

Orange County Corrections Booking & Release Center Energy Recovery Units Replacement

ORANGE COUNTY MAYOR
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BETSY VANDERLEY

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BID DOCUMENTS
APRIL 28, 2017



482 SOUTH KELLER ROAD
ORLANDO, FLORIDA 32810

Sheet Number	Sheet Name	Scale	Sheet Issued
M-000	COVER SHEET & SHEET INDEX	No Scale	Yes
M-001	HVAC SYMBOLS LEGEND & GENERAL NOTES	No Scale	Yes
MD-101	FOURTH FLOOR HVAC DEMOLITION PLAN - AREA 1 & 2	1/8"=1'-0"	Yes
MD-102	ROOF HVAC DEMOLITION PLAN - AREA 1 & 2	1/8"=1'-0"	Yes
M-101	FOURTH FLOOR HVAC PLAN - AREA 1 & 2	1/8"=1'-0"	Yes
M-102	ROOF HVAC PLAN - AREA 1 & 2	1/8"=1'-0"	Yes
M-201	HVAC DETAILS & SCHEDULES	No Scale	Yes

Sheet Number	Sheet Name	Scale	Sheet Issued
E-001	ELECTRICAL LEGEND, SCHEDULE & ONE-LINE	No Scale	Yes
ED-101	FOURTH FLOOR ELECTRICAL DEMOLITION PLAN - AREA 1 & 2	1/8"=1'-0"	Yes
ED-102	ROOF ELECTRICAL DEMOLITION PLAN - AREA 1 & 2	1/8"=1'-0"	Yes
E-101	FOURTH FLOOR ELECTRICAL PLAN - AREA 1 & 2	1/8"=1'-0"	Yes
E-102	ROOF ELECTRICAL PLAN - AREA 1 & 2	1/8"=1'-0"	Yes
E201	ELECTRICAL DETAILS	No Scale	Yes

ATKINS

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CONSULTANT:

CLIENT:



PROJECT NAME:

**Orange County Corrections Booking & Release
Center Energy Recovery Units Replacement**

2400 33rd Street, Orlando, FL 32839

100048251

No. Date Description

ISSUE LOG

PROFESSIONAL SEALS:

KELLIE A RAMOS, P.E.
FLORIDA REG NO. 76996

SHEET TITLE:

**COVER SHEET &
SHEET INDEX**

SHEET INFORMATION:

JOB No. **100048251** Date Issued: APRIL 28, 2017

Designed By: REP Sheet Number:

Checked By: DLH

OC Review: T.J.F.

Phase: 100% CD

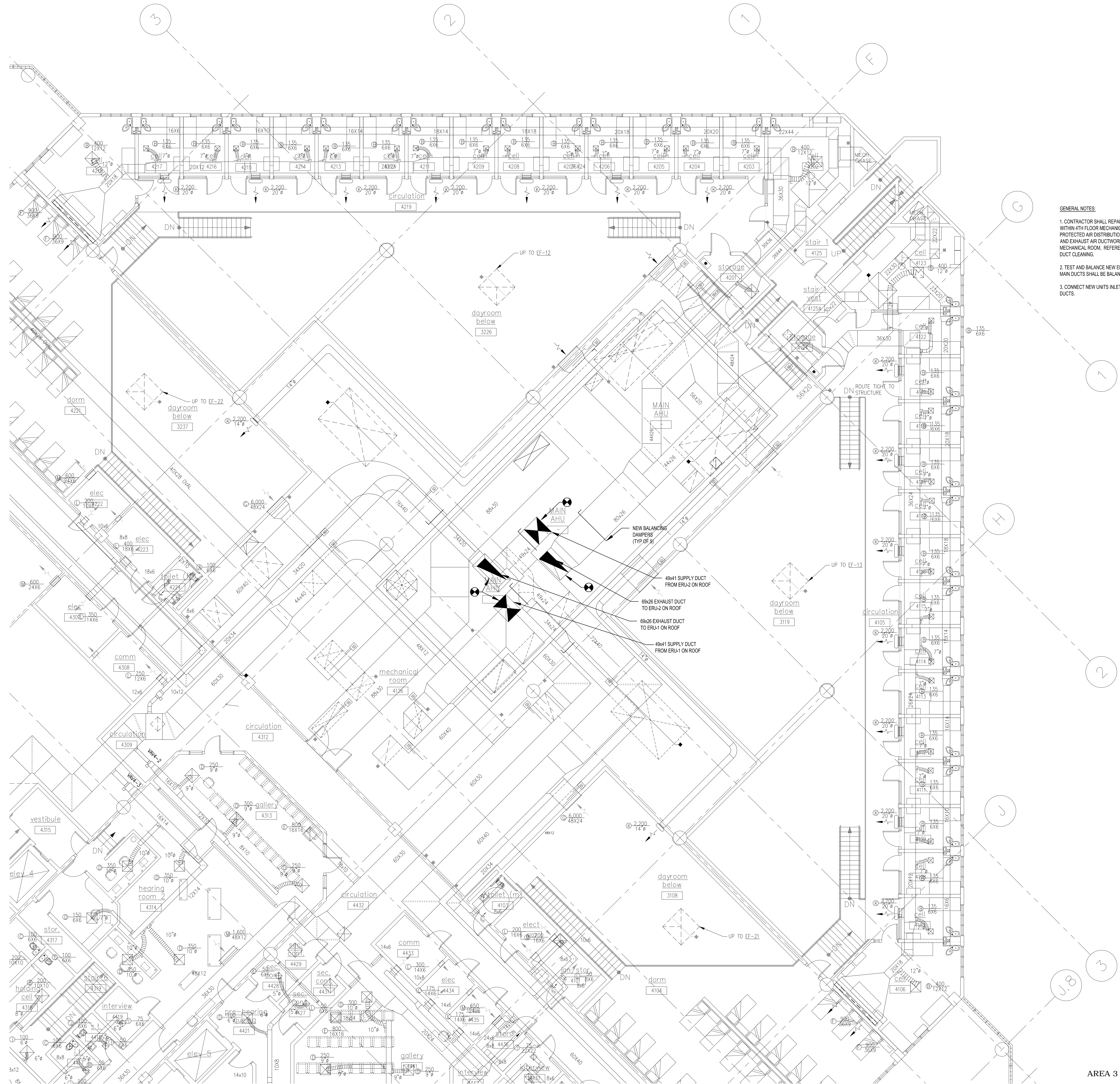
M-000



Orange County Corrections Booking & Release Center Energy Recovery Units Replacement

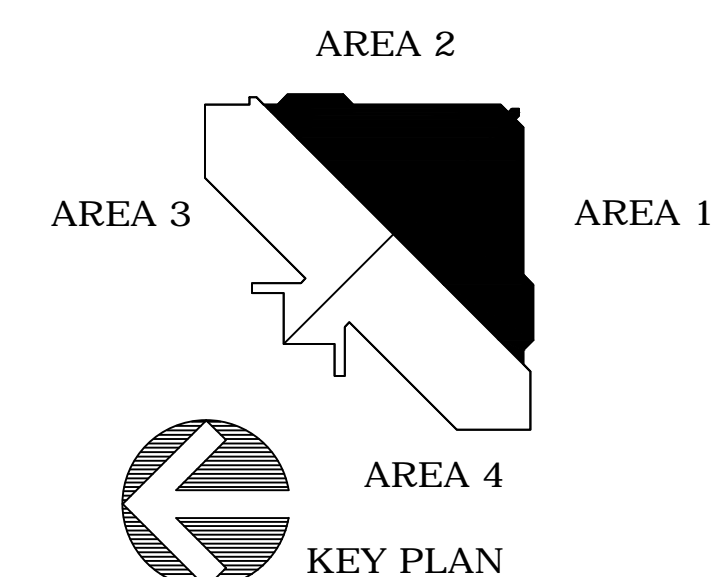
2400 33rd Street, Orlando, FL 32839

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GENERAL NOTES:
1. CONTRACTOR SHALL REPAIR, PATCH AND/OR REPLACE DUCTS AND INSULATION WITHIN 4TH FLOOR MECHANICAL ROOM TO PROVIDE A LEAK FREE AND THERMALLY PROTECTED AIR DISTRIBUTION SYSTEM. PROFESSIONALLY CLEAN OUTDOOR AIR AND EXHAUST AIR DUCTWORK ASSOCIATED WITH THE UNITS WITHIN 4TH FLOOR MECHANICAL ROOM. REFERENCE SPECIFICATION SECTION 220103.11 - HVAC AIR DUCT CLEANING.
2. TEST AND BALANCE NEW ERUS PER SPECIFICATIONS. ERU SUPPLY AND EXHAUST MAIN DUCTS SHALL BE BALANCED TO NEW AIRFLOWS SHOWN ON SCHEDULE.
3. CONNECT NEW UNITS INLET AND OUTLETS TO EXISTING SUPPLY AND EXHAUST DUCTS.

