CEILING TILES. PIPING TO BE AS NOTED ABOVE AND PER THE SPECIFICATIONS.

2. SPRINKLER HEADS TO BE FULLY CONCEALED TYPE, WHITE FINISH. SUBMIT SAMPLES TO THE ARCHITECT FOR REVIEW AND APPROVAL.

① FIRE PROT. - SECOND FLOOR LEVEL NEW WORK PLAN

1/4"=1'-0"

FIRE PROTECTION NEW WORK LEGEND

———	NEW FIRE PROT. TO BE FURNISHED AND INSTALLED
———	EXISTING FIRE PROT. WORK TO REMAIN

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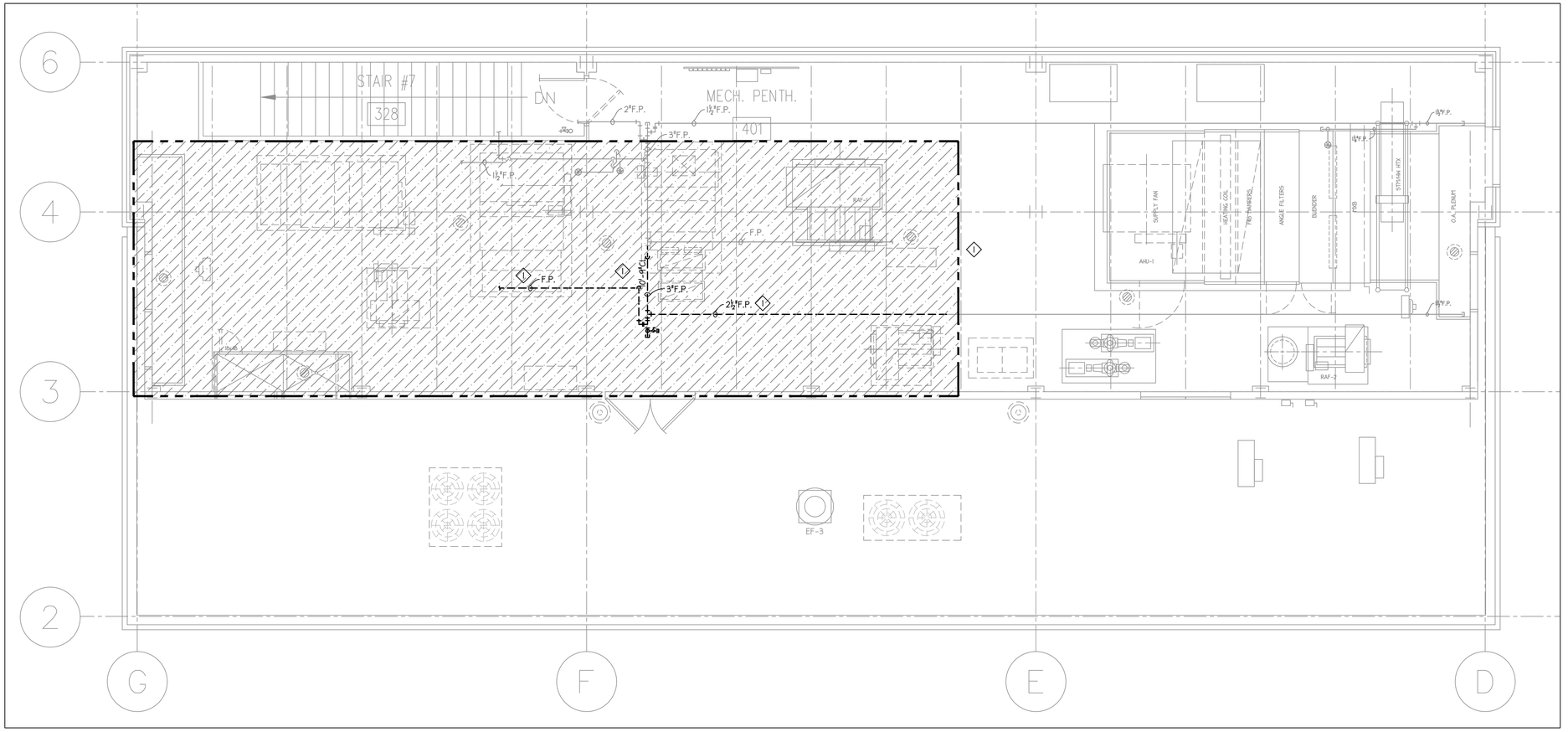
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SECOND FLR. LEVEL
NEW WORK PLAN

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CONSTRUCTION NORTH

1 FIRE PROTECTION - PENTHOUSE LEVEL DEMO. AND NEW WORK PLAN
1/4"=1'-0"

FIRE PROTECTION DEMOLITION LEGEND	
— — —	EXISTING FIRE PROT. TO BE DEMOLISHED
———	EXISTING FIRE PROT. WORK TO REMAIN

FIRE PROTECTION SPECIFIC DEMOLITION NOTES:

1. DEMOLISH AND REMOVE THE EXISTING SPRINKLER DISTRIBUTION PIPING, BRANCH LINES AS HEADS WITHIN THE HATCHED AREA AND AS REQUIRED TO CLEAR SPACE FOR THE PROPOSED HVAC AND ELECTRICAL EQUIPMENT AND SERVICES. FIELD DETERMINE FULL EXTENT OF DEMOLITION REQUIRED. COORDINATE WITH NEW WORK.

FIRE PROTECTION NEW WORK GRAPHIC LEGEND	
HATCH PATTERN	DESCRIPTION
	FURNISH AND INSTALL NEW FIRE PROTECTION PIPING AND HEADS TO PROVIDE COMPLETE COVERAGE OF ALL INDICATED SPACES. CAREFULLY COORDINATE PIPE ROUTING WITH EXISTING AND PROPOSED SERVICES. HAZARD CLASS TO BE ORDINARY HAZARD, GROUP 1, 0.15 GPM/1500 SQFT + 250 GPM HOSE. SPRINKLER HEADS TO BE QUICK RESPONSE WITH CAGE GUARD, F.M. APPROVED.

FIRE PROTECTION NEW WORK LEGEND	
———	NEW FIRE PROT. TO BE FURNISHED AND INSTALLED
———	EXISTING FIRE PROT. WORK TO REMAIN

SPECIFIC FIRE PROTECTION NEW WORK NOTES:

1. PROVIDE THE SERVICES OF A FIRE PROTECTION CONTRACTOR TO INSTALL NEW FIRE PROTECTION DISTRIBUTION PIPING, BRANCH PIPING AND SPRINKLER HEADS TO PROVIDE FULL COVERAGE OF THE ENTIRE PENTHOUSE. THE HATCHED AREA INDICATES WHERE COMPLETE REPLACEMENT OF EXISTING SYSTEM IS EXPECTED. INDICATE LOCATIONS OF PIPING ON THE MECHANICAL COORDINATION DRAWINGS. PROVIDE COVERAGE BELOW DUCT WORK AS REQUIRED. HAZARD CLASS TO BE "ORDINARY HAZARD". ALL PIPING AND INSTALLATION TO COMPLY WITH THE SPECIFICATIONS AND GENERAL NOTES.

2. SPRINKLER HEADS TO BE UPRIGHT PENDENT TYPE, CHROME FINISH, TEMPERATURE RATING FOR MECHANICAL SPACES.

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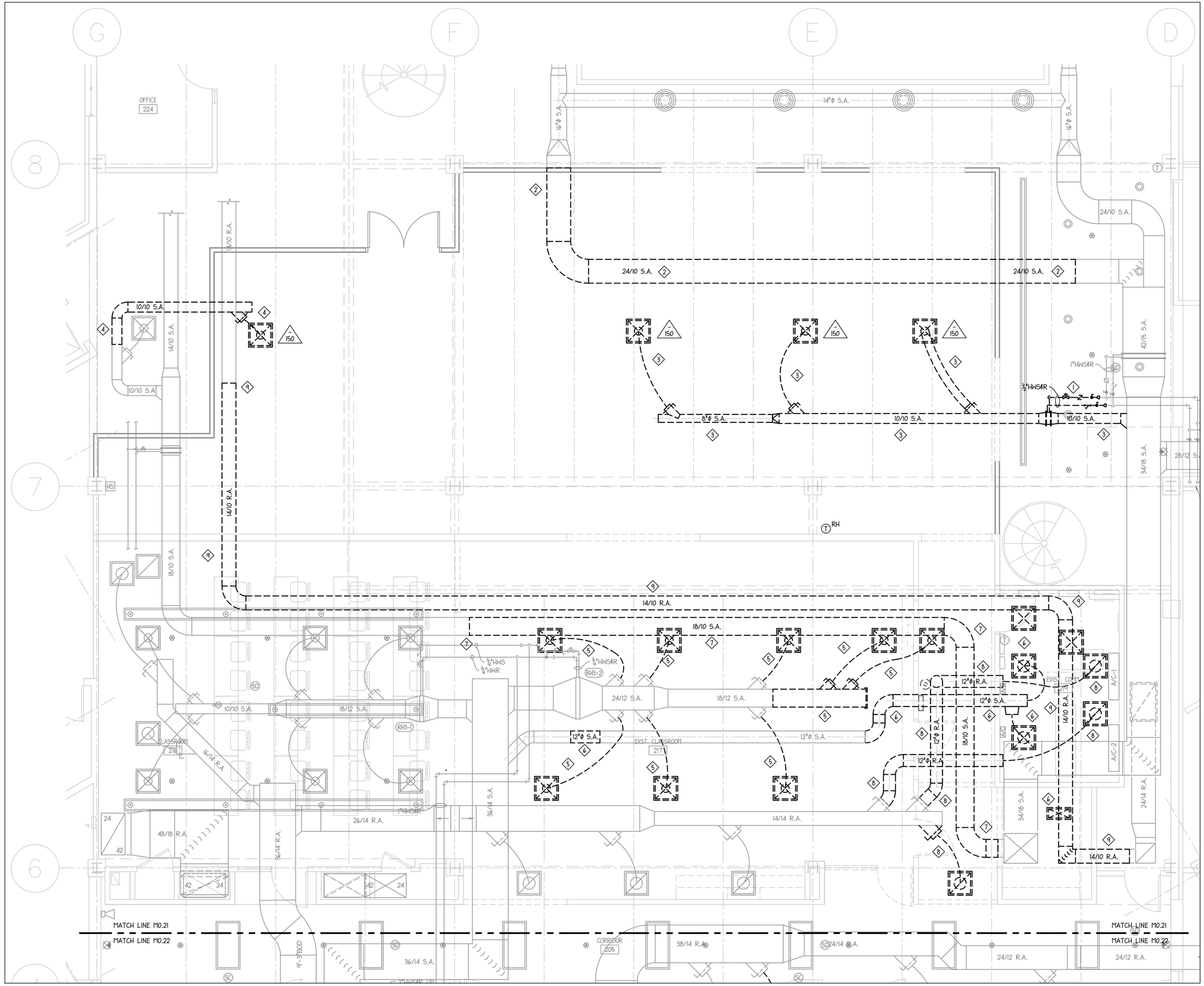
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PENTH. LEVEL
DEMOLITION AND
NEW WORK PLAN

FP-1.41



1 MECHAINCAL - SECOND FLOOR LEVEL DEMOLITION PLAN
1/4" = 1'-0"

CONSTRUCTION NORTH

MECHANICAL DEMOLITION LEGEND

- MECHANICAL WORK TO BE DEMOLISHED
- EXISTING MECHANICAL WORK TO REMAIN

MECHANICAL SPECIFIC DEMOLITION NOTES:

1. DEMOLISH AND REMOVE THE HEATING WATER SUPPLY AND RETURN BRANCH PIPING, SERVING THE EXISTING REHEAT COIL. ISOLATE BRANCHES AND DRAIN. TEMPORARILY CAP LINES FOR EXTENSION UNDER NEW WORK.

2. DEMOLISH AND REMOVE A SECTION OF THE EXISTING SUPPLY AIR DUCTWORK, SERVING THE OPEN LIBRARY SPACE. TEMPORARILY CAP LINES FOR RECONNECTION UNDER NEW WORK.

3. DEMOLISH AND REMOVE THE EXISTING SUPPLY AIR DUCT, REHEAT COIL AND DIFFUSERS SERVING THE SHELL SPACE, AS INDICATED DASHED. REMOVE TAKE-OFF AT MAIN DUCT, PATCH AND SEAL FLUSH.

4. DEMOLISH AND REMOVE A SECTION OF SUPPLY AIR DUCT AND DIFFUSER SERVING THE SHELL SPACE. CAP AND SEAL END OF DUCT.

5. DEMOLISH AND REMOVE THE DIFFUSERS AND BRANCH DUCTWORK SERVING CLASSROOM 217. REMOVE A SECTION OF THE MAIN DUCT AS INDICATED DASHED. CAP AND SEAL END.

6. DEMOLISH AND REMOVE SECTIONS OF THE UN-TEMPERED SUPPLY AIR DUCT, SERVING THE COMM. ROOM (I.T.), COORDINATE WITH NEW WORK. CAP AND SEAL END OF DUCT. REMOVE THE EXISTING USED AND UNUSED DIFFUSERS. COORDINATE ALL WORK IN THIS SPACE WITH CAMPUS SECURITY.

7. DEMOLISH AND REMOVE A SECTION OF AHU-1 SUPPLY AIR BRANCH DUCT, FROM NEAR THE MAIN RISER TO THE POINT INDICATED. COORDINATE WITH NEW WORK. CAP AND SEAL AT RISER.

8. DEMOLISH AND REMOVE SECTIONS OF RETURN AIR DUCT AND GRILLES AS INDICATED DASHED BOLD. REMOVE TAKE-OFFS WHERE INDICATED AND PATCH AND SEAL DUCT. COORDINATE ALL WORK IN THE I.T. ROOM WITH CAMPUS SECURITY.

9. DEMOLISH AND REMOVE A SECTION OF RAF-1 RETURN AIR BRANCH DUCT. REMOVE FROM THE RISER TO THE POINT INDICATED. CAP AND SEAL AT RISER.

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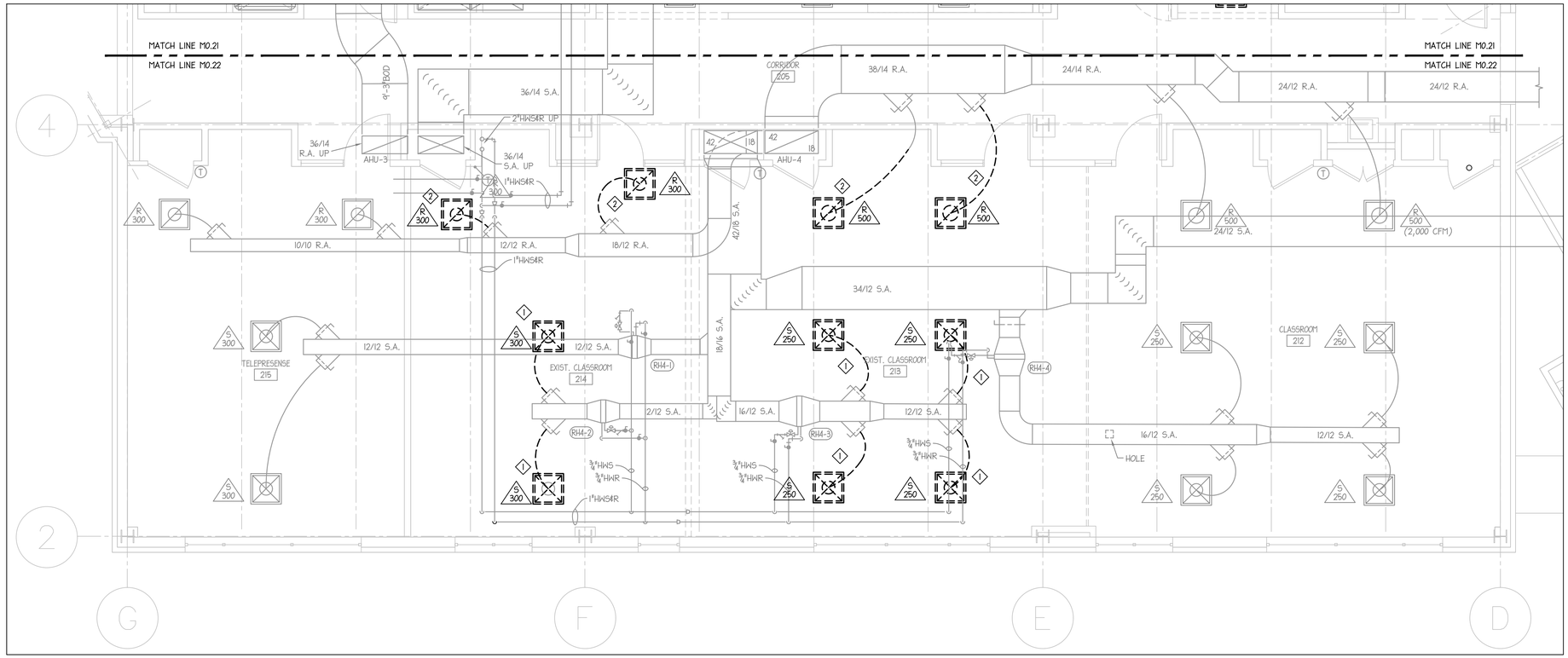
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MECHANICAL - SECOND FLOOR DEMOLITION PLAN

ALTERNATE

M-0.21

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CONSTRUCTION NORTH

1 MECHAINCAL - SECOND FLOOR LEVEL DEMOLITION PLAN
1/4"=1'-0"

MECHANICAL DEMOLITION LEGEND	
– – – –	MECHANICAL WORK TO BE DEMOLISHED
————	EXISTING MECHANICAL WORK TO REMAIN

MECHANICAL SPECIFIC DEMOLITION NOTES:

1. DEMOLISH AND REMOVE THE EXISTING SUPPLY AIR DIFFUSERS AND BRANCH DUCTWORK BACK TO THE TAKE-OFFS, AS INDICATED DASHED BOLD.

2. DEMOLISH AND REMOVE THE EXISTING RETURN AIR GRILLES AND BRANCH DUCTWORK BACK TO THE TAKE-OFFS, AS INDICATED DASHED BOLD.

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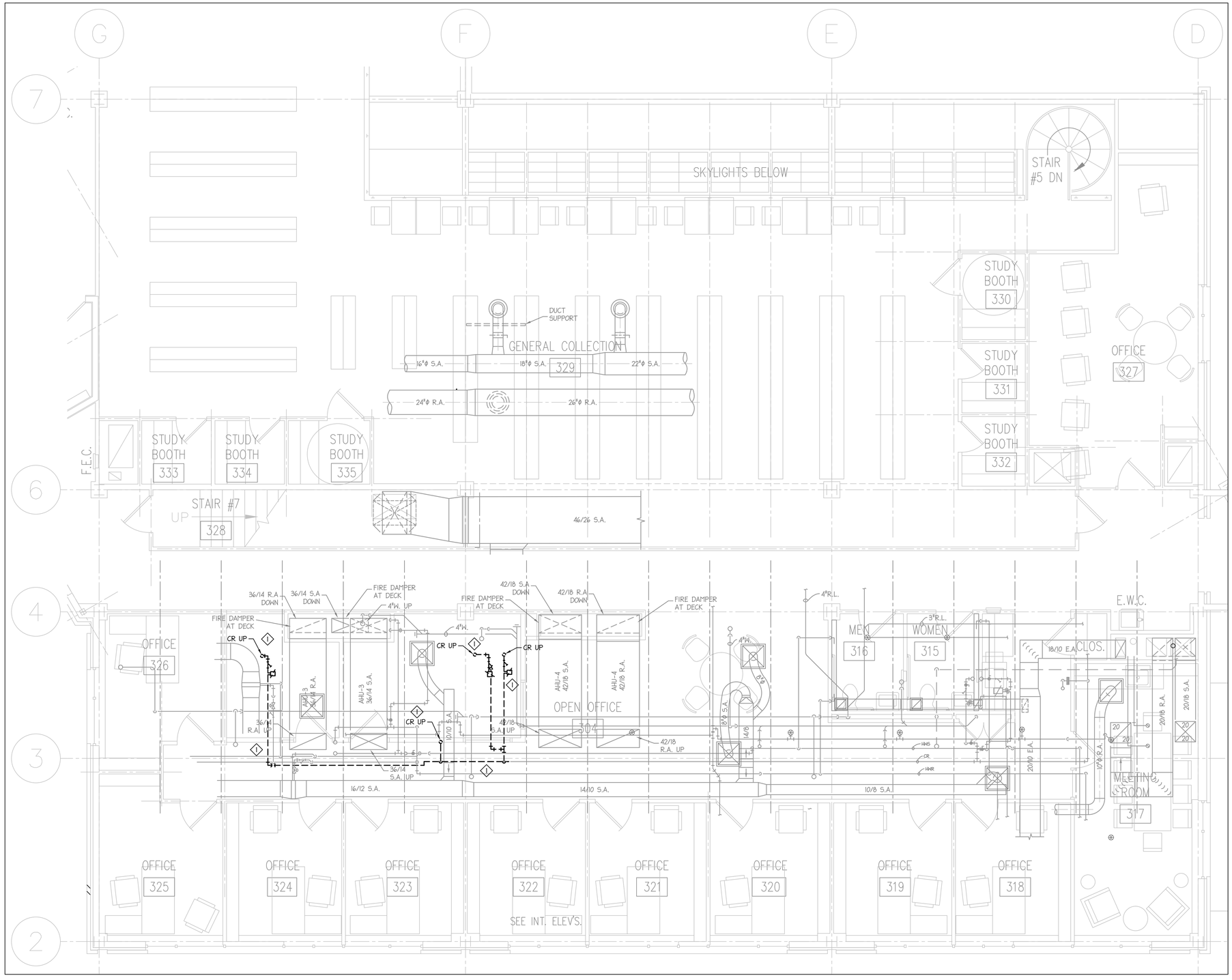
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MECHANICAL - SECOND FLOOR DEMOLITION PLAN

ALTERNATE

M-0.22



1 MECHAINCAL - THIRD FLOOR LEVEL DEMOLITION PLAN
1/4"=1'-0"

CONSTRUCTION NORTH

MECHANICAL DEMOLITION LEGEND

- MECHANICAL WORK TO BE DEMOLISHED
- EXISTING MECHANICAL WORK TO REMAIN

MECHANICAL SPECIFIC DEMOLITION NOTES:

1. DEMOLISH AND REMOVE SECTIONS OF EXISTING STEAM CONDENSATE RETURN PIPING AS INDICATED DASHED BOLD. REMOVE ALL VALVES, TRAPS AND SPECIALTIES. REMOVE PIPING TO THE POINT INDICATED AND CAP (WELDED OR THREADED). REPAIR INSULATION. COORDINATE WITH THE GENERAL TRADES CONTRACTOR FOR CEILING REMOVAL AS REQUIRED.

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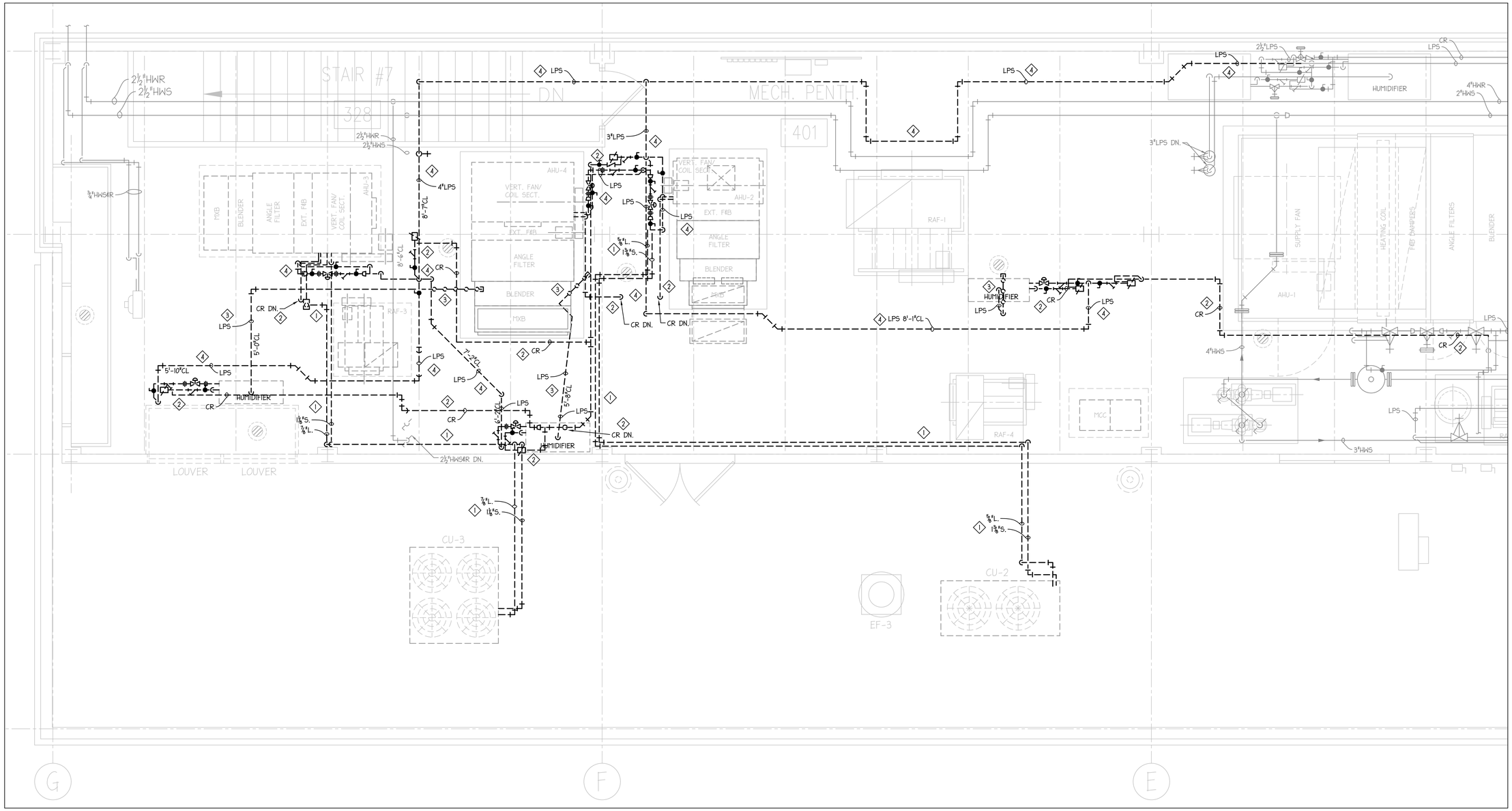
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MECHANICAL - THIRD FLOOR DEMOLITION PLAN

ALTERNATE

M-0.31

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◈ MECHANICAL SPECIFIC DEMOLITION NOTES:

1. DEMOLISH AND REMOVE THE EXISTING REFRIGERANT PIPING FROM THE EXISTING ROOF MOUNTED CONDENSING UNITS TO THE COILS IN THE AIR HANDLER UNITS. PROVIDE THE SERVICES OF A REFRIGERATION TECHNICIAN TO EVACUATE ALL REFRIGERANT FROM THE SYSTEMS. RETURN TO THE OWNER OR DISPOSE OF PER THEIR DIRECTION. REMOVE ALL OIL FROM THE UNITS TO PREPARE THEM FOR DISPOSAL.

2. DEMOLISH AND REMOVE THE STEAM CONDENSATE PIPING FROM THE AIR HANDLER COILS, DRIP LEGS AND HUMIDIFIERS. REMOVE PIPING COMPLETE WITH ALL VALVES, TRAPS AND SPECIALTIES. DISCONNECT FROM THE UNITS AND REMOVE TO THE POINT INDICATED OR THE LEVEL BELOW, SEE LEVEL THREE DEMOLITION PLAN. CAP BRANCH LINES AND REPAIR INSULATION. COORDINATE WITH THE GENERAL TRADES CONTRACTOR TO PATCH FLOOR.