A **FOURTH FLOOR HVAC PLAN - AREA 1 & 2**
SCALE: 1/8" = 1'-0"



No.	Date	Description

ISSUE LOG
PROFESSIONAL SEALS:

KELLIE A RAMOS, P.E.
FLORIDA REG NO. 76996

SHEET TITLE: FOURTH FLOOR HVAC PLAN - AREA 1 & 2

SHEET INFORMATION:	
JOB No. 100048251	Date Issued: APRIL 28, 2017
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Phase: 100% CD	

CONSULTANT:

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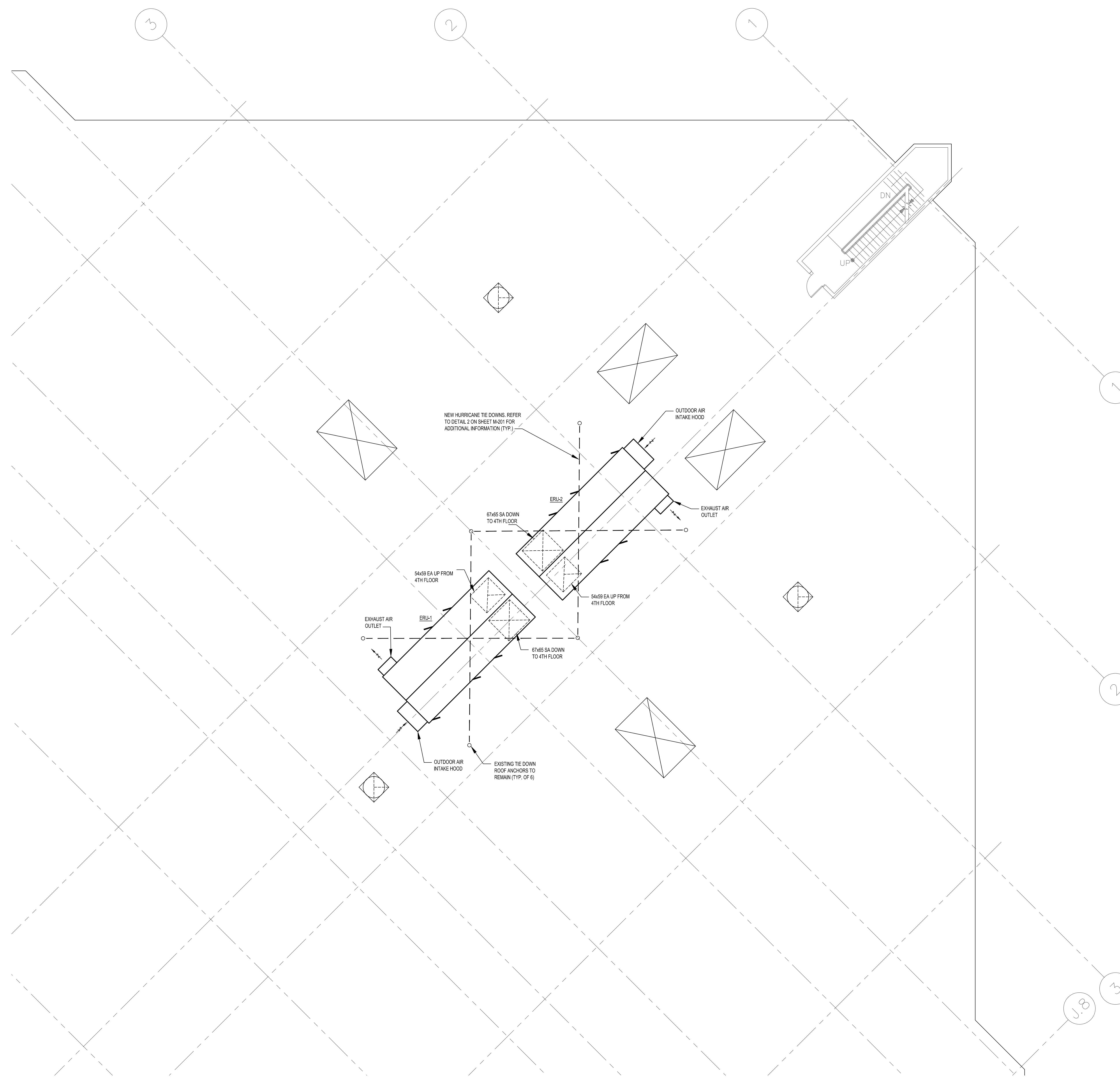
Orange County Corrections Booking & Release Center Energy Recovery Units Replacement

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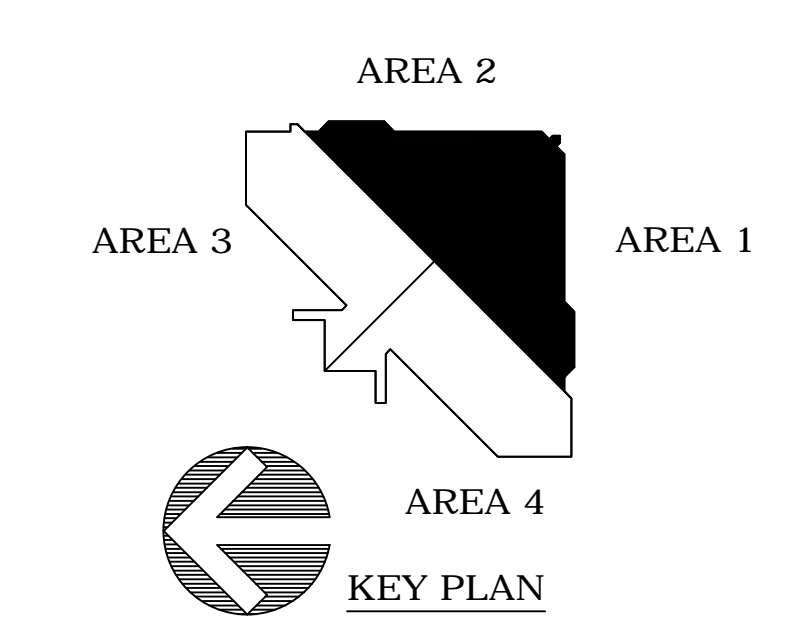
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GENERAL NOTES:

1. CONTRACTOR SHALL REPAIR, PATCH AND/OR REPLACE DUCTS AND INSULATION WITHIN 4TH FLOOR MECHANICAL ROOM TO PROVIDE A LEAK FREE AND THERMALLY PROTECTED AIR DISTRIBUTION SYSTEM.
2. TEST AND BALANCE NEW ERUS PER SPECIFICATIONS. EACH ERUS OUTDOOR AIR SHALL BE BALANCED TO TOTAL AIRFLOW SHOWN ON SCHEDULE AND EACH ERUS EXHAUST AIR SHALL BE BALANCED PER FLOOR AT EACH AREA'S EXHAUST RISER TO AIRFLOWS INDICATED ON AIR BALANCE SCHEDULE.
3. CONNECT NEW UNITS INLET AND OUTLETS TO EXISTING SUPPLY AND EXHAUST DUCTS. MOUNT NEW UNITS ON NEW ROOF CURBS AND PROVIDE NEW HURRICANE TIE-DOWNS. PROVIDE NEW POWER FEED BACK TO SOURCE. REFER TO ELECTRICAL DRAWINGS.
4. NEW ROOFTOP EQUIPMENT TO USE EXISTING ROOF PENETRATIONS. NO NEW ROOF PENETRATIONS OR ENLARGEMENT OF EXISTING ROOF PENETRATIONS ALLOWED.



A ROOF HVAC PLAN - AREA 1 & 2
SCALE: 1/8" = 1'-0"



No.	Date	Description

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KELLIE A RAMOS, P.E.
FLORIDA REG NO. 76996

SHEET TITLE:
**ROOF HVAC PLAN
- AREA 1 & 2**

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RECEPTACLES

- ⊕ SINGLE RECEPTACLE, 2P, 3W, GROUNDING TYPE, 20A, 125V, NEMA-5-20R, MOUNT 18" A.F.F.
- ⊕ DUPLEX RECEPTACLE, 2P, 3W, GROUNDING TYPE, 20A, 125V, NEMA 5-20R, MOUNT 18" A.F.F. U.O.N.
- ⊕ DUPLEX RECEPTACLE - SAME AS ABOVE EXCEPT WITH INTEGRAL GROUND FAULT CIRCUIT INTERRUPTER.
- ⊕ DUPLEX CONVENIENCE RECEPTACLE - SAME AS ABOVE EXCEPT WITH 2-FLAP, SPRING-HINGED, GASKETED AND WEATHERPROOF COVER.

BOXES AND FITTINGS

- ⊕ CEILING OR FLOOR MOUNTED JUNCTION BOX
- ⊕ WALL MOUNTED JUNCTION BOX
- ⊕ FLEXIBLE CONNECTION TO EQUIPMENT
- ⊕ PULLBOX, SIZED AS INDICATED OR AS REQUIRED BY N.E.C.

SWITCHES

- ⊕ 20A. MANUAL MOTOR STARTER TOGGLE SWITCH WITH PILOT LIGHT AND WITHOUT OVERLOADS, 3 = NUMBER OF POLES.
- ⊕ 20A. MOTOR RATED SWITCH.
- ⊕ NON-FUSED SAFETY SWITCH, 3 = NO. OF POLES, 60 = SWITCH SIZE, 600 V. UNLESS OTHERWISE NOTED.
- ⊕ FUSED SAFETY SWITCH, 3 = NO. OF POLES, 60 = SWITCH SIZE, 50 = FUSES SIZE, 600 V. UNLESS OTHERWISE NOTED.
- ⊕ INDIVIDUALLY MOUNTED ENCLOSED CIRCUIT BREAKER, 3 = NO. OF POLES, 100 = FRAME SIZE, 70 = TRIP RATING, 600 V. UNLESS OTHERWISE NOTED.

POWER DISTRIBUTION MOTORS AND CONTROL

- ⊕ POWER OR LIGHTING CIRCUIT BREAKERS PANEL RECESSED MOUNTED ON WALL, SIZE AS INDICATED. DASHED LINE INDICATES REQUIRED CLEARANCE.
- ⊕ POWER OR LIGHTING CIRCUIT BREAKERS PANEL SURFACE MOUNTED ON WALL, SIZE AS INDICATED. DASHED LINE INDICATES REQUIRED CLEARANCE.
- ⊕ MOTOR, WHEN SHOWN, NUMBER INSIDE INDICATES HORSEPOWER.
- ⊕ GENERATOR-SIZE AS INDICATED
- ⊕ MAGNETIC MOTOR STARTER
- ⊕ COMBINATION MAGNETIC MOTOR STARTER AND DISCONNECT SWITCH.

WIRING

- A-1 SINGLE CIRCUIT HOMERUN TO PANEL WITH MINIMUM OF 2 #12AWG CIRCUIT WIRES AND 1 #12AWG GROUND WIRE IN A 3/4" CONDUIT, U.O.N. "A" INDICATES PANEL DESIGNATION, NUMBER INDICATES CIRCUIT DESIGNATION.
- A-1,3,5 MULTIPLE CIRCUITS HOMERUN TO PANEL WITH MINIMUM OF 2 #12AWG WIRES PER CIRCUIT AND 1 #12AWG GROUND WIRE IN A 3/4" CONDUIT, U.O.N. "A" INDICATES PANEL DESIGNATION, NUMBERS SEPARATED BY COMAS INDICATE INDIVIDUAL CIRCUIT DESIGNATIONS.

ABBREVIATIONS

- A AMPERES
- A.F.F. ABOVE FINISHED FLOOR
- A.H.J. AUTHORITY HAVING JURISDICTION
- A.I.C. AMPERES INTERRUPTING CAPACITY, SYMMETRICAL
- C.B. CIRCUIT BREAKER
- CXT. CIRCUIT
- COND., C. CONDUIT
- DISC. DISCONNECT
- EMERG. EMERGENCY
- GFI GROUND FAULT INTERRUPTER
- GND, G. GROUND
- GRS GALVANIZED RIGID STEEL CONDUIT
- HACR HEATING, AIR CONDITIONING, AND REFRIGERATION
- HP HORSE POWER
- KW KILOWATT
- NEC NATIONAL ELECTRICAL CODE
- P.N.L. PANELBOARD
- P.V.C. POLYVINYL CHLORIDE CONDUIT
- SP SPARE CONDUIT
- SW SWITCH
- U.O.N. UNLESS OTHERWISE NOTED
- XFMR TRANSFORMER
- WP INDICATES WEATHERPROOF EQUIPMENT