3. DEMOLISH AND REMOVE THE STEAM PIPING FROM THE EXISTING HUMIDIFIERS TO THE DUCT MOUNTED DISTRIBUTION MANIFOLDS. REMOVE MANIFOLDS IN CONJUNCTION WITH DUCT DEMOLITION. WHERE DUCT REMAINS, REMOVE, PATCH AND SEAL DUCT.

4. DEMOLISH AND REMOVE THE EXISTING LOW PRESSURE STEAM PIPING SERVING THE EXISTING AIR HANDLER COILS AND HUMIDIFIER UNITS. SCHEDULE A SHUT-DOWN THROUGH FACILITIES. CUT AND CAP LINE NEAR THE POINT INDICATED. REMOVE PIPING FROM THIS POINT TO THE UNIT CONNECTIONS. NOTE; SECTIONS OF PIPING INACCESSIBLE ABOVE DUCTWORK AND HARD CEILINGS, MAY BE ABANDONED IN PLACE. INSTALL "FERNCO" TYPE CAPS ON ALL ENDS.

1 MECHAINCAL - PENTHOUSE LEVEL DEMOLITION PLAN
3/8"=1'-0"

MECHANICAL DEMOLITION LEGEND

- - - -	MECHANICAL WORK TO BE DEMOLISHED
———	EXISTING MECHANICAL WORK TO REMAIN

CONSTRUCTION NORTH

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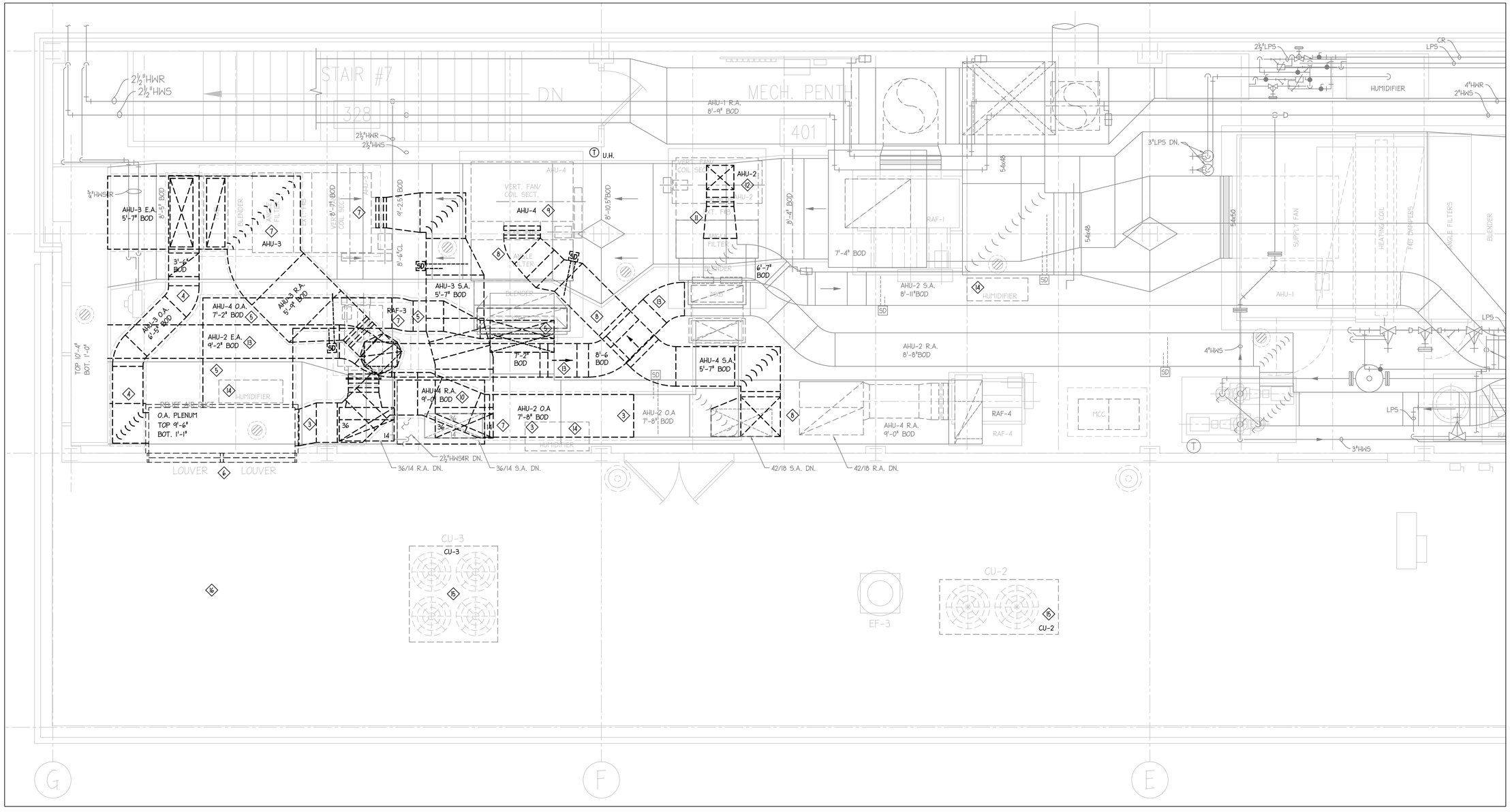
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MECHANICAL - PENTHOUSE LEVEL MECH. PIPING DEMOLITION PLAN

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MECHANICAL SPECIFIC DEMOLITION NOTES:

1. PROVIDE THE SERVICES OF THE OWNER'S CONTROLS VENDOR TO DISCONNECT ALL THE CONTROLS ASSOCIATED WITH AIR HANDLER UNITS #2, #3 AND #4, RETURN FANS #2, #3 AND #4 AND THE INDICATED HUMIDIFIER UNITS. REMOVE ALL WIRING, PNEUMATIC TUBING, DEVICES AND PROGRAMMING.

2. COORDINATE WITH THE ELECTRICAL CONTRACTOR TO DISCONNECT POWER FROM THE INDICATED MECHANICAL EQUIPMENT, AND DISCONNECT THE ASSOCIATED DUCT SMOKE DETECTORS. SEE ELECTRICAL DEMOLITION PLANS.

3. DEMOLISH AND REMOVE A PORTION OF THE A.H.U.-2 OUTSIDE AIR DUCTWORK FROM THE OUTSIDE AIR PLENUM TO NEAR THE POINT INDICATED. COORDINATE WITH NEW WORK.

4. DEMOLISH AND REMOVE THE A.H.U.-3 OUTSIDE AIR DUCTWORK FROM THE OUTSIDE AIR PLENUM TO THE UNIT MIXING BOX.

5. DEMOLISH AND REMOVE THE A.H.U.-4 OUTSIDE AIR DUCTWORK FROM THE OUTSIDE AIR PLENUM TO THE UNIT MIXING BOX.

6. DEMOLISH AND REMOVE THE EXISTING OUTSIDE AIR INTAKE PLENUM. COORDINATE WITH THE GENERAL TRADES CONTRACTOR. REMOVE THE EXISTING LOUVERS. DEMOLISH AND REMOVE THE PLENUM, COMPLETE WITH ALL INSULATION. THIS IS TO BE THE PRIMARY EQUIPMENT MOVE ROUTE.

7. DEMOLISH AND REMOVE THE AIR HANDLER UNIT #3 SYSTEM. REMOVE RETURN AIR DUCTWORK FROM NEAR THE DECK LEVEL TO THE RETURN FAN. REMOVE RETURN DUCTWORK FROM THE FAN THE A.H.U. MIXING BOX, AND RELIEF AIR DUCT TO THE EXHAUST PLENUM. REMOVE THE RETURN AIR FAN. REMOVE THE SUPPLY AIR DUCT WORK FROM THE UNIT TO NEAR THE DECK LEVEL. DISASSEMBLE AND REMOVE THE AIR HANDLER UNIT. COORDINATE WITH THE GENERAL TRADES CONTRACTOR TO REMOVE THE EQUIPMENT PAD.

8. DEMOLISH AND REMOVE THE A.H.U.-4 SUPPLY DUCTWORK FROM THE UNIT FAN TO TRANSITION NEAR THE FLOOR LEVEL, AT THE DROP TO THE LEVEL BELOW. COORDINATE WITH NEW WORK.

9. DEMOLISH AND REMOVE THE A.H.U.-4 FAN SECTION, COIL SECTION AND FACE & BYPASS DAMPER SECTION. PROVIDE TEMPORARY SUPPORT FOR REMAINING SECTIONS AS REQUIRED.

10. DEMOLISH AND REMOVE A SECTION OF A.H.U.-4 RELIEF AIR DUCTWORK FROM JUST AFTER THE RETURN AIR BRANCH TO THE UNIT, TO THE POINT INDICATED. CAP AND SEAL ENDS. INSULATE PER SPECIFICATIONS.

11. DEMOLISH AND REMOVE A SECTION OF A.H.U.-2 SUPPLY DUCTWORK FROM THE UNIT TO THE ELBOW FITTING AS INDICATED DASHED.

1 MECHAINCAL - PENTHOUSE LEVEL DEMOLITION PLAN
3/8"=1'-0"

12. DEMOLISH AND REMOVE THE A.H.U.-2 FAN SECTION, COIL SECTION AND FACE & BYPASS DAMPER SECTION. PROVIDE TEMPORARY SUPPORT FOR REMAINING SECTIONS AS REQUIRED.

13. DEMOLISH AND REMOVE THE A.H.U.-2 RELIEF AIR DUCTWORK FROM NEAR THE UNIT TO THE RELIEF AIR PLENUM. CAP AND SEAL DUCT, PATCH AND SEAL PLENUM. PATCH ALL INSULATION TO MATCH EXISTING.

14. DEMOLISH AND REMOVE THE EXISTING HUMIDIFIER UNITS, INDICATED DASHED.

15. DEMOLISH AND REMOVE THE CONDENSING UNITS CU-2 & 3. COORDINATE WITH THE ELECTRICAL CONTRACTOR FOR DISCONNECTION OF POWER AND CONTROL WIRING.

16. PROVIDE ALL LABOR AND EQUIPMENT AS REQUIRED TO RIG AND HOIST ALL EQUIPMENT AND MATERIALS OUT ON TO THE ROOF AREA AND FROM THE ROOF LEVEL TO GRADE AND TRANSPORT VEHICLES BELOW. REMOVE ALL EQUIPMENT AND MATERIALS FROM THE SITE AND PROPERLY DISPOSE OF. SORT AND RECYCLE MATERIALS TO THE GREATEST EXTENT FEASIBLE.

MECHANICAL DEMOLITION LEGEND

- MECHANICAL WORK TO BE DEMOLISHED
- EXISTING MECHANICAL WORK TO REMAIN

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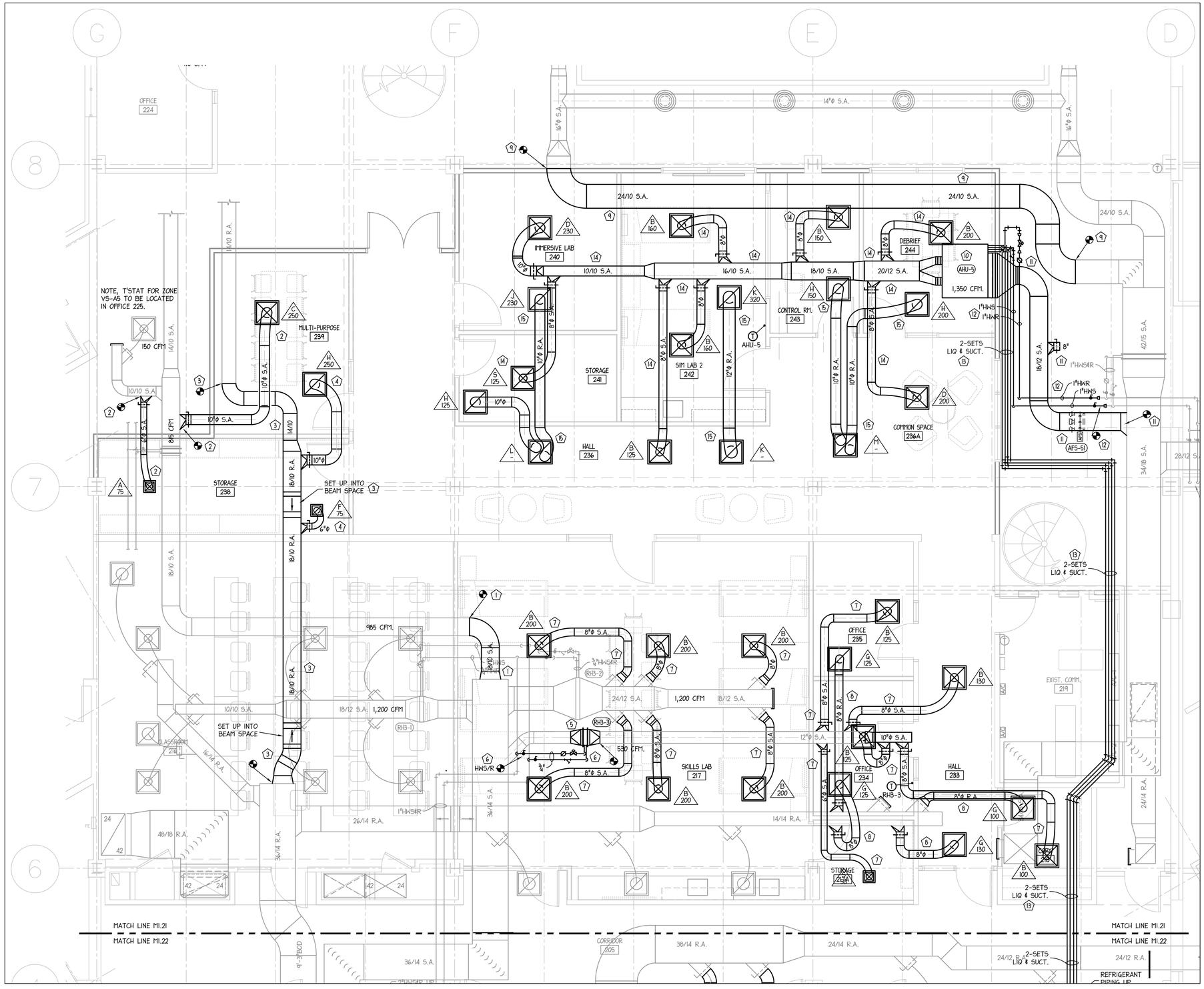
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MECHANICAL - PENTHOUSE LEVEL DUCT WORK DEMOLITION PLAN

ALTERNATE

M-0.42



1 MECHANICAL - SECOND FLOOR NEW WORK PLAN
1/4"=1'-0"

CONSTRUCTION NORTH

MECHANICAL NEW WORK LEGEND

- NEW MECHANICAL TO BE FURNISHED AND INSTALLED
- EXISTING MECHANICAL TO REMAIN

⑨ MECHANICAL SPECIFIC NEW WORK NOTES:

1. PROVIDE AND INSTALL A NEW SECTION OF SUPPLY AIR DUCT TO RECONNECT THE PREVIOUS AIR HANDLER UNIT #1 DUCT TO THE A.H.U. #3 SUPPLY DUCTWORK. FABRICATE DUCTWORK PER THE SPECIFICATIONS TO +4.0" CLASS. INSULATE PER THE SPECIFICATIONS.

2. PROVIDE AND INSTALL NEW SUPPLY AIR BRANCH DUCTS FROM THE EXISTING, WITH TAKE-OFFS TO THE PROPOSED DIFFUSERS. PROVIDE TAKE-OFFS WITH DAMPER PER THE SCHEDULES AND SPECIFICATIONS. DUCTWORK AND INSULATION TO BE PER THE SPECIFICATIONS.

3. PROVIDE AND INSTALL A NEW SECTION OF RETURN AIR DUCT TO RECONNECT A SECTION OF PREVIOUS A.H.U. #1 DUCTWORK TO THE A.H.U. #3 RETURN DUCTWORK. SET UP AND OVER THE EXISTING DUCTWORK AND DOWN UNDER BUILDING STEEL AND RECONNECT TO EXISTING. FABRICATE PER THE SPECIFICATIONS FOR -4.0" CLASS.

4. PROVIDE AND INSTALL NEW RETURN AIR BRANCH DUCTS FROM THE NEW, WITH TAKE-OFFS TO THE PROPOSED GRILLES. PROVIDE TAKE-OFFS WITH DAMPER PER THE SCHEDULES AND SPECIFICATIONS.

5. PROVIDE AND INSTALL A DUCT MOUNTED REHEAT COIL IN THE DUCT, APPROXIMATELY WHERE INDICATED. SEE EQUIPMENT SCHEDULES AND COIL DETAILS.

6. PROVIDE AND INSTALL NEW HEATING WATER SUPPLY AND RETURN BRANCH PIPING FROM THE EXISTING LINES TO THE PROPOSED REHEAT COIL. ISOLATE AND DRAIN AS REQUIRED TO CONNECT NEW LINES. RUN NEW BRANCH PIPING WITH VALVES AND SPECIALTIES AS INDICATED AND PER THE DETAILS. OBTAIN CONTROL VALVE FROM THE CONTROLS CONTRACTOR. PIPING AND INSULATION TO BE PER THE SPECIFICATIONS.

7. PROVIDE AND INSTALL NEW SECTIONS OF SUPPLY AIR DUCTWORK AND BRANCH DUCTWORK, WITH TAKE-OFFS AS INDICATED BOLD. INSTALL DIFFUSERS IN THE CEILING SYSTEM AND MAKE FINAL CONNECTIONS WITH INSULATED FLEXIBLE DUCT AND S.S. DRAW BANDS. DUCT AND INSULATION TO BE PER THE SPECIFICATIONS.

8. PROVIDE AND INSTALL NEW SECTIONS OF RETURN AIR BRANCH DUCTWORK, WITH TAKE-OFFS AS INDICATED BOLD. INSTALL GRILLES IN THE CEILING SYSTEM AND MAKE FINAL CONNECTIONS WITH FLEXIBLE DUCT AND S.S. DRAW BANDS. DUCTWORK TO BE PER THE SPECIFICATIONS.

9. FABRICATE AND INSTALL A NEW SECTION OF A.H.U.-1 SUPPLY AIR DUCT TO RECONNECT EXISTING SECTIONS. PROVIDE OFFSETS TO LOCATE DUCT APPROXIMATELY AS INDICATED. FABRICATE DUCT PER THE SPECIFICATIONS. NOTE; THIS SECTION OF DUCTWORK IS NOT REQUIRED TO BE INSULATED.

10. PROVIDE AND INSTALL A NEW BLOWER COIL UNIT IN THE CEILING SPACE WHERE INDICATED, SEE EQUIPMENT SCHEDULES. PROVIDE STRUT FRAMING AT THE TOP CHORD OF THE BUILDING STEEL AND HANG UNIT WITH ISOLATION MOUNTS AND SWAY BRACING, CLOSE TO THE BOTTOM OF STEEL ELEVATION.

11. PROVIDE AND INSTALL SUPPLY AIR DUCTWORK FROM THE A.H.U.-1 SYSTEM TO THE PROPOSED BLOWER COIL (AHU-5). INSTALL NEW TAKE-OFF, AND INSTALL DUCT WITH A VARIABLE VOLUME CONTROL DAMPER AND AIR FLOW STATION, SEE EQUIP. SCHEDULES. CONNECT TO THE UNIT WITH FLEXIBLE CONNECTOR. INSTALL A RELIEF TAKE-OFF. FABRICATE DUCTWORK AND INSULATE PER THE SPECIFICATIONS.

12. PROVIDE AND INSTALL NEW HEATING WATER SUPPLY AND RETURN BRANCH PIPING FROM THE EXISTING LINES TO THE PROPOSED BLOWER COIL UNIT. RUN NEW BRANCH PIPING WITH VALVES AND SPECIALTIES AS INDICATED AND PER THE DETAILS. OBTAIN CONTROL VALVE FROM THE CONTROLS CONTRACTOR. PIPING AND INSULATION TO BE PER THE SPECIFICATIONS.

13. PROVIDE AND INSTALL NEW REFRIGERANT PIPING FROM THE BLOWER COIL TO THE CONDENSING UNITS ON THE LEVELS ABOVE. PROVIDE PIPING WITH SPECIALTIES PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS (LONG LINE SET GUIDE) AND PER THE SPECIFICATIONS. INSTALL PIPING WITH SLOPE AND TRAPS AS RECOMMENDED BY THE MFGR. PIPING AND INSULATION TO BE PER THE SPECIFICATIONS.

14. PROVIDE AND INSTALL A NEW SYSTEM OF SUPPLY AIR DUCTWORK, TAKE-OFFS AND DIFFUSERS TO THE SERVE THE PROPOSED SPACES AS INDICATED. CONNECT TO AHU-5 WITH FLEXIBLE CONNECTORS AND TRANSITION FITTING AS INDICATED. RUN MAIN DUCT WITH BRANCHES TO THE PROPOSED DIFFUSERS. MAKE FINAL CONNECTIONS WITH INSULATED FLEXIBLE DUCT.

15. PROVIDE AND INSTALL RETURN AIR TRANSFER DUCTS AND GRILLES AS INDICATED. FABRICATE GRILLE BOOTS FOR THE INDICATED GRILLES WITH DUCT TAPPINGS AS INDICATED.

16. PROVIDE THE SERVICES OF A CONTROLS CONTRACTOR TO PROVIDE AND INSTALL A COMPLETE SYSTEM OF CONTROLS FOR ALL OF THE PROPOSED HVAC EQUIPMENT. SEE CONTROLS DRAWINGS AND SPECIFICATIONS FOR MORE COMPLETE SCOPE OF WORK.

17. PROVIDE THE SERVICES OF A TESTING AND BALANCE CONTRACTOR TO MEASURE, ADJUST AND BALANCE THE PROPOSED HVAC EQUIPMENT, SYSTEMS AND OUTLETS. SET UP VOLUME CONTROL STATION FOR DESIGN MAX. AND MIN. VOLUMES. PROVIDE UPSTREAM AND DOWNSTREAM STATIC PRESSURES. SET UP THE PROPOSED BLOWER COIL AIR VOLUME. BALANCE EACH DIFFUSER AND GRILLE TO DESIGN VALUES. BALANCE UNIT HEATING COIL MAXIMUM FLOW TO DESIGN VALUES. PERFORM ALL WORK AND PROVIDE REPORTS PER THE SPECIFICATIONS.

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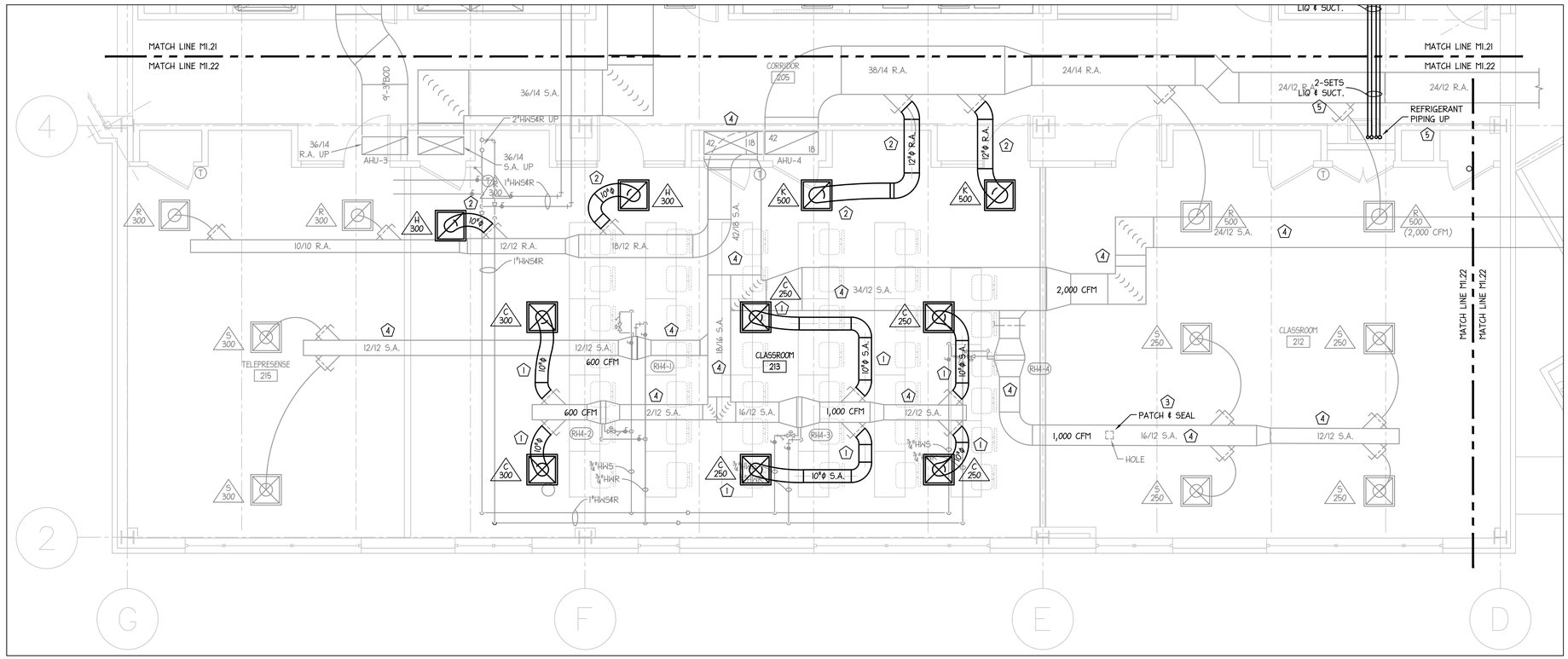
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MECHANICAL
SECOND FLOOR
NEW WORK PLAN

ALTERNATE

M-1.21



1 MECHANICAL - SECOND FLOOR NEW WORK PLAN
1/4"=1'-0"

MECHANICAL SPECIFIC NEW WORK NOTES:

1. PROVIDE AND INSTALL NEW SECTIONS OF SUPPLY AIR DUCTWORK, BRANCH DUCTS AND DIFFUSERS FROM THE EXISTING SYSTEMS AS INDICATED BOLD. MAKE FINAL CONNECTIONS WITH INSULATED FLEXIBLE DUCT. GENERALLY RUN HARD DUCT TO WITHIN 4' OF THE DIFFUSER AND PROVIDE FITTINGS SUCH THAT THERE IS NO MORE THAN A 90 DEGREE BEND IN THE FLEXIBLE DUCT.

2. PROVIDE AND INSTALL NEW RETURN AIR BRANCH DUCT AND GRILLES AS INDICATED BOLD. PROVIDE NEW TAKE-OFFS AND CONNECT TO EXISTING AS SHOWN, SIMILAR TO AS NOTED FOR SUPPLY.

3. PATCH AND SEAL THE EXISTING OPENING IN THE SUPPLY AIR DUCT, NOTED ON THE PLAN. PATCH AND SEAL ANY OTHER OPENINGS OR LEAKAGE POINTS OBSERVED.

4. PROVIDE AND INSTALL NEW INSULATION ON THE A.H.U.-4 SUPPLY AIR DUCT WORK. INSULATE ALL SECTIONS PER THE SPECIFICATIONS FOR "INTERIOR RECTANGULAR SUPPLY AIR DUCT". COORDINATE WITH THE GENERAL TRADES CONTRACTOR FOR CEILING REMOVAL AS NECESSARY.