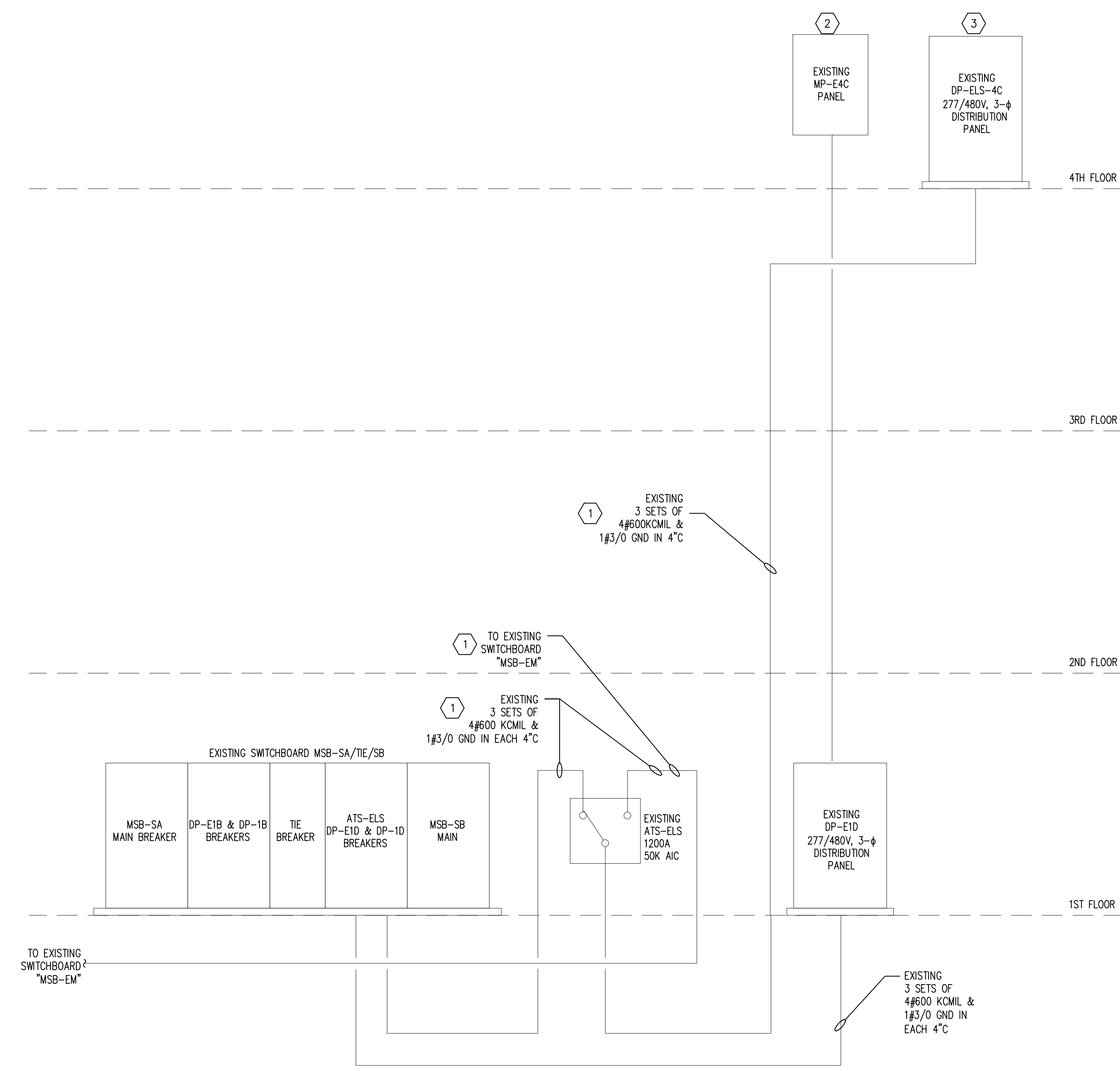
GENERAL NOTES

1. THE WORK PRACTICES EMPLOYED ON THIS PROJECT SHALL AT ALL TIMES COMPLY WITH OR EXCEED THE LATEST ADOPTED EDITION OF THE NEC (NATIONAL ELECTRICAL CODE). CONTRACTOR SHALL PROVIDE OR OBTAIN ALL REQUIRED LABOR, MATERIAL, EQUIPMENT, INSURANCE, TOOLS, PERMITS, INSPECTIONS, ETC TO PERFORM THE PROJECT ELECTRICAL WORK AS PER NEC, LOCAL AGENCIES, AND OWNER REQUIREMENTS.
2. A COPPER EQUIPMENT GROUNDING CONDUCTOR, SIZED AS PER TABLE 250-22 OF THE 2011 OR LATEST ADOPTED NEC, SHALL BE INSTALLED IN EVERY RACEWAY AND EFFECTIVELY TERMINATED AT EACH DEVICE. UNLESS NOTED OTHERWISE, MINIMUM WIRE SIZE FOR PHASE, NEUTRAL AND GROUND SHALL BE #12AWG AND MINIMUM CONDUIT SIZE SHALL BE 3/4".
3. CONDUCTORS #8AWG AND LARGER SHALL BE STRANDED COPPER, #10AWG AND SMALLER SHALL BE SOLID COPPER TYPE THW/THWN-2 UNLESS NOTED OTHERWISE.
4. PROVIDE JUNCTION BOXES PER NEC REQUIREMENT ACCORDING TO THEIR LOCATION.
5. PROVIDE REQUIRED RACEWAY FOR A/C CONTROLS AS REQUIRED. FIELD COORDINATE WITH OTHER TRADES.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CUTTING AND PATCHING REQUIRED TO PERFORM THE ELECTRICAL WORK. OWNER SHALL BE NOTIFIED BEFORE STARTING ANY CUTTING AND PATCHING AND WORK SHALL BE DONE IN SUCH A MANNER THAT WILL NOT AFFECT THE BUILDING STRUCTURE. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE AS A RESULT OF THE CUTTING AND PATCHING AND SHALL PROVIDE A CODE COMPLIANT SOLUTION TO RESTORE THE AFFECTED SYSTEMS AT NO EXTRA CHARGE.
7. COORDINATE FINAL LOCATION OF DEVICES WITH OWNER TO AVOID CONFLICTS WITH CABINETS, ETC.
8. CONTRACTOR SHALL FOLLOW OWNER, NATIONAL AND LOCAL AGENCIES, ETC. SAFETY REGULATIONS PROCEDURES. CONTRACTOR SHALL PROVIDE ADEQUATE EQUIPMENT AND WORKING AREA PROTECTION TO PREVENT INJURIES TO PEOPLE AND DAMAGE TO PROPERTY.
9. FULLY TEST ALL ELECTRICAL SYSTEMS UPON COMPLETION OF WORK.
10. IT IS THE BIDDER'S RESPONSIBILITY TO INSPECT THE PROJECT SITE AND CONSTRUCTION DOCUMENTS PRIOR TO BIDDING. FAILURE TO DO SO SHALL NOT RELIEVE THE CONTRACTOR TO COMPLY AND PERFORM HIS/HER WORK RESPONSIBILITIES UNDER THIS CONTRACT.
11. LABEL PANEL, AND JUNCTION BOXES WITH SOURCE PANEL AND CIRCUIT NUMBER.
12. ALL CIRCUIT BREAKERS SHALL BE BOLT-ON TYPE. CIRCUIT BREAKERS PROTECTING HEATING, AIR CONDITIONING AND REFRIGERATION EQUIPMENT SHALL BE HACR RATED.
13. RUN POWER DISTRIBUTION CONDUITS AND HOME RUNS ABOVE THE BOTTOM OF TRUSSES TO AVOID FIRE RATED WALL PENETRATIONS. IF A FIRE WALL PENETRATION IS REQUIRED, THE CONTRACTOR SHALL USE AND PROVIDE A WALL PENETRATION PROCEDURE AND INSTALLATION APPROVED BY THE A.H.J. FOR THE FIRE RATED WALL TO BE PENETRATED.
14. COORDINATE FINAL CONDUITS LOCATION WITH DUCTWORK.

DESCRIPTION	PHASE A KVA	PHASE B KVA	PHASE C KVA	POLE	TR	CKT NO	CKT NO	TR	POLE	PHASE A KVA	PHASE B KVA	PHASE C KVA	DESCRIPTION
DP-1D	59.33			3	400	1	2	1200	3	264.73			DP-E1D
		59.33									264.73		
			59.33									264.73	
SPARE				3	1200	3	4	1200	3	242.57			DP-ELS-4C
												242.57	
													242.57
CONNECTED LOAD	59.33	59.33	59.33							507.31	507.31	507.31	CONNECTED LOAD
PHASE A	566.64									EXISTING CONNECTED LOAD: 1584.70 KVA			
PHASE B	566.64									EXISTING ERU-1 & ERU-2 LOAD: 40.20 KVA			
PHASE C	566.64									DESIGN LOAD: 1699.92 KVA			
										ADDED LOAD: 115.82 KVA			
										TOTAL CURRENT: 2044.68 AMPS			
TOTAL CONNECTED LOAD	1699.92												

DESCRIPTION	PHASE A KVA	PHASE B KVA	PHASE C KVA	POLE	TR	CKT NO	CKT NO	TR	POLE	PHASE A KVA	PHASE B KVA	PHASE C KVA	DESCRIPTION
SF-1	33.33	33.33		3	225	1	2	15	3	0.67			EF-1
											0.67		
												0.67	
SF-2	33.33	33.33		3	225	3	4	40	3	5.00			EF-14
												5.00	
													5.00
SF-3	25.00			3	200	5	6	40	3	5.00			EF-15
												5.00	
													5.00
SF-4	25.00			3	200	7	8	40	3	5.00			EF-16
												5.00	
													5.00
SF-5	16.67			3	125	9	10	40	3	5.00			EF-17
												5.00	
													5.00
SF-6				3	125	11	12	40	3	5.00			EF-18 (ERU-1)
												5.00	
													5.00
LP-ELS-1B	9.20			3	100	13	14	40	3	5.00			EF-19 (ERU-2)
												5.00	
													5.00
LP-ELS-2B	5.20			3	100	15	16	60	3				SURGE SUPPRESSOR
LP-ELS-3B	7.37			3	100	17	18	X	3				MP-ELS-4D
LP-ELS-4B	4.77			3	100	19	20	225	3				SPARE
SPARE				3	100	21	22	100	3				SPARE
NEW - ERU-1	26.02			3	150	23	24	150	3	26.02			NEW - ERU-2
												26.02	
												26.02	
CONNECTED LOAD	185.89	185.89	185.89							56.69	56.69	56.69	CONNECTED LOAD
PHASE A	242.57									EXISTING CONNECTED LOAD: 571.70 KVA			
PHASE B	242.57									DESIGN LOAD: 727.72 KVA			
PHASE C	242.57									ADDED LOAD: 156.02 KVA			
										TOTAL CURRENT: 875.31 AMPS			
TOTAL CONNECTED LOAD	727.72												

NOTE: NOT ALL SYMBOLS APPLY TO THE PROJECT.



1 EXISTING PARTIAL ELECTRICAL ONE-LINE DIAGRAM
SCALE: N.T.S.

KEYED NOTES

- 1 EXISTING WIRES AND CONDUITS PER TILDEN, LOBNITZ & COOPER (LTC) AS-BUILT DRAWING E0.02 DATED 03/17/2003.
- 2 EXISTING BREAKERS WITH CIRCUITS 2,4,6 AND 8,10,12 TO BE LABELED SPARE BREAKERS AFTER EXISTING ERU-1 AND ERU-2 UNITS AND ELECTRICAL WIRING ARE REMOVED.
- 3 PROVIDE NEW 150A, 480V, 3-POLE BREAKERS IN EXISTING SPACES FOR NEW ERU UNITS IN PANEL "DP-ELS-4C". CONTRACTOR TO COORDINATE NEW BREAKER TYPE AND AIC RATING WITH EQUIPMENT MANUFACTURER.