5. CONTINUE THE REFRIGERANT PIPING TO THE LEVELS ABOVE.

6. PROVIDE THE SERVICES OF A TESTING AND BALANCE CONTRACTOR TO MEASURE, ADJUST AND BALANCE THE PROPOSED HVAC EQUIPMENT, SYSTEMS AND OUTLETS. BALANCE EACH DIFFUSER AND GRILLE TO DESIGN VALUES. PERFORM ALL WORK AND PROVIDE REPORTS PER THE SPECIFICATIONS.

MECHANICAL NEW WORK LEGEND
NEW MECHANICAL TO BE FURNISHED AND INSTALLED
EXISTING MECHANICAL TO REMAIN

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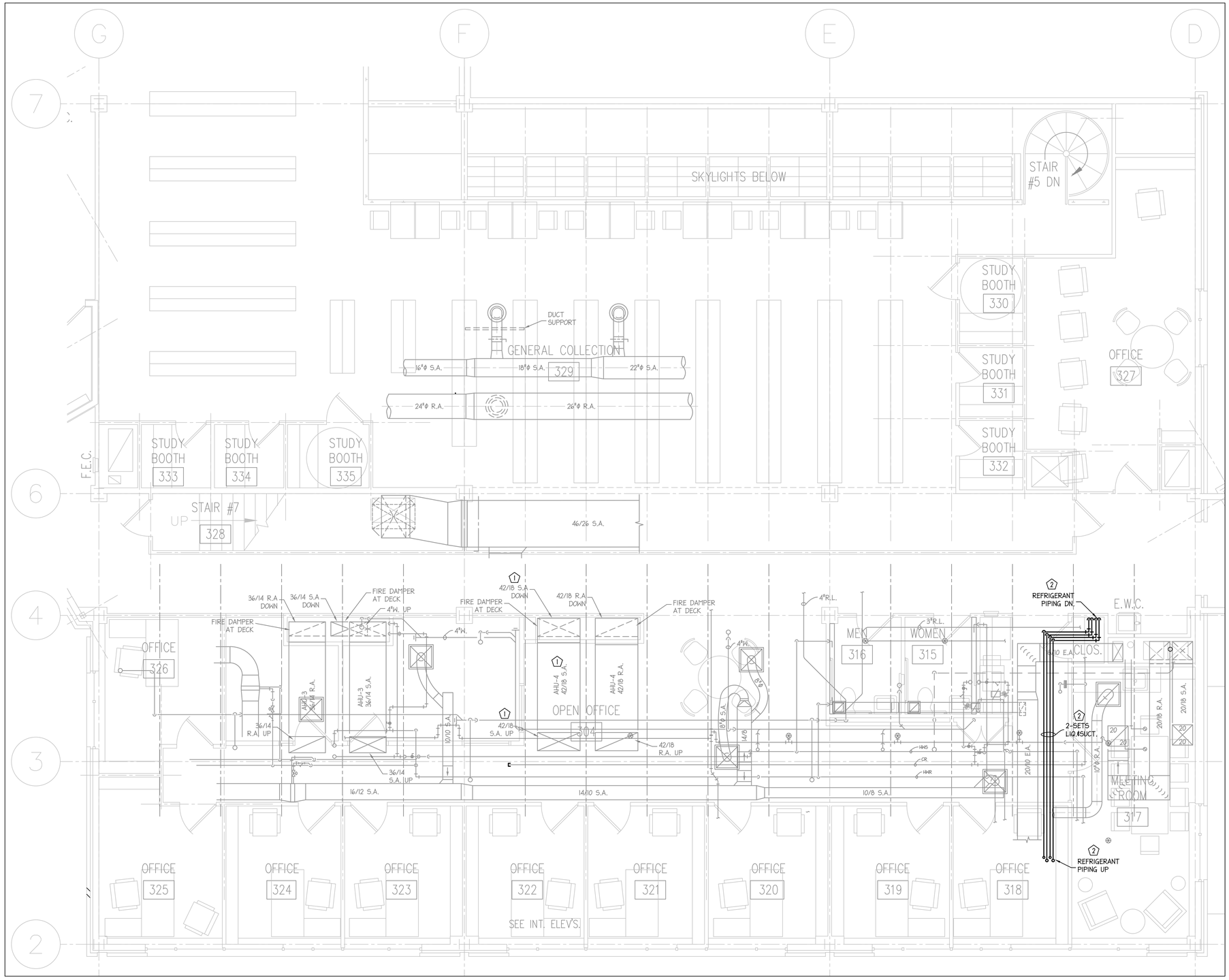
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NEW WORK PLAN

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1 MECHANICAL - THIRD FLOOR NEW WORK PLAN
1/4"=1'-0"

MECHANICAL NEW WORK LEGEND

- NEW MECHANICAL TO BE FURNISHED AND INSTALLED
- EXISTING MECHANICAL TO REMAIN

(#) MECHANICAL SPECIFIC NEW WORK NOTES:

1. PROVIDE AND INSTALL INSULATION ON THE A.H.U.-4 SUPPLY DUCT WORK. INSULATE PER THE SPECIFICATIONS FOR "INTERIOR RECTANGULAR SUPPLY AIR DUCT". COORDINATE WITH THE G.C. FOR CEILING REMOVAL AS NECESSARY.

2. CONTINUE THE PROPOSED REFRIGERANT PIPING UP FROM THE LEVEL BELOW TO THE CEILING SPACE. RUN OVER IN THE CONCEALED IN THE CEILING AND UP TO THE ROOF LEVEL AND CONDENSING UNITS ABOVE. PIPING AND INSULATION TO BE PER THE SPECIFICATIONS.

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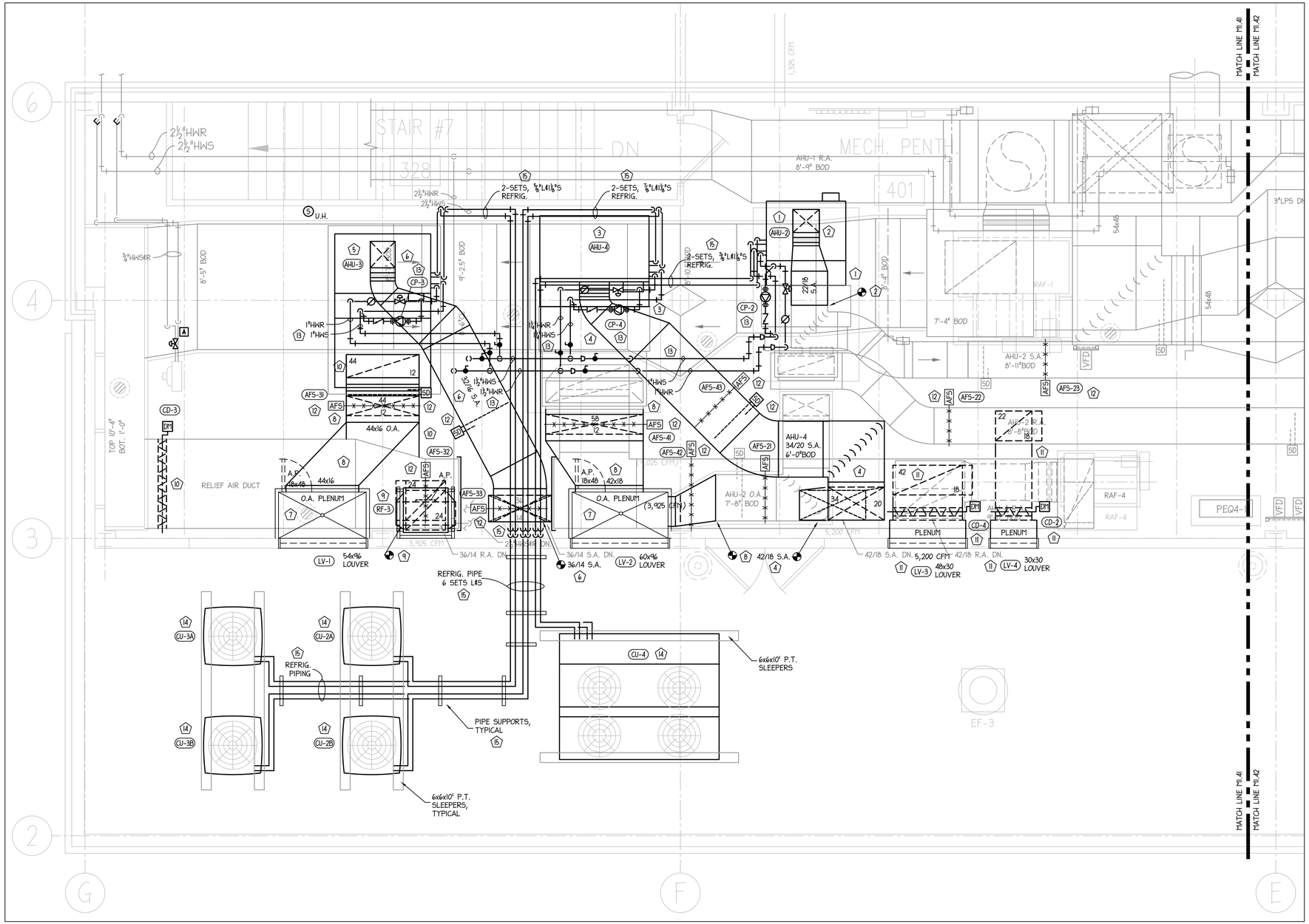
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MECHANICAL
THIRD FLOOR
NEW WORK PLAN

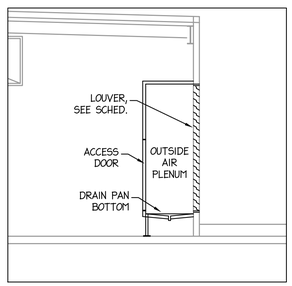
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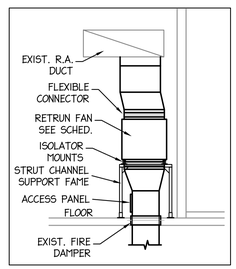
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1 MECHAINCAL - PENTHOUSE LEVEL NEW WORK PLAN
3/8"=1'-0"



2 SECTION - PROPOSED O.A. PLENUM
1/4"=1'-0"



3 SECTION - PROPOSED R.A. FAN
1/4"=1'-0"

CONSTRUCTION NORTH

MECHANICAL NEW WORK LEGEND

NEW MECHANICAL TO BE FURNISHED AND INSTALLED

EXISTING MECHANICAL TO REMAIN

⑤ MECHANICAL SPECIFIC NEW WORK NOTES:

1. PROVIDE AND INSTALL NEW AIR HANDLER SECTIONS FOR A.H.U.-2, SEE EQUIPMENT SCHEDULES. PROVIDE ALL REQUIRED EQUIPMENT AND LABOR TO HOIST AND RIG THE UNITS SECTIONS INTO THE PENTHOUSE AND IN POSITION ON THE EXISTING PAD. FABRICATE A FLAT ADAPTER FRAME TO MATE THE PROPOSED ACCESS SECTION TO THE EXISTING FILTER SECTION. INSTALL THE PROPOSED VERTICAL COIL AND FAN SECTIONS WITH SPRING ISOLATORS. ADJUST MOUNTING HEIGHT TO MATCH EXISTING SECTIONS. COORDINATE WITH THE ELECTRICAL AND CONTROLS CONTRACTORS FOR CONNECTIONS.

2. PROVIDE AND INSTALL A NEW SECTION OF SUPPLY AIR DUCTWORK FROM THE NEW A.H.U.-2 FAN TO THE EXISTING DUCT SECTIONS. CONNECT TO THE UNIT AND ELBOW TO HORIZONTAL, INSTALL A FLEXIBLE CONNECTOR AT THE UNIT OR AFTER THE ELBOW AS SPACE ALLOWS. PROVIDE TRANSITION AND RECONNECT TO THE EXISTING DUCT. DUCTWORK AND INSULATION TO BE PER THE SPECIFICATIONS.

3. PROVIDE AND INSTALL NEW AIR HANDLER SECTIONS FOR A.H.U.-4, SIMILAR TO AS NOTED FOR A.H.U.-2 ABOVE. FABRICATE A FLAT ADAPTER FRAME TO MATE THE PROPOSED ACCESS SECTION TO THE EXISTING FILTER SECTION. INSTALL THE PROPOSED VERTICAL COIL AND FAN SECTIONS WITH SPRING ISOLATORS. ADJUST MOUNTING HEIGHT TO MATCH EXISTING SECTIONS. FIELD RELOCATE THE VFD AND CONTROL PANEL TO FRONT OF THE UNIT. COORDINATE WITH THE ELECTRICAL AND CONTROLS CONTRACTORS FOR CONNECTIONS.

4. PROVIDE AND INSTALL NEW SUPPLY AIR DUCTWORK FROM THE NEW A.H.U.-4 FAN, OVER AND DOWN TO THE EXISTING DUCT DROP THROUGH THE FLOOR. PROVIDE A FLEXIBLE CONNECTOR AT THE UNIT. TRANSITION TO THE EXISTING DUCT NEAR THE FLOOR LEVEL AND INSTALL AN ACCESS PANEL FOR FIRE DAMPER ACCESS.. MAINTAIN MAXIMUM DUCT ELEVATION ABOVE FLOOR.

5. PROVIDE AND INSTALL A NEW MODULAR AIR HANDLER TO REPLACE A.H.U.-3, SEE EQUIPMENT SCHEDULES. COORDINATE WITH THE GENERAL TRADES CONTRACTOR FOR A CONCRETE MOUNTING PAD. PROVIDE THE UNIT IN SECTIONS THAT CAN FIT THROUGH THE O.A. PLENUM LOUVER OPENING. RIG THE UNIT INTO POSITION AND ASSEMBLE. PROVIDE SPRING MOUNTS. FIELD RELOCATE THE VFD AND CONTROL PANEL TO FRONT OF THE UNIT. COORDINATE WITH THE ELECTRICAL AND CONTROLS CONTRACTORS FOR CONNECTIONS.

6. PROVIDE AND INSTALL NEW SUPPLY AIR DUCTWORK FROM THE NEW A.H.U.-3 FAN, OVER AND DOWN TO THE EXISTING DUCT DROP THROUGH THE FLOOR. PROVIDE A FLEXIBLE CONNECTOR AT THE UNIT. TRANSITION TO THE EXISTING DUCT NEAR THE FLOOR LEVEL AND RECONNECT WITH ACCESS PANEL. MAINTAIN MAXIMUM DUCT ELEVATION ABOVE FLOOR.

7. FABRICATE AND INSTALL NEW OUTSIDE AIR INTAKE PLENUMS AS INDICATED. PROVIDE LOUVERS TO THE GENERAL TRADES CONTRACTOR FOR INSTALLATION. FABRICATE PLENUMS WITH SLOPED BOTTOMS AND DRAIN CONNECTIONS, 1 1/4" SIZE. FABRICATE SIDE PANELS WITH REINFORCING SPINES AND TOP PANEL. PROVIDE ACCESS DOORS EQUAL TO "A.J. MANUFACTURING", AD-K 1.7" THERMAL BREAK, DOUBLE WALL (R-11) CAKE-PAN DESIGN WITH S.S. HARDWARE. INSULATE PLENUM PER THE SPECIFICATIONS.

8. FABRICATE AND INSTALL NEW OUTSIDE AIR INTAKE DUCTWORK FROM THE PROPOSED PLENUMS TO THE NEW AND EXISTING AIR HANDLER UNITS. SET BOTTOM OF DUCTS AT APPROXIMATELY 7'-8". SET DOWN AND CONNECT TO THE UNITS MIXING BOX O.A. OPENING. CONNECT THE A.H.U.-2 O.A. DUCT TO EXISTING SECTIONS, TRANSITION AS REQUIRED. FABRICATE AND INSULATE DUCT PER THE SPECIFICATIONS.

9. PROVIDE AND INSTALL A NEW RETURN AIR FAN FOR THE A.H.U-3 SYSTEM, SEE EQUIPMENT SCHEDULES. FABRICATE A STRUT MOUNTING FRAME TO SUPPORT UNIT FROM THE FLOOR. CONNECT TO EXISTING DUCT NEAR FLOOR LEVEL AND TRANSITION TO FAN INLET SIZE, CONNECT WITH FLEXIBLE CONNECTOR. PROVIDE NEW ACCESS PANEL NEAR FLOOR. MOUNT FAN ON FRAME AND RUN DUCTWORK UP AND CONNECT INTO THE UNDER SIDE OF THE RETURN DUCT ABOVE WITH 45 DEGREE LEADING EDGE TAKE-OFF.

10. PROVIDE AND INSTALL NEW RETURN AIR DUCT FROM THE EXISTING TO A.H.U.-3. RUN OVER AND SET DOWN TO THE UNIT, TRANSITION TO UNIT OPENING SIZE. INSTALL A NEW RELIEF AIR DAMPER IN THE EXISTING DUCT WHERE INDICATED, SEE EQUIPMENT SCHEDULES.

11. PROVIDE AND INSTALL NEW RELIEF AIR DISCHARGE LOUVERS AND DUCTWORK FOR AIR HANDLER UNITS #2 & 4. PROVIDE LOUVERS TO THE GENERAL TRADES CONTRACTOR FOR INSTALLATION, MOUNT TOP 9'-0"+/- ABOVE FLOOR. FABRICATE PLENUMS FULL SIZE OF LOUVER OPENING BY 12"+/- DEEP, WITH BOTTOM SLOPED TO DRAIN OUT. INSTALL NEW TAKE-OFFS ON THE BOTTOM OF THE A.H.U.-2 & 4 RETURN AIR DUCTS AND INSTALL DUCT TO THE PLENUMS WITH CONTROL DAMPERS AS INDICATED. FABRICATE DUCT PER THE SPECIFICATIONS. INSULATE PLENUMS AND DUCT TO BEYOND THE DAMPERS PER THE SPECIFICATIONS.

12. PROVIDE AND INSTALL AIR FLOW STATIONS IN THE OUTSIDE AIR, SUPPLY AND RETURN AIR DUCTS FOR EACH OF THE SYSTEMS, SEE EQUIPMENT SCHEDULES. REVIEW MOUNTING LOCATIONS WITH THE ENGINEER IN THE FIELD. INSTALL THE DUCT SMOKE DETECTORS PROVIDED BY THE ELECTRICAL CONTRACTOR, PER THEIR DIRECTION.

13. PROVIDE AND INSTALL NEW HEATING WATER SUPPLY AND RETURN PIPING TO SERVE THE PROPOSED UNITS. TAP NEW BRANCHES FROM THE EXISTING LINES, APPROXIMATELY AS INDICATED, WITH ISOLATION VALVES. RUN BRANCH PIPING TO EACH UNIT. INSTALL VALVES AND SPECIALTIES PER THE COIL DIAGRAM, OBTAIN CONTROL VALVE FROM THE CONTROLS CONTRACTOR. INSTALL THE FREEZE PROTECTION CIRCULATOR WITH CHECK VALVE AS INDICATED, SEE EQUIPMENT SCHEDULES. PIPING AND INSULATION TO BE PER THE SPECIFICATIONS.

14. PROVIDE AND INSTALL NEW SPLIT SYSTEM CONDENSINGS UNIT ON THE ROOF, SEE EQUIPMENT SCHEDULES. COORDINATE WITH THE GENERAL TRADES CONTRACTOR TO PROVIDE AND INSTALL DUNNAGE, TO SUPPORT THE UNITS. PROVIDE ALL EQUIPMENT AND LABOR AS REQUIRED TO HOIST AND RIG THE UNIT ON THE DUNNAGE. MOUNT SMALLER UNITS WITH DOUBLE DEFLECTION NEOPRENE MOUNTS AND THE LARGER UNIT WITH SPRING ISOLATORS, PROPERLY SIZE PER UNIT WEIGHTS. COORDINATE FOR POWER AND CONTROL CONNECTIONS.

15. PROVIDE AND INSTALL NEW REFRIGERANT PIPING FROM THE PROPOSED CONDENSING UNITS TO THE AIR HANDLER COILS. RUN PIPING FROM THE CONDENSING UNITS INTO THE BUILDING, SET UP OVER THE SUPPLY DUCT AND UNDER THE RETURN. SET DOWN AT THE WALL NEAR THE UNITS AND OVER TO COIL CONNECTIONS. PIPING SIZING AND CONFIGURATION TO BE PER THE MANUFACTURE'S REQUIREMENTS. PIPING, INSULATION AND JACKETING TO BE PER THE SPECIFICATIONS. SUPPORT PIPING ON ROOF 4' O.C MAXIMUM, SEE SPECIFICATIONS FOR MOUNT REQUIREMENTS.

16. PROVIDE THE SERVICES OF A CONTROLS CONTRACTOR TO PROVIDE AND INSTALL A COMPLETE SYSTEM OF CONTROLS FOR ALL OF THE PROPOSED HVAC EQUIPMENT. SEE CONTROLS DRAWINGS AND SPECIFICATIONS FOR MORE COMPLETE SCOPE OF WORK.

17. PROVIDE THE SERVICES OF A TESTING AND BALANCE CONTRACTOR TO MEASURE, ADJUST AND BALANCE THE PROPOSED HVAC EQUIPMENT AND SYSTEMS. GENERALLY THE AIR HANDLER UNITS WILL OPERATE AS CONSTANT VOLUME WITH OCCUPIED AND UNOCCUPIED VALUES. WORK WITH THE CONTROLS CONTRACTOR TO SET ALL OCC./UNOCC. VALUES AND MEASURE AIR VOLUME AND STATIC PRESSURE FOR EACH OUTSIDE AIR, SUPPLY AIR AND RETURN AIR DUCT. CALIBRATE AIR FLOW STATIONS. PROVIDE FULL UNIT PROFILES FOR EACH SYSTEM, INCLUDING THE EXISTING RETURN FANS. RECORD SUPPLY AND RETURN FAN OPERATING CONDITIONS AND FAN DATA. RETURN FANS ARE TO TRACK THE SUPPLIES. BALANCE HEATING COIL MAXIMUM FLOWS TO DESIGN VALUES. PERFORM ALL WORK AND PROVIDE REPORTS PER THE SPECIFICATIONS.

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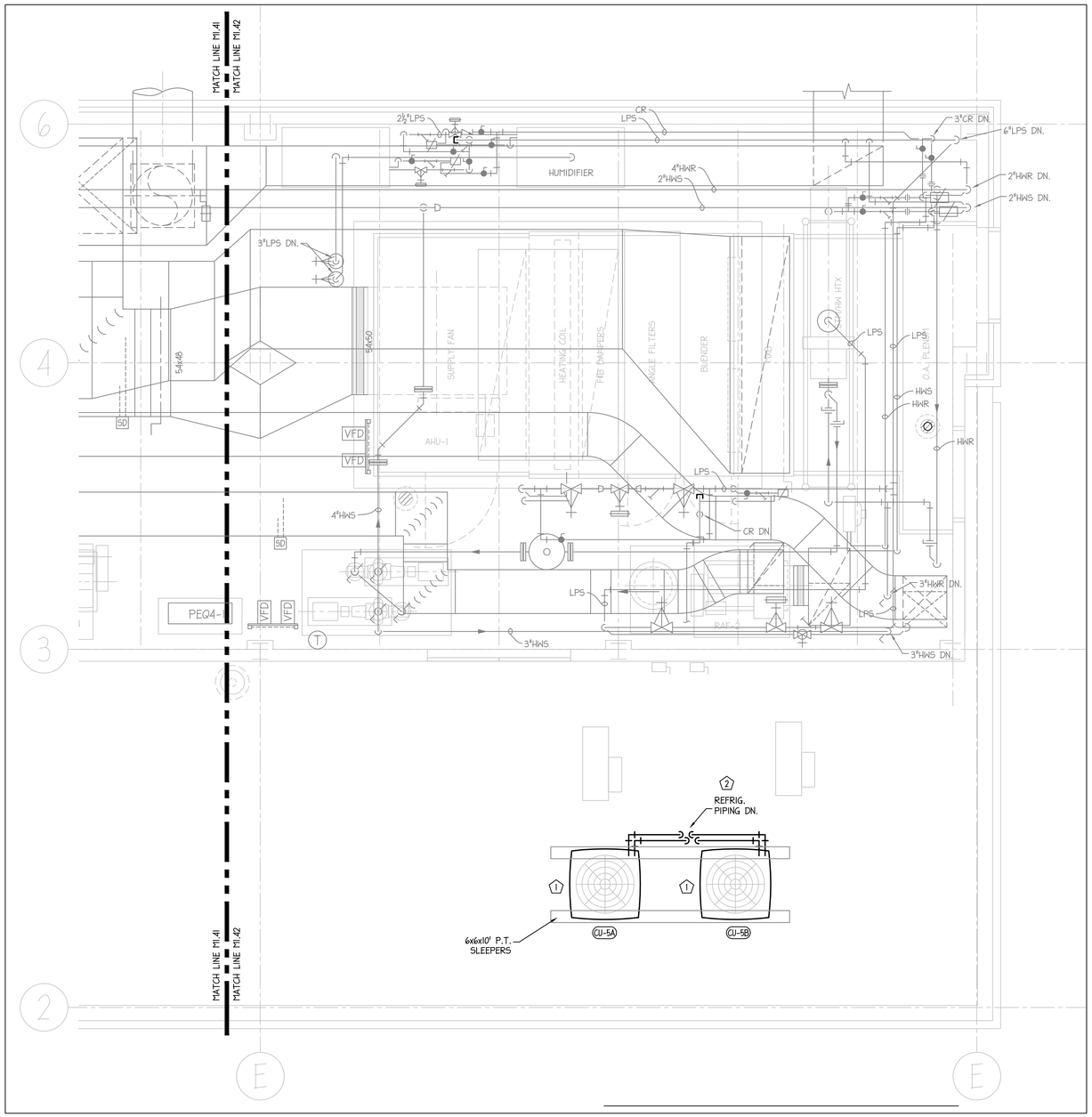
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MECHANICAL - PENTHOUSE LEVEL NEW WORK PLAN

ALTERNATE

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1 MECHAINCAL - PENTHOUSE LEVEL NEW WORK PLAN
3/8"=1'-0"

MECHANICAL NEW WORK LEGEND

- NEW MECHANICAL TO BE FURNISHED AND INSTALLED
- EXISTING MECHANICAL TO REMAIN

② MECHANICAL SPECIFIC NEW WORK NOTES:

1. PROVIDE AND INSTALL NEW SPLIT SYSTEM CONDENSING UNITS ON THE ROOF, SEE EQUIPMENT SCHEDULES. COORDINATE WITH THE GENERAL TRADES CONTRACTOR TO PROVIDE AND INSTALL DUNNAGE, TO SUPPORT THE UNITS. PROVIDE ALL EQUIPMENT AND LABOR AS REQUIRED TO HOIST AND RIG THE UNIT ON THE DUNNAGE. MOUNT SMALLER UNITS WITH DOUBLE DEFLECTION NEOPRENE MOUNTS AND THE LARGER UNIT WITH SPRING ISOLATORS, PROPERLY SIZE PER UNIT WEIGHTS. COORDINATE FOR POWER AND CONTROL CONNECTIONS.

2. PROVIDE AND INSTALL NEW REFRIGERANT PIPING FROM THE PROPOSED CONDENSING UNITS TO THE AIR HANDLER COILS. RUN PIPING FROM THE CONDENSING UNITS DOWN THROUGH THE ROOF, INTO THE BUILDING. COORDINATE WITH THE GENERAL TRADES CONTRACTOR FOR FLASHING. CONTINUE THE PIPING TO THE A.H.U. ON THE LEVELS BELOW. PIPING SIZING AND CONFIGURATION TO BE PER THE MANUFACTURE'S REQUIREMENTS. PIPING, INSULATION AND JACKETING TO BE PER THE SPECIFICATIONS. SUPPORT PIPING ON ROOF 4' O.C MAXIMUM, SEE SPECIFICATIONS FOR MOUNT REQUIREMENTS.

CONSTRUCTION NORTH

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MECHANICAL - PENTHOUSE LEVEL NEW WORK PLAN

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LEGEND

SYMBOL	DESCRIPTION
AFS	AIR FLOW STATION
CO	CARBON MONOXIDE SENSOR
CS	CURRENT SENSOR
DM	DAMPER MOTOR ACTUATOR
DPT	DIFFERENTIAL PRESSURE TRANSMITTER
DD	DUCT SMOKE DETECTOR (FURNISHED BY OTHERS)
DP	DIFFERENTIAL PRESSURE TRANSMITTER
SP	STATIC PRESSURE TRANSMITTER
FC	FLOAT CONTROLLER
FM	FLOW METER
FS	FREEZE STAT
HL	HUMIDITY HIGH LIMIT SWITCH
MG	MAGNEHELIC
PT	PRESSURE TRANSMITTER
RLD	REFRIGERANT ALARM SENSOR
RH	RELATIVE HUMIDITY SENSOR
SW	MOMENTARY CONTACT SWITCH
T	TEMPERATURE SENSOR
V	VALVE ACTUATOR
VPT	VELOCITY PRESSURE TRANSMITTER
◇#	SPECIFIC NOTE
	THERMOMETER WELL
=V	MOTORIZED BUTTERFLY VALVE
ATC	AUTOMATIC TEMPERATURE CONTROLS
CAV	CONSTANT AIR VOLUME
DDC	DIGITAL TEMPERATURE CONTROLS
CAV	CARBON MONITOR VOLUME
HWS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
EA	EXHAUST AIR
EAD	EXHAUST AIR DAMPER
FF	FINAL FILTER
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NSR	NON-SPRING RETURN
OA	OUTDOOR AIR
OAD	OUTDOOR AIR DAMPER
PF	PRE-FILTER
PHC	PRE-HEAT COIL
RA	RETURN AIR
RAF	RETURN AIR FAN
RHC	RE-HEAT COIL
SA	SUPPLY AIR
SAF	SUPPLY AIR FAN
SR	SPRING RETURN
VAV	VARIABLE AIR VOLUME

DIRECT DIGITAL CONTROLS GENERAL NOTES

1. THE CONTROLS CONTRACTOR SHALL PROVIDE ALL THE NECESSARY MATERIALS, LABOR AND ACCESSORIES IN ORDER TO PROVIDE A COMPLETE WORKING DIRECT DIGITAL CONTROLS SYSTEM.

2. PROVIDE A COMPLETE AND OPERATIONAL DIRECT DIGITAL CONTROLS SYSTEM INCLUDING ALL REQUIRED WIRING, PROGRAMMING, DEVICES, AND OPERATIONS MANUALS. THE CONTROLS CONTRACTOR'S WORK SHALL INCLUDE BUT NOT BE LIMITED TO: PROVIDING SENSORS FOR THE CONTROLS SYSTEM, AUTOMATIC CONTROL VALVES AND ACTUATORS, CONTROL MODULE(S), CONDUCTORS, CONDUIT, "FRONT END" GRAPHICS, PROGRAMMING, CONNECTION TO THE COMMUNICATIONS BUS, WEB ACCESS AND WEB PORTAL.

3. THE CONTROLS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONTROLS CONDUIT. ALL CONTROLS CONDUCTORS SHALL BE INSTALLED WITHIN E.M.T. OR FLEXIBLE METAL CONDUIT. THE CONTROLS CONDUIT SHALL BE A MINIMUM OF 3/4" EMT. FINAL DROPS TO TEMPERATURE SENSORS MAY BE IN 1/2" EMT. ALL CONTROL WIRING SHALL BE IN CONDUIT.

4. EXTEND TEMPERATURE CONTROLS COMMUNICATION BUS TO CONTROL MODULE LOCATIONS IN E.M.T.

5. A MAXIMUM DISTANCE OF 6'-0" SHALL BE PERMITTED FOR UTILIZING FLEXIBLE METAL CONDUIT OR SEAL TIGHT CONDUIT.

6. THE CONTROLS SYSTEM SHALL INCLUDE A WEB ACCESS SYSTEM INCLUDING ALL REQUIRED EQUIPMENT AND PROGRAMMING TO ALLOW ALL SYSTEMS TO BE ACCESSED AND MODIFIED THROUGH THE WEB. THE CONTROLS CONTRACTOR SHALL NOT BE RESPONSIBLE FOR THE COMMUNICATIONS CONDUCTOR FROM THE IT SYSTEM.

7. PROVIDE CONTROLS TO ACCOMMODATE CONTROLS POINTS LIST AND SEQUENCE OF OPERATIONS.

8. ALL CONTROLS CONDUCTORS SHALL BE EXTENDED TO THE TEMPERATURE CONTROLS PANELS.

9 ALL CONTROLS MODULES SHALL BE MOUNTED IN A PROTECTIVE ENCLOSURE.

10. PROVIDE TIME CLOCK PROGRAM FOR THE CONTROL SYSTEM.

11. THE CONTROLS CONTRACTOR SHALL BE PRESENT DURING THE FINAL BALANCE OF THE NEW AIR HANDLING SYSTEMS.

12. COORDINATE LOCATION OF ALL THERMOSTATS, TEMPERATURE SENSORS, CO2 SENSORS, AND CONTROL VALVES IN FIELD. VERIFY LOCATION WITH ENGINEER PRIOR TO INSTALLATION.

13. THE TEMPERATURE CONTROLS CONTRACTOR IS REPONSIBLE FOR ASSISTING THE COMMISSIONING AGENT DURING THE COMMISSIONING PROCESS. THE TEMPERATURE CONTROLS CONTRACTOR SHALL WORK IN CONJUNCTION WITH THE COMMISSIONING AGENT TO COMPLETE THE PRE-FUNCTIONAL TEST SHEETS FOR ALL EQUIPMENT AND SYSTEMS TO BE COMMISSIONED. THE TEMPERATURE CONTROLS CONTRACTOR SHALL BE PRESENT TO ASSIST THE COMMISSIONING AGENT DURING THE SYSTEM AND EQUIPMENT FUNCTIONAL TESTING PERIOD.

15. THE TEMPERATURE CONTROLS CONTRACTOR IS RESPONSIBLE FOR ASSISTING THE TESTING AND BALANCE AGENT DURING THE BALANCING PROCESS. THE TEMPERATURE CONTROLS CONTRACTOR SHALL WORK IN CONJUNCTION WITH THE TESTING AND BALANCE AGENT TO COMPLETE THE BALANCE AND CALIBRATION OF ALL SYSTEMS.

16. THE CONTROLS CONTRACTOR SHALL FURNISH AND INSTALL ALL REQUIRED FRONT-END GRAPHICS AND PROGRAMMING TO DISPLAY AT THE OWNER'S EXISTING OPERATOR'S STATION.

17. THE CONTROLS CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING POWER AND CONTROLS TRANSFORMERS FOR ALL PROJECT BUILDING AUTOMATION SYSTEM CONTROLS PANELS AND CONTROLLERS. THE CONTROLS CONTRACTOR SHALL COORDINATE POWER REQUIREMENTS AND CONTROLS TRANSFORMER(S) SIZE(S) WITH THE ELECTRICAL CONTRACTOR PRIOR TO BID.

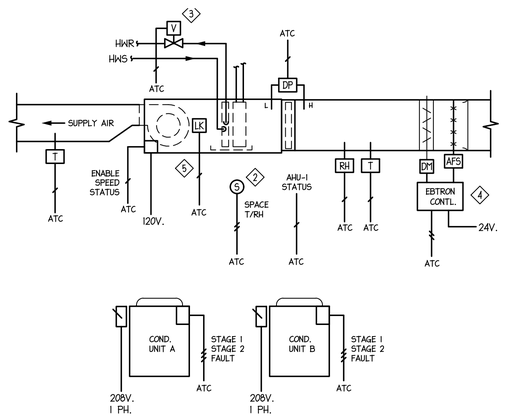
18. ALL POINTS LISTS SHOWN SHALL BE CONTROLLED FROM A SINGLE CONTROLLER OR MULTIPLE CONTROLLERS HARD-WIRED TOGETHER. THE BROADCASTING OF POINTS OVER THE COMMUNICATIONS BUS IS NOT ACCEPTABLE.

PROJECT SPECIFIC NOTES:

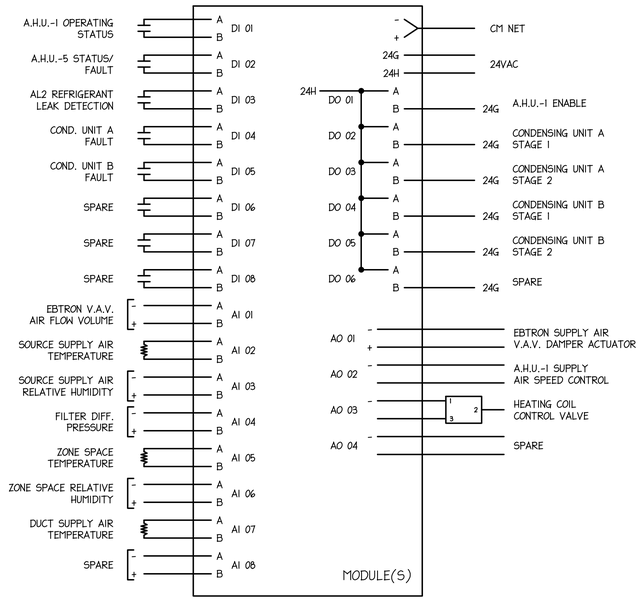
1. THE ONLY APPROVED CONTROLS VENDORS FOR THIS PROJECT ARE AUTHORIZED "JOHNSON CONTROLS" INSTALLERS..

2. SUBMIT COMPLETE CONTROLS EQUIPMENT DATA, DIAGRAMS AND SEQUENCES OF OPERATION, FOR REVIEW AND APPROVAL PRIOR TO START OF WORK.

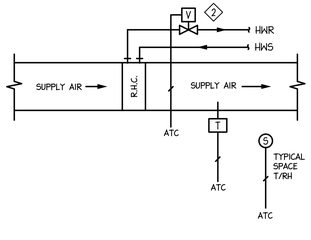
3. THE CONTROLS CONTRACTOR SHALL SCHEDULE A MANDATORY SCOPE REVIEW COORDINATION MEETING THROUGH THE MECHANICAL CONTRACTOR, PRIOR TO SHOP DRAWING SUBMITTAL, A MINIMUM OF THREE (3) WEEKS PRIOR TO THE START OF ANY WORK. CONTRACTOR TO PRESENT HIS UNDERSTANDING OF THE SCOPE, AND A COMPLETE WORK SCHEDULE, INCLUDING ANY PRODUCT LEAD TIMES.



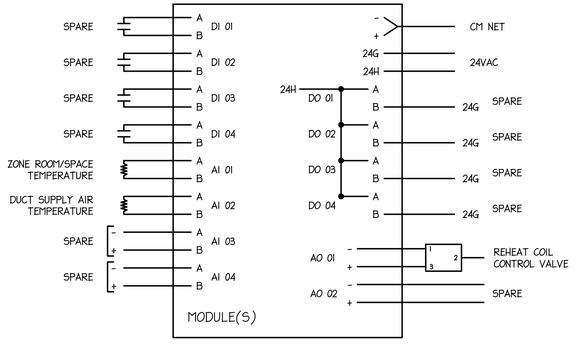
1 AIR HANDLER UNIT AHU-5 SYSTEM CONTROLS SCHEMATIC
N.T.S.



2 A.H.U.-5 SYSTEM CONTROLS POINTS SCHEMATIC
N.T.S.



3 REHEAT COIL CONTROLS SCHEMATIC
N.T.S.



4 REHEAT COIL CONTROLS POINTS SCHEMATIC
N.T.S.

SEQUENCE OF OPERATIONS

DEFAULT CONDITIONS;
UNIT SUPPLY AND ASSOCIATED RETURN FAN ARE OFF. THE CONDENSING UNIT IS OFF. THE VOLUME CONTROL DAMPER WILL BE IN THE CLOSED POSITION. THE HEATING WATER CONTROL VALVE IS CLOSED.

START-UP;
PROVIDE A PROGRAMMED TIME CLOCK SCHEDULE TO INDICATE NORMAL OCCUPIED AND UNOCCUPIED HOURS. PROGRAM TO INCLUDE WEEKENDS AND HOLIDAYS PER THE OWNER'S SCHEDULE.
THE UNIT SHALL BE COMMANDED TO START FROM THE OPERATOR STATION. UNIT SHALL ONLY BE ALLOWED TO START WHEN AHU-1 IS OPERATING. ON COMMAND TO START THE VOLUME CONTROL DAMPER WILL COME UNDER CONTROL AND MODULATE OPEN TO UNOCCUPIED VALUES. THE SUPPLY FAN SHALL BE STARTED AND RAMP UP TO UNOCCUPIED AIR VOLUME (60% OF DESIGN).

UNOCCUPIED PERIODS;
DURING UNOCCUPIED PERIODS THE UNIT SUPPLY AIR VOLUME SET POINT SHALL BE 60% OF OCCUPIED VALUES AS NOTED ABOVE. THE HEATING COIL CONTROL VALVE SHALL BE MODULATED OPEN TO MAINTAIN A DISCHARGE AIR TEMPERATURE AS REQUIRED TO SATISFY NIGHT SET BACK SPACE TEMPERATURE SET POINT. COOLING TO REMAIN OFF.

OCCUPIED PERIODS;
THE VOLUME CONTROL DAMPER AND SUPPLY AIR FANS SHALL OPEN AND RAMP UP TO DESIGN VOLUMES.

HEATING - THE HEATING COIL CONTROL VALVE SHALL MODULATE TO MAINTAIN SPACE SET POINT. AVERAGE THE SENSOR READINGS TO PROVIDE AN OPERATING INPUT.

COOLING - WHEN SPACE TEMPERATURES RISE ABOVE SET POINT (AVERAGE SENSORS), THE CONDENSING UNITS SHALL BE CALLED ON IN STAGES AS REQUIRED TO MAINTAIN SET POINT.

DEHUMIDIFICATION - WHEN ZONE/SPACE RELATIVE HUMIDITY RISES ABOVE SET POINT THE COOLING CAPACITY SHALL BE INCREASED AS REQUIRED TO REDUCE SPACE HUMIDITY. THE HEATING COIL CONTROL VALVE SHALL MODULATE OPEN AT REQUIRED TO MAINTAIN A MINIMUM DISCHARGE AIR TEMPERATURE SET POINT (57° ADJ.).

REFRIGERANT LEAK DETECTION, FIRE ALARM "ALARM" STATUS OR FAN FAILURE, SHALL SHUT-DOWN THE SYSTEM. PROVIDE A PROGRAMMED FILTER D.P. SETTING TO ALARM ON FILTER LOADING.

ALARM POINTS

SUPPLY AIR FAN FAIL
S.A. VOLUME OUT OF RANGE
CONDENSING UNIT A FAIL
CONDENSING UNIT B FAIL
DISCHARGE AIR TEMP. LOW/HIGH
SPACE TEMPERATURE LOW
SPACE TEMPERATURE HIGH
SPACE HUMIDITY HIGH
REFRIGERANT LEAK

◇# NOTES

1. POINTS LISTED IN THESE SCHEMATICS ARE TYPICAL FOR EACH SYSTEM, EXCEPT AS NOTED.

2. PROVIDE SPACE TEMPERATURE AND HUMIDITY SENSORS WITH LIMITED ACCESSIBLE LOCAL ADJUSTMENT AND WITH A DIGITAL TEMPERATURE DISPLAY. WALL MOUNT AT 54"+/- A.F.F. LABEL WITH ZONE NUMBER.

3. PROVIDE CONTROL VALVES TO THE MECHANICAL CONTRACTOR FOR INSTALLATION. CALCULATE FINAL SIZING FOR ALL VALVES. CONTROL VALVES TO CHARACTERIZED BALL TYPE WITH BRASS BODY, STAINLESS STEEL BALL AND TRIM, EQUAL TO "BELIMO" "B2" SERIES. PROVIDE WITH MODULATING, ACTUATOR, FAIL LAST.

4. PROVIDE THE "EBTRON" FLOW CONTROL STATION TO THE MECHANICAL CONTRACTOR FOR INSTALLATION. SEE EQUIPMENT SCHEDULES. AIR FLOW READINGS TO BE CALIBRATED WITH AIR BALANCE READINGS.

5. PROVIDE AND INSTALL A "AL2" REFRIGERANT LEAK SENSOR IN THE AIR HANDLER, DOWN STREAM OF THE Dx COIL. CONNECT TO THE CONTROLS SYSTEM FOR UNIT SHUT DOWN AND SYSTEM ALARM.

SEQUENCE OF OPERATIONS

START-UP;
THE REHEAT COIL SHALL BE UNDER CONTROL AT ALL TIMES. WHEN SPACE TEMPERATURE DROPS BELOW SET POINT THE REHEAT COIL CONTROL VALVE SHALL BE MODULATED OPEN AS REQUIRED TO MAINTAIN SET POINT.
PROVIDE OCCUPIED AND UNOCCUPIED SPACE TEMPERATURE SET POINTS.

ALARM POINTS

SPACE TEMPERATURE LOW

◇# NOTES

1. PROVIDE SPACE TEMPERATURE SENSORS WITH LIMITED ACCESSIBLE LOCAL ADJUSTMENT AND WITH A DIGITAL TEMPERATURE DISPLAY. WALL MOUNT AT 54"+/- A.F.F. LABEL WITH ZONE NUMBER.

2. PROVIDE CONTROL VALVE TO THE MECHANICAL CONTRACTOR FOR INSTALLATION. CALCULATE FINAL SIZING FOR ALL VALVES. CONTROL VALVES TO CHARACTERIZED BALL TYPE WITH BRASS BODY, STAINLESS STEEL BALL AND TRIM, EQUAL TO "BELIMO" "B2" SERIES. PROVIDE WITH FAIL LAST TYPE ACTUATOR.

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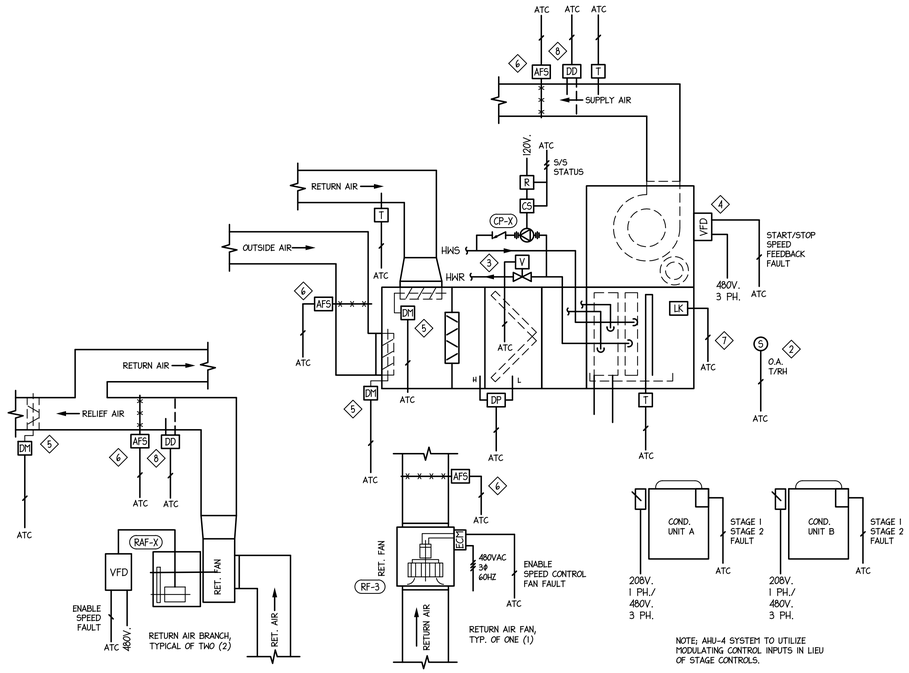
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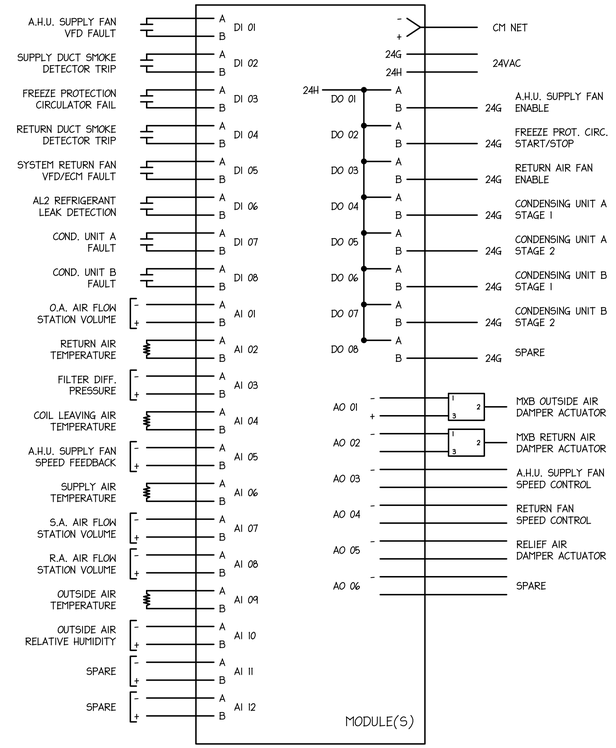
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MECHANICAL - CONTROLS, NOTES, LEGEND & SCHEMATICS

ALTERNATE

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5 TYPICAL AIR HANDLER UNIT SYSTEM CONTROLS SCHEMATIC
N.T.S.



6 TYP. A.H.U. SYSTEM CONTROLS POINTS SCHEMATIC
N.T.S.

SEQUENCE OF OPERATIONS

DEFAULT CONDITIONS;
UNIT SUPPLY AND ASSOCIATED RETURN FAN ARE OFF. THE CONDENSING UNITS ARE OFF. THE RETURN AIR DAMPER IS FULL OPEN, THE OUTSIDE AIR AND RELIEF AIR DAMPERS ARE CLOSED. THE HEATING WATER CONTROL VALVE IS MODULATED TO MAINTAIN 57° F (ADJ.) IN THE UNIT CASING.

START-UP;
PROVIDE A PROGRAMMED TIME CLOCK SCHEDULE TO INDICATE NORMAL OCCUPIED AND UNOCCUPIED HOURS. PROGRAM TO INCLUDE WEEKENDS AND HOLIDAYS PER THE OWNER'S SCHEDULE.
THE UNIT SHALL BE COMMANDED TO START FROM THE OPERATOR STATION. ON COMMAND TO START THE SUPPLY FAN AND RETURN FAN SHALL BE STARTED AND RAMP UP TO UNOCCUPIED DESIGN AIR VOLUMES.

UNOCCUPIED PERIODS;
DURING UNOCCUPIED PERIODS THE UNIT SUPPLY AIR VOLUME SET POINT SHALL BE 60% OF OCCUPIED VALUES. SUPPLY AND RETURN VOLUMES TO BE EQUAL. DAMPERS TO REMAIN IN DEFAULT POSITIONS. THE HEATING COIL CONTROL VALVE SHALL BE MODULATED OPEN AS REQUIRED TO MAINTAIN A DISCHARGE AIR TEMPERATURE RESET SCHEDULE. COOLING TO REMAIN OFF.

OCCUPIED PERIODS;
THE SUPPLY AIR AND RETURN FANS SHALL RAMP UP TO DESIGN VOLUMES. THE MIXED AIR DAMPERS SHALL MODULATE, TO OPEN THE OUTSIDE AIR DAMPER TO MINIMUM OUTSIDE AIR VOLUME POSITION WITH THE RETURN AND RELIEF DAMPERS OPEN/CLOSED ACCORDINGLY. THE RETURN FAN SPEED SHALL ADJUST TO A PROGRAMMED OFFSET BELOW THE SUPPLY AIR VOLUME (INITIAL SETTING 90%).

HEATING - THE HEATING COIL CONTROL VALVE SHALL MODULATE TO MAINTAIN A CALCULATED RESET SUPPLY AIR DISCHARGE TEMPERATURE. WHEN OUTSIDE AIR TEMPERATURES ARE BELOW 38° F THE FREEZE PROTECTION CIRCULATOR SHALL BE STARTED AND RUN CONTINUOUSLY. LOW COIL LEAVING AIR TEMPERATURES SHALL OVERRIDE THE CONTROL VALVE OPEN. A FURTHER DROP IN LEAVING. TEMPERATURE BELOW A PROGRAMMED SET POINT SHALL SHUT-DOWN THE SYSTEM. DISCHARGE AIR SET POINT SHALL BE RESET BASED ON OUTSIDE AIR TEMPERATURE, 57° @ 60° O.A., 63° @ 0.0°.
NOTE; ZONE SPACE REHEAT COIL AND FIN TUBE RADIATION CONTROL TO REMAIN AS EXISTING.

COOLING - WHEN DISCHARGE AIR TEMPERATURE RISES ABOVE CALCULATED SET POINT, AND OUTDOOR AIR CONDITIONS ARE BELOW SET POINT, THE UNIT SHALL GO INTO ECONOMIZER MODE. THE OUTSIDE AIR DAMPER AND RELIEF AIR DAMPERS SHALL MODULATE OPEN AND THE RETURN AIR DAMPER, CLOSED, UP TO 100% OUTSIDE AIR.
WHEN DISCHARGE AIR SET POINT CAN NO LONGER BE MAINTAINED BY OUTDOOR AIR, THE UNIT SHALL GO INTO MECHANICAL COOLING MODE. THE MIXED AIR DAMPERS SHALL RETURN TO MINIMUM OUTSIDE AIR POSITION AND THE CONDENSING UNITS CALLED ON IN STAGES (OR MODULATED) AS REQUIRED TO MAINTAIN SET POINT. DISCHARGE AIR SET POINT SHALL BE RESET BASED ON OUTSIDE AIR TEMPERATURE, 55° @ 90° O.A., 58° @ 60°. DISCHARGE AIR TEMPERATURE SHALL BE OVERRIDDEN UP UNTIL AT LEAST ONE (1) REHEAT COIL IS NO LONGER CALLING FOR HEATING.

DEHUMIDIFICATION - WHEN RETURN AIR RELATIVE HUMIDITY RISES ABOVE SET POINT THE COOLING CAPACITY SHALL BE INCREASED AS REQUIRED TO REDUCE SPACE HUMIDITY. THE HEATING COIL CONTROL VALVE SHALL MODULATE OPEN AT REQUIRED TO MAINTAIN A MINIMUM DISCHARGE AIR TEMPERATURE SET POINT.

REFRIGERANT LEAK DETECTION, DUCT SMOKE DETECTOR TRIP OR FAILURE OF EITHER FAN SHALL SHUT-DOWN THE SYSTEM. PROVIDE A PROGRAMMED FILTER D.P. SETTING TO ALARM ON FILTER LOADING.

ALARM POINTS

SUPPLY AIR FAN FAIL
RETURN AIR FAN FAIL
FREEZE PROT. CIRC. FAIL
CONDENSING UNIT A FAIL
CONDENSING UNIT B FAIL
O.A. VOLUME OUT OF RANGE
S.A. VOLUME OUT OF RANGE
R.A. VOLUME OUT OF RANGE
COIL LEAVING TEMP. LOW
DISCHARGE AIR TEMP. LOW/HIGH
SPACE TEMPERATURE LOW
SPACE HUMIDITY HIGH

NOTES

1. POINTS LISTED IN THESE SCHEMATICS ARE TYPICAL FOR EACH SYSTEM, EXCEPT AS NOTED.

2. PROVIDE AND INSTALL A COMBINATION OUTDOOR AIR TEMPERATURE AND HUMIDITY SENSOR. MOUNT ON THE NORTH SIDE OF THE BUILDING, WHERE UNAFFECTED BY EQUIPMENT OR BUILDING LOADS. PROVIDE SUN/WIND SHIELD.