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2400 33rd Street, Orlando, FL 32839
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No.	Date	Description

ISSUE LOG
PROFESSIONAL SEALS:

ANGEL E. LORENZO, P.E.
FLORIDA REG NO. 31137

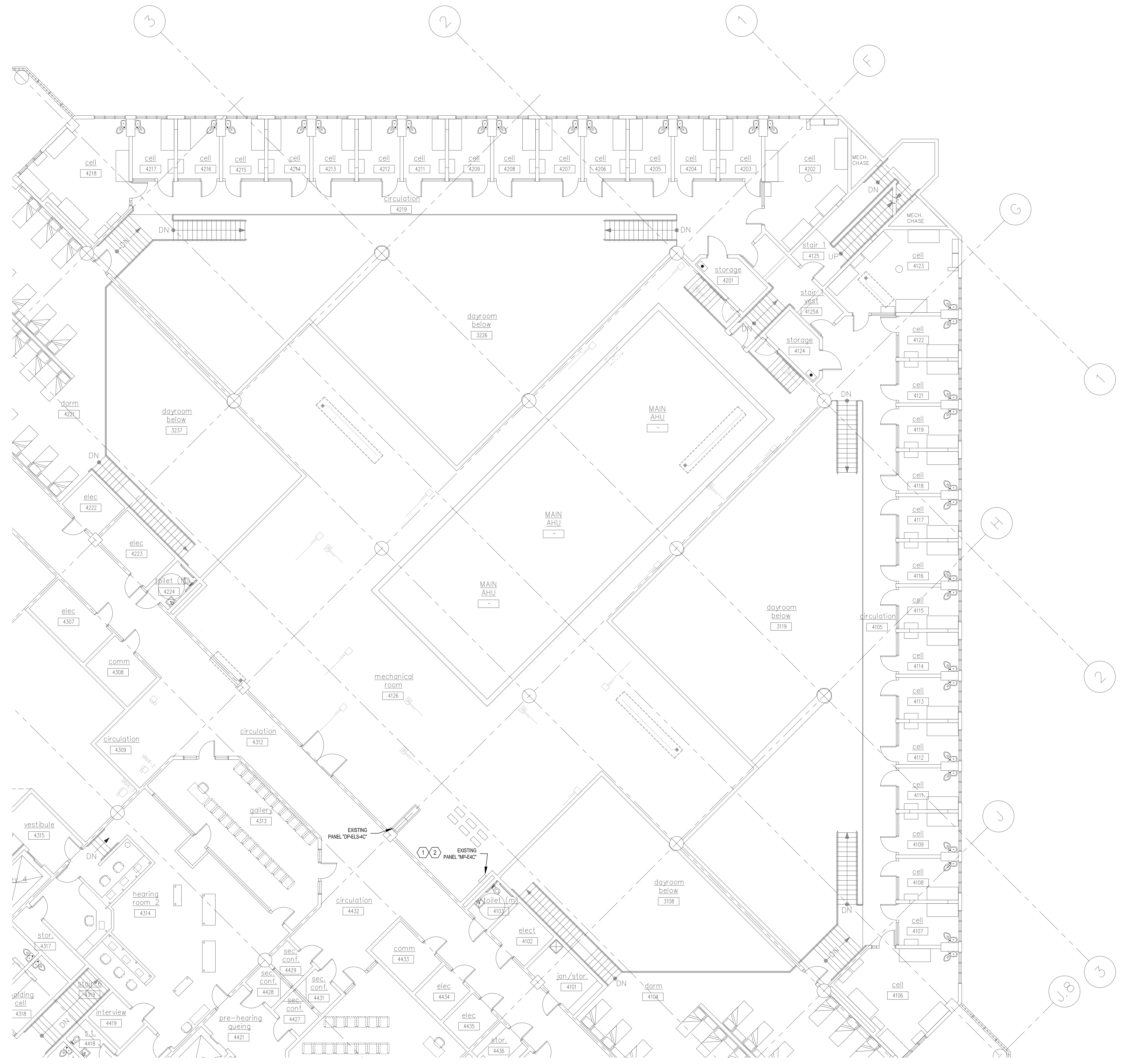
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ELECTRICAL LEGEND, SCHEDULES & ONE-LINE

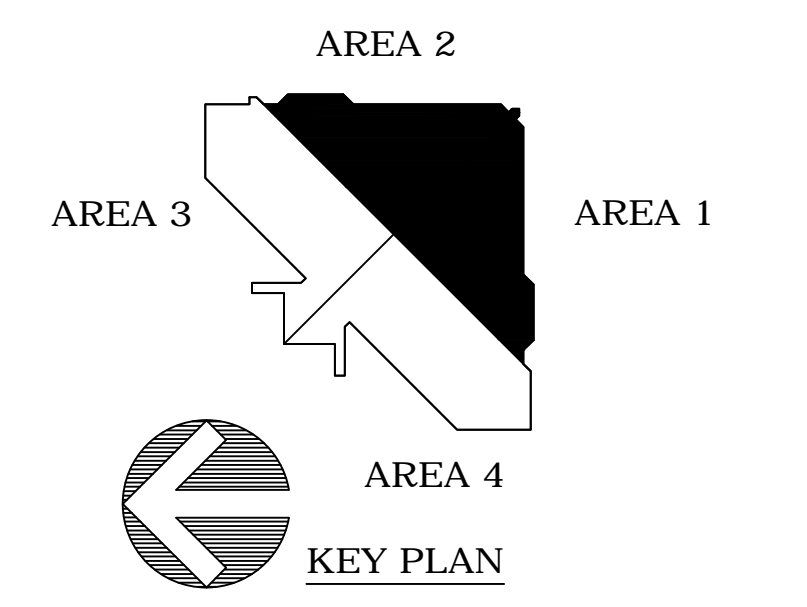
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Phase: 100% CD	

E-001

- KEYED NOTES:
- 1 APPROXIMATE LOCATION OF EXISTING PANEL "MP-E4C"
 - 2 DISCONNECT AND REMOVE EXISTING ERI-1 AND ERI-2 WIRING. REFER TO MECHANICAL DRAWINGS FOR MORE INFORMATION ON EQUIPMENT REMOVAL.



1 FOURTH FLOOR ELECTRICAL DEMOLITION PLAN - AREA 1 & 2
SCALE: 1/8" = 1'-0"



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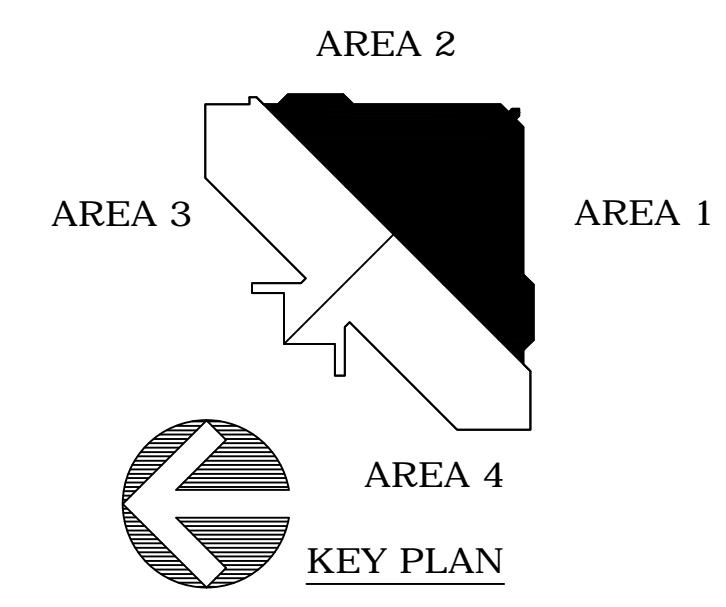
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ED-101

- GENERAL NOTES:
- ① REMOVE EXISTING ERL-1 AND ERL-2 ELECTRICAL WIRING BACK TO EXISTING PANEL "MPE-4C".
 - ② REMOVE EXISTING ERL-1 AND ERL-2 LIGHTING PROTECTION WIRING AND AIR TERMINALS FROM THE MECHANICAL ENCLOSURES. REFER TO MECHANICAL DRAWINGS FOR MORE INFORMATION ON EQUIPMENT REMOVAL.