3. PROVIDE CONTROL VALVES TO THE MECHANICAL CONTRACTOR FOR INSTALLATION. CALCULATE FINAL SIZING FOR ALL VALVES. CONTROL VALVES TO CHARACTERIZED BALL TYPE WITH BRASS BODY, STAINLESS STEEL BALL AND TRIM, EQUAL TO "BELIMO" "B2" SERIES. PROVIDE WITH MODULATING, ACTUATOR, FAIL LAST.

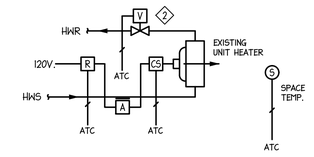
4. VARIABLE FREQUENCY DRIVES ARE MANUFACTURER PROVIDED. PROVIDE CONTROL CONNECTIONS AS INDICATED.

5. GENERALLY THE CONTROL DAMPERS ARE TO BE PROVIDED AND INSTALLED BY THE MECHANICAL CONTRACTOR. THE CONTROLS CONTRACTOR TO PROVIDE AND INSTALL ACTUATORS.

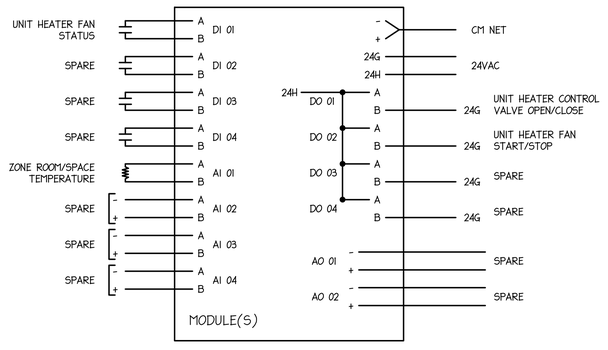
6. PROVIDE AND INSTALL AIR FLOW MONITORING STATIONS AS INDICATED IN THE SCHEMATIC. SEE EQUIPMENT SCHEDULES. REVIEW MOUNTING LOCATIONS WITH THE ENGINEER.

7. PROVIDE AND INSTALL A "AL2" REFRIGERANT LEAK SENSOR IN THE AIR HANDLER, DOWN STREAM OF THE DX COIL. CONNECT TO THE CONTROLS SYSTEM FOR UNIT SHUT DOWN AND SYSTEM ALARM.

8. PROVIDE INPUT SIGNAL FROM THE DUCT SMOKE DETECTORS. COORDINATE WITH THE ELECTRICAL CONTRACTOR FOR AUXILIARY CONTACTS.



7 UNIT HEATER CONTROLS SCHEMATIC
N.T.S.



8 U.H. CONTROLS POINTS SCHEMATIC
N.T.S.

SEQUENCE OF OPERATIONS

START-UP;
WHEN SPACE TEMPERATURE DROPS BELOW SET POINT THE UNIT HEATER SHALL BE CALLED OPERATE.
ON CALL TO START THE HEATING WATER CONTROL VALVE SHALL BE OPENED AND THE FAN RELAY ENGAGED. WHEN THE HEATING WATER TEMPERATURE AT THE AQUASTAT REACHES SET POINT, THE UNIT FAN SHALL BE STARTED. WHEN SPACE TEMPERATURE IS SATISFIED THE HEATING WATER CONTROL VALVE SHALL BE CLOSED. AFTER A 90 SECOND (ADJ.) DELAY THE FAN RELAY SHALL STOP THE FAN.
PROVIDE A PROGRAMMED FAN STATUS DELAY, FROM CALL TO START.

ALARM POINTS

FAN FAIL
SPACE TEMPERATURE LOW

NOTES

1. PROVIDE SPACE TEMPERATURE SENSORS WITH LIMITED ACCESSIBLE LOCAL ADJUSTMENT AND WITH A DIGITAL TEMPERATURE DISPLAY. WALL MOUNT AT 54"+/- A.F.F. LABEL WITH ZONE NUMBER.

2. PROVIDE CONTROL VALVE TO THE MECHANICAL CONTRACTOR FOR INSTALLATION. CALCULATE FINAL SIZING FOR ALL VALVES. CONTROL VALVES TO CHARACTERIZED BALL TYPE WITH BRASS BODY, STAINLESS STEEL BALL AND TRIM, EQUAL TO "BELIMO" "B2" SERIES. PROVIDE WITH TWO POSITION, ACTUATOR, FAIL OPEN.

3. PROVIDE A STRAP-ON TYPE AQUA STAT TO START FAN WHEN HEATING WATER IS FLOWING, FIELD DETERMINE SET POINT.

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MECHANICAL - CONTROLS SCHEMATICS

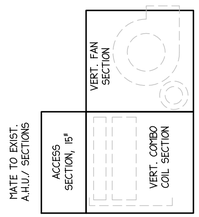
ALTERNATE

M-3.02

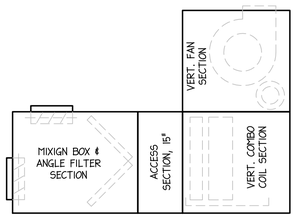
ALTERNATE - MODULAR AIR HANDLER UNIT SCHEDULE

					SUPPLY FAN FAN ARRAY STYLE, 3x2 (6) FANS									PRE-FILTER			HEATING COIL, HOT WATER TYPE									COOLING COIL										FINAL FILTER		
																	AIR SIDE					WATER SIDE				AIR SIDE							REFRIGERANT					
TAG	DESCRIPTION	LOCATION	TOTAL CFM	MINIMUM O.A.	TYPE	CFM	MIN E.S.P.	TOT. S.P.	RPM	MOTOR	VOLTS	Φ	MTR. HP	TYPE	EFF.	OPTIONS	ROWS	F.P.I.	E.A.T	L.A.T	MBH	E.W.T.	L.W.T.	GPM	A.P.D.	ROWS	F.P.I.	E.A.T.	L.A.T.	T.MBH	S.MBH	F.P.M.	A.P.D.	TYPE	SST	TYPE	EFF.	OPTIONS
AHU-2	MODULAR INDOOR AIR HANDLER UNIT	LEVEL 4, (PENTH.)	2,500 CFM	675 CFM	FC BELT	2,500 TOT.	1.5"	2.1"	1,185	ODP, PREM EFF.	480	3	2.0.	EXIST.	-	-	1	8	45.7°F	69.3°F	63.9	170° F	140° F	4.4	0.03"	6 MIN.	10	79.2db/65.2wb	52.9db/52.3wb	95.5	72.7	335	0.30"	R-32	45.0°F	-	-	-
	BASIS OF DESIGN ENVIRO-TEC #MQL																									TWO CIRCUIT INTERTWINED											
AHU-3	MODULAR INDOOR AIR HANDLER UNIT	LEVEL 4, (PENTH.)	3,925 CFM	1,493 CFM	FC BELT	3,925 TOT.	1.5"	2.38"	1,115	ODP, PREM EFF.	480	3	3.0	2" DISP. ANGLE	MERV 8	SIDE ACCESS	1	10	35.8°F	63.0°F	115.6	170° F	140° F	7.9	0.05"	6 MIN.	14	80.6db/66.0wb	52.3db/51.7wb	167.0	122.8	419	0.58"	R-32	45.0°F	-	-	-
	BASIS OF DESIGN ENVIRO-TEC #MQL																									TWO CIRCUIT INTERTWINED											
AHU-4	MODULAR INDOOR AIR HANDLER UNIT	LEVEL 4, (PENTH.)	5,200 CFM	2,012 CFM	FC BELT	3,925 TOT.	1.5"	2.39"	873	ODP, PREM EFF.	480	3	5.0	EXIST.	-	-	1	10	35.2°F	62.9°F	213.3	170° F	140° F	10.7	0.05"	6 MIN.	14	80.6db/66.0wb	52.9db/52.3wb	213.3	159.5	411	0.56"	R-32	45.0°F	-	-	-
	BASIS OF DESIGN ENVIRO-TEC #MQL																									TWO CIRCUIT INTERTWINED											
AHU-5	MODULAR INDOOR AIR HANDLER UNIT	LEVEL 4, (PENTH.)	1,350 CFM	-	FC DIRECT	1,350 TOT.	0.75"	1.17"	1,157	ECM (2)	120	1	0.5 (2)	2" DISP. FLAT	MERV 8	SIDE ACCESS	1	12	55.0°F	100.1°F	66.5	170° F	140° F	4.5	0.06"	3 MIN.	16	88.0db/73.0wb	54.8db/54.4wb	83.6	49.1	335	0.30"	R-32	45.0°F	-	-	-
	BASIS OF DESIGN DAIKIN #BCHD0181																									TWO CIRCUIT INTERTWINED											

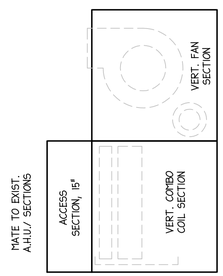
NOTES:
1. CONTRACTOR TO COORDINATE WITH THE MANUFACTURER'S REPRESENTATIVE FOR SHIPPING SPLITS AS REQUIRED TO HOIST AND RIG INTO THE BUILDING.
2. PROVIDE UNIT WITH 1" THICK DOUBLE WALL INSULATED GALVANIZED CASING. EXTERIOR TO BE STANDARD GALVANIZED FINISH..
3. PROVIDE FAN ARRANGEMENT AND CONFIGURATION PER THE DETAILS AND PLAN DRAWINGS.
4. FAN SECTION TO BE VERTICAL TYPE WITH FORWARD CURVED, BELT DRIVE FAN.
5. FAN MOTORS TO BE PREMIUM EFFICIENCY.
6. PROVIDE "HANDING" OF UNIT PER THE PLAN DRAWINGS.
7. PROVIDE UNIT WITH STAINLESS STEEL DOUBLE SLOPED (1AQ) DRAIN PANS.
8. PROVIDE COIL CONFIGURATION WITH HEATING IN THE "REHEAT" POSITION.
9. PROVIDE UNIT WITH FACTORY INSTALLED AND WIRED VARIABLE FREQUENCY DRIVES (VFD'S).
10. FIELD RELOCATE UNIT VFD'S/CONTROL BOXES FOR THE INDICATED UNITS, COORDINATE WITH THE ELECTRICAL CONTRACTOR.
11. PROVIDE UNIT COILS WITH 0.025" TUBE THICKNESS.
12. CONTRACTOR TO PROVIDE REFRIGERANT THERMAL EXPANSION VALVE AND REFRIGERANT SPECIALTIES PER THE SPECIFICATIONS.
13. COORDINATE WITH THE CONTROLS CONTRACTOR FOR INSTALLATION OF A REFRIGERANT (AL2) LEAK SENSOR AND MONITORING.
14. MONT UNIT ON 1" DEFLECTION HOUSED SPRING ISOLATORS.



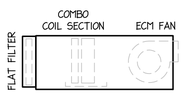
AHU-2



AHU-3



AHU-4



AHU-5

CONDENSER UNIT SCHEDULE

TAG	DESCRIPTION	MAKE & MODEL	CAPACITY	CAPACITY @ CONDITIONS	REFRIG.	ELECTRICAL	FLA	MOCP	REMARKS;
CU-2A	SPLIT SYSTEM CONDENSING UNIT	DAIKIN DC7TCA4810AA	NOM. 4 TONS @ 90.0°db/72.0°wb OUTDOOR AIR	48.0 MBH COOLING @ A.R.I. CONDITIONS	R-32	208V., 1PH.	31.6	50.0	SEE NOTES
CU-2B	SPLIT SYSTEM CONDENSING UNIT	DAIKIN DC7TCA4810AA	NOM. 4 TONS @ 90.0°db/72.0°wb OUTDOOR AIR	48.0 MBH COOLING @ A.R.I. CONDITIONS	R-32	208V., 1PH.	31.6	50.0	SEE NOTES
CU-3A	SPLIT SYSTEM CONDENSING UNIT	DAIKIN DC6TE090A0AA	NOM. 7.5 TONS @ 90.0°db/72.0°wb OUTDOOR AIR	96.0 MBH COOLING @ A.R.I. CONDITIONS	R-32	460V., 3PH.	17.9	20.0	SEE NOTES
CU-3B	SPLIT SYSTEM CONDENSING UNIT	DAIKIN DC6TE090A0AA	NOM. 7.5 TONS @ 90.0°db/72.0°wb OUTDOOR AIR	96.0 MBH COOLING @ A.R.I. CONDITIONS	R-32	460V., 3PH.	17.9	20.0	SEE NOTES
CU-4	SPLIT SYSTEM CONDENSING UNIT	DAIKIN DC5A020	NOM. 20.0 TONS @ 90.0°db 72.0°wb OUTDOOR AIR	260.4 MBH COOLING @ A.R.I. CONDITIONS	R-32	460V., 3PH.	51.0	70.0	SEE NOTES
CU-5A	SPLIT SYSTEM CONDENSING UNIT	DAIKIN DC7TCA4810AA	NOM. 4 TONS @ 90.0°db/72.0°wb OUTDOOR AIR	48.0 MBH COOLING @ A.R.I. CONDITIONS	R-32	208V., 1PH.	31.6	50.0	SEE NOTES
CU-5B	SPLIT SYSTEM CONDENSING UNIT	DAIKIN DC7TCA4810AA	NOM. 4 TONS @ 90.0°db/72.0°wb OUTDOOR AIR	48.0 MBH COOLING @ A.R.I. CONDITIONS	R-32	208V., 1PH.	31.6	50.0	SEE NOTES

NOTES:
1. TYPE R32 REFRIGERANT.
2. 4-7.5 TON UNITS TO BE SINGLE CIRCUIT, TWO STAGE.
3. 20.0 TOM UNIT TO BE DUAL CIRCUIT WITH VFD DRIVEN MODULATING SCROLL COMPRESSORS.
4. PROVIDE UNITS WITH SUCTION SERVICE VALVES, SIGHT GLASS, SUCTION PRESSURE TRANSDUCER AND PRESSURE GAUGES.
5. PROVIDE UNIT WITH COMPRESSOR SOUND BLANKET INSULATION.
6. CONDENSER FANS TO BE ECM TYPE, LOW SOUND WITH HEAD PRESSURE CONTROL.
7. PROVIDE UNIT WITH MANUFACTURER SUPPLIED REFRIGERATION CONTROLS, SET UP FOR CAPACITY CONTROLS FROM THE BUILDING BMS, VIA BACNET COMMUNICATION PROTOCOL.
8. PROVIDE UNIT WITH SINGLE POINT POWER CONNECTION AND 24 VOLT TERMINAL STRIP FOR CONTROLS INTERFACE CONNECTIONS.
9. UNIT CABINET TO BE GALVANIZED STEEL WITH BAKED ENAMEL PAINT FINISH, MANUFACTURER'S STANDARD COLOR.
10. PROVIDE UNIT WITH EXTENDED COMPRESSOR WARRANTY.

REHEAT COIL SCHEDULE

TAG	SIZE	V.A.V. ZONE	AIR FLOW	E.A.T.	L.A.T.	E.W.T.	GPM	RATING	MAX. A.P.D.	NOTES:
RHB-3	16x12	-	530 CFM	55° F	80° F	170° F	1.25	14.3 MBH	0.10" W.C.	FLANGED STYLE COIL

REMARKS:
1. PROVIDE ACCESS DOOR IN AIR DUCT UPSTREAM AND DOWN STREAM OF REHEAT COIL.
2. EACH ACCESS DOOR SHALL BE DOUBLE WALL, INSULATED, HINGED WITH CAM LOCKS.
3. PROVIDE PIPING CONNECTIONS TO RE-HEAT COIL AS PER DETAIL DRAWINGS.
4. PROVIDE ACCESS PANELS AS PER DETAIL DRAWINGS.
5. INSTALL RE-HEAT COIL IN AIR DUCT AS PER DETAIL DRAWINGS.
6. SEAL RE-HEAT COIL DUCT CONNECTIONS WITH AN APPROVED SEALANT.
7. RE-HEAT COIL AIR LEAKAGE SHALL NOT EXCEED 1.0% OF BRANCH AIR FLOW AT 4.0"W.C.

PUMP SCHEDULE

TAG	DESCRIPTION	BASIS OF DESIGN	GPM	HEAD	RPM	CONN.	ELEC. DATA	NOTES:
CP-2	A.H.U.-2 HEATING COIL CIRCULATOR PUMP	GRUNDFOS ALPHA 15-58	4.4	10'	-	1" SIZE FLANGE	120V-1Φ-1/4HP	1 2 3
CP-3	A.H.U.-3 HEATING COIL CIRCULATOR PUMP	GRUNDFOS ALPHA2 26-99F	7.9	10'	-	1.25" SIZE FLANGE	120V-1Φ-1/4HP	1 2 3
CP-4	A.H.U.-4 HEATING COIL CIRCULATOR PUMP	GRUNDFOS ALPHA2 26-99F	10.7	10'	-	1.25" SIZE FLANGE	120V-1Φ-1/4HP	1 2 3

NOTES:
1. PROVIDE AUXILIARY SUPPORT FOR THE PUMPS.
2. PUMPS TO HAVE INTEGRAL SPEED CONTROL.
3. SET UP PUMPS FOR CONSTANT VOLUME FLOW OPERATION, AS REQUIRED.

FAN SCHEDULE

TAG	DESCRIPTION	MAKE & MODEL	CFM	E.S.P.	BHP	RPM	ELECTRICAL	NOTES:
RF-3	AHU-2, BRANCH A RETURN AIR FAN	GREENHECK SQ 16-M2-VG	3,925	1.25"	1.27	1,586	480V.,3PH-2.0HP	1 2 3

NOTES:
1. PROVIDE FAN WITH ND ISOLATOR MOUNTS.
2. PROVIDE BRACKETS FOR VERTICAL MOUNTING.
3. MOTOR TO BE SET UP FOR SPEED CONTROL INPUT FROM THE BUILDING B.M.S. CONTROLS.

DAMPER SCHEDULE

TAG	DESCRIPTION	MAKE & MODEL	SIZE	FRAME	BLADES	OPTIONS
CD-2	AHU-2 RELIEF AIR CONTROL DAMPER	RUSKIN CD-40	22x20	4" x 1" 6063T5 EXTRUDED AL.	4" AIR FOIL, 6063T5 AL.	RATED FOR 2,500 FPM, OPPOSED BLADE CONFIG., PROVIDE WITH FLANGED FRAME
CD-3	AHU-3 RELIEF AIR CONTROL DAMPER	RUSKIN CD-40	42x16	4" x 1" 6063T5 EXTRUDED AL.	4" AIR FOIL, 6063T5 AL.	RATED FOR 2,500 FPM, OPPOSED BLADE CONFIG.
CD-4	AHU-4 RELIEF AIR CONTROL DAMPER	RUSKIN CD-40	42x20	4" x 1" 6063T5 EXTRUDED AL.	4" AIR FOIL, 6063T5 AL.	RATED FOR 2,500 FPM, OPPOSED BLADE CONFIG., PROVIDE WITH FLANGED FRAME

NOTES:
1. DAMPER SIZE TO BE DETERMINED BASED ON A.H.U. SUBMITTAL DATA.
2. PROVIDE GASKET TO SEAL DAMPERS TO CASING/WALL.
3. COORDINATE MOUNTING TO ALLOW ACTUATOR INSTALLATION.

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MECHANICAL EQUIPMENT SCHEDULES & DETAILS

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AIRFLOW MONITOR SCHEDULE

TAG	DESCRIPTION	MAKE & MODEL	DUCT SIZE	MAXIMUM FLOW	MINIMUM FLOW	REMARKS
AFS-21	AHU-2 OUTSIDE AIR VOLUME	EBTRON GOLD SERIES GTx116e-P+	30x12	2,500 CFM	-0- CFM	--
AFS-22	AHU-2 RETURN AIR VOLUME	EBTRON GOLD SERIES GTx116e-P+	20x18	2,500 CFM	1,250 CFM	--
AFS-23	AHU-2 SUPPLY AIR VOLUME	EBTRON GOLD SERIES GTx116e-P+	20x18	2,500 CFM	1,250 CFM	--
AFS-31	AHU-3 OUTSIDE AIR VOLUME	EBTRON GOLD SERIES GTx116e-P+	44x12	3,925 CFM	-0- CFM	--
AFS-32	AHU-3 RETURN AIR VOLUME	EBTRON GOLD SERIES GTx116e-P+	24x24	3,925 CFM	1,965 CFM	--
AFS-33	AHU-3 SUPPLY AIR VOLUME	EBTRON GOLD SERIES GTx116e-P+	36x14	3,925 CFM	1,965 CFM	--
AFS-41	AHU-4 OUTSIDE AIR VOLUME	EBTRON GOLD SERIES GTx116e-P+	58x12	5,200 CFM	-0- CFM	--
AFS-42	AHU-4 RETURN AIR VOLUME	EBTRON GOLD SERIES GTx116e-P+	42x16	5,200 CFM	2,600 CFM	--
AFS-43	AHU-4 SUPPLY AIR VOLUME	EBTRON GOLD SERIES GTx116e-P+	34x20	5,200 CFM	2,600 CFM	--
AFS-51	AHU-5 SUPPLY AIR VOLUME	EBTRON AIR-162 GTC116e	18x12	1,350 CFM	675 CFM	--

(1) NOTES

1. FIELD VERIFY ALL DUCT SIZES AND MOUNTING LOCATIONS PRIOR TO SELECTION OF UNITS.
2. PROVIDE WITH EBTRON GOLD "-P" SERIES DUCT SENSORS.
3. PROVIDE FACTORY CONNECTOR CABLE AIR FLOW PROBES FLOW TRANSMITTER.
4. FIELD MOUNT TRANSMITTERS WITHIN CONDITIONED SPACES. PROVIDE CABLES OF SUFFICIENT LENGTH FOR ALL INTERCONNECTIONS.

LOUVER SCHEDULE

TAG	DESCRIPTION	MAKE & MODEL	OPENING SIZE	DEPTH	SP	NOTES
LV-1	OUTSIDE AIR INTAKE LOUVER	RUSKIN MODEL ELF375DX	54"W x 96"H	4"	-	1 2 3
LV-2	OUTSIDE AIR INTAKE LOUVER	RUSKIN MODEL ELF375DX	60"W x 96"H	4"	-	1 2 3
LV-3	RELIEF AIR DISCHARGE LOUVER	RUSKIN MODEL ELF375DX	48"W x 30"H	4"	-	1 2 3
LV-4	RELIEF AIR DISCHARGE LOUVER	RUSKIN MODEL ELF375DX	30"W x 30"H	4"	-	1 2 3

(2) NOTES:

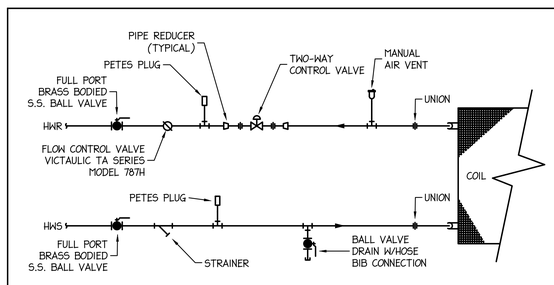
1. PROVIDE WITH BIRD SCREEN.
2. PROVIDE MATCHING FLASHING, SEE ARCHITECTURAL DETAILS.
3. PROVIDE LOUVER WITH 50% PVDF MODIFIED FLUOROPOLYMER FINISH, COLOR AS SELECTED BY THE ARCHITECT.

DIFFUSER & REGISTER SCHEDULE

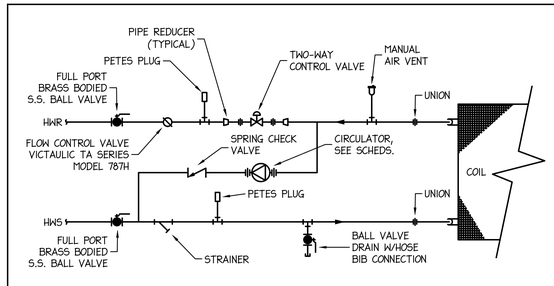
TAG	MAKE & MODEL	PANEL	NECK	TYPE	MAX. CFM	NOTES:
A CFM	NAILOR #6200IV-6x6-S-AW-4A-SRO-06	-	6"ø	SUPPLY DIFFUSER	75 CFM	CEILING SURFACE MOUNTED
B CFM	NAILOR #6200IV-9x9-24x24-PLA-AW-4A-SRO-08	24x24	8"ø	SUPPLY DIFFUSER	200 CFM	T-BAR CEILING MOUNTED
C CFM	NAILOR #6200IV-12x12-24x24-PLA-AW-4A-SRO-10	24x24	10"ø	SUPPLY DIFFUSER	200 CFM	T-BAR CEILING MOUNTED
D CFM	NAILOR #6200IV-12x12-24x24-PLA-SP-4A-SRO-10	24x24	10"ø	SUPPLY DIFFUSER	350 CFM	T-BAR CEILING MOUNTED, BLACK PAINT FINISH
F CFM	NAILOR #5145H-8x8-S-24x24-AW-A-SRO-06	-	6"ø	EXH./RET. GRILLE	75 CFM	CEILING SURFACE MOUNTED
G CFM	NAILOR #5145H-12x12-PLA-24x24-AW-SRO-08	24x24	8"ø	EXH./RET. GRILLE	200 CFM	T-BAR CEILING MOUNTED
I CFM	NAILOR #5145H-14x14-PLA-24x24-AW-SRO-10	24x24	10"ø	EXH./RET. GRILLE	350 CFM	T-BAR CEILING MOUNTED
J CFM	NAILOR #5145H-14x14-PLA-24x24-SP-SRO-10	24x24	10"ø	EXH./RET. GRILLE	350 CFM	T-BAR CEILING MOUNTED, BLACK PAINT FINISH
K CFM	NAILOR #5145H-18x18-PLA-24x24-AW-SRO-12	24x24	12"ø	EXH./RET. GRILLE	500 CFM	T-BAR CEILING MOUNTED
L CFM	NAILOR #5145H-21x21-PLA-24x24-AW	24x24	21x21	EXH./RET. GRILLE	750 CFM	T-BAR CEILING MOUNTED
M CFM	NAILOR #5145H-21x21-PLA-24x24-AW	24x24	21x21	EXH./RET. GRILLE	750 CFM	T-BAR CEILING MOUNTED, BLACK PAINT FINISH

REMARKS:

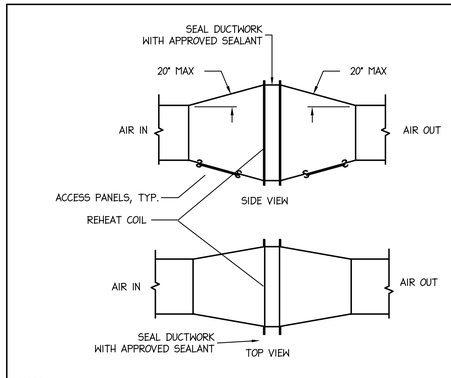
1. PROVIDE BRANCH VOLUME DAMPER FOR EACH DIFFUSER AND REGISTER.
2. ALL ROUND VOLUME DAMPERS SHALL BE EQUAL TO "NAILOR" MODEL #1090 WITH QUADRANT OPERATOR AND STAND-OFF BRACKET FOR INSULATED DUCT.
3. ALL RECTANGULAR VOLUME DAMPERS SHALL BE EQUAL TO "NAILOR" MODEL #1020 WITH JAMB SEALS, QUADRANT OPERATOR AND STAND-OFF BRACKET FOR INSULATED DUCT.
4. PROVIDE CODE COMPLIANT FLEXIBLE CONNECTIONS TO CEILING MOUNTED DIFFUSERS AND GRILLES. MAXIMUM FLEXIBLE AIR DUCT LENGTH OF 4' IS PERMITTED.
5. CONNECT FLEXIBLE AIR DUCT TO DIFF./REG. NECK WITH S.S. DRAW CLAMP.
6. PROVIDE BRANCH DUCT TAKE-OFF AS PER DETAIL DRAWINGS AND AS INDICATED ON PLANS.
7. PROVIDE ADAPTER FRAMES FOR ALL T-BAR LAY-IN TYPE DIFFUSERS OR GRILLES INDICATED TO BE INSTALLED IN GYPSUM BOARD CEILINGS. DO NOT FASTEN UNITS DOWN SO THEY CAN BE UTILIZED AS ACCESS OPENINGS.
8. PAINT INTERIOR OF ALL GRILLE/DIFFUSER BOOTS FLAT BLACK. PAINT ANY SECTIONS OF DUCTWORK VISIBLE THROUGH GRILLES OR DIFFUSERS FLAT BLACK.
9. DUCT LINER FOR SOUND BOOTS TO BE 1/2" THICK AP ARMAFLEX SA, FULLY ADHERED TO DUCT WITH MANUFACTURED APPROVED ADHESIVE.