1 ROOF ELECTRICAL DEMOLITION PLAN - AREA 1 & 2
SCALE: 1/8" = 1'-0"



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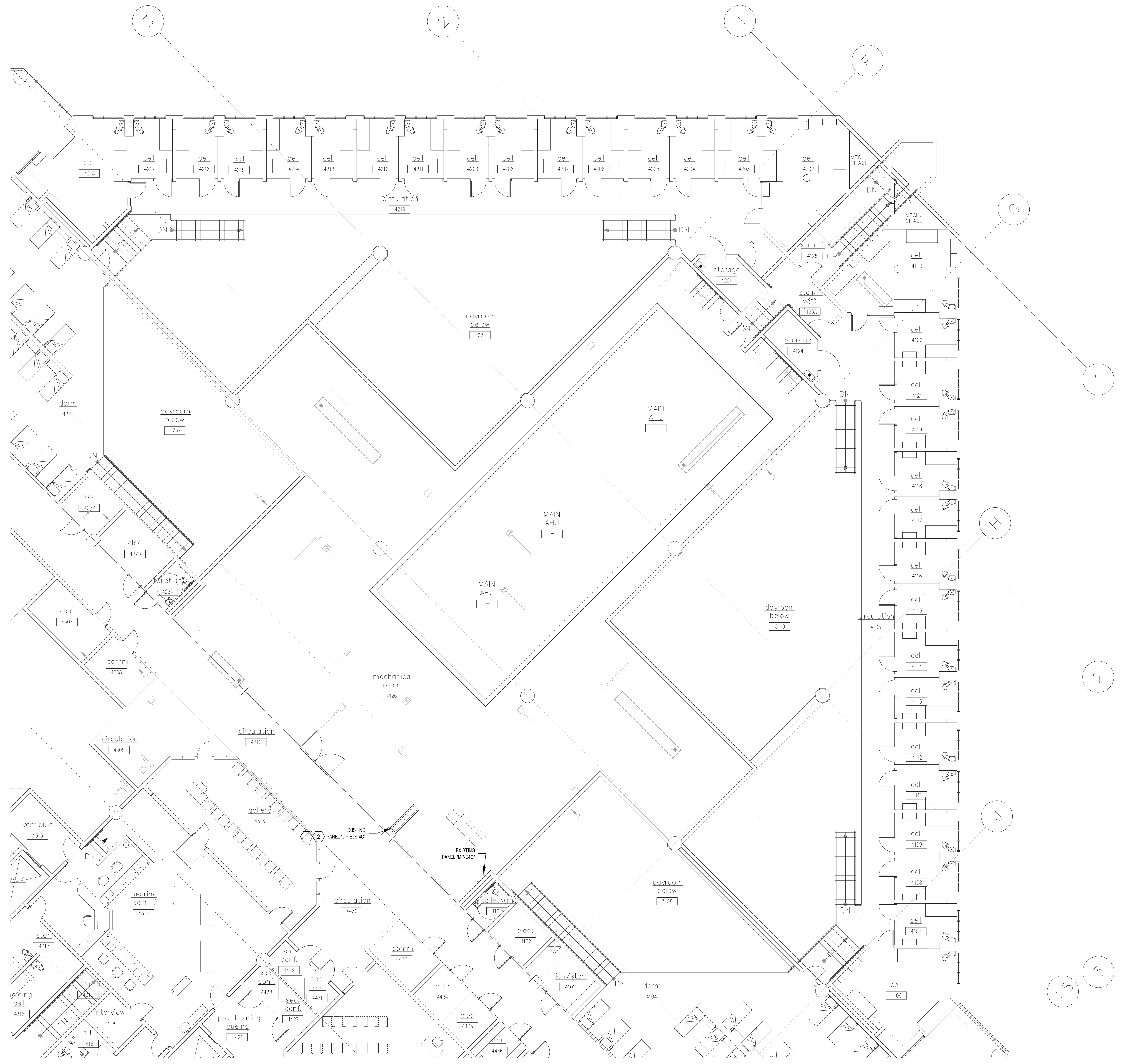
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DEMOLITION PLAN -
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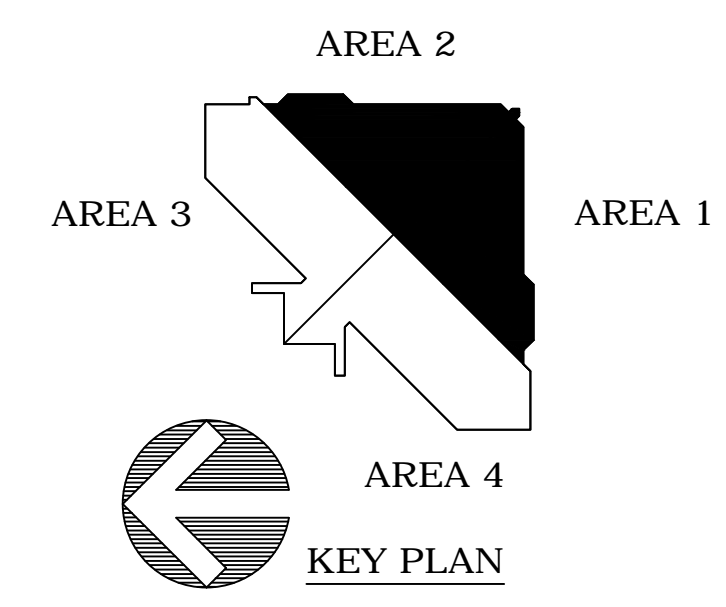
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ED-102

- KEYED NOTE:
- ① REMOVED THE TWO (2) EXISTING 100A, 480V, 3-POLE "SPARE" BREAKERS IN PANEL "DP-ELS-4C" SECTION #1. RETURN REMOVED BREAKERS TO OWNER.
 - ② PROVIDE NEW 150A, 480V, 3-POLE BREAKERS FOR NEW ERU UNITS. MATCH EXISTING MANUFACTURER BREAKER TYPES AND AIC RATING IN PANEL "DP-ELS-4C".



1 FOURTH FLOOR ELECTRICAL PLAN - AREA 1 & 2
SCALE: 1/8" = 1'-0"



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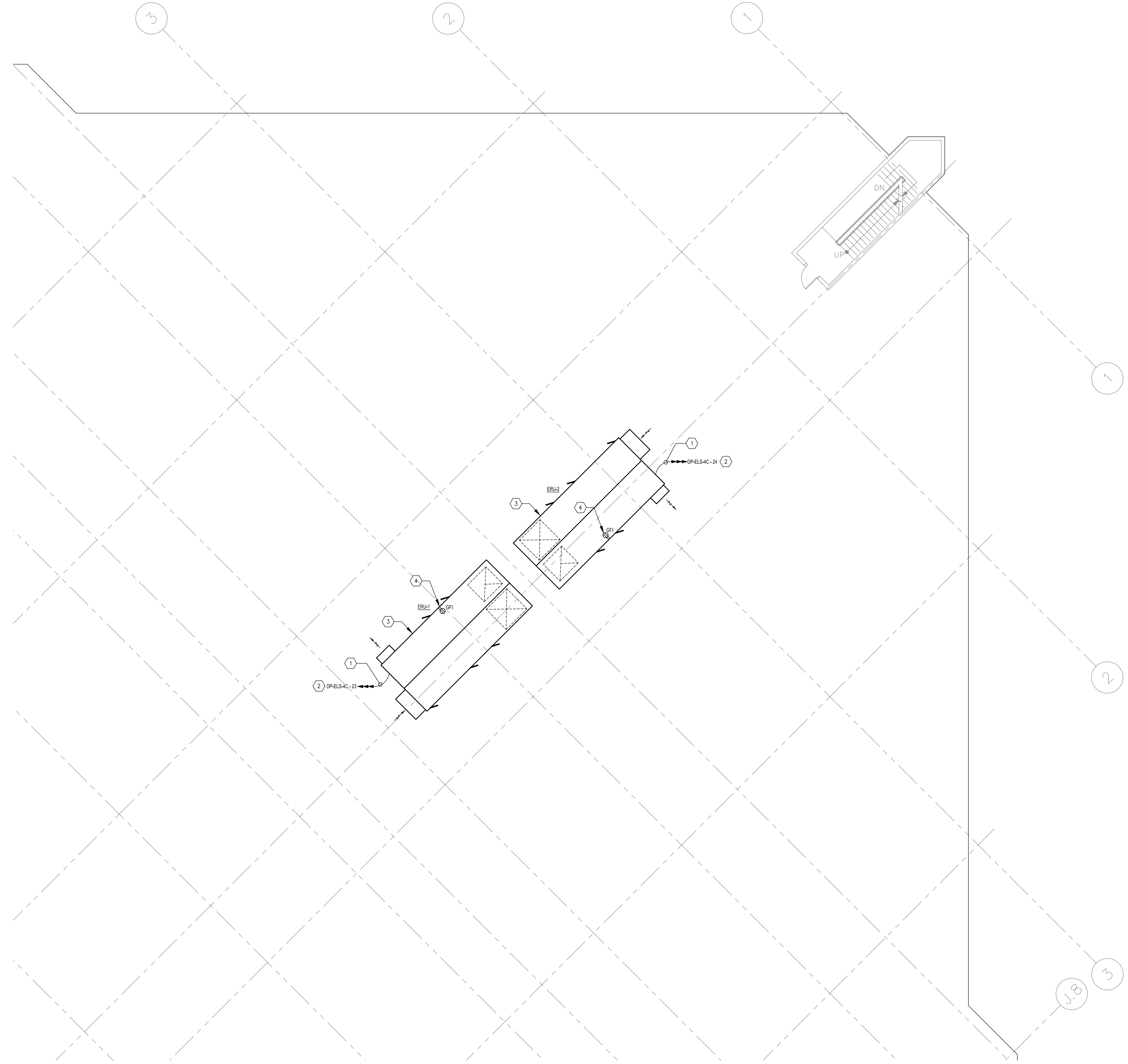
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**FOURTH FLOOR ELECTRICAL
PLAN - AREA 1 & 2**