(1) PROPOSED REHEAT COIL PIPING SCHEMATIC
NTS

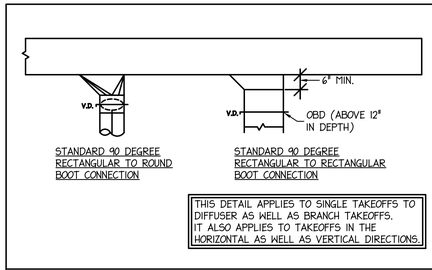


(2) PROPOSED A.H.U. HEATING COIL PIPING SCHEMATIC
NTS



NOTE:
RE-HEAT COIL LEAKAGE SHALL BE LESS THAN 1.0% OF TOTAL ALLOWABLE BRANCH LEAKAGE

(3) DUCTWORK CONNECTION TO RE-HEAT COIL
NTS



(4) BRANCH DUCT TAKEOFFS
N.T.S.

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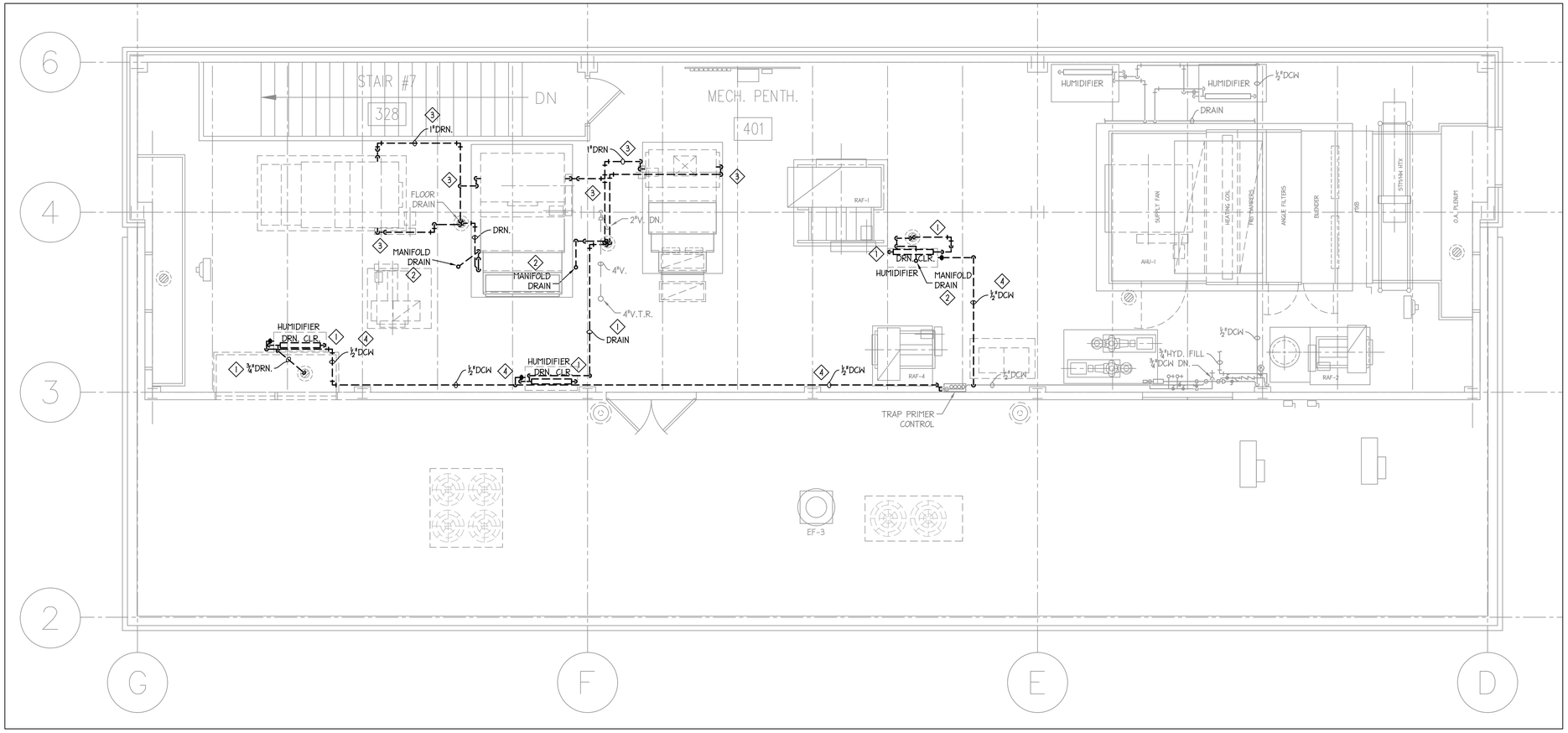
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MECHANICAL EQUIPMENT SCHEDULES & DETAILS

ALTERNATE

M-5.02



CONSTRUCTION NORTH

1 PLUMBING - PENTHOUSE LEVEL DEMOLITION PLAN
1/4"=1'-0"

PLUMBING DEMOLITION LEGEND	
- - - -	PLUMBING WORK TO BE DEMOLISHED
———	EXISTING PLUMBING WORK TO REMAIN

② PLUMBING SPECIFIC DEMOLITION NOTES:

1. DEMOLISH AND REMOVE THE EXISTING HUMIDIFIER DRAIN COOLERS AND ASSOCIATED DRAIN PIPING, FROM THE UNITS TO THE FLOOR DRAINS.

2. DEMOLISH AND REMOVE THE EXISTING HUMIDIFIER MANIFOLD DRAIN PIPING, FROM THE UNITS TO THE FLOOR DRAINS.

3. DEMOLISH AND REMOVE THE CONDENSATE DRAIN PIPING FROM THE EXISTING AIR HANDLER UNITS AS INDICATED DASHED. REMOVE FROM THE UNIT CONNECTIONS TO THE FLOOR DRAINS.

4. DEMOLISH AND REMOVE SECTIONS OF EXISTING DOMESTIC COLD WATER SUPPLY PIPING TO THE HUMIDIFIERS. CUT AND CAP AT THE POINTS INDICATED AND REMOVE PIPING FROM THAT POINT TO THE UNIT CONNECTIONS.

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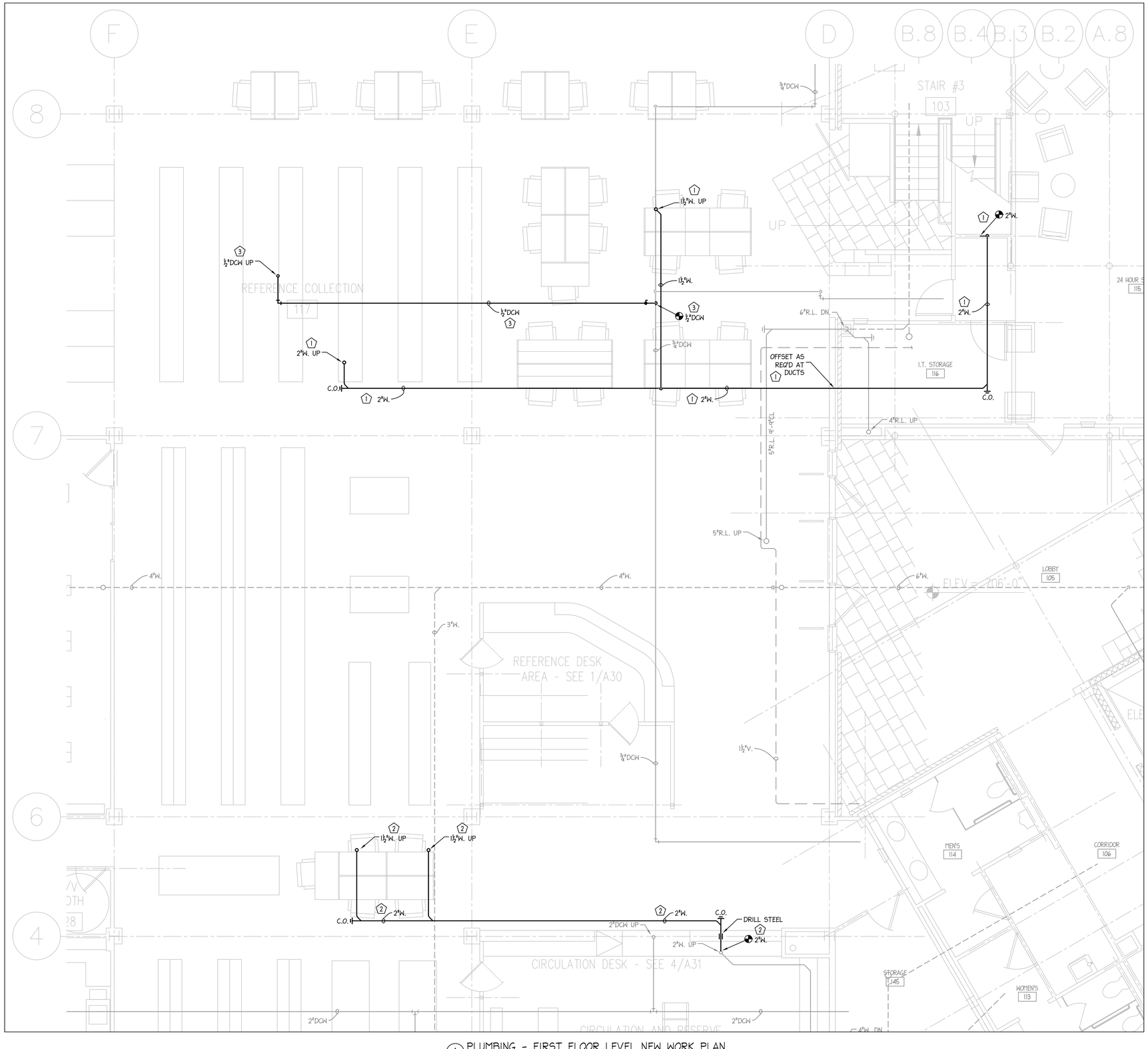
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PLUMBING
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DEMOLITION PLAN

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1 PLUMBING - FIRST FLOOR LEVEL NEW WORK PLAN
1/4"=1'-0"

CONSTRUCTION NORTH

PLUMBING NEW WORK LEGEND

———	NEW PLUMB. WORK TO BE FURNISHED AND INSTALLED
———	EXISTING PLUMBING WORK TO REMAIN

(2) SPECIFIC NEW WORK NOTES:

1. PROVIDE AND INSTALL NEW SANITARY DRAIN PIPING TO SERVE THE PROPOSED SINK AND CONDENSATE DRAINS IN THE NEW SPACES ON THE LEVEL ABOVE. CORE DRILL NEW OPENINGS THROUGH THE SLAB WHERE INDICATED. WORK WITH THE OWNER TO RELOCATE FURNITURE AND EQUIPMENT BELOW. COVER AND PROTECT ALL REMAINING FINISHES. RUN PIPING OVER BETWEEN THE BUILDING STEEL. CONTINUE ACROSS, STARTING TIGHT BELOW THE STEEL. CONTINUE LINE OVER THE STORAGE ROOM, ABOVE THE CEILING. DROP IN WALL AND CONNECT TO THE EXISTING DRAIN LINE ABOVE THE SLAB LEVEL. PIPING TO BE NO-HUB CAST IRON WITH HEAVY DUTY COUPLINGS PER THE SPECIFICATIONS.

2. PROVIDE AND INSTALL NEW SANITARY DRAIN PIPING TO SERVE THE PROPOSED SINKS IN THE MODIFIED CLASSROOM SPACES ON THE LEVEL ABOVE. RUN OVER BETWEEN THE BUILDING STEEL AND ALONG UNDER THE STEEL AS INDICATED. COORDINATE WITH THE GENERAL TRADES CONTRACTOR TO DRILL THE EXISTING STEEL BEAM WHERE INDICATED. CONNECT TO THE EXISTING DRAIN LINE. PIPING TO BE AS NOTED ABOVE.

3. PROVIDE AND INSTALL NEW DOMESTIC WATER SUPPLY LINES TO THE SINKS ON THE LEVEL ABOVE. ISOLATE THE EXISTING WATER LINES AS REQUIRED. INSTALL NEW BRANCH TEES AND RUN NEW PIPING OVER AND UP TO THE LEVEL ABOVE AS INDICATED BOLD. DRILL OPENINGS THROUGH SLAB. PROVIDE ISOLATION VALVES NEAR THE MAIN LINE. PIPING, VALVES AND INSTALLATION TO BE PER THE SPECIFICATIONS.

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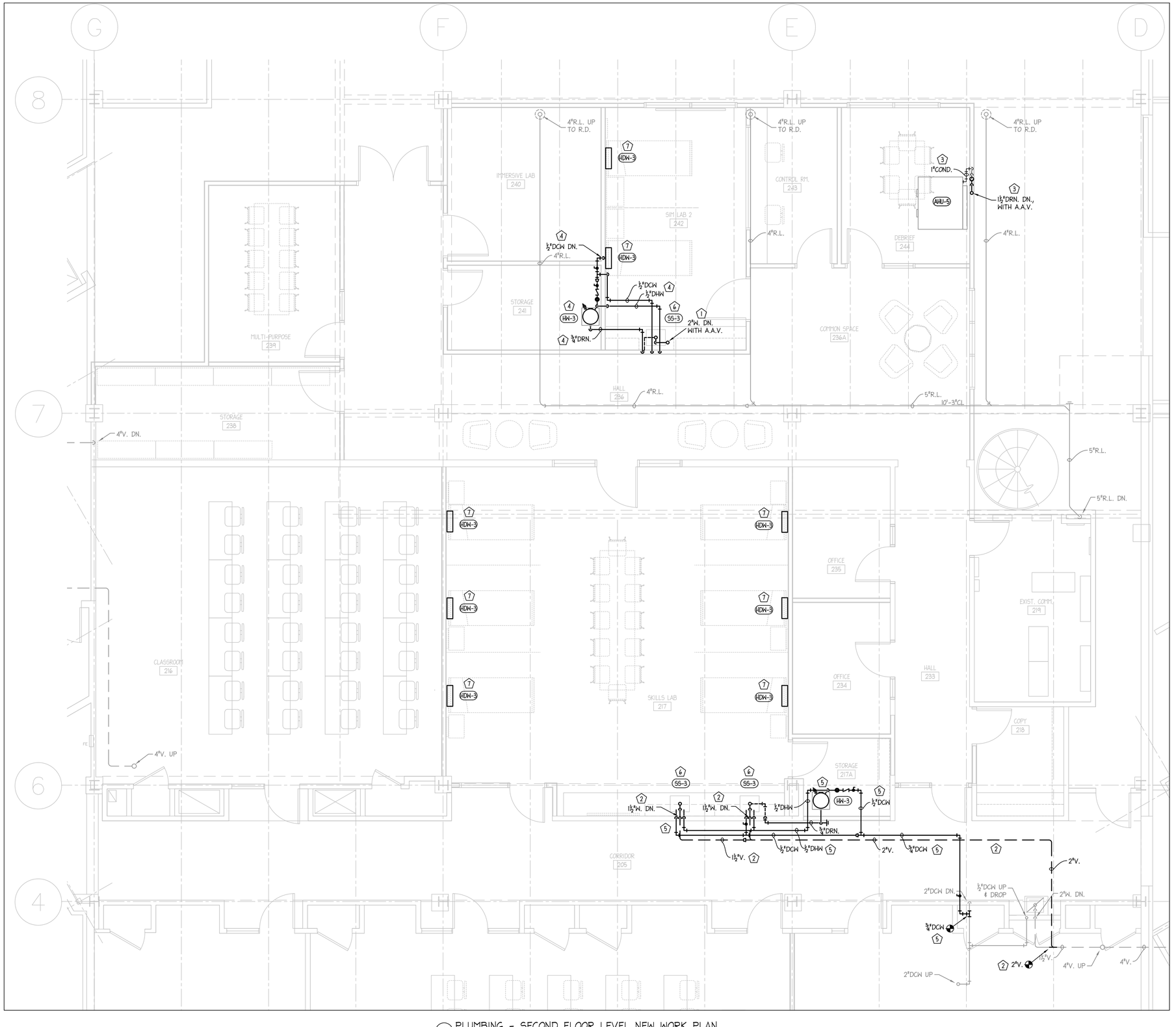
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PLUMBING
FIRST FLR. LEVEL
NEW WORK PLAN

ALTERNATE

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1 PLUMBING - SECOND FLOOR LEVEL NEW WORK PLAN
1/4"=1'-0"

CONSTRUCTION NORTH

PLUMBING NEW WORK LEGEND

———	NEW PLUMB. WORK TO BE FURNISHED AND INSTALLED
———	EXISTING PLUMBING WORK TO REMAIN

SPECIFIC NEW WORK NOTES:

1. PROVIDE AND INSTALL NEW DRAIN AND VENT ROUGHING FOR THE PROPOSED SIM LAB SINKS. CONTINUE THE SANITARY DRAIN PIPING UP FROM THE LEVEL BELOW. PROVIDE LINK SEAL AT CORE THROUGH DECK. TERMINATE LINE BELOW COUNTER WITH AND AIR ADMITTANCE VALVE. INSTALL BRANCH LINE TO SINK WITH P-TRAP. PIPING TO BE NO-HUB CAST IRON WITH HEAVY DUTY COUPLINGS PER THE SPECIFICATIONS.

2. PROVIDE AND INSTALL NEW DRAIN AND VENT ROUGHING FOR THE PROPOSED SKILLS LAB SINKS. CONTINUE THE DRAIN PIPING UP FROM THE LEVEL BELOW. INSTALL ROUGHING FOR THE PROPOSED SINKS AND CONTINUE VENT PIPING UP ABOVE THE CEILING AND CONNECT TO THE EXISTING SANITARY VENT LINE, APPROXIMATELY WHERE INDICATED. PIPING TO BE PER THE SPECIFICATIONS.

3. PROVIDE AND INSTALL CONDENSATE DRAIN PIPING FROM THE PROPOSED AIR HANDLER UNIT. CONTINUE DRAIN PIPING UP FROM THE LEVEL BELOW AND INSTALL AN INDIRECT RECEIVER WITH AIR ADMITTANCE VALVE AND TRAP SEAL. RUN CONDENSATE PIPING FROM THE UNIT INTO THE WALL CAVITY, INSTALL A P-TRAP AND PIPE TO THE INDIRECT RECEIVER.

4. PROVIDE AND INSTALL NEW DOMESTIC WATER ROUGHING TO SERVE THE SIM LAB SINK. CONTINUE THE WATER SUPPLY LINE UP FROM THE LEVEL BELOW AND RUN CONCEALED IN WALL TO ABOVE THE CEILING LEVEL. PROVIDE AND INSTALL A DOMESTIC WATER HEATER MOUNTED ABOVE THE CEILING, SEE FIXTURE SCHEDULE. PROVIDE STRUT FRAMING TO SUPPORT THE UNIT FROM THE BUILDING STEEL, SEE DETAIL ON PLANS. MOUNT UNIT IN A DRIP PAN. PIPE WATER HEATER WITH ISOLATION VALVE, CHECK VALVE, THERMAL EXPANSION TANK AND MIXING VALVE. RUN HOT AND COLD PIPING DOWN TO THE SINK. PROVIDE A "DISHWASHER" TEE IN THE SINK DRAIN LINE AND RUN THE DRIP PAN DRAIN TO THIS TEE. PIPING VALVES AND INSULATION TO BE PER THE SPECIFICATIONS.

5. PROVIDE AND INSTALL NEW DOMESTIC WATER ROUGHING TO BE SERVE THE SKILLS LAB SINKS. CONNECT TO THE EXISTING DOMESTIC WATER MAIN RISER LINE, APPROXIMATELY WHERE INDICATED. RUN A NEW BRANCH LINE OVER AND INSTALL A HOT WATER HEATER ABOVE THE CEILING, SIMILAR TO AS NOTED ABOVE. RUN COLD AND HOT WATER PIPING DOWN TO THE SINKS. PIPE THE DRIP PAN DRAIN TO THE SINK DRAIN. MATERIALS TO BE AS NOTED ABOVE.

6. PROVIDE AND INSTALL NEW LAB SINKS IN THE PROPOSED COUNTERS, COORDINATE WITH THE GENERAL TRADES CONTRACTOR, SEE FIXTURE SCHEDULE. INSTALL FIXTURES COMPLETE WITH ALL TRIM AND ACCESSORIES. PROVIDE THE DESIGNATED SINK WITH A "DISH WASHER" TEE FOR THE WATER DRIP PAN DRAINS.

7. PROVIDE AND INSTALL NEW "TRAINING HEAD WALL" UNITS IN THE LOCATIONS INDICATED. WALL MOUNT PER THE ARCHITECTURAL DRAWINGS. COORDINATE WITH THE ELECTRICAL CONTRACTOR FOR POWER RECEPTACLES.

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PLUMBING
SECOND FLR. LEVEL
NEW WORK PLAN

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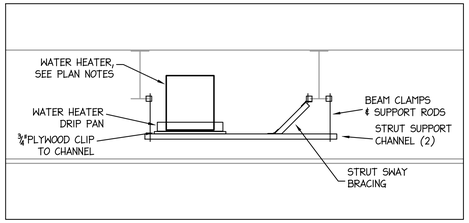
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PLUMBING FIXTURE SCHEDULE

TAG	DESCRIPTION	MAKE & MODEL	C.W.	H.W.	WASTE	VENT	REMARKS
SS-3	STAINLESS STEEL UNDER MOUNT SINK	ELKAY PRODUCTS #ELUHAD2115	1/2"	1/2"	1 1/2"	N/A	PROVIDE WITH #LK18B GRID DRAIN ASSEMBLY, WITH #LKF4121RS FAUCET, 17. GA CP P-TRAP AND STOPS. COORDINATE COUNTER CUT OUT WITH GENERAL TRADES CONTR.
HW-3	ELECTRIC TANK TYPE WATER HEATER	STATE PROLINE ES6 10 SOMS K	1/2"	1/2"	-	-	COMMERCIAL GRADE, 10 GAL. NOM. STORAGE, 1.65 KW ELEMENT, 120 VOLT, 1 PH., 8.0 GPH RECOVERY @ 90° RISE. PROVIDE WITH T&P RELIEF VALVE.
MX-3	TEMPERED WATER MIXING VALVE	WATTS PRODUCTS #LFLM490-1	1/2"	1/2"	-	-	HYDRO GUARD THERMOSTATIC MIXING VALVE, THREADED ENDS, SET FOR 118° F DISCHARGE (OR AS DIRECTED IN FIELD).
TX-3	THERMAL EXPANSION TANK	WATTS PRODUCTS #THERM-X-TROL ST-1	1/2"	-	-	-	-
HDW-3	PATIENT TRAINING HEADWALL	HOSPITAL SYSTEMS, INC. COGENT SINGLE PATIENT	-	-	-	-	PROVIDE WITH INTEGRATED NURSE CALL & CODE BLUE, OXY. & MED AIR FLOW METERS, VAC. REGULATOR, VAC. CANISTER & HOLDER, FOR HARDWIRED INSTALL, 120 VOLT.

NOTES:
1. -



2 WATER HEATER MOUNTING DETAIL
1/2"=1'-0"

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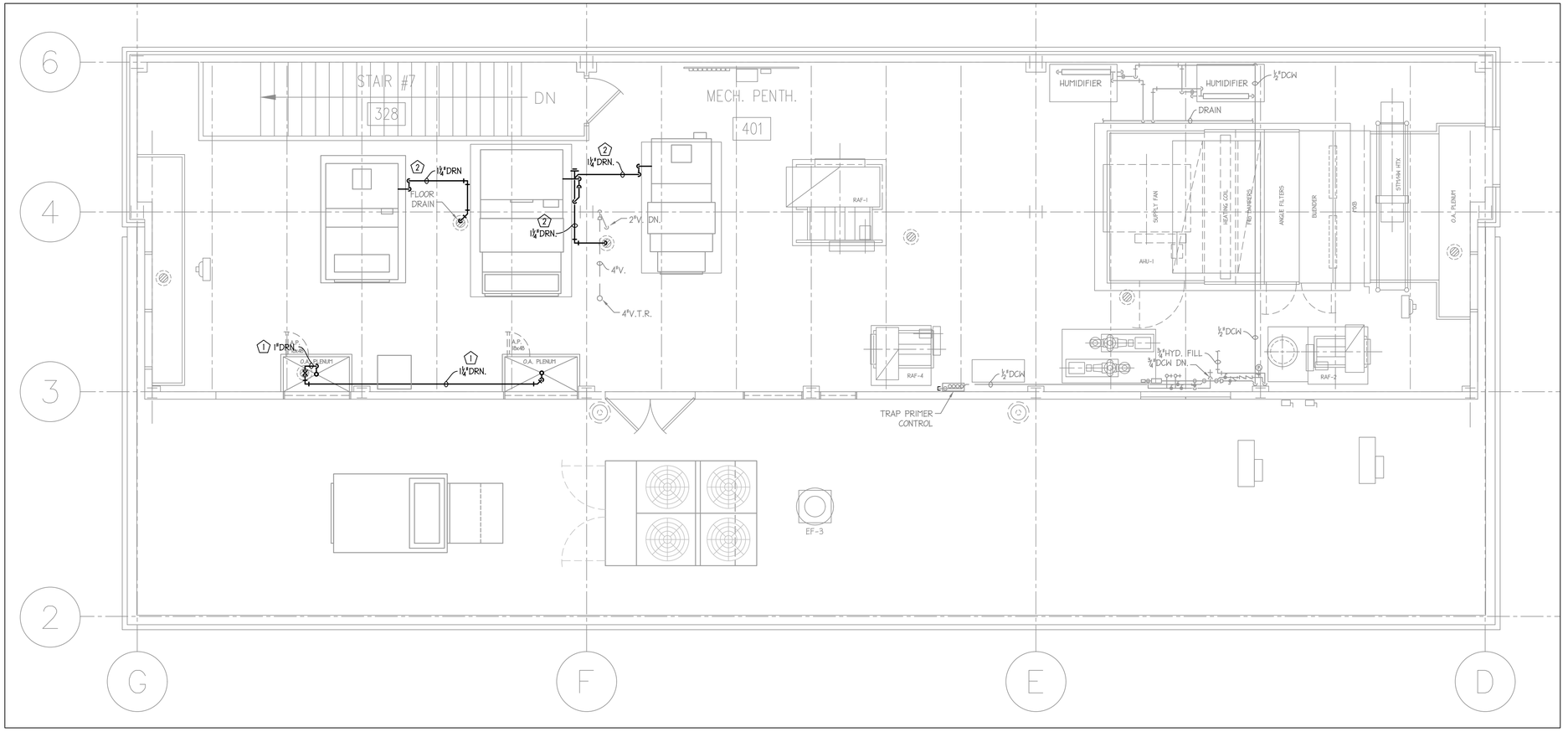
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PLUMBING FIXTURE SCHED. AND DETAILS

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CONSTRUCTION NORTH

1 PLUMBING - PENTHOUSE LEVEL NEW WORK PLAN
1/4"=1'-0"

PLUMBING NEW WORK LEGEND

———	NEW PLUMB. WORK TO BE FURNISHED AND INSTALLED
———	EXISTING PLUMBING WORK TO REMAIN

② SPECIFIC NEW WORK NOTES:

1. PROVIDE AND INSTALL DRAIN PIPING FROM THE PROPOSED OUTSIDE AIR PLENUM DRAIN TAPPINGS TO THE EXISTING FLOOR DRAIN. CONNECT TO THE BOTTOM PAN TAPPINGS AND INSTALL A DEEP SEAL TRAP. PIPE OVER AND DOWN AT THE EXISTING FLOOR DRAIN. PIPING TO BE TYPE "L" COPPER AS SPECIFIED FOR DOMESTIC WATER. INSULATE THE VERTICAL SECTION OFF THE DRAIN PAN.