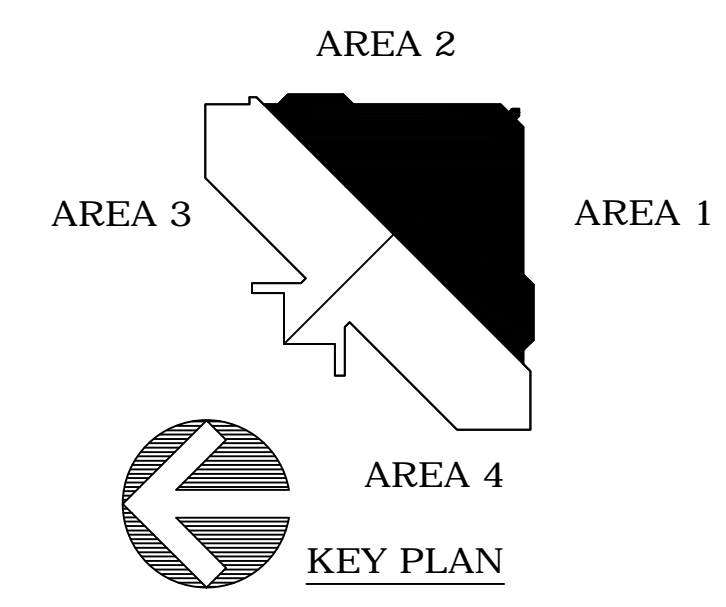
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E-101

- KEYED NOTES:**
- ① PROVIDE NEW 3/10 & 1/8 IN EXISTING 2" CONDUIT.
 - ② COORDINATE EXISTING CONDUIT STUB-UP LOCATION TO BE REUSED WITH NEW ERU1 AND ERU2 MECHANICAL UNITS. REFER TO MECHANICAL DRAWINGS FOR MORE INFORMATION ON EQUIPMENT INSTALL.
 - ③ CONTRACTOR TO INSTALL LIGHTNING PROTECTION WIRING AND AIR TERMINALS FOR NEW ERU1 AND ERU2 MECHANICAL ENCLOSURES. CONNECT TO EXISTING LIGHTNING PROTECTION SYSTEM AT ROOF. REFER TO SHEET E-201 FOR DETAILS.
 - ④ MAINTENANCE RECEPTACLE INTEGRAL TO ERU UNITS.



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SCALE: 1/8" = 1'-0"



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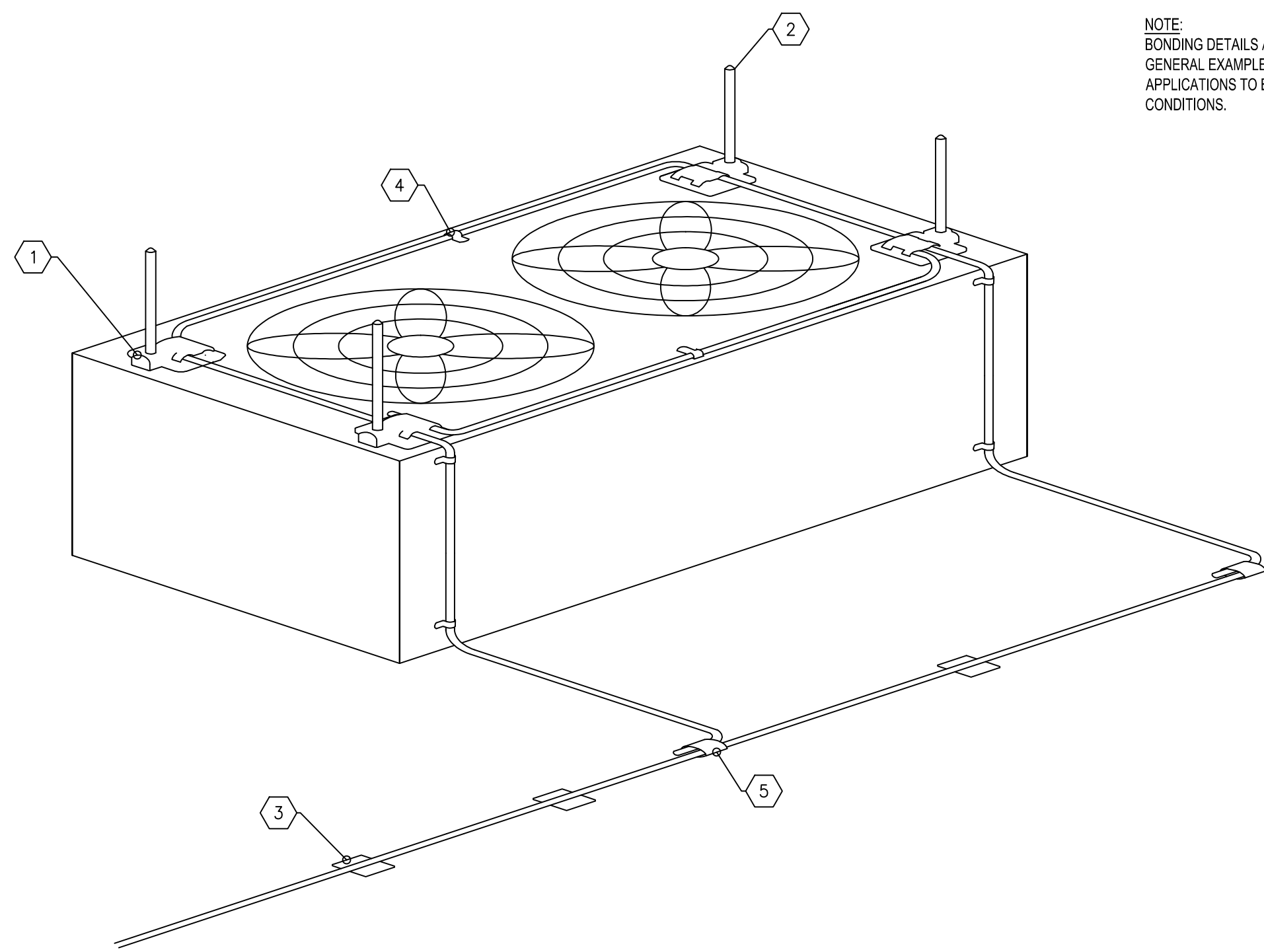
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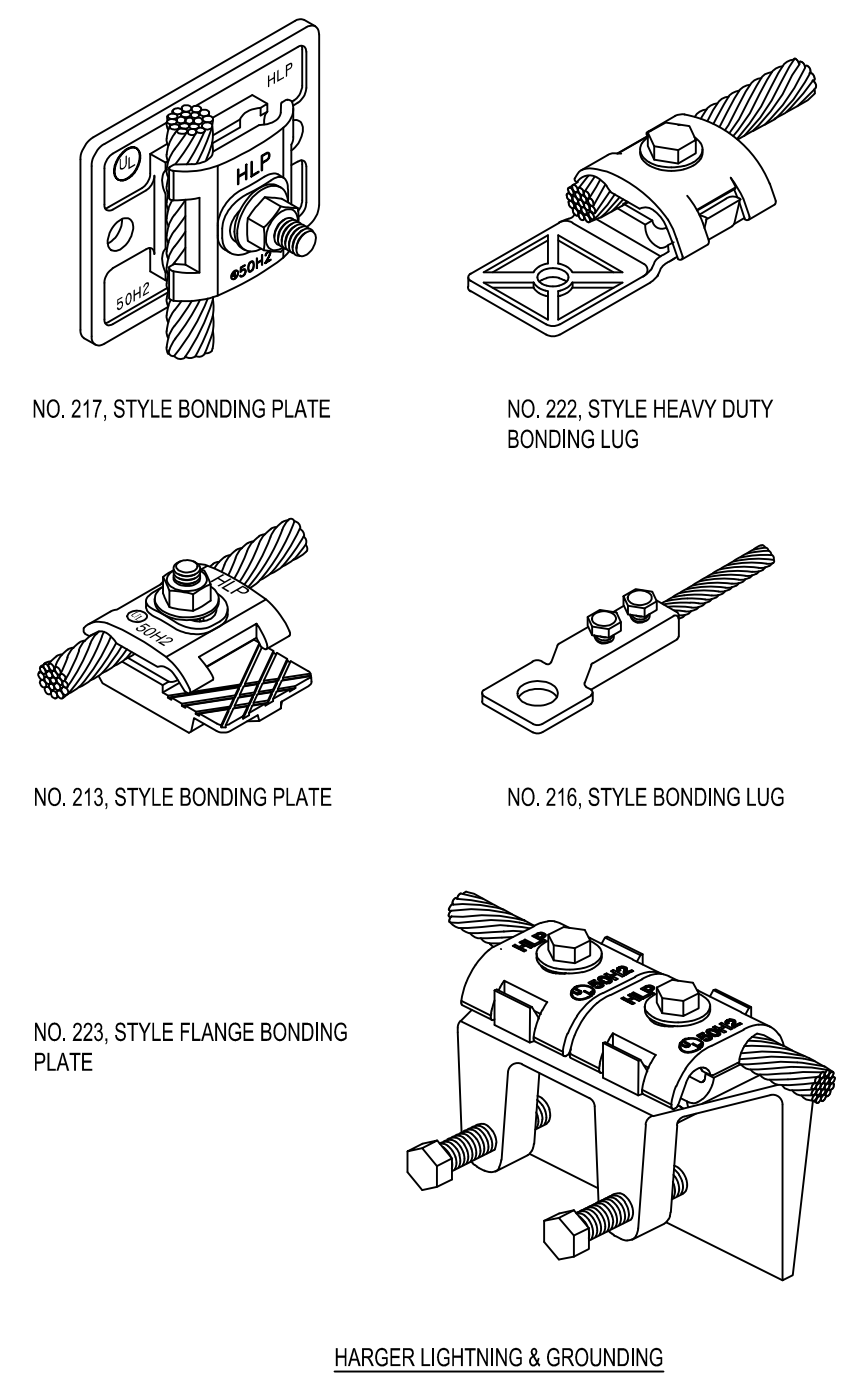
SHEET INFORMATION:	
JOB No. 100048251	Date Issued: APRIL 28, 2017
Designed By: JLA	Sheet Number:
Checked By: JP	E-102
OC Review: AEL	
Phase: 100% CD	