2. PROVIDE AND INSTALL CONDENSATE DRAIN PIPING FROM THE PROPOSED AIR HANDLER UNIT TO THE EXISTING FLOOR DRAIN. CONNECT TO THE UNIT DRAIN PAN, INSTALL A P-TRAP, MINIMUM 4" DEEP SEAL. INSTALL DRAIN PIPING ALONG THE FLOOR TO THE FLOOR DRAIN, SLOPE 1/16"/FT+/-. CUT FLOOR DRAIN GRATE FOR ELBOW DOWN. PIPING TO BE AS NOTED ABOVE.

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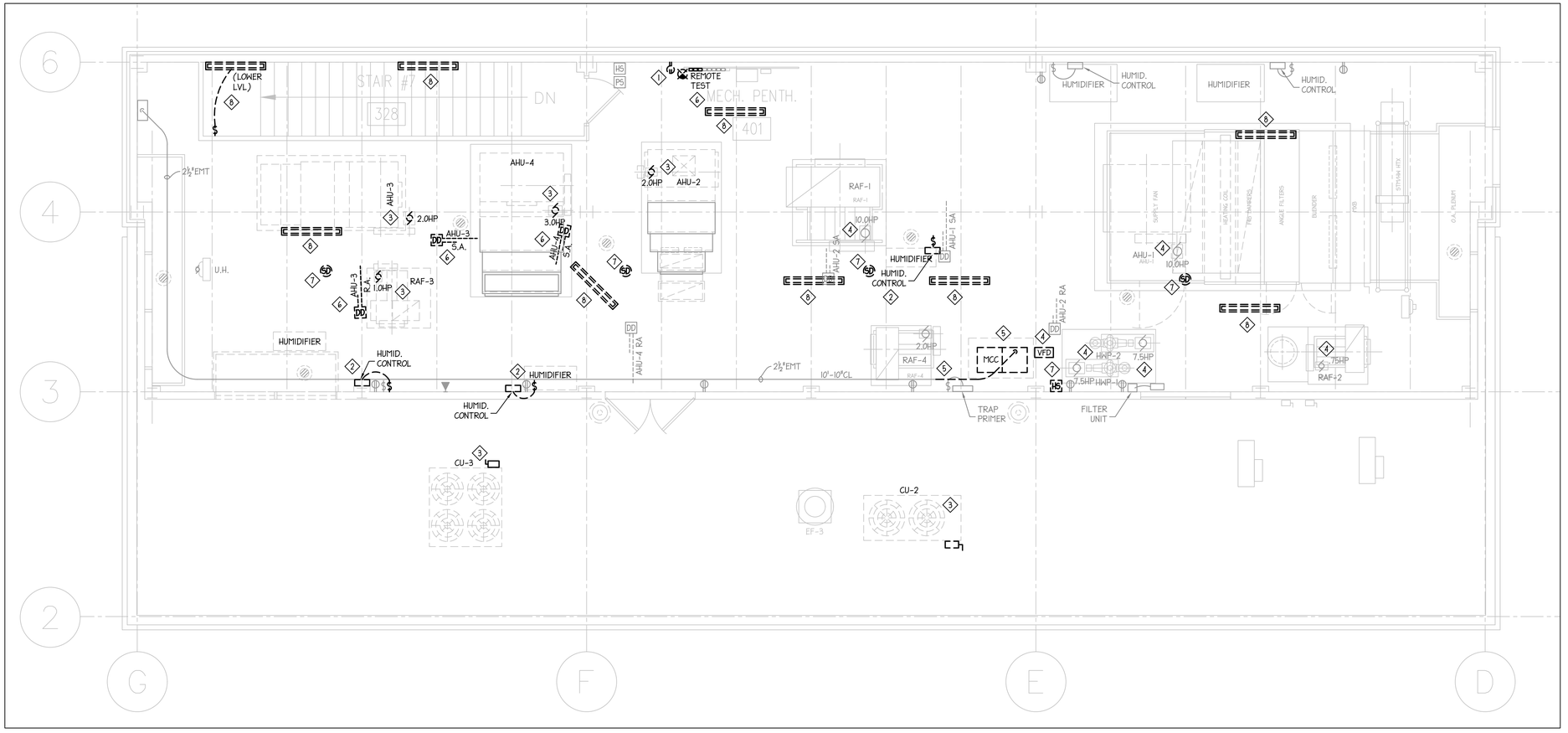
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PLUMBING
PENTH. LEVEL
NEW WORK PLAN

ALTERNATE

P-1.41



1 ELECTRICAL - PENTHOUSE LEVEL DEMOLITION PLAN
1/4"=1'-0"

ELECTRICAL DEMOLITION LEGEND	
– – – –	ELECTRICAL WORK TO BE DEMOLISHED
– – – –	EXISTING ELECTRICAL WORK TO REMAIN

8 ELECTRICAL SPECIFIC DEMOLITION NOTES:

1. DEMOLISH AND REMOVE THE EXISTING RECEPTACLE INDICATED DASHED. REMOVE CIRCUIT BACK TO THE LAST ACTIVE POINT. PROVIDE NEW WIRING AS REQUIRED TO MAINTAIN CIRCUIT CONTINUITY AS REQUIRED.

2. DEMOLISH AND REMOVE THE EXISTING HUMIDIFIER CONTROL PANELS AND POWER CIRCUITS. REMOVE CONNECTIONS TO UNITS AND CIRCUITS BACK TO THE LAST ACTIVE POINT.

3. DEMOLISH AND REMOVE POWER CONNECTIONS AND CIRCUITS TO THE EXISTING HVAC EQUIPMENT INDICATED. REMOVE FINAL CONNECTIONS TO EQUIPMENT AND POWER CIRCUITS BACK TO THE PANEL/MCC.

4. DEMOLISH AND REMOVE THE POWER CIRCUITS FROM THE EXISTING MCC TO THE REMAINING EXISTING HVAC EQUIPMENT. REMOVE THE EMERGENCY POWER CIRCUIT SERVING THE HYDRONIC PUMPS BACK TO THE LEVEL BELOW FOR REROUTING. REMOVE THE EXISTING VFD.

5. DEMOLISH AND REMOVE THE EXISTING MCC. DE-ENERGIZE AND LOCK-OUT CIRCUIT IN THE ELECTRICAL ROOM ON LEVEL 1. REMOVE THE FEEDER CONDUIT AND CONDUCTORS BACK AS REQUIRED FOR EXTENSION UNDER NEW WORK.

6. DEMOLISH AND REMOVE THE EXISTING DUCT SMOKE DETECTORS AND ASSOCIATED REMOTE TEST SWITCHES. COORDINATE WITH MECHANICAL DEMOLITION WORK. REMOVE CABLING AND CONDUIT BACK TO LAST ACTIVE POINT, OR AS REQUIRED FOR EXTENSION UNDER NEW WORK.

7. DEMOLISH AND REMOVE THE EXISTING FIRE ALARM DETECTION AND ANNUNCIATION DEVICES AS INDICATED DASHED. REMOVE CABLING AND CONDUIT BACK AS REQUIRED FOR EXTENSION UNDER NEW WORK.

8. DEMOLISH AND REMOVE THE EXISTING LIGHTING FIXTURES AND CONTROL. REMOVE WIRING BACK TO LAST ACTIVE POINT. NOTE; INDICATED LOWER STAIR FIXTURE AND SWITCHING ARE PHYSICALLY ON LEVEL 3.

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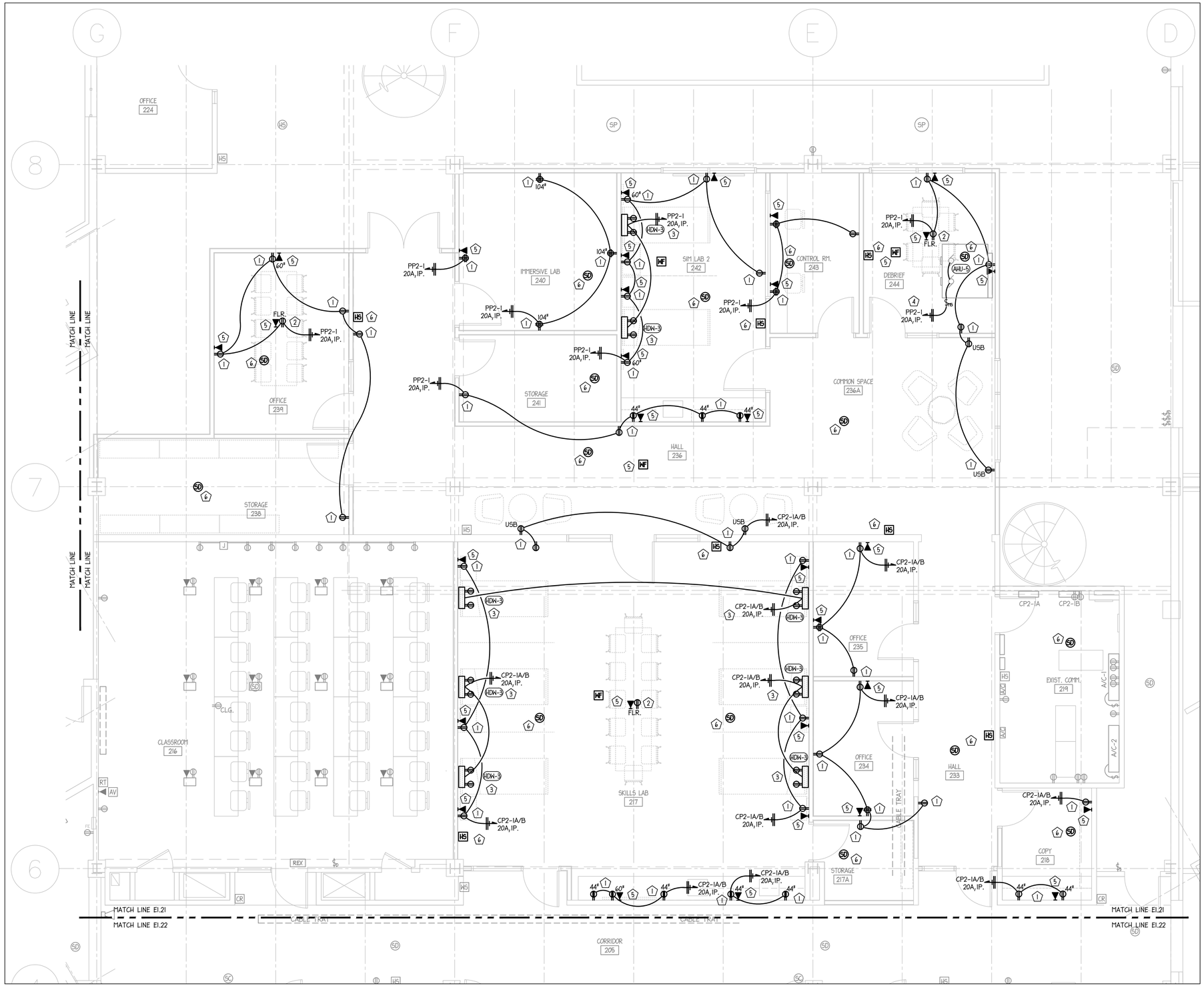
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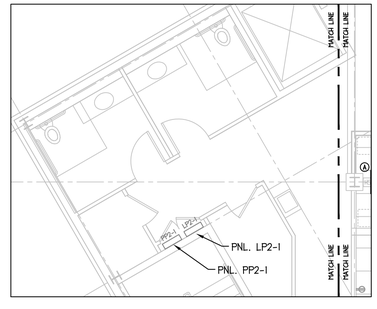
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ELECTRICAL
PENTHOUSE LEVEL
DEMOLITION PLAN

ALTERNATE

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1 ELECTRICAL - SECOND FLOOR POWER & S.S NEW WORK PLAN
1/4"=1'-0"



2 ELECTRICAL - PANEL LOCATION PLAN
NOT TO SCALE

CONSTRUCTION NORTH

ELECTRICAL NEW WORK LEGEND

- ELECTRICAL NEW WORK TO BE INSTALLED
- EXISTING ELECTRICAL WORK TO REMAIN

(#) ELECTRICAL SPECIFIC NEW WORK NOTES:

1. PROVIDE AND INSTALL GENERAL PURPOSE RECEPTACLES THROUGHOUT THE PROJECT SPACE AS INDICATED BOLD. SEE SPECIFICATIONS. MOUNT AT DEFAULT HEIGHT UNLESS NOTED OTHERWISE FOR ABOVE COUNTER LOCATIONS AND FOR WALL MOUNTED MONITORS, COORDINATE WITH ARCHITECTURAL PLANS. PROVIDE DUPLEX RECEPTACLES, GFCI TYPE RECEPTACLES AND USB CHARGER TYPE RECEPTACLES AS INDICATED ON THE PLANS. INSTALL CIRCUITING TO THE INDICATED POWER PANELS. UTILIZE EXISTING BREAKERS AND PROVIDE NEW WHERE NO SPARES EXIST.

2. PROVIDE AND INSTALL FLOOR RECEPTACLES APPROXIMATELY CENTERED IN THE ROOMS, INDICATED. PROVIDE POKE-THROUGH ASSEMBLIES TO ACCOMMODATE POWER AND DATA, SEE SPECIFICATIONS. PROVIDE CONDUIT AND DATA SLEEVES FROM THE CEILING SPACE ON THIS LEVEL TO THE CEILING SPACE BELOW AND TO THE POKE-THROUGH ASSEMBLY. CIRCUIT AS INDICATED.

3. PROVIDE AND INSTALL POWER FOR THE WALL MOUNTED "TRAINING HEADWALL" UNITS, SEE EQUIPMENT SCHEDULE. MAKE POWER CONNECTIONS TO THE UNIT PUMP AND RECEPTACLES, PER THE MANUFACTURER'S INSTRUCTIONS.

4. PROVIDE AND INSTALL A POWER CIRCUIT FOR THE PROPOSED HVAC EQUIPMENT, SEE SCHEDULES. PROVIDE A NEW BREAKER IN THE EXISTING PANEL OR UTILIZE A SPARE IF EXISTING. RUN CIRCUIT CONCEALED ABOVE THE CEILING TO THE UNIT AND PROVIDE A THERMALLY PROTECTED MOTOR SWITCH. MAKE FINAL CONNECTIONS WITH FLEXIBLE CONDUIT.

5. PROVIDE AND INSTALL DATA OUTLETS AND CABLING IN ALL LOCATIONS INDICATED. GENERALLY MATCH MOUNTING HEIGHT OF ADJACENT RECEPTACLES. PROVIDE TWO (2) ACTIVE PORTS IN EACH OUTLET WITH CABLING BACK TO THE SWITCHES IN THE I.T. ROOM. INSTALL THE WIRELESS STATIONS, PROVIDED BY THE OWNER, MOUNT TO THE CEILING GRID, WITH CABLING AS NOTED ABOVE. PROVIDE CABLING LABELING AND MAKE ALL TERMINATION PER THE OWNER'S I.T. DEPARTMENT DIRECTION.

6. PROVIDE AND INSTALL NEW FIRE PROTECTION DEVICES FOR DETECTION AND ANNUNCIATION. PROVIDE SMOKE DETECTOR COVERAGE IN ALL SPACES. PROVIDE HORN/STROBES AS INDICATED FOR FULL COVERAGE. EXTEND THE DETECTION AND ANNUNCIATION ZONE WIRING TO SERVE ALL DEVICES. LABEL ALL DEVICES WITH ZONE AND DEVICE NUMBER. PROVIDE NEW BATTERY CALCULATIONS AND INCREASE BATTERY CAPACITY AS REQUIRED.

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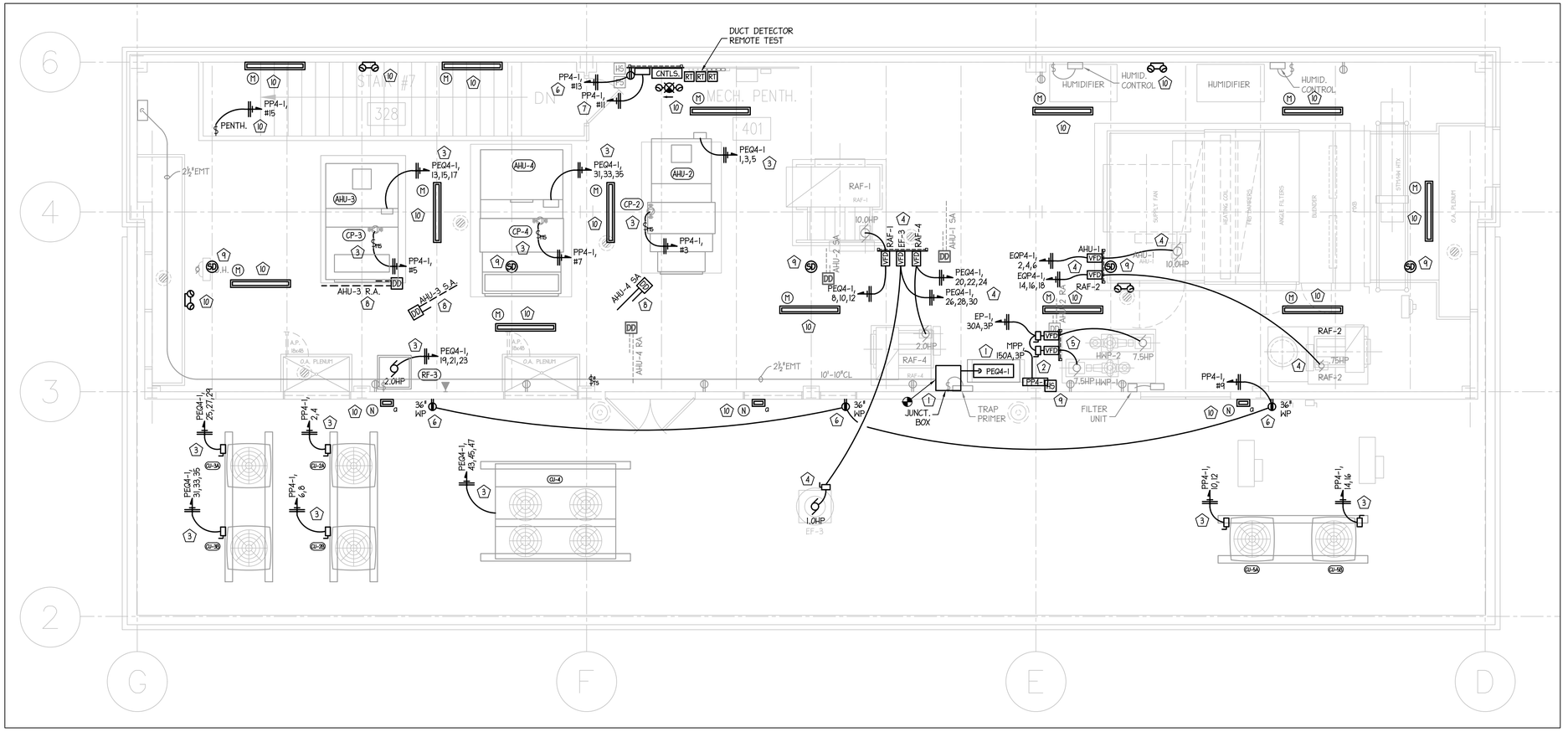
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ELECTRICAL
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POWER & S.S.
NEW WORK PLAN

ALTERNATE

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CONSTRUCTION NORTH

1 ELECTRICAL - PENTHOUSE LEVEL NEW WORK PLAN
1/4"=1'-0"

ELECTRICAL NEW WORK LEGEND

- ELECTRICAL NEW WORK TO BE INSTALLED
- EXISTING ELECTRICAL WORK TO REMAIN

E ELECTRICAL SPECIFIC NEW WORK NOTES:

1. PROVIDE AND INSTALL A NEW POWER DISTRIBUTION PANEL IN THE LOCATION INDICATED, SEE PANEL SCHEDULES AND SPECIFICATIONS. COORDINATE WITH THE GENERAL TRADES CONTRACTOR TO PROVIDE A CONCRETE MOUNTING PAD. MOUNT THE PANEL WHERE INDICATED. PROVIDE AND INSTALL A NEW JUNCTION BOX OVERHEAD AND CONNECT THE EXISTING CONDUIT. RUN NEW CONDUIT FROM THE J-BOX TO THE NEW PANEL. SPLICE AND EXTEND CONDUCTORS TO THE PANEL (4-#4/0 & #4 GND, CU).

2. PROVIDE AND INSTALL A NEW POWER PANEL TO SERVE THE 120/208 VOLT LOADS, SEE PANEL SCHEDULES AND SPECIFICATIONS. PROVIDE FRAMING AS REQUIRED AND MOUNT THE PANEL APPROXIMATELY WHERE INDICATED. INSTALL A NEW 150 AMP BRANCH BREAKER IN PANEL 'MPP' (LEVEL 1 ELECTRICAL RM.) AND RUN A NEW FEEDER TO THIS PANEL, FIELD DETERMINE ROUTING. CIRCUIT TO BE 4-#1/0 & #6 GND. IN 2" EMT.

3. PROVIDE AND INSTALL NEW POWER CIRCUITS TO SERVE THE PROPOSED MECHANICAL EQUIPMENT, SEE EQUIPMENT SCHEDULE. PROVIDE FUSED DISCONNECT SWITCHES, NEMA 3R FOR EXTERIOR EQUIPMENT, AND NEMA 1 FOR ANY INTERIOR EQUIPMENT WITHOUT LINE OF SIGHT TO THE PANEL OR INTEGRAL DISCONNECTS. PROVIDE PROPERLY SIZED BREAKERS IN THE PANEL AND RUN CIRCUITS PER THE EQUIPMENT SCHEDULE. CAREFULLY COORDINATE CONDUIT ROUTING WITH PROPOSED DUCTWORK AND PIPING.

4. PROVIDE AND INSTALL NEW POWER CIRCUITS TO RE-FEED THE EXISTING MECHANICAL EQUIPMENT, INDICATED TO REMAIN. FABRICATE MOUNTING RACKS, AS NOTED ABOVE. PROVIDE AND INSTALL VFD'S, PROPERLY SIZED TO SERVE THE EQUIPMENT. PROVIDE THE SERVICES OF THE VFD VENDOR TO VERIFY COMPATIBILITY OF THE EXISTING MOTORS AND SET UP AND PROGRAM THE VFD'S. PROVIDE PROPERLY SIZED BREAKERS IN THE PANEL AND RUN CIRCUITS PER THE EQUIP. SCHEDULE.

5. RE-FEED THE EXISTING HYDRONIC PUMPS SIMILAR TO AS NOTED ABOVE. PROVIDE MOUNTING BOARD, VFD'S AND FUSED DISCONNECT SWITCHES. INTERCEPT THE POWER CIRCUIT ON THE LEVEL BELOW AND EXTEND OVER. DRILL THROUGH THE DECK AT THE MOUNTING BOARD LOCATION AND EXTEND THE CIRCUIT. INSTALL A TAP FROM ONE SWITCH TO THE OTHER, AND PROPERLY FUSE SWITCHES. PROVIDE SEPARATE VFD'S AND POWER FEEDS TO EACH PUMP, SEE EQUIPMENT SCHEDULE.

6. PROVIDE AND INSTALL NEW INTERIOR AND EXTERIOR RECEPTACLES FOR SERVICE AND GENERAL USE. GENERALLY MOUNT ALL DEVICES 36"+ ABOVE FLOOR OR ROOF. PROVIDE "IN USE" TYPE WEATHER COVERS FOR EXTERIOR RECEPTACLES. CIRCUIT TO THE PROPOSED PANEL.

7. PROVIDE AND INSTALL A POWER CIRCUIT FOR THE BUILDING MANAGEMENT CONTROLS SYSTEM. COORDINATE WITH THE CONTROLS CONTRACTOR. CONNECT TO THEIR POWER SUPPLY OR AS DIRECTED.

8. PROVIDE NEW DUCT DETECTORS TO THE MECHANICAL CONTRACTOR FOR INSTALLATION IN THE PROPOSED DUCTWORK. ALL DEVICES TO BE PROVIDED BY THE BUILDING FIRE ALARM VENDOR, CURRENT TECHNOLOGY AND FULLY COMPATIBLE WITH THE EXISTING SYSTEM. EXTEND THE FIRE ALARM DETECTION ZONE AND CONNECT THE NEW DEVICES, RETAIN EXISTING ZONING. PROVIDE INTERFACE MODULES WITH AUXILIARY CONTACTS FOR B.M.S. CONTROLS CONNECTIONS. MOUNT REMOTE TEST SWITCHES FOR EACH DEVICES ON THE MOUNTING BOARD IN THE LOCATION OF THE EXISTING. PROVIDE THE SERVICES OF THE FIRE ALARM VENDOR TO WIRE ALL NEW DEVICES INTO THE SYSTEM AND TEST FOR PROPER OPERATION. LABEL ALL DEVICES PER THE SYSTEM STANDARDS.

9. PROVIDE AND INSTALL NEW FIRE ALARM DETECTION AND ANNUNCIATION DEVICES FOR THE PENTHOUSE. INSTALL A NEW SYSTEM OF SMOKE DETECTORS AT THE ROOF FRAMING TO PROVIDE COMPLETE COVERAGE (FACTOR IN DUCTWORK AND OBSTRUCTIONS). INSTALL NEW PULL STATION AND HORN STROBE UNITS, APPROXIMATELY AS INDICATED. EXTEND WIRING AND PROGRAM INTO THE SYSTEM AS NOTED ABOVE.

10. PROVIDE A COMPLETE SYSTEM OF GENERAL LIGHTING, EMERGENCY LIGHTING AND EXIT LIGHTING TO SERVE THE PENTHOUSE, STAIR AND ROOF AREAS. SEE LIGHTING FIXTURE SCHEDULE. WALL MOUNT FIXTURES IN THE STAIR IN THE CURRENT LOCATIONS. FIXTURES IN THE PENTHOUSE TO BE CHAIN HUNG OR MOUNTED ON UNDER SIDE OF DUCTS AS THE LOCATION DICTATES. GENERALLY CHAIN MOUNTED FIXTURES TO BE NEAR 9'-0" OR AT BOTTOM OF DUCTWORK. CIRCUIT FIXTURES TO THE PROPOSED PANEL AND PROVIDE NEW SWITCHING FROM THE CURRENT LOCATION. WALL MOUNT ROOF LIGHTING AT 9'-0"+/- ABOVE ROOF LEVEL AND CONTROL VIA A TIMER SWITCH, TWO HOUR MAXIMUM SETTING. INSTALL EXIT AND EMERGENCY LIGHTING APPROXIMATELY AS INDICATED, CONNECT TO LOCAL CIRCUIT, UN-SWITCHED.

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ELECTRICAL EQUIPMENT LEGEND

SYMBOL	DESCRIPTION
	DISCONNECT SWITCH
$	WALL SWITCH
$D	WALL SWITCH INDICATING CIRCUIT CONTROLLED TYPICAL. DIMMABLE UNLESS NOTED OTHERWISE.
$3	THREE-WAY SWITCH (4 = 4-WAY). FOR CLARIFICATION ONLY.
$T	WALL SWITCH WITH TIMER CONTROL
$OC	NON-DIMMING WALL SWITCH WITH OCCUPANCY SENSOR
OC	OCCUPANCY SENSOR
	CABLE TV COAX JACK. "PS" INDICATES ALSO CAT 5 CABLE FROM PATIENT STATION TO RJ-45 JACK AT TV.
PE	PHOTOCELL
	DATA OUTLET. (2) CAT6 CABLES AND (2) JACKS PER LOCATION UNLESS NOTED OTHERWISE.
	DUPLEX RECEPTACLE
	QUADPLEX RECEPTACLE
	GFCI RECEPTACLE
J	JUNCTION BOX
Od	TYPICAL RECESSED CAN LIGHT, LETTER INDICATES CONTROL
d	TYPICAL RECESSED LIGHT FIXTURE, LETTER INDICATES CONTROL
	TYPICAL EXIT LIGHT FIXTURE
	HOME RUN TO PANELBOARD
SP	SPEAKER
DC	DIGITAL CLOCK
CR	CARD READER
DR	DOOR OPERATOR
PB	PUSH BUTTON
REX	REQUEST TO EXIT SENSOR
SC	SECURITY CAMERA (INTERIOR)
	SECURITY CAMERA (EXTERIOR)
WF	WI-FI HUBB CEILING JACK. MOUNT IN SINGLE GANG BOX ON WALL IN CEILING SPACE WITHIN 5' OF DEVICE.
LM	ISOLATION PANEL REMOTE LINE MONITOR

ABBREVIATIONS

ABBREV.	DESCRIPTION
ADO	AUTOMATIC DOOR OPENER
AF	AMPERE FRAME
AFF	ABOVE FINISHED FLOOR
AT	AMPERE TRIP
BC	BARE COPPER
BPIP	BOILER PLANT INSTRUMENTATION PANEL
CB, C/B	CIRCUIT BREAKER
CL	CEILING
DB	DIRECT BURIAL
EC	EMPTY CONDUIT
EG	EQUIPMENT GROUND
FI	FILM ILLUMINATOR
FL	FLOOR
FSS	FUSED SAFETY SWITCH
FSCP	FLAME SAFEGUARD CONTROL PANEL
GTB	GROUND TERMINAL BOX
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
LTCP	LOCAL TEMPERATURE CONTROL PANEL
MDP	MAIN DISTRIBUTION PANEL
MLO	MAIN LUGS ONLY
NFSS	NON-FUSED SAFETY SWITCH
PBPU	PREFABRICATED BEDSIDE PATIENT POWER UNIT
POD	POWER OPERATED DAMPER
PTRV	POWER TYPE ROOF VENTILATION
RR	REMOVE AND RELOCATE
R	RELOCATED
SS	SAFETY SWITCH
W	WIRE
EM	EMERGENCY POWER- EQUIPMENT BRANCH
EMC	EMERGENCY POWER- LIGHTING CRITICAL BRANCH
LS	EMERGENCY POWER- LIFE SAFETY BRANCH
E	EMERGENCY POWER- RECEPTACLE CRITICAL BRANCH

FIRE ALARM LEGEND

SYMBOL	DESCRIPTION
DD	DUCT SMOKE DETECTOR
HS	HORN STROBE
HS	CEILING MOUNTED HORN STROBE
S	STROBE
S	CEILING MOUNTED STROBE
SS	SPEAKER STROBE
SS	CEILING MOUNTED SPEAKER STROBE
SD	SMOKE DETECTOR
HD	HEAT DETECTOR
PS	PULL STATION
DH	DOOR HOLD
TS	TAMPER SWITCH
FS	FLOW SWITCH
RT	DUCT SMOKE DETECTOR TEST SWITCH
SD#.#	SMOKE DAMPER

ELECTRICAL LEGEND

- EXISTING ELECTRICAL TO BE DEMOLISHED
- EXISTING ELECTRICAL TO REMAIN
- NEW ELECTRICAL WORK TO BE PROVIDED

ELECTRICAL GENERAL NOTES:

1. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL LABOR AND MATERIALS NECESSARY TO PROVIDE A COMPLETE, CODE COMPLIANT ELECTRICAL SYSTEM. THE DRAWINGS ARE SCHEMATIC IN NATURE AND INDICATE GENERAL ARRANGEMENT AND ROUTING OF CONDUIT. THE ELECTRICAL CONTRACTOR SHALL NOT INSTALL EQUIPMENT, DEVICES, OR CONDUIT IN A NON-CODE COMPLIANT FASHION DUE TO DRAWINGS INTERPRETATION. THE ELECTRICAL CONTRACTOR SHALL PROVIDE MODIFICATIONS OF ILLUSTRATED WORK IN ORDER TO ACCOMMODATE JOB CONDITIONS AT NO EXTRA COST TO THE OWNER.
2. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING POWER AND THE FINAL ELECTRICAL CONNECTIONS TO ALL EQUIPMENT REQUIRING POWER INDICATED ON THE ARCHITECTURAL AND MECHANICAL DRAWINGS. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR REVIEWING THE ARCHITECTURAL AND MECHANICAL DRAWINGS PRIOR TO BIDDING, AND FOR INDICATING CONFLICTS. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE ARCHITECTURAL AND MECHANICAL DRAWINGS DURING CONSTRUCTION.
3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE (NEC.) AND ALL LOCAL CODES.
4. ALL ELECTRICAL EQUIPMENT, TRANSFORMER, AND LUMINAIRES SHALL BE GROUNDED IN ACCORDANCE WITH ARTICLE 250 OF THE NEC.
5. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, SERVICES AND RELATED ACCESSORIES NEEDED FOR THE COMPLETE INSTALLATION OF ALL WORK SHOWN ON THE DRAWINGS AND REQUIRED BY CODE.
6. COORDINATE ALL WORK WITH OTHER TRADES. PROVIDE A COORDINATION DRAWING TO THE ENGINEER, CONSTRUCTION MANAGER, AND ALL OTHER TRADES SHOWING THE LOCATION OF ALL DEVICES AND EQUIPMENT.
7. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY POWER AND LIGHTING DURING ALL PHASES OF THE WORK.
8. COORDINATE ALL UTILITY SHUT DOWNS WITH THE CONSTRUCTION MANAGER. ALL SHUT DOWNS WILL BE CONDUCTED DURING OFF SHIFT HOURS.
9. THE DEFINITION OF "OFF SHIFT HOURS" PERTAINS TO THE TIME PERIOD BETWEEN 8 P.M. AND 4 A.M. EACH DAY.
10. PROVIDE CONDUIT SEAL SIMILAR TO JACKMOON SEALING PLUG FOR ALL EXTERIOR PENETRATIONS. COORDINATE SIZE AND CONDUCTOR QUANTITIES.
11. ALL INSTALLATIONS SHALL BE AS DICTATED IN SPECIFICATIONS.
12. CONTRACTOR TO PROVIDE ALL CONDUIT, CABLES, AND ACCESSORIES FOR TELECOM/DATA. CONTRACTOR TO COORDINATE WITH OWNER ROUTING OF CABLES TO LOCAL TELECOM/DATA ROOM.
13. EACH RECEPTACLE CIRCUIT WITHIN THE OPERATING ROOMS TO HAVE DEDICATED COLORED DEVICE AND WALL PLATE. (LEVITOR RENU COLOR PALLETTE OR EQUAL). EACH OR ROOM SHALL HAVE MATCHING COLOR SCHEME BASED ON TABLE LAYOUT. COORDINATE FINAL COLOR SELECTION WITH ARCHITECT.
14. ELECTRICAL CONTRACTOR TO PROVIDE DISCONNECT SWITCHES FOR ALL EQUIPMENT UNLESS INTEGRAL WITH UNITS..
15. MECHANICAL CONTROLS CONTRACTOR RESPONSIBLE FOR PROVIDING POWER TO ALL CONTROL PANELS.

LIGHTING SCHEDULE

TAG	DESCRIPTION	MAKE & MODEL (OR EQUIVALENT)	LAMP(S)	LUMENS	ELEC.	REMARKS
A	2X2 RECESSED LED UTILITY TROFFER	LITHONIA LIGHTING - 2GTL-2-33L-AI2125-MVOLT-EZI-LP840	28.6W LED	3,494	277	0-10V DIMMING
B	2X2 RECESSED LED DIR/INDIR.	LITHONIA LIGHTING - STAK-2x2-3000LM-80CRI-35K-COL-MINI-EZT-MVOLT	24.1W LED	3,141	277	0-10V DIMMING
C	2X2 RECESSED LED DIR/INDIR.	LITHONIA LIGHTING - STAK-2x2-4000LM-80CRI-35K-COL-MINI-EZT-MVOLT	33.3W LED	4,126	277	0-10V DIMMING
D	2X2 RECESSED LED FLAT PANEL	LITHONIA LIGHTING - CPX-2x2-AL07-SWW7-M4	28.7W LED	3,356	277	0-10V DIMMING
F	RECESSED LED DOWN LIGHT	LITHONIA LIGHTING - LDN6-AL01-35K-L06-AR-LSS-MVOLT-UGZ	9.0W LED	925	277	0-10V DIMMING
G	NARROW RECESSED LED STRIP LIGHT	LITE CONTROL - 75L-P-D-8'-08-C5-35K-D075-D01-IC-UNV-ECO-FAI-CBI	52.8W LED	6,000	277	0-10V DIMMING
H	LINEAR PENDANT DIRECT/ INDIRECT LED LIGHT	LITE CONTROL - STNC-PL-ID-STD-8'-8-SOF WH5-35K9-1050-D075-D01-2C-UNV-FAI/V-DCC	24.8W LED/ 72.0W LED	4,000/ 9,000	277	0-10V DIMMING, TWO CIRCUIT.
J	LED TAPE LIGHT WITH MTG. CHANNEL	JUNO LIGHTING JFX-24V-300LM-16FT-30K-90CRI-DL-SLCH	54.4W LED	4,560	120	DRIVER - MODEL JFXDRV-MVOLT-ZT-60W., 0-10V DIMMING
K	RECESSED LED DOWN LIGHT	LITHONIA LIGHTING - LDN6-AL02-35K-L06-AR-LSS-MVOLT-UGZ	12.0W LED	1,383	277	0-10V DIMMING
L	WALL MOUNT LINEAR DIRECT/INDIRECT LED	A-LIGHT - ATM12-16'-ILH+DLS-35-CRI80-U-G-D-HE-HI-W-2-D	153.6LED/ 208.0W LED	13,824/ 22,464	277	0-10V DIMMING, TWO CIRCUIT.
M	LED STRIP UTILITY WALL/SUSPENDED	LITHONIA LIGHTING - ZLID-L48-5MR-5000LM-FST-MVOLT-40K-80CRI-WH	11W LED	3,540	120	PROVIDE WITH #HC36M12 CHAIN HANGER KIT AND #WGZ48 WIRE GUARD, 0-10V DIMMING.
N	EXTERIOR LED WALL PACK	RAB LIGHTING - WPX-1-30W-4000K-BRONZE-MVOLT-PHOTOCELL	32.0W LED	4,739	120	WALL MOUNT PER PLANS.
	LED EMERGENCY LIGHT	LITHONIA LIGHTING - ELM4L	3.2W LED	-	120	WITH NICKEL-CADMIUM BATTERY AND SELF DIAGNOSTICS.
	EXIT LIGHT, SINGLE/ DOUBLE FACE	LITHONIA LIGHTING - QUANTUM LQMS-W-RG-MVOLT-EL-SD	1.9W LED	-	120	WITH NICKEL-CADMIUM BATTERY AND SELF DIAGNOSTICS.
	COMBO EXIT/ EMERGENCY LIGHT	LITHONIA LIGHTING - QUANTUM LHQM-LED-R-SD-M6	4.3W LED	-	120	WITH NICKEL-CADMIUM BATTERY AND SELF DIAGNOSTICS.

GENERAL NOTES:

1. PROVIDE ALL MOUNTING HARDWARE REQUIRED BASED ON CEILING OR OTHER MOUNTING SURFACE TYPE. REFER TO ARCHTECTURAL DRAWINGS.
2. WHERE AVAILABLE FIXTURE SHALL BE PROVIDED WITH UNIVERSAL (120-277V) DRIVER OR POWER SUPPLY.
3. ALL DIMMABLE FIXTURES SHALL BE PROVIDED WITH COMPATIBLE DIMMING SWITCH PER MANUFACTURER LISTING.
4. REFER TO LIGHTING CONTROL DETAILS FOR CONTROL OF EMERGENCY FIXTURES WITH AND WITHOUT DIMMING.
5. ALL LIGHTING TO BE DLC WHERE APPLICABLE, ENERGY STAR OR MINIMUM LUMENS/WATT AS NOTED ON SCHEDULE.

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EQUIPMENT SCHEDULE

TAG	DESCRIPTION	LOCATION	HP	KW	FLA	V	PH	CONDUCTORS	GROUND	CONDUIT	STARTER	BREAKER	PANEL	NOTES
AHU-2	PROPOSED AIR HANDLER UNIT	PENTHOUSE LEVEL 4	2.0	-	3.4	480	3	3-#12	#12	1/2"	VFD	15A, 3P	PEQ4-1	1
CU-2A	PROPOSED AHU-2 CONDENSING UNIT	ROOF LEVEL 4	-	-	31.6	208	1	2-#8	#10	3/4"	N/A	50A, 2P	PP4-1	2
CU-2B	PROPOSED AHU-2 CONDENSING UNIT	ROOF LEVEL 4	-	-	31.6	208	1	2-#8	#10	3/4"	N/A	50A, 2P	PP4-1	2
AHU-3	PROPOSED AIR HANDLER UNIT	PENTHOUSE LEVEL 4	3.0	-	4.8	480	3	3-#12	#12	1/2"	VFD	15A, 3P	PEQ4-1	1, 3
RF-3	PROPOSED RETURN AIR FAN	PENTHOUSE LEVEL 4	2.0	-	3.4	480	3	3-#12	#12	1/2"	ECM	15A, 3P	PEQ4-1	1
CU-3A	PROPOSED AHU-3 CONDENSING UNIT	ROOF LEVEL 4	-	-	17.9	480	3	3-#12	#12	1/2"	N/A	20A, 3P	PEQ4-1	2
CU-3B	PROPOSED AHU-3 CONDENSING UNIT	ROOF LEVEL 4	-	-	17.9	480	3	3-#12	#12	1/2"	N/A	20A, 3P	PEQ4-1	2
AHU-4	PROPOSED AIR HANDLER UNIT	PENTHOUSE LEVEL 4	5.0	-	7.6	480	3	3-#12	#12	1/2"	VFD	20A, 3P	PEQ4-1	1, 3
CU-4	PROPOSED AHU-4 CONDENSING UNIT	ROOF LEVEL 4	-	-	51.0	480	3	3-#6	#8	1"	N/A	70A, 3P	PEQ4-1	2
AHU-5	PROPOSED AIR HANDLER UNIT	CEILING SPACE LEVEL 2	1.0	-	14.4	120	1	2-#12	#12	1/2"	ECM	30A, 1P	PP2-1	4
CU-5A	PROPOSED AHU-5 CONDENSING UNIT	ROOF LEVEL 4	-	-	31.6	208	1	2-#8	#10	3/4"	N/A	50A, 2P	PP4-1	2
CU-5B	PROPOSED AHU-5 CONDENSING UNIT	ROOF LEVEL 4	-	-	31.6	208	1	2-#8	#10	3/4"	N/A	50A, 2P	PP4-1	2
AHU-1	EXISTING MAIN AIR HANDLER UNIT	PENTHOUSE LEVEL 4	10.0	-	14.0	480	3	3-#10	#10	3/4"	VFD	40A, 3P	PEQ4-1	5
RAF-1	EXISTING RETURN AIR FAN	PENTHOUSE LEVEL 4	10.0	-	14.0	480	3	3-#10	#10	3/4"	VFD	40A, 3P	PEQ4-1	5
RAF-2	EXISTING RETURN AIR FAN	PENTHOUSE LEVEL 4	1.0	-	1.8	480	3	3-#12	#12	1/2"	VFD	15A, 3P	PEQ4-1	5
RAF-4	EXISTING RETURN AIR FAN	PENTHOUSE LEVEL 4	2.0	-	3.4	480	3	3-#12	#12	1/2"	VFD	15A, 3P	PEQ4-1	5
RAF-4	EXISTING RETURN AIR FAN	PENTHOUSE LEVEL 4	2.0	-	3.4	480	3	3-#12	#12	1/2"	VFD	15A, 3P	PEQ4-1	5
EF-3	EXISTING EXHAUST FAN 3	ROOF LEVEL 4	0.5	-	1.0	480	3	3-#12	#12	1/2"	VFD	15A, 3P	PEQ4-1	6
HWP-1	EXIST. HYDRONIC HEATING WATER PUMP	PENTHOUSE LEVEL 4	7.5	-	11.0	480	3	3-#12	#12	1/2"	VFD	30A, 3P	EP-1	7
HWP-2	EXIST. HYDRONIC HEATING WATER PUMP	PENTHOUSE LEVEL 4	7.5	-	11.0	480	3	3-#12	#12	1/2"	VFD	30A, 3P	EP-1	7
CP-2	AHU-2 COIL FREEZE PROTECTION CIRCULATOR	PENTHOUSE LEVEL 4	0.25	-	5.8	120	1	2-#12	#12	1/2"	-	15A, 1P	PP4-1	4
CP-3	AHU-3 COIL FREEZE PROTECTION CIRCULATOR	PENTHOUSE LEVEL 4	0.25	-	5.8	120	1	2-#12	#12	1/2"	-	15A, 1P	PP4-1	4
CP-4	AHU-4 COIL FREEZE PROTECTION CIRCULATOR	PENTHOUSE LEVEL 4	0.25	-	5.8	120	1	2-#12	#12	1/2"	-	15A, 1P	PP4-1	4
HW-3	DOMESTIC WATER HEATER	LEVEL 2 CEILING SPACE	-	1.5	-	120	1	2-#12	#12	1/2"	-	20A, 1P	PP2-1	8
HDW-3	TRAINING HEADWALL UNIT	CLASSROOM TRAINING LABS	-	-	2.0	120	1	2-#12	#12	1/2"	-	20A, 1P	PP2-1	9

NOTES:

1. PROVIDE AND INSTALL A POWER CIRCUIT TO THE UNIT. IF LINE OF SIGHT TO THE PANEL IS NOT CLEAR, INSTALL A HEAVY DUTY NEMA 1 DISCONNECT SWITCH AT THE UNIT. MAKE FINAL CONNECTION WITH FLEXIBLE CONDUIT.
2. PROVIDE AND INSTALL A NEMA 3R HEAVY DUTY FUSED DISCONNECT SWITCH AT THE UNIT. PROVIDE S.S. STRUT FRAMING AS REQUIRED TO MOUNT UNIT. EXTERIOR PORTIONS OF THE CIRCUIT TO COMPLY WITH THE SPECIFICATIONS. PROVIDE PROPERLY SIZED FUSES FOR THE UNIT. MAKE FINAL CONNECTION TO UNIT WITH SEAL TIGHT FLEXIBLE CONDUIT.
3. RELOCATE THE UNIT VFD AND CONTROL PANEL. DISCONNECT MOTOR WIRING AND REMOVE FROM THE FACTORY INSTALLED LOCATION. RE-MOUNT IN AN ACCESSIBLE LOCATION AND RECONNECT MOTOR WIRING.
4. PROVIDE AND INSTALL A THERMALLY PROTECTED MOTOR SWITCH THE UNIT. INSTALL POWER CIRCUIT PER THE SCHEDULE AND MAKE FINAL CONNECTION WITH FLEXIBLE CONDUIT.
5. PROVIDE AND INSTALL A VARIABLE FREQUENCY DRIVE TO SERVE THE EXISTING HVAC EQUIPMENT, MOUNT PER PLANS. INSTALL POWER CIRCUIT PER THE SCHEDULE. MAKE FINAL CONNECTION TO MOTOR WITH CONDUIT TO WITHIN 4', AND FINAL CONNECTION WITH SEAL TIGHT FLEXIBLE CONDUIT.
6. PROVIDE AND INSTALL A VARIABLE FREQUENCY DRIVE TO SERVE THE EXISTING HVAC EQUIPMENT, MOUNT PER PLANS. PROVIDE AND INSTALL A NEMA 3R HEAVY DUTY FUSED DISCONNECT SWITCH AT THE UNIT. INSTALL POWER CIRCUIT PER THE SCHEDULE. PROVIDE PROPERLY SIZED FUSES FOR THE UNIT. MAKE FINAL CONNECTION TO UNIT WITH SEAL TIGHT FLEXIBLE CONDUIT.
7. PROVIDE AND INSTALL VARIABLE FREQUENCY DRIVES TO SERVE THE EXISTING UNITS AND FUSED DISCONNECT SWITCHES. SWITCHES TO BE COMPACT TYPE, WITH PROPERLY SIZED FUSES. EXTEND THE EXISTING CIRCUIT TO THE DISCONNECT SWITCHES, PROVIDE JUNCTION BOX OR SIMILAR AND TAP TO EACH SWITCH. INSTALL POWER WIRING TO THE VFD'S AND TO EACH RESPECTIVE PUMP. MAKE FINAL CONNECTIONS WITH SEAL TIGHT FLEXIBLE CONDUIT.
8. PROVIDE TOGGLE TYPE DISCONNECT SWITCH AT THE UNIT. INSTALL POWER CIRCUIT PER THE SCHEDULE AND MAKE FINAL CONNECTION WITH FLEXIBLE CONDUIT.
9. CAREFULLY ROUGH IN A RECESS POWER CONNECTION BOX PER THE MANUFACTURER'S INSTRUCTIONS. INSTALL POWER CIRCUIT TO THE EQUIPMENT PER THE SCHEDULE AND CONNECT TO THE UNIT TERMINALS.

ELECTRICAL PANEL SCHEDULE: PANEL PEQ4-1

PENTHOUSE, LEVEL 4

VOLTAGE:	480/277	NEUTRAL:	CU OR AL	LOCATION:	SEE DRAWINGS	FED FROM:	EXIST. MDP
AMPERAGE:	225A	NEUTRAL RATING:	100%	MAKE:	POWER DIST. PANEL		
INTERRUPTANCE:	18 KAIC	MAIN TYPE:	M.L.O.	MODEL NUMBER:	-		
PHASE:	3PH	MAIN RATING:	400A	MOUNTING:	SURFACE		
WIRE:	4W			TRIM STYLE:	-		

LOAD DESCRIPTION	CKT. BKR.	A	B	C	CKT. NO.		A	B	C	CKT. BKR.	LOAD SPARE
AIR HANDLER UNIT - AHU-2	3P-15A				1	2				3P-40A	AIR HANDLER UNIT - AHU-1
-	-				3	4				-	-
-	-				5	6				-	-
CONDENSING UNIT - CU-2	3P-XXA				7	8				3P-40A	RETURN AIR FAN - RAF-1
-	-				9	10				-	-
-	-				11	12				-	-
AIR HANDLER UNIT - AHU-3	3P-15A				13	14				3P-15A	RETURN AIR FAN - RAF-2
-	-				15	16				-	-
-	-				17	18				-	-
RETURN AIR FAN - RF-3	3P-15A				19	20				3P-15A	RETURN AIR FAN - RAF-4
-	-				21	22				-	-
-	-				23	24				-	-
CONDENSING UNIT - CU-3A	3P-20A				25	26				3P-15A	EXHAUST AIR FAN - EF-3
-	-				27	28				-	-
-	-				29	30				-	-
CONDENSING UNIT - CU-3B	3P-20A				31	32				-	PREPARED SPACE - 100A/3P
-	-				33	34				-	-
-	-				35	36				-	-
AIR HANDLER UNIT - AHU-4	3P-20A				37	38				-	PREPARED SPACE - 100A/3P
-	-				39	40				-	-
-	-				41	42				-	
CONDENSING UNIT - CU-4	3P-70A				43	44				-	PREPARED SPACE - 100A/3P
-	-				45	46				-	-
-	-				47	48				-	
PREPARED SPACE - 225A/3P	-				49	50				-	PREPARED SPACE - 225A/3P
-	-				51	52				-	-
-	-				53	54				-	
NOTES:	TOTAL	0.0	0.0	0.0			0.0	0.0	0.0	TOTAL	

1. NEUTRAL SHARING IS NOT PERMITTED. PROVIDE ONE NEUTRAL PER CIRCUIT.
2. EACH "PREPARED SPACE" TO BE BASED ON NOMINAL 4.5" BREAKER SIZE.

ELECTRICAL PANEL SCHEDULE: PANEL PP4-1

PENTHOUSE, LEVEL 4

VOLTAGE:	208/120	NEUTRAL:	CU OR AL	LOCATION:	SEE DRAWINGS	FED FROM:	EXIST. MPP
AMPERAGE:	150A	NEUTRAL RATING:	100%	MAKE:	-		
INTERRUPTANCE:	10 KAIC	MAIN TYPE:	M.L.O.	MODEL NUMBER:	-		
PHASE:	3PH	MAIN RATING:	225A	MOUNTING:	SURFACE		
WIRE:	4W			TRIM STYLE:	-		

LOAD DESCRIPTION	CKT. BKR.	A	B	C	CKT. NO.		A	B	C	CKT. BKR.	LOAD DESCRIPTION
A.H.U. REFRIG. LEAK DETECTION	1P-20A				1	2				2P-50A	CONDENSING UNIT - CU-2A
FREEZE PROT. CIRCULATOR - CP-2	1P-20A				3	4				-	-
FREEZE PROT. CIRCULATOR - CP-3	1P-20A				5	6				1P-50A	CONDENSING UNIT - CU-2B
FREEZE PROT. CIRCULATOR - CP-4	1P-20A				7	8				-	-
RECEPTACLES - EXTERIOR	1P-20A				9	10				2P-50A	CONDENSING UNIT - CU-5A
BUILDING MANAGEMENT CONTROLS	1P-20A				11	12				-	-
RECEPTACLES - INTERIOR	1P-20A				13	14				1P-50A	CONDENSING UNIT - CU-5B
LIGHTING - PENTHOUSE	1P-20A				15	16				-	-
SPARE BREAKER	1P-20A				17	18				1P-20A	SPARE BREAKER
SPARE BREAKER	1P-20A				19	20				1P-20A	SPARE BREAKER
SPARE BREAKER	1P-20A				21	22				1P-20A	SPARE BREAKER
PREPARED SPACE	-				23	24				-	PREPARED SPACE
PREPARED SPACE	-				25	26				-	PREPARED SPACE
PREPARED SPACE	-				27	28				-	PREPARED SPACE
PREPARED SPACE	-				29	30				-	PREPARED SPACE
NOTES:	TOTAL	0.0	0.0	0.0			0.0	0.0	0.0	TOTAL	

1. NEUTRAL SHARING IS NOT PERMITTED. PROVIDE ONE NEUTRAL PER CIRCUIT.

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ELECTRICAL - EQUIPMENT & PANEL SCHEDULES

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