NOTE:
BONDING DETAILS AND AIR TERMINAL LOCATIONS SHOWN ARE TYPICAL.
GENERAL EXAMPLES ONLY. FINAL EXTENT OF BONDING AND SPECIFIC FITTING
APPLICATIONS TO BE DETERMINED IN FIELD BASED ON ACTUAL SITE
CONDITIONS.

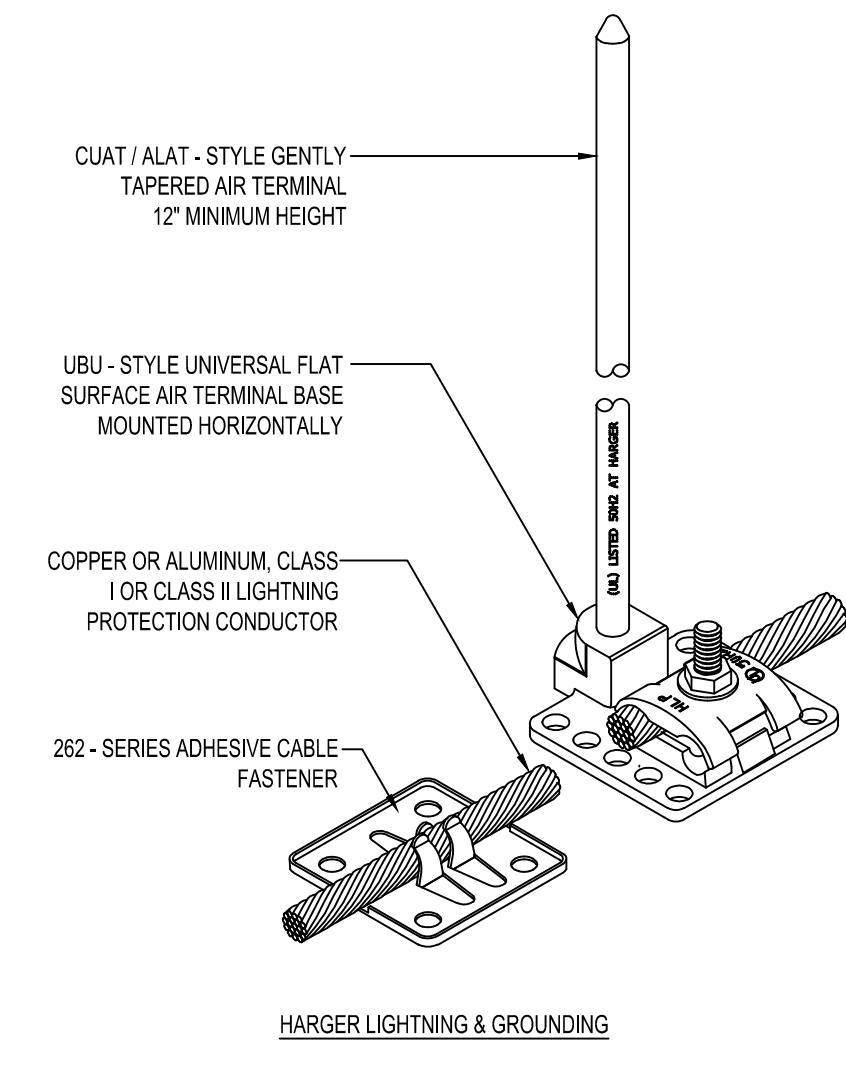
1 TYPICAL MECHANICAL EQUIPMENT LIGHTNING PROTECTION DETAIL
SCALE: N.T.S.

- KEYED NOTES:
- ① HORIZONTALLY MOUNTED AIR TERMINAL BASE. SEE AIR TERMINAL DETAIL.
 - ② AIR TERMINALS MOUNTED ON MECHANICAL EQUIPMENT ENCLOSURE.
 - ③ ADHESIVE CABLE HOLDER EVERY 3 FEET MAXIMUM SPACING.
 - ④ CABLE CLIP WITH STAINLESS STEEL SCREWS EVERY 3 FEET MAXIMUM SPACING.
 - ⑤ CABLE CONNECTOR.



HARGER LIGHTNING & GROUNDING

3 TYPICAL BONDING LUGS AND PLATES
SCALE: N.T.S.



HARGER LIGHTNING & GROUNDING

2 TYPICAL AIR TERMINAL BASE WITH 262
SCALE: N.T.S.

CONSULTANT:

CLIENT:



PROJECT NAME:

**Orange County Corrections Booking & Release
Center Energy Recovery Units Replacement**
2400 33rd Street, Orlando, FL 32839
100048251

No.	Date	Description

ISSUE LOG

PROFESSIONAL SEALS:

ANGEL E. LORENZO, P.E.
FLORIDA REG NO. 31137

SHEET TITLE:

ELECTRICAL DETAILS

SHEET INFORMATION:

JOB No. 100048251	Date Issued: APRIL 26, 2017
Designed By: JLA	Sheet Number:
Checked By: JP	E-201
OC Review: AEL	
Phase: 100% CD	